Practice: 101 - CNMP Design and Implementation Activity

Scenario: #7 - CNMP Revision

Scenario Description:

A Comprehensive Nutrient Management Plan (CNMP) will be revised to address changes in manure management, volume or analysis, plants and crops, or plant and crop management or to adjust the nutrient balance on an Animal Feeding Operation (AFO). No modifications are required to engineered practices in the farmstead/production area. This scenario is where the services of a professional engineer are typically not required. The producer may export a portion of manure or organic products from the farm. The producer has an animal production area and land applies nutrients.

Before Situation:

The owner/operator of an AFO has an existing written Comprehensive Nutrient Management Plan (CNMP) that addresses the current required resource concerns and client objectives present on the facility production area and land application areas. The CNMP is

After Situation:

Utilize a certified Technical Service Provider (TSP) to update the nutrient management plan and design planned agronomic conservation practices that address the handling, storage, and application of animal waste in an environmentally safe manner. Design and implementation will meet the general and additional applicable criteria found in each conservation practice. Design all agronomic conservation practices found in Comprehensive Nutrient Management Plan (CPA 102) or Conservation Plan that addresses the planned practices for land application of manure and nutrients, and the handling, transfer, storage and treatment of animal wastes. Management and conservation practices in the CNMP document delivered to the client ensure that, if implemented, the AFO will properly, within applicable NRCS standards and specifications, store, handle, and contain manure and wastewater materials generated by the AFO; dispose of AFO mortality; implement conservation practices to reduce soil erosion on land application areas to sustainable levels; land apply waste material nutrients in a manner than meets NRCS 590 Nutrient Management standard technical criteria. Use CEMA 226 and CEMA 227 if site feasibility and evaluation of existing storages are needed.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,861.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,861.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 101 - CNMP Design and Implementation Activity

Scenario: #23 - All Livestock Operations, No Land Application

Scenario Description:

Animal Feeding Operation (AFO) without land application. Use only if CEMA 226 is needed. The producer exports (material transferred to another owner with written documentation of the transfer) manure or organic products from the farm. The operation has an animal production area. Select applicable CPA 102 component for a complete CNMP

Before Situation:

Currently the production area does not meet NRCS quality criteria for water quality and soil erosion. Manure not frequently tested. Various levels of management and conservation implementation have occurred on the farm. Little documentation of the systems

After Situation:

Utilize a certified Technical Service Provider (TSP) to design planned conservation practices that address the handling and storage of animal waste in an environmentally safe manner. Design and implementation will meet the general and additional applicable criteria found in each conservation practice. Use only if CEMA 226 is needed. Management and conservation practices in the CNMP document delivered to the client ensure that, if implemented, the AFO will properly, within applicable NRCS standards and specifications, store, handle, and contain manure and wastewater materials generated by the AFO.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,115.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,115.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 101 - CNMP Design and Implementation Activity

Scenario: #39 - All Livestock Operations, Less Than or Equal to 300 Animal Units

Scenario Description:

All Animal Feeding Operation (AFO) currently less than 300 animal units (AU). The producer may export (material transferred to another owner with written documentation of the transfer) a portion of the manure or organic products from the farm. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Select applicable CPA 102 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current. Manure not frequently tested.

After Situation:

Utilize a certified Technical Service Provider (TSP) to complete a nutrient management plan and implementation specifications for conservation practices treating resource concerns and the application of animal waste in an environmentally safe manner on the production and land treatment areas. Design and implementation will meet the general and additional applicable criteria found in each conservation practice. Job sheets and implementation requirement documents found in State's eFOTG Section IV Conservation practices may be used. Complete Implementation Requirements or Job Sheets for all agronomic conservation practices found in Comprehensive Nutrient Management Plan (CPA 102) or Conservation Plan that address the planned practices for land application of manure and nutrients and treat identified resource concerns. Use CEMA 226 and CEMA 227 if site feasibility and evaluation of existing storages are needed.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,635.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,635.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 101 - CNMP Design and Implementation Activity

Scenario: #71 - All Livestock Operations, 301 to 700 Animal Units

Scenario Description:

All Animal Feeding Operation (AFO) currently greater than 300 animal units (AU) and less than 700 AU with land application. The producer may export (material transferred to another owner with written documentation of the transfer) a portion of the manure or organic products from the farm. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Select applicable CPA 102 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current. Manure not frequently tested.

After Situation:

Utilize a certified Technical Service Provider (TSP) to complete nutrient management plan and implementation specifications for conservation practices treating resource concerns and the application of animal waste in an environmentally safe manner on the production and land treatment areas. Design and implementation will meet the general and additional applicable criteria found in each conservation practice. Job sheets and implementation requirement documents found in State's eFOTG Section IV Conservation practices may be used. Complete Implementation Requirements or Job Sheets for all agronomic conservation practices found in Comprehensive Nutrient Management Plan (CPA 102) or Conservation Plan that address the planned practices for land application of manure and nutrients and treat identified resource concerns. Use CEMA 226 and CEMA 227 if site feasibility and evaluation of existing storages are needed.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,929.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,929.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 101 - CNMP Design and Implementation Activity

Scenario: #103 - All Livestock Operations, Greater Than 700 Animal Units

Scenario Description:

All Animal Feeding Operation (AFO) currently greater than 700 animal units (AU) with land application. The producer may export (material transferred to another owner with written documentation of the transfer) a portion of the manure or organic products from the farm. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Select applicable CPA 102 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current. Manure not frequently tested.

After Situation:

Utilize a certified Technical Service Provider (TSP) to complete a nutrient management plan and implementation specifications for conservation practices treating resource concerns and the application of animal waste in an environmentally safe manner on the production of land treatment areas. Design and implementation will meet the general and additional applicable criteria found in each conservation practice. Job sheets and implementation requirement documents found in State's eFOTG Section IV Conservation practices may be used. Complete Implementation Requirements or Job Sheets for all agronomic conservation practices found in Comprehensive Nutrient Management Plan (CPA 102) or Conservation Plan that address the planned practices for land application of manure and nutrients and treat identified resource concerns. Use CEMA 226 and CEMA 227 if site feasibility and evaluation of existing storages are needed.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,295.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,295.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #353 - Dairy Operations, 301 to 700 Animal Units

Scenario Description:

Dairy Animal Feeding Operation (AFO) greater than 300 but less than 700 animal units (AU) animal units (AU). The producer utilizes manure or organic products from the farm and may export a portion. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Use CEMA 226/227 if site evaluation and evaluation of existing components are needed. Select applicable DIA 101 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current or do not exist. Manure or Organic products are not frequently tested. The production area and land a

After Situation:

Utilize a CNMP Certified Technical Service Provider (TSP) to plan conservation practices that address the handling and storage of animal waste in an environmentally safe manner. CPA 102 - CNMP identifies the conservation practice solutions to all identified resource concerns on the AFO production area and land application areas. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,864.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,864.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #369 - Dairy Operations, Less Than or Equal to 300 Animal Units

Scenario Description:

Dairy Animal Feeding Operation (AFO) currently is less than 300 animal units (AU). The producer utilizes manure or organic products from the farm and may export a portion. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Use CEMA 226/227 if site evaluation and evaluation of existing components are needed. Select applicable DIA 101 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current or do not exist. Manure or Organic products are not frequently tested. The production area and land a

After Situation:

Utilize a CNMP Certified Technical Service Provider (TSP) to plan conservation practices that address the handling and storage of animal waste in an environmentally safe manner. CPA 102 - CNMP identifies the conservation practice solutions to all identified resource concerns on the AFO production area and land application areas. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,579.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,579.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #385 - Dairy Operations, No Land Application

Scenario Description:

Dairy Feeding Operation (AFO). The producer exports (material transferred to another owner with written documentation of the transfer) all manure or organic products from the farm. The operation has an animal production area only. There is no land treatment section, this plan would cover production only. Use CEMA 226/227 if site evaluation and evaluation of existing components are needed. Export only Plan, DIA 101 should not be used unless a CEMA 226 is needed.

Before Situation:

Currently the production area does not meet NRCS quality criteria for water quality. Manure or Organic products are not frequently tested. The production area does not meet NRCS quality criteria for water quality and soil erosion. The owner/operator of a

After Situation:

Utilize a CNMP certified Technical Service Provider (TSP) to plan conservation practices that address the handling, storage, and transfer of animal waste in an environmentally safe manner. CPA 102 -CNMP describes the conservation practice solutions to all identified resource concerns on the AFO production area. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,837.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,837.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #401 - Non-Dairy Livestock Operations, No Land Application

Scenario Description:

Animal Feeding Operation (AFO). The producer exports (material transferred to another owner with written documentation of the transfer) all manure or organic products from the farm. The operation has an animal production area only. There is no land treatment section, this plan would cover production only. Use CEMA 227 for evaluation of existing components, if needed. Export only Plan, DIA 101 should not be used unless CEMA 226 is needed.

Before Situation:

Currently the production area does not meet NRCS quality criteria for water quality. Manure or Organic products are not frequently tested. The production area does not meet NRCS quality criteria for water quality and soil erosion. The owner/operator of a

After Situation:

Utilize a CNMP certified Technical Service Provider (TSP) to plan conservation practices that address the handling, storage, and transfer of animal waste in an environmentally safe manner. CPA 102 -CNMP describes the conservation practice solutions to all identified resource concerns on the AFO production area. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,606.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,606.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #417 - Non-Dairy Operations, Greater Than 700 Animal Units

Scenario Description:

Animal Feeding Operation (AFO) currently is greater than 700 animal units (AU). The producer utilizes manure or organic products from the farm and may export a portion. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Use CEMA 226/227 if site evaluation and evaluation of existing components are needed. Select applicable DIA 101 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current or do not exist. Manure or Organic products are not frequently tested. The production area and land a

After Situation:

Utilize a CNMP Certified Technical Service Provider (TSP) to plan conservation practices that address the handling and storage of animal waste in an environmentally safe manner. CPA 102 - CNMP identifies the conservation practice solutions to all identified resource concerns on the AFO production area and land application areas. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,726.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,726.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #433 - Non-Dairy Livestock Operations, 301 to 700 Animal Units

Scenario Description:

Animal Feeding Operation (AFO) currently is greater than 300 but less than 700 animal units (AU). The producer utilizes manure or organic products from the farm and may export a portion. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Use CEMA 226/227 if site evaluation and evaluation of existing components are needed. Select applicable DIA 101 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current or do not exist. Manure or Organic products are not frequently tested. The production area and land a

After Situation:

Utilize a CNMP Certified Technical Service Provider (TSP) to plan conservation practices that address the handling and storage of animal waste in an environmentally safe manner. CPA 102 - CNMP identifies the conservation practice solutions to all identified resource concerns on the AFO production area and land application areas. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,011.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,011.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #449 - Non-Dairy Livestock Operations, Less Than or Equal to 300 Animal Units

Scenario Description:

Animal Feeding Operation (AFO) currently is less than 300 animal units (AU). The producer utilizes manure or organic products from the farm and may export a portion. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Use CEMA 226/227 if site evaluation and evaluation of existing components are needed. Select applicable DIA 101 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current or do not exist. Manure or Organic products are not frequently tested. The production area and land a

After Situation:

Utilize a CNMP Certified Technical Service Provider (TSP) to plan conservation practices that address the handling and storage of animal waste in an environmentally safe manner. CPA 102 - CNMP identifies the conservation practice solutions to all identified resource concerns on the AFO production area and land application areas. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,551.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,551.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 102 - Comprehensive Nutrient Management Plan

Scenario: #465 - Dairy Operations, Greater Than 700 Animal Units

Scenario Description:

Dairy Animal Feeding Operation (AFO) greater than 700 animal units (AU). The producer utilizes manure or organic products from the farm and may export a portion. The operation has an animal production area, cropland, and applies most nutrients (manure and commercial fertilizers). Use CEMA 226/227 if site evaluation and evaluation of existing components are needed. Select applicable DIA 101 component for a complete CNMP.

Before Situation:

Currently the production area and land application areas do not meet NRCS quality criteria for water quality and soil erosion. Soil tests are not current or do not exist. Manure or Organic products are not frequently tested. The production area and land a

After Situation:

Utilize a CNMP Certified Technical Service Provider (TSP) to plan conservation practices that address the handling and storage of animal waste in an environmentally safe manner. CPA 102 - CNMP identifies the conservation practice solutions to all identified resource concerns on the AFO production area and land application areas. Production, collection, transfer, treatment, and storage of manure and wastewater systems, mortality management facilities, as well as any rainfall or runoff diversion systems will be inventoried-evaluated and planned for adequacy according to applicable NRCS conservation practice standard technical criteria. Decisions presented within the CNMP have been made to mitigate, if feasible, negative air quality impacts and improve farmland safety and security.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,579.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,579.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 106 - Forest Management Plan

Scenario: #56 - Nonindustrial Private Forest, Less Than or Equal to 20 Acres

Scenario Description:

Nonindustrial Private Forest Land typically unmanaged or limited management activities. Typical site is approximately 1 to 20 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands without an existing forest management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan. A Forest Management Plan or Conservation Plan Activities (CPA), as de

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Conservation Plan Activities (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Forest Management CPA is not considered a Forest Harvest Plan, but should complement the needs for harvest if desired by the land user. Additional CPA plan criteria is detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,610.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,610.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 106 - Forest Management Plan

Scenario: #57 - Nonindustrial Private Forest, 21 to 100 Acres

Scenario Description:

Nonindustrial Private Forest Land typically unmanaged or limited management activities. Typical site is approximately 21 to 100 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands without an existing forest management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan. A Forest Management Plan or Conservation Plan Activities (CPA), as de

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Conservation Plan Activities (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Forest Management CPA is not considered a Forest Harvest Plan, but should complement the needs for harvest if desired by the land user. Additional CPA plan criteria is detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,372.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,372.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 106 - Forest Management Plan

Scenario: #58 - Nonindustrial Private Forest, 101 to 250 Acres

Scenario Description:

Nonindustrial Private Forest Land typically unmanaged or limited management activities. Typical site is approximately 101 to 250 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands without an existing forest management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan. A Forest Management Plan or Conservation Plan Activities (CPA), as de

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Conservation Plan Activities (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Forest Management CPA is not considered a Forest Harvest Plan, but should complement the needs for harvest if desired by the land user. Additional CPA plan criteria is detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,898.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,898.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 106 - Forest Management Plan

Scenario: #59 - Nonindustrial Private Forest, Greater Than 1,000 Acres

Scenario Description:

Nonindustrial Private Forest Land typically unmanaged or limited management activities. Typical site is approximately 1001 acres or greater in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands without an existing forest management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan. A Forest Management Plan or Conservation Plan Activities (CPA), as de

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Conservation Plan Activities (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Forest Management CPA is not considered a Forest Harvest Plan, but should complement the needs for harvest if desired by the land user. Additional CPA plan criteria is detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,151.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,151.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 106 - Forest Management Plan

Scenario: #60 - Nonindustrial Private Forest, 251 to 500 Acres

Scenario Description:

Nonindustrial Private Forest Land typically unmanaged or limited management activities. Typical site is approximately 251 to 500 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands without an existing forest management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan. A Forest Management Plan or Conservation Plan Activities (CPA), as de

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Conservation Activity Plan (CPA). The CPA requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Forest Management CPA is not considered a Forest Harvest Plan, but should complement the needs for harvest if desired by the land user. Additional CPA plan requirements are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,762.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,762.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 106 - Forest Management Plan

Scenario: #61 - Nonindustrial Private Forest, 501 to 1,000 Acres

Scenario Description:

Nonindustrial Private Forest Land typically unmanaged or limited management activities. Typical site is approximately 501 to 1000 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands without an existing forest management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan. A Forest Management Plan or Conservation Plan Activities (CPA), as de

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Conservation Plan Activities (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Forest Management CPA is not considered a Forest Harvest Plan, but should complement the needs for harvest if desired by the land user. Additional CPA plan criteria is detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,033.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,033.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 110 - Grazing Management Plan

Scenario: #73 - Grazed Lands, 101 to 500 Acres

Scenario Description:

Site specific conservation plan for grazed lands for an agricultural operation with 101 to 500 acres grazed land. Natural Resource Concern: Soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of management of livestock or other animals on grazed land resources. The producer currently manages animals without a plan to address identified natural resource concerns. Producer is interested in management of

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Conservation Planning Activity (CPA) plan for grazing lands. The CPA requires the plan to meet the General Requirements (steps 1-7) of the planning process. Step 1- Identify Problems and Opportunities, Step 2- Determine Objectives, Step 3-Inventory Resources, Step 4-Analyze Resource Data, Step 5-Formulate Alternatives, Step 6-Evaluate Alternatives, and Step 7-Make Decisions (Select Preferred Alternative).

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,141.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,141.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 110 - Grazing Management Plan

Scenario: #89 - Grazed Lands, Less Than or Equal to 100 Acres

Scenario Description:

Site specific conservation plan for agricultural operation with less than 100 acres grazed land. The plan will address the following natural resource concerns: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of management of livestock or other animals on grazed land resources. The producer currently manages animals without a plan to address identified natural resource concerns. Producer is interested in management of

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Conservation Planning Activity (CPA) plan for grazing lands. The CPA requires the plan to meet the General Requirements (steps 1-7) of the planning process. Step 1- Identify Problems and Opportunities, Step 2- Determine Objectives, Step 3-Inventory Resources, Step 4-Analyze Resource Data, Step 5-Formulate Alternatives, Step 6-Evaluate Alternatives, and Step 7-Make Decisions (Select Preferred Alternative). The plan may include recommendations for associated conservation practices which address other related resource concerns. The CPA meets the basic quality criteria for the CPA 110 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,513.43

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,513.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 110 - Grazing Management Plan

Scenario: #105 - Grazed Lands, 501 to 1,500 Acres

Scenario Description:

Site specific conservation plan for grazed lands for an agricultural operation with 501 to 1,500 acres of grazed land. The plan will address the following natural resource concerns: soil erosion, water quality, fish and wildlife, plant condition and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of management of livestock or other animals on grazed land resources. The producer currently manages animals without a plan to address identified natural resource concerns. Producer is interested in management of

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Conservation Planning Activity (CPA) plan for grazing lands. The CPA requires the plan to meet the General Requirements (steps 1-7) of the planning process. Step 1- Identify Problems and Opportunities, Step 2- Determine Objectives, Step 3-Inventory Resources, Step 4-Analyze Resource Data, Step 5-Formulate Alternatives, Step 6-Evaluate Alternatives, and Step 7-Make Decisions (Select Preferred Alternative). The plan may include recommendations for associated conservation practices which address other related resource concerns. The CPA meets the basic quality criteria for the CPA 110 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,770.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,770.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 110 - Grazing Management Plan

Scenario: #121 - Grazed Lands, 1,501 to 5,000 Acres

Scenario Description:

Site specific conservation plan for grazed lands for an agricultural operation with 1,501 to 5,000 acres grazed land. The following natural resource concerns will be addressed: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of management of livestock or other animals on grazed land resources. The producer currently manages animals without a plan to address identified natural resource concerns. Producer is interested in management of

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Conservation Planning Activity (CPA) plan for grazing lands. The CPA requires the plan to meet the General Requirements (steps 1-7) of the planning process. Step 1- Identify Problems and Opportunities, Step 2- Determine Objectives, Step 3-Inventory Resources, Step 4-Analyze Resource Data, Step 5-Formulate Alternatives, Step 6-Evaluate Alternatives, and Step 7-Make Decisions (Select Preferred Alternative). The plan may include recommendations for associated conservation practices which address other related resource concerns. The CPA meets the basic quality criteria for the CPA 110 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,398.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,398.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 110 - Grazing Management Plan

Scenario: #137 - Grazed Lands, 5,001 to 10,000 Acres

Scenario Description:

Site specific conservation plan for grazed lands for an agricultural operation with 5,001 to 10,000 acres grazed land. The following natural resource concerns will be addressed: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of management of livestock or other animals on grazed land resources. The producer currently manages animals without a plan to address identified natural resource concerns. Producer is interested in management of

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Conservation Planning Activity (CPA) plan for grazing lands. The CPA requires the plan to meet the General Requirements (steps 1-7) of the planning process. Step 1- Identify Problems and Opportunities, Step 2- Determine Objectives, Step 3-Inventory Resources, Step 4-Analyze Resource Data, Step 5-Formulate Alternatives, Step 6-Evaluate Alternatives, and Step 7-Make Decisions (Select Preferred Alternative). The plan may include recommendations for associated conservation practices which address other related resource concerns. The CPA meets the basic quality criteria for the CPA 110 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,026.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,026.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 110 - Grazing Management Plan

Scenario: #153 - Grazed Lands, Greater Than 10,000 Acres

Scenario Description:

Site specific conservation plan for grazed lands for an agricultural operation with greater than 10,000 acres grazed land. The following natural resource concerns will be addressed: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of management of livestock or other animals on grazed land resources. The producer currently manages animals without a plan to address identified natural resource concerns. Producer is interested in management of

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Conservation Planning Activity (CPA) plan for grazing lands. The CPA requires the plan to meet the General Requirements (steps 1-7) of the planning process. Step 1- Identify Problems and Opportunities, Step 2- Determine Objectives, Step 3-Inventory Resources, Step 4-Analyze Resource Data, Step 5-Formulate Alternatives, Step 6-Evaluate Alternatives, and Step 7-Make Decisions (Select Preferred Alternative). The plan may include recommendations for associated conservation practices which address other related resource concerns. The CPA meets the basic quality criteria for the CPA 110 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,655.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,655.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #87 - Organic Crops and Livestock Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for fewer than 5 Soil Health Management Units (SHMU) for organic crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,922.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,922.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #103 - Organic Crops Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for 5 or more Soil Health Management Units (SHMU) for organic crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,751.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,751.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #119 - Small Farm, Less Than or Equal to 10 Acres

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for a small farm (<10 acres).

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,719.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,719.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #135 - Organic Crops and Livestock Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for 5 or more Soil Health Management Units (SHMU) for organic crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,094.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,094.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #151 - Crops and Livestock Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for 5 or more Soil Health Management Units (SHMU) for crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,579.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,579.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #167 - Crops and Livestock Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for fewer than 5 Soil Health Management Units (SHMU) for crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,063.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,063.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #183 - Organic Crops Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for fewer than 5 Soil Health Management Units (SHMU) for organic crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,235.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,235.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #199 - Crops Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for 5 or more Soil Health Management Units (SHMU) for crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,407.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,407.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 116 - Soil Health Management Plan

Scenario: #215 - Crops Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for fewer than 5 Soil Health Management Units (SHMU) for crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

The producer currently manages without an existing soil health management plan, or with an outdated plan. Resource concerns exist which are not addressed by a management plan.

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of a Soil Health Conservation Plan Activity (CPA). The CPA criteria requires the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,891.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,891.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #7 - High Complexity, Greater Than or Equal to Six Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for retrofits that impose several variables in the design process. The scenarios may involve a change in service levels that cannot be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a “High Complexity” system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 30% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to two or more of the electrical, mechanical, plumbing, or structural systems. 4) Complex analysis to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a detailed simulation is required to determine systems sizing and layout.) “High Complexity” practice scenarios include but are not limited to: comprehensive lighting system redesign; radiant heating systems; convert to tunnel ventilation; or convert to bench heating. Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than five practices are contracted, then, at a minimum, “6+ Designs” shall be contracted for the Ag Energy DIA. Use this scenario if at least one design is deemed high complexity. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $11,068.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,068.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #23 - Medium Complexity, Greater Than or Equal to Six Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for retrofits that impose some variables in the design process. The scenarios may involve a change in service levels that can be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a “Medium Complexity” system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 10% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to either electrical, mechanical, plumbing, or structural systems. 4) Analysis beyond the scope of NRCS methodology to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a simplified heat transfer model to determine heating, ventilation, and cooling loads may be required if existing device capacity cannot be estimated.) “Medium Complexity” practice scenarios include but are not limited to: change of lighting fixture counts or layout; wall insulation; grain dryers; add reverse osmosis to syrup production; or add evaporative cooling systems (cooling cells). Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than five practices are contracted, then, at a minimum, “6+ Designs” shall be contracted for the Ag Energy DIA. If at least 1 scenario is more complex than indicated herein, use an alternate scenario for contracting. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,553.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,553.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #39 - Low Complexity, Greater Than or Equal to Six Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for one-to-one device retrofits. The scenario(s) may provide for a new component to modify the operation of an existing device (e.g., timer to reduce run-time). Three factors typically indicate a “Low Complexity” system, as follows. 1) New devices maintain output (hp, Btu/hr., lux, etc.) of the old devices within a roughly 10% range. 2) New devices are installed in the same location as the old devices. 3) The retrofit does not require substantive changes to electrical, mechanical, plumbing, or structural systems. “Low Complexity” practice scenarios include but are not limited to: lamp or fixture upgrades; attic insulation; fans; or washer-extractors. Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than five practices are contracted, then, at a minimum, “6+ Designs” shall be contracted for the Ag Energy DIA. If at least 1 scenario is more complex than indicated herein, use an alternate scenario for contracting. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,038.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,038.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #55 - High Complexity, Four to Five Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for retrofits that impose several variables in the design process. The scenarios may involve a change in service levels that cannot be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a “High Complexity” system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 30% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to two or more of the electrical, mechanical, plumbing, or structural systems. 4) Complex analysis to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a detailed simulation is required to determine systems sizing and layout.) “High Complexity” practice scenarios include but are not limited to: comprehensive lighting system redesign; radiant heating systems; convert to tunnel ventilation; or convert to bench heating. Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than three practices are contracted, then, at a minimum, “4-5 Designs” shall be contracted for the Ag Energy DIA. Use this scenario if at least one design is deemed high complexity. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,407.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,407.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #71 - Medium Complexity, Four to Five Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for retrofits that impose some variables in the design process. The scenarios may involve a change in service levels that can be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a “Medium Complexity” system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 10% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to either electrical, mechanical, plumbing, or structural systems. 4) Analysis beyond the scope of NRCS methodology to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a simplified heat transfer model to determine heating, ventilation, and cooling loads may be required if existing device capacity cannot be estimated.) “Medium Complexity” practice scenarios include but are not limited to: change of lighting fixture counts or layout; wall insulation; grain dryers; add reverse osmosis to syrup production; or add evaporative cooling systems (cooling cells). Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than three practices are contracted, then, at a minimum, “4-5 Designs” shall be contracted for the Ag Energy DIA. If at least 1 scenario is more complex than indicated herein, use an alternate scenario for contracting. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,892.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,892.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #87 - Low Complexity, Four to Five Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for one-to-one device retrofits. The scenario(s) may provide for a new component to modify the operation of an existing device (e.g., timer to reduce run-time). Three factors typically indicate a “Low Complexity” system, as follows. 1) New devices maintain output (hp, Btu/hr., lux, etc.) of the old devices within a roughly 10% range. 2) New devices are installed in the same location as the old devices. 3) The retrofit does not require substantive changes to electrical, mechanical, plumbing, or structural systems. “Low Complexity” practice scenarios include but are not limited to: lamp or fixture upgrades; attic insulation; fans; or washer-extractors. Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than three practices are contracted, then, at a minimum, “4-5 Designs” shall be contracted for the Ag Energy DIA. If at least 1 scenario is more complex than indicated herein, use an alternate scenario for contracting. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,378.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,378.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #103 - High Complexity, Two to Three Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for retrofits that impose several variables in the design process. The scenarios may involve a change in service levels that cannot be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a “High Complexity” system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 30% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to two or more of the electrical, mechanical, plumbing, or structural systems. 4) Complex analysis to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a detailed simulation is required to determine systems sizing and layout.) “High Complexity” practice scenarios include but are not limited to: comprehensive lighting system redesign; radiant heating systems; convert to tunnel ventilation; or convert to bench heating. Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than one practice is contracted, then, at a minimum, “2-3 Designs” shall be contracted for the Ag Energy DIA. Use this scenario if at least one design is deemed high complexity. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,746.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,746.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #119 - Medium Complexity, Two to Three Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for retrofits that impose some variables in the design process. The scenarios may involve a change in service levels that can be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a "Medium Complexity" system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 10% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to either electrical, mechanical, plumbing, or structural systems. 4) Analysis beyond the scope of NRCS methodology to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a simplified heat transfer model to determine heating, ventilation, and cooling loads may be required if existing device capacity cannot be estimated.) "Medium Complexity" practice scenarios include but are not limited to: change of lighting fixture counts or layout; wall insulation; grain dryers; add reverse osmosis to syrup production; or add evaporative cooling systems (cooling cells). Each "Design" indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than one practice is contracted, then, at a minimum, "2-3 Designs" shall be contracted for Energy DIA. If at least 1 scenario is more complex than indicated herein, use an alternate scenario for contracting. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client's final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client's decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,232.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,232.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #135 - Low Complexity, Two to Three Designs

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with multiple energy practice scenarios. Associated scenario(s) provide for one-to-one device retrofits. The scenario(s) may provide for a new component to modify the operation of an existing device (e.g., timer to reduce run-time). Three factors typically indicate a “Low Complexity” system, as follows. 1) New devices maintain output (hp, Btu/hr., lux, etc.) of the old devices within a roughly 10% range. 2) New devices are installed in the same location as the old devices. 3) The retrofit does not require substantive changes to electrical, mechanical, plumbing, or structural systems. “Low Complexity” practice scenarios include but are not limited to: lamp or fixture upgrades; attic insulation; fans; or washer-extractors. Each “Design” indicates that new devices or components are closely related to other devices or components even if numerous scenarios are contracted. If more than one practice is contracted, then, at a minimum, “2-3 Designs” shall be contracted for the Ag Energy DIA. If at least 1 scenario is more complex than indicated herein, use an alternate scenario for contracting. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,717.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,717.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #151 - High Complexity, One Design

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with at least one (1) energy practice scenario. Associated scenario(s) provide for retrofits that impose several variables in the design process. The scenarios may involve a change in service levels that cannot be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a “High Complexity” system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 30% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to two or more of the electrical, mechanical, plumbing, or structural systems. 4) Complex analysis to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a detailed simulation is required to determine systems sizing and layout.) “High Complexity” practice scenarios include but are not limited to: comprehensive lighting system redesign; radiant heating systems; convert to tunnel ventilation; or convert to bench heating. “One Design” indicates that each new device or component is closely related to other devices or components even if numerous scenarios are contracted. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,086.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,086.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #167 - Medium Complexity, One Design

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with at least one (1) energy practice scenario. Associated scenario(s) provide for retrofits that impose some variables in the design process. The scenarios may involve a change in service levels that can be evaluated or designed through use of simple tools or manual calculations. Four factors typically indicate a "Medium Complexity" system, as follows. 1) Client objectives require a change of output (hp, Btu/hr., lux, etc.) that varies more than about 10% from old devices. 2) System constraints prevent new devices from being installed in the same location as the old devices. 3) The retrofit requires substantive changes to either electrical, mechanical, plumbing, or structural systems. 4) Analysis beyond the scope of NRCS methodology to evaluate alternatives is required to confirm level of service and appropriate device output, placement, etc. (For example, a simplified heat transfer model to determine heating, ventilation, and cooling loads may be required if existing device capacity cannot be estimated.) "Medium Complexity" practice scenarios include but are not limited to: change of lighting fixture counts or layout; wall insulation; grain dryers; add reverse osmosis to syrup production; or add evaporative cooling systems (cooling cells). "One Design" indicates that each new device or component is closely related to other devices or components even if numerous scenarios are contracted. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client's final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client's decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,571.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,571.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 120 - Agricultural Energy Design

Scenario: #183 - Low Complexity, One Design

Scenario Description:

An agricultural producer wishes to conserve energy through an EQIP contract with at least one (1) energy practice scenario. Associated scenario(s) provide for one-to-one device retrofits. The scenario(s) may provide for a new component to modify the operation of an existing device (e.g., timer to reduce run-time). Three factors typically indicate a “Low Complexity” system, as follows. 1) New devices maintain output (hp, Btu/hr., lux, etc.) of the old devices within a roughly 10% range. 2) New devices are installed in the same location as the old devices. 3) The retrofit does not require substantive changes to electrical, mechanical, plumbing, or structural systems. “Low Complexity” practice scenarios include but are not limited to: lamp or fixture upgrades; attic insulation; fans; or washer-extractors. “One Design” indicates that each new device or component is closely related to other devices or components even if numerous scenarios are contracted. The Ag Energy DIA includes reviewing, and, when needed, revising alternatives to address energy concerns. The Ag Energy DIA documents: a) the client’s final decisions related to the associated energy practice scenarios, b) estimated energy and greenhouse gas benefits; and c) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer wants to transition their agricultural operation to become more energy efficient. Producer intends to work with a certified TSP to develop designs to implement one or more practice scenarios to address Energy Efficiency resource concerns using th

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Ag Energy DIA. The DIA 120 criteria include tasks needed to document the client’s decision, energy savings and design of conservation practices which address energy efficiency. The Ag Energy DIA meets the quality criteria for the DIA 120 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,057.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,057.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 138 - Conservation Plan Supporting Organic Transition

Scenario: #16 - Supporting Organic Transition for Crops and Livestock

Scenario Description:

Agricultural operation where producer will transition from conventional to organic to meet USDA National Organic Program (NOP) requirements. Natural Resource Concern: Soil Erosion, Water Quality, Plant Condition, and other identified natural resource concerns.

Before Situation:

Agricultural operation currently managed using traditional and conventional methods for farming and/or ranching mixed operation of crops and livestock. The producer currently manages the operation based upon personal knowledge, or other local criteria. Th

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP to develop the Conservation Plan Supporting Organic Transition Conservation Activity Plan (CAP) The CAP criteria requires the plan to meet quality criteria for applicable resource concerns and provides for opportunities to implement a system of conservation practices which assist the producer to transition from conventional farming or ranching to an organic production system with crops and livestock. The CAP plan will include conservation practices which address related resource concerns. The CAP meets the basic quality criteria for the 138 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,447.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,447.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 138 - Conservation Plan Supporting Organic Transition

Scenario: #39 - Transition to Organic for Crop, Low Complexity

Scenario Description:

A site specific conservation plan that contains planned conservation treatment activities for resource concerns resulting from the transition of conventional to organic production systems. At a minimum two alternatives will be developed. The first will be a no-action alternative in which current management activities are assumed to continue. The second will be an action alternative identifying a conservation practice or a system of conservation practices and management activities to address CPA identified resource concern(s). Additional action alternatives may be developed to identify different ways of achieving client objectives.

Before Situation:

Current crops and rotation, farming practices (tillage, nutrient application methods, timing, source, and rate), soils, and equipment and technology utilized are not considered as Organic. The producer objectives are to become organic. The effect of chang

After Situation:

When evaluating conservation practice effects, the short term and long term effect on natural resources and the applicability and effect on special environmental concerns identified in Step-3 (Resource Inventory) must be documented. Include recommendations that will avoid or mitigate any adverse effects on soil, water, air, plants, animals (including livestock, fish, and wildlife), energy, or human concerns; as well as on special environmental concerns. The Organic System Plan Template supplements are completed as part of NRCS Conservation Planning Activity (CPA) 138 that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,588.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,588.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 138 - Conservation Plan Supporting Organic Transition

Scenario: #55 - Transition to Organic for Crop, High Complexity

Scenario Description:

A site specific conservation plan that contains planned conservation treatment activities for resource concerns resulting from the transition of conventional to organic production systems. Crop production system is more complex based on site features, large acreage, specialty crops, irrigation, orchard and vineyards. At a minimum two alternatives will be developed. The first will be a no-action alternative in which current management activities are assumed to continue. The second will be an action alternative identifying a conservation practice or a system of conservation practices and management activities to address CPA identified resource concern(s). Additional action alternatives may be developed to identify different ways of achieving client objectives.

Before Situation:

Current crops and rotation, farming practices (tillage, nutrient application methods, timing, source, and rate), soils, and equipment and technology utilized are not considered as Organic. The producer objectives are to become organic. The effect of chang

After Situation:

When evaluating conservation practice effects, the short term and long term effect on natural resources and the applicability and effect on special environmental concerns identified in Step-3 (Resource Inventory) must be documented. Include recommendations that will avoid or mitigate any adverse effects on soil, water, air, plants, animals (including livestock, fish, and wildlife), energy, or human concerns; as well as on special environmental concerns. The Organic System Plan Template supplements are completed as part of NRCS Conservation Planning Activity (CPA) 138 that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,447.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,447.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 138 - Conservation Plan Supporting Organic Transition

Scenario: #71 - Transition to Organic for Livestock, Low Complexity

Scenario Description:

A site specific conservation plan that contains planned conservation treatment activities for resource concerns resulting from the transition of conventional to organic livestock systems. At a minimum two alternatives will be developed. The first will be a no-action alternative in which current management activities are assumed to continue. The second will be an action alternative identifying a conservation practice or a system of conservation practices and management activities to address CPA identified resource concern(s). Additional action alternatives may be developed to identify different ways of achieving client objectives.

Before Situation:

Current livestock production, housing, feed, equipment and technology utilized are not considered as Organic. The producer objectives are to become organic. The effect of changes to the current system are not known and new resource concerns may emerge.

After Situation:

When evaluating conservation practice effects, the short term and long term effect on natural resources and the applicability and effect on special environmental concerns identified in Step-3 (Resource Inventory) must be documented. Include recommendations that will avoid or mitigate any adverse effects on soil, water, air, plants, animals (including livestock, fish, and wildlife), energy, or human concerns; as well as on special environmental concerns. The Organic System Plan Template supplements are completed as part of NRCS Conservation Planning Activity (CPA) 138 that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,017.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,017.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 138 - Conservation Plan Supporting Organic Transition

Scenario: #87 - Transition to Organic for Livestock, High Complexity

Scenario Description:

A site specific conservation plan that contains planned conservation treatment activities for resource concerns resulting from the transition of conventional to organic livestock systems. System is high complexity based on conditions such as large Animal Units, multiple production locations, age segregation and similar management. At a minimum two alternatives will be developed. The first will be a no-action alternative in which current management activities are assumed to continue. The second will be an action alternative identifying a conservation practice or a system of conservation practices and management activities to address CPA identified resource concern(s). Additional action alternatives may be developed to identify different ways of achieving client objectives.

Before Situation:

Current livestock production, housing, feed, equipment and technology utilized are not considered as Organic. The producer objectives are to become organic. The effect of changes to the current system are not known and new resource concerns may emerge.

After Situation:

When evaluating conservation practice effects, the short term and long term effect on natural resources and the applicability and effect on special environmental concerns identified in Step-3 (Resource Inventory) must be documented. Include recommendations that will avoid or mitigate any adverse effects on soil, water, air, plants, animals (including livestock, fish, and wildlife), energy, or human concerns; as well as on special environmental concerns. The Organic System Plan Template supplements are completed as part of NRCS Conservation Planning Activity (CPA) 138 that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,015.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,015.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 138 - Conservation Plan Supporting Organic Transition

Scenario: #103 - Transition to Organic for Crop and Livestock, Low Complexity

Scenario Description:

A site specific conservation plan that contains planned conservation treatment activities for resource concerns resulting from the transition of conventional to organic crop and livestock production systems. At a minimum two alternatives will be developed. The first will be a no-action alternative in which current management activities are assumed to continue. The second will be an action alternative identifying a conservation practice or a system of conservation practices and management activities to address CPA identified resource concern(s). Additional action alternatives may be developed to identify different ways of achieving client objectives.

Before Situation:

Current crops and rotation, livestock management and feeding, farming practices (tillage, nutrient application methods, timing, source, and rate), soils, and equipment and technology utilized are not considered as Organic. The producer objectives are to b

After Situation:

When evaluating conservation practice effects, the short term and long term effect on natural resources and the applicability and effect on special environmental concerns identified in Step-3 (Resource Inventory) must be documented. Include recommendations that will avoid or mitigate any adverse effects on soil, water, air, plants, animals (including livestock, fish, and wildlife), energy, or human concerns; as well as on special environmental concerns. The Organic System Plan Template supplements are completed as part of NRCS Conservation Planning Activity (CPA) 138 that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,447.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,447.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 138 - Conservation Plan Supporting Organic Transition

Scenario: #119 - Transition to Organic for Crop and Livestock, High Complexity

Scenario Description:

A site specific conservation plan that contains planned conservation treatment activities for resource concerns resulting from the transition of conventional to organic crop and livestock production systems. Increased crop acreage, irrigation, specialty crops, orchards and vineyards, large AUs, age segregation management add complexity to the system. At a minimum two alternatives will be developed. The first will be a no-action alternative in which current management activities are assumed to continue. The second will be an action alternative identifying a conservation practice or a system of conservation practices and management activities to address CPA identified resource concern(s). Additional action alternatives may be developed to identify different ways of achieving client objectives.

Before Situation:

Current crops and rotation, livestock management and feeding, farming practices (tillage, nutrient application methods, timing, source, and rate), soils, and equipment and technology utilized are not considered as Organic. The producer objectives are to b

After Situation:

When evaluating conservation practice effects, the short term and long term effect on natural resources and the applicability and effect on special environmental concerns identified in Step-3 (Resource Inventory) must be documented. Include recommendations that will avoid or mitigate any adverse effects on soil, water, air, plants, animals (including livestock, fish, and wildlife), energy, or human concerns; as well as on special environmental concerns. The Organic System Plan Template supplements are completed as part of NRCS Conservation Planning Activity (CPA) 138 that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,445.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,445.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 140 - Transition to Organic Design

Scenario: #7 - Low Complexity Conservation Practices, One to Four

Scenario Description:

Agricultural operation where producer will transition from conventional production to organic production. They will meet the USDA National Organic Program (NOP) requirements. All Natural resources will be addressed: Soil, Water, Air, Plants and Animals. Will address resource concerns with 1 - 4, low complexity conservation practices.

Before Situation:

Agricultural operation currently managed using conventional agricultural production methods. Producer will transition all or part of the farm operation to meet national USDA NOP requirements for organic certification. The producer will collaborate with a

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to meet organic certification requirements. All practices installed according to field office technical guide requirements. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,962.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,962.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 140 - Transition to Organic Design

Scenario: #23 - Low Complexity Conservation Practices, Greater Than or Equal to Five

Scenario Description:

Agricultural operation where producer will transition from conventional production to organic production. They will meet the USDA National Organic Program (NOP) requirements. All Natural resources will be addressed: Soil, Water, Air, Plants and Animals. Will address resources concerns with 5 or more conservation practices with low complexity.

Before Situation:

Agricultural operation currently managed using conventional agricultural production methods. Producer will transition all or part of the farm operation to meet national USDA NOP requirements for organic certification. The producer will collaborate with a

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to meet organic certification requirements. All practices installed according to field office technical guide requirements. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,856.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,856.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 140 - Transition to Organic Design

Scenario: #39 - High Complexity Conservation Practices, One to Four

Scenario Description:

Agricultural operation where producer will transition from conventional production to organic production. They will meet the USDA National Organic Program (NOP) requirements. All Natural resources will be addressed: Soil, Water, Air, Plants, and Animals. Will address resource concerns with 1 - 4, high complexity conservation practices.

Before Situation:

Agricultural operation currently managed using conventional agricultural production methods. Producer will transition all or part of the farm operation to meet national USDA NOP requirements for organic certification. The producer will collaborate with a

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to meet organic certification requirements. All practices installed according to field office technical guide requirements. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $12,752.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,752.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 140 - Transition to Organic Design

Scenario: #55 - High Complexity Conservation Practices, Greater Than or Equal to Five

Scenario Description:

Agricultural operation where producer will transition from conventional production to organic production. They will meet the USDA National Organic Program (NOP) requirements. All Natural resources will be addressed: Soil, Water, Air, Plants and Animals. Will address resource concerns with 5 or more, high complexity conservation practices.

Before Situation:

Agricultural operation currently managed using conventional agricultural production methods. Producer will transition all or part of the farm operation to meet national USDA NOP requirements for organic certification. The producer will collaborate with a

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to meet organic certification requirements. All practices installed according to field office technical guide requirements. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $16,436.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16,436.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 144 - Fish and Wildlife Habitat Design

Scenario: #7 - Habitat Design, One Land Use

Scenario Description:

Various on-farm land uses. Natural Resource Concerns: Terrestrial Habitat and/or Aquatic Habitat on an agricultural operation. The Fish and Wildlife Habitat Design and Implementation Activity (DIA) addresses fish and wildlife habitat management relative to only one land use on the agricultural operation.

Before Situation:

Producer has no plan or knowledge of development or management of fish and/or wildlife habitat. The producer does not currently manage or enhance habitat to promote opportunities for fish and/or wildlife habitat. Within existing land uses, the producer is

After Situation:

After EQIP contract approval, the participant has obtained services from a certified TSP for development of the Fish and Wildlife Habitat DIA. The DIA criteria require the plan to meet quality criteria for the primary fish/wildlife habitat resource concern and provides for opportunities to improve, restore, or enhance habitat that supports native and/or managed species. The DIA may include recommendations for associated conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 144 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: Design & Implementation Pl

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,277.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,277.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 144 - Fish and Wildlife Habitat Design

Scenario: #23 - Habitat Design, Two Land Uses

Scenario Description:

Various on-farm land uses. Natural Resource Concerns: Terrestrial Habitat and/or Aquatic Habitat on an agricultural operation. The Fish and Wildlife Habitat Design and Implementation Activity (DIA) addresses fish and wildlife habitat management relative to two land uses on the agricultural operation of which each land use is at least 20 acres in size.

Before Situation:

Producer has no plan or knowledge of development or management of fish and/or wildlife habitat. The producer does not currently manage or enhance habitat to promote opportunities for fish and/or wildlife habitat. Within existing land uses, the producer is

After Situation:

After EQIP contract approval, the participant has obtained services from a certified TSP for development of the Fish and Wildlife Habitat DIA. The DIA criteria require the plan to meet quality criteria for the primary fish/wildlife habitat resource concern and provides for opportunities to improve, restore, or enhance habitat that supports native and/or managed species. The DIA may include recommendations for associated conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 144 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: Fish and Wildlife Habitat DI

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,006.43

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,006.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 144 - Fish and Wildlife Habitat Design

Scenario: #39 - Habitat Design, Three or More Land Uses

Scenario Description:

Various on-farm land uses. Natural Resource Concerns: Terrestrial Habitat and/or Aquatic Habitat on an agricultural operation. The Fish and Wildlife Habitat Design and Implementation Activity (DIA) addresses fish and wildlife habitat management relative to three or more land uses on the agricultural operation of which at least three of the land uses are at least 20 acres in size.

Before Situation:

Producer has no plan or knowledge of development or management of fish and/or wildlife habitat. The producer does not currently manage or enhance habitat to promote opportunities for fish and/or wildlife habitat. Within existing land uses, the producer is

After Situation:

After EQIP contract approval, the participant has obtained services from a certified TSP for development of the Fish and Wildlife Habitat DIA. The DIA criteria require the plan to meet quality criteria for the primary fish/wildlife habitat resource concern and provides for opportunities to improve, restore, or enhance habitat that supports native and/or managed species. The DIA may include recommendations for associated conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 144 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: Fish and Wildlife Habitat DI

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,734.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,734.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 148 - Pollinator Habitat Design

Scenario: #7 - Pollinator Habitat, No Local TSP

Scenario Description:
Various on-farm land uses, No qualified TSP within 300 miles. Natural Resource Concern: Fish and Wildlife, Plant Condition, Soil Erosion, Water Quality on an agricultural operation.

Before Situation:
Agricultural producer currently has no plan or knowledge of development or management of pollinator habitat. The producer does not currently manage or enhance habitat to promote opportunities for pollinator habitat. Within existing land uses, the producer

After Situation:
After EQIP contract approval, participant has obtained services from a certified TSP for development of the Pollinator Habitat Enhancement Conservation Activity Plan (CAP). The CAP criteria requires the plan to meet quality criteria for applicable resource concerns and provides for opportunities to improve, restore, or enhance flower-rich habitat that supports native and/or managed pollinator species. The CAP plan may include recommendations for associated conservation practices which address other related resource concerns. The CAP meets the basic quality criteria for the 146 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,554.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,554.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 148 - Pollinator Habitat Design

Scenario: #23 - Pollinator Habitat

Scenario Description:
Various on-farm land uses. Natural Resource Concern: Fish and Wildlife, Plant Condition, Soil Erosion, Water Quality on an agricultural operation.

Before Situation:
Agricultural producer currently has no plan or knowledge of development or management of pollinator habitat. The producer does not currently manage or enhance habitat to promote opportunities for pollinator habitat. Within existing land uses, the producer

After Situation:
After EQIP contract approval, participant has obtained services from a certified TSP for development of the Pollinator Habitat Enhancement Conservation Activity Plan (CAP). The CAP criteria requires the plan to meet quality criteria for applicable resource concerns and provides for opportunities to improve, restore, or enhance flower-rich habitat that supports native and/or managed pollinator species. The CAP plan may include recommendations for associated conservation practices which address other related resource concerns. The CAP meets the basic quality criteria for the 146 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,824.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,824.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 157 - Nutrient Management Design and Implementation Activity

Scenario: #7 - Nutrient Management, 101 to 300 Acres Fertilizer and Manure

Scenario Description:

Various on-farm land uses where natural or artificial amendments are applied. Natural Resource Concern: Water Quality, Soil Erosion, Water Quantity, and other associated resource concerns. Manure may be imported.

Before Situation:

Agricultural producer has no plan or minimal knowledge for the application and management of nutrients. The producer currently manages nutrient application based upon personal knowledge, or other local criteria. Producer is interested in management of nut

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Nutrient Management conservation activity plan consistent with the criteria in DIA 157 and 590 Nutrient Management. The DIA criteria requires the plan to meet quality criteria for Soils, Water Quality and Air Quality resource concerns and other applicable resource concerns and provides for opportunities to manage nutrients for plant production and address offsite movement of nutrients. The design may include recommendations for associated conservation practices which address other related resource concerns. Meets the basic quality criteria for the DIA 157 as cited in the NRCS Field Office Technical Guide and CPS 590 Nutrient Management.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,759.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,759.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 157 - Nutrient Management Design and Implementation Activity

Scenario: #23 - Nutrient Management, 101 to 300 Acres and No Manure

Scenario Description:

Various on-farm land uses where natural or artificial amendments are applied. Natural Resource Concern: Water Quality, Soil Erosion, Water Quantity, and other associated resource concerns.

Before Situation:

Agricultural producer has no plan or minimal knowledge for the application and management of nutrients. The producer currently manages nutrient application based upon personal knowledge, or other local criteria. Producer is interested in management of nut

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Nutrient Management conservation activity plan consistent with the criteria in DIA 157 and 590 Nutrient Management. The DIA criteria requires the plan to meet quality criteria for Soils, Water Quality and Air Quality resource concerns and other applicable resource concerns and provides for opportunities to manage nutrients for plant production and address offsite movement of nutrients. The design may include recommendations for associated conservation practices which address other related resource concerns. Meets the basic quality criteria for the DIA 157 as cited in the NRCS Field Office Technical Guide and CPS 590 Nutrient Management.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,434.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,434.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 157 - Nutrient Management Design and Implementation Activity

Scenario: #39 - Nutrient Management, Greater Than 300 Acres and No Manure

Scenario Description:

Various on-farm land uses where natural or artificial amendments are applied. Natural Resource Concern: Water Quality, Soil Erosion, Water Quantity, and other associated resource concerns.

Before Situation:

Agricultural producer has no plan or minimal knowledge for the application and management of nutrients. The producer currently manages nutrient application based upon personal knowledge, or other local criteria. Producer is interested in management of nut

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Nutrient Management conservation activity plan consistent with the criteria in DIA 157 and 590 Nutrient Management. The DIA criteria requires the plan to meet quality criteria for Soils, Water Quality and Air Quality resource concerns and other applicable resource concerns and provides for opportunities to manage nutrients for plant production and address offsite movement of nutrients. The design may include recommendations for associated conservation practices which address other related resource concerns. Meets the basic quality criteria for the DIA 157 as cited in the NRCS Field Office Technical Guide and CPS 590 Nutrient Management.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,542.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,542.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 157 - Nutrient Management Design and Implementation Activity

Scenario: #55 - Nutrient Management, Less Than or Equal to 100 Acres Fertilizer and Manure

Scenario Description:

Various on-farm land uses where natural or artificial amendments are applied. Natural Resource Concern: Water Quality, Soil Erosion, Water Quantity, and other associated resource concerns. Manure may be imported.

Before Situation:

Agricultural producer has no plan or minimal knowledge for the application and management of nutrients. The producer currently manages nutrient application based upon personal knowledge, or other local criteria. Producer is interested in management of nut

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Nutrient Management conservation activity plan consistent with the criteria in DIA 157 and 590 Nutrient Management. The DIA criteria requires the plan to meet quality criteria for Soils, Water Quality and Air Quality resource concerns and other applicable resource concerns and provides for opportunities to manage nutrients for plant production and address offsite movement of nutrients. The design may include recommendations for associated conservation practices which address other related resource concerns. Meets the basic quality criteria for the DIA 157 as cited in the NRCS Field Office Technical Guide and CPS 590 Nutrient Management.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,542.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,542.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 157 - Nutrient Management Design and Implementation Activity

Scenario: #71 - Nutrient Management, Less Than or Equal to 100 Acres and No Manure

Scenario Description:

Various on-farm land uses where natural or artificial amendments are applied. Natural Resource Concern: Water Quality, Soil Erosion, Water Quantity, and other associated resource concerns.

Before Situation:

Agricultural producer has no plan or minimal knowledge for the application and management of nutrients. The producer currently manages nutrient application based upon personal knowledge, or other local criteria. Producer is interested in management of nut

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Nutrient Management conservation activity plan consistent with the criteria in DIA 157 and 590 Nutrient Management. The DIA criteria requires the plan to meet quality criteria for Soils, Water Quality and Air Quality resource concerns and other applicable resource concerns and provides for opportunities to manage nutrients for plant production and address offsite movement of nutrients. The design may include recommendations for associated conservation practices which address other related resource concerns. Meets the basic quality criteria for the DIA 157 as cited in the NRCS Field Office Technical Guide and CPS 590 Nutrient Management.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,325.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,325.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 157 - Nutrient Management Design and Implementation Activity

Scenario: #87 - Nutrient Management, Greater Than 300 Acres Fertilizer and Manure

Scenario Description:

Various on-farm land uses where natural or artificial amendments are applied. Natural Resource Concern: Water Quality, Soil Erosion, Water Quantity, and other associated resource concerns. Manure may be imported.

Before Situation:

Agricultural producer has no plan or minimal knowledge for the application and management of nutrients. The producer currently manages nutrient application based upon personal knowledge, or other local criteria. Producer is interested in management of nut

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Nutrient Management conservation activity plan consistent with the criteria in DIA 157 and 590 Nutrient Management. The DIA criteria requires the plan to meet quality criteria for Soils, Water Quality and Air Quality resource concerns and other applicable resource concerns and provides for opportunities to manage nutrients for plant production and address offsite movement of nutrients. The design may include recommendations for associated conservation practices which address other related resource concerns. Meets the basic quality criteria for the DIA 157 as cited in the NRCS Field Office Technical Guide and CPS 590 Nutrient Management.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,422.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,422.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 158 - Feed Management Design

Scenario: #7 - Feed Management Plan

Scenario Description:

The owner/operator of an Animal Feeding Operation (AFO) has not received a written Feed Management Plan that addresses all resource concerns present on the facility. Various levels of management and conservation implementation has occurred in the operation. Little documentation of the methods of feed management used and practices installed exists, and the producer is not likely to developed a complete forage inventory or nutrient analysis. The producer may or may not have a conservation plan or a nutrient management plan. Nutrient management related resource concerns on the operation remain to be addressed through the development of a complete activity plan including management and conservation practices for proper quantity and quality of available nutrients, feedstuffs, and/or additives fed to livestock or poultry that may be present on the operation. Present operation and feed methodology poses risk of feeding excessive amounts of nutrients in animal manure which result in negative impacts to water quality and odor resource concerns. Negative water and air quality impacts as well as farmstead safety and security issues may remain on the AFO, and inadequate record-keeping nutrient, inspection and monitoring of the existing operation may need further improvement.

Before Situation:

Producer does not have a plan or has limited knowledge of management of feed, nutrients, feedstuffs, or nutritional additives provided to domestic livestock and poultry. The producer currently manages feed without a plan which would address livestock prod

After Situation:

Participant has obtained services from a certified TSP for development of the Feed Management plan (CAP). The criteria requires the plan to meet quality criteria for applicable natural resource concerns and provides for opportunities to identify and implement conservation practices related to management of feed, forages, or delivery of supplements to maximize efficient feeding operations and livestock growth. The plan may serve as the basis for implementation of the primary conservation practice 592 - Feed Management. If applicable, the plan may also be developed to complement Comprehensive Nutrient Management Plans (CNMP) or to help meet requirements of NRCS practice standard 590 - Nutrient Management. The plan may include recommendations for addressing associated natural resource concerns with other conservation practices.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,434.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,434.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 159 - Grazing Management Design

Scenario: #103 - Grazed Lands, Less Than or Equal to 100 Acres

Scenario Description:

Design and implementation activities for agricultural operation with less than 100 acres grazed land. The following natural resource concerns will be addressed: Soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of conservation practices to effectively manage livestock or other animals on grazed land resources. The producer currently manages animals without a plan or implemented conservation practices to address identifie

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Grazing Management DIA. The DIA criteria requires the design and implementation of grazing activities as a component of the CPA to address resource concerns and to meet criteria for applicable conservation practices including practices such as: Prescribed Grazing Management (528), Brush Management (314), Fencing (382), Forage Harvest Management (511), Grazing Land Mechanical Treatment (548), Herbaceous Weed Treatment (315), Pasture and Hay Planting (512), Range Planting (550), and any additional conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 159 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,675.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,675.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 159 - Grazing Management Design

Scenario: #119 - Grazed Lands, 101 to 500 Acres

Scenario Description:

Design and implementation activities for an agricultural operation with 101 to 500 acres grazed land. The following natural resource concerns will be addressed: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of conservation practices to effectively manage livestock or other animals on grazed land resources. The producer currently manages animals without a plan or implemented conservation practices to address identifie

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Grazing Management DIA. The DIA criteria requires the design and implementation of grazing activities as a component of the CPA to address resource concerns and to meet criteria for applicable conservation practices including practices such as: Prescribed Grazing Management (528), Brush Management (314), Fencing (382), Forage Harvest Management (511), Grazing Land Mechanical Treatment (548), Herbaceous Weed Treatment (315), Pasture and Hay Planting (512), Range Planting (550), and any additional conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 159 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,094.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,094.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 159 - Grazing Management Design

Scenario: #135 - Grazed Lands, 501 to 1,500 Acres

Scenario Description:

Design and implementation activities for agricultural operation with 501 to 1,500 acres grazed land. The following natural resource concerns will be addressed: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of conservation practices to effectively manage livestock or other animals on grazed land resources. The producer currently manages animals without a plan or implemented conservation practices to address identifie

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Grazing Management DIA. The DIA criteria requires the design and implementation of grazing activities as a component of the CPA to address resource concerns and to meet criteria for applicable conservation practices including practices such as: Prescribed Grazing Management (528), Brush Management (314), Fencing (382), Forage Harvest Management (511), Grazing Land Mechanical Treatment (548), Herbaceous Weed Treatment (315), Pasture and Hay Planting (512), Range Planting (550), and any additional conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 159 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,513.43

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,513.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 159 - Grazing Management Design

Scenario: #151 - Grazed Lands, 1,501 to 5,000 Acres

Scenario Description:

Design and implementation activity for an agricultural operation with 1,501 to 5,000 acres grazed land. The following natural resource concerns will be addressed: Soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of conservation practices to effectively manage livestock or other animals on grazed land resources. The producer currently manages animals without a plan or implemented conservation practices to address identifie

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Grazing Management DIA. The DIA criteria requires the design and implementation of grazing activities as a component of the CPA to address resource concerns and to meet criteria for applicable conservation practices including practices such as: Prescribed Grazing Management (528), Brush Management (314), Fencing (382), Forage Harvest Management (511), Grazing Land Mechanical Treatment (548), Herbaceous Weed Treatment (315), Pasture and Hay Planting (512), Range Planting (550), and any additional conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 159 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,932.33

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,932.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 159 - Grazing Management Design

Scenario: #167 - Grazed Lands, 5,001 to 10,000 Acres

Scenario Description:

Design and implementation activities for an agricultural operation with 5,001 to 10,000 acres grazed land. The following natural resource concerns will be addressed: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of conservation practices to effectively manage livestock or other animals on grazed land resources. The producer currently manages animals without a plan or implemented conservation practices to address identifie

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Grazing Management DIA. The DIA criteria requires the design and implementation of grazing activities as a component of the CPA to address resource concerns and to meet criteria for applicable conservation practices including practices such as: Prescribed Grazing Management (528), Brush Management (314), Fencing (382), Forage Harvest Management (511), Grazing Land Mechanical Treatment (548), Herbaceous Weed Treatment (315), Pasture and Hay Planting (512), Range Planting (550), and any additional conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 159 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,351.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,351.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 159 - Grazing Management Design

Scenario: #183 - Grazed Lands, Greater Than 10,000 Acres

Scenario Description:

Design and implementation activities for an agricultural operation with greater than 10,000 acres grazed land. The following natural resource concerns will be addressed: soil erosion, water quality, fish and wildlife, plant condition, and all other appropriate resource concerns.

Before Situation:

Producer has no plan or limited knowledge of conservation practices to effectively manage livestock or other animals on grazed land resources. The producer currently manages animals without a plan or implemented conservation practices to address identifie

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Grazing Management DIA. The DIA criteria requires the design and implementation of grazing activities as a component of the CPA to address resource concerns and to meet criteria for applicable conservation practices including practices such as: Prescribed Grazing Management (528), Brush Management (314), Fencing (382), Forage Harvest Management (511), Grazing Land Mechanical Treatment (548), Herbaceous Weed Treatment (315), Pasture and Hay Planting (512), Range Planting (550), and any additional conservation practices which address other related resource concerns. The DIA meets the basic quality criteria for the 159 plan as cited in the NRCS Field Office Technical Guide.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,770.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,770.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 160 - Prescribed Burning Design

Scenario: #7 - Burn Implementation, Less Than or Equal to 20 Acres

Scenario Description:

Non Industrial Private Forest Land, Pasture or Range Land typically less than or equal to 20 acres in size and is dominated by fire tolerant species that are competing with undesirable vegetation and accumulating fuel load. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition.

Before Situation:

Producer has no existing plan or an obsolete plan that is insufficient for current stand condition. A Prescribed Burning Plan or DIA is needed to enable the producer to apply for financial assistance through EQIP or other financial assistance programs in

After Situation:

After EQIP contract approval, participant has obtained services from a certified Technical Service Provider (TSP) for development of the Prescribed Burning DIA. The DIA criteria require the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Prescribed Burning Plan DIA is not considered a Forest Management Plan, a Reforestation Plan, a Forest Harvest Plan, or a Prescribed Grazing Plan, but should complement the needs of those plans if they exist and if desired by the decision maker. The DIA plan will fully describe all aspects of the prescribed burn including, but not limited to objectives of the burn (i.e., site preparation, wildlife habitat, etc.), site conditions (i.e., fuel load, fuel type, etc.), implementation strategies (i.e., method of ignition, number of persons required, equipment needs, etc.), tolerable weather parameters (i.e., wind direction, relative humidity, mixing height, etc.) and identification of Smoke Sensitive Areas. Additional DIA plan criteria are detailed in the Field Office Technical Guide and potentially state developed technical criteria.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,271.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,271.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 160 - Prescribed Burning Design

Scenario: #23 - Burn Implementation, Greater Than 1,000 Acres

Scenario Description:

Non Industrial Private Forest Land, Pasture or Range Land typically greater than 1,000 acres in size and is dominated by fire tolerant species that are competing with undesirable vegetation and accumulating fuel load. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition.

Before Situation:

Producer has no existing plan or an obsolete plan that is insufficient for current stand condition. A Prescribed Burning Plan or DIA is needed to enable the producer to apply for financial assistance through EQIP or other financial assistance programs in

After Situation:

After EQIP contract approval, participant has obtained services from a certified Technical Service Provider (TSP) for development of the Prescribed Burning Plan (DIA). The DIA criteria require the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Prescribed Burning Plan DIA is not considered a Forest Management Plan, a Reforestation Plan, a Forest Harvest Plan, or a Prescribed Grazing Plan, but should complement the needs of those plans if they exist and if desired by the decision maker. The DIA plan will fully describe all aspects of the prescribed burn including, but not limited to objectives of the burn (i.e., site preparation, wildlife habitat, etc.), site conditions (i.e., fuel load, fuel type, etc.), implementation strategies (i.e., method of ignition, number of persons required, equipment needs, etc.), tolerable weather parameters (i.e., wind direction, relative humidity, mixing height, etc.) and identification of Smoke Sensitive Areas. Additional DIA plan criteria are detailed in the Field Office Technical Guide and potentially state developed technical criteria.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,084.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,084.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 160 - Prescribed Burning Design

Scenario: #39 - Burn Implementation, 501 to 1,000 Acres

Scenario Description:

Non Industrial Private Forest Land, Pasture or Range Land typically greater than 501 acres and less than 1,000 acres in size and is dominated by fire tolerant species that are competing with undesirable vegetation and accumulating fuel load. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition.

Before Situation:

Producer has no existing plan or an obsolete plan that is insufficient for current stand condition. A Prescribed Burning Plan or DIA is needed to enable the producer to apply for financial assistance through EQIP or other financial assistance programs in

After Situation:

After EQIP contract approval, participant has obtained services from a certified Technical Service Provider (TSP) for development of the Prescribed Burning Plan DIA. The DIA criteria require the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Prescribed Burning Plan DIA is not considered a Forest Management Plan, a Reforestation Plan, a Forest Harvest Plan, or a Prescribed Grazing Plan, but should complement the needs of those plans if they exist and if desired by the decision maker. The DIA plan will fully describe all aspects of the prescribed burn including, but not limited to objectives of the burn (i.e., site preparation, wildlife habitat, etc.), site conditions (i.e., fuel load, fuel type, etc.), implementation strategies (i.e., method of ignition, number of persons required, equipment needs, etc.), tolerable weather parameters (i.e., wind direction, relative humidity, mixing height, etc.) and identification of Smoke Sensitive Areas. Additional DIA plan criteria are detailed in the Field Office Technical Guide and potentially state developed technical criteria.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,389.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,389.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 160 - Prescribed Burning Design

Scenario: #55 - Burn Implementation, 251 to 500 Acres

Scenario Description:

Non Industrial Private Forest Land, Pasture or Range Land typically greater than 251 acres and less than 500 acres in size and is dominated by fire tolerant species that are competing with undesirable vegetation and accumulating fuel load. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition.

Before Situation:

Producer has no existing plan or an obsolete plan that is insufficient for current stand condition. A Prescribed Burning Plan or DIA is needed to enable the producer to apply for financial assistance through EQIP or other financial assistance programs in

After Situation:

After EQIP contract approval, participant has obtained services from a certified Technical Service Provider (TSP) for development of the Prescribed Burning Plan or DIA. The DIA criteria require the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Prescribed Burning Plan DIA is not considered a Forest Management Plan, a Reforestation Plan, a Forest Harvest Plan, or a Prescribed Grazing Plan, but should complement the needs of those plans if they exist and if desired by the decision maker. The DIA plan will fully describe all aspects of the prescribed burn including, but not limited to objectives of the burn (i.e., site preparation, wildlife habitat, etc.), site conditions (i.e., fuel load, fuel type, etc.), implementation strategies (i.e., method of ignition, number of persons required, equipment needs, etc.), tolerable weather parameters (i.e., wind direction, relative humidity, mixing height, etc.) and identification of Smoke Sensitive Areas. Additional DIA plan criteria are detailed in the Field Office Technical Guide and potentially state developed technical criteria.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,542.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,542.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 160 - Prescribed Burning Design

Scenario: #71 - Burn Implementation, 101 to 250 Acres

Scenario Description:

Non Industrial Private Forest Land, Pasture or Range Land typically greater that 101 acres in size and less than 250 acres and is dominated by fire tolerant species that are competing with undesirable vegetation and accumulating fuel load. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition.

Before Situation:

Producer has no existing plan or an obsolete plan that is insufficient for current stand condition. A Prescribed Burning Plan or DIA is needed to enable the producer to apply for financial assistance through EQIP or other financial assistance programs in

After Situation:

After EQIP contract approval, participant has obtained services from a certified Technical Service Provider (TSP) for development of the Prescribed Burning Plan DIA. The DIA criteria require the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Prescribed Burning Plan DIA is not considered a Forest Management Plan, a Reforestation Plan, a Forest Harvest Plan, or a Prescribed Grazing Plan, but should complement the needs of those plans if they exist and if desired by the decision maker. The DIA plan will fully describe all aspects of the prescribed burn including, but not limited to objectives of the burn (i.e., site preparation, wildlife habitat, etc.), site conditions (i.e., fuel load, fuel type, etc.), implementation strategies (i.e., method of ignition, number of persons required, equipment needs, etc.), tolerable weather parameters (i.e., wind direction, relative humidity, mixing height, etc.) and identification of Smoke Sensitive Areas. Additional DIA plan criteria are detailed in the Field Office Technical Guide and potentially state developed technical criteria.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,118.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,118.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 160 - Prescribed Burning Design

Scenario: #87 - Burn Implementation, 21 to 100 Acres

Scenario Description:

Non Industrial Private Forest Land, Pasture or Range Land typically greater than 21 acres and less than 100 acres in size and is dominated by fire tolerant species that are competing with undesirable vegetation and accumulating fuel load. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition.

Before Situation:

Producer has no existing plan or an obsolete plan that is insufficient for current stand condition. A Prescribed Burning Plan or DIA is needed to enable the producer to apply for financial assistance through EQIP or other financial assistance programs in

After Situation:

After EQIP contract approval, participant has obtained services from a certified Technical Service Provider (TSP) for development of the Prescribed Burning Plan or DIA. The DIA criteria require the plan to identify approved Field Office Technical Guide conservation practices where needed to address identified resource concerns. The Prescribed Burning Plan DIA is not considered a Forest Management Plan, a Reforestation Plan, a Forest Harvest Plan, or a Prescribed Grazing Plan, but should complement the needs of those plans if they exist and if desired by the decision maker. The DIA plan will fully describe all aspects of the prescribed burn including, but not limited to objectives of the burn (i.e., site preparation, wildlife habitat, etc.), site conditions (i.e., fuel load, fuel type, etc.), implementation strategies (i.e., method of ignition, number of persons required, equipment needs, etc.), tolerable weather parameters (i.e., wind direction, relative humidity, mixing height, etc.) and identification of Smoke Sensitive Areas. Additional DIA plan criteria are detailed in the Field Office Technical Guide and potentially state developed technical criteria.

Feature Measure: 1

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,694.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,694.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 161 - Pest Management Conservation System Design

Scenario: #7 - High Complexity Conservation Practices, Greater Than or Equal to Five

Scenario Description:

Agricultural operation where producer will implement high complexity conservation practices and PAMS activities as part of an overall Pest Management Conservation System. Natural resources relating to CPS 595 Pest Management Conservation System will be addressed. Will address resource concerns with 5 or more, high complexity conservation practices and/or PAMS activities.

Before Situation:

Agricultural operation currently managed using few pest management strategies. The producer will collaborate with a certified TSP to develop implementation requirements and/or designs and specifications for all conservation practices and PAMS activities t

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to address resource concerns. All practices installed according to field office technical guide requirements. PAMS activities according to IPM plan and Land Grant University guidelines. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,510.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,510.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 161 - Pest Management Conservation System Design

Scenario: #23 - High Complexity Conservation Practices, One to Four

Scenario Description:

Agricultural operation where producer will implement high complexity conservation practices and PAMS activities as part of an overall Pest Management Conservation System. Natural resources relating to CPS 595 Pest Management Conservation System will be addressed. Will address resource concerns with 1 - 4, high complexity conservation practices and/or PAMS activities.

Before Situation:

Agricultural operation currently managed using few pest management strategies. The producer will collaborate with a certified TSP to develop implementation requirements and/or designs and specifications for all conservation practices and PAMS activities t

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to address resource concerns. All practices installed according to field office technical guide requirements. PAMS activities according to IPM plan and Land Grant University guidelines. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,901.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,901.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 161 - Pest Management Conservation System Design

Scenario: #39 - Low Complexity Conservation Practices, Greater Than or Equal to Five

Scenario Description:

Agricultural operation where producer will implement low complexity conservation practices and PAMS activities as part of an overall Pest Management Conservation System. Natural resources relating to CPS 595 Pest Management Conservation System will be addressed. Will address resource concerns with 5 or more, low complexity conservation practices.

Before Situation:

Agricultural operation currently managed using few pest management strategies. The producer will collaborate with a certified TSP to develop implementation requirements and/or designs and specifications for all conservation practices and PAMS activities t

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to address resource concerns. All practices installed according to field office technical guide requirements. PAMS activities according to IPM plan and Land Grant University guidelines. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,860.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,860.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 161 - Pest Management Conservation System Design

Scenario: #55 - Low Complexity Conservation Practices, One to Four

Scenario Description:

Agricultural operation where producer will implement low complexity conservation practices and PAMS activities as part of an overall Pest Management Conservation System. Natural resources relating to CPS 595 Pest Management Conservation System will be addressed. Will address resource concerns with 1 - 4, low complexity conservation practices.

Before Situation:

Agricultural operation currently managed using few pest management strategies. The producer will collaborate with a certified TSP to develop implementation requirements and/or designs and specifications for all conservation practices and PAMS activities t

After Situation:

After NRCS program contract is approved, participant will obtain services from a certified TSP to develop the required implementation requirements and/or designs and specifications for all conservation practices required to address resource concerns. All practices installed according to field office technical guide requirements. PAMS activities according to IPM plan and Land Grant University guidelines. Implementation requirements, designs and specifications all complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,251.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,251.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #7 - Organic Crops and Livestock Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for up to 5 Soil Health Management Units (SHMU) for organic crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU and can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has collabor

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,094.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,094.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #23 - Crops Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for more than 5 Soil Health Management Units (SHMU) for crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has a writte

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,099.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,099.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #39 - Crops and Livestock Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for 5 or more Soil Health Management Units (SHMU) for crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has a writte

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,542.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,542.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #55 - Small Farm, Less Than or Equal to 10 Acres

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for a small farm operation of less than 10 acres.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has collabor

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,325.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,325.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #71 - Crops Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for fewer than 5 Soil Health Management Units (SHMU) for crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU and can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has collabor

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,212.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,212.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #87 - Organic Crops Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for fewer than 5 Soil Health Management Units (SHMU) for organic crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU and can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has collabor

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,877.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,877.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #103 - Crops and Livestock Soil Health Management, Less Than Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for fewer than 5 Soil Health Management Units (SHMU) for crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has a writte

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,434.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,434.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #119 - Organic Crops Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for 5 or more Soil Health Management Units (SHMU) for organic crops. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has a writte

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,651.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,651.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 162 - Soil Health Management System Design

Scenario: #135 - Organic Crops and Livestock Soil Health Management, Greater Than or Equal to Five Units

Scenario Description:

Evaluate soil health concerns and develop a transitional cropping management plan to improve overall soil health and address all 4 soil health principles. The plan includes management activities or land management practices associated with crop and forage production. The soil health management plan ensures that the purposes of crop and forage production and preservation of natural resources related to soil health are compatible. May simultaneously implement 216 Soil Health Testing CEMA to evaluate baseline soil health and inventory basic or additional soil health indicators. The plan is developed for 5 or more Soil Health Management Units (SHMU) for organic crops and livestock. A SHMU is 1 or more planning land units with similar soil type, land use, and management. A SHMU can vary in size or acreage depending on soil texture, topography, and cropping system.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management. Producer has a writte

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Soil Health Management Plan consistent with the criteria in DIA 162. The DIA criteria requires the plan address all 4 soil health principles. Meets the planning criteria for DIA 162 and facilitating soil health practices as referenced in FOTG.

Feature Measure: each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,868.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,868.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 163 - Irrigation Water Management Design

Scenario: #7 - Designs without Pump Test, One to Two

Scenario Description:

An agricultural producer wishes to address irrigation water use inefficiency and all other appropriate resource concerns through an EQIP contract with at least one (1) irrigation practice scenario. The pump for the irrigation system is of known performance and less then 3 years old. Each "Design" indicates that new devices or components is closely related to other devices or components of the irrigation water management system even if numerous practices are contracted. The Irrigation Water Management DIA includes reviewing, and when needed, revising alternatives to address the identified concern(s). The Irrigation Water Management DIA documents: a) the client's final decisions related to the associated irrigation practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Insufficient Water - Inefficient Irrigation Water Use; Water Quality Degradation - Excessive sediment in surface waters, Nutrients transported to surface and groundwater, pesticides transported to surface and groundwater, pathogens and chemicals from manure, and biosolids or compost applications transported to surface and groundwater, excess salts in surface and groundwater; Degraded Plant Condition - Undesirable plant productivity and health; Inefficient Energy Use - Equipment and facilities.

Before Situation:

Producer wants to improve irrigation water management on their agricultural operation to address insufficient water, water quality degradation, degraded plant condition, or inefficient energy use concerns. Producer intends to work with a certified TSP to

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Irrigation Water Management DIA. The DIA 163 criteria include tasks needed to document the client's decisions and design of conservation practices which address insufficient water, water quality degradation, degraded plant condition, or inefficient energy use. The Irrigation Water Management DIA meets the quality criteria for the DIA 164 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,018.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,018.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 163 - Irrigation Water Management Design

Scenario: #23 - Designs without Pump Test, Greater Than or Equal to Three

Scenario Description:

An agricultural producer wishes to address irrigation water use inefficiency and all other appropriate resource concerns through an EQIP contract with multiple irrigation practice scenario. The pump for the irrigation system is of known performance and less then 3 years old. Each "Design" indicates that new devices or components is closely related to other devices or components of the irrigation water management system even if numerous practices are contracted. The Irrigation Water Management DIA includes reviewing, and, when needed, revising alternatives to address the identified concern(s). The Irrigation Water Management DIA documents: a) the client's final decisions related to the associated irrigation practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Insufficient Water - Inefficient Irrigation Water Use; Water Quality Degradation - Excessive sediment in surface waters, Nutrients transported to surface and groundwater, pesticides transported to surface and groundwater, pathogens and chemicals from manure, and biosolids or compost applications transported to surface and groundwater, excess salts in surface and groundwater; Degraded Plant Condition - Undesirable plant productivity and health; Inefficient Energy Use - Equipment and facilities.

Before Situation:

Producer wants to improve irrigation water management on their agricultural operation to address insufficient water, water quality degradation, degraded plant condition, or inefficient energy use concerns. Producer intends to work with a certified TSP to

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Drainage Water Management DIA. The DIA 164 criteria include tasks needed to document the client's decisions and design of conservation practices which address water quality, plant condition, or soil health. The Drainage Water Management DIA meets the quality criteria for the DIA 164 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $11,437.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,437.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 163 - Irrigation Water Management Design

Scenario: #39 - Designs with Pump Test, One to Two

Scenario Description:

An agricultural producer wishes to address irrigation water use inefficiency and all other appropriate resource concerns through an EQIP contract with multiple irrigation practice scenario through an EQIP contract with at least one (1) irrigation practice scenario. The pump for the irrigation system is of unknown performance and older than 3 years. Each "Design" indicates that new devices or components is closely related to other devices or components of the irrigation water management system even if numerous practices are contracted. The Irrigation Water Management DIA includes reviewing, and, when needed, revising alternatives to address the identified concern(s). The Irrigation Water Management DIA documents: a) the client's final decisions related to the associated irrigation practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Insufficient Water - Inefficient Irrigation Water Use; Water Quality Degradation - Excessive sediment in surface waters, Nutrients transported to surface and groundwater, pesticides transported to surface and groundwater, pathogens and chemicals from manure, and biosolids or compost applications transported to surface and groundwater, excess salts in surface and groundwater; Degraded Plant Condition - Undesirable plant productivity and health; Inefficient Energy Use - Equipment and facilities.

Before Situation:

Producer wants to improve irrigation water management on their agricultural operation to address insufficient water, water quality degradation, degraded plant condition, or inefficient energy use concerns. The pump for the irrigation system is of unknown

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Irrigation Water Management DIA. The DIA 163 criteria include tasks needed to document the client's decisions and design of conservation practices which address insufficient water, water quality degradation, degraded plant condition, or inefficient energy use. The Irrigation Water Management DIA meets the quality criteria for the DIA 163 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,354.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,354.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 163 - Irrigation Water Management Design

Scenario: #55 - Designs with Pump Test, Greater Than or Equal to Three

Scenario Description:

An agricultural producer wishes to address irrigation water use inefficiency and all other appropriate resource concerns through an EQIP contract with multiple irrigation practice scenario through an EQIP contract with at least one (1) irrigation practice scenario. The pump for the irrigation system is of unknown performance and older than 3 years. Each "Design" indicates that new devices or components is closely related to other devices or components of the irrigation water management system even if numerous practices are contracted. The Irrigation Water Management DIA includes reviewing, and, when needed, revising alternatives to address the identified concern(s). The Irrigation Water Management DIA documents: a) the client's final decisions related to the associated irrigation practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Insufficient Water - Inefficient Irrigation Water Use; Water Quality Degradation - Excessive sediment in surface waters, Nutrients transported to surface and groundwater, pesticides transported to surface and groundwater, pathogens and chemicals from manure, and biosolids or compost applications transported to surface and groundwater, excess salts in surface and groundwater; Degraded Plant Condition - Undesirable plant productivity and health; Inefficient Energy Use - Equipment and facilities.

Before Situation:

Producer wants to improve irrigation water management on their agricultural operation to address insufficient water, water quality degradation, degraded plant condition, or inefficient energy use concerns. The pump for the irrigation system is of unknown

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Irrigation Water Management DIA. The DIA 163 criteria include tasks needed to document the client's decisions and design of conservation practices which address insufficient water, water quality degradation, degraded plant condition, or inefficient energy use. The Irrigation Water Management DIA meets the quality criteria for the DIA 163 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $13,253.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13,253.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 164 - Improved Management of Drainage Water Design

Scenario: #7 - Designs with Tile Map, One to Two

Scenario Description:

An agricultural producer wishes to address water quality degradation, poor plant productivity and health, and/or oxidation of organic matter in soils on a relatively flat crop field with a patterned drainage system through an EQIP contract with at least one (1) drainage practice scenario. A map of the tile system is available. Each "Design" indicates that each new device or component is closely related to other devices or components of the drainage water management system even if numerous practices are contracted. The Drainage Water Management DIA includes reviewing, and when needed, revising alternatives to address the identified concern(s). The Drainage Water Management DIA documents: a) the client's final decisions related to the associated drainage practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Water Quality - Excess nutrients in surface and groundwaters, Plant Condition - Plant Productivity and Health, and Soil Health - Subsidence.

Before Situation:

Producer wants to improve drainage water management on their agricultural operation to address water quality, plant condition, or soil health concerns. Producer intends to work with a certified TSP to develop designs to implement one or more practice scen

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Drainage Water Management DIA. The DIA 164 criteria include tasks needed to document the client's decisions and design of conservation practices which address water quality, plant condition, or soil health. The Drainage Water Management DIA meets the quality criteria for the DIA 164 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,851.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,851.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 164 - Improved Management of Drainage Water Design

Scenario: #23 - Designs with Tile Map, Greater Than or Equal to Three

Scenario Description:

An agricultural producer wishes to address water quality degradation, poor plant productivity and health, and/or oxidation of organic matter in soils on a relatively flat crop field with a patterned drainage system through an EQIP contract with multiple drainage practice scenario. A map of the tile system is available. Each "Design" indicates that each new device or component is closely related to other devices or components of the drainage water management system even if numerous practices are contracted. The Drainage Water Management DIA includes reviewing, and when needed, revising alternatives to address the identified concern(s). The Drainage Water Management DIA documents: a) the client's final decisions related to the associated drainage practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Water Quality - Excess nutrients in surface and groundwaters, Plant Condition - Plant Productivity and Health, and Soil Health - Subsidence.

Before Situation:

Producer wants to improve drainage water management on their agricultural operation to address water quality, plant condition, or soil health concerns. Producer intends to work with a certified TSP to develop designs to implement one or more practice scen

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Drainage Water Management DIA. The DIA 164 criteria include tasks needed to document the client's decisions and design of conservation practices which address water quality, plant condition, or soil health. The Drainage Water Management DIA meets the quality criteria for the DIA 164 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $10,769.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10,769.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 164 - Improved Management of Drainage Water Design

Scenario: #39 - Designs with No Tile Map, One to Two

Scenario Description:

An agricultural producer wishes to address water quality degradation, poor plant productivity and health, and/or oxidation of organic matter in soils on a relatively flat crop field with a patterned drainage system through an EQIP contract with at least one (1) drainage practice scenario. A map of the tile system is not available. Each "Design" indicates that each new device or component is closely related to other devices or components of the drainage water management system even if numerous practices are contracted. The Drainage Water Management DIA includes reviewing, and when needed, revising alternatives to address the identified concern(s). The Drainage Water Management DIA documents: a) the client's final decisions related to the associated drainage practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Water Quality - Excess nutrients in surface and groundwaters, Plant Condition - Plant Productivity and Health, and Soil Health - Subsidence.

Before Situation:

Producer wants to improve drainage water management on their agricultural operation to address water quality, plant condition, or soil health concerns. Producer intends to work with a certified TSP to develop designs to implement one or more practice scen

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Drainage Water Management DIA. The DIA 164 criteria include tasks needed to document the client's decisions and design of conservation practices which address water quality, plant condition, or soil health. The Drainage Water Management DIA meets the quality criteria for the DIA 164 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,332.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,332.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 164 - Improved Management of Drainage Water Design

Scenario: #55 - Designs with No Tile Map, Greater Than or Equal to Three

Scenario Description:

An agricultural producer wishes to address water quality degradation, poor plant productivity and health, and/or oxidation of organic matter in soils on a relatively flat crop field with a patterned drainage system through an EQIP contract with multiple drainage practice scenario. A map of the tile system is not available. Each "Design" indicates that new devices or components are closely related to other devices or components of the drainage water management system even if numerous designs are contracted. If more than one practice is contracted, then "2-5 Designs" shall be contracted for the Drainage Water Management DIA. The Drainage Water Management DIA includes reviewing, and, when needed, revising alternatives to address the identified concern(s). The Drainage Water Management DIA documents: a) the client's final decisions related to the associated drainage practice scenarios; and b) design deliverables described in the associated NRCS Conservation Practice Statements of Work. Natural Resource Concern(s): Water Quality - Excess nutrients in surface and groundwaters, Plant Condition - Plant Productivity and Health, and Soil Health - Subsidence.

Before Situation:

Producer wants to improve drainage water management on their agricultural operation to address water quality, plant condition, or soil health concerns. Producer intends to work with a certified TSP to develop designs to implement one or more practice scen

After Situation:

The producer has obtained services from a certified TSP to develop practice scenario designs using the Drainage Water Management DIA. The DIA 164 criteria include tasks needed to document the client's decisions and design of conservation practices which address water quality, plant condition, or soil health. The Drainage Water Management DIA meets the quality criteria for the DIA 164 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $11,730.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,730.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 165 - Forest Management Practice Design

Scenario: #7 - Nonindustrial Private Forest, Less Than or Equal to 20 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 1 to 20 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Design and Implementation Activities is needed to allow the producer to apply for financial assi

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Design and Implementation Activities (DIA). The DIA criteria requires the design of site-specific forestry activities as a component of a forest management plan to address identified resource concerns. Additional DIA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $423.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $423.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 165 - Forest Management Practice Design

Scenario: #23 - Nonindustrial Private Forest, 501 to 1,000 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 501 to 1000 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Design and Implementation Activities is needed to allow the producer to apply for financial assi

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Design and Implementation Activities (DIA). The DIA criteria requires the design of site-specific forestry activities as a component of a forest management plan to address identified resource concerns. Additional DIA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,610.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,610.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 165 - Forest Management Practice Design

Scenario: #39 - Nonindustrial Private Forest, 101 to 250 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 101 to 250 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Design and Implementation Activities is needed to allow the producer to apply for financial assi

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Design and Implementation Activities (DIA). The DIA criteria requires the design of site-specific forestry activities as a component of a forest management plan to address identified resource concerns. Additional DIA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,016.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,016.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 165 - Forest Management Practice Design

Scenario: #55 - Nonindustrial Private Forest, Greater Than 1,000 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 1001 acres or greater in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Design and Implementation Activities is needed to allow the producer to apply for financial assi

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Design and Implementation Activities (DIA). The DIA criteria requires the design of site-specific forestry activities as a component of a forest management plan to address identified resource concerns. Additional DIA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,949.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,949.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 165 - Forest Management Practice Design

Scenario: #71 - Nonindustrial Private Forest, 251 to 500 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 251 to 500 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Design and Implementation Activities is needed to allow the producer to apply for financial assi

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Design and Implementation Activities (DIA). The DIA criteria requires the design of site-specific forestry activities as a component of a forest management plan to address identified resource concerns. Additional DIA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,355.83

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,355.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 165 - Forest Management Practice Design

Scenario: #87 - Nonindustrial Private Forest, 21 to 100 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 21 to 100 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Design and Implementation Activities is needed to allow the producer to apply for financial assi

After Situation:

After EQIP contract approval, participant has obtained services from a certified TSP for development of the Forest Management Design and Implementation Activities (DIA). The DIA criteria requires the design of site-specific forestry activities as a component of a forest management plan to address identified resource concerns. Additional DIA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $677.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $677.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #23 - Small Farm

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The small farm planning scenario involves combinations of various specialty crops, small fruits, tree and vine crops, and small livestock enterprises on less than or equal to 10 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, or (if applicable to the enterprise) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,339.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,339.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #39 - One Land Use, 10 to 199 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use and one agricultural enterprise covering up to less than 200 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, or (if applicable to the enterprise) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,232.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,232.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #55 - One Land Use, 200 to 1,000 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use and one agricultural enterprise covering 200-1,000 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, or (if applicable to the enterprise) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,235.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,235.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #71 - One Land Use, Greater Than 1,000 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use and one agricultural enterprise covering more than 1,000 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, or (if applicable to the enterprise) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,298.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,298.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #87 - Two Land Uses, 10 to 199 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use with two agricultural enterprises, or two land uses with one agricultural enterprise (ex. farmstead and cropland used for a dairy enterprise) covering less than 200 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, and/or (if applicable to the enterprises) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,235.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,235.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #103 - Two Land Uses, 200 to 1,000 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use with two agricultural enterprises, or two land uses with one agricultural enterprise (ex. farmstead and cropland used for a dairy enterprise) covering 200-1000 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, and/or (if applicable to the enterprises) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,298.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,298.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #119 - Two Land Uses, Greater Than 1,000 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use with two agricultural enterprises, or two land uses with one agricultural enterprise (ex. farmstead and cropland used for a dairy enterprise) covering more than 1,000 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, and/or (if applicable to the enterprises) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $10,109.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10,109.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #135 - Three or More Land Uses, 10 to 199 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use supporting three or more agricultural enterprises, two land uses supporting two or more agricultural enterprises, or three or more land uses and any number of enterprises on up to less than 200 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, and/or (if applicable to the enterprises) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,298.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,298.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #151 - Three or More Land Uses, 200 to 1,000 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves three or more agricultural enterprises, two land uses supporting two or more agricultural enterprises, or three or more land uses and any number of enterprises on 200-1000 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, and/or (if applicable to the enterprises) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $10,109.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10,109.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 199 - Conservation Plan

Scenario: #167 - Three or More Land Uses, Greater Than 1,000 Acres

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a Farm Bill program contract. The TSP completes NRCS conservation planning process, steps 1 through 7 as described in NRCS National Planning Procedures Handbook. The steps identify problems and opportunities (step 1), determine objectives (step 2), include inventory and analyze resources (steps 3 and 4), formulate and evaluate alternatives (steps 5 and 6) and document client's preferred alternative(s) (step 7). The Planning Land Unit involves one land use supporting three or more agricultural enterprises, two land uses supporting two or more agricultural enterprises, or three or more land uses and any number of enterprises on more than 1,000 acres.

Before Situation:

Client and NRCS have identified a need to develop a conservation plan to address resource concern(s) using a Technical Service Provider.

After Situation:

TSP has met with client and visited the planning area, in order to develop at least one conservation system alternative for each planning land unit that meet the producer's objectives; and obtain the client's decision for a schedule of practices to implement. TSP provides deliverables that meet the requirements of the CPA 199, and/or (if applicable to the enterprises) the requirements of conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $11,668.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,668.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #88 - Surface Year One Quality Assurance Project Plan

Scenario Description:

This practice scenario provides for the design and use of an edge-of-field WQ monitoring station(s) for surface run-off for one control and one treatment site with an average of 20 samples per year per station, with each sample analyzed for 6 separate parameters (2 sites x 20 samples x 6 parameters = 240 total water quality tests). The scenario requires the creation of a survey to site a monitoring station, preparation of monitoring plan and a quality assurance project plan to detail how data will be collected, handled and analyzed, provides for the data collection, analysis, semiannual report, and annual report. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP need to be prepared prior to installation under Edge-of-Field Water Quality Monitoring - System Installation (202). THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will not have a plan or quality assurance project plan prepared for installing equipment nor collecting data for sediment and nutrients leaving the edge of field.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual report, and annual report for one control and one treatment site. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared prior to installation under Edge-of-Field Water Quality Monitoring - System Installation (202). The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring Sites

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $32,994.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $32,994.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #89 - Surface Year One, No Quality Assurance Project Plan

Scenario Description:

This practice scenario provides for the use of an edge-of-field WQ monitoring station(s) for surface run-off for one control and one treatment site. The scenario requires the collection and analysis of edge-of-field water quality data with an average sample collection of 20 per year for surface systems. The data will be transferred through semi-annual submittal and annual report which include some preliminary annual analysis. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP will be not prepared as this is for an existing monitoring system that has been accepted as meeting both Activity 201 and 202. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and one treatment site. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared as part of an existing monitoring system installation where the QAPP and monitoring plan meets Activity 201 requirements and no major changes are needed to meet Activity 202 requirements. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring Site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $23,776.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23,776.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #90 - Surface Year One Plus, No Quality Assurance Project Plan

Scenario Description:

This practice scenario provides for the use of an edge-of-field WQ monitoring station(s) for surface run-off for one control and one treatment site. The scenario requires the collection and analysis of edge-of-field water quality data with an average sample collection of 20 per year per station, with each sample analyzed for 6 separate parameters (2 sites x 20 samples x 6 parameters = 240 total water quality tests). The data will be transferred through semi-annual submittal and annual report which include some preliminary annual analysis. This scenario will normally be used in year 1 to next to the last year of monitoring of the contract when a monitoring plan and QAPP will be not prepared as this is for an existing monitoring system that has been accepted as meeting both Activity 201 and 202. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and one treatment site. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared as part of an existing monitoring system installation where the QAPP and monitoring plan meets Activity 201 requirements and no major changes are needed to meet Activity 202 requirements. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring Site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $24,236.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24,236.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #91 - Surface Last Year

Scenario Description:

This practice scenario provides for the use of an edge-of-field WQ monitoring station(s) for surface run-off for one control and one treatment site with an average of 20 samples per year per station, with each sample analyzed for 6 separate parameters (2 sites x 20 samples x 6 parameters = 240 total water quality tests). The scenario requires the collection and analysis of edge-of-field water quality data along with a comprehensive report to statistically prove relationship between select conservation practices and water quality. The data will be transferred through semi-annual submittal and annual report and a comprehensive report of practice effectiveness. This scenario will be used in the last year of monitoring. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and one treatment site. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201 to provide a comprehensive report of statistical testing of data collected to complete monitoring period.

Feature Measure: Measuring Site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $28,845.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28,845.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #92 - Tile Year One, Quality Assurance Project Plan

Scenario Description:

This practice scenario provides for the design and use of an edge-of-field WQ monitoring station(s) for tile and subsurface drainage run-off for one control and one treatment site with an average of 40 samples per year per station, with each sample analyzed for 6 separate parameters (2 sites x 40 samples x 6 parameters = 480 total water quality tests). A subsurface system also requires the addition of a surface sampling system at the same outlet to capture overland flow with 20 samples per year, with each sample analyzed for 6 separate parameters (2 sites x 20 samples x 6 parameters = 240 total water quality tests). Without the surface system then not all runoff is captured for calculating a true event mean concentration as per the 201 Standard. The scenario requires the creation of a survey to site a monitoring station, preparation of monitoring plan and a quality assurance project plan to detail how data will be collected, handled and analyzed, provides for the data collection, analysis, semiannual report, and annual report. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP need to be prepared prior to installation under Edge-of-Field Water Quality Monitoring - System Installation (202). THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will not have a plan or quality assurance project plan prepared for installing equipment nor collecting data for sediment and nutrients leaving the edge of field.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual report, and annual report for one control and one treatment site. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared prior to installation under Edge-of-Field Water Quality Monitoring - System Installation (202). The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring Site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $67,853.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $67,853.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #93 - Tile Year One Plus, No Quality Assurance Project Plan

Scenario Description:

This practice scenario provides for the design and use of an edge-of-field WQ monitoring station(s) for tile and subsurface drainage run-off for one control and one treatment site with an average of 40 samples per year per station, with each sample analyzed for 6 separate parameters (2 sites x 40 samples x 6 parameters = 480 total water quality tests). A subsurface system also requires the addition of a surface sampling system at the same outlet to capture overland flow with 20 samples per year, with each sample analyzed for 6 separate parameters (2 sites x 20 samples x 6 parameters = 240 total water quality tests). Without the surface system then not all runoff is captured for calculating a true event mean concentration as per the 201 Standard. The data will be transferred through semi-annual submittal and annual reports, which include some preliminary annual analysis. This scenario will normally be used in year 1 to next to the last year of monitoring of the contract when a monitoring plan and QAPP will be not prepared as this is for an existing monitoring system be accepted as meeting both Activity 201 and 202. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and one treatment site. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared as part of an existing monitoring system installation where the QAPP and monitoring plan meets Activity 201 requirements and no major changes are needed to meet Activity 202 requirements. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring Site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $59,095.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $59,095.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #95 - Tile Last Year

Scenario Description:

This practice scenario provides for the design and use of an edge-of-field WQ monitoring station(s) for tile and subsurface drainage run-off for one control and one treatment site with an average of 40 samples per year per station, with each sample analyzed for 6 separate parameters (2 sites x 40 samples x 6 parameters = 480 total water quality tests). A subsurface system also requires the addition of a surface sampling system at the same outlet to capture overland flow with 20 samples per year, with each sample analyzed for 6 separate parameters (2 sites x 20 samples x 6 parameters = 240 total water quality tests). Without the surface system then not all runoff is captured for calculating a true event mean concentration as per the 201 Standard. The scenario requires the collection and analysis of edge-of-field water quality data along with a comprehensive report to statistically prove relationship between select conservation practices and water quality. The data will be transferred through semi-annual submittal and annual report and a comprehensive report of practice effectiveness. This scenario will be used in the last year of monitoring. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and one treatment site. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201 to provide a comprehensive report of statistical testing of data collected during to complete monitoring period.

Feature Measure: Measuring site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $63,704.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $63,704.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #96 - Surface Year One Quality Assurance Project Plan, Two Treatment Sites

Scenario Description:

This practice scenario provides for the design and use of an edge-of-field WQ monitoring station(s) for surface run-off for one control and two treatment sites with an average of 20 samples per year per station, with each sample analyzed for 6 separate parameters (3 sites x 20 samples x 6 parameters = 360 total water quality tests). The scenario requires the creation of a survey to site a monitoring station, preparation of monitoring plan and a quality assurance project plan to detail how data will be collected, handled and analyzed, provides for the data collection, analysis, semiannual report, and annual report. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP need to be prepared prior to installation under Edge-of-Field Water Quality Monitoring - System Installation (202). THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will not have a plan or quality assurance project plan prepared for installing equipment nor collecting data for sediment and nutrients leaving the edge of field.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual report, and annual report for one control and one treatment site. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared prior to installation under Edge-of-Field Water Quality Monitoring - System Installation (202). The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring Sites

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $45,565.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $45,565.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #97 - Surface Year One and Less Quality Assurance Project Plan, Two Treatment Sites

Scenario Description:

This practice scenario provides for the use of an edge-of-field WQ monitoring station(s) for surface run-off for one control and two treatment sites. The scenario requires the collection and analysis of edge-of-field water quality data with an average sample collection of 20 per year for each surface system, with each sample analyzed for 6 separate parameters (3 sites x 20 samples x 6 parameters = 360 total water quality tests). The data will be transferred through semi-annual submittal and annual report, which include some preliminary annual analysis. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP will not be prepared as this is for an existing monitoring system be accepted as meeting both Activity 201 and 202. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semi-annual submittal, and annual report for one control and two treatment sites. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared as part of an existing monitoring system installation where the QAPP and monitoring plan meets Activity 201 requirements and no major changes are needed to meet Activity 202 requirements. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $34,733.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $34,733.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #99 - Surface Last Year, Two Treatment Sites

Scenario Description:

This practice scenario provides for the use of an edge-of-field WQ monitoring station(s) for surface run-off for one control and two treatment sites with an average of 20 samples per year per station, with each sample analyzed for 6 separate parameters (3 sites x 20 samples x 6 parameters = 360 total water quality tests). The scenario requires the collection and analysis of edge-of-field water quality data along with a comprehensive report to statistically prove relationship between select conservation practices and water quality. The data will be transferred through semi-annual submittal and annual report and a comprehensive report of practice effectiveness. This scenario will be used in the last year of monitoring. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and two treatment sites. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201 to provide a comprehensive report of statistical testing of data collected during to complete monitoring period.

Feature Measure: Measuring site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $41,647.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41,647.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #101 - Tile Year One and Less Quality Assurance Project Plan, Two Treatment Sites

Scenario Description:

This practice scenario provides for the design and use of an edge-of-field WQ monitoring station(s) for tile and subsurface drainage run-off for one control and two treatment sites with an average of 40 samples per year per station, with each sample analyzed for 6 separate parameters (3 sites x 40 samples x 6 parameters = 720 total water quality tests). A subsurface system also requires the addition of a surface sampling system at the same outlet to capture overland flow with 20 samples per year, with each sample analyzed for 6 separate parameters (3 sites x 20 samples x 6 parameters = 360 total water quality tests). Without the surface system then not all runoff is captured for calculating a true event mean concentration as per the 201 Standard. The data will be transferred through semi-annual submittal and annual reports, which include some preliminary annual analysis. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP will not be prepared as this is for an existing monitoring system be accepted as meeting both Activity 201 and 202. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and two treatment sites. This scenario will normally be used in year 1 of the contract when a monitoring plan and QAPP have been prepared as part of an existing monitoring system installation where the QAPP and monitoring plan meets Activity 201 requirements and no major changes are needed to meet Activity 202 requirements. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201.

Feature Measure: Measuring site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $84,320.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $84,320.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #103 - Tile Last Year, Two Treatment Sites

Scenario Description:

This practice scenario provides for the design and use of an edge-of-field WQ monitoring station(s) for tile and subsurface drainage run-off for one control and two treatment sites with an average of 40 samples per year per station with each sample analyzed for 6 separate parameters (3 sites x 40 samples x 6 parameters = 720 total water quality tests). A subsurface system also requires the addition of a surface sampling system at the same outlet to capture overland flow with 20 samples per year with each sample analyzed for 6 separate parameters (3 sites x 20 samples x 6 parameters = 360 total water quality tests). Without the surface system then not all runoff is captured for calculating a true event mean concentration as per the 201 Standard. The scenario requires the collection and analysis of edge-of-field water quality data along with a comprehensive report to statistically prove relationship between select conservation practices and water quality. The data will be transferred through semi-annual submittal and annual report and a comprehensive report of practice effectiveness. This scenario will be used in the last year of monitoring. THIS IS PLACED IN A PAIRED SITUATION IF THE CONTROL AND TREATMENT ARE ON DIFFERENT LANDOWNERS FIELDS THEN A JOINT CONTRACT WILL BE NECESSARY.

Before Situation:

The agricultural operation prior to installing this practice will have an existing system for collecting water quality data but not have been operating with a long enough time frame to measure practice effectiveness.

After Situation:

This practice scenario after installation of the WQ monitoring stations, provides for the data collection, analysis, semiannual submittal, and annual report for one control and two treatment sites. The operator will be able to collect field level water quality data of sufficient quality to measure loss of nutrients as listed in 201 to provide a comprehensive report of statistical testing of data collected during to complete monitoring period.

Feature Measure: Measuring site

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $91,235.33

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $91,235.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #217 - Discrete Sampling, Single Parameter, Year One

Scenario Description:

This scenario is to be used for targeted, periodic WQ grab sampling design and implementation for evaluating and assessing conservation practice performance. This scenario provides for collection and analysis of one of the following water quality constituents: Ammonium, Nitrite plus Nitrate, Total Kjeldahl Nitrogen, Soluble Reactive P (Orthophosphate), Total Phosphorus, Suspended Sediment Concentration, or Total Suspended Solids. A monitoring plan is created by a qualified individual to achieve monitoring goals. Event-based or regularly re-occurring grab samples are acquired from the concentrated flow streams at 2 locations, typically in a before-and-after or a side-by-side sampling design and then analyzed at a laboratory.

Before Situation:

The agricultural operation prior to implementing this activity will not have a monitoring plan prepared for evaluating and assessing the performance of a conservation practice.

After Situation:

The agricultural operation after implementing this activity will have produced and implemented a water quality monitoring plan for a single water quality constituent to evaluate and assess the performance of a conservation practice with respect to that constituent.

Feature Measure: Measuring sites

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $7,571.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,571.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 201 - Edge-of-Field Water Quality Monitoring-Data Collection and Evaluation

Scenario: #233 - Discrete Sampling, Single Parameter, Additional Year

Scenario Description:

This scenario extends, by an additional year, discreet WQ grab sampling design and implementation for evaluating and assessing conservation practice performance. This scenario provides for analysis of one of the following water quality constituents: Ammonium, Nitrite plus Nitrate, Total Kjeldahl Nitrogen, Soluble Reactive P (Orthophosphate), Total Phosphorus, Suspended Sediment Concentration, or Total Suspended Solids. A monitoring plan is created by a qualified individual to achieve monitoring goals. Event-based or regularly re-occurring synoptic grab samples are acquired from the concentrated flow streams at 2 locations, typically in a before-and-after or a side-by-side sampling design and then analyzed at a laboratory.

Before Situation:

The agricultural operation prior to implementing this activity will not have a monitoring plan prepared for evaluating and assessing the performance of a conservation practice.

After Situation:

The agricultural operation after implementing this activity will have produced and implemented a water quality monitoring plan for a single water quality constituent to evaluate and assess the performance of a conservation practice with respect to that constituent.

Feature Measure: Measuring Sites

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,188.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,188.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #50 - Retrofit, Two

Scenario Description:

This edge-of-field water quality monitoring system is to retrofit an existing system that is being used in associated with the 799 interim practice or comparable system. The retrofit is applicable to a single control or treatment site that has a field defined with surface or subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The data represents the installation of an automated and manual backup rain gauge, back-up/solar power supply, communications device, and depth (stage) sensor to be added to existing system.

Before Situation:

The agricultural operation prior to retrofit has an edge-of-field data collection system but it does not meet the present standards for accuracy or reliability as detailed in either or both of Activity 201 and Activity 202.

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $10,253.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10,253.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #51 - Retrofit, Three

Scenario Description:

This edge-of-field water quality monitoring system is to retrofit an existing system that is being used in associated with the 799 interim practice or comparable system. The retrofit is applicable to a single control or treatment site that has a field defined with surface or subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The data represents the installation of an automated and manual backup rain gauge, back-up/solar power supply, communications device, pre-calibrated flow control structure, and depth (stage) sensor to be added to existing system.

Before Situation:

The agricultural operation prior to retrofit has an edge-of-field data collection system but it does not meet the present standards for accuracy or reliability as detailed in either or both of Activity 201 and Activity 202.

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $14,145.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14,145.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #52 - Retrofit, Surface or Subsurface, One

Scenario Description:

This edge-of-field water quality monitoring system is to retrofit an existing above and below monitoring designed system that is being used in associated with the 799 interim practice or comparable system. The retrofit is applicable to an above and below system that has a field defined with surface or subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The data represents the installation of an automated and manual backup rain gauge and two back-up/solar power supply be added to existing paired system.

Before Situation:

The agricultural operation prior to retrofit has an edge-of-field data collection system but it does not meet the present standards for accuracy or reliability as detailed in either or both of Activity 201 and Activity 202.

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,412.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,412.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #54 - Retrofit, Above Three

Scenario Description:

This edge-of-field water quality monitoring system is to retrofit an existing above and below monitoring designed system that is being used in associated with the 799 interim practice or comparable system. The retrofit is applicable to an above and below system that has a field defined with surface or subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The data represents the installation of an automated and manual backup rain gauge, two back-up/solar power supplies, two communications devices, two pre-calibrated flumes, and two depth (stage) sensors to be added to existing paired system.

Before Situation:

The agricultural operation prior to retrofit has an edge-of-field data collection system but it does not meet the present standards for accuracy or reliability as detailed in either or both of Activity 201 and Activity 202.

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $24,906.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24,906.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #55 - Surface, Cold Climate

Scenario Description:

This edge-of-field water quality monitoring system is applicable to a single control or treatment site that has a field defined with surface runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The component monitoring equipment are associated with a typical system for northern latitudes where winter time heating is required for sampling. It will allow for installation of automated sampling data collection system with protective housing to reduce potential for vandalism, battery backup for operation during periods when electricity is down or solar panels are not creating an electrical current, a calf hut or other structure with heat is required over the flume to allow sampling under northern latitude winter conditions, and a berm or other directional flow structure to guide the runoff to a sampling flume.

Before Situation:

The agricultural operation prior to installing the monitoring equipment is guessing about the effects of the conservation system with regards to meeting practice intent of avoid, controlling, or trapping sediment and nutrients. Nothing is known about the

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $30,547.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30,547.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #56 - Tile, Cold Climate

Scenario Description:

This edge-of-field water quality monitoring system is applicable to a single control or treatment site that has a field defined with tile or other subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The component monitoring equipment are associated with a typical system for northern latitudes where winter time heating is required for sampling. It will allow for installation of automated sampling data collection system for a subsurface collection and separate surface automated sample collection system with protective housing to reduce potential for vandalism, battery backup for operation during periods when electricity is down or solar panels are not creating an electrical current, an area velocity sensor for pipe flow and estimation of submerged flow, a calf hut or other structure with heat is required over the flume to allow sampling under northern latitude winter conditions and a berm or other directional flow structure to guide the runoff to a sampling flume.

Before Situation:

The agricultural operation prior to installing the monitoring equipment is guessing about the effects of the conservation system with regards to meeting practice intent of avoid, controlling, or trapping sediment and nutrients. Nothing is known about the

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $41,622.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41,622.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #58 - Above and Below System, Cold Climate

Scenario Description:

This edge-of-field water quality monitoring system is applicable where a conservation practice has a pre- and post treatment area in the same field drainage with surface or subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The component monitoring equipment are associated with a typical system for northern latitudes where winter time heating is required for sampling. It will allow for installation of automated sampling data collection system with protective housing to reduce potential for vandalism, battery backup for operation during periods when electricity is down or solar panels are not creating an electrical current, a calf hut or other structure with heat is required over the flume to allow sampling under northern latitude winter conditions, and a berm or other directional flow structure to guide the runoff to a sampling flume. The actual installation will different on the subsurface flow by allowing a smaller pre-calibrated flume with the addition of a velocity sensor meter as in the tile alternative.

Before Situation:

The agricultural operation prior to installing the monitoring equipment is guessing about the effects of the conservation system with regards to meeting practice intent of avoid, controlling, or trapping sediment and nutrients. Nothing is known about the

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $45,762.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $45,762.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #59 - Retrofit, One

Scenario Description:

This edge-of-field water quality monitoring system is to retrofit an existing system that is being used in associated with the 799 interim practice or comparable system. The retrofit is applicable to a single control or treatment site that has a field defined with surface or subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The data represents the installation of an automated and manual backup rain gauge and back-up/solar power supply be added to existing system.

Before Situation:

The agricultural operation prior to retrofit has an edge-of-field data collection system but it does not meet the present standards for accuracy or reliability as detailed in either or both of Activity 201 and Activity 202.

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,457.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,457.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #105 - Tile

Scenario Description:

This edge-of-field water quality monitoring system is applicable to a single control or treatment site that has a field defined with tile or other subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The component monitoring equipment are associated with a typical system for southern latitudes where winter time heating is not required for sampling. It will allow for installation of automated sampling data collection system for a subsurface collection and separate surface automated sample collection system with protective housing to reduce potential for vandalism, battery backup for operation during periods when electricity is down or solar panels are not creating an electrical current, an area velocity sensor for pipe flow and estimation of submerged flow, and a berm or other directional flow structure to guide the runoff to a sampling flume.

Before Situation:

The agricultural operation prior to installing the monitoring equipment is guessing about the effects of the conservation system with regards to meeting practice intent of avoid, controlling, or trapping sediment and nutrients. Nothing is known about the

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $41,800.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41,800.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #127 - Surface

Scenario Description:

This edge-of-field water quality monitoring system is applicable to a single control or treatment site that has a field defined with surface runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The component monitoring equipment are associated with a typical system for southern latitudes where winter time heating is not required for sampling. It will allow for installation of automated sampling data collection system with protective housing to reduce potential for vandalism, battery backup for operation during periods when electricity is down or solar panels are not creating an electrical current, and a berm or other directional flow structure to guide the runoff to a sampling flume.

Before Situation:

The agricultural operation prior to installing the monitoring equipment is guessing about the effects of the conservation system with regards to meeting practice intent of avoid, controlling, or trapping sediment and nutrients.

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $29,807.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29,807.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 202 - Edge-of-Field Water Quality Monitoring-System Installation

Scenario: #184 - Above and Below System, Warm Climate

Scenario Description:

This edge-of-field water quality monitoring system is applicable where a conservation practice has a pre- and post treatment area in the same field drainage with surface or subsurface drainage runoff that can be captured and sampled at the edge of a field before entering a ditch or receiving water body or water course. The component monitoring equipment are associated with a typical system for southern latitudes where winter time heating is not required for sampling. It will allow for installation of automated sampling data collection system with protective housing to reduce potential for vandalism, battery backup for operation during periods when electricity is down or solar panels are not creating an electrical current, and a berm or other directional flow structure to guide the runoff to a sampling flume. The actual installation will different on the subsurface flow by allowing a smaller precalibrated flume with the addition of a velocity sensor meter as in the tile alternative.

Before Situation:

The agricultural operation prior to installing the monitoring equipment is guessing about the effects of the conservation system with regards to meeting practice intent of avoid, controlling, or trapping sediment and nutrients.

After Situation:

The agricultural operation after installing the monitoring equipment will be receiving feedback in the form of edge-of-field runoff water quality samples. The samples will allow the operator to understand the relationship between rain/irrigation, practice choice, and nutrient inputs effecting nutrient and sediment loss for the field. Thus, providing an opportunity to make adaptive management changes to the agricultural operation to reduce sediment and nutrient loss and/or profitability.

Feature Measure: System installed

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $41,691.83

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41,691.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 204 - Adaptive Management for Soil Health

Scenario: #7 - Basic

Scenario Description:

Field study with replicated plots for implementation of any of the conservation practices outlined in CEMA 204 Adaptive Management for Soil Health. Allows comparison of management and treatments on crop, grassland, forest, or rangeland small plots. Replicated treatment plots allow the producer to learn how to manage conservation practice on their operation and evaluate the management strategy effectiveness on soil health indicators particularly soil organic carbon, aggregate stability, pH, respiration. Scenario includes following the guidelines of the Conservation Practice in CEMA 204 Adaptive Management for Soil Health and CEMA 216 Soil Health Testing in small, replicated plots. Follow NRCS Technical Note 10- Adaptive Management. Study plot typical sizes range from 2-10 acres. Typical acre for scenario is 5.

Before Situation:

A producer is adopting the practice for the first time and desires to learn how to best to apply the practice within their unique landscape and management style or the producer is interested in improving the effectiveness of an existing practice or evalua

After Situation:

The study plots were installed with at least 4 replicated plots (control + treatment) designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in the selected practice. Data has been collected. Results are summarized in a report showing effectiveness of the treatments and any determined statistical analysis of collected data. Results are used to make management decisions to address soil health principles, erosion and water quality issues. Soil Health indicators and yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 10 - Adaptive Management. This would be repeated yearly for 3 years.

Feature Measure: Number of Study Plots

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,735.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,735.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 204 - Adaptive Management for Soil Health

Scenario: #23 - Basic with Soil Health Test

Scenario Description:

Field study with replicated plots for implementation of any of the conservation practices outlined in CEMA 204 Adaptive Management for Soil Health. Allows comparison of management and treatments on crop, grassland, forest, or rangeland small plots. Replicated treatment plots allow the producer to learn how to manage conservation practice on their operation and evaluate the management strategy effectiveness on soil health indicators particularly soil organic carbon, aggregate stability, active carbon, pH, texture and respiration. Scenario includes following the guidelines of the Conservation Practice in CEMA 204 Adaptive Management for Soil Health in small replicated plots. Follow NRCS Technical Note 10- Adaptive Management. Study plot typical sizes range from 2-10 acres. Typical acre for scenario is 5.

Before Situation:

A producer is adopting the practice for the first time and desires to learn how to best to apply the practice within their unique landscape and management style or the producer is interested in improving the effectiveness of an existing practice or evalua

After Situation:

Study plots were installed with treatments applied per the study design. Plot field data is collected. Soil health soil samples were collected in the fall and analyzed for include at least SOC by dry combustion, Active Carbon, pH, texture (soil texture in year 1 only to calculate AWC), aggregate stability, and 24-hr respiration. Soil Health indicators and yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 10 - Adaptive Management. A final report summarizes the effect of the treatment on soil health using interpretation of lab analysis and any statical analysis of collected field data. Results will inform future management decisions for the conservation practice to improve or maintain soil health.

Feature Measure: Number of field study plots

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,829.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,829.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 206 - Feed and Forage Analysis

Scenario: #7 - Nutrient Composition Analysis

Scenario Description:

Testing of feed or forage for nutrient composition. Each lot (forage lot or lot of feed) should be sampled and tested separately. Testing of bale or stack forage for nutrient composition. Factors to consider when determining lot size include forage species, stage of maturity, cutting schedule, soil type, soil fertility, presence of weeds, harvest conditions, storage effects. Each lot should be sampled and tested separately. Testing of standing forage for nutrient composition. Forage can be tested to determine if it is worth cutting for hay or to determine if grazing animals require supplemental feed. Select at lease eight representative locations and clip the forage at grazing or harvest height from a one square foot area at each location. In grazing situations try and select the species being selectively grazed. Cut the samples into 2- to 3-inch pieces, combine in a bucket and mix well. Spread the sample on paper and allow it to air-dry for two days or place in a pan and dry overnight in an oven at 150°F before mailing it to the laboratory. Analysis of silage (fresh or silo) for nutrient composition. Remove two to three gallons of silage from different sections of a load and save about a quart using the quartering method. Freeze the samples until all loads are sampled. Combine samples, mix thoroughly, and reduce to about one quart by quartering. The final sample should be placed in the cloth forage sample bag, and the full forage bag inserted into a plastic bag to prevent moisture loss during mailing. Remove excess air from the plastic bag before sealing. Do not insert the plastic bag inside the cloth forage bag since damage may result when it is processed by the laboratory. Freeze the sample prior to mailing and mail samples early in the week to avoid weekend delays and reduce chances of molding. Upright silos- 12 handfuls of silage as it is discharged from the silo. Horizontal silos-hand grab same as upright but access the entire surface of the open face. Analysis of dietary ration, feed, or diet for nutrient composition.

Before Situation:

Producer wishes to reduce nutrient excretion or emission from livestock or poultry to air, soil, or water. To accomplish a reduction in nutrient excretion and emissions, knowledge of nutrient input from silage is required to optimally balance the diet for

After Situation:

Animal diet is optimally balanced for nutrient composition and nutrients excreted or emitted by the animal are reduced.

Feature Measure: Each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,194.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,194.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 207 - Site Assessment and Soil Testing for Contaminants Activity

Scenario: #7 - Site Evaluation

Scenario Description:
This practice applies to urban sites where the desired land use is cropland. Sites may have been residential, industrial or commercial land use in the past and the risk for soil contaminants is unknown.

Before Situation:
Soil suitability for agricultural production is unknown with potential risk of contamination from prior land use activities.

After Situation:
Site history has been researched and findings indicate a potential for the presence of contaminants. Final report provides the landowner with the level of risk and recommendation for further testing. Reports may be used in the conservation planning process to explore non-remedial conservation practices to reduce risk of contaminants entering the food products.

Feature Measure: Each Site

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,276.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,276.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 207 - Site Assessment and Soil Testing for Contaminants Activity

Scenario: #23 - Site Evaluation and Testing for Soil Contaminants

Scenario Description:
This practice applies to urban sites where the desired land use is cropland. Sites may have been residential, industrial or commercial land use in the past and the risk for soil contaminants is unknown.

Before Situation:
Soil suitability for agricultural production is unknown with potential risk of contamination from prior land use activities.

After Situation:
Site history has been researched and findings indicate a potential for the presence of contaminants. The soil has been collected and tested for heavy metals, VOCs and PAHs. Final reports provide the landowner with the level of risk. Reports may be used in the conservation planning process to explore non-remedial conservation practices to reduce risk of contaminants entering the food products.

Feature Measure: Each Site

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $12,828.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,828.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 207 - Site Assessment and Soil Testing for Contaminants Activity

Scenario: #39 - Soil Testing, Subsurface Investigation

Scenario Description:

This practice applies to urban sites where the desired land use is cropland. Sites may have been residential, industrial or commercial land use in the past and the risk for soil contaminants is unknown. The landowner has a prior Environmental Site Assessment completed by an Environmental Professional. The ESA report recommends further subsurface investigation. OR Landowner has NRCS report from portable Xray Fluorescence screening that detected soil contaminants.

Before Situation:

Soil suitability for agricultural production is unknown with potential risk of contamination from prior land use activities.

After Situation:

Site history has been researched and findings indicate a potential for the presence of contaminants. The soil has been collected and tested for heavy metals, VOCs and PAHs. Final reports provide the landowner with the level of risk. Reports may be used in the conservation planning process to explore non-remedial conservation practices to reduce risk of contaminants entering the food products.

Feature Measure: Each Site

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,552.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,552.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 207 - Site Assessment and Soil Testing for Contaminants Activity

Scenario: #55 - Low Risk Sites

Scenario Description:

This practice applies to urban sites where the desired land use is cropland. Sites may have been residential, industrial or commercial land use in the past and the risk for soil contaminants is unknown. The landowner has a prior Environmental Site Assessment completed by an Environmental Professional. The ESA report does not require further investigation. OR Landowner has NRCS report from portable Xray Fluorescence screening that detected soil contaminants. Screening detection levels are below the State Environmental Protection Agency or equivalent agency published safety thresholds for bare soil residential use.

Before Situation:

Soil suitability for agricultural production is unknown with potential risk of contamination from prior land use activities.

After Situation:

Site history has been researched and findings indicate a potential for the presence of contaminants. The soil has been collected and tested for heavy metals only. Soil test reports provide the landowner with the level of risk. Reports may be used in the conservation planning process to explore non-remedial conservation practices to reduce risk of contaminants entering the food products.

Feature Measure: Area of Soil Tested

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 4.0

Scenario Total Cost: $918.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $229.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 209 - PFAS Testing in Water or Soil

Scenario: #7 - Low Complexity, Single Sample

Scenario Description:

A single sample of water or soil is required to provide prescreening information to the landowner to determine if PFAS may be present in water or soils at their operation. In this scenario, the environmental media being sampled by the qualified individual is of low complexity: there is little temporal or spatial variation to account for in sampling, therefore no pre-sampling planning needed. This could include a single well used for stockwater or irrigation systems. The typical number of tests is 1, assuming that a landowner has a single well or a single field that can be represented by a single composite sample.

Before Situation:

Water or soil on an agricultural operation are of unknown PFAS status. PFAS laboratory analysis has not been conducted on the water or soil of interest.

After Situation:

A laboratory PFAS analysis was completed, and the results were interpreted and explained to the landowner. The landowner now has pre-screening information that suggests if PFAS may be present in water (or soil) on their operation. If testing detects PFAS in water or soil at levels that exceed State or Federal screening levels, the landowner can decide to pursue non-NRCS sources for follow-up detailed PFAS assessment.

Feature Measure: Each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,231.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,231.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 209 - PFAS Testing in Water or Soil

Scenario: #23 - Low Complexity, Multiple Samples

Scenario Description:

Multiple samples of water or soil are needed to provide prescreening information to the landowner to determine if PFAS may be present in water or soils at their operation. In this scenario, the environmental media being sampled by the qualified individual is of low complexity. There is little temporal or spatial variation to account for in sampling, therefore no pre-sampling planning needed. This scenario could apply to small ponds or wells used for stockwater or irrigation systems, a small field, or a small number of fields of uniform soil composition. This scenario assumes that additional time is needed for each collection of multiple samples. The typical number of tests is 5, assuming that a landowner has four fields and a well and each field can be represented by a single composite sample.

Before Situation:

Water or soil on an agricultural operation are of unknown PFAS status. PFAS laboratory analysis has not been conducted on the water or soil of interest.

After Situation:

A laboratory PFAS analysis was completed, and the results were interpreted and explained to the landowner. The landowner now has pre-screening information that suggests if PFAS may be present in water (or soil) on their operation. If testing detects PFAS in water or soil at levels that exceed State or Federal screening levels, the landowner can decide to pursue non-NRCS sources for follow-up detailed PFAS assessment.

Feature Measure: Each

Scenario Unit: Number

Scenario Typical Size: 5.0

Scenario Total Cost: $4,311.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $862.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 209 - PFAS Testing in Water or Soil

Scenario: #39 - High Complexity, Multiple Samples

Scenario Description:

Multiple samples of water or soil are needed to provide prescreening information to the landowner to determine if PFAS may be present in water or soils at their operation. In this scenario, the environmental media being sampled is of high complexity. There is a need to account for this temporal or spatial variation in sampling. Therefore, additional time is needed to prepare and discuss a comprehensive sampling strategy to detect PFAS and the final comprehensive report with the landowner. This scenario could apply to the agricultural use of multiple sources of water (ponds, wells, and reclaimed water) for stockwater or irrigation systems or to assess multiple fields with variable soil composition. This scenario assumes that additional time is needed for each collection of multiple samples. The typical number of tests is 5, assuming that a farmer has many fields, and the producer doesn't want to test all or has large fields with highly variable soil composition.

Before Situation:

Water or soil on an agricultural operation are of unknown PFAS status. PFAS laboratory analysis has not been conducted on the water or soil of interest.

After Situation:

A laboratory PFAS analysis was completed, and the results were interpreted and explained to the landowner. The landowner now has pre-screening information that suggests if PFAS may be present in water (or soil) on their operation. If testing detects PFAS in water or soil at levels that exceed State or Federal screening levels, the landowner can decide to pursue non-NRCS sources for follow-up detailed PFAS assessment.

Feature Measure: Each

Scenario Unit: Number

Scenario Typical Size: 5.0

Scenario Total Cost: $5,233.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,046.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 216 - Soil Health Testing

Scenario: #170 - Basic

Scenario Description:

A laboratory soil health assessment for a suite of indicators is conducted using recommended methods to evaluate and/or monitor conservation practices. Laboratory tests for five (~6 2 pH methods) indicators: soil organic carbon concentration, active carbon, soil texture, pH CaCl, pH H2O and aggregate stability. Sample collection is completed by a qualified individual and includes time for soil sampling and submission. Lab method for organic carbon concentration is dry combustion. For calcareous soil: Total C - Inorganic C. Lab method for carbon mineralization potential is 24-hr CO2 burst resulting from rewetting air dried, sieved soil. Lab method for aggregate stability is slaking.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management.

After Situation:

A laboratory soil health test of was completed for the suite of three soil health indicators and results explained to the producer and used to establish benchmark conditions for soil health management practices or evaluate the effectiveness of a conservation practice.

Feature Measure: Test

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost:	$650.45	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$650.45	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 216 - Soil Health Testing

Scenario: #186 - Single Indicator

Scenario Description:

A laboratory soil health assessment for a single indicator is conducted using recommended methods to evaluate and/or monitor conservation practices. Laboratory tests available: soil organic carbon concentration, carbon mineralization potential, pH, PoxC, soil texture, ACE Protein, PLFA, Enzymes, Respiration 1,2,3, or 4-day, and aggregate stability. Sample collection is completed by a qualified individual and includes time for soil sampling and submission. Lab method for organic carbon concentration is dry combustion. For calcareous soil: Total C - Inorganic C. Lab method for carbon mineralization potential is 24-hr CO2 burst resulting from rewetting air dried, sieved soil.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management.

After Situation:

A laboratory soil health test of was completed for a single indicator and results explained to the producer and used to establish benchmark conditions for soil health management practices or evaluate the effectiveness of a conservation practice.

Feature Measure: polygon

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $422.83

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $422.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 216 - Soil Health Testing

Scenario: #275 - Minimal Suite

Scenario Description:

A laboratory soil health assessment for a suite of indicators is conducted using recommended methods to evaluate and/or monitor conservation practices. Laboratory tests for three indicators: soil organic carbon concentration, carbon mineralization potential, and aggregate stability. Sample collection is completed by a qualified individual and includes time for soil sampling and submission. Lab method for organic carbon concentration is dry combustion. For calcareous soil: Total C - Inorganic C.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management.

After Situation:

A laboratory soil health test of was completed for the suite of six soil health indicators and results explained to the producer and used to establish benchmark conditions for soil health management practices or evaluate the effectiveness of a conservation practice.

Feature Measure: Test

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $787.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $787.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 216 - Soil Health Testing

Scenario: #291 - Basic and Single Indicator

Scenario Description:

A laboratory soil health assessment for a suite of indicators is conducted using recommended methods to evaluate and/or monitor conservation practices. Laboratory tests for five (~6 2 pH methods) indicators: soil organic carbon concentration, active carbon, soil texture, pH CaCl, pH H2O and aggregate stability. Sample collection is completed by a qualified individual and includes time for soil sampling and submission. Lab method for organic carbon concentration is dry combustion. For calcareous soil: Total C - Inorganic C. Lab method for carbon mineralization potential is 24-hr CO2 burst resulting from rewetting air dried, sieved soil. Lab method for aggregate stability is slaking. Producer also selects 1 additional indicator from the Single Indicator List.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management.

After Situation:

A laboratory soil health test was completed for the suite of three soil health indicators and results explained to the producer and used to establish benchmark conditions for soil health management practices or evaluate the effectiveness of a conservation practice.

Feature Measure: Test

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $833.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $833.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 216 - Soil Health Testing

Scenario: #307 - Minimal Suite and Single Indicator

Scenario Description:

A laboratory soil health assessment for a suite of indicators is conducted using recommended methods to evaluate and/or monitor conservation practices. Laboratory tests for three indicators: soil organic carbon concentration, carbon mineralization potential, and aggregate stability. Sample collection is completed by a qualified individual and includes time for soil sampling and submission. Lab method for organic carbon concentration is dry combustion. For calcareous soil: Total C - Inorganic C.

Before Situation:

Agricultural producer has been farming a system that has not addressed all 4 of the soil health principles. Producer has noticed yield declines, soil degradation, or is simply interested in learning more about soil health management.

After Situation:

A laboratory soil health test of was completed for the suite of six soil health indicators and results explained to the producer and used to establish benchmark conditions for soil health management practices or evaluate the effectiveness of a conservation practice.

Feature Measure: Test

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $970.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $970.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 217 - Soil and Source Testing for Nutrient Management

Scenario: #7 - Soil Testing

Scenario Description:

A qualified individual will develop a nutrient testing strategy, collect soil samples and prepare for laboratory analysis; and interpret soil nutrient needs. Typical management unit is 100 acres. Includes Comprehensive Soil Testing to provide both Macro and micro soil nutrient levels.

Before Situation:

Producer does not have soil test laboratory analysis documenting the level of nitrogen, phosphorus, potassium or pH for each field or management unit in crop production. Nutrients are applied without knowledge of soil test levels.

After Situation:

Soil samples have been collected and analyzed. The strategy for sampling is described and a map if sampling points is provided. Qualified individual concludes nutrients are needed or not based on soil test results. Follow up by developing a nutrient management plan with DIA 157 Nutrient Management Design and Implementation Activity or implement Nutrient Management 590.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $954.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $954.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 217 - Soil and Source Testing for Nutrient Management

Scenario: #39 - Zone or Grid Soil Testing

Scenario Description:

A qualified individual will develop a nutrient testing strategy, collect soil samples based on a 2.5 acre grid or zone, and prepare for laboratory analysis; and interpret soil nutrient needs. Typical management unit is 100 acres.

Before Situation:

Producer does not have soil test laboratory analysis documenting the level of nitrogen, phosphorus, potassium or pH for each field or management unit in crop production. Nutrients are applied without knowledge of soil test levels.

After Situation:

Soil samples have been collected and analyzed. The strategy for sampling is described and a map if sampling points is provided. Qualified individual concludes nutrients are needed or not based on soil test results. Follow up by developing a nutrient management plan with DIA 157 Nutrient Management Design and Implementation Activity or implement Nutrient Management 590.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,238.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,238.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 217 - Soil and Source Testing for Nutrient Management

Scenario: #55 - Manure or Compost

Scenario Description:

A qualified individual will develop a nutrient testing strategy, collect manure or compost samples and prepare for laboratory analysis; and interpret crop nutrient needs. Sampling protocol for liquid manure includes agitation per LGU guidelines. Dry manure and compost sampling protocol are performed per LGU guidelines.

Before Situation:

Producer does not have manure or compost laboratory analysis documenting the level of nitrogen, phosphorus, potassium or pH of the organic source. Nutrients are applied without knowledge of manure or compost nutrient levels.

After Situation:

Manure or Compost samples have been collected and analyzed. The strategy for sampling is described. Qualified individual concludes the amount of nutrients needed for the crop based on manure or compost test results. Follow up by developing a nutrient management plan with DIA 157 Nutrient Management Design and Implementation Activity or implement Nutrient Management 590.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,088.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,088.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 217 - Soil and Source Testing for Nutrient Management

Scenario: #71 - Water Sampling

Scenario Description:

A qualified individual will develop a nutrient testing strategy, collect source water samples and prepare for laboratory analysis; and interpret crop nutrient needs. Typical irrigation water sampling for nutrients, may include drainage water sampling for monitoring nutrient loss or if drainage water is being reused.

Before Situation:

Producer does not have Source Water Nutrient laboratory analysis documenting the level of nitrogen, phosphorus, potassium or pH of the water source. Nutrients are applied without knowledge of source water nutrient levels.

After Situation:

Water samples have been collected and analyzed. The strategy for sampling is described. Qualified individual concludes the amount of nutrients needed for the crop based on Source Water test results. Follow up by developing a nutrient management plan with DIA 157 Nutrient Management Design and Implementation Activity or implement Nutrient Management 590.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $699.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $699.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 217 - Soil and Source Testing for Nutrient Management

Scenario: #87 - Acidic or Alkaline Soil Testing

Scenario Description:

Soil analysis is used as a diagnostic tool to identify fields with soil acidification problems in no-till cropping systems. One soil sample is collected every 40 acres from only the top 3 inches of soil and analyzed for both pH and buffer pH. A recommended three cores should be taken from a 4 sq ft sampling area every 40 acres and composited to provide at least 100 grams of soil for the laboratory test. Test results are georeferenced on a map and can be used to build a lime application budget for the field.

Before Situation:

Field shows crop yield decline and areas of lower pH are suspected but not tested. No-till application of nitrogen fertilizers is causing acidification. Soil is sampled to 6-inch depth, multiple sub-samples are collected from random locations in the field

After Situation:

One composited soil sample is collected in a 4 sq ft area from the top 3 inches of soil every 40 acres,. The sample is analyzed for pH and buffer pH. Sample results are georeferenced on a map and used to identify and diagnose soil acidification problems. Follow up by developing or updating a nutrient management plan with DIA 157 Nutrient Management Design and Implementation Activity or implement Nutrient Management 590. Producers can then use this diagnostic information to apply lime to raise the soil pH. Topsoil pH and plant productivity and health are both maintained at desirable levels.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $247.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $247.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 217 - Soil and Source Testing for Nutrient Management

Scenario: #103 - Soil Test with Organic Nutrients, Less Than or Equal to One Acre

Scenario Description:

A qualified individual will develop a nutrient testing strategy, collect soil and nutrient source samples, prepare for laboratory analysis and interpret soil and crop nutrient needs. Typical field size is less than or equal to 0.5 acres (22000 sq ft). Includes Comprehensive Soil Testing to provide both Macro and micro soil nutrient levels.

Before Situation:

Producer does not have soil and nutrient source laboratory analysis documenting the level of nitrogen, phosphorus, potassium or pH for the soil and nutrient source. Nutrients are applied without knowledge of soil and nutrient source test levels.

After Situation:

Soil and nutrient source samples have been collected and analyzed. The strategy for sampling is described. Qualified individual concludes nutrients are needed or not based on soil test results. The amount of nutrients needed is based on Nutrient Source results. Follow up by developing a nutrient management plan with DIA 157 Nutrient Management Design and Implementation Activity or implement Nutrient Management 590.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $473.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $473.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 217 - Soil and Source Testing for Nutrient Management

Scenario: #119 - Soil Testing, Small Production Beds

Scenario Description:

A qualified individual will develop a nutrient testing strategy, collect 5 soil subsamples and combine to one representative sample, prepare for laboratory analysis, and interpret soil nutrient needs. This scenario considers costs for 5 or less raised beds. Cost includes comprehensive soil test based on expected specialty crop production.

Before Situation:

Producer does not have soil test laboratory analysis documenting the level of nitrogen, phosphorus, potassium or pH for each field or management unit in crop production. Nutrients are applied without knowledge of soil test levels.

After Situation:

Soil samples have been collected and analyzed. The strategy for sampling is described and a map if sampling points is provided. Qualified individual concludes nutrients are needed or not based on soil test results. A Nutrient Management Plan CPS 590 or DIA 157 may be developed after the report is complete.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $612.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $612.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 218 - Carbon Sequestration and Greenhouse Gas Mitigation Assessment

Scenario: #7 - Low Complexity

Scenario Description:

An evaluation of the quantifiable carbon sequestration and greenhouse gas mitigation effects using the COMET-Farm tool. The information on the type of operation, land use, and management history is collected initially as part of the planning process for a conservation plan focused on carbon sequestration and greenhouse gas mitigation. The carbon sequestration and greenhouse gas mitigation CEMA includes a complete COMET-Farm project designed to evaluate the current conservation plan and the baseline and historic management impacts on carbon sequestration and greenhouse gas mitigation. The COMET-Farm evaluation can occur concurrently or following a conservation plan. Low complexity would include simple systems of a single enterprise, low number of management units, detailed available history.

Before Situation:

The producer's objectives are to improve soil carbon sequestration and greenhouse gas mitigation and to quantify the effects of a conservation plan. The quantifiable effects on soil carbon sequestration and greenhouse gas mitigation of the current and his

After Situation:

Producer receives a detailed report from COMET-Farm that quantifies the soil carbon sequestration and greenhouse gas mitigation effects of historic, baseline, and (scenario management) proposed conservation plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $921.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $921.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 218 - Carbon Sequestration and Greenhouse Gas Mitigation Assessment

Scenario: #23 - Medium Complexity

Scenario Description:

An evaluation of the quantifiable carbon sequestration and greenhouse gas mitigation effects using the COMET-Farm tool. The information on the type of operation, land use, and management history is collected initially as part of the planning process for a conservation plan focused on carbon sequestration and greenhouse gas mitigation. The carbon sequestration and greenhouse gas mitigation CEMA includes a complete COMET-Farm project designed to evaluate the current conservation plan and the baseline and historic management impacts on carbon sequestration and greenhouse gas mitigation. The COMET-Farm evaluation can occur concurrently or following a conservation plan. Medium complexity would include systems with more than one enterprises, a moderate number of management units, complex or difficult to define history.

Before Situation:

The producer objectives are to improve soil carbon sequestration and greenhouse gas mitigation and quantify the effects of a conservation plan. The quantifiable effects on soil carbon sequestration and greenhouse gas mitigation of the current and historic

After Situation:

Producer receives a detailed COMET-Farm report that quantifies the soil carbon sequestration and greenhouse gas mitigation effects of historic, baseline, and (scenario management) proposed conservation plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,382.87 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $1,382.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 218 - Carbon Sequestration and Greenhouse Gas Mitigation Assessment

Scenario: #39 - High Complexity

Scenario Description:

An evaluation of the quantifiable carbon sequestration and greenhouse gas mitigation effects using the COMET-Farm tool. The information on the type of operation, land use, and management history is collected initially as part of the planning process for a conservation plan focused on carbon sequestration and greenhouse gas mitigation. The carbon sequestration and greenhouse gas mitigation CEMA includes a complete COMET-Farm project designed to evaluate the current conservation plan and the baseline and historic management impacts on carbon sequestration and greenhouse gas mitigation. The COMET-Farm evaluation can occur concurrently or following a conservation plan. High complexity would include systems with multiple enterprises, high number of management units, and complex or incomplete management history.

Before Situation:

The producer objectives are to improve soil carbon sequestration and greenhouse gas mitigation and quantify the effects of a conservation plan. The quantifiable effects on soil carbon sequestration and greenhouse gas mitigation of the current and historic

After Situation:

Producer receives a detailed report from COMET-Farm that quantifies the soil carbon sequestration and greenhouse gas mitigation effects of historic, baseline, and (scenario management) proposed conservation plan .

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,843.83 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $1,843.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 219 - Prescribed Grazing Conservation Evaluation and Monitoring Activity

Scenario: #7 - Grazed Lands, Less Than or Equal to 100 Acres

Scenario Description:

Small agricultural operation with less than 100 acres grazed land. Natural Resource Concern: soil erosion, water quality, fish and wildlife, plant condition, or appropriate resource concerns.

Before Situation:

Producer is not utilizing a certified Technical Service Provider (TSP) to evaluate and monitor all practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR), and/or DIA 159. Information is not being gathered to evaluate the effect

After Situation:

Producer will utilize a certified Technical Service Provider (TSP) to evaluate and monitor all grazing management practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR) and/or DIA 159. Evaluation and monitoring activities will provide all needed information to evaluate the effectiveness of the grazing management plan (CPS 528) and any associated practices. A monitoring plan will be implemented with appropriate protocols and data records that evaluate whether the grazing strategy identified in the grazing plan is resulting in a movement toward meeting goals and objectives. Specific evaluation activities will be chosen based on stated objectives and pertinent resource concerns assessments identified in the Conservation Plan, CPA, Implementation Requirement (IR) and/or DIA. Evaluation and monitoring will meet the applicable "plans and specifications" and "operation and maintenance" sections found in CPS 528. Other supporting and facilitating conservation practices will also be monitored and evaluated. The CEMA narrative will describe the overall methodology, decision support tools and recommended management actions to meet purposes and criteria within practice standards. Job sheets and implementation requirement documents found in State's FOTG Section IV Conservation practices may be used.

Feature Measure: number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,047.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,047.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 219 - Prescribed Grazing Conservation Evaluation and Monitoring Activity

Scenario: #23 - Grazed Lands, 101 to 500 Acres

Scenario Description:

Agricultural operation between 101 and 500 acres grazed land. Natural Resource Concern: soil erosion, water quality, fish and wildlife, plant condition, or appropriate resource concerns.

Before Situation:

Producer is not utilizing a certified Technical Service Provider (TSP) to evaluate and monitor all practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR), and/or DIA 159. Information is not being gathered to evaluate the effect

After Situation:

Producer will utilize a certified Technical Service Provider (TSP) to evaluate and monitor all grazing management practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR) and/or DIA 159. Evaluation and monitoring activities will provide all needed information to evaluate the effectiveness of the grazing management plan (CPS 528) and any associated practices. A monitoring plan will be implemented with appropriate protocols and data records that evaluate whether the grazing strategy identified in the grazing plan is resulting in a movement toward meeting goals and objectives. Specific evaluation activities will be chosen based on stated objectives and pertinent resource concerns assessments identified in the Conservation Plan, CPA, Implementation Requirement (IR) and/or DIA. Evaluation and monitoring will meet the applicable "plans and specifications" and "operation and maintenance" sections found in CPS 528. Other supporting and facilitating conservation practices will also be monitored and evaluated. The CEMA narrative will describe the overall methodology, decision support tools and recommended management actions to meet purposes and criteria within practice standards. Job sheets and implementation requirement documents found in State's FOTG Section IV Conservation practices may be used.

Feature Measure: number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,570.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,570.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 219 - Prescribed Grazing Conservation Evaluation and Monitoring Activity

Scenario: #39 - Grazed Lands, 501 to 1,500 Acres

Scenario Description:

Small agricultural operation with 501 to 1,500 acres grazed land. Natural Resource Concern: Soil erosion, water quality, fish and wildlife, plant condition, or appropriate resource concerns.

Before Situation:

Producer is not utilizing a certified Technical Service Provider (TSP) to evaluate and monitor all practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR), and/or DIA 159. Information is not being gathered to evaluate the effect

After Situation:

Producer will utilize a certified Technical Service Provider (TSP) to evaluate and monitor all grazing management practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR) and/or DIA 159. Evaluation and monitoring activities will provide all needed information to evaluate the effectiveness of the grazing management plan (CPS 528) and any associated practices. A monitoring plan will be implemented with appropriate protocols and data records that evaluate whether the grazing strategy identified in the grazing plan is resulting in a movement toward meeting goals and objectives. Specific evaluation activities will be chosen based on stated objectives and pertinent resource concerns assessments identified in the Conservation Plan, CPA, Implementation Requirement (IR) and/or DIA. Evaluation and monitoring will meet the applicable "plans and specifications" and "operation and maintenance" sections found in CPS 528. Other supporting and facilitating conservation practices will also be monitored and evaluated. The CEMA narrative will describe the overall methodology, decision support tools and recommended management actions to meet purposes and criteria within practice standards. Job sheets and implementation requirement documents found in State's FOTG Section IV Conservation practices may be used.

Feature Measure: number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,618.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,618.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 219 - Prescribed Grazing Conservation Evaluation and Monitoring Activity

Scenario: #55 - Grazed Lands, 1,501 to 5,000 Acres

Scenario Description:

Agricultural operation with 1,501 to 5,000 acres grazed land. Natural Resource Concern: Soil erosion, water quality, fish and wildlife, plant condition, or appropriate resource concerns.

Before Situation:

Producer is not utilizing a certified Technical Service Provider (TSP) to evaluate and monitor all practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR), and/or DIA 159. Information is not being gathered to evaluate the effect

After Situation:

Producer will utilize a certified Technical Service Provider (TSP) to evaluate and monitor all grazing management practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR) and/or DIA 159. Evaluation and monitoring activities will provide all needed information to evaluate the effectiveness of the grazing management plan (CPS 528) and any associated practices. A monitoring plan will be implemented with appropriate protocols and data records that evaluate whether the grazing strategy identified in the grazing plan is resulting in a movement toward meeting goals and objectives. Specific evaluation activities will be chosen based on stated objectives and pertinent resource concerns assessments identified in the Conservation Plan, CPA, Implementation Requirement (IR) and/or DIA. Evaluation and monitoring will meet the applicable "plans and specifications" and "operation and maintenance" sections found in CPS 528. Other supporting and facilitating conservation practices will also be monitored and evaluated. The CEMA narrative will describe the overall methodology, decision support tools and recommended management actions to meet purposes and criteria within practice standards. Job sheets and implementation requirement documents found in State's FOTG Section IV Conservation practices may be used.

Feature Measure: number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,665.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,665.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 219 - Prescribed Grazing Conservation Evaluation and Monitoring Activity

Scenario: #71 - Grazed Lands, 5,001 to 10,000 Acres

Scenario Description:

Agricultural operation with 5,001 to 10,000 acres grazed land. Natural Resource Concern: Soil erosion, water quality, fish and wildlife, plant condition, or appropriate resource concerns.

Before Situation:

Producer is not utilizing a certified Technical Service Provider (TSP) to evaluate and monitor all practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR), and/or DIA 159. Information is not being gathered to evaluate the effect

After Situation:

Producer will utilize a certified Technical Service Provider (TSP) to evaluate and monitor all grazing management practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR) and/or DIA 159. Evaluation and monitoring activities will provide all needed information to evaluate the effectiveness of the grazing management plan (CPS 528) and any associated practices. A monitoring plan will be implemented with appropriate protocols and data records that evaluate whether the grazing strategy identified in the grazing plan is resulting in a movement toward meeting goals and objectives. Specific evaluation activities will be chosen based on stated objectives and pertinent resource concerns assessments identified in the Conservation Plan, CPA, Implementation Requirement (IR) and/or DIA. Evaluation and monitoring will meet the applicable "plans and specifications" and "operation and maintenance" sections found in CPS 528. Other supporting and facilitating conservation practices will also be monitored and evaluated. The CEMA narrative will describe the overall methodology, decision support tools and recommended management actions to meet purposes and criteria within practice standards. Job sheets and implementation requirement documents found in State's FOTG Section IV Conservation practices may be used.

Feature Measure: number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,712.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,712.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 219 - Prescribed Grazing Conservation Evaluation and Monitoring Activity

Scenario: #87 - Grazed Lands, Greater Than 10,000 Acres

Scenario Description:

Agricultural operation with greater than 10,000 acres grazed land. Natural Resource Concern: Soil erosion, water quality, fish and wildlife, plant condition, or appropriate resource concerns.

Before Situation:

Producer is not utilizing a certified Technical Service Provider (TSP) to evaluate and monitor all practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR), and/or DIA 159. Information is not being gathered to evaluate the effect

After Situation:

Producer will utilize a certified Technical Service Provider (TSP) to evaluate and monitor all grazing management practices planned in a Conservation Plan, CPA 110, Implementation Requirement (IR) and/or DIA 159. Evaluation and monitoring activities will provide all needed information to evaluate the effectiveness of the grazing management plan (CPS 528) and any associated practices. A monitoring plan will be implemented with appropriate protocols and data records that evaluate whether the grazing strategy identified in the grazing plan is resulting in a movement toward meeting goals and objectives. Specific evaluation activities will be chosen based on stated objectives and pertinent resource concerns assessments identified in the Conservation Plan, CPA, Implementation Requirement (IR) and/or DIA. Evaluation and monitoring will meet the applicable "plans and specifications" and "operation and maintenance" sections found in CPS 528. Other supporting and facilitating conservation practices will also be monitored and evaluated. The CEMA narrative will describe the overall methodology, decision support tools and recommended management actions to meet purposes and criteria within practice standards. Job sheets and implementation requirement documents found in State's FOTG Section IV Conservation practices may be used.

Feature Measure: number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,283.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,283.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 221 - Soil Organic Carbon Stock Monitoring

Scenario: #7 - Soil Carbon Stock Sampling

Scenario Description:

Soil is collected for organic carbon testing following the measurement, monitoring, reporting and verification (MMRV) protocol. PODS land use and management information is collected and documents. Soil sample collection strategy is planned in an area of interest (AOI) of <10 acres. Soil samples are collected by a Qualified Individual (QI) at 6 different locations within the AOI (3 locations in 3 different strata). Soil bulk density is measured before being analyzed for organic carbon by dry combustion. Payment includes time for collecting management information, developing sampling strategy, soil sampling and sample preparation, submission to the laboratory, and interpretation/delivery of results.

Before Situation:

No recent measurements of soil organic carbon stocks have been made in the AOI. Conservation practices are planned or installed for the purpose of improving soil health and sequestering carbon.

After Situation:

Land use and management information is collected. Soil bulk density was measured before being analyzed for organic carbon by dry combustion. The results were interpreted and explained to the producer. Initial measurements are used to establish benchmark conditions for soil organic carbon stocks. Subsequent measurements are used to evaluate the effectiveness of a conservation practice on carbon sequestration and report the change over time.

Feature Measure: Area of Interest Polygon

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,915.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,915.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 221 - Soil Organic Carbon Stock Monitoring

Scenario: #87 - Citizen Science

Scenario Description:

Soil is collected for organic carbon testing following the measurement, monitoring, reporting and verification (MMRV) protocol. PODS land use and management information is collected and documents. Soil sample collection strategy is planned in an area of interest (AOI) of <10 acres. Soil samples are collected by a Qualified Individual (QI) at 9 different locations within the AOI (3 locations in 3 different strata). Soil bulk density is measured before being analyzed for organic carbon by dry combustion. Payment includes time for collecting management information, developing sampling strategy, soil sampling and sample preparation, submission to the laboratory, and interpretation/delivery of results.

Before Situation:

No recent measurements of soil organic carbon stocks have been made in the AOI. Conservation practices are planned or installed for the purpose of improving soil health and sequestering carbon.

After Situation:

Land use and management information is collected. Soil bulk density was measured before being analyzed for organic carbon by dry combustion. The results were interpreted and explained to the producer. Initial measurements are used to establish benchmark conditions for soil organic carbon stocks. Subsequent measurements are used to evaluate the effectiveness of a conservation practice on carbon sequestration and report the change over time.

Feature Measure: Area of Interest Polygon

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,221.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,221.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 222 - Indigenous Stewardship Methods Evaluation

Scenario: #7 - Indigenous Knowledge, 301 to 1,000 Acres

Scenario Description:

The scenario involves obtaining assistance from a Qualified Individual, designated by the governing body of a Tribe or Indigenous culture, to evaluate the designated planning area, then gather knowledge about indigenous knowledge, and deliver results to the client and NRCS. The resulting information can be used to inform the conservation planning and implementation processes, meet the client's objectives by addressing one or more NRCS-recognized resource concerns using techniques that align with Tribal or Indigenous knowledge.

Before Situation:

Through the NRCS conservation planning process, a conservation planner has identified client objectives for addressing natural resource concerns (Soil, Water, Animals, Plants, Air + Energy) and socio-economic considerations such as increasing capacity for

After Situation:

The client hired a QI to provide the CEMA assistance. The QI has met with client and visited the planning area, in order to develop an understanding of its capabilities, limitations, and needs within a culturally appropriate context. Indigenous knowledge about the planning area has been gathered from sources approved by a Tribe or Indigenous culture. The QI verifies with the Tribe's or Indigenous culture's governing body, that the information gathered is accurate- then provides a report, map and other supporting documentation of their ISM evaluation of the planning area to the client; and a copy is shared with NRCS. In the future, the information this CEMA provides can assists the participant and the planner refine conservation objectives; and realize opportunities to incorporate Indigenous knowledge into a conservation plan and/or conservation practice implementations.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $17,416.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17,416.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 222 - Indigenous Stewardship Methods Evaluation

Scenario: #23 - Indigenous Knowledge, 1,001 to 3,000 Acres

Scenario Description:

The scenario involves obtaining assistance from a Qualified Individual, designated by the governing body of a Tribe or Indigenous culture, to evaluate the designated planning area, then gather knowledge about indigenous knowledge, and deliver results to the client and NRCS. The resulting information can be used to inform the conservation planning and implementation processes, meet the client's objectives by addressing one or more NRCS-recognized resource concerns using techniques that align with Tribal or Indigenous knowledge.

Before Situation:

Through the NRCS conservation planning process, a conservation planner has identified client objectives for addressing natural resource concerns (Soil, Water, Animals, Plants, Air + Energy) and socio-economic considerations such as increasing capacity for

After Situation:

The client hired a QI to provide the CEMA assistance. The QI has met with client and visited the planning area, in order to develop an understanding of its capabilities, limitations, and needs within a culturally appropriate context. Indigenous knowledge about the planning area has been gathered from sources approved by a Tribe or Indigenous culture. The QI verifies with the Tribe's or Indigenous culture's governing body, that the information gathered is accurate- then provides a report, map and other supporting documentation of their ISM evaluation of the planning area to the client; and a copy is shared with NRCS. In the future, the information this CEMA provides can assists the participant and the planner refine conservation objectives; and realize opportunities to incorporate Indigenous knowledge into a conservation plan and/or conservation practice implementations.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $23,095.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23,095.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 222 - Indigenous Stewardship Methods Evaluation

Scenario: #39 - Indigenous Knowledge, Less Than or Equal to 10 Acres

Scenario Description:

The scenario involves obtaining assistance from a Qualified Individual, designated by the governing body of a Tribe or Indigenous culture, to evaluate the designated planning area, then gather knowledge about indigenous knowledge, and deliver results to the client and NRCS. The resulting information can be used to inform the conservation planning and implementation processes, meet the client's objectives by addressing one or more NRCS-recognized resource concerns using techniques that align with Tribal or Indigenous knowledge.

Before Situation:

Through the NRCS conservation planning process, a conservation planner has identified client objectives for addressing natural resource concerns (Soil, Water, Animals, Plants, Air + Energy) and socio-economic considerations such as increasing capacity for

After Situation:

The client hired a QI to provide the CEMA assistance. The QI has met with client and visited the planning area, in order to develop an understanding of its capabilities, limitations, and needs within a culturally appropriate context. Indigenous knowledge about the planning area has been gathered from sources approved by a Tribe or Indigenous culture. The QI verifies with the Tribe's or Indigenous culture's governing body, that the information gathered is accurate- then provides a report, map and other supporting documentation of their ISM evaluation of the planning area to the client; and a copy is shared with NRCS. In the future, the information this CEMA provides can assists the participant and the planner refine conservation objectives; and realize opportunities to incorporate Indigenous knowledge into a conservation plan and/or conservation practice implementations.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,173.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,173.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 222 - Indigenous Stewardship Methods Evaluation

Scenario: #55 - Indigenous Knowledge, 11 to 300 Acres

Scenario Description:

The scenario involves obtaining assistance from a Qualified Individual, designated by the governing body of a Tribe or Indigenous culture, to evaluate the designated planning area, then gather knowledge about indigenous knowledge, and deliver results to the client and NRCS. The resulting information can be used to inform the conservation planning and implementation processes, meet the client's objectives by addressing one or more NRCS-recognized resource concerns using techniques that align with Tribal or Indigenous knowledge.

Before Situation:

Through the NRCS conservation planning process, a conservation planner has identified client objectives for addressing natural resource concerns (Soil, Water, Animals, Plants, Air + Energy) and socio-economic considerations such as increasing capacity for

After Situation:

The client hired a QI to provide the CEMA assistance. The QI has met with client and visited the planning area, in order to develop an understanding of its capabilities, limitations, and needs within a culturally appropriate context. Indigenous knowledge about the planning area has been gathered from sources approved by a Tribe or Indigenous culture. The QI verifies with the Tribe's or Indigenous culture's governing body, that the information gathered is accurate- then provides a report, map and other supporting documentation of their ISM evaluation of the planning area to the client; and a copy is shared with NRCS. In the future, the information this CEMA provides can assists the participant and the planner refine conservation objectives; and realize opportunities to incorporate Indigenous knowledge into a conservation plan and/or conservation practice implementations.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,498.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,498.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 223 - Forest Management Assessment

Scenario: #7 - Nonindustrial Private Forest, Less Than or Equal to 20 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 1 to 20 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Conservation Evaluation and Monitoring Activity is needed to provide a forest inventory to allow

After Situation:

After EQIP contract approval, participant has obtained services from a qualified individual for development of the Conservation Evaluation and Monitoring Activities (CEMA) - Forest Inventory. The CEMA criteria requires a forest inventory as a component of a forest management plan to determine current site condition and identify resource concerns. Additional CEMA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $847.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $847.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 223 - Forest Management Assessment

Scenario: #23 - Nonindustrial Private Forest, 21 to 100 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 21 to 100 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Conservation Evaluation and Monitoring Activity is needed to provide a forest inventory to allow

After Situation:

After EQIP contract approval, participant has obtained services from a qualified individual for development of the Conservation Evaluation and Monitoring Activities (CEMA) - Forest Inventory. The CEMA criteria requires a forest inventory as a component of a forest management plan to determine current site condition and identify resource concerns. Additional CEMA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,610.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,610.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 223 - Forest Management Assessment

Scenario: #39 - Nonindustrial Private Forest, 101 to 250 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 101 to 250 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Conservation Evaluation and Monitoring Activity is needed to provide a forest inventory to allow

After Situation:

After EQIP contract approval, participant has obtained services from a qualified individual for development of the Conservation Evaluation and Monitoring Activities (CEMA) - Forest Inventory. The CEMA criteria requires a forest inventory as a component of a forest management plan to determine current site condition and identify resource concerns. Additional CEMA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,050.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,050.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 223 - Forest Management Assessment

Scenario: #55 - Nonindustrial Private Forest, 251 to 500 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 251 to 500 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Conservation Evaluation and Monitoring Activity is needed to provide a forest inventory to allow

After Situation:

After EQIP contract approval, participant has obtained services from a qualified individual for development of the Conservation Evaluation and Monitoring Activities (CEMA) - Forest Inventory. The CEMA criteria requires a forest inventory as a component of a forest management plan to determine current site condition and identify resource concerns. Additional CEMA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,575.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,575.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 223 - Forest Management Assessment

Scenario: #71 - Nonindustrial Private Forest, 501 to 1,000 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 501 to 1000 acres in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Conservation Evaluation and Monitoring Activity is needed to provide a forest inventory to allow

After Situation:

After EQIP contract approval, participant has obtained services from a qualified individual for development of the Conservation Evaluation and Monitoring Activities (CEMA) - Forest Inventory. The CEMA criteria requires a forest inventory as a component of a forest management plan to determine current site condition and identify resource concerns. Additional CEMA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,762.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,762.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 223 - Forest Management Assessment

Scenario: #87 - Nonindustrial Private Forest, Greater Than 1,000 Acres

Scenario Description:

Nonindustrial Private Forest Land with a forest management plan. Typical site is approximately 1001 acres or greater in size and consists of existing uneven-aged mixed species stands of harvestable trees. Natural Resource Concern: Fish and Wildlife; Soil Erosion; Soil Condition; Water Quality; Plant Condition; on Forest Land.

Before Situation:

The producer currently manages forested lands with an existing forest management plan. Resource concerns exist which are not addressed by a management plan. A Conservation Evaluation and Monitoring Activity is needed to provide a forest inventory to allow

After Situation:

After EQIP contract approval, participant has obtained services from a qualified individual for development of the Conservation Evaluation and Monitoring Activities (CEMA) - Forest Inventory. The CEMA criteria requires a forest inventory as a component of a forest management plan to determine current site condition and identify resource concerns. Additional CEMA criteria are detailed in the Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,711.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,711.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 224 - Aquifer Flow Test

Scenario: #8 - Aquifer Testing

Scenario Description:

The typical scenario supports the utilization of an existing or planned vertical turbine or submersible pump in an existing or planned water well for pressurizing an irrigation or stockwater system where water well flow rate is unknown. An aquifer flow test (e.g., step drawdown or constant rate) will be done to determine the flow rate from the well and select a pumping plant to match the pumping requirements of the irrigation or livestock system. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water for livestock - Inefficient use of irrigation water; inefficient energy use. Associated Practices: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Micro-irrigation; 449 - Irrigation Water Management, 642 - Water Well, 516 - Livestock Pipeline

Before Situation:

Livestock or irrigation system is delivering insufficient water due to unknown volume and flow rate of the aquifer.

After Situation:

With the completion of the aquifer flow test, a known flow rate of the well will determine the correct flow rate and TDH on which a pump can be selected to support an irrigation of stockwater system.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,420.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,420.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 226 - Waste Facility Site Suitability and Feasibility Assessment

Scenario: #7 - Non-Dairy Livestock Operations, Onsite Evaluation for Planned Storage

Scenario Description:

Non-Dairy livestock operation. A Qualified Individual will conduct an onsite investigation. Soil data collection, investigation and interpretation of the properties and characteristics, results of tests and samples will be used to determine the appropriateness of the site for the storage facility. Scenario based on one proposed location for the planned storage.

Before Situation:

A waste storage, handling or treatment facility is planned for the operation. The proposed location has not be investigated for determination of suitability and feasibility.

After Situation:

An onsite investigation for soil properties and characteristics was conducted. The proposed location met the criteria to allow the type and size of the planned storage facility. The report documents all data and results.

Feature Measure: One site evaluated

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,399.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,399.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 226 - Waste Facility Site Suitability and Feasibility Assessment

Scenario: #23 - Dairy Livestock Operations, Onsite Evaluation for Planned Storage

Scenario Description:

Livestock operation is Dairy. A Qualified Individual will conduct an onsite investigation. Soil data collection, investigation and interpretation of the properties and characteristics, results of tests and samples will be used to determine the appropriateness of the site for the storage facility. Scenario based on one proposed location for the planned storage.

Before Situation:

A waste storage, handling or treatment facility is planned for the operation. The proposed location has not be investigated for determination of suitability and feasibility.

After Situation:

An onsite investigation for soil properties and characteristics was conducted. The proposed location met the criteria to allow the type and size of the planned storage facility. The report documents all data and results.

Feature Measure: One site evaluated

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,746.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,746.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 227 - Evaluation of Existing Waste Storage Facility Components

Scenario: #7 - Livestock Operation, One to Two Components

Scenario Description:

A Qualified Individual conducts an on-site investigation of up to 2 manure and wastewater handling and storage structures and equipment at the facilities where the livestock are housed. The investigation report will determine whether or not an existing component is in good operating condition. Typical evaluation of 1-2 storage structures, collection, may include pump.

Before Situation:

A waste storage facility and associated equipment is in use on the production area. The existing structure has not been evaluated for good operating condition. New or expanded waste storage and handling facilities could fail is the existing structure is n

After Situation:

The Qualified Individual concludes that the existing storage components are in good working order OR has identified the component needs corrective. The CEMA report contains all data and recommendations.

Feature Measure: Per Production Site structur

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,908.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,908.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 227 - Evaluation of Existing Waste Storage Facility Components

Scenario: #23 - Livestock Operation, Three to Five Components

Scenario Description:

A Qualified Individual conducts an on-site investigation of all manure and wastewater handling and storage structures and equipment at the facilities where the livestock are housed. The investigation report will determine whether or not an existing component is in good operating condition. Typical livestock production site has 2-5 storage and collection structures and may include pump.

Before Situation:

A waste storage facility and associated equipment is in use on the production area. The existing structure has not been evaluated for good operating condition. New or expanded waste storage and handling facilities could fail is the existing structure is n

After Situation:

The Qualified Individual concludes that the existing storage components are in good working order OR has identified the component needs corrective. The CEMA report contains all data and recommendations.

Feature Measure: Per Operation 2-5 Structure

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,618.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,618.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 227 - Evaluation of Existing Waste Storage Facility Components

Scenario: #39 - Livestock Operation, Greater Than Five Components

Scenario Description:

A Qualified Individual conducts an on-site investigation of all manure and wastewater handling and storage structures and equipment at the facilities where the livestock are housed. The investigation report will determine whether or not an existing component is in good operating condition. Typical livestock production site has 5 or more storage and collection structures and pump(s).

Before Situation:

A waste storage facility and associated equipment is in use on the production area. The existing structure has not been evaluated for good operating condition. New or expanded waste storage and handling facilities could fail is the existing structure is n

After Situation:

The Qualified Individual concludes that the existing storage components are in good working order OR has identified the component needs corrective. The CEMA report contains all data and recommendations.

Feature Measure: Per Operation Structures

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,970.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,970.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #7 - Large, Three Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 3 enterprises where at least I consists of > 2500 acres of crops, > 1000 animal units, more than 6 irrigation pumps, or > 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Large operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,476.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,476.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #23 - Large, Greater Than or Equal to Four Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 4 or more enterprises where at least I consists of > 2500 acres of crops, > 1000 animal units, more than 6 irrigation pumps, or > 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Large operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $10,156.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10,156.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #39 - Large, Two Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 2 enterprises where at least I consists of > 2500 acres of crops, > 1000 animal units, more than 6 irrigation pumps, or > 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Large operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,797.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,797.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #55 - Medium, Greater Than or Equal to Four Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 4 or more enterprises where at least I consists of 301 to 2500 acres of crops, < 301 to 1000 animal units, 3 - 6 irrigation pumps, or 20,001 to 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Medium operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $8,930.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,930.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #71 - Small, Greater Than or Equal to Four Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 4 or more enterprises where 1 is not larger than < 300 acres of crops, < 300 animal units, 1 - 2 irrigation pumps, < 20,000 sq. ft. of heated greenhouse, or maple syrup processing. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Small operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,918.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,918.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #87 - Medium, Three Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 3 enterprises where at least I consists of 301 to 2500 acres of crops, < 301 to 1000 animal units, 3 - 6 irrigation pumps, or 20,001 to 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Medium operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,251.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,251.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #103 - Small, Three Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 3 enterprises where 1 is not larger than < 300 acres of crops, < 300 animal units, 1 - 2 irrigation pumps, < 20,000 sq. ft. of heated greenhouse, or maple syrup processing. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Small operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,239.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,239.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #119 - Medium, Two Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 2 enterprises where at least I consists of 301 to 2500 acres of crops, < 301 to 1000 animal units, 3 - 6 irrigation pumps, or 20,001 to 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Medium operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,571.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,571.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #135 - Small, Two Enterprises

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has 2 enterprises where 1 is not larger than < 300 acres of crops, < 300 animal units, 1 - 2 irrigation pumps, < 20,000 sq. ft. of heated greenhouse, or maple syrup processing. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. Small operations are described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,560.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,560.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #151 - Large, One Enterprise

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has either > 2500 acres of crops, > 1000 animal units, more than 6 irrigation pumps, or > 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. A large operation is described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,118.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,118.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #167 - Medium, One Enterprise

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has either 301 to 2500 acres of crops, < 301 to 1000 animal units, 3 - 6 irrigation pumps, or 20,001 to 40,000 sq. ft. of heated greenhouse. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. A medium operation is described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,892.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,892.47

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 228 - Agricultural Energy Assessment

Scenario: #183 - Small, One Enterprise

Scenario Description:

An agricultural producer wishes to obtain an energy assessment of their agricultural operation. The operation has either < 300 acres of crops, < 300 animal units, 1 - 2 irrigation pumps, < 20,000 sq. ft. of heated greenhouse, or maple syrup processing. An enterprise is defined in the ASABE S612 Performing On-farm Energy Audits Standard. A small operation is described above. The Ag Energy CEMA is an assessment of the energy consuming activities and components of an agricultural operation and includes the requirements of a Type 2 energy audit as described in the ASABE S612 standard. An Ag Energy CEMA includes a baseline assessment of the of systems, equipment, and facilities using a typical year of energy use and recommended measures to prioritize on-farm opportunities to increase energy efficiency and reduce energy use. A Certified TSP will accomplish all work in accordance with the requirements of the CEMA 228 Agricultural Energy Assessment Activity. Natural Resource Concern: Energy Efficiency of Equipment and Facilities.

Before Situation:

Producer currently has minimal knowledge of and no plan for energy conservation. The producer currently manages an operation as described above. Producer intends to collaborate with a certified TSP to develop an energy use assessment of their entire opera

After Situation:

The producer has obtained services from a certified TSP to develop an energy assessment. The CEMA 228 criteria include a baseline assessment using a typical year of energy use, energy savings of recommended improvement measures, and information useful for prioritizing implementation of the measures. The documentation may include recommendations for associated conservation practices which address energy efficiency. The Ag Energy CEMA meets the basic quality criteria for the CEMA 228 activity as cited in the NRCS Field Office Technical Guide.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,880.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,880.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 309 - Agrichemical Handling Facility

Scenario: #1 - Enclosed Building

Scenario Description:

This practice scenario is an agrichemical handling facility for storage and mixing and loading operations. This practice addresses water quality degradation and due to mis-handling, storing and mixing of agrichemicals where nutrients and/or chemicals are running off into surface waters or leaching into ground water. Associated practices: Heavy Use Area Protection (561), Diversion (362), Access Road (560), Pipeline (516), Roof Runoff Management (558), Pumping Plant for Water Control (533), Nutrient Management (590), Pest Management (595)

Before Situation:

Agrichemicals are improperly stored on the ground or next to a well. Operator mixes the agrichemicals and fills the sprayer tank next to a hydrant. Spills or overflows of agrichemicals contaminate the soil, runoff to surface waters and leaching to ground

After Situation:

An agrichemical storage and handling facility is constructed inside an enclosed building. The average size of the agrichemical handling facility for storage and mixing and loading is 35' x 40' with an application equipment length of 36 ft. The handling pad for mixing and loading operations is sized to contain the length of the agrichemical spray tank and its volume. Install a curbed reinforced concrete handling pad for mixing and loading with proper storage of associated dry and/or liquid agrichemicals. The concrete is sealed and sloped to a collection sump, facility containment is surrounded by square and ramped curbs. This practice will contain agrichemicals and prevent contamination of surface and ground water resources.

Feature Measure: Total Containment Area

Scenario Unit: Square Foot

Scenario Typical Size: 1,400.0

Scenario Total Cost: $54,197.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 309 - Agrichemical Handling Facility

Scenario: #5 - Pad for Mixing and Loading

Scenario Description:

This practice scenario is an agrichemical handling facility for mixing and loading operations. This practice addresses water quality degradation and due to mis-handling, and mixing of agrichemicals where nutrients and/or chemicals are running off into surface waters or leaching into ground water. Associated practices: Heavy Use Area Protection (561), Diversion (362), Access Road (560), Pipeline (516), Pumping Plant for Water Control (533), Nutrient Management (590), Pest Management (595), Roofs and Covers (367)

Before Situation:

Agrichemicals are improperly stored on the ground or next to a well. Operator mixes the agrichemicals and fills the sprayer tank next to a hydrant. Spills or overflows of agrichemicals contaminate the soil, runoff to surface waters and leaching to ground

After Situation:

This scenario is an agrichemical handling facility pad for mixing and loading operations. The average size of the agrichemical handling pad for mixing and loading is 16' x 40' with an application equipment length of 36 ft. The handling pad for mixing and loading operations is sized to contain the length of the agrichemical spray tank and its volume. Install a curbed reinforced concrete handling pad for mixing and loading. The concrete is sealed and sloped to a collection sump, containment of the pad is surrounded by sloped and ramped reinforced concrete. This practice will contain agrichemicals and prevent contamination of surface and ground water resources.

Feature Measure: Total Containment Area

Scenario Unit: Square Foot

Scenario Typical Size: 640.0

Scenario Total Cost: $10,478.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 309 - Agrichemical Handling Facility

Scenario: #6 - Drum Pallet Containment and Pad

Scenario Description:

This practice scenario is an agrichemical storage and handling facility for mixing and loading operations within a greenhouse. This practice addresses water quality degradation and due to mis-handling, storing, and mixing of agrichemicals where nutrients and/or chemicals are running off into surface waters or leaching into ground water. Associated practices: Heavy Use Area Protection (561), Diversion (362), Pipeline (516), Pumping Plant for Water Control (533), Nutrient Management (590), Pest Management (595)

Before Situation:

Agrichemicals are improperly stored on the ground or next to a well. Operator mixes the agrichemicals and fills the sprayer tank next to a hydrant. Spills or overflows of agrichemicals contaminate the soil, runoff to surface waters and leaching to ground

After Situation:

This scenario is an agrichemical handling facility storage an impermeable barrier poly pad for mixing and loading operations. The average size of the agrichemical handling storage is for a pallet drum on a 5 ft x 5 ft containment pallet with sump capacity included. A poly pad is used for mixing and loading that is 8ft x 8ft with an application equipment length of 4 ft. The handling pad for mixing and loading operations is sized to contain the length of the agrichemical spray tank and its volume. This practice will contain agrichemicals and prevent contamination of surface and ground water resources.

Feature Measure: Storage Area + Mixing Area

Scenario Unit: Square Foot

Scenario Typical Size: 89.0

Scenario Total Cost: $2,080.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 309 - Agrichemical Handling Facility

Scenario: #26 - Fabricated Liquid Storage with Pad

Scenario Description:

This practice scenario is a fabricated agrichemical handling facility for storage of liquid agrichemicals along with an adjacent concrete mixing and loading pad. Due to topography, limited site space and/or geological conditions a fabricated structure is needed. This practice addresses water quality degradation and due to mis-handling, storing, and mixing of agrichemicals where nutrients and/or chemicals are running off into surface waters or leaching into ground water. Associated practices: Heavy Use Area Protection (561), Diversion (362), Access Road (560), Pipeline (516), Pumping Plant for Water Control (533), Nutrient Management (590), Pest Management (595).

Before Situation:

Agrichemicals are improperly stored on the ground or next to a well. Operator mixes the agrichemicals and fills the sprayer tank next to a hydrant. Spills or overflows of agrichemicals contaminate the soil, runoff to surface waters and leaching to ground

After Situation:

An agrichemical handling facility is constructed for storage of liquid agrichemicals along with an adjacent handling pad for mixing and loading operations. The average size of the fabricated containment is 30 ft x 40 ft with flexible membrane lined walls. The walls are of modular blocks stacked two high for a 4ft wall height on four sides. A handling pad for mixing and loading is located adjacent to the liquid containment and is 16' x 32' with an application equipment length of 28 ft. The handling pad for mixing and loading operations is sized to contain the length of the agrichemical spray tank and its volume. Install a curbed (6") reinforced concrete handling pad for mixing and loading. The concrete is sealed and sloped to a collection sump. This practice will contain agrichemicals and prevent contamination of surface and ground water resources.

Feature Measure: Liquid Containment Area +

Scenario Unit: Square Foot

Scenario Typical Size: 1,712.0

Scenario Total Cost: $32,267.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $18.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 309 - Agrichemical Handling Facility

Scenario: #28 - Concrete Storage and Pad

Scenario Description:

This practice scenario is an agrichemical handling facility for storage and mixing and loading operations. This practice addresses water quality degradation and due to mis-handling, storing and mixing of agrichemicals where nutrients and/or chemicals are running off into surface waters or leaching into ground water. Associated practices: Heavy Use Area Protection (561), Diversion (362), Access Road (560), Pipeline (516), Roof Runoff Management (558), Pumping Plant for Water Control (533), Nutrient Management (590), Pest Management (595), Roofs and Covers (367).

Before Situation:

Agrichemicals are improperly stored on the ground or next to a well. Operator mixes the agrichemicals and fills the sprayer tank next to a hydrant. Spills or overflows of agrichemicals contaminate the soil, runoff to surface waters and leaching to ground

After Situation:

An agrichemical storage and handling facility pad is constructed of concrete. The storage and handling pad may be constructed inside an existing building, in a new building using Roofs and Covers (367) for new building structures or outdoors without any type of cover. The average size of the agrichemical handling facility for storage and handling is 35' x 40' with an application equipment length of 36 ft. The handling pad for mixing and loading operations is sized to contain the length of the agrichemical spray tank and its volume. The reinforced concrete meets the requirements of ACI 350. Install a curbed reinforced concrete handling pad for mixing and loading with proper storage of associated dry and/or liquid agrichemicals. The concrete is sealed and sloped to a collection sump. Facility containment is surrounded by square and ramped curbs. Appurtenances to provide fresh water, install doors to buildings, walls for storage of chemicals or demolish old concrete in existing buildings are included. This practice will contain agrichemicals and prevent contamination of surface and ground water resources.

Feature Measure: Total Containment Area

Scenario Unit: Square Foot

Scenario Typical Size: 1,400.0

Scenario Total Cost: $23,223.76

Total Cost per Unit: $16.59

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 311 - Alley Cropping

Scenario: #246 - Single Row

Scenario Description:

The crop or grass land is planted with rows of trees to increase crop diversity. Final row width, and spacing of trees within the row, is based on farm equipment size, growth form of trees, light needs of annual crop or grass, and intent of the landowner. The resource concerns are plant condition - inadequate structure and composition.

Before Situation:

The landscape has been cropped or in perennial grass for many years. It is void of any perennial tree vegetation. On cropland site preparation needs may need deep ripping to eliminate any plow pan and on grass land competing vegetation control is accompli

After Situation:

Trees have been established to diversify the crop production of the field. Typically the area planted is 10 acres on approximately 12 x 40 foot spacing.

Feature Measure: planted seedling

Scenario Unit: Each

Scenario Typical Size: 900.0

Scenario Total Cost: $40,013.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $44.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 311 - Alley Cropping

Scenario: #247 - Three Row Sets

Scenario Description:

Cropland is planted with trees in 3-row sets with 40 foot alleyways in between. The outside rows of trees are conifers and the center row a mast-producing high-value hardwood timber species. Between row spacing is 16 feet and between tree spacing is 10 feet. The resource concerns are Plant Condition - inadequate structure and composition; Soil Erosion (wind); Excess/ Insufficient Water (inefficient moisture management); Inadequate Habitat for Fish and Wildlife (food, cover/shelter, continuity).

Before Situation:

The landscape has been cropped for many years. It is void of any perennial tree vegetation. Wind erosion is evident, insufficient water for crops occurs due to excessive winds, wildlife habitat score is very low due to the lack of any perennial vegetation

After Situation:

Trees have been established to diversify the crop production, reduce erosion by wind and water and improve growing conditions for crops in alleyways. Typically the area planted is 10 acres.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $9,511.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $951.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 311 - Alley Cropping

Scenario: #264 - Single Row, Less Than or Equal to Five Acres

Scenario Description:

The crop or grass land is planted with rows of trees to increase crop diversity. Final row width, and spacing of trees within the row, is based site size, growth form of trees, light needs of annual crop or grass, and intent of the landowner. The resource concerns are plant condition - inadequate structure and composition.

Before Situation:

The landscape has been cropped or in perennial grass for many years. It is void of any perennial tree vegetation. On grassland competing vegetation control is accomplished prior to tree planting.

After Situation:

Trees have been established to diversify crop production of the field. Typically the area planted is less than 5 acres on approximately 12 x 40 foot spacing.

Feature Measure: Planted Seedling

Scenario Unit: Each

Scenario Typical Size: 450.0

Scenario Total Cost: $14,480.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $32.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #1 - Earthen Storage, Less Than or Equal to 50,000 Cubic Feet

Scenario Description:

An earthen waste impoundment constructed to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This scenario has a design storage volume of less than 50,000 ft3. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Earthen storage liners are addressed with another standard. Vehicular and equipment access is addressed in Heavy Use Area Protection (561). Adequately protect liner at agitation and access points. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Roofs and Covers (367), and Solid/Liquid Waste Separation Facility (632), Waste Treatment (629) .

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

An earthen storage structure constructed from on-site material provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design size : Total volume = 24,864 ft3; 78'X78' (top); 3:1 inside and outside side slopes; top of berm = 10'; cut/fill ratio = 1.25; Total depth = 8.0', including freeboard. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 24,864.0

Scenario Total Cost: $11,971.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #2 - Earthen Storage, Greater Than 50,000 Cubic Feet

Scenario Description:

An earthen waste impoundment constructed to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This scenario has a design storage volume of more than 50,000 ft3. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Earthen storage liners are addressed with another standard. Vehicular and equipment access is addressed in Heavy Use Area Protection (561). Adequately protect liner at agitation and access points. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Roofs and Covers (367), and Solid/Liquid Waste Separation Facility (632), Waste Treatment (629).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

An earthen storage structure constructed from on-site material provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design size : Total volume = 199,878 ft3; 159'x159' (top); 3:1 inside and outside side slopes; top of berm = 10'; cut/fill ratio = 1.25; Total depth = 14.0', including freeboard. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 199,878.0

Scenario Total Cost: $64,278.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #3 - Above Ground Steel or Concrete, Less Than 25,000 Cubic Feet

Scenario Description:

An above ground circular glass lined steel or concrete structure constructed to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This scenario has a design storage volume of less than 25,000 ft3. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Solid/Liquid Waste Separation Facility (632), Waste Treatment (629), and Pumping Plant (533).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

An above ground storage structure provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design size : Total volume 14,340 ft3, including freeboard; based on 31' X 19' glass lined steel tank. "Strike Full" = the total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 14,340.0

Scenario Total Cost: $139,323.43

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #4 - Above Ground Steel or Concrete, 25,000 to 99,999 Cubic Feet

Scenario Description:

An above ground circular glass lined steel or concrete structure constructed to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This scenario has a design storage volume of between 25,000 and 100,000 ft3. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Solid/Liquid Waste Separation Facility (632), Waste Treatment (629), and Pumping Plant (533).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

An above ground storage structure provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design size : Total volume 79,522 ft3, including freeboard; based on 73' X 19' glass lined steel tank. "Strike Full" = the total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 79,522.0

Scenario Total Cost: $317,415.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #5 - Above Ground Steel or Concrete, 100,000 to 200,000 Cubic Feet

Scenario Description:

An above ground circular glass lined steel or concrete structure constructed to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This scenario has a design storage volume of between 100,000 and 200,000 ft3. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Solid/Liquid Waste Separation Facility (632), Waste Treatment (629), and Pumping Plant (533).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

An above ground storage structure provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design size : Total volume 187,189 ft3, including freeboard; based on 112' X 19' glass lined steel tank. "Strike Full" = the total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 187,189.0

Scenario Total Cost: $548,730.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #6 - Above Ground Steel or Concrete, Greater Than 200,000 Cubic Feet

Scenario Description:

An above ground circular glass lined steel or concrete structure constructed to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This scenario has a design storage volume of greater than 200,000 ft3. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Solid/Liquid Waste Separation Facility (632), Waste Treatment (629), and Pumping Plant (533).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

An above ground storage structure provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design size : Total volume 248,326 ft3, including freeboard; based on 129' X 19' glass lined steel tank. "Strike Full" = the total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 248,326.0

Scenario Total Cost: $697,815.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #7 - Rectangular Concrete Tank with Top

Scenario Description:

This scenario consists of installing a small concrete tank with a design storage volume of less than 5,000 CF that is totally or partially buried and has solid concrete lid with several openings for direct loading from heavy use area, gutter cleaner or gravity pipe. Manure is held for 3 to 14 day on smaller operations or transferred to larger storage facility or direct land applied. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Subsurface Drain (606), Pumping Plant (533),and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Tank typically 8' deep x 12' wide x 40' long, with a total volume of 3,840 cubic feet including freeboard. Tank includes concrete top. Sizing based on manure, other wastes, rainfall, lot runoff, etc. Tanks associated with open lots sized to handle design storm in tank or in combination with lot as per state regulations. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Total Volume including free

Scenario Unit: Cubic Foot

Scenario Typical Size: 3,840.0

Scenario Total Cost: $40,532.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #8 - Rectangular Concrete Tank, Less Than or Equal to 35,000 Cubic Feet

Scenario Description:

This scenario consists of a rectangular concrete facility with reinforced concrete floor and concrete walls. Walls are NOT designed to support a roof. This scenario is intended to store liquid or dry manure. The purpose of this practice is to properly store manure and other agricultural by-products until they can be hauled away from the site for proper disposal or utilization on land at agronomical rates. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and groundwater. Potential Associated practices: 342-Critical Area Planting, 362-Diversion, 561-Heavy Use Area Protection, 367-Roofs and Covers, 558-Roof Runoff Structure, 317-Composting Facility, 633-Waste Recycling, 634-Waste Transfer, 635-Vegetated Treatment Area

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

The typical size is 4,368 Sq.Ft. (42' x 104'). The facility floor is 5" reinforced concrete with 8' reinforced concrete walls. Wall is NOT designed to support a roof. Walls allow for greater storage volume. Backfill height required on walls is a minimum of 6 feet and a maximum of 8 feet, as per MA-WSF-06. Manure and other agricultural by-products are collected and stored near the source until such time that the manure can be disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan.

Feature Measure: Total Volume including Free

Scenario Unit: Cubic Foot

Scenario Typical Size: 34,944.0

Scenario Total Cost: $141,071.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #9 - Rectangular Concrete Tank, Greater Than 35,000 Cubic Feet

Scenario Description:

This scenario consists of a rectangular concrete facility with reinforced concrete floor and concrete walls. Walls are NOT designed to support a roof. This scenario is intended to store liquid or dry manure. The purpose of this practice is to properly store manure and other agricultural by-products until they can be hauled away from the site for proper disposal or utilization on land at agronomical rates. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated practices: 342-Critical Area Planting, 362-Diversion, 561-Heavy Use Area Protection, 367-Roofs and Covers, 558-Roof Runoff Structure, 382-Fence, 317-Composting Facility, 633-Waste Recycling, 634-Waste Transfer, 635-Vegetated Treatment Area

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are collected and stored near the source until such time that the manure can be disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Scenario was developed using MA-WSF-06. Typical size is 69,192 CF (93' x 93' x 8' deep). Footing is 14" thick, 7'-10" wide with two mats of steel. Wall is 10" thick, 8' high with two mats of steel. Backfill on wall is between 6' min. to 8' max. WT concrete slab installed is 5" thick with #4 rebar at 8" o.c.

Feature Measure: Total Volume including free

Scenario Unit: Cubic Foot

Scenario Typical Size: 69,192.0

Scenario Total Cost: $216,694.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #10 - Rectangular Concrete Tank with Roof

Scenario Description:

This scenario consists of a rectangular concrete facility with reinforced concrete floor and concrete walls. This scenario shall be used in conjunction with 367 - Roofs and Covers. Walls are designed to support a roof. This scenario is intended to store liquid or dry manure (Ramp will be required to remove dry manure). The purpose of this practice is to properly store manure and other agricultural by-products until they can be hauled away from the site for proper disposal or utilization on land at agronomical rates. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated practices: 342-Critical Area Planting, 362-Diversion, 561-Heavy Use Area Protection, 367-Roofs and Covers, 558-Roof Runoff Structure, 382-Fence, 317-Composting Facility, 633-Waste Recycling, 634-Waste Transfer, 635-Vegetated Treatment Area

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

The typical size is 4,368 Sq.Ft. (42' x 104'). The facility floor is 5" reinforced concrete with 8' reinforced concrete walls. Wall is designed to support a roof. Walls allow for greater storage volume. Manure and other agricultural by-products are collected and stored near the source until such time that the manure can be disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan.

Feature Measure: Total Volume including Free

Scenario Unit: Cubic Foot

Scenario Typical Size: 34,944.0

Scenario Total Cost: $159,335.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #11 - Rectangular Concrete Block without Roof

Scenario Description:

This scenario consists of a "3 sided" rectangular concrete facility with reinforced concrete floor. Walls are constructed of large concrete blocks (2'x2'x6'). All vertical and horizontal cold joints are sealed with bentonite type waterstop. Walls are NOT designed to support a roof. This scenario is intended to store dry manure in tight locations. Also intended for small and limited resource producers who don't need a large facility or can afford one. The purpose of this practice is to properly store manure and other agricultural by-products until they can be hauled away from the site for proper disposal or utilization on land at agronomical rates. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated practices: 342-Critical Area Planting, 362-Diversion, 561-Heavy Use Area Protection, 558-Roof Runoff Structure, 317-Composting Facility, 633-Waste Recycling, 634-Waste Transfer, 635-Vegetated Treatment Area

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

The typical facility is 25' wide by 40' long by 6' deep (6000 cf). The facility floor is 5" concrete slab reinforced with #4 rebar at 18" o.c. Wall is NOT designed to support roof. Walls are constructed of 2'x2'x6' concrete block which will allow for greater storage volume. All cold joints in the wall will be sealed with bentonite type waterstop. Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 6,000.0

Scenario Total Cost: $33,847.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #12 - Buried Concrete Tank, Less Than 15,000 Cubic Feet

Scenario Description:

This scenario consists of installing a concrete tank that has a design storage volume from 5,000 to 14,999 CF that is totally or partially buried and has an open top. The tank can also be under an animal facility with the top cover of either slats or solid concrete lid/floor. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Tank typically 39' diameter x 8' deep, with a total volume of 9,557 CF including freeboard. Sizing based on manure, other wastes, rainfall, lot runoff, etc. as appropriate. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Total Volume including Free

Scenario Unit: Cubic Foot

Scenario Typical Size: 9,557.0

Scenario Total Cost: $45,033.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #13 - Buried Concrete Tank, 15,000 to 24,999 Cubic Feet

Scenario Description:

This scenario consists of installing a concrete tank that has a design storage volume from 15,000 to 24,999 CF. The tank is totally or partially buried and has an open top. It can be under an animal facility with the top cover being slats or concrete lid/floor. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Subsurface Drain (606), Pumping Plant (533) and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Tank typically 56.5' diameter x 8' deep with a total storage volume of 20,057 CF including freeboard. Sizing based on manure, other wastes, rainfall, lot runoff, etc. as appropriate. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Total Volume including free

Scenario Unit: Cubic Foot

Scenario Typical Size: 20,057.0

Scenario Total Cost: $72,294.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #14 - Buried Concrete Tank, 25,000 to 49,999 Cubic Feet

Scenario Description:

This scenario consists of installing a concrete tank that has a design storage volume from 25,000 to 49,999 CF. Tank is totally or partially buried and has an open top. Tank can be under a animal facility with the top cover being slats or concrete lid/floor. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Tank typically 60' diameter x 10' deep with a total storage volume of 28,274 CF including freeboard. Sizing based on manure, other wastes, rainfall, lot runoff, etc. as appropriate. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Total Volume including Free

Scenario Unit: Cubic Foot

Scenario Typical Size: 28,274.0

Scenario Total Cost: $92,452.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #15 - Buried Concrete Tank, 50,000 to 74,999 Cubic Feet

Scenario Description:

This scenario consists of installing a concrete tank that has a design storage volume from 50,000 to 74,999 CF. Tank is totally or partially buried and has an open top, however it can be under a animal facility with the top cover with slats or concrete lid/floor. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Tank typically 81' diameter x 12' deep with a total storage volume of 61,836 CF including freeboard. Sizing based on manure, other wastes, rainfall, lot runoff, etc. as appropriate. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Total Volume including free

Scenario Unit: Cubic Foot

Scenario Typical Size: 61,836.0

Scenario Total Cost: $151,178.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #16 - Buried Concrete Tank, 75,000 to 110,000 Cubic Feet

Scenario Description:

This scenario consists of installing a concrete tank that has a design storage volume from 75,000 to 109,999 CF. Tank is totally or partially buried and has an open top. Tank can also be under an animal facility with the top cover using slats or concrete lid/floor. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Pipeline (516), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Tank typically 101' diameter x 12' deep with a total storage volume of 96,142 CF including freeboard. Sizing based on manure, other wastes, rainfall, lot runoff, etc. as appropriate. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Total Volume including Free

Scenario Unit: Cubic Foot

Scenario Typical Size: 96,142.0

Scenario Total Cost: $210,241.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #17 - Buried Concrete Tank, Greater Than 110,000 Cubic Feet

Scenario Description:

This scenario consists of installing a concrete tank that has a design storage volume of 110, 000 or more CF. Tank is totally or partially buried and has an open top. Tank can also be under a animal facility with the top cover using slats or concrete lid/floor. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Pipeline (516), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Tank typically 120' diameter x 14' deep with a total storage volume of 158,336 CF including freeboard. Sizing based on manure, other wastes, rainfall, lot runoff, etc. as appropriate. Total volume includes freeboard, precipitation, solids build up, etc.

Feature Measure: Total Volume including Free

Scenario Unit: Cubic Foot

Scenario Typical Size: 158,336.0

Scenario Total Cost: $303,826.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #18 - Composted Bedded Pack, Earthen Floor and Concrete Wall

Scenario Description:

Install a composted bedded pack facility with concrete walls and earth floor. This scenario shall be used in conjunction with 367 - Roofs and Covers (Fabric Roof with No Foundation or Timber Framed Roofed with No Foundation). Walls are designed to support a roof. Concrete walls will generally be used on sites wear shallow bedrock conditions exist or where the overall spans and dead weight cannot be practically supported by timber posts/wall. Facility is constructed to store wastes as part of an agricultural waste management system. This scenario is applicable where geological, soil, and climate conditions are appropriate for earth floors and are allowed by state and local regulations. A gravel pad is installed over the earthen floor to act as a wear surface to protect the earthen floor below. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Critical Area Planting (342), Diversion (362), Fence (382), Roofs and Covers (367), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), and Roof Runoff Structure (558).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

Using a bedded pack provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Based on MA Design #MA-WSF-12. Projected area is measured from outside wall to outside wall. Total area = 3200 SF, (40' X 80'); Concrete wall - 10" thick x 8' tall, Footer - 8' wide x 14" thick, earthen floor with a gravel wear surface. Concrete wall/foundation is designed to support roof (367- Roofs & Covers). An additional concrete wall will be installed at each end of the facility to contain the manure, except at ingress and egress locations.

Feature Measure: Area of Facility from Outsid

Scenario Unit: Square Foot

Scenario Typical Size: 3,200.0

Scenario Total Cost: $78,466.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #19 - Composted Bedded Pack, Concrete Floor and Walls

Scenario Description:

Install a composted bedded pack facility with concrete walls and concrete floor. This scenario shall be used in conjunction with 367 - Roofs and Covers (Fabric Roof with No Foundation or Timber Framed Roofed with No Foundation). Walls are designed to support a roof. Concrete walls will generally be used on sites wear shallow bedrock conditions exist or where the overall spans and dead weight cannot be practically supported by timber posts/wall. Facility is constructed to store wastes as part of an agricultural waste management system. A concrete floor is generally installed in locations that are shallow to ground water or bedrock or where other environmental conditions warrants a concrete floor. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Critical Area Planting (342), Diversion (362), Fence (382), Roofs and Covers (367), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), and Roof Runoff Structure (558).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

Using a bedded pack provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Based on MA Design #MA-WSF-12. Projected area is measured from outside wall to outside wall. Total area = 3200 SF, (40' X 80'); Concrete wall - 10" thick x 8' tall, Footer - 8' wide x 14" thick, Concrete slab with #4 rebar @ 8" o.c. Concrete wall/foundation is designed to support roof (367- Roofs & Covers). An additional concrete wall will be installed at each end of the facility to contain the manure, except at ingress and egress locations.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 3,200.0

Scenario Total Cost: $98,074.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #20 - Composted Bedded Pack, Earthen Floor and Wood Walls

Scenario Description:

Install a composted bedded pack facility with timber posts and plank walls and earthen floor. This scenario shall be used in conjunction with 367 - Roofs and Covers (Fabric Roof with No Foundation or Timber Framed Roofed with No Foundation). Walls are designed to support a roof. Facility is constructed to store wastes as part of an agricultural waste management system. This scenario is applicable where geological, soil, and climate conditions are appropriate for earth floors and are allowed by state and local regulations. A gravel pad is installed over the earthen floor to act as a wear surface to protect the earthen floor below. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Critical Area Planting (342), Diversion (362), Fence (382), Roofs and Covers (367), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), and Roof Runoff Structure (558).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

Using a bedded pack provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Based on VT Design #VT08072015LAM. Projected area is measured from outside post to outside post. Total area = 4307 SF, (53.5' X 80.5'); 8' timber wall height (only 4' of wall which contains the manure is considered on scenario), posts are 9-5/8” x 6-3/4” laminated, embedded 6' in the ground, earthen floor with a gravel wear surface, open at each end of structure. Timber Wall/foundation is designed d to support roof (367- Roofs & Covers). An additional timber plank wall will be installed at each end of the facility to contain the manure, except at ingress and egress locations.

Feature Measure: Area of Building (Outside Po

Scenario Unit: Square Foot

Scenario Typical Size: 4,307.0

Scenario Total Cost: $44,566.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #21 - Composted Bedded Pack, Concrete Floor and Wood Walls

Scenario Description:

Install a composted bedded pack facility with timber posts and plank walls and concrete floor. This scenario shall be used in conjunction with 367 - Roofs and Covers (Fabric Roof with No Foundation or Timber Framed Roofed with No Foundation). Walls are designed to support a roof. Facility is constructed to store wastes as part of an agricultural waste management system. Concrete floor is generally used on sites that are shallow to ground water or bed rock or other environmental conditions warrants a concrete floor. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Critical Area Planting (342), Diversion (362), Fence (382), Roofs and Covers (367), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), and Roof Runoff Structure (558).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

Using a bedded pack provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Based on VT Design #VT08072015LAM. Projected area is measured from outside post to outside post. Total area = 4307 SF, (53.5' X 80.5'); 8' timber wall height (only 4' of wall which contains the manure is considered on scenario), posts are 9-5/8” x 6-3/4” laminated, embedded 6' in the ground, concrete floor, open at each end of structure. Timber Wall/foundation is designed d to support roof (367- Roofs & Covers). An additional timber plank wall will be installed at each end of the facility to contain the manure, except at ingress and egress locations.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 4,307.0

Scenario Total Cost: $74,436.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #22 - Concrete Stacking Slab without Curb

Scenario Description:

This scenario consists of a reinforce concrete slab to stack dry or semi-solid manure on. Walls or curbing not included. This scenario is intended to store dry or semi-solid manure. The purpose of this practice is to properly store manure and other agricultural by-products until they can be hauled away from the site for proper disposal or utilization on land at agronomical rates. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated practices: 342-Critical Area Planting, 362-Diversion, 561-Heavy Use Area Protection, 558-Roof Runoff Structure, 317-Composting Facility, 633-Waste Recycling, 634-Waste Transfer, 635-Vegetated Treatment Area

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

The typical stacking facility is 40' wide by 50' long (2000 SF). The facility floor is 5" concrete slab reinforced with #4 rebar at 18" o.c. Slab is constructed on 30" of fill to keep manure above seasonal high water table. Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan.

Feature Measure: Area of Concrete Slab

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $22,449.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #23 - Concrete Stacking Slab with Curb

Scenario Description:

This scenario consists of a reinforce concrete slab to stack dry or semi-solid manure on. 2' wall or curb included. This scenario is intended to store dry or semi-solid manure. Curbing is necessary to help contain manure is sometimes wetter than normal. It also aids in the collection of manure when it is field applied. The purpose of this practice is to properly store manure and other agricultural by-products until they can be hauled away from the site for proper disposal or utilization on land at agronomical rates. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated practices: 342-Critical Area Planting, 362-Diversion, 561-Heavy Use Area Protection, 558-Roof Runoff Structure, 317-Composting Facility, 633-Waste Recycling, 634-Waste Transfer, 635-Vegetated Treatment Area

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmental safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This si

After Situation:

The typical stacking facility is 40' wide by 50' long (2000 SF). The facility floor is 5" concrete slab reinforced with #4 rebar at 18" o.c. 2' high concrete curb or wall along three sides is included. Slab is constructed on 24" of fill to keep manure above seasonal high water table. Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan.

Feature Measure: Area of Concrete Slab

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $26,909.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #24 - Buried Plastic Tank

Scenario Description:

This scenario consists of installing a buried plastic tank that has a design storage volume of 10,000 gallons (1340 cubic feet). The tank is buried with 2' of cover. The tank can be used to store silage leachate as part of a silage leachate collection system. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Diversion (362), Subsurface Drain (606), Pumping Plant (533) and Underground Outlet (620).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored temporarily, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Tank typically 141" diameter x 160" deep, with a total volume of 10,000 gallons (1340 CF). Sizing based on manure, other wastes, rainfall, lot runoff, etc. as appropriate. Large concrete base is required to counter act buoyant forces.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 1,340.0

Scenario Total Cost: $28,692.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $21.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 313 - Waste Storage Facility

Scenario: #25 - Concrete Floor with Wood Sides

Scenario Description:

Install a three sided timber posts and plank walls with concrete floor. No roof! Scenarios is intended for small operations with relatively dry manure such as poultry or horses. Facility is constructed to store wastes as part of an agricultural waste management system. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Nutrient Management (590), Heavy Use Area Protection (561), 342-Critical Area Planting, 362-Diversion, 558-Roof Runoff Structure, and 317-Composting Facility

Before Situation:

Manure and other agricultural waste by-products are not being utilized or controlled in an environmental safe manner. The wastes are either accumulating at the source, or are being transported but not properly utilized or disposed of. This situation poses

After Situation:

Manure and other agricultural by-products are collected and stored near the source until such time that the manure can be disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. Typical design: Scenario is based upon "NH WSF Post and Plank Details". Facility is typically constructed above ground. Typical size is 30' long by 20' wide (inside curb to inside curb wall) with 6' high walls. "Strike Full" capacity = 3600 CF. Concrete slab extends beyond the inside dimension of the timber wall by ~2 feet. The concrete slab extends 12' beyond the open end of the facility. Walls are typically constructed of 6" x 10" PT, 10' long, timber post spaced 4 feet o.c. PT 2" planking is installed on the inside of the posts with the bottom 2 feet consisting of a 6" concrete curb. Concrete floor is typically 5" thick with rebar reinforcement. Floor is underlain by 12" of drainfill material.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 3,600.0

Scenario Total Cost: $19,708.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.47

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #1 - Mechanical Control, Bush Hog

Scenario Description:

Pastures or wildlife land that are of various sizes in New England often have woody plants encroaching on the edges and throughout the field due to under utilization of the pasture or field. This reduces the amount of forage available for implementing a grazing management plan and/or negatively affects early successional habitat and forest health. The scenario is usually applied to a portion of a field. Fields are mowed with a brush hog or rotary mower to manage undesirable woody plants. This will create the desired plant community consistent with the ecological site and/or improve forage accessibility, quality and quantity for livestock and cover for wildlife.

Before Situation:

The resource concerns addressed in this scenario include plant productivity, health and vigor, inadequate feed and forage, inadequate cover and shelter for wildlife. Woody species are encroaching and shading out desirable forage species resulting in a deg

After Situation:

Minimum treatment area is 0.1 ac. or more of woody plants. Below this amount should be controlled through manual clipping. After treatment, livestock grazing should keep the woody vegetation under control and undesirable plants are controlled or eradicated and desirable forage species have become the dominant condition. Increased forage production results. Early successional habitat may be improved through various treatments to retain or manage for thick woody cover areas within the field.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $833.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $166.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #2 - Mechanical Control, Light Infestation

Scenario Description:

Pastures, wildlife land, forests and early successional habitats that are of various sizes in New England often have woody plants encroaching throughout. This reduces the amount of forage needed for implementing a grazing management plan or negatively affects early successional habitat and forest health. The scenario is usually applied to a portion of a field or forest. Encroaching brush and/or invasive plant species in this setting is heavy enough (<2" DBH) that it requires cutting with chain or brush saws and mechanical cutter/choppers/ In riparian or sensitive areas low ground pressure equipment may be used. This will create the desired plant community consistent with the ecological site and or improve forage accessibility, quality and quantity for livestock and cover for wildlife. This scenario is also used in riparian areas in a stream corridor. Management is recommended to be done on the bank and floodplain for a conservation purpose. All required permits are to be obtained prior to start of work.

Before Situation:

The resource concerns addressed in this scenario include plant productivity, health and vigor, inadequate feed and forage, and inadequate cover and shelter for wildlife in pastures, wildlife land and in riparian areas. Undesirable plants and invasive wood

After Situation:

Minimum treatment area is 0.1 acre or more of woody plants for field situations and 30' X 400' for riparian settings. Below this amount should be controlled through manual clipping. Since the goal is to control brush, treatment is effective on very low density, as well as high. Undesirable plants are controlled or eradicated and desirable forage species and native woody species have become the dominant cover, improving forage production and wildlife habitat.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 3.0

Scenario Total Cost: $1,845.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $615.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #3 - Mechanical Control, Two to Four Inch Diameter Breast Height

Scenario Description:

Pastures, wildlife land, forests and early successional habitats that are of various sizes in New England often have woody plants encroaching throughout. This reduces the amount of forage needed for implementing a grazing management plan or negatively affects early successional habitat and forest health. The scenario is usually applied to a portion of a field or forest. Encroaching brush and/or invasive plant species in this setting is heavy enough (2-4" DBH) that it requires cutting with chain or brush saws and mechanical cutter/choppers/ In riparian or sensitive areas low ground pressure equipment may be used. This will create the desired plant community consistent with the ecological site and or improve forage accessibility, quality and quantity for livestock and cover for wildlife. This scenario is also used in riparian areas in a stream corridor. Management is recommended to be done on the bank and floodplain for a conservation purpose. All required permits are to be obtained prior to start of work.

Before Situation:

The resource concerns addressed in this scenario include plant productivity, health and vigor, inadequate feed and forage, and inadequate cover and shelter for wildlife in pastures, wildlife land and in riparian areas. Undesirable plants and invasive wood

After Situation:

Minimum treatment area is 0.1 acre or more of woody plants for field situations and 30' X 400' for riparian settings. Below this amount should be controlled through manual clipping. Since the goal is to control brush, treatment is effective on very low density, as well as high. Undesirable plants are controlled or eradicated and desirable forage species and native woody species have become the dominant cover, improving forage production and wildlife habitat.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 3.0

Scenario Total Cost: $3,001.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,000.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #4 - Mechanical Control, Heavy Infestation

Scenario Description:

Pastures, wildlife land, forests and early successional habitats that are of various sizes in New England often have woody plants encroaching throughout. This reduces the amount of forage needed for implementing a grazing management plan or negatively affects early successional habitat and forest health. The scenario is usually applied to a portion of a field or forest. Encroaching brush and/or invasive plant species in this setting is heavy enough (4-6" DBH) that it requires cutting with chain or brush saws and mechanical cutter/choppers/ In riparian or sensitive areas low ground pressure equipment may be used. This will create the desired plant community consistent with the ecological site and or improve forage accessibility, quality and quantity for livestock and cover for wildlife. This scenario is also used in riparian areas in a stream corridor. Management is recommended to be done on the bank and floodplain for a conservation purpose. All required permits are to be obtained prior to start of work.

Before Situation:

The resource concerns addressed in this scenario include plant productivity, health and vigor, inadequate feed and forage, and inadequate cover and shelter for wildlife in pastures, wildlife land and in riparian areas. Undesirable plants and invasive wood

After Situation:

Minimum treatment area is 0.1 acre or more of woody plants for field situations and 30' X 400' for riparian settings. Below this amount should be controlled through manual clipping. Since the goal is to control brush, treatment is effective on very low density, as well as high. Undesirable plants are controlled or eradicated and desirable forage species and native woody species have become the dominant cover, improving forage production and wildlife habitat.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $2,554.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,277.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #5 - Mechanical and Chemical Control

Scenario Description:

Pastures, wildlife land, forests and early successional habitats that are of various sizes in New England often have woody plants encroaching throughout. This reduces the amount of forage available for implementing a grazing management plan and/or negatively affects early successional habitat and forest health. The scenario is usually applied to a portion of a field or forest. This treatment will consist of both herbicide and mechanical treatment. The treatment will create the desired plant community consistent with the ecological site.

Before Situation:

The resource concerns addressed in this scenario include plant productivity, health and vigor, invasive species infestation, inadequate feed and forage, and inadequate cover and shelter for wildlife. Undesirable plants and invasive woody species are encro

After Situation:

At least 1 mechanical and 1 herbicide treatment is needed to control the target species, and annual monitoring is necessary. Minimum treatment area is 0.1 acre or more of woody plants. Undesirable plants are controlled or eradicated and desirable forage species and native woody species have become the dominant cover type, improving forage production and wildlife habitat and forest health. Payment includes cost of one cutting treatment and one herbicide treatment for the area. Follow up with landowner after first year to evaluate success and repeat if necessary.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 3.0

Scenario Total Cost: $4,296.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,432.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #6 - Chemical Control, Moderate Infestation

Scenario Description:

This scenario will be used on sites where chemical control of invasive exotics with backpack sprayer (foliar), cut-stump treatments or basal bark treatments are required. Access is good and the general coverage of the invasive plants is less than 75% cover (aerial view estimate). This would be used for moderate infestations. Species to be controlled include but are not limited to barberry, buckthorn, honeysuckle, autumn olive and multiflora rose. Restricted use chemicals and contractor work is necessary in wetland settings.

Before Situation:

Typical setting is forestland, pasture, riparian or wildlife lands where invasive plants are established and are negatively affecting wildlife food and cover, plant community diversity and regeneration of native plant species. Invasive plants are common i

After Situation:

Typical size of this scenario is variable ranging from an acre to many acres. This scenario may also be paired with another scenario for heavy infestations but only for very dense stands. Typical application of herbicides is from a commercial applicator using a backpack foliar sprayer, cut stump treatments or basal bark treatment. Future maintenance will be required. After treatment, invasive plants have been controlled to a level that meets client objectives to improve wildlife habitat, improve plant community diversity and forest health and to improve plant productivity, health and vigor.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $627.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $627.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #7 - Chemical Control with Follow-up Treatment, Moderate Infestation

Scenario Description:

This scenario includes an initial and a follow up treatment to control re-sprout of the weeds on sites where chemical control of invasive exotics with backpack sprayer (foliar), cut-stump treatments or basal bark treatments are required. Access is good and the general coverage of the invasive plants is less than 75% cover (aerial view estimate). This would be used for light to moderate infestations. Species to be controlled include but are not limited to barberry, buckthorn, honeysuckle, autumn olive and multiflora rose. Restricted use chemicals and contractor work is necessary in wetland settings.

Before Situation:

Typical setting is forestland, pasture, riparian or wildlife lands where invasive plants are established and are negatively affecting wildlife food and cover, plant community diversity and regeneration of native plant species. Invasive plants are common i

After Situation:

Typical size of this scenario is variable ranging from an acre to many acres. This scenario may also be paired with another scenario for heavy infestations but only for very dense stands. Typical application of herbicides is from a commercial applicator using a backpack foliar sprayer, cut stump treatments or basal bark treatment. After treatment, invasive plants have been controlled to a level that meets client objectives to improve wildlife habitat, improve plant community diversity and forest health and to improve plant productivity, health and vigor.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,192.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,192.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #8 - Chemical Control, Difficult

Scenario Description:

This scenario will be used on sites where chemical control of invasive exotics with backpack sprayer (foliar) or for dense areas where cut-stump treatments or basal bark treatments are required. Access is very poor due to distance or heavy slash and/or high number of invasive stems/acre (~11,000 per acre, <2x2ft spacing) or invasive cover is 75 % (aerial view estimate) or greater. This would be used for moderate to heavy infestations of Oriental bittersweet and Japanese knotweed. Restricted use chemicals and contractor work is necessary in wetland settings or landowners with heavy infestations. Species to be controlled include but are not limited to barberry, buckthorn, honeysuckle, autumn olive and multiflora rose. Mobilization of equipment is for all terrain vehicles (ATV) or Utility vehicles (UTV) such a an Argo used to transport personnel, supplies, and hand tools to work site..

Before Situation:

Typical setting is forestland, pasture, riparian or wildlife lands where invasive plants are established and are negatively affecting wildlife food and cover, plant community diversity and regeneration of native plant species. Invasive plants are common i

After Situation:

Typical size of this scenario ranges from 1 ac to a large stand of dense invasive plants. This scenario would often be paired with another scenario for moderate infestations on a portion of the acreage. Typical application of herbicides is from a commercial applicator using a backpack foliar sprayer, cut stump treatments or basal bark treatment. Future maintenance will be required. After treatment, invasive plants have been controlled to a level that meets client objectives to improve wildlife habitat, improve plant community diversity and forest health and/or to improve plant productivity, health and vigor.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,179.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,179.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #9 - Chemical Control with Follow-up Treatment, Difficult

Scenario Description:

This scenario includes an initial and follow up treatment to control re-sprout of the weeds on sites where chemical control of invasive exotics with backpack sprayer (foliar) or for dense areas where cut-stump treatments or basal bark treatments are required. Access is very poor due to distance or heavy slash and/or high number of invasive stems/acre (~11,000 per acre, <2x2ft spacing) or invasive cover is 75 % (aerial view estimate) or greater. This would be used for moderate to heavy infestations of Oriental bittersweet and Japanese knotweed. Restricted use chemicals and contractor work is necessary in wetland settings or landowners with heavy infestations. Species to be controlled include but are not limited to barberry, buckthorn, honeysuckle, autumn olive and multiflora rose.

Before Situation:

Typical setting is forestland, pasture, riparian or wildlife lands where invasive plants are established and are negatively affecting wildlife food and cover, plant community diversity and regeneration of native plant species. Invasive plants are common i

After Situation:

Typical size of this scenario ranges from 1 ac to a large stand of dense invasive plants. This scenario would often be paired with another scenario for moderate infestations on a portion of the acreage. Typical application of herbicides is from a commercial applicator using a backpack foliar sprayer, cut stump treatments or basal bark treatment. After treatment, invasive plants have been controlled to a level that meets client objectives to improve wildlife habitat, improve plant community diversity and forest health and/or to improve plant productivity, health and vigor.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,796.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,796.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #10 - Mechanical Control, Hand Application

Scenario Description:

This scenario will be used on sites where manual control of invasive exotics is possible due to few young stems per acre. Access is good and the general coverage of the invasive plants is very low. This would be used for initial and light infestations. Species to be controlled include but are not limited to barberry, buckthorn, honeysuckle, autumn olive and multiflora rose. Hand pulling and hand tools such as shovels and weed wrenches will be used to remove plants and roots from the ground. Plants will be hung in nearby trees to be sure roots desiccate.

Before Situation:

Typical setting is forestland, pasture, riparian or wildlife lands where invasive plants are just starting to become established and are beginning to negatively affecting wildlife food and cover, plant community diversity and regeneration of native plant

After Situation:

Typical size of this scenario is variable ranging from 1-2 acres. A minimum of two treatments and future maintenance will be required. After treatment, invasive plants have been controlled to a level that meets client objectives to improve wildlife habitat, improve plant community diversity and forest health and to improve plant productivity, health and vigor.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $101.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $101.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #11 - Mechanical Control, Hand Application and Follow-up Treatment

Scenario Description:

This scenario includes a follow up treatment to control re-sprout of the weeds on sites where manual control of invasive exotics is possible due to few young stems per acre. Access is good and the general coverage of the invasive plants is very low. This would be used for initial and light infestations. Species to be controlled include but are not limited to barberry, buckthorn, honeysuckle, autumn olive and multiflora rose. Hand pulling and hand tools such as shovels and weed wrenches will be used to remove plants and roots from the ground. Plants will be hung in nearby trees to be sure roots desiccate.

Before Situation:

Typical setting is forestland, pasture, riparian or wildlife lands where invasive plants are just starting to become established and are beginning to negatively affecting wildlife food and cover, plant community diversity and regeneration of native plant

After Situation:

Typical size of this scenario is variable ranging from 1-2 acres. Future maintenance by the landowner will be required. After treatment, invasive plants have been controlled to a level that meets client objectives to improve wildlife habitat, improve plant community diversity and forest health and to improve plant productivity, health and vigor.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $135.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $135.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #302 - Chemical Control, Individual Plant Treatment

Scenario Description:
This Practice is for the implementation of brush management on range, pasture or native pasture using Individual Plant Treatment (IPT). The typical method of control is application of herbicides (basal or foliar location) on selected individual plants.

Before Situation:
Brush species exceed desired levels resulting in degraded plant condition, loss of forage production, or degraded wildlife habitat. Densities of brush exceed levels indicated in the ecological site descriptions.

After Situation:
Brush has been treated to a level which results in improved plant condition, forage production, or wildlife habitat. The typical method of control is application of herbicides (basal or foliar location) on selected individual plants.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,945.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $48.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #327 - Chemical Control, Light Infestation

Scenario Description:

This scenario will be used on sites where chemical control of invasive exotics with foliar treatments are required. Limited basal bark or cut stump treatments may also be used. Access is good and the general coverage is at ~10% or less (aerial cover estimate). This would be used for light infestations or for follow-up after using the chemical difficult or chemical moderate scenarios. Species to be controlled include but are not limited to barberry, buckthorn, honeysuckle, autumn olive and multiflora rose. Restricted use chemicals and contractor work is necessary in wetland settings.

Before Situation:

Typical setting is forestland, pasture, riparian or wildlife lands where invasive plants are established and are negatively affecting wildlife food and cover, plant community diversity and regeneration of native plant species. Invasive plants are common i

After Situation:

Typical size of this scenario is variable ranging from an acre to many acres. Typical application of herbicides is from a commercial applicator using a backpack foliar sprayer with potential for limited cut stump or basal bark treatment. Future maintenance will be required. After treatment, invasive plants have been controlled to a level that meets client objectives to improve wildlife habitat, improve plant community diversity and forest health and to improve plant productivity, health and vigor.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $417.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $417.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #352 - Biological Control, Low Density

Scenario Description:

Management of woody plant species through the use of livestock that are closely herded to concentrate grazing on targeted shrubs. Typical areas have dense stands of woody non-herbaceous species that exceed the desirable ecological site condition. Undesirable non-herbaceous vegetation may be present and impairing the desired ecological site condition. Targeted grazing herd is mobilized to site. Typical herd size less than 100 head.

Before Situation:

Area consist of dense stands of woody non-herbaceous species that exceed the desirable ecological site condition degrading forage quality, promoting noxious and invasive species, increasing risk of soil erosion and degrading wildlife habitat.

After Situation:

Woody species are grazed to limit the regrowth of targeted shrubs and achieve a desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, affected hydrology and plant health and vigor is returning to near normal levels. Implementation is consistent with the Brush Management 314 plan and specifications.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $7,518.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $751.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 314 - Brush Management

Scenario: #374 - Mechanical Control, Less Than or Equal to One Acre

Scenario Description:

Using hand tools and small power tools to remove or cut off invasive woody plants at or below the root collar. Typically this scenario is for woody and non-herbaceous species that are in early phases of invasion and are degrading herbaceous plant health and vigor for the 1 acre small farm.

Before Situation:

Small farm area is in various phases of woody non-herbaceous species encroachment that degrades the biotic integrity of the site resulting in poor herbaceous plant health and vigor. Continued degradation results in increased invasive woody species and poo

After Situation:

Woody species are removed to achieve desirable biotic conditions for herbaceous plant health and vigor. Hydrological site characteristics and plant health and vigor are improved, and plant pest pressure from invasive woody species is reduced.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $565.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $565.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #1 - Mechanical Control, Light Infestation

Scenario Description:
Remove light infestations of herbaceous weeds using a mower, herbicide, or other state approved methods. Often used on land where weed management is accomplished by treating the field uniformly, such as with a rotary mower or boom sprayer.

Before Situation:
Pasture or hayland contains herbaceous weeds such as bedstraw or yellow rattle. Forage quality, desirable species composition, and plant productivity is often low.

After Situation:
Herbaceous weeds are managed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $521.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $104.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #2 - Mechanical Control with Follow-up Application, Light Infestation

Scenario Description:
Remove light infestations of herbaceous weeds using a mower, herbicide, or other state approved methods. Often used on land where weed management is accomplished by treating the field uniformly, such as with a rotary mower or boom sprayer. This scenario includes a follow up treatment to control re-sprout of the weeds after practice certification.

Before Situation:
Pasture or hayland contains herbaceous weeds such as bedstraw or yellow rattle. Forage quality, desirable species composition, and plant productivity is often low.

After Situation:
Herbaceous weeds are managed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $974.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $194.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #3 - Chemical Control, Moderate Infestation

Scenario Description:

Remove moderate infestations of herbaceous weeds using state approved chemical/mechanical methods. Often used on smaller areas of land where weed management is accomplished using chemical application (with backpack or other types of sprayers) in combination with manual cutting. Invasive plant coverage is less than 75%.

Before Situation:

Area consists of moderate stands of invasive weeds degrading health and vigor of native herbaceous species and degrading wildlife habitat.

After Situation:

Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $485.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $485.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #4 - Chemical Control with Follow-up Spot Application, Moderate Infestation

Scenario Description:

Remove moderate infestations of herbaceous weeds using state approved chemical/mechanical methods. Often used on smaller areas of land where weed management is accomplished using chemical application (with backpack or other types of sprayers) in combination with manual cutting. This scenario includes a follow up "spot treatment" to control re-sprout of the weeds after practice certification.

Before Situation:

Area consists of moderate stands of invasive weeds degrading health and vigor of native herbaceous species and degrading wildlife habitat.

After Situation:

Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $832.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $832.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #6 - Mechanical and Chemical Control, Phragmites

Scenario Description:

Remove dense infestations of herbaceous weeds, such as phragmites and knotweed, using state approved chemical/mechanical methods. Often used on small areas of land where weed management is accomplished using intensive management techniques, such as chemical application (with backpack or other types of sprayers) in combination with manual/machine cutting. This scenario includes a follow up "spot treatment" to control re-sprout of the weeds after practice certification.

Before Situation:

Area consist of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,371.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,371.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #40 - Chemical Control for Phragmites, Intensive

Scenario Description:

Remove dense infestations of herbaceous weeds, such as phragmites, using state approved chemical methods. Often used on small areas of land where weed management is accomplished using intensive management techniques, such as chemical application (with hydraulic or backpack sprayers). This scenario is a well-established, dense stand of phragmites with significant thatch build-up, creating slow working conditions. An all-terrain vehicle, such as an Argo or Swampmaster is often used to create paths, carry the operator, and to power the hydraulic sprayer. Possible supporting practices include Brush Management (314), Drainage Water Management (554), Restoration and Management of Declining Habitats (643), Stream Habitat Improvement (395), Wetland Wildlife Habitat Management (644), Conservation Cover (327) or Critical Area Planting (342).

Before Situation:

Area consist of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat. Resource Concerns include Degraded Plant Condition and Fish and Wildlife -

After Situation:

Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat

Feature Measure: Acre treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,311.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,311.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #41 - Chemical Control for Phragmites, Moderate

Scenario Description:

Moderate control with chemicals for Phragmites and other dense weeds. Remove dense infestations of herbaceous weeds, such as phragmites, using state approved chemical methods. Often used on small areas of land where weed management is accomplished using intensive management techniques, such as chemical application (with hydraulic or backpack sprayers). This scenario is a well-established, dense stand of phragmites with significant thatch build-up, creating slow working conditions. An all-terrain vehicle, such as an Argo or Swampmaster is often used to create paths, carry the operator, and to power the hydraulic sprayer. Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Possible supporting practices include Brush Management (314), Drainage Water Management (554), Restoration and Management of Declining Habitats (643), Stream Habitat Improvement (395), Wetland Wildlife Habitat Management (644), Conservation Cover (327) or Critical Area Planting (342).

Before Situation:

Phragmites or other dense weeds have taken over a site. They are crowding out the native species and eliminating the habitat for the wildlife. Resource Concerns include Fish and Wildlife - Inadequate Habitat and Degraded Plant Condition.

After Situation:

Phragmites and other weeds have been controlled. The native species are returning and the wildlife habitat is restored

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,470.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,470.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #42 - Chemical Control, Light Infestation

Scenario Description:

This scenario will be used on sites where chemical control of invasive exotics with foliar treatments are required. Access is good and the general coverage is 10% or less. This would be used for light infestations or for follow-up after using the chemical difficult or chemical moderate scenarios. Species to be controlled include but are not limited to Japanese knotweed, yellow iris, swallowwort, garlic mustard, Phragmites, etc. Restricted use chemicals and contractor work is necessary in wetland settings.

Before Situation:

Area consists of light stands of invasive weeds degrading health and vigor of native and favorable introduced herbaceous species and degrading wildlife habitat.

After Situation:

Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $432.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $432.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #63 - Biological Control, Low Density

Scenario Description:

Management of herbaceous plant species through the use of livestock that are closely herded to concentrate grazing on targeted plants. Typical areas have light density stands of herbaceous species that exceed the desirable ecological site condition. Undesirable herbaceous vegetation may be present and impairing the desired ecological site condition. Targeted grazing herd is mobilized to site. Typical herd size< 100 head. Goal is for maximum consumption of herbaceous plants.

Before Situation:

Area consist of dense stands of herbaceous species that exceed the desirable ecological site condition degrading forage quality, promoting noxious and invasive species, increasing risk of soil erosion and degrading wildlife habitat.

After Situation:

Herbaceous species are grazed to limit the regrowth of targeted plants and achieve a desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, affected hydrology and plant health and vigor is returning to near normal levels. Implementation is consistent with the Herbaceous Weed Management 315 plan and specifications.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $5,197.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $519.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #83 - Mechanical Control, Less Than or Equal to One Acre

Scenario Description:
Using hand and small power tools to remove or cut off herbaceous invasive plants at or below the root collar. Typically this scenario is for herbaceous invasive species that are degrading the 1 acre small farm.

Before Situation:
Small farm area is in various phases of herbaceous species encroachment that degrades the biotic integrity resulting in poor plant health and vigor, and/or wildlife habitat. Continued degradation results in increased plant pest pressure, loss of plant div

After Situation:
Herbaceous species are removed to achieve desirable biotic conditions and improved plant health and vigor, and/or wildlife habitat. Hydrological site characteristics are improved, and plant pest pressure from invasive herbaceous species are reduced.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $387.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $387.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #84 - Biological Control, High Density

Scenario Description:

Management of herbaceous plant species through the use of livestock that are closely herded to concentrate grazing on targeted plants. Typical areas have high density stands of herbaceous species that exceed the desirable ecological site condition. Undesirable herbaceous vegetation may be present and impairing the desired ecological site condition. Targeted grazing herd is mobilized to site. Typical herd size 100-300 head. Goal is for maximum consumption of herbaceous plants.

Before Situation:

Area consist of dense stands of herbaceous species that exceed the desirable ecological site condition degrading forage quality, promoting noxious and invasive species, increasing risk of soil erosion and degrading wildlife habitat.

After Situation:

Herbaceous species are grazed to limit the regrowth and achieve a desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, affected hydrology and plant health and vigor is returning to near normal levels.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $10,394.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,039.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 315 - Herbaceous Weed Treatment

Scenario: #88 - Mechanical Control

Scenario Description:

Removal of herbaceous weeds of light infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of herbaceous weeds by the use of mower, brush hog, disc or other light equipment in order to reduce fuel loading and improve ecological site condition. Weed has exceeded desired levels based on ecological site potential. Typical unit is 40 acres.

Before Situation:

Area consist of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,735.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $68.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #5 - Static Pile with Gravel Pad

Scenario Description:

This scenario consists of installing a gravel pad to compost large animal mortalities, typically dairy cow mortality, in a static windrow or single pile. Additional carbon based bulking material is added to facilitate aeration and provide a proper C:N ratio. Piles turned at least once to go into another heat cycle prior to land application. Access is infrequent so concrete surface is not needed. This option requires at least 2 more times the area in vegetation for runoff treatment. This may not be an option for sites will limited areas, karst topography, and not isolated from of public view. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (378), Diversion (362), Subsurface Drain (606), and Underground Outlet (620)). Vegetative Treatment Area (635), Composting (317), Roofs and Covers (367), Heavy Use Area Protection (561)

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Construct a 50' x 50' compacted gravel pad with geotextile underlayment. Site can handle mortality for a 100 cow dairy with associated heifers and calves. Adequate cover needs to be provided over bedrock and ground water and shall be relatively impervious. Include sufficient area for processing equipment access. Single piles or windrows to minimize runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes excavation and grading of the site.

Feature Measure: Pad Area

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $8,650.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #6 - Static Pile with Concrete Pad

Scenario Description:

This scenario consists of installing a concrete pad over permeable soils, karst topography, frequently accessed sites or sites with regulatory requirements. Typically associated with large dairy (1,000 cows plus heifers) or beef animal mortality with an average daily mortality of 175 lbs./day. Area sized to compost animal mortality as a static pile or windrow with equipment around materials. Sufficient carbon based bulking material added to allow natural aeration and a proper C:N ratio. Piles typically turned at least once to go into another heat cycle prior to final disposal, typically land application. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (587), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Construct a 50'x50' concrete surface to process mortality. Concrete 5" thick with light reinforcement. Typical layout is 18' wide piles with 8' wide access area is around each pile or windrow. Site preparation includes topsoil removal, minimal regrading and compaction, installing gravel or sand subbase and then concrete.

Feature Measure: Pad Area

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $22,496.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #44 - Incineration, Less Than 50 Cubic Feet

Scenario Description:

This scenario consists of installing a manufactured Type IV incinerator designed to handle up to 350 lbs. of average daily mortality for the species and size of the operation. System shall use high temperature (>1,300 degrees F) incineration with a secondary combustion or afterburner chamber prior to flue discharge. After determining average daily mortality in lbs., select smallest incinerator that meets capacity. Payment made per unit of actual chamber size obtained from manufacturers' product literature. This option is not typically least-cost. In most states a roofed static compost pile with concrete floor and bins would be considered least cost. Therefore consider reducing payment rate as per State Conservationist discretion. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed, however, in non-attainment areas, certain states may require a higher level of processing such as gasification or other approved methods. Potential Associated Practices: Heavy Use Area Protection (561), Fence (382), Critical Area Planting (342), Access Road (560), Waste Storage Facility (313), Nutrient Management (590), Roofs and Covers (367), Critical Area Planting (342).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete incineration, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Selected method for carcass treatment and disposal meet or are permitted by federal, state, and local laws, rules, regulation. Typical incinerator installed to handle 150 lbs. per day average mortality for a small poultry operation and has an incinerator chamber volume of 44 cubic feet. Included is a concrete slab to set the incinerator on and a fuel tank. Ash materials to be stored in suitable containers until land disposal as per the nutrient management plan or landfilled.

Feature Measure: Incinerator Chamber Volum

Scenario Unit: Cubic Foot

Scenario Typical Size: 44.0

Scenario Total Cost: $15,435.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $350.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #45 - Small Animal, Less Than or Equal to 9 Pounds

Scenario Description:

This scenario will address animal mortalities for small animal types (less than 10 pound average weight -i.e. broilers and birth to weaning swine). It was developed for various types of animal mortality facilities as listed below (which is not an exhaustive list): - Static Bin: Consisting of a group of small bins (concrete or wood walls) on a concrete pad to compost mortality in static pile(s) that have sufficient bulking material to allow natural aeration. Piles are turned to go through a second heat cycle prior to final land application. - Invessel Rotary Drum. A commercially manufactured horizontal rotary drum to compost animal mortalities mixed with a carbon material (i.e. sawdust or wood chips). A secondary composting storage area is required to finish materials. - Invessel Grinding Batch. A commercially manufactured grinding batch composter with a minimum capacity of 1,000 lbs. per batch. A secondary composting storage area is required to finish materials. - Forced Air Composting Bins: Consisting of a group of small bins with an aeration and leachate collection system. (This scenario does not address incinerators.) The least cost scenario is based on a static bin system with wood walls. The roofed portion of the facility is addressed with Roofs and Covers (367). Approach apron is addressed with Heavy Use Area Protection (561). Size of facility is based on daily mortality and sizing procedures accepted in particular state. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Organic sites will require more frequent replacement of lumber (if used). Potential Associated Practices: Roofs and Cover (367), Heavy Use Area Protection (561), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (587), Roof Runoff Structure (558), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Selected method for carcass treatment and disposal meet or are permitted by federal, state, and local laws, rules, regulation. The typical mortality facility is based on a wooden wall static bin composting facility with the primary bins on one side and secondary bins along the backside. A typical livestock operation consists of a 88,000 broiler operation with 6 flocks per year. Average bird weight is 4 pounds with an average mortality rate of 5%. The average daily mortality is 289 lb./day which requires a minimum primary bin volume of 646 ft3. The secondary bin volume is the same as the primary bin. The facility will be installed on a 12' X 24' concrete pad with 6 bins (3 primary and 3 secondary bins) with a total bin capacity of 1,440 cubic feet. Bin dimensions are 5' Height x 8' Width x 6' Length. Bin wall consists of a 1' concrete curb and 4' of treated lumber. Site preparation includes topsoil removal, installing 4" of gravel, setting posts , installing concrete slab (5"), installing wooden walls and retaining planks. Piles turned to go through a second heat cycle prior to final land application.

Feature Measure: Average daily mortality pou

Scenario Unit: Pounds per Day

Scenario Typical Size: 289.0

Scenario Total Cost: $12,015.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #46 - Medium Animal, 10 to 50 Pounds

Scenario Description:

This scenario will address animal mortalities for medium animal types (which generally range in size from 10 to 50 pounds average weight -i.e. turkeys and nursery pigs). It was developed for various types of animal mortality facilities as listed below (which is not an exhaustive list): - Static of a group of small bins (concrete or wood walls) on a concrete pad to compost mortality in static pile(s) that have sufficient bulking material to allow natural aeration. Piles are turned to go through a second heat cycle prior to final land application. - Invessel Rotary Drum. A commercially manufactured horizontal rotary drum to compost animal mortalities mixed with a carbon material (i.e. sawdust or wood chips). A secondary composting storage area is required to finish materials. - Invessel Grinding Batch. A commercially manufactured grinding batch composter with a minimum capacity of 1,000 lbs. per batch. A secondary composting storage area is required to finish materials. - Forced Air Composting Bins: Consisting of a group of small bins with an aeration and leachate collection system. (This scenario does not address incinerators.) The least cost scenario is based on a static bin system with wood walls. The roofed portion of the facility is addressed with Roofs and Covers (367). Approach apron is addressed with Heavy Use Area Protection (561). Size of facility is based on daily mortality and sizing procedures accepted in particular state. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Organic sites will require more frequent replacement of lumber (if used). Potential Associated Practices: Roofs and Cover (367), Heavy Use Area Protection (561), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (587), Roof Runoff Structure (558), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Selected method for carcass treatment and disposal meet or are permitted by federal, state, and local laws, rules, regulation. The typical mortality facility is based on a wooden wall static bin composting facility with the primary bins on one side and secondary bins along the backside. A typical livestock operation consists of a 28,000 hen turkey operation with 3 flocks per year. Average bird weight is 20 pounds with an average mortality rate of 7%. The average daily mortality is 322 lb./day which requires a minimum primary bin volume of 1,611 ft3. The secondary bin volume is the same as the primary bin. The facility will be installed on a 20' X 36' concrete pad with 6 bins (3 primary and 3 secondary bins) for a total bin capacity of 3,600 cubic feet. Bin dimensions are 5' Height x 12' Width x 10' Length. Bin wall consists of a 1' concrete curb and 4' of treated lumber. Site preparation includes topsoil removal, installing 4" of gravel, setting posts , installing concrete slab (5"), installing wooden walls and retaining planks. Piles turned to go through a second heat cycle prior to final land application.

Feature Measure: Average daily mortality pou

Scenario Unit: Pounds per Day

Scenario Typical Size: 322.0

Scenario Total Cost: $19,906.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $61.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #47 - Large Animal, 51 to 300 Pounds

Scenario Description:

This scenario will address animal mortalities for large animal types (which generally range in size from 50 to 300 average weight -i.e. grower/finishing pigs sheep and goats). It was developed for various types of animal mortality facilities as listed below (which is not an exhaustive list): - Static Bin: Consisting of a group of small bins (concrete or wood walls) on a concrete pad to compost mortality in static pile(s) that have sufficient bulking material to allow natural aeration. Piles are turned to go through a second heat cycle prior to final land application. - Invessel Rotary Drum. A commercially manufactured horizontal rotary drum to compost animal mortalities mixed with a carbon material (i.e. sawdust or wood chips). A secondary composting storage area is required to finish materials. - Invessel Grinding Batch. A commercially manufactured grinding batch composter with a minimum capacity of 1,000 lbs. per batch. A secondary composting storage area is required to finish materials. - Forced Air Composting Bins: Consisting of a group of small bins with an aeration and leachate collection system. (This scenario does not address incinerators.) The least cost scenario is based on a static bin system with wood walls. The roofed portion of the facility is addressed with Roofs and Covers (367). Approach apron is addressed with Heavy Use Area Protection (561). Size of facility is based on daily mortality and sizing procedures accepted in particular state. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Organic sites will require more frequent replacement of lumber (if used). Potential Associated Practices: Roofs and Cover (367), Heavy Use Area Protection (561), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (587), Roof Runoff Structure (558), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Selected method for carcass treatment and disposal meet or are permitted by federal, state, and local laws, rules, regulation. The typical mortality facility is based on a wooden wall static bin composting facility with the primary bins on one side and secondary bins along the backside. A typical livestock operation consists of a 6,400 finishing pigs with 2.5 litters per year (all in all out system). Average pig weight is 160 pounds with an average mortality rate of 3%. The average daily mortality is 210 lb./day which requires a minimum primary bin volume of 3,320 ft3. The secondary bin volume is the same as the primary bin. The facility will be installed on a 20' X 72' concrete pad with 12 bins (6 primary and 6 secondary bins) for a total bin capacity of 7,200 cubic feet. Bin dimensions are 5' Height x 12' Width x 10' Length. Bin wall consists of a 1' concrete curb and 4' of treated lumber. Site preparation includes topsoil removal, installing 4" of gravel, setting posts , installing concrete slab (5"), installing wooden walls and retaining planks. Piles turned to go through a second heat cycle prior to final land application.

Feature Measure: Average daily mortality pou

Scenario Unit: Pounds per Day

Scenario Typical Size: 210.0

Scenario Total Cost: $33,359.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $158.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #48 - Static Pile, Extra Large Animal

Scenario Description:

This scenario consists of installing an impervious earthen pad to compost large animal mortalities, typically dairy cow, beef, sow or boar, in a static windrow or single pile. Additional carbon based bulking material is added to facilitate aeration and provide a proper C:N ratio. Piles turned at least once to go into another heat cycle prior to land application. Access is infrequent. This option requires at least 2 more times the area in vegetation for runoff treatment. This may not be an option for sites will limited areas, karst topography, and not isolated from of public view. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Any roofed portion of the facility will be addressed with Roofs and Covers (367). Any approach areas will be addressed with Heavy Use Area Protection (561). Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Diversion (362), Subsurface Drain (606), and Underground Outlet (620)). Vegetative Treatment Area (635), Composting (317), Roofs and Covers (367), Heavy Use Area Protection (561)

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Typical system consists of a 50' x 50' compacted earth surface. Site can handle mortality for a 100 cow dairy with associated heifers and calves. On site soils can be recompacted to meet required imperviousness. Include sufficient area for processing equipment access. Use single piles or windrows to minimize runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes removal of top 1.5' and recompacting.

Feature Measure: Pad Area

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $3,004.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #49 - Incineration, 50 to 100 Cubic Feet

Scenario Description:

This scenario consists of installing a manufactured Type IV incinerator designed to handle 350 to 850 lbs. of average daily mortality for the species and size of the operation. Typically very large poultry or medium sized swine operations. System shall use high temperature (>1,300 degrees F) incineration with a secondary combustion or afterburner chamber prior to flue discharge. After determining average daily mortality in lbs., select smallest incinerator that meets capacity. Payment made per unit of actual chamber size obtained from manufacturers' product literature. This option is not typically least-cost. In most states a roofed static pile with concrete floor and bins would be considered least cost. Therefore consider reducing payment rate as per State Conservationist discretion. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors are reduced, however, in non-attainment areas, certain states may require a higher level of processing such as gasification or other approved methods. Potential Associated Practices: Heavy Use Area Protection (561), Fence (382), Critical Area Planting (342), Access Road (560), Waste Storage Facility (313), Nutrient Management (590), Roofs and Covers (367), Critical Area Planting (342).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete incineration, and protection from predators to minimize pathogen survival or spreading. In non-attainment areas, certain states may require a higher level of processing such as gasification or different methods. An overall plan covers normal and catastrophic mortality events. Selected method for carcass treatment and disposal meet or are permitted by federal, state, and local laws, rules, regulation. Typical incinerator installed to handle 700 lbs. per day average mortality for a medium poultry or swine operation and has an incinerator chamber volume of 55.8 cubic feet. Included is a concrete slab to set the incinerator on and a diesel fuel tank. Ash materials to be stored in suitable containers until land disposal as per the nutrient management plan or landfilled.

Feature Measure: Incinerator Chamber Volum

Scenario Unit: Cubic Foot

Scenario Typical Size: 55.8

Scenario Total Cost: $16,833.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $301.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 316 - Animal Mortality Facility

Scenario: #89 - Static Pile for Geological Limitations, Extra Large Animal

Scenario Description:

This scenario consists of installing a concrete pad over permeable soils, karst topography, frequently accessed sites or sites with regulatory requirements. Typically associated with large dairy (1,000 cows plus heifers), beef, boar or sow animal mortality. Area sized to compost animal mortality as a static pile or windrow with equipment around materials. Sufficient carbon based bulking material added to allow natural aeration and a proper C:N ratio. Piles typically turned at least once to go into another heat cycle prior to final disposal, typically land application. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Any roofed portion of the facility will be addressed with Roofs and Covers (367). Any approach areas will be addressed with Heavy Use Area Protection (561). Potential Associated Practices: Fence (382), Critical Area Planting (342), Heavy Use Area Protection (561), Nutrient Management (590), Access Road (560), Diversion (362), Subsurface Drain (606), and Underground Outlet (620).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Typical system consists of a 60'x95' concrete surface to process an average mortality of 175 lb./day. Concrete 5" thick with light reinforcement. Typical layout is 18' wide piles with 8' wide access area around each pile or windrow. Site preparation includes topsoil removal, minimal regrading and compaction, installing gravel or sand subbase and then concrete.

Feature Measure: Pad Area

Scenario Unit: Square Foot

Scenario Typical Size: 5,700.0

Scenario Total Cost: $42,456.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #1 - Windrow with Concrete or Asphalt Surface, Pad

Scenario Description:

The composting facility is installed to address water quality concerns and disease vectors resulting from improper waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of soil. This scenario is applicable when geological, soil, climate conditions or state and local regulations prohibit the use of an earthen surface. Curbing may need to be installed around the perimeter of the pad to help contain runoff from flowing away. Animal mortality composting pads shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. This is incorporated as part of the overall waste management system meeting the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) that has been developed to also account for end use of the product from the composting facility. This scenario consists of installing a concrete or asphalt pad over compacted gravel to act as a working area to compost organic material in windrows. Sufficient carbon based bulking material will be added to the waste to maximize the composting process. Windrows are typically turned at least once to go into another heat cycle prior to final disposal, typically land application. Typical pad size is 100' x 100' (10,000 square feet) on a concrete or asphalt surface. Sub base material sufficiently compacted. Include sufficient area for processing equipment access. Single piles or windrows to minimize runoff. Site to be located out of drainage areas and off-site water diverted away from the pad. Divert runoff from the pad to a vegetated treatment area or a waste storage facility as per regulations. Site preparation includes topsoil removal, compaction of subsoil, and installing 6" of compacted gravel prior to installing concrete or asphalt pad.

Feature Measure: Area of Concrete/Asphalt Pa

Scenario Unit: Square Foot

Scenario Typical Size: 10,000.0

Scenario Total Cost: $88,925.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #3 - Wood Bins

Scenario Description:

The composting facility, with complete concrete floor and under bins, is installed to address water quality concerns and disease vectors resulting from improper waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of crop ground. This scenario consists of a 3 bin composter made from timber walls placed over a cast in place concrete floor. Bins are 11' 3" by 10' 8" in size. Posts are imbedded in ground. Concrete pad is 498 square feet in area (37.3' by 13.3'). A 1' by 1.33' concrete curb is also included. Timber bins are often used with smaller operations where only smaller machinery is available, often for sheep, goat, or chickens or where local regulations require use of this material.. For operations with larger machinery where larger bin sizes are needed, consider using concrete block bins. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. The typical composter is designed to handle organic material from a typical New England farming operation. The typical composter is 37.3' x 13.3' with 5' high bins, 3 bin system. Strip top 1' of soil and roll compact same back into sub-floor. The entire structure is constructed on a 5" concrete slab used to store and stabilize organic material from a typical New England farm.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 498.0

Scenario Total Cost: $15,282.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #4 - Concrete Block Bins

Scenario Description:

The composting facility, with complete concrete floor and under bins, is installed to address water quality concerns and disease vectors resulting from improper waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of crop ground. This scenario consists of a 3 bin composter made from stacked concrete blocks placed on a cast in place concrete floor. Bins are 2 blocks wide by 2 blocks long creating bins 12' by 12' in size. A 1' by 1.33' buckwall to support concrete block walls is also included. Concrete pad is 780 square feet in area (46.7' by 16.7'). Concrete block bins are often used with larger operations where larger machinery is available, often for cattle. Use concrete block bins where larger bin sizes are needed and larger equipment is available or where local regulations require use of this material. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. The typical composter is designed to handle organic material from a typical New England farming operation. The typical composter is 46.7' x 16.7' with 6' high concrete block bins, 3 bin system. Strip top 1' of soil and roll compact same back into sub-floor. The entire structure is constructed on a 5" concrete slab used to store and stabilize organic material from a typical New England farm.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 780.0

Scenario Total Cost: $29,008.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $37.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #5 - Concrete Bins

Scenario Description:

The composting facility, with complete concrete floor and under bins, is installed to address water quality concerns and disease vectors resulting from improper waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of crop ground. This scenario consists of a 3 bin composter made from cast in place concrete placed on a cast in place concrete floor with footer for walls. Bins are 12' by 12' in size. Walls are 10" thick and 6' tall. A footer for the walls extends 4' past the concrete walls on the outside of the walls on three sides and 2' past the end of the walls on the front side. Concrete pad is 846 square feet in area (47' by 18'). This scenario should be considered when timber bins or concrete block bins are deemed not feasible at the site and cast in place concrete is required. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. The typical composter is designed to handle organic material from a typical New England farming operation. The typical composter is 47' x 18' with 6' high concrete walls, 3 bin system. Strip top 1' of soil and roll compact same back into sub-floor. The entire structure is constructed on a 12" concrete slab with footer used to store and stabilize organic material from a typical New England farm.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 846.0

Scenario Total Cost: $27,878.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $32.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #6 - Gravel Pad

Scenario Description:

The composting facility is installed to address water quality concerns and disease vectors resulting from improper waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of crop ground. This scenario is applicable when geological, soil, climate conditions or state and local regulations prohibit the use of an earthen surface but does not require a hard working surface such as concrete or asphalt. Local laws and regulations may require the use of a liner (see potential associated practices) for a gravel pad. All animal mortality composting shall be done using Practice Standard 316 - Animal Mortality Facility. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. This is incorporated as part of the overall waste management system meeting the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) that has been developed to also account for end use of the product from the composting facility. This scenario consists of installing a gravel pad over compacted earth and geotextile to act as a working area to compost organic material in a static pile, windrow, that has sufficient carbon based bulking material to allow natural aeration. Piles typically turned at least once to go into another heat cycle prior to final deposal, typically land application. Typical pad is 100' x 100' (10,000 square feet) of gravel on a compacted earth surface. Gravel material sufficiently compacted. Include sufficient area for processing equipment access. Single piles or windrows to minimize runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes topsoil removal, compaction of subsoil, and installing a geotextile plus compacted gravel.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 10,000.0

Scenario Total Cost: $25,549.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #8 - Concrete Pad with Gravel Earthen Surface, 54 Square Feet

Scenario Description:

The composting facility is installed on a small, urban or organic farm to address water quality concerns, pest/rodent concerns, and disease vectors resulting from improper vegetative waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of crop ground. The typical facility size is 6 feet by 9 feet and is comprised of a two bin system. Screening is provided to limit access by vermin. Cost may be higher per unit that traditional compost facilities due to construction access limitations. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Flexible Membrane (521A), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for water control (587), Diversion (362), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635), Stormwater Runoff Control (570).

Before Situation:

Manure and other vegetative waste are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed. This situation p

After Situation:

Manure and other agricultural by-products are being controlled, by the collection at the source, and stored properly, at an environmentally suitable location, until such time that they are utilized in a proper manner, typically in accordance with a nutrient management plan. This is incorporated as part of the overall waste management system meeting the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) that has been developed to also account for end use of the product from the composting facility. This scenario consists of installing a composting structure on a concrete pad. Concrete pad is 6'x9' on a compacted gravel earth surface. Gravel material sufficiently compacted. Include sufficient area for accessing compost structure. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes topsoil removal, compaction of subsoil, and installing a geotextile plus compacted gravel, concrete pad, and composting structure.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 54.0

Scenario Total Cost: $2,914.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $53.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #15 - Rotary Drum, Greater Than 85 Cubic Yards

Scenario Description:

Manure, litter, and other agricultural by-products are collected, stored, and treated in a compost drum until such time that they are disposed of or utilized in a proper manner, typically in accordance with a nutrient management plan. An equal or higher volume of carbonaceous amendments are added to the drum based on compost tests used to develop a compost recipe. The drum is to be filled according to manufacturer's specifications to accommodate adequate mixing space and to maintain an aerobic environment for optimal composting conditions. Compost is incorporated as part of an overall waste management system meeting the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) that has been developed to account for end use of the product from the composting facility. The composting facility consists of a composting drum installed on a concrete slab. Water quality concerns and disease vectors resulting from improper waste disposal are addressed by providing a dedicated facility for storage and treatment. The system produces a composted product that can be used in several ways, including land application for enrichment of crop ground. This scenario is applicable when there is limited land availability, geological, soil or climatic conditions prohibiting the use of only partial concrete surfaces, and for optimum moisture control. The drum system may be part of a waste separation system where composted solids are reused as bedding, as soil amendment, or sold off-farm. Operations including animal mortality composting must also adhere to Practice Standard 316 - Animal Mortality Facility. List of Potential Associated Practices: Critical Area Planting (342), Nutrient Management (590), Access Road (560), Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635), Waste Separation (632).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, another location, or are being transported but improperly disposed and/or utilized. This si

After Situation:

This scenario typically consists of a 112 cubic yard (3,024 cu ft) capacity composting drum that is loaded at less than 80% capacity. The drum is loaded with organic and bulking materials from a livestock operation and is turned periodically prior to final deposal, which typically consists of land application. Benefits include improvements in water quality, air quality, biosecurity, compost moisture management, expedited year-round composting, and pest reduction. Additional manure handling and storage components (i.e. pipelines, pumps, waste storage facilities, etc.) completed using (634), Manure Transfer, and required site work and accompanying pad to be completed under Heavy Use Area Protection, (561).

Feature Measure: Drum Size

Scenario Unit: Cubic Foot

Scenario Typical Size: 3,024.0

Scenario Total Cost: $339,920.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $112.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #18 - Farm Pad and Bins

Scenario Description:

The typical facility size is 6 feet by 9 feet and is comprised of a two-bin system, NOT TO EXCEED 75 sq-ft. The composting facility is installed on a small, urban or organic farm to address water quality concerns, pest/rodent concerns, and disease vectors resulting from improper vegetative waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of crop ground. Screening is provided to limit access by vermin. Cost may be higher per unit than traditional compost facilities due to construction access limitations. Potential Associated Practices: Pond Sealing or Lining, Compacted Soil (520), Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner (521), Pond Sealing or Lining, Concrete (522), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (587), Diversion (362), Livestock Pipeline (516), Subsurface Drain (606), Heavy Use Area Protection (561), Roofs and Covers (367), Roof Runoff Structure (558), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Underground Outlet (620) and Vegetative Treatment Area (635), Stormwater Runoff Control (570).

Before Situation:

Manure and other vegetative waste are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed. This situation p

After Situation:

Manure and other agricultural by-products are being controlled by collection at the source and properly stored at an environmentally suitable location, until such time that they are utilized in a proper manner, typically in accordance with a nutrient management plan. This is incorporated as part of the overall waste management system meeting the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) that has been developed to also account for end use of the product from the composting facility. This scenario consists of installing a composting structure on a concrete pad. Concrete pad is 6'x9' on a compacted gravel surface. Include sufficient area for accessing compost structure. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. Site preparation includes topsoil removal, compaction of subsoil, and installing a geotextile plus compacted gravel, concrete pad, and composting structure.

Feature Measure: Square Foot Floor Area

Scenario Unit: Square Foot

Scenario Typical Size: 54.0

Scenario Total Cost: $4,210.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $77.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #43 - In-Vessel, 8 to 16 Cubic Yards

Scenario Description:

Installation of an in-vessel composter (rotary drum, forced air, or containerized with mechanical turning) to facilitate the decomposition of manure and/or other organic material into a final product sufficiently stable for storage, on farm use and application to land as a soil amendment. The raw inputs are primarily obtained for agricultural production or processing. The compost can be reused in the operation, utilized for crop production, soil improvement and/or marketed to the public.

Before Situation:

Raw materials are stockpiled on-site and hauled to a landfill or directly to a field without treatment. Odors and vectors are routinely an issue following rain events.

After Situation:

An in-vessel composter with a drum capacity of 8-16 CY is installed to facilitate the composting of the organic materials as described. Potential for runoff, vectors, and odors are significantly reduced. The compost material is more stable and can be reused as described in the standard. Typical sized to 12 CY.

Feature Measure: In-vessel Capacity

Scenario Unit: Cubic Foot

Scenario Typical Size: 324.0

Scenario Total Cost: $53,644.10

Total Cost per Unit: $165.57

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 317 - Composting Facility

Scenario: #44 - In-Vessel, Less Than 8 Cubic Yards

Scenario Description:

Installation of an in-vessel composter (rotary drum, forced air, or containerized with mechanical turning) to facilitate the decomposition of manure and/or other organic material into a final product sufficiently stable for storage, on farm use and application to land as a soil amendment. The raw inputs are primarily obtained for agricultural production or processing. The compost can be reused in the operation, utilized for crop production, soil improvement and/or marketed to the public. Typical size is for an in-vessel composter with a drum capacity of 4 CY with an approximate width of 4ft and length of 10 ft. The drum capacity is typically 85% of the nominal dimensions of the drum. This includes a concrete foundation for the composter of 6ft x 20ft to facilitate an area to collect finished compost. A secondary storage facility may require additional bin storage, which is not included. This scenario does not apply to routine disposal of livestock or poultry carcasses. Potential associated practices: Roofs and Covers (367), Waste Storage Facility (313), Fence (382), Critical Area Planting (342), Nutrient Management (590)

Before Situation:

Raw materials are stockpiled on-site and hauled to a landfill or directly to a field without treatment. Odors and vectors are routinely an issue following rain events.

After Situation:

An in-vessel composter with a drum capacity of 4 CY is installed to facilitate the composting of the organic materials as described. Potential for runoff, vectors, and odors are significantly reduced. The compost material is more stable and can be reused as described in the standard.

Feature Measure: Drum Capacity

Scenario Unit: Cubic Foot

Scenario Typical Size: 108.0

Scenario Total Cost: $24,546.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $227.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 318 - Short Term Storage of Animal Waste and By-Products

Scenario: #1 - Polyethylene Cover, Earthen Pad

Scenario Description:

A compacted earthen pad is constructed to store wastes on a short-term basis between collection and utilization as part of an agricultural waste management system. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Nutrient Management (590), Waste Recycling (633)

Before Situation:

Operator presently has a confined animal feeding operation and daily manure spreading operations are not possible due to weather. Manure and other agricultural waste by-products are not being managed in an environmentally safe manner. The wastes are eithe

After Situation:

Using a compacted earthen pad with a cover provides an environmentally safe measure for temporarily managing manure and other agricultural waste by-products. This facility provides the landowner a means of storing waste until it can be utilized in a proper manner in accordance with a nutrient management plan. This practice will address soil and water quality by reducing the pollution potential to soil, surface water and ground water. Typical design: volume of material temporarily stored 12,576 ft3, pad area 6,000 ft2 (60' X 100'); 4' width around edge of manure stack to properly anchor and cover the manure; footprint of manure pile: 52' X 92", 6' manure stack height on 4:1 slopes; cover is a 6 mil poly film; 15" x 1/2" dia auger anchors on 2' centers.

Feature Measure: Volume of stored manure s

Scenario Unit: Cubic Foot

Scenario Typical Size: 12,576.0

Scenario Total Cost: $8,842.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 319 - On-Farm Secondary Containment Facility

Scenario: #4 - Concrete Containment with Roof, Less Than or Equal to 150 Square Feet

Scenario Description:

This practice scenario includes the installation of a reinforced concrete wall containment with a concrete slab around an existing storage tank. This scenario also includes a mono-sloped roof to cover the facility. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters. Due to topography, limited site space and/or geological conditions a fabricated structure is needed. Structure will provide an environmentally safe facility for handling and storage of these products. Associated practices may include: Heavy Use Area Protection (561)

Before Situation:

Existing agricultural operation that has single walled fuel/oil storage tank(s) not protected. The producer has developed an SPCC plan in accordance with EPA requirements, that requires an above ground secondary containment facility for on-farm oil produc

After Situation:

Containment facility is typically installed for 250 to 500 gallon tank. The containment volume is designed for 125% of the largest tank. Structure will provide an environmentally safe facility for handling and storage of these products. Scenario is based upon VT Secondary Containment Facility Design which is 12.5' x 9.5' in size. Reinforced concrete slab is 6" thick slab with 2' tall formed sidewalls. Existing tank will be placed inside containment facility after facility is constructed. Facility will be covered with a mono-slope timber framed roof. The secondary containment system will prevent accidental release diesel, gasoline, kerosine, oil and other petroleum products that will release of organics, suspended sediments, and turbidity. Structure will provide an environmentally safe facility for handling and storage of these products.

Feature Measure: Area of Containment Facility

Scenario Unit: Square Foot

Scenario Typical Size: 119.0

Scenario Total Cost: $8,615.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $72.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 319 - On-Farm Secondary Containment Facility

Scenario: #5 - Concrete Containment with Roof, Greater Than 150 Square Feet

Scenario Description:

This practice scenario includes the installation of a reinforced concrete wall containment with a concrete slab around an existing storage tank. This scenario also includes a mono-sloped roof to cover the facility. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters. Due to topography, limited site space and/or geological conditions a fabricated structure is needed. Structure will provide an environmentally safe facility for handling and storage of these products. Associated practices may include: Heavy Use Area Protection (561)

Before Situation:

Existing agricultural operation that has single walled fuel/oil storage tank(s) not protected. The producer has developed an SPCC plan in accordance with EPA requirements, that requires an above ground secondary containment facility for on-farm oil produc

After Situation:

Containment facility is typically installed for 500 to 1000 gallon tank. The containment volume is designed for 125% of the largest tank. Structure will provide an environmentally safe facility for handling and storage of these products. Scenario is based upon VT Secondary Containment Facility Design which is 24.5' x 10.0' in size. Reinforced concrete slab is 6" thick slab with 2' tall formed sidewalls. Existing tank will be placed inside containment facility after facility is constructed. Facility will be covered with a mono-slope timber framed roof. The secondary containment system will prevent accidental release diesel, gasoline, kerosine, oil and other petroleum products that will release of organics, suspended sediments, and turbidity. Structure will provide an environmentally safe facility for handling and storage of these products.

Feature Measure: Area of Containment Facility

Scenario Unit: Square Foot

Scenario Typical Size: 245.0

Scenario Total Cost: $13,278.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $54.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 319 - On-Farm Secondary Containment Facility

Scenario: #18 - Spill Pallet

Scenario Description:

This practice scenario provides spill pallets where drums storing petroleum products will be stored. The spill pallets are specially made to collect and contain any oil that may leak or spill from the drum. Spill pallets are intended for inside use only. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters.

Before Situation:

Typical petroleum storage drums in the machine shop of a farm constantly leak or material is spilled onto the shop floor where it leaks into the floor drain or seeps in to the soil. High potential for ground and surface water contamination with petroleum

After Situation:

All petroleum leakage and spillage from storage drums is fully contained thus protecting surface and ground water resources. Spill pallets are part of an overall SPCC plan in accordance with EPA requirements.

Feature Measure: Volume of Drum

Scenario Unit: Gallon

Scenario Typical Size: 66.0

Scenario Total Cost: $545.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 319 - On-Farm Secondary Containment Facility

Scenario: #26 - Tank, Double-Wall

Scenario Description:

This practice scenario includes the replacement of an existing single wall fuel storage tank with a new double wall tank. The purpose of the practice is to address resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters. Associated practices: Heavy Use Area Protection (561).

Before Situation:

The agricultural operation has an existing single wall fuel/oil storage tank(s) without any spill prevention protection. The producer has developed an SPCC plan in accordance with EPA requirements, which requires an above ground secondary containment faci

After Situation:

This scenario is based on the replacement of an existing single wall tank(s) with a new double wall tank(s). Installation of "used" double wall tank(s) will not be allowed. A 3000 gallon horizontal or vertical antiroll tank (U/L 142-23 Secondary Containment Vessel) double walled which meets EPA regulations will be installed. Payment Schedule is based on the cost difference between a new single wall tank and new double wall tank of the same size. The double wall tank will provide an environmentally safe facility for handling and storage of oil products stored on the farm. Any accidental spills will be contained.

Feature Measure: Tank volume

Scenario Unit: Gallon

Scenario Typical Size: 3,000.0

Scenario Total Cost: $12,670.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 319 - On-Farm Secondary Containment Facility

Scenario: #27 - Secondary Containment Structure

Scenario Description:

This practice scenario includes the installation of a secondary wall type containment using an existing fuel storage tank. With secondary containment resource concerns related to water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters. Due to topography, limited site space and/or geological conditions a fabricated structure is needed. Structure will provide an environmentally safe facility for handling and storage of these products. Associated practices may include; Heavy Use Area Protection (561).

Before Situation:

Existing agricultural operation that has single walled fuel/oil storage tank(s) not protected. The producer has developed an SPCC plan in accordance with EPA requirements requiring an above ground secondary containment facility for on-farm oil products, i

After Situation:

This scenario is based on containment for a 4,700 gallon tank. The containment volume is for 125% of the tank volume (4,700 gallons x 125% = 5,875 gallons). This fabricated secondary containment structure will provide an environmentally safe facility for handling and storage of these products. Typical containment dimensions (28 ft x 10 ft) are 280 sq.ft. bottom with a 6" thick slab with reinforced concrete walls; 8" thick, 4 ft tall with a 4' wide 9" deep footer. The existing tanks will be moved or raised to install base materials. The secondary containment structure (earthen berm, metal walls, concrete walls or modular block walls) will be installed in conformance wit the design and specifications. The on-farm oil products stored on the have secondary containment of accidental release that controls the excessive release of petroleum products and reduces Water Quality resource concerns. Structure will provide an environmentally safe facility for handling and storage of these products.

Feature Measure: Containment Volume

Scenario Unit: Gallon

Scenario Typical Size: 5,875.0

Scenario Total Cost: $19,186.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 320 - Irrigation Canal or Lateral

Scenario: #4 - Irrigation Canal

Scenario Description:

This scenario is the construction of an Irrigation Canal or Lateral. Typical construction dimensions are 4' wide bottom x 3' deep x 1320' length with a side slope of 2:1. Resource concerns: Excess/Insufficient Water - Inefficient Use of Irrigation Water. Associated Conservation Practices: 388-Irrigation Field Ditch; 443-Irrigation System, Surface or Subsurface; 533-Pumping Plant; 430-Irrigation Pipeline; 587 - Structure for Water Control; 449 - Irrigation Water Management

Before Situation:

Water supply for an area is inadequate for crop production and irrigation water application is inefficient.

After Situation:

An earthen canal that has adequate capacity to convey sufficient irrigation water to meet the demands of the system and make irrigation practical for the crops being grown.

Feature Measure: Volume of earth excavated

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,467.0

Scenario Total Cost: $4,557.33

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 324 - Deep Tillage

Scenario: #8 - Depth, Less Than 20 Inches

Scenario Description:

Fields (80 acres) with adverse soils conditions that restrict plant growth such as compacted layers caused by tillage operations or restrictive layers such as hardpans (duripans) in the root zone. This practice does not apply to normal tillage practices to prepare a seedbed but is meant to fracture the restrictive soil layer.

Before Situation:

In this geographic area, crop plants are observed as having reduced yield, water is not infiltrating into the soil. Soil layers have been compacted by shallow tillage operations, or soils have a hardpan (duripan) layer that is restricting root growth. Typ

After Situation:

Soil compaction is measured with a penetrometer and visual observation of limiting root growth. Deep tillage operations such as subsoiling, paratilling or ripping are performed not as a part of the normal tillage operation for seedbed preparation, but used to relieve compaction at depths less than 20 inches. Soil moisture is less than 30 percent when deep tillage is used. The fractured zone will be sufficient to permit root penetration below the restrictive soil layer. Penetrometers are used to identify the severity (psi) of the compaction and the depth of the restrictive layer. Deep tillage is generally performed in the fall after crop harvest when soil conditions are dry. After deep tillage, harvest operations should be avoided when soil moisture is greater than 50% of field capacity. Field harvest haul traffic should be limited to end rows or haul roads. Using dual tires or tracks beneath tractors or grain wagons can help spread the weight load.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 80.0

Scenario Total Cost: $2,426.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 324 - Deep Tillage

Scenario: #9 - Depth, Greater Than 20 Inches

Scenario Description:

Fields (80 acres) with adverse soils conditions that restrict plant growth such as compacted layers caused by tillage operations or restrictive layers such as hardpans (duripans) in the root zone. This practice does not apply to normal tillage practices to prepare a seedbed but is meant to fracture the restrictive soil layer.

Before Situation:

In this geographic area, crop plants are observed as having reduced yield, water is not infiltrating into the soil. Soil layers have been compacted by shallow tillage operations, or soils have a hardpan (duripan) layer that is restricting root growth. Typ

After Situation:

Soil compaction is measured with a penetrometer and visual observation of limiting root growth. Deep tillage operations such as subsoiling, paratilling or ripping are performed not as a part of the normal tillage operation for seedbed preparation, but used to relieve compaction at depths more than 20 inches. Soil moisture is less than 30 percent when deep tillage is used. The fractured zone will be sufficient to permit root penetration below the restrictive soil layer. Penetrometers are used to identify the severity (psi) of the compaction and the depth of the restrictive layer. Deep tillage is generally performed in the fall after crop harvest when soil conditions are dry. When possible, harvest operations should be avoided when soil moisture is greater than 50% of field capacity. Field harvest haul traffic should be limited to end rows or haul roads. Using dual tires or tracks beneath tractors or grain wagons can help spread the weight load.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 80.0

Scenario Total Cost: $6,991.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $87.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 324 - Deep Tillage

Scenario: #16 - Offsite Equipment

Scenario Description:

Fields (10 acres) with adverse soils conditions that restrict plant growth such as compacted layers caused by tillage operations or restrictive layers such as hardpans (duripans) in the root zone. This practice does not apply to normal tillage practices to prepare a seedbed but is meant to fracture the compacted zone below the restrictive soil layer.

Before Situation:

In this geographic area, crop plants are observed as having reduced yield, water is not infiltrating into the soil. Soil layers have been compacted by shallow tillage operations, or soils have a hardpan (duripan) layer that is restricting root growth. Typ

After Situation:

Soil compaction is measured with a penetrometer and visual observation of limiting root growth. Deep tillage operations such as subsoiling, paratilling or ripping are performed not as a part of the normal tillage operation for seedbed preparation. Equipment is rented and moved from off site. Soil moisture is less than 30 percent when deep tillage is used. The fractured zone will be sufficient to permit root penetration below the restrictive soil layer. Penetrometers are used to identify the severity (psi) of the compaction and the depth of the restrictive layer. Deep tillage is generally preformed in the fall after crop harvest when soil conditions are dry. When possible, harvest operations should be avoided when soil moisture is greater than 50% of field capacity. Field harvest haul traffic should be limited to end rows or haul roads. Using dual tires or tracts beneath tractors or grain wagons can help spread the weight load.

Feature Measure: Unknown

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $1,428.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $142.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 325 - High Tunnel System

Scenario: #30 - Gothic for Snow and Wind

Scenario Description:

Used for contiguous US states in areas with high snowfall. A gothic style (peaked) manufactured frame of tubular steel (30 x 70 ft.) with end walls and/or truss supports covered with 4-year 6 mil plastic. Costs are based on purchase of manufactured kit and landowner installing the structure. Structure must be installed to manufacturer's specifications.

Before Situation:

Cropland where extension of the growing season is needed. Additional resource concerns that may need to be addressed include soil erosion, soil condition, water quality, water quantity, and plant condition.

After Situation:

A high tunnel structure has been installed and he growing season has been extended for 1-4 months on average. Plant health and vigor has been improved.

Feature Measure: Area of Tunnel Installed

Scenario Unit: Square Foot

Scenario Typical Size: 2,160.0

Scenario Total Cost: $16,936.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 325 - High Tunnel System

Scenario: #45 - Quonset for Low Snow and Wind

Scenario Description:

Use in areas with low expected snow and wind loads. Quonset-style (round) manufactured frame of tubular steel (30 x 72 ft.) covered with 4-year 6 mil plastic. Costs are based on purchase of manufactured kit and landowner installation of structure. Structure must be installed to manufacturer's specifications. Associated practices might include CPS Roof Runoff Structure (588), Underground Outlet (620), Critical Area Planting (342), Mulching (484).

Before Situation:

Cropland where extension of the growing season is needed. Primary resource concern addressed will be plant health and vigor.

After Situation:

High Tunnel structure has been installed and the growing season has been extended for 1-4 months on average. Plant health and vigor is improved.

Feature Measure: Area of Tunnel Installed

Scenario Unit: Square Foot

Scenario Typical Size: 2,160.0

Scenario Total Cost: $11,337.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 325 - High Tunnel System

Scenario: #56 - Gothic for Snow and Wind, Small

Scenario Description:

Use in areas with expected snow and wind loads on sites less than 1 acre. Gothic-style (arched) manufactured frame of tubular steel (less than or equal to 20 ft x 30 ft.) covered with 4-year warrantee, 6 mil UV resistant plastic. Costs are based on purchase of manufactured kit and landowner installation of structure. Structure must be installed to manufacturer's specifications. Associated practices might include CPS Roof Runoff Structure (588), Underground Outlet (620), Critical Area Planting (342), Mulching (484).

Before Situation:

Cropland where extension of the growing season is needed. Primary resource concern addressed will be plant health and vigor.

After Situation:

High Tunnel structure has been installed and the growing season has been extended for 1-4 months on average. Plant health and vigor is improved.

Feature Measure: Area of High Tunnel Installe

Scenario Unit: Square Foot

Scenario Typical Size: 600.0

Scenario Total Cost: $8,206.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 325 - High Tunnel System

Scenario: #157 - Gothic with Gutters

Scenario Description:

Gothic-style manufactured frame of tubular steel (30 x 72 ft.) covered with 4-year 6 mil plastic. Add on gutters and downspout system to convey water away from high tunnel to prevent flooding, soil erosion or to reuse water. Costs are based on purchase of manufactured kit and landowner installation of structure. Structure must be installed to manufacturer's specifications. Associated practices might include Underground Outlet (620), Critical Area Planting (342), Mulching (484).

Before Situation:

Cropland where extension of the growing season is needed. Primary resource concern addressed will be plant health and vigor.

After Situation:

High Tunnel structure has been installed and the growing season has been extended for 1-4 months on average. Plant health and vigor is improved. Gutters reduce soil erosion from runoff, reduce water flooding into tunnel.

Feature Measure: Area of tunnel installed

Scenario Unit: Square Foot

Scenario Typical Size: 2,160.0

Scenario Total Cost: $15,495.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 325 - High Tunnel System

Scenario: #158 - Gothic with Gutters, Small

Scenario Description:

Use in areas with low expected snow and wind loads on sites less than 1 acre. Gothic-style (arched) manufactured frame of tubular steel (less than or equal to 20 ft x 30 ft.) covered with 4-year warrantee, 6 mil UV resistant plastic. Gutter placed on each side to capture and convey runoff away from the tunnel. Costs are based on purchase of manufactured kit and landowner installation of structure. Structure must be installed to manufacturer's specifications. Associated practices might include CPS Roof Runoff Structure (588), Underground Outlet (620), Critical Area Planting (342), Mulching (484).

Before Situation:

Cropland where extension of the growing season is needed. Primary resource concern addressed will be plant health and vigor.

After Situation:

High Tunnel structure has been installed and the growing season has been extended for 1-4 months on average. Plant health and vigor is improved. Gutter system reduces soil erosion and ponding and or conveys water to a catchment for reuse.

Feature Measure: Area of High Tunnel Installe

Scenario Unit: Square Foot

Scenario Typical Size: 600.0

Scenario Total Cost: $7,566.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 326 - Clearing and Snagging

Scenario: #13 - Light, Less Than 200 Feet

Scenario Description:

Removal of vegetation, logs, or other material that impedes the proper functioning on up to 200 linear feet of a stream channel or water course to restore flow capacity; prevent bank erosion by eddies; reduce the formation of sediment bars; and/or minimize blockages by debris. Addresses resource concerns such as water quantity and soil erosion-streambanks.

Before Situation:

Vegetation, logs, or other material provide a flow restriction or divert flowing water against the streambank causing excess erosion. Approximately one-third of the channel flow capacity is obstructed. The flow blockage may encourage deposition in the mai

After Situation:

Vegetation, logs, or other material have been removed to allow unrestricted flow in the channel and appurtenant structures. Material that poses no blockage threat is left in place to enhance aquatic habitat. Channel bed and banks are in equilibrium with the flow.

Feature Measure: Linear Feet

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $5,577.83

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $27.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 326 - Clearing and Snagging

Scenario: #14 - Medium, 200 to 400 Feet

Scenario Description:

Removal of vegetation, logs, or other material that impedes the proper functioning on 200 to 400 linear feet of a stream channel or water course to restore flow capacity; prevent bank erosion by eddies; reduce the formation of sediment bars; and/or minimize blockages by debris. Addresses resource concerns such as water quantity and soil erosion-streambanks.

Before Situation:

Vegetation, logs, or other material provide a flow restriction or divert flowing water against the streambank causing excess erosion. Approximately one-half of the channel flow capacity is obstructed. The flow blockage may encourage deposition in the main

After Situation:

Vegetation, logs, or other material have been removed to allow unrestricted flow in the channel and appurtenant structures. Material that poses no blockage threat is left in place to enhance aquatic habitat. Channel bed and banks are in equilibrium with the flow.

Feature Measure: Linear Feet

Scenario Unit: Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $7,403.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 326 - Clearing and Snagging

Scenario: #15 - Heavy, Greater Than 400 Feet

Scenario Description:

Removal of vegetation, logs, or other material that impedes the proper functioning on over 400 linear feet of a stream channel or water course to restore flow capacity; prevent bank erosion by eddies; reduce the formation of sediment bars; and/or minimize blockages by debris. Addresses resource concerns such as water quantity and soil erosion-streambanks.

Before Situation:

Vegetation, logs, or other material provide a flow restriction or divert flowing water against the streambank causing excess erosion. Approximately two-thirds of the channel flow capacity is obstructed. The flow blockage may encourage deposition in the ma

After Situation:

Vegetation, logs, or other material have been removed to allow unrestricted flow in the channel and appurtenant structures. Material that poses no blockage threat is left in place to enhance aquatic habitat. Channel bed and banks are in equilibrium with the flow.

Feature Measure: Linear Feet

Scenario Unit: Foot

Scenario Typical Size: 400.0

Scenario Total Cost: $10,585.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #1 - Introduced Species

Scenario Description:

The land is covered with permanent non-native grass vegetation resulting in reduced soil erosion and water/sediment runoff, and the elimination of dust emissions which improves air quality significantly. Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings. Applies to conventional or organic systems.

Before Situation:

Crops such as corn, soybeans, or cotton may be conventionally or organically grown and harvested. Full width tillage is utilized, weeds controlled by cultivation and/or chemical application. Soil surface residue amounts average 10% or less. Soil erosion e

After Situation:

The 327 Implementation Requirements have been developed for the site and applied. The land is covered with permanent non-native grass vegetation resulting in reduced soil erosion and water/sediment runoff, and the elimination of significant dust emissions which improves air quality. Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $12,414.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $248.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #2 - Native Species

Scenario Description:

This practice applies on land to be retired from agricultural production and on other lands needing permanent protective cover. This practice typically involves conversion from a clean-tilled (conventional tilled) intensive cropping system to permanent native vegetation (scenario includes native grass). The typical size of the practice is 50 acres. This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality, develop wildlife habitat, and reduce air quality impacts. Applies to conventional or organic systems

Before Situation:

Crops such as corn, soybeans, or cotton may be conventionally or organically grown and harvested. Full width tillage is utilized, weeds controlled by cultivation and/or chemical application. Soil surface residue amounts average 10% or less. Soil erosion e

After Situation:

The 327 Implementation Requirements have been developed for the site and applied. The land is covered with permanent native grass vegetation which reduces soil erosion and water/sediment runoff, and eliminates dust emissions which improves air quality. Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $14,661.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $293.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #3 - Alleyways, Orchard or Vineyard

Scenario Description:

This practice applies on orchards and vineyards needing permanent protective cover in the alleyways between tree and vine rows. The typical size of this practice is 20 acres. This practice typically involves conversion from a clean-tilled (conventional tilled) intensive cropping system to permanent vegetation (scenario includes non-native grass and legume mix). This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality, enhance wildlife and/or pollinator habitat, manage plant pests, and reduce air quality impacts. Typically 60% of the surface area is conservation cover per acre.

Before Situation:

Orchard or vineyard with bare soil between vine/tree rows. Bare soil is exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter sediment/nutrient runoff from orchards/vineyards increases. Soil erosion exc

After Situation:

The 327 Implementation Requirements have been developed for the site and has been applied. Orchard or Vineyard area between vine/tree rows are planted with permanent introduced grass/legume mix. Area covered has reduced soil erosion, reduced water/sediment runoff, and improved air quality as a result of the elimination of significant amounts of dust emissions.. Plants sown for conservation cover may provide cover for beneficial insects, pollinators, and wildlife.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $3,434.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $171.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #4 - Pollinator Species

Scenario Description:

Permanent vegetation, including a mix of native grasses, legumes, and forbs (mix may also include non-native species), established on any land needing permanent vegetative cover that provides habitat for pollinators. Typical practice size is variable depending on site; this scenario uses 1 ac as the typical size. In addition to providing pollinator habitat, this practice scenario may also reduce sheet, rill, and wind erosion, improve soil quality, improve water quality, and improve air quality. The practice may also provide wildlife habitat. Practice applicable on cropland, odd areas, corners, etc. Applies to conventional or organic systems.

Before Situation:

Crops such as corn, soybeans, or cotton may be conventionally or organically grown and harvested. Full width tillage is utilized, weeds controlled by cultivation and/or chemical application. Soil surface residue amounts average 10% or less. Erosion exceed

After Situation:

The 327 Implementation Requirements have been developed for the site and applied. Land is covered with permanent pollinator habitat including a mix of native grasses, legumes, forbs (mix may also include non-native species). This practice may also have reduced soil erosion, reduced water/sediment runoff, and improved air quality as a result of the elimination of dust emissions. Plants sown for pollinator habitat may also provide cover for beneficial insects and wildlife. This scenario does not apply to critical area plantings.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $908.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $908.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #22 - Monarch Species Mix

Scenario Description:

Establish permanent vegetative cover for pollinator habitat according to state specifications. Typically used for high quality nectar and pollen species. Assumes seed/plugs, equipment and labor for seed bed prep/planting, and weed management during establishment. Used for conventional or organic land on small, intensive areas that are central to specialty crop production. Not typically used for large-scale plantings. This is applicable to both organic and non-organic conditions.

Before Situation:

Old hayfields that are mowed typically in the fall lack milkweed needed for monarchs. Other crops such as corn, soybeans, or cotton are conventionally grown and harvested. The system provides little to no wildlife or pollinator habitat.

After Situation:

The 327 Implementation Requirements have been developed and applied for the site. Land covered with permanent monarch habitat including a mix of milkweed species, native grasses, legumes, and forbs. Plants sown for monarch habitat may also provide cover for beneficial insects and wildlife.

Feature Measure: area planted

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,139.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,139.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #35 - Introduced with Forgone Income

Scenario Description:

This practice applies on organically managed land needing permanent protective cover. This practice typically involves conversion from an intensive organic cropping system to permanent non-native vegetation (scenario includes non-native grass/legume mix). The typical size of the practice is 20 acres. This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality, develop wildlife habitat, and reduce air quality impacts.

Before Situation:

Crops such as vegetables and small fruit crops are organically grown and harvested. Full width tillage is utilized, weeds controlled mainly by cultivation. Soil surface residue amounts average 10% or less. Erosion exceeds tolerable rates and sediment may

After Situation:

The 327 Implementation Requirements have been developed for the site and has been applied. Organically managed land covered with permanent non- native grass/legume mix vegetation has reduced soil erosion, reduced water/sediment runoff, and improved air quality due to the elimination of dust emissions. . Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $30,466.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $609.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #36 - Native Species with Forgone Income

Scenario Description:

This practice applies on conventional or organically managed land needing permanent protective cover. This practice typically involves conversion from an intensive cropping system to permanent native vegetation (scenario includes native grass/legume mix). The typical size of the practice is 50 acres. This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality, develop wildlife habitat, and reduce air quality impacts. Applies to conventional or organic systems.

Before Situation:

Crops such as vegetables and small fruit crops may be conventionally or organically grown and harvested. Full width tillage is utilized, weeds controlled mainly by cultivation. Soil surface residue amounts average 10% or less. Soil erosion exceeds tolerab

After Situation:

The 327 Implementation Requirements have been developed for the site and applied. Managed land covered with permanent native grass/legume mix vegetation has reduced soil erosion, reduced water/sediment runoff, and improved air quality due to the elimination of dust emissions. Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $35,032.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $700.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #37 - Pollinator Species with Forgone Income

Scenario Description:

Permanent vegetation, including a mix of native grasses, legumes, and forbs (mix may also include non-native species), established on land needing permanent vegetative cover that provides habitat for pollinators. Typical practice size is variable depending on site; this scenario uses 1 ac as the typical size. In addition to providing pollinator habitat, this practice scenario may also reduce sheet and rill erosion, improve soil quality, improve water quality, and improve air quality. The practice may also provide wildlife habitat. Practice applicable on cropland, odd areas, corners, etc. Applies to conventional or organic systems.

Before Situation:

Crops such as vegetables and small fruit crops may be conventionally or organically grown and harvested. Full width tillage is utilized, weeds controlled mainly by cultivation. Soil surface residue amounts average 10% or less. Soil erosion exceeds tolerab

After Situation:

The 327 Implementation Requirements have been developed for the site and applied. Managed land covered with permanent pollinator habitat including a mix of native grasses, legumes, and forbs (mix may also include non-native species). This practice may also reduce soil erosion, reduce water/sediment runoff, and improve air quality due to the elimination of dust emissions. Plants sown for pollinator habitat may also provide cover for beneficial insects and wildlife. This scenario does not apply to critical area plantings.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,404.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,404.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 327 - Conservation Cover

Scenario: #89 - Pollinator Mix-Small Footprint

Scenario Description:

Permanent vegetation, including a mix of grasses, legumes and forbs established on any land needing permanent vegetative cover that provides habitat, cover, and food for pollinators. Typical size varies depending on the site feasibility for length and width. Urban sites typical size is 2000 square feet (20x100 ft). This scenario included mechanical site preparation. This practice scenario may also reduce wind and water erosion, improve soil quality, reduce water quality degradation and reduce air emissions of particulate matter or greenhouse gases. Applies to conventional and organic systems. This scenario does not applied to areas needing Critical Area Planting.

Before Situation:

Crop rotation include specialty crops such as vegetable and fruit/berry production that benefit from pollinator activity. Urban agricultural sites do not provide for pollinator habitat at this time. Planting operations include mechanical removal of weeds.

After Situation:

The 327 implementation requirements have been developed for the site and applied. Land is in permanent vegetative cover reducing erosion and sediment delivery to water. Pollinator habitat has successfully established providing habitat and cover for pollinators and beneficial insects.

Feature Measure: Area of conservation Cover I

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 2.0

Scenario Total Cost: $343.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $171.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 328 - Conservation Crop Rotation

Scenario: #1 - Basic, Organic and Inorganic

Scenario Description:

In this region this practice may be part of a conservation management system on both organic and non-organic operations to: 1) Reduce sheet, rill and wind erosion, 2) Maintain or increase soil health and organic matter content, 3) Reduce water quality degradation due to excess nutrients, 4) Improve soil moisture efficiency, 5) Reduce the concentration of salts and other chemicals from saline seeps, 6) Reduce plant pest pressures, 7) Provide feed and forage for domestic livestock, and 8) Provide food and cover habitat for wildlife, including pollinator forage, and nesting. This practice payment is provided to the producer for the time needed to plan and implement the logistics of changing the rotation to effectively implement a conservation crop rotation on a typical 200 acre cropland farm. No foregone income. Cost represents typical situations for conventional and organic producers.

Before Situation:

The rotation consists primarily of low residue producing row crops. Fields range from nearly flat to C and D slopes. Erosion, soil quality, and pest management are the primary concerns.

After Situation:

A rotation is established that provides additional high residue and/or perennial crops that may treat one or more of the following purposes: reduce sheet, rill and wind erosion, maintain or increase soil health and organic matter content, reduce water quality degradation due to excess nutrients, improve soil moisture efficiency, reduce the concentration of salts and other chemicals from saline seeps, reduce plant pest pressures, provide feed and forage for domestic livestock, or provide food and cover habitat for wildlife, including pollinator forage, and nesting.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,434.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 328 - Conservation Crop Rotation

Scenario: #5 - Specialty Crop, Organic and Inorganic

Scenario Description:

In this region a rotation of organic or non-organic specialty crops (fruits and vegetable) are produced as part of a conservation management system to treat one or more of the following resource concerns: 1) Reduce sheet, rill and wind erosion, 2) Maintain or increase soil health and organic matter content, 3) Reduce water quality degradation due to excess nutrients, 4) Improve soil moisture efficiency, 5) Reduce the concentration of salts and other chemicals from saline seeps, 6) Reduce plant pest pressures, 7) Provide feed and forage for domestic livestock, and 8) Provide food and cover habitat for wildlife, including pollinator forage, and nesting. This practice payment is provided to acquire the technical knowledge and skills necessary to effectively implement a conservation crop rotation on a typical 50 acre specialty crop farm. No foregone income. Cost represents typical situations for organic and non-organic producers.

Before Situation:

This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concerns.

After Situation:

The rotation established adds higher residue crop(s) to the rotation that will treat one or more of the following resource concerns on organic and non- organic farms: 1) Reduce sheet, rill and wind erosion, 2) Maintain or increase soil health and organic matter content, 3) Reduce water quality degradation due to excess nutrients, 4) Improve soil moisture efficiency, 5) Reduce the concentration of salts and other chemicals from saline seeps, 6) Reduce plant pest pressures, 7) Provide feed and forage for domestic livestock, and 8) Provide food and cover habitat for wildlife, including pollinator forage, and nesting.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $1,913.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 328 - Conservation Crop Rotation

Scenario: #83 - Specialty Crop, Small

Scenario Description:

Scenario applies to Urban sites less than a 1/2 acre with a rotation of organic or non-organic specialty crops (fruits and vegetable) are produced as part of a conservation management system to treat one or more of the following resource concerns: 1) Reduce sheet, rill and wind erosion, 2) Maintain or increase soil health and organic matter content, 3) Reduce water quality degradation due to excess nutrients, 4) Improve soil moisture efficiency, 5) Reduce the concentration of salts and other chemicals from saline seeps, 6) Reduce plant pest pressures, 7) Provide feed and forage for domestic livestock, and 8) Provide food and cover habitat for wildlife, including pollinator forage, and nesting. This practice payment is provided to acquire the technical knowledge and skills necessary to effectively implement a conservation crop rotation on a typical urban specialty crop farm. Cost represents typical situations for organic and non-organic producers.

Before Situation:

This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concern. Removal of residue from the planted area is common leaving bare soil.

After Situation:

The rotation established adds diversity of plant material organic matter, higher residue amounts that will treat one or more of the following resource concerns on organic and non- organic farms: reduce sheet, rill and wind erosion, maintain or increase soil health and organic matter content, improve soil moisture efficiency or reduce plant pest pressure.

Feature Measure: area planned

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 15.0

Scenario Total Cost: $589.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $39.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 328 - Conservation Crop Rotation

Scenario: #101 - Add Crop, Transition to Organic

Scenario Description:

Current crop rotation is conventional nonorganic and crop rotation includes at least two different crop types. Producer is transitioning to organic. New crop types will be added to the conservation crop rotation to facilitate building soil organic matter, capturing nitrogen, breaking pest cycles, or other purposes that maintain or enhance the natural resources. Payment includes labor of the supervisor/decision maker and acquisition of knowledge for new crop types.

Before Situation:

Crops are grown nonorganically. Conventional operations and chemical use require mitigation measures to protect natural resources from risk. Chemicals may degrade soil health resource concerns. Crop rotation is not designed to be resource conserving.

After Situation:

Implementation requirements were delivered to the producer. Crop types were added to the crop rotation. Operations and management decisions for transition align with NOP requirements. Crop rotation has improved diversity improving soil resource concerns.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $4,353.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $108.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 328 - Conservation Crop Rotation

Scenario: #117 - Small Grain

Scenario Description:

Current crop rotation includes at least two different crop types. This practice payment is provided to the producer for the time needed to plan and implement the logistics of adding a winter annual or spring planted small grain into crop rotation to effectively implement a conservation crop rotation on a cropland farm by adding a small grain crop for either forage or grain to their cropping system. The crop is intended to be a harvested. No foregone income. Cost represents typical situations for conventional and organic producers.

Before Situation:

Small grain has not been grown on field within the past 3 years. Growth of a small grain included as a cover crop on field does not restrict implementation. Fields range from nearly flat to C and D slopes. Erosion, soil quality, and pest management are th

After Situation:

A rotation is established with a small grain that may treat one or more of the following purposes: reduce sheet, rill and wind erosion, maintain or increase soil health and organic matter content, reduce water quality degradation due to excess nutrients, improve soil moisture efficiency, reduce plant pest pressures, provide feed and forage for domestic livestock, and provide openings for other conservation practice implementation. This scenario would allow for earlier harvest window compared to other row crops potentially allowing for better implementation of cover crops.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,442.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $61.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 328 - Conservation Crop Rotation

Scenario: #118 - Perennial, Short-Term

Scenario Description:

This practice payment is provided to the producer for the time needed to plan and implement the logistics of adding a short-term perennial such as alfalfa or intermediate wheatgrass into crop rotation to effectively implement a conservation crop rotation on a cropland farm by adding a perennial crop for either forage, grain, or dual-purpose use to their cropping system. The crop is intended to be a harvested and must be grown for at least 2 years after planting. No foregone income. Cost represents typical situations for conventional and organic producers.

Before Situation:

Annual field crops being grown. Cover crops are not part of the crop rotation or are infrequently used. Perennials have not been grown on field within the past 3 years. Erosion, soil quality, and pest management are the primary resource concerns.

After Situation:

A conservation crop rotation is established with a perennial crop for a short-term (3-5 years). The crop rotation achieves resource conserving benefits by returning and building soil organic matter, reduces wind and water erosion, improves soil fertility and tilth, interrupts pest cycles, and improves soil moisture retention. The perennial crop rotation provides same or greater conservation benefits than annual crop plus cover crop system.

Feature Measure: Acres Planted

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,700.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $67.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 329 - Residue and Tillage Management, No Till

Scenario: #1 - No-Till and Strip-Till

Scenario Description:

This practice typically involves conversion from a clean-tilled (conventional tilled) system to no-till or strip-till system on 100 acres of cropland. This involves managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting soil-disturbing activities used to establish and harvest crops. The practice is used to reduce sheet and rill erosion, reduce wind erosion, improve soil quality, reduce CO2 losses from the soil, reduce energy use, increase plant available moisture and provide food and escape cover for wildlife. The no-till/strip-till system includes non-tillage types of weed control and may also include a period of no till fallow. System is applicable in both irrigated and non-irrigated fields of organic and non-organic operations.

Before Situation:

Row crops or small grains are grown and harvested. Full width tillage is performed prior to planting and weed control during crop production is typically cultivation and chemical application. Fields are disked immediately following harvest, with additiona

After Situation:

The Implementation Requirements for 329 Residue Management, No Till is prepared and installed. Managing crop residue on the surface of a field (typical 100 acre) year around according to the 329 practice plan while limiting soil disturbing activities to those which place nutrients, and plant crops that meet the minimum criteria in the 329 practice standard. All crops are seeded/planted with a no-till drill or no-till/strip-till planter, which minimizes soil disturbance while establishing good seed-soil contact. All residues are to be maintained on the soil surface in a uniform distribution over the entire field and not burned or removed. Crop residues provide soil surface cover throughout the year. Runoff and erosion are reduced and no rills are visible on the soil surface. Wind erosion is reduced by standing residues and surface cover. Over time, soil health is improved due to the additional biomass (crop residues), ground cover, and soil infiltration. Crop residues and/or cover crop residues left on the soil surface may maximize weed control by increasing allelopathic and mulching effect, and provides cover for wildlife. The practice would require reducing soil disturbance and erosion and increasing biomass returned to the soil in sufficient amounts to achieve increased SCI and decreased STIR.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $2,428.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 329 - Residue and Tillage Management, No Till

Scenario: #3 - No-Till, Adaptive Management

Scenario Description:

The practice scenario is for the implementation of no till in small replicated plots to allow the producer to learn how to manage no till on their operation. Scenario includes implementing replicated strip trials on a field plot to evaluate, identify and implement a particular no till management strategy (e.g., no till vs conventional till, drill vs planter, strip till vs no till, residue row cleaners, vs no row cleaners, etc.) This will be done by following the Agronomy Technical Note 10 - Adaptive Management.

Before Situation:

Row crops or small grains are grown and harvested. Full width tillage is performed prior to planting and weed control during crop production is typically cultivation and chemical application. Fields are disked immediately following harvest, with additiona

After Situation:

Implementation Requirements are prepared and an Adaptive Management Plan for the plots is developed and implemented. Installation of this scenario will result in establishment of no till replicated plots to compare to different management strategies for no till and other residue management strategies following the guidance in the Agronomy Technical Note 10 - Adaptive Management Process. Implementation involves establishing the replicated plots to evaluate one or more no till management strategies. The plot will consist of at least 4 replicated plots designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in no till management. Results are used to make no till management decisions to address erosion, soil health, and water quality issues. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 10 - Adaptive Management. The yields for each plot will be adjusted to the appropriate moisture content. This would be repeated for 3 years.

Feature Measure: Based on 15 acre plots

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,939.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,939.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 329 - Residue and Tillage Management, No Till

Scenario: #19 - No-Till, Less Than Half Acre

Scenario Description:

Scenario applies to Urban sites less than a 1/2 acre with a rotation of organic or non-organic specialty crops (fruits and vegetable) are produced as part of a conservation management system to treat one or more of the following resource concerns: 1) Reduce sheet, rill and wind erosion, 2) Maintain or increase soil health and organic matter content, 3) Improve soil moisture efficiency, 4) Reduce plant pest pressures. This practice payment is provided to effectively implement no-till or strip-till management on a typical urban specialty crop farm. Cost represents typical situations for organic and non-organic producers.

Before Situation:

This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concern. Removal of residue from the planted area is common leaving bare soil-residue amounts a

After Situation:

The implementation requirements are written following CPS 329 Residue and Tillage Management to will treat one or more of the following resource concerns on organic and non- organic farms: reduce sheet, rill and wind erosion, maintain or increase soil health and organic matter content, improve soil moisture efficiency or reduce plant pest pressure. Soil disturbance is minimized with no-till drill or planter use. May include single slot opener and seedling or plugs follow. When pest management requires the removal of crop residue then planting beds are covered with cover crop using the 340 Cover Crop conservation practice. Runoff and erosion are reduced below T. No observed rills. Wind erosion reduced by maintaining surface cover. They system meets the soil condition index and STIR requirements.

Feature Measure: area planted

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 15.0

Scenario Total Cost: $674.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $44.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 329 - Residue and Tillage Management, No Till

Scenario: #41 - No-Till and Strip-Till, Herbicide

Scenario Description:

This practice typically involves conversion from a clean-tilled (conventional tilled) system to no-till or strip-till system on 100 acres of cropland. This involves managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting soil-disturbing activities used to establish and harvest crops. The practice is used to reduce sheet and rill erosion, reduce wind erosion, improve soil quality, reduce CO2 losses from the soil, reduce energy use, increase plant available moisture and provide food and escape cover for wildlife. The no-till/strip-till system includes non-tillage types of weed control, which may include the use of herbicides and may also include a period of no till fallow. System is applicable in both irrigated and non-irrigated fields organic and non-organic operations. Herbicide treatment is to burndown weeds in the residue prior to planting the crop. This treatment is only when a cover crop is not present. Follow the Cover Crop (340) practice for herbicide burn down.

Before Situation:

Row crops or small grains are grown and harvested. Full width tillage is performed prior to planting and weed control during crop production is typically cultivation and chemical application. Fields are disked immediately following harvest, with additiona

After Situation:

The Implementation Requirements for 329 Residue Management, No Till/Strip Till is prepared and installed. Managing crop residue on the surface of a field (typical 100 acre) year around according to the 329 practice plan while limiting soil disturbing activities to those which place nutrients, and plant crops that meet the minimum criteria in the 329 practice standard. All crops are seeded/planted with a no-till drill or no-till/strip-till planter, which minimizes soil disturbance while establishing good seed-soil contact. All residues are to be maintained on the soil surface in a uniform distribution over the entire field and not burned or removed. Crop residues provide soil surface cover throughout the year. Runoff and erosion are reduced and no rills are visible on the soil surface. Wind erosion is reduced by standing residues and surface cover. Over time, soil health is improved due to the additional biomass (crop residues), ground cover, and soil infiltration. Crop residues and/or cover crop residues left on the soil surface may maximize weed control by increasing allelopathic and mulching effect, and provides cover for wildlife. The practice would require reducing soil disturbance and erosion and increasing biomass returned to the soil in sufficient amounts to achieve increased SCI and decreased STIR.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,051.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $40.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 330 - Contour Farming

Scenario: #1 - Contour Farming

Scenario Description:

This scenario meets the specifications of the NRCS Contour Farming Standard. This scenario applies to fields greater than 5 acres. Payment reflects the extra labor and initial supervision costs in laying out and implementing contour farming. Annual erosion rates for the rotation exceeds tolerance levels. Excessive runoff leads to sedimentation of waterways

Before Situation:

The typical field size in this geographical region for this scenario is 30 acres. The field slope averages 6% while the slope length averages 160 feet. All farming operations on this cropland field including disking, bedding, planting, and cultivation are

After Situation:

Implementation Requirements are prepared and implemented according to 330 Contour Farming. This practice is installed on the entire field. A survey is completed by trained and certified Federal, State, local personnel or consultant to determine and "stake" contour row arrangement. Permanent row markers are established to ensure that this practice is maintained for the life of this practice. All field operations including disking, bedding, planting, and cultivation are performed on the contour which is near perpendicular to the field slope. The farm manager is initially on site to ensure that equipment operators are properly following contour methods. Soil erosion rates are reduced by nearly half and may be below tolerance depending on the rotation. Likewise, sedimentation has been significantly reduced.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $342.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 331 - Contour Orchard and Other Perennial Crops

Scenario: #1 - Contour, Orchards and Vineyards

Scenario Description:

This scenario meets the specifications of the NRCS 331 Contour Orchards and Perennial Crops Standard. This scenario applies to fields greater than 5 acres. Payment reflects the extra labor and initial supervision costs in implementing and following contour operations compared to other methods. More time is usually needed when following contour operations due to more equipment time in shorter rows and more equipment turning. Annual erosion rates for the rotation exceeds tolerance levels. Excessive runoff leads to sedimentation of waterways.

Before Situation:

The typical field size in this geographical region for this scenario is 10 acres. The field slope averages 6% while the slope length averages 160 feet. All farming operations are performed up and down the slope. Annual erosion rates for the rotation excee

After Situation:

Implementation Requirements are prepared and implemented according to the Contour Orchards and Perennial Crops Standard (331). This practice is installed on the entire field. All field operations including: harvesting, disking, bedding, and planting are performed on the contour which is near perpendicular to the field slope. The farm manager is initially on site to ensure that equipment operators are properly following contour methods. Soil erosion rates are reduced to tolerable soil loss levels. Likewise, sedimentation has be significantly reduced.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $342.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $34.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 332 - Contour Buffer Strips

Scenario: #21 - Native Species Organic or Inorganic, Foregone Income

Scenario Description:

Narrow strips of permanent, herbaceous vegetative cover established around the hill slope and alternated down the slope with wider cropped strips in between that are organically or non-organically farmed on the contour. This practice applies to all cropland. Practice includes seedbed prep and planting of native species. The area of the contour grass strip is taken out of production.

Before Situation:

The NRCS water erosion prediction software indicates that there is a significant amount of sheet and rill erosion and/or a significant amount of sediment potentially delivered to the downslope edge of the field. A secondary concern is that there may not b

After Situation:

Native grasses, legumes and forbs will be established in strips in the field to meet the Contour buffer Strips (332) criteria, resource needs, and producer objectives. Minimum widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Native species shall be selected that do not function as a host for diseases of a field crop and have physical characteristics necessary to control water erosion to tolerable levels in the cropped area of the field.

Feature Measure: number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $609.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $609.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 332 - Contour Buffer Strips

Scenario: #22 - Introduced Species Organic or Inorganic, Foregone Income

Scenario Description:

Narrow strips of permanent, herbaceous vegetative cover established around the hill slope and alternated down the slope with wider cropped strips in between that are farmed on the contour. This practice applies to all cropland. Practice includes seedbed prep and planting of native species. The area of the contour grass strip is taken out of production. This applies to both organic and non-organic.

Before Situation:

The NRCS water erosion prediction software indicates that there is a significant amount of sheet and rill erosion and/or a significant amount of sediment potentially delivered to the downslope edge of the field. A secondary concern is that there may not b

After Situation:

Introduced grasses and legumes will be established in strips in the field to meet the Contour buffer Strips (332) criteria, resource needs, and producer objectives. Minimum widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Introduced species shall be selected that do not function as a host for diseases of a field crop and have physical characteristics necessary to control water erosion to tolerable levels in the cropped area of the field.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $581.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $581.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 332 - Contour Buffer Strips

Scenario: #24 - Native Species for Specialty Crops, Foregone Income

Scenario Description:

Narrow strips of permanent, herbaceous vegetative cover established around the hill slope and alternated down the slope with wider cropped strips in between that are farmed on the contour. This practice applies to all cropland. Practice includes seedbed prep and planting of native species. The area of the contour buffer strips is taken out of production.

Before Situation:

The NRCS water erosion prediction software indicates that there is a significant amount of sheet and rill erosion and/or a significant amount of sediment potentially delivered to the downslope edge of the field. Specialty crops for market are produced on

After Situation:

Native grasses, legumes and forbs will be established in strips in the field to meet the Contour buffer Strips (332) criteria, resource needs, and producer objectives. Minimum widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Native species shall be selected that do not function as a host for diseases of a field crop and have physical characteristics necessary to control water erosion to tolerable levels in the cropped area of the field.

Feature Measure: number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,319.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,319.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 332 - Contour Buffer Strips

Scenario: #25 - Introduced Species for Specialty Crops

Scenario Description:

Narrow strips of permanent, herbaceous vegetative cover established around the hill slope and alternated down the slope with wider cropped strips in between that are farmed on the contour. This practice applies to all cropland. Practice includes seedbed prep and planting of mainly introduced species. The area of the field border is taken out of production.

Before Situation:

The NRCS water erosion prediction software indicates that there is a significant amount of sheet and rill erosion and/or a significant amount of sediment potentially delivered to the downslope edge of the field. Specialty crops for market are grown in thi

After Situation:

Introduced grasses and legumes will be established in strips in the field to meet the Contour buffer Strips (332) criteria, resource needs, and producer objectives. Minimum widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Introduced species shall be selected that do not function as a host for diseases of a field crop and have physical characteristics necessary to control water erosion to tolerable levels in the cropped area of the field.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,292.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,292.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 333 - Amending Soil Properties with Gypsum Products

Scenario: #13 - Gypsum, Greater Than One Ton

Scenario Description:

Gypsum application of more than one ton/acre rate (typical average 1.5 tons/acre) to improve surface water quality due to phosphorus, pathogens, and soil health (Ca/Mg ratio). Scenario to be used in combination with an implemented nutrient management plan. The producer will use gypsum to improve soil surface structure and reduce concentration of dissolved reactive phosphorus (DRP) in runoff. Scenario includes the cost of material, application, and supervisor/management time to establish and manage new application methodology, including rates, timing, and sequence of application with other nutrient materials (i.e., manures, bio-solids, and fertilizers). The addressed resource concern is water quality and soil health. Associated practices are Nutrient Management (590), Conservation Crop Rotation (328), Cover Crop (340), Residue and Tillage Management, No-till (329) and Residue and Tillage Management, Reduced Till (345).

Before Situation:

Cropland in continuous production having relatively low soil organic matter and moderately high clay content with application of manure with a risk of pathogens. Soil in these fields has poor soil structure and a high risk of phosphorus and pathogen runof

After Situation:

A determination based on existing soil samples used in normal nutrient management has been made. The Implementation Requirements for Amending Soil Properties with Gypsum (333) has been developed for the site. The application of gypsum to the field based on the existing soil samples will result in reduced runoff and improved runoff water quality. This condition over time in combination with an implemented nutrient management plan and supporting practices to improve soil health will improve surface water quality.

Feature Measure: Acres with a gypsum produc

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $7,098.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $177.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 333 - Amending Soil Properties with Gypsum Products

Scenario: #14 - Gypsum, Less Than or Equal to One Ton

Scenario Description:

Gypsum application of less than or equal to one ton/acre rate (typical average 1 tons/acre) to improve surface water quality due to phosphorus, pathogens, and soil health (Ca/Mg ratio). Scenario to be used in combination with an implemented nutrient management plan. The producer will use gypsum to improve soil surface structure and reduce concentration of dissolved reactive phosphorus (DRP) in runoff. Scenario includes the cost of material, application, and management time to establish and manage new application methodology, including rates, timing, and sequence of application with other nutrient materials (i.e., manures, bio-solids, and fertilizers). . The addressed resource concern is water quality and soil health. Associated practices are Nutrient Management (590), Conservation Crop Rotation (328), Cover Crop (340), Residue and Tillage Management, No-till (329) and Residue and Tillage Management, Reduced Till (345).

Before Situation:

Cropland in continuous production having relatively low soil organic matter and moderately high clay content. Soil in these fields have poor soil structure and a high risk of phosphorus and pathogen runoff. The soils are susceptible to soil crusting and a

After Situation:

A determination based on existing soil samples used in normal nutrient management has been made. The Implementation Requirements for Amending Soil Properties with Gypsum (333) has been developed for the site. The application of gypsum to the field is based on the existing soil samples and will result in reduce runoff and improve runoff water quality. This condition over time in combination with the implemented nutrient management plan and supporting practices to improve soil health will improve surface water quality.

Feature Measure: Acres with a gypsum produc

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $3,759.43

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $93.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 334 - Controlled Traffic Farming

Scenario: #1 - Reduced Compaction Area

Scenario Description:

This practice must be part of a conservation management system to reduce soil compaction. This scenario considers the time needed to modify equipment, develop the technical skills necessary to effectively implement a controlled traffic farming system on a typical 200 acre cropland farm. The controlled traffic generally utilizes RTK automatic steering technology to locate and maintain high load field traffic. This scenario represents the costs associated with reducing the amount of surface area tracked/compacted to 33% or less. Cost represents typical situations for conventional, organic, and transitioning to organic producers.

Before Situation:

The typical scenario for this practice is a 200 acre row crop operation on high clay, poorly drained soils. Studies show that when high wheel load traffic is not controlled, up to 85% of the field is tracked causing some degree of soil compaction. Before

After Situation:

An Implementation Requirement for Controlled Traffic (334) is developed and the controlled traffic lanes installed per the implementation requirements. After the practice is installed wheel/track traffic is confined to designated traffic lanes/tramlines. Wheel/track soil compaction is confined to the traffic lanes to protect the remaining surface area and subsoil from wheel/track compaction. The wheel/track traffic follows the installed traffic lanes/tramlines each year.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 200.0

Scenario Total Cost: $12,543.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $62.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #19 - Compost

Scenario Description:

This scenario uses compost from an offsite source to maintain, increase, or improve organic matter content and improve aggregate stability, habitat for soil organisms, and plant productivity and health. Compost has been tested according to the Test Methods for the Examination of Composting and Compost (TMECC), or by other Land Grant University (LGU) recognized methods. Compost is applied at the recommended rate to treat the identified resource concerns. Typical application rate is 3 ton compost/acre.

Before Situation:

An in-field assessment or a site specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified compost is needed to improve the condition of the soil.

After Situation:

Compost was tested and applied at the recommended rate that will improve soil organic matter and organism habitat without creating unacceptable risk of N or P loss. A follow up assessment is planned to determine the effect of the application.

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 6.0

Scenario Total Cost: $1,715.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $285.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #20 - Biochar

Scenario Description:

Apply 100% biochar (this assumes that it has been charged/inoculated) to sequester carbon, reduce N losses, and improve other soil health related resource concerns. Biochar has been tested according to the Test Methods for the Examination of Composting and Compost (TMECC), or by other Land Grant University (LGU) recognized methods and is imported from an outside source. Biochar is applied at the recommended rate to treat the identified resource concerns. Typical application is 4 cubic yards per acre.

Before Situation:

An in-field assessment or a site-specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified biochar is needed to improve the condition of the soil.

After Situation:

Biochar was applied at the recommended rate and proportion. Soil health resource concerns were treated. A follow up assessment is planned to determine the effect of the biochar application.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,734.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,734.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #21 - Other Carbon Amendment

Scenario Description:

This scenario is used for the application of different types of other carbon amendments, such as woodchips, bagasse, high carbon wood ash or distillation residue that are obtained at a negligible cost. The primary purpose of this scenario is to facilitate transport and application of the other carbon amendment. The carbon amendment is tested and brought on site. Addition of the carbon amendment directly improves the carbon content of the soil and improves soil health related resource concerns.

Before Situation:

An in-field assessment or a site-specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified amendment is needed to improve the condition of the soil.

After Situation:

The carbon amendment was applied at the recommended rate based on the product analysis and the purpose for the application. Soil health resource concerns were treated. A follow up assessment is planned to determine the effect of the application.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 6.0

Scenario Total Cost: $1,007.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $167.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #22 - Compost, Less Than 10,000 Square Feet

Scenario Description:

This scenario uses compost from an offsite source to maintain, increase, or improve organic matter content and improve aggregate stability, habitat for soil organisms, and plant productivity and health. This scenario is used for situations where manual labor is typically used to apply or incorporate compost amendments. Compost has been tested according to the Test Methods for the Examination of Composting and Compost (TMECC), or by other Land Grant University (LGU) recognized methods. Compost is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

An in-field assessment or a site specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified compost is needed to improve the condition of the soil.

After Situation:

Compost was tested and applied at the recommended rate that will improve soil organic matter and organism habitat without creating unacceptable risk of N or P loss. A follow up assessment is planned to determine the effect of the compost application.

Feature Measure: Area treated.

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 10.0

Scenario Total Cost:	$639.26	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$63.93	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #23 - Compost and Biochar, Less Than 10 Acres

Scenario Description:

Apply a blend of >=50% biochar and <=50% compost (by volume) to sequester carbon, reduce nitrogen loss, improve organic matter content and improve aggregate stability, habitat for soil organisms, and plant productivity and health. Biochar and compost has been tested according to the Test Methods for the Examination of Composting and Compost (TMECC), or by other Land Grant University (LGU) recognized methods and is imported from an outside source. Analysis from supplier.

Before Situation:

An in-field assessment or a site-specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified compost or manure and biochar is needed to improve the condition of the soil.

After Situation:

Compost and biochar were tested and applied at the recommended rate that will improve soil organic matter and organism habitat without creating unacceptable risk of N or P loss. A follow up assessment is planned to determine the effect of the application.

Feature Measure: Area treated

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 10.0

Scenario Total Cost: $750.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $75.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #38 - Compost, Biochar

Scenario Description:

Apply a blend of >=40% biochar and <=60% compost (by volume) to sequester carbon, reduce nitrogen loss, and improve other soil health related resource concerns. Biochar and compost has been tested according to the Test Methods for the Examination of Composting and Compost (TMECC), or by other Land Grant University (LGU) recognized methods and is imported from an outside source. The blend contains at least 40% biochar and is applied at the recommended rate to treat the identified resource concerns. Typical application of blend at 4 cu yd per ace.

Before Situation:

An in-field assessment or a site-specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified biochar and compost or manure is needed to improve the condition of the soil.

After Situation:

Biochar and compost or manure were tested and applied at the recommended rate that will improve soil organic matter and organism habitat without creating unacceptable risk of N or P loss. A follow up assessment is planned to determine the effect of the application.

Feature Measure: Area

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $3,872.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $774.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #40 - Biochar, Compost

Scenario Description:

Apply a blend of >=60% biochar and <=40% compost (by volume) to sequester carbon, reduce nitrogen loss, and improve other soil health related resource concerns. Biochar and compost has been tested according to the Test Methods for the Examination of Composting and Compost (TMECC), or by other Land Grant University (LGU) recognized methods and is imported from an outside source. Supplier provides product analysis. The blend contains at least 60% biochar and is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

An in-field assessment or a site-specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified biochar and compost or manure is needed to improve the condition of the soil.

After Situation:

Biochar and compost or manure were tested and applied at the recommended rate that will improve soil organic matter and organism habitat without creating unacceptable risk of N or P loss. A follow up assessment is planned to determine the effect of the application.

Feature Measure: Area

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $4,353.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $870.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #92 - 100% Biochar cu.yd.

Scenario Description:

Apply 100% biochar to sequester carbon, reduce nitrogen losses, and improve other soil health-related resource concerns. Biochar has been tested, and is imported from an outside source. Biochar is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

An appropriate assessment tool indicates that soil health resource concerns exist, and that a soil carbon amendment is needed to improve the condition of the soil.

After Situation:

Biochar was applied at the recommended rate. Soil health resource concerns were treated. A follow up follow up assessment is planned to determine the effect of the application.

Feature Measure: cubic yards applied

Scenario Unit: Cubic Yard

Scenario Typical Size: 4.0

Scenario Total Cost: $1,072.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $268.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #93 - 80 Percent Biochar and 20 Percent Compost

Scenario Description:

Apply a blend of >= 80% biochar and <= 20% compost/manure (by volume) to sequester carbon, reduce nitrogen losses, and improve other soil health-related resource concerns. Biochar and compost/manure has been tested by the vendor, and is imported from an outside source. Blend is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

Before Practice Situation: An appropriate assessment tool indicates that soil health resource concerns exist, and that a soil carbon amendment is needed to improve the condition of the soil.

After Situation:

A blend of >=80% biochar and <=20% compost/manure was applied at the recommended rate. Soil health resource concerns were treated. A follow up follow up assessment is planned to determine the effect of the application.

Feature Measure: cu yd applied

Scenario Unit: Cubic Yard

Scenario Typical Size: 4.0

Scenario Total Cost: $942.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $235.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #94 - 40 Percent Biochar and 60 Percent Compost

Scenario Description:

Apply a blend of >= 40% biochar and <= 60% compost/manure (by volume) to sequester carbon, reduce nitrogen losses, and improve other soil health-related resource concerns. Biochar and compost/manure has been tested by the vendor, and is imported from an outside source. Blend is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

Before Practice Situation: An appropriate assessment tool indicates that soil health resource concerns exist, and that a soil carbon amendment is needed to improve the condition of the soil.

After Situation:

A blend of >=40% biochar and <=60% compost/manure was applied at the recommended rate. Soil health resource concerns were treated. A follow up follow up assessment is planned to determine the effect of the application.

Feature Measure: cu yd applied

Scenario Unit: Cubic Yard

Scenario Typical Size: 4.0

Scenario Total Cost: $682.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $170.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #95 - 20 Percent Biochar and 80 Percent Compost

Scenario Description:

Apply a blend of >= 20% biochar and <= 80% compost/manure (by volume) to sequester carbon, reduce nitrogen losses, and improve other soil health-related resource concerns. Biochar and compost/manure has been tested by the vendor, and is imported from an outside source. Blend is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

Before Practice Situation: An appropriate assessment tool indicates that soil health resource concerns exist, and that a soil carbon amendment is needed to improve the condition of the soil.

After Situation:

A blend of >=20% biochar and <=80% compost/manure was applied at the recommended rate. Soil health resource concerns were treated. A follow up follow up assessment is planned to determine the effect of the application.

Feature Measure: cu yd applied

Scenario Unit: Cubic Yard

Scenario Typical Size: 4.0

Scenario Total Cost: $552.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $138.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #96 - Compost Off-site by Volume

Scenario Description:

Apply compost to improve soil biology and other soil health-related resource concerns. Compost has been tested and is imported from an outside source. Compost is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

Before Practice Situation: An appropriate assessment tool indicates that soil health resource concerns exist, and that a soil carbon amendment is needed to improve the condition of the soil.

After Situation:

Compost was applied at the recommended rate. Soil health resource concerns were treated. A follow up follow up assessment is planned to determine the effect of the compost application.

Feature Measure: cu yd applied

Scenario Unit: Cubic Yard

Scenario Typical Size: 6.0

Scenario Total Cost: $554.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $92.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #107 - 60 Percent Biochar and 40 Percent Compost

Scenario Description:

Apply a blend of >= 60% biochar and <= 40% compost/manure (by volume) to sequester carbon, reduce nitrogen losses, and improve other soil health-related resource concerns. Biochar and compost/manure has been tested by the vendor, and is imported from an outside source. Blend is applied at the recommended rate to treat the identified resource concerns.

Before Situation:

An appropriate assessment tool is used to determine that soil health resource concerns exist.

After Situation:

A blend of >=60% biochar and <=40% compost/manure was applied at the recommended rate. Soil health resource concerns were treated. A follow up follow up assessment is planned to determine the effect of the application.

Feature Measure: cu yd applied

Scenario Unit: Cubic Yard

Scenario Typical Size: 4.0

Scenario Total Cost: $812.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $203.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 336 - Soil Carbon Amendment

Scenario: #166 - Compost, Onsite

Scenario Description:

This scenario uses compost of known origin (feedstock) and production methods to maintain, increase, or improve organic matter content, aggregate stability, habitat for soil organisms, and soil C stock. Compost produced in a compost facility on- farm has been tested according to the Test Methods for the Examination of Composting and Compost (TMECC), or by other Land Grant University (LGU) recognized methods and contains the results of analyses of variables listed in Tables 1 and 3 of the practice standard. Components of total cost include procurement of amendment, amendment analysis, installation of amendment, and mobilization of amendment onsite. Typical application rate is 3-ton compost/acre.

Before Situation:

An in-field soil health assessment or a site-specific resource assessment tool or test indicates that soil health resource concerns are present and the addition of analyzed and verified compost as outlined in the practice standard (Tables 1 and 3) is need

After Situation:

Compost was tested and verified before application and applied at the recommended rate that will improve the resource concerns identified onsite as outlined in the practice standard without creating unacceptable risk of N or P loss. A follow-up assessment is planned to determine the effect of the application.

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 6.0

Scenario Total Cost: $2,116.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $352.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 338 - Prescribed Burning

Scenario: #1 - Understory

Scenario Description:

Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications in order to control undesirable species, improve wildlife habitat, improve plant productivity and/or quality, facilitate grazing distribution, to encourage natural seeding or to permit reforestation by planting or direct seeding and maintain ecological processes. An Understory burn can consume debris or leaf litter under controlled conditions that otherwise could burn uncontrollably and devastatingly. Prior to burning unit may need to be treated to reduce slash height and quantities. Burn should be cool enough to not cause mortality to residual stand but also must reduce litter and debris. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak cost is not included in cost of burn. Refer to Firebreak (394) standard and cost scenarios)

Before Situation:

Moderate slash accumulation in a open forest stand. Leaf litter and debris throughout stand. Small seedlings of various quantities may be present. Desirable plant composition is lacking due to reduced plant vigor, invasive species or improper livestock di

After Situation:

Litter, debris and slash are consumed, small seedlings may be killed during active burning. Residual larger trees have little to no scorching. Post treatment fire danger is significantly reduced. Desirable plant composition is restored, plant vigor improved and invasive species reduced. Forage production and quality for livestock and /or wildlife is improved.

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $8,991.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $899.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 338 - Prescribed Burning

Scenario: #3 - Steep Terrain Volatile Fuel, Greater Than Four Feet

Scenario Description:

Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications in order to control undesirable species, improve wildlife habitat, improve plant productivity and/or quality, and maintain ecological processes. This scenario is based on a burn area of 15 acres and applies under the following conditions: where the terrain of the majority of the area to be burned >15% slopes with herbaceous and low volatile woody fuel with high volatile woody fuels greater than 4ft tall, but fire is still a ground fire carried by fine fuel. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak cost is not included in cost of burn. Refer to Firebreak (394) standard and cost scenarios)

Before Situation:

Desirable plant composition is lacking due to reduced plant vigor, invasive species or improper livestock distribution.

After Situation:

Desirable plant composition is restored, plant vigor improved and invasive species reduced. Forage production and quality for livestock and /or wildlife is improved.

Feature Measure: Acres Planned

Scenario Unit: Acre

Scenario Typical Size: 15.0

Scenario Total Cost: $10,108.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $673.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 338 - Prescribed Burning

Scenario: #4 - Volatile Fuel

Scenario Description:

Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications in order to control undesirable species, improve wildlife habitat, improve plant productivity and/or quality, facilitate grazing distribution, to encourage natural seeding or to permit reforestation by planting or direct seeding and maintain ecological processes. An Understory burn can consume debris or leaf litter under controlled conditions that otherwise could burn uncontrollably and devastatingly. Prior to burning unit may need to be treated to reduce slash height and quantities. Burn should be cool enough to not cause mortality to residual stand but also must reduce litter and debris. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak cost is not included in cost of burn. Refer to Firebreak (394) standard and cost scenarios)

Before Situation:

Heavy shrub accumulation with a high volatility. Leaf litter and debris throughout stand. Small seedlings of various quantities may be present. Desirable plant composition is lacking due to reduced plant vigor or invasive species.

After Situation:

Shrubs, litter, and debris are consumed, small seedlings may be killed during active burning. Residual larger trees have little to no scorching. Post treatment fire danger is significantly reduced. Desirable plant composition is restored, plant vigor improved and invasive species reduced.

Feature Measure: Acres Planned

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $12,985.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,298.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 340 - Cover Crop

Scenario: #1 - Basic

Scenario Description:

Typically a small grain or legume (may also use forage sorghum, radishes, turnips, buckwheat, etc.) will be planted as a cover crop immediately after harvest of a row crop, and will be followed by a row crop that will utilize the residue as a mulch. This scenario assumes that seed will be planted with a drill. The cover crop should be allowed to generate as much biomass as possible, without delaying planting of the following crop. The cover crop will be terminated using an approved herbicide prior to planting the subsequent crop.

Before Situation:

Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare

After Situation:

Implementation Requirements according to Cover Crop (340) are prepared and implemented. Within 30 days after harvest of the row crop, fields are planted with a small grain or legume cover crop (may also use forage sorghum, radishes, turnips, buckwheat, etc.), typically rye or clover. The average field size is 40 acres. The cover crop is seeded with a drill. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. The cover crop is terminated with an approved herbicide prior to spring planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, soil infiltration, and plant diversity introduced to the cropping system. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $3,414.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $85.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 340 - Cover Crop

Scenario: #6 - Adaptive Management

Scenario Description:

The practice scenario is for the implementation of cover crops in small replicated plots to allow the producer to learn how to manage cover crops on their operation. Scenario includes implementing replicated strip trials on a field plot to evaluate, identify and implement a particular cover crop management strategy (e.g., cover crop vs no cover crop, multiple species vs, single species, evaluate different termination methods or timings, using a legume vs no legume for nitrogen credits). This will be done following the guidance in the NRCS Technical Note 10 - Adaptive Management.

Before Situation:

Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare

After Situation:

Implementation Requirements for Cover Crop (340) will be prepared along with the Adaptive Management plan for the replicated cover crop plots and implemented. Installation of this scenario will result in establishment of a cover crop replicated plots to compare to different management strategies for cover crop management following the guidance in the Agronomy Technical Note 10 - Adaptive Management. Implementation involves establishing the replicated plots to evaluate one or more cover crop management strategies. The plot will consist of at least 4 replicated plots designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in cover crop management. Results are used to make cover crop management decisions to address erosion and water quality issues. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 10 - Adaptive Management. The yields for each plot will be adjusted to the appropriate moisture content. This would be repeated for 3 years.

Feature Measure: Based on 10 acres

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,144.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,144.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 340 - Cover Crop

Scenario: #11 - Multi-Species

Scenario Description:

Typically the multi-species cover crop (two or more species) mix includes a small grain, a legume, and may include other species such as forage sorghum, radishes, turnips, buckwheat, etc.). This mix will address all the purposes of the Cover Crop (340) standard. Typically the cover crop is seeded immediately after harvest of a row crop, but may be inter-seeded into a row crop using a broadcast seeder, drill, or similar device. The cover crop will be followed by another row crop and will utilize the residue as a mulch. The cover crop should be allowed to generate as much biomass as possible without delaying planting of the following crop. The cover crop will be terminated using an approved herbicide or tillage prior to planting the subsequent crop and terminated per the NRCS Cover Crop Termination Guidelines.

Before Situation:

Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less resulting in bare s

After Situation:

Implementation Requirements according to Cover Crop (340) are prepared and implemented. Within 30 days after the harvest of row crop, fields are planted with a multi-species (2 or more species) cover crop mix that generally includes a small grain, a legume, and may include other species such as forage sorghum, radishes, turnips, buckwheat, etc. The average field size is 40 acres. The cover crop is seeded with a drill, broadcast seeder, aerial broadcast, or other method. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. The cover crop is terminated with an approved herbicide prior to spring planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, soil infiltration, and plant diversity introduced to the cropping system. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $4,204.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $105.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 340 - Cover Crop

Scenario: #33 - Basic, Organic

Scenario Description:

Typically a small grain or small grain-legume mix (may also use forage sorghum, radishes, turnips, buckwheat, etc.) will be planted as a cover crop immediately after harvest of an organically grown crop, and will be followed by an organically grown crop that will utilize the residue as a mulch. This scenario assumes that seed will be planted with a no-till drill. The cover crop should be allowed to generate as much biomass as possible, without delaying planting of the following crop. The cover crop will be terminated using a mechanical kill method (mowing, rolling, undercutting, etc.), within weeks prior to planting the subsequent crop. This scenario REQUIRES use of Certified Organic Seed. Associated practices: Conservation Cover (327), Conservation Crop Rotation (328), Residue and Tillage Management, No-Till/Strip Till/Direct Seed (329), Critical Area Planting (342), Residue Management, Seasonal (344), Residue and Tillage Management, Mulch Till (345), Residue and Tillage Management, Ridge Till (346), Nutrient Management (590), Integrated Pest Management (595).

Before Situation:

Organically grown crops such as various vegetable and fruit crops (along with organically produced row crops) are grown and harvested in mid-late fall. Fields are disked immediately following harvest. Residue amounts after harvest average 30% or less, res

After Situation:

Within 30 days after harvest of organic crop, fields are planted with a small grain-legume mix cover crop, typically rye and clover. The average field size is 25 acres. The cover crop is seeded with a no-till drill. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced and no rills are visible on the soil surface in the spring. The cover crop is terminated with using a mechanical kill method (mowing, rolling, undercutting, etc.), prior to spring planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, and plant diversity introduced to the cropping system. Wind erosion is reduced by standing resides. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect.

Feature Measure: Area Planted

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $3,922.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $130.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 340 - Cover Crop

Scenario: #57 - Cover Crop, Less Than or Equal to 1 Acre

Scenario Description:

Typically a small grain or legume will be planted as a cover crop immediately after harvest of a crop, and will be followed by a crop. This scenario assumes that seed will be planted by hand. The cover crop should be allowed to generate as much biomass as possible, without delaying planting of the following crop. The cover crop will typically be terminated by mowing or tilling prior to planting the subsequent crop.

Before Situation:

Crops such as sweet corn, vegetables, or root crops are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting

After Situation:

Implementation Requirements according to Cover Crop (340) are prepared and implemented. Within 10 days after harvest of the crop, fields are planted with a small grain or legume cover crop, typically rye or clover. The average field size is 0.25 acres. The cover crop is seeded by hand. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover by late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. The cover crop is terminated with an approved herbicide prior to spring planting as late as feasible to maximize plant biomass production. Over time, soil health is improved due to the additional biomass, ground cover, soil infiltration, and plant diversity introduced to the cropping system. Cover crop residues left on the surface may maximize weed control by increasing allelopathic and mulching effect.

Feature Measure: area planted

Scenario Unit: Acre

Scenario Typical Size: 0.3

Scenario Total Cost: $151.36

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $605.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 340 - Cover Crop

Scenario: #64 - Mechanical Termination, 1,000 Square Feet

Scenario Description:

Typical cover crop is more than one plant species, planted immediately after harvest of a crop and will be followed by a new crop. Cover crops are planted in the production bed typically 4000 square feet. Implementation is mostly hand labor or labor intensive. Cover crop is mechanically terminated in urban agricultural sites with State and local laws, ordinance and zoning restrictions on use of agrichemicals.

Before Situation:

Crop rotation include specialty crops such sweet corn, vegetables, or root crops are grown and harvested through out growing season and into mid-late fall. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind ero

After Situation:

Implementation Requirements according to Cover Crop (340) are prepared and implemented. The cover crop is seeded by hand. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover at the critical period when cover is needed usually late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. The cover crop is mechanically terminated as late as feasible to maximize cover crop biomass production and meet the planting date needs of the next crop. Over time, soil health is improved due to additions of biomass, improvement of aggregate stability and infiltration/aeration.

Feature Measure: Area of Cover Crop Installed

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 4.0

Scenario Total Cost: $130.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $32.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 340 - Cover Crop

Scenario: #77 - Multi-Species, 1,000 Square Feet

Scenario Description:

Typical cover crop is more than one plant species, planted immediately after harvest of a crop and will be followed by a new crop. Cover crops are planted in the production bed typically 4000 square feet. Implementation is mostly hand labor or labor intensive. Cover crop is mechanically terminated in urban agricultural sites with State and local laws, ordinance and zoning restrictions on use of agrichemicals.

Before Situation:

Crop rotation include specialty crops such sweet corn, vegetables, or root crops are grown and harvested through out growing season and into mid-late fall. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind ero

After Situation:

Implementation Requirements according to Cover Crop (340) are prepared and implemented. The cover crop is seeded by hand. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover at the critical period when cover is needed usually late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. The cover crop is mechanically terminated as late as feasible to maximize cover crop biomass production and meet the planting date needs of the next crop. Over time, soil health is improved due to additions of biomass, improvement of aggregate stability and infiltration/aeration.

Feature Measure: Area of Cover Crop Installed

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 4.0

Scenario Total Cost: $254.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $63.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 342 - Critical Area Planting

Scenario: #1 - Normal Tillage, Native or Introduced

Scenario Description:

Establishment of permanent vegetation (Native and Introduced) on a site (both organic and non-organic) that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Costs include seedbed preparation with typical tillage implements, grass/legume seed, companion crop, and fertilizer and lime with application.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such

After Situation:

Implementation Requirements are prepared and implemented according to the Critical Area Planting (342) standard. This typical 1.0 acre critical area is stabilized by applying fertilizer, lime and seed. Soil amendments will be incorporated at a depth of four to six inches to improve fertility and ensure establishment of permanent vegetative cover. The site will be stabilized, erosion reduced, and offsite damages reduced/eliminated.

Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $471.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $471.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 342 - Critical Area Planting

Scenario: #4 - Moderate Grading, Native or Introduced

Scenario Description:

Establishment of permanent vegetation (native and introduced) on a site that is void or nearly void of vegetation due to a natural or human disturbance. Costs include a dozer for grading and shaping of small gullies, seedbed preparation with typical tillage implements, grass/legume seed, companion crop, and fertilizer and lime with application.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc.) or human disturbance. The exposed areas have visible rills and small

After Situation:

Implementation Requirements are prepared and implemented according to the Critical Area Planting (342) standard.. This typical 1.0 acre critical area is stabilized by grading and shaping the small gullies with a dozer and then applying fertilizer, lime and seed. The site will be stabilized, erosion reduced, and offsite damages reduced/eliminated.

Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,033.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,033.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 342 - Critical Area Planting

Scenario: #6 - Heavy Grading, Native or Introduced

Scenario Description:

Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Costs include a dozer for grading and shaping of moderate to severe gullies, seedbed preparation with typical tillage implements, grass/legume seed, companion crop, and fertilizer and lime with application.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc.) or human disturbance. The exposed areas have visible rills and modera

After Situation:

Implementation Requirements are prepared and implemented according to the Critical Area Planting (342) standard. This typical 1.0 acre critical area is stabilized by grading and shaping the moderate to severe gullies with a dozer and then applying fertilizer, lime and seed. The site will be stabilized, erosion reduced, and offsite damages reduced/eliminated.

Feature Measure: area seeded

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,471.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,471.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 342 - Critical Area Planting

Scenario: #29 - Hydroseed

Scenario Description:

Establishment of permanent vegetation (Native and Introduced) on a site (both organic and non-organic) that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Costs include a specialized hydroseed truck, grass/legume seed, companion crop, and fertilizer and lime with application.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such

After Situation:

Implementation Requirements are prepared and implemented according to the Critical Area Planting (342) standard. This typical 1.0 acre critical area is stabilized by applying fertilizer, lime and seed. Soil amendments are not incorporated, but are in liquid form and readily adsorbed into the soil to improve fertility and ensure establishment of permanent vegetative cover. The site will be stabilized, erosion reduced, and offsite damages reduced/eliminated.

Feature Measure: Area Seeded and Planted

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,880.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,880.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 342 - Critical Area Planting

Scenario: #55 - Normal Tillage, Shrubs

Scenario Description:

Establishment of permanent vegetation (Native and Introduced) on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Costs include seedbed preparation with typical tillage implements, grass/legume seed, companion crop, and planting of shrubs.

Before Situation:

Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such

After Situation:

Implementation Requirements are prepared and implemented according to the Critical Area Planting (342) standard. This typical 1.0 acre critical area is stabilized by seed. Planting of shrubs will be used in areas most susceptible to erosion. Proper site preparation, seeding and planting will ensure establishment of permanent vegetative cover. The site will be stabilized, erosion reduced, and offsite damages reduced/eliminated.

Feature Measure: Area Seeded and Planted

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,649.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,649.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 342 - Critical Area Planting

Scenario: #67 - Permanent Cover

Scenario Description:

Establishment of permanent vegetation on a site that is void of vegetation or needs to improve the vegetation to adequately cover the existing site soil to reduce particulate matter dust emissions. Costs include seedbed prep with light tillage, seed, fertilizer and lime. Small Scale fields and urban sites have soil conditions limiting vegetation growth or sensitive areas that need protection.

Before Situation:

Fields are bare or sparsely vegetated exposed to wind and water erosion. Soil physical of chemical properties limit vegetative growth. Urban site soils contain heavy metal contaminants at risk of emissions as particulate dust from field activities.

After Situation:

The Implementation Requirement with site specific instruction is prepared for each treatment site. The establishment of permanent vegetation will stabilize the soil. Sensitive areas are protected. Particulate dust is reduced. Wind and water erosion loss is within tolerance levels (T).

Feature Measure: planted area

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 15.0

Scenario Total Cost: $370.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 345 - Residue and Tillage Management, Reduced Till

Scenario: #2 - Reduced Tillage

Scenario Description:

Mulch-till is managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting the soil-disturbing activities used to grow crops in systems where the entire field surface is tilled by the planter/drill or tillage tools prior to planting. This practice includes tillage methods commonly referred to as mulch tillage, vertical tillage, chiseling and disking, or the use of high disturbance drills without additional tillage. It applies to stubble mulching on summer-fallowed land, to tillage for annually planted crops, to tillage for planted crops and to tillage for planting perennial crops. All residue shall be uniformly spread or managed over the surface throughout the critical erosion period(s). All residue shall be uniformly distributed over the entire field and not burned or removed. These periods of intensive tillage have led to excessive soil loss, often above the soil loss tolerance (T), due to the loss of crop residue on the soil surface. The NRCS erosion prediction model(s) will be used to review the farming operations and determine the amount of surface residue to manage throughout the rotation to keep soil loss below T. The producer will adopt a reduced till system to meet one or more of the practice purposes.

Before Situation:

Crops such as corn, soybeans, small grains, or cotton are grown and harvested. Fields are tilled immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare soil b

After Situation:

The Implementation Requirements are prepared following the criteria in the 345 Residue and Tillage Management, Reduced Till conservation practice standard. Reduced till applies to all cropland and other lands where crops are planted. This scenario includes the use of a reduce till systems and high disturbance drills, such as a hoe drill, air seeder, or no-till drill that disturbs a large percentage of soil surface during the planting operation. The residue that remains on the soil surface provides soil cover during late fall, throughout the winter, and into the early spring. Runoff and water/wind erosion are reduced and water quality improves. Over time, soil health is improved due to less tillage, the additional biomass, ground cover, soil infiltration, and plant diversity in the cropping system.

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $2,540.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 345 - Residue and Tillage Management, Reduced Till

Scenario: #3 - Adaptive Management

Scenario Description:

The practice scenario is for the implementation of mulch till in small replicated plots to allow the producer to learn how to manage mulch till on their operation. Scenario includes implementing replicated strip trials on a field plot to evaluate, identify and implement a particular mulch till management strategy (e.g., mulch till vs. conventional till, two different mulch till systems, etc.). This will be done following the guidelines outlined in Agronomy Technical Note 10 - Adaptive Management.

Before Situation:

Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare

After Situation:

Implementation Requirements and the Adaptive Management Plan is prepared for the plots and implemented. Installation of this scenario will result in establishment of mulch till replicated plots to compare to different management strategies for mulch till and other residue management strategies following the guidelines outlined in Agronomy Technical Note 10 - Adaptive Management and the Adaptive Management Guidance 345 for Mulch Till. Implementation involves establishing the replicated plots to evaluate one or more reduced till management strategies. The plot will consist of at least four replicated plots designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in reduced till management. Results are used to make reduced till management decisions to address erosion, soil health, and water quality issues. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 10 - Adaptive Management. The yields for each plot will be adjusted to the appropriate moisture content and residue levels measured as needed. This practice will be repeated for three years.

Feature Measure: Based on 20 acres

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,852.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,852.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 345 - Residue and Tillage Management, Reduced Till

Scenario: #57 - Reduced Tillage, Less Than 0.5 Acres

Scenario Description:

Scenario applies to Urban sites less than a 1/2 acre with a rotation of organic or non-organic specialty crops (fruits and vegetable) are produced as part of a conservation management system to treat one or more of the following resource concerns: 1) Reduce sheet, rill and wind erosion, 2) Maintain or increase soil health and organic matter content, 3) Improve soil moisture efficiency, 4) Reduce plant pest pressures. This practice payment effectively implements a reduced tillage system on a typical urban specialty crop farm. Cost represents typical situations for organic and non-organic producers.

Before Situation:

This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concern. Removal of residue from the planted area is common leaving bare soil-residue amounts a

After Situation:

The implementation requirements are written following CPS 345 Residue and Tillage Management, Reduced Tillage to treat one or more of the following resource concerns on organic and non- organic farms: reduce sheet, rill and wind erosion, maintain or increase soil health and organic matter content, improve soil moisture efficiency or reduce plant pest pressure. Soil disturbance is minimized with no-till drill or planter use. May include single slot opener and seedling or plug planting follows. When pest management requires the removal of crop residue then planting beds are covered with cover crop using the 340 Cover Crop conservation practice. Runoff and erosion are reduced below T. No observed rills. Wind erosion reduced by maintaining surface cover. Over time, soil health is improved due to less tillage, the additional biomass, ground cover, soil infiltration, and plant diversity in the cropping system.

Feature Measure: area planted

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 15.0

Scenario Total Cost: $579.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 348 - Dam, Diversion

Scenario: #31 - Fill, Rock and Gravel

Scenario Description:

A rock structure with a gravel bedding on geotextile is built to divert all or part of the water from a waterway or a stream to provide water in such a manner that it can be controlled and used beneficially for irrigation, livestock water, fire control, municipal or industrial uses, develop renewable energy systems, or recreation, to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. This structure will address the resource concerns of inefficient water use on Irrigated Land, inadequate water for livestock, and inadequate water supply for other beneficial uses.

Before Situation:

This practice applies where a diversion dam is needed as an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, Diversion of water from an unstable watercourse to a sta

After Situation:

A rock structure of approximately 1050 cubic yards with a gravel bedding of approximately 450 cubic yards on approximately 200 square yards of geotextile, built to divert all or part of the water from a waterway or a stream. This standard applies to structures of a permanent nature, constructed of materials having an expected life span consistent with the purpose for which the structure is designed. This structure will be an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, or diversion of water from an unstable watercourse to a stable watercourse as needed. The water supply available is adequate for the purpose for which it is to be diverted. Adverse environmental impacts resulting from the installation of the practice must be overcome. The rock structure provides beneficial uses for irrigation, livestock water, fire control, municipal or industrial uses, renewable energy systems, recreation, or to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. Any needed vegetation of disturbed areas must use Critical Area Planting (342). Other associated practices such as Channel Vegetation (322), Stream Habitat Improvement and Management (395), Channel Stabilization (584) will be as appropriate. Any needed head gates or flap gates to control the quantity of water being diverted must use Structure for Water Control (587).

Feature Measure: Fill in Cubic Yards

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,500.0

Scenario Total Cost: $182,961.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $121.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 348 - Dam, Diversion

Scenario: #32 - Earthfill

Scenario Description:

An earth fill built to divert all or part of the water from a waterway or a stream to provide water in such a manner that it can be controlled and used beneficially for irrigation, livestock water, fire control, municipal or industrial uses, develop renewable energy systems, or recreation, to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. This structure will address the resource concerns of inefficient water use on Irrigated Land, inadequate water for livestock, and inadequate water supply for other beneficial uses.

Before Situation:

This practice applies where a diversion dam is needed as an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, Diversion of water from an unstable watercourse to a sta

After Situation:

An earth fill structure of approximately 1500 cubic yards is built to divert all or part of the water from a waterway or a stream. This standard applies to structures of a permanent nature, constructed of materials having an expected life span consistent with the purpose for which the structure is designed. This structure will be an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, or diversion of water from an unstable watercourse to a stable watercourse as needed. The water supply available is adequate for the purpose for which it is to be diverted. Adverse environmental impacts resulting from the installation of the practice must be overcome. The earth fill structure provides beneficial uses for irrigation, livestock water, fire control, municipal or industrial uses, renewable energy systems, recreation, or to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. Any needed vegetation of disturbed areas must use Critical Area Planting (342). Other associated practices such as Channel Vegetation (322), Stream Habitat Improvement and Management (395), Channel Stabilization (584) will be as appropriate. Any needed head gates or flap gates to control the quantity of water being diverted must use Structure for Water Control (587).

Feature Measure: Volume of Earth Fill

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,500.0

Scenario Total Cost: $15,739.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 348 - Dam, Diversion

Scenario: #33 - Earthfill, Grouted Rock

Scenario Description:

An earth fill and grouted rock structure built to divert all or part of the water from a waterway or a stream to provide water in such a manner that it can be controlled and used beneficially for irrigation, livestock water, fire control, municipal or industrial uses, develop renewable energy systems, or recreation, to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. This structure will address the resource concerns of inefficient water use on Irrigated Land, inadequate water for livestock, and inadequate water supply for other beneficial uses.

Before Situation:

This practice applies where a diversion dam is needed as an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, Diversion of water from an unstable watercourse to a sta

After Situation:

An earth fill and grouted rock structure of approximately 1050 cubic yards of earth fill with 450 cubic yards of grouted rock is built to divert all or part of the water from a waterway or a stream. This standard applies to structures of a permanent nature, constructed of materials having an expected life span consistent with the purpose for which the structure is designed. This structure will be an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, or diversion of water from an unstable watercourse to a stable watercourse as needed. The water supply available is adequate for the purpose for which it is to be diverted. Adverse environmental impacts resulting from the installation of the practice must be overcome. The earth fill and grouted rock structure provides beneficial uses for irrigation, livestock water, fire control, municipal or industrial uses, renewable energy systems, recreation, or to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. Any needed vegetation of disturbed areas must use Critical Area Planting (342). Other associated practices such as Channel Vegetation (322), Stream Habitat Improvement and Management (395), Channel Stabilization (584) will be as appropriate. Any needed head gates or flap gates to control the quantity of water being diverted must use Structure for Water Control (587).

Feature Measure: Volume of Total Fill

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,500.0

Scenario Total Cost: $148,422.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $98.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 348 - Dam, Diversion

Scenario: #34 - Structure, Sheet Pile

Scenario Description:

A sheet pile structure with rock, built to divert all or part of the water from a waterway or a stream to provide water in such a manner that it can be controlled and used beneficially for irrigation, livestock water, fire control, municipal or industrial uses, develop renewable energy systems, or recreation, to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. This structure will address the resource concerns of inefficient water use on Irrigated Land, inadequate water for livestock, and inadequate water supply for other beneficial uses.

Before Situation:

This practice applies where a diversion dam is needed as an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, Diversion of water from an unstable watercourse to a sta

After Situation:

A sheet pile structure of approximately 3000 square feet with approximately 660 cubic yards of riprap is built to divert all or part of the water from a waterway or a stream. This standard applies to structures of a permanent nature, constructed of materials having an expected life span consistent with the purpose for which the structure is designed. This structure will be an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, or diversion of water from an unstable watercourse to a stable watercourse as needed. The water supply available is adequate for the purpose for which it is to be diverted. Adverse environmental impacts resulting from the installation of the practice must be overcome. The sheet pile structure provides beneficial uses for irrigation, livestock water, fire control, municipal or industrial uses, renewable energy systems, recreation, or to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. Any needed vegetation of disturbed areas must use Critical Area Planting (342). Other associated practices such as Channel Vegetation (322), Stream Habitat Improvement and Management (395), Channel Stabilization (584) will be as appropriate. Any needed head gates or flap gates to control the quantity of water being diverted must use Structure for Water Control (587).

Feature Measure: Area of sheet pile

Scenario Unit: Square Foot

Scenario Typical Size: 3,000.0

Scenario Total Cost: $225,167.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $75.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 348 - Dam, Diversion

Scenario: #35 - Concrete, Reinforced

Scenario Description:

A reinforced concrete dam diversion structure built to divert all or part of the water from a waterway or a stream to provide water in such a manner that it can be controlled and used beneficially for irrigation, livestock water, fire control, municipal or industrial uses, develop renewable energy systems, or recreation, to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. This structure will address the resource concerns of inefficient water use on Irrigated Land, inadequate water for livestock, and inadequate water supply for other beneficial uses.

Before Situation:

This practice applies where a diversion dam is needed as an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, Diversion of water from an unstable watercourse to a sta

After Situation:

A reinforced concrete dam diversion structure of approximately 1500 cubic yards of concrete is built to divert all or part of the water from a waterway or a stream. This standard applies to structures of a permanent nature, constructed of materials having an expected life span consistent with the purpose for which the structure is designed. This structure will be an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources, or diversion of water from an unstable watercourse to a stable watercourse as needed. The water supply available is adequate for the purpose for which it is to be diverted. Adverse environmental impacts resulting from the installation of the practice must be overcome. The reinforced concrete structure provides beneficial uses for irrigation, livestock water, fire control, municipal or industrial uses, renewable energy systems, recreation, or to divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows. Any needed vegetation of disturbed areas must use Critical Area Planting (342). Other associated practices such as Channel Vegetation (322), Stream Habitat Improvement and Management (395), Channel Stabilization (584) will be as appropriate. Any needed head gates or flap gates to control the quantity of water being diverted must use Structure for Water Control (587).

Feature Measure: Volume of Total Fill

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,500.0

Scenario Total Cost: $712,646.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $475.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 350 - Sediment Basin

Scenario: #1 - Basin, Excavated

Scenario Description:

An excavated sediment basin in an existing drainage way on a farm for purpose of trapping sediment and preserving the capacity of reservoirs, ditches, canals, diversions, waterways and streams and to prevent undesirable deposition on bottom lands and other developed lands. The sediment basin is created solely by excavation and impounds less than 3 feet against the embankment or spoil. Excavated material is spoiled, not placed in a designed embankment. Earthen spillway is constructed as needed. Resource concerns addressed include excessive suspended sediment and turbidity in surface water, damage from sediment deposition, and reduced capacity of conveyances by sediment deposition. Surface water causes the sediment (and potentially pesticides and nutrients) to be transported into the riparian areas and water bodies downstream.

Before Situation:

Disturbed areas on all land uses that have excessive erosion lead to deterioration of receiving waters due to excessive sedimentation.

After Situation:

'The typical sediment basin is constructed by excavating 800 cubic yards and spreading the spoil outside the pool area using a dozer or similar excavation equipment. The sediment storage capacity should be a minimum of 900 cubic feet per acre of disturbed area. The detention storage should be a minimum of 3600 cubic feet per acre of drainage area. Associated practice(s): Other practices that may need to be implemented along with sediment basin to address all of the site specific resource concerns include: Critical Area Planting (342), Stormwater Runoff Control (570) and Mulching (484) where necessary to prevent erosion following construction activities, Structure for Water Control (587) if using a dewatering device, and Pond Sealing or Lining (521A,521B,521C,521D).

Feature Measure: Excavated volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 800.0

Scenario Total Cost: $2,662.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 350 - Sediment Basin

Scenario: #3 - Earthen Basin, Pipe

Scenario Description:

An low hazard class embankment earthen sediment basin in an existing drainage way on a farm for purpose of trapping sediment and preserving the capacity of reservoirs, ditches, canals, diversions, waterways and streams and to prevent undesirable deposition on bottom lands and other developed lands. An earthen embankment will be constructed with a principal spillway conduit and earthen auxiliary spillway, as designed. Resource concerns addressed include excessive suspended sediment and turbidity in surface water, damage from sediment deposition, and reduced capacity of conveyances by sediment deposition. Surface water causes the sediment (and potentially pesticides and nutrients) to be transported into the riparian areas and water bodies downstream.

Before Situation:

Disturbed areas on all land uses that have excessive erosion lead to deterioration of receiving waters due to excessive sedimentation.

After Situation:

The typical sediment basin is constructed by excavating the pool area, constructing the auxiliary spillway, preparing the foundation as designed, and using 1500 cubic yards to create an embankment. The embankment will be designed and constructed according the Pond standard (378). The product of the storage times the effective height of the dam is less than 3,000. The effective height of the dam is 35 feet or less. The sediment storage capacity should be a minimum of 900 cubic feet per acre of disturbed area. The detention storage should be a minimum of 3600 cubic feet per acre of drainage area. The principal spillway is created using an approved conduit material and filter diaphragm. The earthen auxiliary spillway will be constructed as designed based on Pond standard (378).
Associated practice(s): Other practices that may need to be implemented along with sediment basin to address all of the site specific resource concerns include: Critical Area Planting (342), Stormwater Runoff Control (570) and Mulching (484) where necessary to prevent erosion following construction activities, Structure for Water Control (587) if using a dewatering device, and Pond Sealing or Lining (521A,521B,521C,521D).

Feature Measure: Embankment volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,500.0

Scenario Total Cost: $10,692.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 350 - Sediment Basin

Scenario: #18 - Volume, Excavated

Scenario Description:

An excavated sediment basin in an existing drainage way on a farm for purpose of trapping sediment and preserving the capacity of reservoirs, ditches, canals, diversions, waterways and streams and to prevent undesirable deposition on bottom lands and other developed lands. The sediment basin is created solely by excavation and impounds less than 3 feet against the embankment or spoil. Excavated material is spoiled, not placed in a designed embankment. Earthen spillway is constructed as needed. Resource concerns addressed include excessive suspended sediment and turbidity in surface water, damage from sediment deposition, and reduced capacity of conveyances by sediment deposition. Surface water causes the sediment (and potentially pesticides and nutrients) to be transported into the riparian areas and water bodies downstream.

Before Situation:

Disturbed areas on all land uses that have excessive erosion lead to deterioration of receiving waters due to excessive sedimentation.

After Situation:

'The typical sediment basin is constructed by excavating 1500 cubic yards and spreading the spoil outside the pool area using a dozer or similar excavation equipment. The sediment storage capacity should be a minimum of 900 cubic feet per acre of disturbed area. The detention storage should be a minimum of 3600 cubic feet per acre of drainage area. Associated practice(s): Other practices that may need to be implemented along with sediment basin to address all of the site specific resource concerns include: Critical Area Planting (342) and Mulching (484) where necessary to prevent erosion following construction activities, Structure for Water Control (587) if using a dewatering device, Pond Sealing or Lining (521A,521B,521C,521D).

Feature Measure: Excavated volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,500.0

Scenario Total Cost: $4,371.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 351 - Well Decommissioning

Scenario: #1 - Dug Well

Scenario Description:

A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water. Well will be cleared of all equipment and materials. Residual water column must be treated with chlorine concentration of >50 ppm or according to local, State, Tribal, or Federal regulations.

Before Situation:

Shallow well or hand dug well 36 inches in diameter and 20 feet deep that is not being used.

After Situation:

Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Place compacted earthfill in the well up to five feet from the surface. The top five feet of the well is filled with cement grout or bentonite. Associated practices: 342 Critical Area Seeding

Feature Measure: Each Well to be Decommissi

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,977.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,977.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 351 - Well Decommissioning

Scenario: #2 - Dug Well, Grout

Scenario Description:

A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water. Well will be cleared of all equipment and materials. Residual water column must be treated with chlorine concentration of >50 ppm or according to local, State, Tribal, or Federal regulations.

Before Situation:

A drilled or driven well with a 6" diameter casing and a depth of 150 feet that is not being used

After Situation:

Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Grout shall be pumped into the well starting at the bottom and working toward the top. Associated practices: 342 Critical Area Seeding

Feature Measure: Each Well to be Decommissi

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,791.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,791.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 351 - Well Decommissioning

Scenario: #11 - Drilled Well, Less Than or Equal to 300 Feet

Scenario Description:
A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water.

Before Situation:
Drilled well that is less than 300 feet deep. Assume 6" diameter casing.

After Situation:
Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Backfill shall be placed and compacted in a manner that minimizes segregation and bulking to prevent surface subsidence. Associated practices: 342 Critical Area Seeding

Feature Measure: Length of well casing

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $2,433.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 351 - Well Decommissioning

Scenario: #12 - Drilled Well, Greater Than 300 Feet

Scenario Description:
A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water.

Before Situation:
Drilled well that is greater than 300 feet deep. Assume 6" diameter casing.

After Situation:
Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Backfill shall be placed and compacted in a manner that minimizes segregation and bulking to prevent surface subsidence. Associated practices: 342 Critical Area Seeding

Feature Measure: Length of well casing

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $4,443.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 353 - Monitoring Well

Scenario: #6 - Borehole, Less Than or Equal to 200 Feet

Scenario Description:

A vertical borehole designed and installed 200 feet or less in depth to obtain representative groundwater quality samples and hydrogeologic information. The well provides controlled access for sampling groundwater near an agricultural waste storage or treatment facility to detect seepage and monitor groundwater quality. Installation methods must be in conformance with ASTM D5092. The resource concerns addressed include groundwater contamination and groundwater quality.

Before Situation:

This practice applies to the design, installation, and development of monitoring wells where contamination of groundwater from an agricultural waste storage or treatment facility is a concern, detection of seepage and monitoring of groundwater quality is

After Situation:

Typical installation of a vertical borehole for a monitoring well 100 feet deep that provides controlled access to obtain water samples for detecting seepage and monitoring of groundwater quality from an agricultural waste storage or treatment facility as a component of an agricultural waste management system. The monitoring well is installed by drilling an 8 inch borehole, installing a protective casing, a 2 inch riser pipe, a well screen, and filter pack. The installation method was in conformance with ASTM D5092. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Access Control (472), Water Well Decommissioning (351), Waste Storage Facility (313), Waste Treatment Lagoon (359), and Pumping Plant (533).

Feature Measure: Depth of Well

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $15,664.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $156.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 353 - Monitoring Well

Scenario: #7 - Borehole, Greater Than 200 Feet

Scenario Description:

A vertical borehole designed and installed greater than 200 feet deep to obtain representative groundwater quality samples and hydrogeologic information. The well provides controlled access for sampling groundwater near an agricultural waste storage or treatment facility to detect seepage and monitor groundwater quality. Installation methods must be in conformance with ASTM D5092. The resource concerns addressed include groundwater contamination and groundwater quality.

Before Situation:

This practice applies to the design, installation, and development of monitoring wells where contamination of groundwater from an agricultural waste storage or treatment facility is a concern, detection of seepage and monitoring of groundwater quality is

After Situation:

Typical installation of a vertical borehole for a monitoring well 300 feet deep that provides controlled access to obtain water samples for detecting seepage and monitoring of groundwater quality from an agricultural waste storage or treatment facility as a component of an agricultural waste management system. The monitoring well is installed by drilling an 8 inch borehole, installing a protective casing, a 2 inch monitoring-riser pipe, a well screen, and filter pack. The installation method was in conformance with ASTM D5092. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Access Control (472), Water Well Decommissioning (351), Waste Storage Facility (313), Waste Treatment Lagoon (359), and Pumping Plant (533).

Feature Measure: Depth of Well

Scenario Unit: Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $46,672.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $155.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 355 - Groundwater Testing

Scenario: #1 - Basic

Scenario Description:
Typical scenario includes the professional testing for nitrates, nitrites, and coliform to confirm well water meets basic water quality standards for consumption by livestock or use in irrigation. Water samples are sent to an EPA or state certified laboratory for testing. This scenario is recommended when water quality is suspected to be acceptable.

Before Situation:
There are no known contaminants of the well, however, neighboring wells have known issues with nitrates, or coliform, and confirmation of acceptable water quality is desired. Manure is spread near to the well, following a nutrient management plan; well co

After Situation:
Water quality results are known.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $72.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $72.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 355 - Groundwater Testing

Scenario: #2 - Specialty

Scenario Description:

Typical scenario includes the professional testing for pesticides, heavy metals, VOC's or other less common substances, in addition to the basic water test items. Tests are intended to confirm well water meets water quality standards for consumption by livestock or use in irrigation. Water samples are sent to an EPA or state certified laboratory for testing. This scenario is recommended when water quality is suspected to be degraded due to a specialized substance.

Before Situation:

There are no known contaminants of the well, however, neighboring wells have known issues with water quality, and confirmation of acceptable water quality is desired. Manure, pesticides, or other potential contaminants have been spread near to the well, i

After Situation:

Water quality results are known.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $351.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $351.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 355 - Groundwater Testing

Scenario: #3 - Full Spectrum

Scenario Description:

Typical scenario includes the professional comprehensive testing for all less common substances, to include: pesticides, heavy metals, VOC's or other less common substances, in addition to the basic water test items. Tests are intended to confirm well water meets water quality standards for consumption by livestock or use in irrigation. Water samples are sent to an EPA or state certified laboratory for testing. This scenario is recommended when water quality is known to be degraded due to a specialized substance but thorough analysis is warranted.

Before Situation:

There are no known contaminants of the well, however, neighboring wells have known issues with water quality, and confirmation of acceptable water quality is desired. Manure, pesticides, sewage sludge, or other potential contaminants have been spread near

After Situation:

Water quality results are known.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $377.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $377.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 356 - Dike and Levee

Scenario: #1 - Material Haul, Less Than or Equal to One Mile

Scenario Description:

Construction of a barrier, constructed of an earthen embankment, to control water level. Embankment structure to provide adequate freeboard, allowance for settlement, and foundation and embankment stability. Material haul < 1 mile. Associated practices include, but are not limited to: PS327 Conservation Cover, PS656 Constructed Wetland, PS342 Critical Area Planting, PS378 Ponds, PS382 Fence, PS464 Irrigation Land Levelling, PS500 Obstruction Removal, PS528 Prescribed Grazing, PS587 Structure for Water Control, PS620 Underground Outlet, PS645 Upland Wildlife Management, PS658 Wetland Creation, PS659 Wetland Enhancement, PS657 Wetland Restoration, PS644 Wetland Wildlife Habitat Management.

Before Situation:

Site is subject to flooding or inundation which poses a potential hazard to public safety, damage to land or property. Site may also require control of water level for purposes connected with crop production; fish and wildlife management; or wetland maint

After Situation:

Water level controlled by a stable earthen structure. Potential hazard to public safety, land or property mitigated; environmental benefit provided.

Feature Measure: Volume of Earthfill (includi

Scenario Unit: Cubic Yard

Scenario Typical Size: 4,500.0

Scenario Total Cost: $35,910.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 356 - Dike and Levee

Scenario: #2 - Material Haul, Greater Than One Mile

Scenario Description:

Construction of a barrier, constructed of an earthen embankment, to control water level. Embankment structure to provide adequate freeboard, allowance for settlement, and foundation and embankment stability. Material haul > 1 mile. Associated practices include, but are not limited to: PS327 Conservation Cover, PS656 Constructed Wetland, PS342 Critical Area Planting, PS378 Ponds, PS382 Fence, PS464 Irrigation Land Levelling, PS500 Obstruction Removal, PS528 Prescribed Grazing, PS587 Structure for Water Control, PS620 Underground Outlet, PS645 Upland Wildlife Management, PS658 Wetland Creation, PS659 Wetland Enhancement, PS657 Wetland Restoration, PS644 Wetland Wildlife Habitat Management.

Before Situation:

Site is subject to flooding or inundation which poses a potential hazard to public safety, damage to land or property. Site may also require control of water level for purposes connected with crop production; fish and wildlife management; or wetland maint

After Situation:

Water level controlled by a stable earthen structure. Potential hazard to public safety, land or property mitigated; environmental benefit provided.

Feature Measure: Volume of Earthfill (includin

Scenario Unit: Cubic Yard

Scenario Typical Size: 4,500.0

Scenario Total Cost: $39,931.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 356 - Dike and Levee

Scenario: #3 - Cranberry Mineral Soils

Scenario Description:

Construction of a barrier, constructed of an earthen embankment, to control water level. Embankment structure to provide adequate freeboard, allowance for settlement, and foundation and embankment stability. Typical earthen dike assumed 500 lineal feet, Class IV (5 ft. in height, 6 ft. top width, 1.5H:1V side slopes) for 2.5CY/LF of dike. Material haul > 1 mile. Associated practices include, but are not limited to: PS342 Critical Area Planting, PS466 Land Smoothing, PS587 Structure for Water Control.

Before Situation:

Site requires control of water level for purposes connected with crop production; fish and wildlife management; or wetland maintenance, improvement, restoration, or construction. An adequate quantity of soil suitable for constructing an earthen dike is av

After Situation:

Water level controlled by a stable earthen structure. Water can be impounded temporarily for harvesting, trash removal, pest control, and winter flooding.

Feature Measure: Volume of Earthfill (includin

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,250.0

Scenario Total Cost: $9,552.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 356 - Dike and Levee

Scenario: #4 - Cranberry Organic Soils

Scenario Description:

Construction of a barrier, constructed of an earthen embankment, to control water level. Embankment structure to provide adequate freeboard, allowance for settlement, and foundation and embankment stability. Successive application of fill required for stability on organic soils. Typical earthen dike assumed 500 lineal feet, Class IV (5 ft. in height, 6 ft. top width, 1.5H:1V side slopes) including 2ft over excavation and fill of organic material for about 4.3CY/LF. Material haul > 1 mile. Associated practices include, but are not limited to: PS342 Critical Area Planting, PS466 Land Smoothing, PS587 Structure for Water Control.

Before Situation:

Site requires control of water level for purposes connected with crop production; fish and wildlife management; or wetland maintenance, improvement, restoration, or construction. An adequate quantity of soil suitable for constructing an earthen dike is av

After Situation:

Water level controlled by a stable earthen structure. Water can be impounded temporarily for harvesting, trash removal, pest control, and winter flooding.

Feature Measure: Volume of Earthfill (includin

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,150.0

Scenario Total Cost: $20,385.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 359 - Waste Treatment Lagoon

Scenario: #7 - Waste Treatment Lagoon

Scenario Description:

A waste treatment lagoon is a component of a waste management system that provides biological treatment of manure and other byproducts of animal agricultural operations by reducing the pollution potential. Resource concern addressed is water quality by reducing the pollution potential to surface and groundwater by treating and storing liquid waste. Earthen lagoon liners are addressed with another standard. This scenario intended for embankment or excavated lagoon. Potential Associated Practices: Pond Sealing or Lining, Compacted Soil (520), Pond Sealing or Lining, Concrete (522), Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner (521), Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), and Waste Separation Facility (632).

Before Situation:

Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled

After Situation:

A waste treatment lagoon constructed from on-site material provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing and treating waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Excavated material used to build an embankment around the lagoon so this is a combination excavated/embankment design. Typical design size : Design Volume 492,129 cf = 18,227 cy; 260' X 208' (top); 3:1 inside and outside side slopes; cut/fill ratio = 1.25; total depth = 13' which includes 1' freeboard Feature Measure = Design Volume [Operational Volume + emergency volume + freeboard]

Feature Measure: Design Volume (Operational

Scenario Unit: Cubic Foot

Scenario Typical Size: 492,129.0

Scenario Total Cost: $109,006.90

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 360 - Waste Facility Closure

Scenario: #3 - Decommission, Concrete Storage

Scenario Description:

This practice scenario includes the demolition of an existing concrete waste storage structure. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens in ground and/or surface waters and air quality impacts from greenhouse gases, particulate matter and associated precursors, and objectionable odors. Associated practices: Nutrient Management (590), Critical Area Planting (342)

Before Situation:

An existing concrete waste storage structure is no longer functioning correctly or is not being used for its intended purpose. It poses a safety hazard for humans and livestock and is a threat to environmentally sustainability by the potential for impacts

After Situation:

This scenario assumes a concrete waste storage structure, with dimensions of 60 ft x 60 ft with 10 ft vertical walls. The walls are 8 inches thick, the concrete floor is 5 inches thick and the footing for the wall is 24 inches wide by 12 inches deep. The "strike full" capacity of the structure equals 36,000 cubic feet. The total volume of concrete to be demolished is: Walls = 60' x 4 sides x 10' x 8"/12 / 27 = 59 CY Footer = 60' x 4 sides x 2' x 1' / 27 = 18 CY Slab = 60'x60'x5"/12 / 27 = 56 CY Total = 133 CY The volume of waste to be removed approximately equals 50% of the structural volume (50% x 36,000 x 7.48 Gal/CF = 134,640 Gal). The volume of earthwork (earthfill and/or excavation, final grading) required is approximately 50% of the structural volume(50% x 36,000 / 27 = 670 CY. The concrete will be demolished and hauled off-site for recycling or disposal. Structural removal, as necessary, may include the sealing or removal and disposal of waste transfer components and other appurtenances associated with closure of the facility. Demolition of a concrete waste storage structure includes agitating, removing, and spreading the waste remaining in the structure. All waste material shall be land applied in accordance with Nutrient Management (590). Excavated areas will be filled in. The disturbed areas shall be vegetated in accordance with Critical Area Planting (342). Demolition of the concrete waste structure will address water quality degradation, air quality impacts and safety hazards by removing and properly utilizing the waste from the impoundment. The site will also become available for another use.

Feature Measure: Strike Full Capacity of Struct

Scenario Unit: Cubic Foot

Scenario Typical Size: 36,000.0

Scenario Total Cost: $14,166.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 360 - Waste Facility Closure

Scenario: #4 - Decommission, 25 Percent Solids

Scenario Description:

This practice scenario includes the decommissioning of an earthen liquid waste impoundment (embankment or excavated type) where the estimated volume of waste to be removed is approximately 75% liquid/slurry waste and 25% sludge/solid waste of the structural storage capacity of the structure. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens in ground and/or surface waters and air quality impacts from greenhouse gases, particulate matter and associated precursors, and objectionable odors. Associated practices: Nutrient Management (590), Critical Area Planting (342)

Before Situation:

An existing lagoon or waste storage pond is no longer functioning correctly or is not being used for its intended purpose. It poses a safety hazard for humans and livestock and is a threat to environmental sustainability by the potential for impacts to wa

After Situation:

This scenario assumes a waste storage pond, with top dimensions of 110 ft x 110 ft, 8 ft total depth with 2:1 side slopes. The total structural storage volume equals 63,851 cubic feet. The volume of liquid waste to be pumped approximately equals 75% if the structural volume (75% X 63,851 CF = 47,888 CF). The volume of solid waste to be removed approximately equals 25% of the structural volume (25% X 63,851 = 15,963 CF). The volume of earthwork (earthfill and excavation) required to breach the embankment and/or fill in the impoundment and perform final grading of the site is approximately 50% of the structural volume. The volume of earthwork will include 60% as excavation and 40% as compacted earthfill. Structural removal, as necessary, may include the removal and disposal of the synthetic liner, sealing or removal and disposal of waste transfer components and other appurtenances associated with closure of the facility. Decommissioning of a liquid waste storage impoundment includes agitating, removing, and spreading liquid/slurry waste material, removing solid/sludge waste remaining in the bottom. All waste material shall be land applied in accordance with Nutrient Management (590). If present, the synthetic liner will be removed and properly disposed of. All inflow devices and associated appurtenances will be removed and properly disposed of. The embankment will be breached and the excavation filled in with the embankment material or hauled in earthfill. The disturbed areas shall be vegetated in accordance with Critical Area Planting (342). Closure of the waste impoundment will address water quality degradation, air quality impacts and safety hazards by removing and properly utilizing the waste from the impoundment. The site will also become available for another use.

Feature Measure: Cubic feet of structural stor

Scenario Unit: Cubic Foot

Scenario Typical Size: 63,851.0

Scenario Total Cost: $20,130.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 360 - Waste Facility Closure

Scenario: #10 - Convert to Freshwater, 75 Percent Solids

Scenario Description:

This practice scenario includes the conversion of an earthen liquid waste impoundment (embankment or excavated type) to fresh water storage where the estimated volume of waste to be removed is approximately 25% liquid/slurry waste and 75% sludge/solid waste of the structural storage capacity of the structure. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens in ground and/or surface waters and air quality impacts from greenhouse gases, particulate matter and associated precursors, and objectionable odors. Associated practices: Nutrient Management (590), Critical Area Planting (342)

Before Situation:

An existing lagoon or waste storage pond is no longer functioning correctly or is not being used for its intended purpose. It poses a safety hazard for humans and livestock and is a threat to environmental sustainability by the potential for impacts to wa

After Situation:

This scenario assumes a waste storage pond, with top dimensions of 110 ft x 110 ft, 8 ft total depth with 2:1 side slopes. The total structural storage volume equals 63,851 cubic feet. The volume of liquid waste to be pumped approximately equals 25% of the structural volume (25% X 63,851 CF = 15,963 CF). The volume of solid waste to be removed approximately equals 75% of the structural volume (75% X 63,851 = 47,888 CF). The volume of earthwork (earthfill and/or excavation) required to meet current NRCS standards and perform final grading and shaping of the site is approximately 5% of the structural volume. Structural removal, as necessary, may include the sealing or removal and disposal of waste transfer components and other appurtenances associated with closure of the facility. Conversion of a liquid waste storage impoundment for fresh water storage includes agitating, removing, and spreading liquid/slurry waste material, removing solid/sludge waste remaining in the bottom. All waste material shall be land applied in accordance with Nutrient Management (590). All inflow devices and associated appurtenances will be removed and properly disposed of. The embankment will be brought up to current NRCS standards for its intended purpose. The disturbed areas shall be vegetated in accordance with Critical Area Planting (342). Conversion to fresh water storage will address water quality degradation, air quality impacts and safety hazards by removing and properly utilizing the waste from the impoundment.

Feature Measure: Cubic feet of structural stor

Scenario Unit: Cubic Foot

Scenario Typical Size: 63,851.0

Scenario Total Cost: $21,670.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 360 - Waste Facility Closure

Scenario: #11 - Convert to Freshwater, 100 Percent Solids

Scenario Description:

This practice scenario includes the conversion of an earthen liquid waste impoundment (embankment or excavated type) to fresh water storage where the estimated volume of waste to be removed is approximately 0% liquid/slurry waste and 100% sludge/solid waste of the structural storage capacity of the structure. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens in ground and/or surface waters and air quality impacts from greenhouse gases, particulate matter and associated precursors, and objectionable odors. Associated practices: Nutrient Management (590), Critical Area Planting (342)

Before Situation:

An existing lagoon or waste storage pond is no longer functioning correctly or is not being used for its intended purpose. It poses a safety hazard for humans and livestock and is a threat to environmental sustainability by the potential for impacts to wa

After Situation:

This scenario assumes a waste storage pond, with top dimensions of 110 ft x 110 ft, 8 ft total depth with 2:1 side slopes. The total structural storage volume equals 63,851 cubic feet. The volume of liquid waste to be pumped approximately equals 0% of the structural volume. The volume of solid waste to be removed approximately equals 100% of the structural volume (47,888 CF). The volume of earthwork (earthfill and/or excavation) required to meet current NRCS standards and perform final grading and shaping of the site is approximately 5% of the structural volume. Structural removal, as necessary, may include the sealing or removal and disposal of waste transfer components and other appurtenances associated with closure of the facility. Conversion of a liquid waste storage impoundment for fresh water storage includes agitating, removing, and spreading liquid/slurry waste material, removing solid/sludge waste remaining in the bottom. All waste material shall be land applied in accordance with Nutrient Management (590). All inflow devices and associated appurtenances will be removed and properly disposed of. The embankment will be brought up to current NRCS standards for its intended purpose. The disturbed areas shall be vegetated in accordance with Critical Area Planting (342). Conversion to fresh water storage will address water quality degradation, air quality impacts and safety hazards by removing and properly utilizing the waste from the impoundment.

Feature Measure: Cubic feet of structural stor

Scenario Unit: Cubic Foot

Scenario Typical Size: 63,851.0

Scenario Total Cost: $23,443.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 360 - Waste Facility Closure

Scenario: #22 - Decommission, 50 Percent Solids

Scenario Description:

This practice scenario includes the decommissioning of an earthen liquid waste impoundment (embankment or excavated type) where the estimated volume of waste to be removed is approximately 50% liquid/slurry waste and 50% sludge/solid waste of the structural storage capacity of the structure. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens in ground and/or surface waters and air quality impacts from greenhouse gases, particulate matter and associated precursors, and objectionable odors. Associated practices: Nutrient Management (590), Critical Area Planting (342)

Before Situation:

An existing lagoon or waste storage pond is no longer functioning correctly or is not being used for its intended purpose. It poses a safety hazard for humans and livestock and is a threat to environmental sustainability by the potential for impacts to wa

After Situation:

This scenario assumes a waste storage pond, with top dimensions of 100 ft x 110 ft, 8 ft total depth with 2:1 side slopes. The total structural storage volume equals 63,851 cubic feet. The volume of liquid waste to be pumped approximately equals 50% if the structural volume (50% X 63,851 CF = 31,925 CF). The volume of solid waste to be removed approximately equals 50% of the structural volume (50% X 63,851 = 31,925 CF). The volume of earthwork (earthfill and excavation) required to breach the embankment and/or fill in the impoundment and perform final grading of the site is approximately 50% of the structural volume. The volume of earthwork will include 60% as excavation and 40% as compacted earthfill. Structural removal, as necessary, may include the removal and disposal of the synthetic liner, sealing or removal and disposal of waste transfer components and other appurtenances associated with closure of the facility. Decommissioning of a liquid waste storage impoundment includes agitating, removing, and spreading liquid/slurry waste material, removing solid/sludge waste remaining in the bottom. All waste material shall be land applied in accordance with Nutrient Management (590). If present, the synthetic liner will be removed and properly disposed of. All inflow devices and associated appurtenances will be removed and properly disposed of. The embankment will be breached and the excavation filled in with the embankment material or hauled in earthfill. The disturbed areas shall be vegetated in accordance with Critical Area Planting (342). Closure of the waste impoundment will address water quality degradation, air quality impacts and safety hazards by removing and properly utilizing the waste from the impoundment. The site will also become available for another use.

Feature Measure: Cubic feet of structural stor

Scenario Unit: Cubic Foot

Scenario Typical Size: 63,851.0

Scenario Total Cost: $22,741.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 362 - Diversion

Scenario: #1 - Diversion, Seed and Mulch

Scenario Description:

An earthen channel constructed across long slopes with supporting ridge on lower side, to divert runoff away from farmsteads, agricultural waste systems, gullies, critical erosion areas, construction areas or other sensitive areas. Outlet may be waterway, underground outlet. or other suitable outlet. Typical diversion is 400 feet long, 15' wide with 10-15' wide berm, installed on a field slope of 1 percent and requires ~1 CY excavation & compaction per LF. Topsoil is stripped, stockpiled and respread. Channel my be level or gradient and ridge is vegetated. The quantity of excavation and fill is balanced. Seed, mulch, and lime applied to establish grass cover.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Diversion is 400 feet long installed using a dozer. Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Underground Outlet (620), Mulching (484), and Subsurface Drainage (606).

Feature Measure: Length of Diversion

Scenario Unit: Foot

Scenario Typical Size: 400.0

Scenario Total Cost: $5,143.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 362 - Diversion

Scenario: #12 - Diversion

Scenario Description:

An earthen channel constructed across long slopes with supporting ridge on lower side, to divert runoff away from farmsteads, agricultural waste systems, gullies, critical erosion areas, construction areas or other sensitive areas. Outlet may be waterway, underground outlet. or other suitable outlet. Typical diversion is, 1000 feet long installed on a field slope of 5 percent and requires 1 CY excavation per LF. Channel my be level or gradient and ridge may be vegetated or farmed. The quantity of excavation and fill is balanced.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Diversion is 1000 feet long installed using a dozer. Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Underground Outlet (620), Mulching (484), and Subsurface Drainage (606).

Feature Measure: Length of Diversion

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $3,628.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 366 - Anaerobic Digester

Scenario: #7 - Covered Lagoon or Holding Pond

Scenario Description:

A covered lagoon can be part of a waste management system. It provides biological treatment of the waste in the absence of oxygen. This process for manure and other byproducts of animal agricultural operations will manage odors, reduce the net effect of greenhouse gas emissions, and/or reduce pathogens. This scenario is for all livestock operation sizes. The waste holding/treatment area is covered by waste treatment lagoon (359) or waste storage facility (313) and the cover is addressed under roofs and covers (367). Selection of digester type will be based on effluent consistency. Costs for this scenario are only for system controls, gas collection, and flaring system. Energy generation is not included with this scenario. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Solid/Liquid Waste Separation Facility (632), Waste Treatment Lagoon (359), and Waste Storage Facility (313).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed of. This

After Situation:

Manure and other agricultural by-products are being treated such that odors are managed and/or pathogens are reduced. Effluent from the digester is disposed of or utilized in a proper manner in accordance with a nutrient management plan. A covered lagoon/holding pond typically has a flexible top installed over an earthen storage/treatment facility for the purpose of capturing the biogas. Typical Design Scenario: 1,000 animal units (715 - 1,400 lbs. dairy cows).

Feature Measure: Animals Units Contributing t

Scenario Unit: Animal Unit

Scenario Typical Size: 1,000.0

Scenario Total Cost: $486,466.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $486.47

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 366 - Anaerobic Digester

Scenario: #19 - Anaerobic Digester

Scenario Description:

An anaerobic digester can be part of a waste management system. It provides biological treatment of the waste in the absence of oxygen. This process for manure and other by-products of animal agricultural operations will manage odors, reduce the net effect of greenhouse gas emissions, and/or reduce pathogens. This scenario is for a generic anaerobic digester. Energy generation is not included with this scenario. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Roof and Covers (367), Waste Separation Facility (632), Waste Treatment Lagoon (359), and Waste Storage Facility (313).

Before Situation:

Manure and other agricultural by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed. This sit

After Situation:

Manure and other agricultural by-products are being treated such that odors are managed and/or pathogens are reduced. Effluent from the digester is disposed of or utilized in a proper manner in accordance with a nutrient management plan. The typical scenario also includes items necessary to maintain mesophylic or thermophilic temperatures for bacterial activity (i.e. piping and boiler or other heat source). Typical Design Scenario is each.

Feature Measure: Each

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,969,178.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,969,178.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #1 - Fabric Roof, Timber Foundation

Scenario Description:

104' x 42' hoop structure (4368 SF) with fabric cover with steel trusses and supporting foundation. Steel trusses are supported in 10"x10" PT Timber Posts embedded in the ground 6' and extending 8' above the ground. Posts are placed on 18" footings and are encased in concrete. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot) or other appropriate application will improve an existing or planned system. Excess precipitation can cause manure la

After Situation:

Hoop structure with fabric cover with steel trusses and supporting timber foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet. Roof or cover is typically installed over an approved barnyard or feedlot or other practices an approved component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 4,368.0

Scenario Total Cost: $84,843.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $19.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #2 - Fabric Roof, Concrete Foundation

Scenario Description:

104' x 42' hoop structure (4368 SF) with fabric cover with steel trusses and supporting concrete foundation. Concrete foundation is required due to shallow bedrock conditions and lack of proper embedment depth for timber posts. Steel truss is attached directly to top of concrete wall. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot) or other appropriate application will improve an existing or planned system. Excess precipitation can cause manure la

After Situation:

Hoop structure with fabric cover with steel trusses and supporting timber/concrete foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet. Roof or cover is typically installed over an approved barnyard or feedlot or other practices an approved component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 4,368.0

Scenario Total Cost: $93,475.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $21.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #3 - Fabric Roof, No Foundation

Scenario Description:

104' x 42' hoop structure (4368 SF) with fabric cover with steel trusses. Roof is designed to be mounted directly on top of another practice, such as a WSF, which has been properly designed to support the roof. Steel trusses typically mounted on top of a concrete wall which has been properly design to support this additional load. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot) or other appropriate application will improve an existing or planned system. Excess precipitation can cause manure la

After Situation:

Hoop structure with fabric cover with steel trusses and supporting timber/concrete foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet. Roof or cover is typically installed over an approved barnyard or feedlot or other practices an approved component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 4,368.0

Scenario Total Cost: $58,497.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #4 - Timber Framed Roof, Timber Foundation

Scenario Description:

40' x 64' timber framed building (2560 SF) with timber trusses. 8" x 10" posts are embedded 6' in ground with concrete footing/collar. Bottom chord of truss is 12' off the ground. Scenario is based upon Vermont NRCS Drawing VT124060B-C. Snow Load = 60 pdf and Wind Load = 90 mph. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot) or other appropriate application will improve an existing or planned system and is the least cost alternative. Excess

After Situation:

The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 2,560.0

Scenario Total Cost: $56,821.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #5 - Timber Framed Roof, Concrete Foundation

Scenario Description:

40' x 80' timber framed building (3,200 SF) with timber trusses and supporting concrete foundation. Concrete foundation is required due shallow bedrock conditions and lack of embedment depth for timber post. 6" x 8" PT posts are mounted on top of 4' concrete knee wall. Knee wall foundation is pinned into bedrock. Bottom chord of truss is 14' off the ground. Scenario is based upon Vermont NRCS Drawing VT084060B-CW. Snow Load = 60 pdf and Wind Load = 90 mph. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot) or other appropriate application will improve an existing or planned system and is the least cost alternative. Excess

After Situation:

The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 3,200.0

Scenario Total Cost: $86,519.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $27.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #6 - Timber Framed Roof, No Foundation

Scenario Description:

40' x 80' timber framed building with timber trusses. Roof is designed to be mounted on top of another practice, such as a WSF, which as been designed to support the roof. 6" x 8" PT posts are typically mounted on top of a concrete wall which has been properly design to support this additional load. Bottom chord of truss is 14' off the ground. Scenario is based upon Vermont NRCS Drawing VT084060B-CW. Snow Load = 60 pdf and Wind Load = 90 mph. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot) or other appropriate application will improve an existing or planned system and is the least cost alternative. Excess

After Situation:

The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 3,200.0

Scenario Total Cost: $62,488.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $19.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #7 - Timber Frame Roof with No Foundation, Less Than 1,000 Square Feet

Scenario Description:

Scenario is intended for small timber monoslope roofs which are typically less than 1000 SF in size. Typical size is 26' x 9' (overhang not included) timber framed building with rafters and no sides. Roof is designed to be mounted on top of another practice, such as a compost bin, SPCC facility, etc. which has been designed to support the roof. 6" x 8" PT posts are typically mounted on top of a concrete wall which has been properly design to support this additional load. Roof is typically 8' to 10' off the ground. Scenario is based upon Massachusetts Compost Bin Detail. Snow Load = 60 pdf and Wind Load = 90 mph. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot) or other appropriate application will improve an existing or planned system and is the least cost alternative. Excess

After Situation:

The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 234.0

Scenario Total Cost: $4,750.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #8 - Steel Frame and Cover, Concrete Foundation

Scenario Description:

A steel framed building with steel "sheet" roof and supporting foundation. Manure is stored as a liquid in basins, tanks, and as a solid on concrete and earthen surfaces. Excess precipitation can cause premature filling of storages or cause nutrients to leach from solid manure piles leading to uncontrolled runoff as well as odor issues. Associated practices include Heavy Use Area Protection (561), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage and/or treatment facility will improve of an existing or planned system. Manure is stored as a liquid in basins, tanks, and as a solid on concrete and earthen surfaces. Excess pr

After Situation:

A steel framed building with steel "sheet" roof and supporting foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet and is over an approved barnyard or feedlot as a component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of building

Scenario Unit: Square Foot

Scenario Typical Size: 4,368.0

Scenario Total Cost: $164,481.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $37.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #10 - Pump Building with No Foundation, Less Than or Equal to 500 Square Feet

Scenario Description:

12' x 18' insulated timber framed pump or hopper building (216 SF). Building is designed to be constructed over a manure pump or a gravity manure hopper to protect practice from freezing and rain. Building is generally constructed with 2" x 6" studded walls with 2" x 8" roof rafters. Building is typically covered with 1/2" plywood sheeting. Roof is finished with asphalt shingles. Building usually includes a door, window and small exhaust fan. Building is constructed on an existing concrete structure which was installed under Pumping Plant (533) or Waste Transfer (634). Associated practices include Pumping Plant (533), Waste Transfer (634), Heavy Use Area Protection (561), Waste Storage Facility (313), Roof Runoff Structure (558), and other practices requiring a roof.

Before Situation:

Applicable in cold/humid climates where elements could damage or hinder performance of a pumping plant or waste transfer system. Consequences can be pollution of ground and surface water resources and improper collection of nutrient resources which will n

After Situation:

The system is designed to protect a pumping plant or waste transfer system from rain and cold weather and allow proper management of animal wastes, thus mitigating the negative factors from the "before practice implementation".

Feature Measure: Footprint of the building

Scenario Unit: Square Foot

Scenario Typical Size: 216.0

Scenario Total Cost: $5,278.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #20 - Flexible Membrane Cover

Scenario Description:

A fabricated rigid, semi-rigid, composite, or flexible membrane over a waste storage or treatment facility. The membrane will cover the entire surface of a waste storage or treatment facility (e.g. waste treatment lagoon or anaerobic digester). Cover will reduce the transmission of emissions or odors. Cover may exclude precipitation and/or capture biogas for controlled release for flaring or anaerobic digestion. Cover may be organic or inorganic. This scenario applies to either a permeable organic or inorganic cover/flexible membrane applied for odor control, rainfall exclusion or capture of biogas. Associated practices include Waste Storage Facility (313), Waste Treatment Lagoon (359), Anaerobic Digester (366), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), Pumping Plant (533), and Waste Treatment (629).

Before Situation:

Applicable where the covering of an animal waste storage or treatment lagoon will improve management of an existing or planned agricultural waste management system by reducing the transmission of odors or by excluding precipitation.

After Situation:

A fabricated rigid, semi-rigid, composite, or flexible membrane over a waste storage or treatment facility. The membrane will cover the entire surface of a waste storage or treatment facility (e.g. waste treatment lagoon or anaerobic digester). Flexible cover will reduce the transmission of odors or will excluded precipitation from the animal waste storage or treatment lagoon.

Feature Measure: Surface of Membrane

Scenario Unit: Square Foot

Scenario Typical Size: 10,000.0

Scenario Total Cost: $19,136.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 367 - Roofs and Covers

Scenario: #21 - Flexible Membrane Cover, Flare

Scenario Description:

A fabricated flexible membrane over a waste storage or treatment facility. The membrane will cover the entire surface of a waste storage or treatment facility (e.g. waste treatment lagoon or anaerobic digester). Cover will exclude precipitation and/or capture biogas for controlled release for flaring or anaerobic digestion. This scenario includes the gas collection and flare system to convert methane to carbon dioxide. Associated practices include Waste Storage Facility (313), Waste Treatment Lagoon (359), Anaerobic Digester (366), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), Pumping Plant (533), and Waste Treatment (629).

Before Situation:

Applicable where the exclusion of precipitation from an animal waste storage or treatment lagoon will improve the management of an existing or planned system, capture and controlled release or flaring of emissions from an existing or planned animal waste

After Situation:

A fabricated flexible membrane over a 200 ft x 300 ft waste storage pond. The membrane will cover the entire surface of a waste storage or treatment facility (e.g. waste storage pond, waste treatment lagoon or anaerobic digester). A flare is included to burn off the captured emitted methane. Methane collection system under the cover is installed on a per acre rate basis. Precipitation is excluded from the animal waste storage or treatment facility and air quality is improved with the conversion of methane to carbon dioxide.

Feature Measure: Surface of Membrane

Scenario Unit: Square Foot

Scenario Typical Size: 60,000.0

Scenario Total Cost: $712,542.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #13 - Burial

Scenario Description:

This scenario consists of the on-site burial of animal mortalities resulting from catastrophic events not related to disease. An earthen pit is excavated to contain the mortalities, and earth cover is placed over the mortalities to provide protection from predators to minimize pathogen survival or spreading. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), and Diversion (362).

Before Situation:

Animal mortality disposal is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens

After Situation:

Catastrophic Animal mortalities resulting from causes not related to disease are being disposed in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, and protection from predators to minimize pathogen survival or spreading. An overall plan covers the burial of animals as a result of catastrophic mortality events. This typical scenario was developed based on the disposal of 25 head of mature cattle located near the area where the cattle have been found. The scenario includes equipment time and labor to recover and transport carcasses to the burial location. The scenario also includes a burial trench 4' deep plus 3' additional cover over carcasses. Construct a 6' x 60' (surface dimensions) burial site with appropriate cover. Site can handle mortality for 25 mature beef cattle. On site soils can be re-compacted to meet required imperviousness. Include 3' overfill or mounding excavated material to provide for settlement of the burial site and divert or minimize offsite runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area.

Feature Measure: Number of 1000 lbs. Animal

Scenario Unit: Animal Unit

Scenario Typical Size: 25.0

Scenario Total Cost: $4,130.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $165.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #14 - Composting, In-House

Scenario Description:

This scenario consists the emergency disposal of poultry mortality by composting in a static windrow. The cause of mortality is an event not related to disease. Additional carbon based bulking material is added to facilitate aeration and provide a proper C:N ratio. The windrow is turned at least once to go into another heat cycle prior to land application. Access is infrequent. This option may not be desirable for sites with limited area, karst topography, and not isolated from of public view. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Diversion (362).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. The typical scenario number of birds to be disposed of is 20,000, 4 pound birds which can be composted in-house. Composting requires 1.5 pounds of carbon per pound of bird. There is 0.5 pounds of litter per bird already on site. Wood chips (45 pcf) will be used as the additional carbon source. The composting windrow construction operation consists of 2 pieces of equipment and 2 add'l laborers: 1) stockpiling birds and litter in center of house; 2) construct 2 windrow bases using carbon material; 3) place carcass/litter mix on bases; 4) cover with carbon material; 5) cap windrows with any remaining litter; 6) after first heat cycle remove windrow from house and reconstruct outside house for finishing. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area.

Feature Measure: Number of 1000 lbs. Animal

Scenario Unit: Animal Unit

Scenario Typical Size: 80.0

Scenario Total Cost: $9,669.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $120.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #55 - Composting, Outside Windrow

Scenario Description:

This scenario consists the emergency disposal of a large number of livestock mortality by composting in a static windrow. The cause of mortality is an event not related to disease. Additional carbon based bulking material is added to facilitate aeration and provide a proper C:N ratio. The windrow is turned at least once to go into another heat cycle prior to land application. Access is infrequent. This option may not be desirable for sites with limited area, karst topography, and not isolated from of public view. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Diversion (362).

Before Situation:

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from inco

After Situation:

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. This typical scenario was developed based on the composting of 20 head of cattle averaging 1000 pound each which are moved to a location on-site that is suitable for composting. The scenario includes equipment time and labor to recover and transport carcasses to the composting location and the building an turning of the pile at the appropriate time. Composting requires 1.5 pounds of carbon per pound of animal. A small volume of green manure or waste feed is available on site. Wood chips (45 pcf) will be used as the carbon source. The composting windrow construction operation consists of 2 pieces of equipment and 1 add'l laborer: 1) collecting and transporting carcasses to compost site; 2) constructing compost windrow base using carbon material; 3) place carcasses 4) cover carcasses with green manure/waste feed; 4) cover with carbon material; 5) cap windrow with any remaining manure/feed; 6) after first heat cycle turn the windrow over and reconstruct for finishing. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area.

Feature Measure: Number of 1000 lbs. Animal

Scenario Unit: Animal Unit

Scenario Typical Size: 20.0

Scenario Total Cost: $21,559.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,077.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #56 - Burial, Goat or Sheep

Scenario Description:

This scenario consists of the on-site burial of goat, sheep or other similarly sized animal mortalities on a small size operation resulting from catastrophic events not related to disease. An earthen pit is excavated to contain the mortalities, and earth cover is placed over the mortalities to provide protection from predators to minimize pathogen survival or spreading. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), and Diversion (362).

Before Situation:

Animal mortality disposal is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens

After Situation:

Catastrophic Animal mortalities resulting from causes not related to disease are being disposed in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, and protection from predators to minimize pathogen survival or spreading. An overall plan covers the burial of animals as a result of catastrophic mortality events. This typical scenario was developed based on the burial of 10 head of 100 pound average weight goats. The scenario includes equipment time and labor to recover and transport carcasses to the burial location. The scenario also includes a burial trench 3' deep plus 2' additional cover over carcasses. Construct a 12'W x 29'L (surface dimensions) burial site with appropriate cover. On site soils can be recompacted to meet required imperviousness. Include 2' overfill or mounding excavated material to provide for settlement of the burial site and divert or minimize offsite runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area.

Feature Measure: Number of Head

Scenario Unit: Each

Scenario Typical Size: 10.0

Scenario Total Cost: $2,622.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $262.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #176 - Burial, Cattle or Horses

Scenario Description:

This scenario consists of the on-site burial of cattle or horse mortalities resulting from catastrophic events not related to disease. An earthen pit is excavated to contain the mortalities, and earth cover is placed over the mortalities to provide protection from predators to minimize pathogen survival or spreading. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Pond Sealing or Lining, Bentonite Sealant (521C), Pond Sealing or Lining, Compacted Clay Treatment (521D), Pond Sealing or Lining, Soil Dispersant (521B), Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), and Diversion (362).

Before Situation:

Animal mortality disposal is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens

After Situation:

Catastrophic Animal mortalities resulting from causes not related to disease are being disposed in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, and protection from predators to minimize pathogen survival or spreading. An overall plan covers the burial of animals as a result of catastrophic mortality events. This typical scenario was developed based on the disposal of 5 head averaging 1000 pounds each located near the area where the cattle have been found. The scenario includes equipment time and labor to recover and transport carcasses to the burial location. The scenario also includes a burial trench 4' deep plus 2' additional cover over carcasses. Construct a 16'W x 32'L (surface dimensions) burial site with appropriate cover. On site soils can be recompacted to meet required imperviousness. Include 2' overfill or mounding excavated material to provide for settlement of the burial site and divert or minimize offsite runoff. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area.

Feature Measure: Number of head

Scenario Unit: Each

Scenario Typical Size: 5.0

Scenario Total Cost: $3,415.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $683.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #183 - Shallow Burial, Swine or Cattle

Scenario Description:

This scenario consists of the disposal of animal carcasses by burial in a shallow trench resulting from impacts related to the National Emergency. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, and organics being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. This scenario has been written to exclude feathered animals since early research has indicated that feathered animals do not break down quickly using this method. Potential Associated Practices: Critical Area Planting (342), Nutrient Management (590), Access Road (560), Fence (384)

Before Situation:

Animal mortality disposal is done in a manner that results in non-point source pollution of excessive nutrients, and organics being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from incomp

After Situation:

Emergency animal mortalities resulting from causes not related to disease are being buried in a shallow trench, that prevents non-point source pollution of excessive nutrients, and organics being transported into surface and groundwater resources. The is a new method of mortality disposal recommended by APHIS. 50 animal units (50,000 pound) of animal mortality is the maximum allowed for this method. Proper operation results in little to no odors, and protection from predators to minimize pathogen survival or spreading. An overall plan covers the disposal of animals as a result of catastrophic mortality events. This typical scenario was developed based on the disposal of livestock animal mortality by burial in an 18 inch deep by 8 foot wide trench. A 12 inch thick layer of carbon material is placed in the bottom of the trench. The carcass is placed in the trench and covered with 4 inches of carbon material. Then the excavated soil is placed over the entire trench area. The scenario includes equipment time and labor to excavate the trench, place carbon layer in the trench bottom, recover and transport carcasses to the shallow burial location, place carcasses in the trench and cover with more carbon and the excavated soil. Wood chips (45 pcf) will be used as the carbon source.

Feature Measure: Number of 1000 lbs. Animal

Scenario Unit: Animal Unit

Scenario Typical Size: 50.0

Scenario Total Cost: $10,983.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $219.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #199 - Composting, Carbon Material and Mobilization

Scenario Description:

This scenario consists of the disposal of animal carcasses by composting in a static windrow resulting from impacts related to the National Emergency. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, and organics being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Critical Area Planting (342), Nutrient Management (590), Access Road (560)

Before Situation:

Animal mortality disposal is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors from incomplete composti

After Situation:

Emergency animal mortalities resulting from causes not related to disease are being disposed by composting in a static windrow that prevents non-point source pollution of excessive nutrients, and organics being transported into surface and groundwater resources. Proper operation results in little to no odors, and protection from predators. An overall plan covers the disposal of animals as a result of catastrophic mortality events. This typical scenario was developed based on the disposal of 30,000 pounds of animal mortality by composting on-site. The scenario includes equipment time and labor to recover and transport carcasses to the composting location and the building and turning of the pile at the appropriate time. Composting requires 5 cubic yards of carbon material per 1000 pounds of animal. Wood chips (45 pcf) will be used as the carbon source.

Feature Measure: Number of 1000 lbs. Animal

Scenario Unit: Animal Unit

Scenario Typical Size: 30.0

Scenario Total Cost: $18,289.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $609.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 368 - Emergency Animal Mortality Management

Scenario: #215 - Incineration, Landfill or Render

Scenario Description:

This scenario consists of the disposal of animal carcasses by methods other than burial, incineration, landfill or rendering resulting from impacts related to the National Emergency. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Air quality impacts due to odors will also be addressed. Potential Associated Practices: Critical Area Planting (342), Nutrient Management (590), Access Road (560)

Before Situation:

Animal mortality disposal is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens

After Situation:

Emergency animal mortalities resulting from causes not related to disease are being disposed in a manner, other than burial, incineration, landfill or rendering, that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, and protection from predators to minimize pathogen survival or spreading. An overall plan covers the disposal of animals as a result of catastrophic mortality events. This typical scenario was developed based on the disposal of livestock carcasses by composting on-site. The scenario assumes the grower will provide all equipment and labor and that 50% of the carbon for composting is available on-site.

Feature Measure: Number of 1000 lbs. Animal

Scenario Unit: Animal Unit

Scenario Typical Size: 30.0

Scenario Total Cost: $12,176.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $405.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 371 - Air Filtration and Scrubbing

Scenario: #4 - Traditional Horizontal Biofilter

Scenario Description:

Porous filter media is utilized to filter the exhaust from animal confinement facilities to allow microbial activity to reduce objectionable odors. The typical installation is a horizontal media bed supported by a treated lumber substructure to allow airflow from multiple fans to be directed beneath and then up through the media. Vertical biofilters may also be utilized. The filter media is a combination of wood chips to maintain porosity and compost to provide the microorganisms for the air filtering activity. A typical mix ratio would be 80% wood chips and 20% compost. Ventilation system component alterations that may be required to facilitate the biofilter application are not included in the cost computation. Payment includes materials, equipment, and labor costs for installing the biofilter. A stabilized area around the biofilter is not included and must be addressed through the associated practice of Heavy Use Area Protection (561), if needed. Resource concern: Air – Objectionable Odors

Before Situation:

The animal confinement facility has an uncontrolled airflow that is causing objectionable odors.

After Situation:

A 32' X 200" horizontal media bed, 20" thick is supported by a treated lumber substructure to allow airflow to be directed beneath and then up through the media is installed adjacent to a swine production facility. Exhaust from the facility is directed to flow through the biofilter media to reduce objectionable odors. Maintain ace of the media bed will be required on a 3-5 year cycle to maintain effectiveness. Associated practices include Heavy Use Area Protection (561), Amendments for Treatment of Agricultural Waste (591), Windbreak (380), Waste Storage Facility (313), Composting Facility (317), and CAP-Comprehensive Air Quality Management Plan (126).

Feature Measure: Biofilter Media Volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 395.0

Scenario Total Cost: $19,973.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 371 - Air Filtration and Scrubbing

Scenario: #5 - Single Pit Fan Biofilter

Scenario Description:

Establishment of a biofilter used to treat the air flow from a single waste pit ventilation fan in instances where control of the exhaust from all pit ventilation fans is not needed. Adequate moisture in the wood chip media is maintained for proper growth of bacteria. For each waste pit ventilation fan servicing a waste storage facility that is identified as exhausting odorous and/or particulate laden air into the atmosphere, a separate biofilter is installed. Payment includes materials, equipment, and labor costs for installing the biofilter. A stabilized area around the biofilter is not included and must be addressed through the associated practice of Heavy Use Area Protection (561), if needed.

Before Situation:

One or more pit ventilation fans of a manure storage facility on a Headquarters site are exhausting odorous and/or particulate laden air into the atmosphere.

After Situation:

Air Quality resource concerns are addressed through installation of the practice by reducing odors and/or particulate matter emissions. Exhaust from a 24” waste pit ventilation fan is piped to a 16’ wide by 20’ long by 4’ high horizontal biofilter constructed of a formed concrete bin that is filled with wood chip media, capable of handling 5,500 cubic feet per minute of airflow. The loading of odor and/or particulates into the air at the production facility is significantly reduced, resulting in a substantial improvement in air quality. Ammonia emissions are reduced approximately 60%; hydrogen sulfide about 80% and odor 60 to 80%. Associated practices include Heavy Use Area Protection (561), Amendments for Treatment of Agricultural Waste (591), Windbreak (380), Waste Storage Facility (313)and CAP-Comprehensive Air Quality Management Plan (126).

Feature Measure: Number of Biofilters Installe

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $21,338.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $21,338.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #5 - Reverse Osmosis, Less Than or Equal to 250 Gallons per Hour

Scenario Description:

A reverse osmosis (RO) unit, installed before the evaporator, filters the sap and removes ~ 75% of the water prior to getting to the evaporator. The unit is sized in gallons per hour. The size of the RO is determined based on the existing maple sugaring operation (number of taps and the capacity of the evaporator). This scenario includes units that process <= 250 gallons of sap per hour. With a RO unit able to remove excess water, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process.

Before Situation:

A maple sugaring operation uses an evaporator (pan over a furnace) to boil sap to remove water to create syrup. It takes ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water has to be boiled off. A typical oil-fired evaporator con

After Situation:

With an efficient RO installed in the process, ~ 75% of the water is removed from the sap, thus cutting the boil time down by ~75%. An efficiency of 1 gallon fuel oil (or equivalent wood) per gallon of maple syrup is possible, thereby reducing energy consumption by 65-75%. Less fuel used yields decreased air emissions.

Feature Measure: capacity of unit

Scenario Unit: Gallons per Hour

Scenario Typical Size: 135.0

Scenario Total Cost: $6,161.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $45.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #6 - Reverse Osmosis, 251 to 999 Gallons per Hour

Scenario Description:

A reverse osmosis (RO) unit, installed before the evaporator, filters the sap and removes ~ 75% of the water prior to getting to the evaporator. The unit is sized in gallons per hour. The size of the RO is determined based on the existing maple sugaring operation (number of taps and the capacity of the evaporator). This scenario includes units that process >250 to <1000 gallons of sap per hour. With a RO unit able to remove excess water, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process.

Before Situation:

A maple sugaring operation uses an evaporator (pan over a furnace) to boil sap to remove water to create syrup. It takes ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water has to be boiled off. A typical oil-fired evaporator con

After Situation:

With an efficient RO installed in the process, ~ 75% of the water is removed from the sap, thus cutting the boil time down by ~75%. An efficiency of 1 gallon fuel oil (or equivalent wood) per gallon of maple syrup is possible, thereby reducing energy consumption by 65-75%. Less fuel used yields decreased air emissions.

Feature Measure: capacity of unit

Scenario Unit: Gallons per Hour

Scenario Typical Size: 365.0

Scenario Total Cost: $10,587.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #7 - Reverse Osmosis, Greater Than or Equal to 1000 Gallons per Hour

Scenario Description:

A reverse osmosis (RO) unit, installed before the evaporator, filters the sap and removes ~ 75% of the water prior to getting to the evaporator. The unit is sized in gallons per hour. The size of the RO is determined based on the existing maple sugaring operation (number of taps and the capacity of the evaporator). This scenario includes units that process >= 1000 gallons of sap per hour. With a RO unit able to remove excess water, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process.

Before Situation:

A maple sugaring operation uses an evaporator (pan over a furnace) to boil sap to remove water to create syrup. It takes ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water has to be boiled off. A typical oil-fired evaporator con

After Situation:

With an efficient RO installed in the process, ~ 75% of the water is removed from the sap, thus cutting the boil time down by ~75%. An efficiency of 1 gallon fuel oil (or equivalent wood) per gallon of maple syrup is possible, thereby reducing energy consumption by 65-75%. Less fuel used yields decreased air emissions.

Feature Measure: capacity of unit

Scenario Unit: Gallons per Hour

Scenario Typical Size: 1,200.0

Scenario Total Cost: $26,656.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #8 - Steam Enhanced Preheater, Less Than or Equal to 24 Square Feet

Scenario Description:

The unit sets over the evaporator pan and uses steam from the evaporator pan to pre-heat the sap to as high as 200ºF while at the same time injecting air into the sap to promote evaporation. Evaporation rates are increased by 65-75%, based on vendor analysis, leading to 40-43% energy savings. Sap is concentrated from Brix 2% to 4% or more before it enters the flue pan. Steam-enhanced systems require at least 9 feet from floor to ceiling. This scenario includes units <= 24 sq. ft. With increased evaporation, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process, as well as labor.

Before Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water have to be boiled off, using more fuel and labor. A typical oil-fired evaporator consumes 3.5 t

After Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~6 gallons of sap to make 1 gallon of syrup, which means 14 gallons of water were removed by the steam-enhanced system, using less fuel and labor. A typical oil-fired evaporator with a steam pan consumes 2.1 to 2.7 gallons of fuel oil for each gallon of maple syrup produced to remove water from the sap, improving the fuel efficiency and saving labor.

Feature Measure: Square Foot of steam pan

Scenario Unit: Square Foot

Scenario Typical Size: 12.0

Scenario Total Cost: $14,290.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,190.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #9 - Steam Enhanced Preheater, Greater Than 24 Square Feet

Scenario Description:

The unit sets over the evaporator pan and uses steam from the evaporator pan to pre-heat the sap to as high as 200ºF while at the same time injecting air into the sap to promote evaporation. Evaporation rates are increased by 65-75%, based on vendor analysis, leading to 40-43% energy savings. Sap is concentrated from Brix 2% to 4% or more before it enters the flue pan. Steam-enhanced systems require at least 9 feet from floor to ceiling. This scenario includes units > 24 sq. ft. installed. With increased evaporation, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process, as well as labor.

Before Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water have to be boiled off, using more fuel and labor. A typical oil-fired evaporator consumes 3.5 t

After Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~6 gallons of sap to make 1 gallon of syrup, which means 14 gallons of water were removed by the steam-enhanced system, using less fuel and labor. A typical oil-fired evaporator with a steam pan consumes 2.1 to 2.7 gallons of fuel oil for each gallon of maple syrup produced to remove water from the sap, improving the fuel efficiency and saving labor.

Feature Measure: Square Foot of steam pan

Scenario Unit: Square Foot

Scenario Typical Size: 40.0

Scenario Total Cost: $19,593.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $489.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #10 - Sap Preheater

Scenario Description:

The unit sets over the evaporator pan and uses steam from the evaporator pan to pre-heat the sap prior to entering the boiling pan. Heated sap takes much less time to boil, therefore decreases the process combustion time. Decreased combustion time means less fuel used and also results in less air emissions released. This device can increase the efficiency of an evaporator pan by 15-20%. This scenario is for units <= 25 sq. ft installed. Resource concerns are energy efficiency and air quality.

Before Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water have to be boiled off, using much fuel and labor. A typical oil-fired evaporator consumes 3.5 t

After Situation:

A sap pre-heater device is installed over the evaporator pan and sap is boiled much faster. Decreasing the boiling time decreases combustion time saving both fuel and reducing air emissions.

Feature Measure: Size of preheater in SF

Scenario Unit: Square Foot

Scenario Typical Size: 10.0

Scenario Total Cost: $1,675.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $167.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #40 - Combustion Engine Replacement, Less Than 50 Brake Horsepower

Scenario Description:

Replace an existing older diesel engine with a new diesel engine (<50 bhp) that is certified to the newest available U.S. EPA engine TIER rating. The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced or repowered with a new diesel engine (<50 bhp) that is certified to the newest available U.S. EPA engine TIER rating. The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The replacement or repower diesel engine will be cleaner-burning and will emit less particulate matter and/or oxides of nitrogen than the previous existing engine. The decrease in emissions for the replacement or repower engine must be supported by calculations showing the expected emissions reductions. Energy: Energy efficiency will be improved. The increase in energy efficiency for the replacement or repower engine must be supported by an energy analysis.

Feature Measure: Size of Replacement Engine

Scenario Unit: Brake Horse Power

Scenario Typical Size: 30.0

Scenario Total Cost: $3,834.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $127.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #41 - Combustion Engine Replacement, 50 to 99 Brake Horsepower

Scenario Description:

Replace an existing older diesel engine with a new diesel engine (50-99 bhp) that is certified to the newest available U.S. EPA engine TIER rating. The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced or repowered with a new diesel engine (50-99 bhp) that is certified to the newest available U.S. EPA engine TIER rating. The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The replacement or repower diesel engine will be cleaner-burning and will emit less particulate matter and/or oxides of nitrogen than the previous existing engine. The decrease in emissions for the replacement or repower engine must be supported by calculations showing the expected emissions reductions. Energy: Energy efficiency will be improved. The increase in energy efficiency for the replacement or repower engine must be supported by an energy analysis.

Feature Measure: Size of Replacement Engine

Scenario Unit: Brake Horse Power

Scenario Typical Size: 75.0

Scenario Total Cost: $15,393.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $205.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #42 - Combustion Engine Replacement, 100 to 199 Brake Horsepower

Scenario Description:

Replace an existing older diesel engine with a new diesel engine (100-199 bhp) that is certified to the newest available U.S. EPA engine TIER rating. The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced or repowered with a new diesel engine (100-199 bhp) that is certified to the newest available U.S. EPA engine TIER rating. The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The replacement or repower diesel engine will be cleaner-burning and will emit less particulate matter and/or oxides of nitrogen than the previous existing engine. The decrease in emissions for the replacement or repower engine must be supported by calculations showing the expected emissions reductions. Energy: Energy efficiency will be improved. The increase in energy efficiency for the replacement or repower engine must be supported by an energy analysis.

Feature Measure: Size of Replacement Engine

Scenario Unit: Brake Horse Power

Scenario Typical Size: 150.0

Scenario Total Cost: $23,432.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $156.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #57 - Combustion Engine to Electric Motor, Less Than 12 Horsepower

Scenario Description:

Replace an existing older diesel engine with a new electric motor (<12 hp). The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Air Quality - Emissions of Greenhouse Gases; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced with a new electric motor (<12 hp). The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The new electric motor does not produce any on-farm emissions of particulate matter, oxides of nitrogen, or carbon dioxide, resulting in a substantial emissions reduction on the farm. Energy: Energy efficiency will be improved.

Feature Measure: Number of Combustion Unit

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,829.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,829.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #58 - Combustion Engine to Electric Motor, 12 to 74 Horsepower

Scenario Description:

Replace an existing older diesel engine with a new electric motor (12-74 hp). The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Air Quality - Emissions of Greenhouse Gases; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced with a new electric motor (12-74 hp). The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The new electric motor does not produce any on-farm emissions of particulate matter, oxides of nitrogen, or carbon dioxide, resulting in a substantial emissions reduction on the farm. Energy: Energy efficiency will be improved.

Feature Measure: Number of Combustion Unit

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,740.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,740.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #59 - Combustion Engine to Electric Motor, 75 to 149 Horsepower

Scenario Description:

Replace an existing older diesel engine with a new electric motor (75-149 hp). The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Air Quality - Emissions of Greenhouse Gases; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced with a new electric motor (75-149 hp). The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The new electric motor does not produce any on-farm emissions of particulate matter, oxides of nitrogen, or carbon dioxide, resulting in a substantial emissions reduction on the farm. Energy: Energy efficiency will be improved.

Feature Measure: Number of Combustion Unit

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $12,655.90

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,655.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #60 - Combustion Engine to Electric Motor, 150 to 299 Horsepower

Scenario Description:

Replace an existing older diesel engine with a new electric motor (150-299 hp). The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Air Quality - Emissions of Greenhouse Gases; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced with a new electric motor (150-299 hp). The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The new electric motor does not produce any on-farm emissions of particulate matter, oxides of nitrogen, or carbon dioxide, resulting in a substantial emissions reduction on the farm. Energy: Energy efficiency will be improved.

Feature Measure: Number of Combustion Unit

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $25,140.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25,140.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #61 - Combustion Engine to Electric Motor, Greater Than or Equal to 300 Horsepower

Scenario Description:

Replace an existing older diesel engine with a new electric motor (>=300 hp). The existing diesel engine may be stationary or portable, but not mobile (e.g., providing motive power to tractors, trucks, etc.). Examples of stationary or portable engines include diesel-fired pumping plant power units, emergency generators, or engines providing power for other agricultural systems. Resource Concerns: Air Quality – Emissions of Particulate Matter (PM) and PM Precursors; Air Quality – Emissions of Ozone Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Air Quality - Emissions of Greenhouse Gases; Energy – Energy Efficiency of Equipment and Facilities. Associated Practices include: 374 – Energy Efficient Agricultural Operation; 533 – Pumping Plant; 430 – Irrigation Pipeline; 441 – Irrigation System, Microirrigation; 442 – Sprinkler System; 447 – Irrigation and Drainage Tailwater Recovery; 449 – Irrigation Water Management; 516 – Livestock Pipeline; 313 – Waste Storage Facility; 634 – Waste Transfer; 642 – Water Well; and 614 – Watering Facility.

Before Situation:

An old or inefficient diesel engine provides power to an agricultural system, such as an irrigation pumping plant or grain dryer fan, or provides backup power generation for a farming operation. Air Quality: The existing internal combustion engine emissio

After Situation:

The existing older diesel engine is replaced with a new electric motor (>=300 hp). The engine being replaced or repowered will be destroyed or disabled and a certificate of destruction or inoperability submitted prior to certification of practice completion. The existing engine is supported by a concrete pad; no costs have been included for a new pad. Additional costs may be incurred if an existing concrete pad is not present. Air Quality: The new electric motor does not produce any on-farm emissions of particulate matter, oxides of nitrogen, or carbon dioxide, resulting in a substantial emissions reduction on the farm. Energy: Energy efficiency will be improved.

Feature Measure: Number of Combustion Unit

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $51,691.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $51,691.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #62 - Tractor Replacement, 25 to 160 Brake Horsepower

Scenario Description:

Replace an existing smaller (25-160 bhp engine size) high-emitting mobile off-road self-propelled diesel-powered agricultural tractor with a similarly-sized new lower emission mobile off-road tractor with a diesel engine that is certified to the newest available U.S. EPA engine TIER rating. The payment rate is based on the engine brake horsepower (bhp) rating of the engine in the new tractor and applies if the existing equipment cannot be repowered or retrofitted due to design constraints or operator safety. Resource Concerns: Air Quality - Emissions of Ozone Precursors; Air Quality - Emissions of Particulate Matter (PM) and PM Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen.

Before Situation:

An older, higher-emitting diesel-powered tractor is used on an agricultural/forestry operation. The emissions of oxides of nitrogen and/or particulate matter are identified to contribute to an air quality resource concern . Air Quality: The existing diese

After Situation:

A new lower-emitting mobile off-road diesel tractor replaces the existing higher-emitting system; the tractor being replaced will be disabled and a certificate of inoperability submitted prior to certification of practice completion. Air Quality: The new mobile off-road diesel tractor will be cleaner-burning and will emit less oxides of nitrogen and/or particulate matter than the previous existing tractor.

Feature Measure: Engine Size (bhp) of Engine i

Scenario Unit: Brake Horse Power

Scenario Typical Size: 100.0

Scenario Total Cost: $64,507.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $645.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #63 - Tractor Replacement, Greater Than 160 Brake Horsepower

Scenario Description:

Replace an existing larger (>160 bhp engine size) high-emitting mobile off-road self-propelled diesel-powered agricultural tractor with a similarly-sized new lower emission mobile off-road tractor with a diesel engine that is certified to the newest available U.S. EPA engine TIER rating. The payment rate is based on the engine brake horsepower (bhp) rating of the engine in the new tractor and applies if the existing equipment cannot be repowered or retrofitted due to design constraints or operator safety. Resource Concerns: Air Quality - Emissions of Ozone Precursors; Air Quality - Emissions of Particulate Matter (PM) and PM Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen.

Before Situation:

An older, higher-emitting diesel-powered tractor is used on an agricultural/forestry operation. The emissions of oxides of nitrogen and/or particulate matter are identified to contribute to an air quality resource concern. Air Quality: The existing diesel

After Situation:

A new lower-emitting mobile off-road diesel tractor replaces the existing higher-emitting tractor; the tractor being replaced will be disabled and a certificate of inoperability submitted prior to certification of practice completion. Air Quality: The new mobile off-road diesel tractor will be cleaner-burning and will emit less oxides of nitrogen and/or particulate matter than the previous existing tractor.

Feature Measure: Engine Size (bhp) of Engine i

Scenario Unit: Brake Horse Power

Scenario Typical Size: 250.0

Scenario Total Cost: $251,191.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,004.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #98 - Combustion Engine to Electric Motor Tractor Replacement

Scenario Description:

Replace an existing high-emitting mobile off-road self-propelled diesel-powered tractor with a similarly-sized new electric tractor. The payment rate is based on the equivalent engine brake horsepower (bhp) rating of the electric motor of the new tractor. Resource Concerns: Air Quality - Emissions of Greenhouse Gases; Air Quality - Emissions of Ozone Precursors; Air Quality - Emissions of Particulate Matter (PM) and PM Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen.

Before Situation:

An older, higher-emitting diesel-powered tractor is used for agricultural/forestry operations. The emissions of carbon dioxide, oxides of nitrogen, and/or particulate matter are identified to contribute to an air quality resource concern. Air Quality: The

After Situation:

A new electric tractor replaces the existing higher-emitting diesel tractor; the tractor being replaced will be disabled and a certificate of inoperability submitted prior to certification of practice completion. Air Quality: The new electric tractor will eliminate on-farm combustion emissions from the previous existing tractor.

Feature Measure: Equivalent Engine Size (bhp)

Scenario Unit: Horsepower

Scenario Typical Size: 70.0

Scenario Total Cost: $126,371.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,805.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 372 - Combustion System Improvement

Scenario: #99 - Non-Tractor Mobile Agricultural Equipment Replacement

Scenario Description:

Replace an existing high-emitting mobile off-road self-propelled diesel-powered non-tractor agricultural vehicle (e.g., backhoe, loader, grader, etc.) with a similarly-sized new mobile off-road agricultural non-tractor vehicle powered by a lower emission combustion system (e.g., with a diesel engine that is certified to the newest available U.S. EPA engine TIER rating) or by an electric motor. The payment rate is based on the engine brake horsepower (bhp) rating or equivalent of the new non-tractor and applies if the existing equipment cannot be repowered or retrofitted due to design constraints or operator safety. Non-tractor agricultural vehicles do not include cars or trucks. Resource Concerns: Air Quality - Emissions of Ozone Precursors; Air Quality - Emissions of Particulate Matter (PM) and PM Precursors; Air Quality - Emissions of Airborne Reactive Nitrogen; Air Quality - Emissions of Greenhouse Gases.

Before Situation:

An older, higher-emitting diesel-powered non-tractor agricultural vehicle (e.g., backhoe, loader, grader, etc.) is used to provide a mechanical function for agricultural/forestry operations. The emissions of oxides of nitrogen, particulate matter, and/or

After Situation:

A new lower-emitting or non-emitting mobile off-road non-tractor agricultural vehicle replaces the existing higher-emitting system; the system being replaced will be disabled and a certificate of inoperability submitted prior to certification of practice completion. Non-tractor agricultural vehicles do not include cars or trucks. Air Quality: The new mobile off-road non-tractor agricultural vehicle will be cleaner-burning and will emit less oxides of nitrogen and/or particulate matter than the previous existing system.

Feature Measure: Engine Size (bhp) or Equival

Scenario Unit: Horsepower

Scenario Typical Size: 100.0

Scenario Total Cost: $161,211.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,612.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #1 - Ventilation, Exhaust, 18 Inches

Scenario Description:

Replacement of a conventional exhaust fan with high volume, low speed, efficient exhaust fan. Fans being installed should be models previously tested by BESS Lab or the Air Movement and Control Association and be in top 20 percentile of fans tested. Practice certification will be through receipts and pictures from the applicant. Typical scenario includes the replacement of a 18" fan.

Before Situation:

Inefficient ventilation in an agricultural building.

After Situation:

High-efficiency ventilation system which reduces energy use. The new ventilation equipment will provide suitable air quality and reduce overall power requirements (kW) compared to the existing ventilation system as evidenced in an energy audit. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each fan replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,026.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,026.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #2 - Ventilation, Exhaust, 24 Inches

Scenario Description:

Replacement of a conventional exhaust fan with high volume, low speed, efficient exhaust fan. Fans being installed should be models previously tested by BESS Lab or the Air Movement and Control Association and be in top 20 percentile of fans tested. Practice certification will be through receipts and pictures from the applicant. Typical scenario includes the replacement of a 24" fan.

Before Situation:

Inefficient ventilation in an agricultural building.

After Situation:

High-efficiency ventilation system which reduces energy use. The new ventilation equipment will provide suitable air quality and reduce overall power requirements (kW) compared to the existing ventilation system as evidenced in an energy audit. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each fan replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,184.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,184.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #3 - Ventilation, Exhaust, 36 Inches

Scenario Description:

Replacement of a conventional exhaust fan with high volume, low speed, efficient exhaust fan. Fans being installed should be models previously tested by BESS Lab or the Air Movement and Control Association and be in top 20 percentile of fans tested. Practice certification will be through receipts and pictures from the applicant. Typical scenario includes the replacement of a 36" fan.

Before Situation:

Inefficient ventilation in an agricultural building.

After Situation:

High-efficiency ventilation system which reduces energy use. The new ventilation equipment will provide suitable air quality and reduce overall power requirements (kW) compared to the existing ventilation system as evidenced in an energy audit. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each fan replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,768.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,768.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #4 - Ventilation, Exhaust, 48 Inches

Scenario Description:

Replacement of a conventional exhaust fan with high volume, low speed, efficient exhaust fan. Fans being installed should be models previously tested by BESS Lab or the Air Movement and Control Association and be in top 20 percentile of fans tested. Practice certification will be through receipts and pictures from the applicant. Typical scenario includes the replacement of a 48" fan.

Before Situation:

Inefficient ventilation in an agricultural building.

After Situation:

High-efficiency ventilation system which reduces energy use. The new ventilation equipment will provide suitable air quality and reduce overall power requirements (kW) compared to the existing ventilation system as evidenced in an energy audit. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each fan replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,290.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,290.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #5 - Ventilation, Horizontal Air Flow

Scenario Description:

A system of fans are installed to create a horizontal air circulation pattern; the new system promotes efficient heat and moisture distribution. In a typical 10,000 square foot greenhouse, 10 HAF fans are needed. Typical fan size is 20". Fan performance meets Energy Audit efficiency criteria as tested by AMCA or BESS Labs and is usually in the top 20% of fans tested.

Before Situation:

Inefficient air circulation system in a greenhouse.

After Situation:

Air circulation system which reduces energy use. The new equipment will provide suitable air quality and reduce overall power requirements (kW) compared to the existing system as evidenced in an energy audit. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each fan added

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $449.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $449.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #6 - Plate Cooler

Scenario Description:
The installation of all stainless steel dual pass plate cooler, type 316 stainless steel, with <=499 gal/hr. capacity. Practice certification will be through receipts and pictures from the applicant.

Before Situation:
Inefficient milk cooling (minimal pre-cooling of milk before entering the bulk tank).

After Situation:
High-efficiency milk cooling system which reduces energy use. The new milk cooling equipment will pre-cool the milk and reduce overall power requirements (kW) compared to the existing milk cooling system (where most of the cooling was accomplished in the bulk tank) as evidenced in an energy audit. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,221.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,221.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #7 - Scroll Compressor

Scenario Description:

Install a new scroll compressor, associated controls, wiring, and materials to retrofit an existing refrigeration system. A new condenser is not included in this typical scenario. Typical scenario includes a new 3 horsepower scroll compressor.

Before Situation:

Inefficient reciprocating compressor as a key component of the refrigeration system used as part of an agricultural operation, including to cool milk. The compressor is a critical part of the cooling system, affecting product quality, system reliability,

After Situation:

A more efficient scroll compressor, which will reduce energy use, is evidenced by the energy audit. A comparably sized scroll compressor provides refrigeration capacity at a higher efficiency than a reciprocating compressor. Newer scroll compressor systems typically reduce electricity use by 15 to 25 percent compared to reciprocating compressors. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Horse Power

Scenario Unit: Horsepower

Scenario Typical Size: 3.0

Scenario Total Cost: $6,736.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,245.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #8 - Evaporator, Defrost Heat Control

Scenario Description:
Evaporator heater control to prevent unnecessary defrost cycles in mechanically refrigerated food storage spaces.

Before Situation:
Cooler evaporators are prone to frosting due to the relatively low temperature of the refrigerant and relatively high humidity resulting from stored produce (respiration metabolism). Most integrated refrigeration systems include a heater for defrosting th

After Situation:
Defrost controls exist in the commercial market which, instead of working off timers, monitor the conditions of the evaporator and the stored space to determine when a defrost cycle is required. Electrical consumption is reduced due to a) the reduced heater duty and b) reduced cooling to recover from the defrost cycle. Additional benefit is achieved in enterprises storing bulk produce due to better control of consistent temperature and humidity in storage.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,003.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,003.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #9 - Variable Speed Drive, Less Than or Equal to 10 Horsepower

Scenario Description:

The typical scenario consists of a variable speed drive (VSD) and appurtances, such as hook-ups, control panels, wiring, control blocks, filters, switches, pads, etc. attached to an electric motor used to drive a ventilation fan, irrigation pumps, vacuum pump, or similar equipment involved with agricultural production. The motor size, on which the VSD is added, is smaller than or equal to 10 HP.

Before Situation:

The system is inefficient when a motor operates at constant speed to satisfy a load which varies as to flow rate and/or pressure requirements.

After Situation:

An on-farm energy audit has determined that energy use can be reduced through use of a VSD to control electric motors. After the VSD is applied, the motor speed can be adjusted to reduce power requirements and better match varied flow or pressure requirements. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Horsepower

Scenario Unit: Horsepower

Scenario Typical Size: 5.0

Scenario Total Cost: $1,442.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $288.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #10 - Variable Speed Drive, Greater Than 10 Horsepower

Scenario Description:

The typical scenario consists of a variable speed drive (VSD) and appurtances, such as hook-ups, control panels, wiring, control blocks, filters, switches, pads, etc. attached to an electric motor used to drive a ventilation fan, irrigation pumps, vacuum pump, or similar equipment involved with agricultural production. The motor size, on which the VSD is added, is larger than 10 HP.

Before Situation:

The system is inefficient when a motor operates at constant speed to satisfy a load which varies as to flow rate and/or pressure requirements.

After Situation:

An on-farm energy audit has determined that energy use can be reduced through use of a VSD to control electric motors. After the VSD is applied, the motor speed can be adjusted to reduce power requirements and better match varied flow or pressure requirements. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Horsepower

Scenario Unit: Horsepower

Scenario Typical Size: 50.0

Scenario Total Cost: $6,897.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $137.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #12 - System, Greenhouse Step Controller

Scenario Description:

The typical scenario consists of an automatic control system installed in place of an existing manually controlled system for ventilation, heating, and cooling in a greenhouse. Typical components may include any of the following: wiring, sensors, step controller, switches, and contactor relay panel.

Before Situation:

A manually controlled system is existing in a greenhouse that causes the inefficient use of energy for ventilation, heating and cooling, as evidenced by an on-farm energy audit.

After Situation:

An on-farm energy audit has determined that energy use can be reduced through use of an automatic controller that helps regulates the energy consumption of the existing greenhouse ventilation, heating and cooling systems. Associated practices/activities may include: 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each system

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,256.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,256.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #13 - Motor, Less Than or Equal to One Horsepower

Scenario Description:

The typical scenario consists of replacing an existing electric motor used to drive a ventilation fan, irrigation pumps, vacuum pump, or similar equipment involved with agricultural production with a new, high efficiency motor. The motor size is less than or equal to 1 horsepower.

Before Situation:

The system is inefficient with a standard efficiency motor.

After Situation:

An on-farm energy audit has determined that energy use can be reduced through use of a NEMA premium efficiency motor. Associated practices/activities may include: 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $827.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $827.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #14 - Motor, 2 to 9 Horsepower

Scenario Description:

The typical scenario consists of replacing an existing electric motor used to drive a ventilation fan, irrigation pumps, vacuum pump, or similar equipment involved with agricultural production with a new, high efficiency motor. The motor size is larger than 1 and less than 10 horsepower.

Before Situation:

The system is inefficient with a standard efficiency motor.

After Situation:

An on-farm energy audit has determined that energy use can be reduced through use of a NEMA premium efficiency motor. Associated practices/activities may include: 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,205.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,205.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #15 - Motor, 10 to 100 Horsepower

Scenario Description:

The typical scenario consists of replacing an existing electric motor used to drive a ventilation fan, irrigation pumps, vacuum pump, or similar equipment involved with agricultural production with a new, high efficiency motor. The motor size is equal to or larger than 10 and less than or equal to 100 horsepower.

Before Situation:

The system is inefficient with a standard efficiency motor.

After Situation:

An on-farm energy audit has determined that energy use can be reduced through use of a NEMA premium efficiency motor. Associated practices/activities may include: 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,201.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,201.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #16 - Compressor Heat Recovery

Scenario Description:

A compressor heat recovery unit, similar to a water heater, captures waste heat from the compressors (milk cooling process) and uses it to preheat water to ~ 120 deg before it enters the hot water heater. Heat (energy) being lost to the environment will be captured and recycled to save energy in another part of the dairy operation.

Before Situation:

A dairy operation uses an electric hot water heater to heat water used for washing the milking equipment and to mix calf feed. The hot water heater needs to heat well water from ~55 deg to ~ 160 degrees for use. The electricity cost for the hot water heat

After Situation:

The compressor heat recovery unit captures waste heat from the compressors (milk cooling process) and uses it to preheat water to ~ 120 deg before it goes to the hot water heater. Having to only heat the wash water the additional ~40 degrees, saves on energy/electricity needed to run the hot water heater. This can reduce the annual water heating energy use and costs by ~ 50%.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,030.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,030.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #18 - Heater, High Efficiency

Scenario Description:

Replace existing low efficiency heaters with new high efficiency heaters. High-efficiency heating systems include any heating unit with annual fuel utilization efficiency (AFUE) of 90%+ for fuel oil and 93%+ for natural gas and propane. Applications may be air heating/building environment and hydronic (boiler) heating for agricultural operations, including under bench, or root zone heating. An alternative to heater replacement might be the addition of climate control system and electronic temperature controls with +/- 1 degree F differential, to reduce the annual run time. HEATER SIZING AND PAYMENT IS BASED ON INPUT BTU RATING.

Before Situation:

Buildings heated with low efficiency heaters or heaters without proper electronic climate controls

After Situation:

Higher efficiency heaters reduce energy consumption, energy costs, and GHG emissions. These replacement systems can be fueled by natural gas, propane, or fuel oil. Associated practices/activities: 122-AgEMP - HQ and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612. A 2880 sq.ft. hoop-house heated March-June in New England requires a total of at least 250,000 BTU input with 2 unit heaters.

Feature Measure: Input BTU Rating

Scenario Unit: 1,000 BTU/Hour

Scenario Typical Size: 270.0

Scenario Total Cost: $15,211.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $56.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #20 - Heating, Greenhouse Root Zone

Scenario Description:
Install a greenhouse in-ground root zone heat distribution system. Components include in-ground PEX tubing, manifold and valving, and insulation.

Before Situation:
Optimum plant growth temperatures in a greenhouse are maintained by heating the air of the greenhouse.

After Situation:
An inground root zone heating system is installed that provides heat directly to the growing media rather than heating the air of the greenhouse. This approach provides faster production, higher quality crops, and heating energy savings. Heat loss to the outside, and therefore energy consumption, is reduced. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Linear feet of heating syste

Scenario Unit: Foot

Scenario Typical Size: 1,200.0

Scenario Total Cost: $5,708.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #21 - Reverse Osmosis, Less Than or Equal to 250 Gallons per Hour

Scenario Description:

A reverse osmosis (RO) unit, installed before the evaporator, filters the sap and removes ~ 75% of the water prior to getting to the evaporator. The unit is sized in gallons per hour. The size of the RO is determined based on the existing maple sugaring operation (number of taps and the capacity of the evaporator). With a RO unit able to remove excess water, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process. The system cost includes the RO unit, pump, vessel, membrane, wash tank, and installation. This scenario includes units that process <= 250 gallons of sap per hour.

Before Situation:

A maple sugaring operation uses an evaporator (pan over a furnace) to boil sap to remove water to create syrup. It takes ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water has to be boiled off. A typical oil-fired evaporator con

After Situation:

With an efficient RO installed in the process, ~ 75% of the water is removed from the sap, thus cutting the boil time down by ~75%. An efficiency of 1 gallon fuel oil (or equivalent wood) per gallon of maple syrup is possible, thereby reducing energy consumption by 65-75%. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: capacity of unit

Scenario Unit: Gallons per Hour

Scenario Typical Size: 135.0

Scenario Total Cost: $6,161.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $45.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #22 - Reverse Osmosis, 251 to 999 Gallons per Hour

Scenario Description:

A reverse osmosis (RO) unit, installed before the evaporator, filters the sap and removes ~ 75% of the water prior to getting to the evaporator. The unit is sized in gallons per hour. The size of the RO is determined based on the existing maple sugaring operation (number of taps and the capacity of the evaporator). With a RO unit able to remove excess water, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process. The system costs includes the RO unit, pumps, vessels, membranes, wash tank, and installation. This scenario includes units that process >250 - <1000 gallons of sap per hour.

Before Situation:

A maple sugaring operation uses an evaporator (pan over a furnace) to boil sap to remove water to create syrup. It takes ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water has to be boiled off. A typical oil-fired evaporator con

After Situation:

With an efficient RO installed in the process, ~ 75% of the water is removed from the sap, thus cutting the boil time down by ~75%. An efficiency of 1 gallon fuel oil (or equivalent wood) per gallon of maple syrup is possible, thereby reducing energy consumption by 65-75%. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: capacity of unit

Scenario Unit: Gallons per Hour

Scenario Typical Size: 365.0

Scenario Total Cost: $10,587.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #23 - Reverse Osmosis, Greater Than or Equal to 1,000 Gallons per Hour

Scenario Description:

A reverse osmosis (RO) unit, installed before the evaporator, filters the sap and removes ~ 75% of the water prior to getting to the evaporator. The unit is sized in gallons per hour. The size of the RO is determined based on the existing maple sugaring operation (number of taps and the capacity of the evaporator). With a RO unit able to remove excess water, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process. The system cost includes the RO unit, pumps, vessels, membranes, wash tank, and installation. This scenario includes units that process >= 1000 gallons of sap per hour.

Before Situation:

A maple sugaring operation uses an evaporator (pan over a furnace) to boil sap to remove water to create syrup. It takes ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water has to be boiled off. A typical oil-fired evaporator con

After Situation:

With an efficient RO installed in the process, ~ 75% of the water is removed from the sap, thus cutting the boil time down by ~75%. An efficiency of 1 gallon fuel oil (or equivalent wood) per gallon of maple syrup is possible, thereby reducing energy consumption by 65-75%. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: capacity of unit

Scenario Unit: Gallons per Hour

Scenario Typical Size: 1,200.0

Scenario Total Cost: $26,656.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #24 - Preheater, Less Than or Equal to 24 Square Feet

Scenario Description:

The unit sets over the evaporator pan and uses steam from the evaporator pan to pre-heat the sap to as high as 200ºF while at the same time injecting air into the sap to promote evaporation. Evaporation rates are increased by 65-75%, based on vendor analysis, leading to 40-43% energy savings. Sap is concentrated from Brix 2% to 4% or more before it enters the flue pan. Steam-enhanced systems require at least 9 feet from floor to ceiling. This scenario includes units <= 24 sq. ft, with installation. With increased evaporation, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process, as well as labor.

Before Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water have to be boiled off, using more fuel and labor. A typical oil-fired evaporator consumes 3.5 t

After Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~6 gallons of sap to make 1 gallon of syrup, which means 14 gallons of water were removed by the steam-enhanced system, using less fuel and labor. A typical oil-fired evaporator with a steam pan consumes 2.1 to 2.7 gallons of fuel oil for each gallon of maple syrup produced to remove water from the sap, improving the fuel efficiency and saving labor. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Square Foot of steam pan

Scenario Unit: Square Foot

Scenario Typical Size: 12.0

Scenario Total Cost: $14,479.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,206.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #25 - Preheater, Greater Than 24 Square Feet

Scenario Description:

The unit sets over the evaporator pan and uses steam from the evaporator pan to pre-heat the sap to as high as 200ºF while at the same time injecting air into the sap to promote evaporation. Evaporation rates are increased by 65-75%, based on vendor analysis, leading to 40-43% energy savings. Sap is concentrated from Brix 2% to 4% or more before it enters the flue pan. Steam-enhanced systems require at least 9 feet from floor to ceiling. This scenario includes units > 24 sq. ft. with installation. With increased evaporation, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process, as well as labor.

Before Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~20 gallons of sap to make 1 gallon of syrup, which means 19 gallons of water have to be boiled off, using more fuel and labor. A typical oil-fired evaporator consumes 3.5 t

After Situation:

The evaporative process time for making concentrated maple syrup requires boiling ~6 gallons of sap to make 1 gallon of syrup, which means 14 gallons of water were removed by the steam-enhanced system, using less fuel and labor. A typical oil-fired evaporator with a steam pan consumes 2.1 to 2.7 gallons of fuel oil for each gallon of maple syrup produced to remove water from the sap, improving the fuel efficiency and saving labor. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Square Foot of steam pan

Scenario Unit: Square Foot

Scenario Typical Size: 40.0

Scenario Total Cost: $24,706.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $617.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #27 - Evaporator, Wood-Fired, Gasifier

Scenario Description:

This practice is for the replacement of an inefficient evaporator with a new high efficiency evaporator with appurtenances. A high efficiency evaporator is designed to increase BTU output from the fuel source and provide a larger flue pan surface area to increase evaporation, thus reducing energy use. Wood-fired gasifier evaporator includes stainless steel sides and bottom, blowers, and stainless steel syrup and flue pans. A 3' x 12 wood-fired gasifier evaporator is common for moderately-sized maple operations in New England.

Before Situation:

The evaporative process time for making concentrated maple syrup is extended and more fuel used because the inefficient evaporator requires more boiling to remove water from the sap.

After Situation:

The evaporative process time for making concentrated maple syrup is reduced by 50% or more and fuel efficiency by 40% or more over standard wood evaporator. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Square Foot of unit

Scenario Unit: Square Foot

Scenario Typical Size: 36.0

Scenario Total Cost: $41,780.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,160.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #28 - Evaporator, Oil-Fired

Scenario Description:

This practice is for the replacement of an inefficient evaporator with a new high efficiency evaporator with appurtenances. A high efficiency evaporator is designed to increase BTU output from the fuel source and provide a larger flue pan surface area to increase evaporation, thus reducing energy use. Oil-fired evaporator includes stainless steel sides and bottom, oil burner, parametric controls, and stainless steel syrup and flue pans. A 4' x 12' oil-fired evaporator with parametric controls is common for moderately-sized maple operations in New England.

Before Situation:

The evaporative process time for making concentrated maple syrup is extended and more fuel used because the inefficient evaporator requires more boiling to remove water from the sap.

After Situation:

The evaporative process time for making concentrated maple syrup is reduced by 50% or more and fuel efficiency by 15% or more. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Square Foot of unit

Scenario Unit: Square Foot

Scenario Typical Size: 48.0

Scenario Total Cost: $38,801.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $808.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #70 - Ventilation, Low Efficient Heater Replacement

Scenario Description:

Replace existing low efficiency heaters with new high efficiency heaters. High-efficiency heating systems include any heating unit with annual fuel utilization efficiency (AFUE) of 90%+ for fuel oil and 93%+ for natural gas and propane. Application is for air heating of small building/ room environments. Typical application is a 30,0000 BTU radiant heater. HEATER SIZING AND PAYMENT IS BASED ON INPUT BTU RATING.

Before Situation:

Building rooms heated with low efficiency heaters.

After Situation:

Higher efficiency heaters reduce energy consumption, energy costs, and GHG emissions. These replacement systems can be electric or fueled by natural gas, propane, or fuel oil. Associated practices/activities: 122-AgEMP - HQ and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Input BTU Rating

Scenario Unit: 1,000 BTU/Hour

Scenario Typical Size: 30.0

Scenario Total Cost: $781.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #122 - Plate Cooler, Small

Scenario Description:
The installation of all stainless steel dual pass plate cooler, type 316 stainless steel. Practice certification will be through receipts and pictures from the applicant.

Before Situation:
Inefficient milk cooling (minimal pre-cooling of milk before entering the bulk tank).

After Situation:
High-efficiency milk cooling system which reduces energy use. The new milk cooling equipment will pre-cool the milk and reduce overall power requirements (kW) compared to the existing milk cooling system (where most of the cooling was accomplished in the bulk tank) as evidenced in an energy audit. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,221.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,221.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #158 - Alley Scraper

Scenario Description:

The application of this practice consists of the installation of an electric powered alley scraper system to replace the use of tractors or skid steers for scraping and transferring manure in barn alleyways. Approximately 1 scraper is needed per 60 head of cows.

Before Situation:

The scraping and transferring manure with tractors or skid steers use energy inefficiently. Inefficient energy use, greenhouse gas emissions by mobile combustion equipment, and a recommendation to implement the improvement has been identified by an ASABE

After Situation:

A new, electric, alley scraper is installed to minimize the use of combustion systems for scraping and transferring manure. An analysis of the estimated annual energy savings is completed that includes estimating the annual gallons of fuel saved. Greenhouse gas emission reductions are computed and offset by the annual electric consumption of the alley scraper. The tractor or skid steer will not be used to scrape and transfer manure where the ally scraper is installed. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of alley scrapers

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $32,174.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $32,174.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #174 - System, Automatic Controller

Scenario Description:

The application of this practice consists of an automatic control system installed on a manually controlled agricultural system that is functioning. Typical components may include, but are not limited to, any of the following: wiring, sensors, data logger, logic controller, software, switches, and relay. The new automatic control system will be used to reduce energy use by equipment, or to reduce fuel use by mobile equipment that is used to travel to manually verify or adjust systems.

Before Situation:

A manually controlled system uses energy inefficiently in an agricultural operation. To reduce energy use, the system should be modified to either automatically control equipment directly or to minimize travel by vehicles, trucks, tractors, etc. to manual

After Situation:

Energy use is reduced by proper controls of equipment or by reducing the number of trips by vehicles to monitor and control equipment. An analysis of the estimated annual energy savings is completed. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,718.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,718.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #190 - Telemetry

Scenario Description:

The application of this practice consists of an automatic control system with wireless communications installed on a manually controlled agricultural system that is functioning. Typical components may include, but are not limited to, any of the following: wiring, sensors, data logger, logic controller, communication link, software, switches, and relay. The new automatic control system will be used to reduce energy use by equipment, or to reduce fuel use by mobile equipment that is used to travel to manually verify or adjust systems.

Before Situation:

A manually controlled system uses energy inefficiently in an agricultural operation. To reduce energy use, the system should be modified to either automatically control equipment directly or to minimize travel by vehicles, trucks, tractors, etc. to manual

After Situation:

Energy use is reduced by proper controls of equipment or by reducing the number of trips by vehicles to monitor and control equipment. An analysis of the estimated annual energy savings is completed. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,265.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,265.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 374 - Energy Efficient Agricultural Operation

Scenario: #201 - Evaporator, Wood or Oil-Fired

Scenario Description:

The practice is for the replacement of an inefficient evaporator with a new, higher efficiency evaporator with appurtenances. A higher efficiency evaporator is designed to increase fuel BTU output and provide a larger pan surface area to increase evaporation. A 3x10 unit is a common size in New England.

Before Situation:

The evaporative process is slow, energy intensive and inefficient, requiring more boiling time than the industry standard due to outdated materials, old technology, and poor functioning.

After Situation:

Process time is reduced as is fuel use. Associated practices and activities may include CEMA 228 - Agricultural Energy Assessment. The resource concern is inefficient energy use on the farm. The concern is addressed by making improvements based on state approved assessment or CEMA 228 assessments.

Feature Measure: Square foot of evaporator p

Scenario Unit: Square Foot

Scenario Typical Size: 30.0

Scenario Total Cost: $20,178.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $672.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 376 - Field Operations Emissions Reduction

Scenario: #1 - Crops per Year, One

Scenario Description:

Utilize equipment that allows a reduction the tillage passes through the field and/or utilizing precision GPS guidance to avoid overlap of tillage passes across the field per crop rotation. Utilize this practice only when residue and STIR values cannot be achieved when using the associated Residue and Tillage Management Practices: 329-No Till or 345-Reduced Tillage to achieve the air quality resource concern. The resource concern addressed is improved air quality by reducing combustion and particulate matter emissions primarily from tillage. The scenario costs are based on tillage equipment or GPS technology to achieve reduce tillage passes.

Before Situation:

Tillage operations are performed individually; each operation requiring a tractor or other power implement to pull the tillage implement resulting in multiple passes across the field. Each pass creates soil particulate emissions contributing to the area's

After Situation:

A 376 Field Operations Emissions Reduction plan is developed showing a reduced number of field passes across the field (benchmark system compared to the planned system). As a result of applying this practice soil particulates in the air is reduced and the area's air quality is improved.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $951.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 376 - Field Operations Emissions Reduction

Scenario: #2 - Crops per Year, Two

Scenario Description:

Utilize equipment that allows a reduction of tillage passes through the field and/or precision GPS guidance to avoid overlap of tillage passes across the field per crop rotation. Utilize this practice only when residue and STIR values cannot be achieved when using the associated Residue and Tillage Management Practices: 329-No Till or 345-Reduced Tillage to achieve the air quality resource concern. The resource concern addressed is improved air quality by reducing combustion and particulate matter emissions primarily from tillage. The scenario cost is based on tillage equipment or GPS technology to achieve reduced tillage passes.

Before Situation:

Tillage operations are performed individually; each operation requiring a tractor or other power implement to pull the tillage implement resulting in multiple passes across the field. Each pass creates soil particulate emissions contributing to the area's

After Situation:

A 376 Field Operations Emissions Reduction plan is developed showing a reduced number of field passes across the field (benchmark system compared to the planned system). As a result of applying this practice soil particulates in the air is reduced and the area's air quality is improved.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,903.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $47.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 376 - Field Operations Emissions Reduction

Scenario: #35 - Mowing in Lieu of Burning

Scenario Description:
Wild low bush blueberries are pruned via mowing every other year to eliminate competitive plants, and stimulate new growth.

Before Situation:
Wild low bush blueberries are burned every other year to eliminate weeds and stimulate new growth. Burning produces air pollutants and uses excess fuel.

After Situation:
Blueberries are pruned via mowing rather than burned. Organic matter is left on surface, improving soil condition. Less fuel is used than for the burning process. Air quality impacts are reduced.

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $4,165.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $416.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 376 - Field Operations Emissions Reduction

Scenario: #58 - Woody Biomass Treatment, Large Tree Crop

Scenario Description:

After large orchard/vineyard or other crop trees are pushed over, the slash created during large tree orchard removal is chipped or shredded in lieu of burning. This scenario is applicable to treat biomass from large mature vineyards. Material may be removed from the site, incorporated in the soil, used as a dust suppressant on unpaved roads or traffic areas. Resource concerns include emissions of particulate matter (PM10).

Before Situation:

Wood waste is either burned, creating an air quality issue, or left in place creating a wildfire hazard, an impediment to access, or a potential site for harboring pests. Energy conservation was not implemented.

After Situation:

Treatment of woody residue without burning results in the reduction of air pollutants.

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $28,406.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,420.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 376 - Field Operations Emissions Reduction

Scenario: #59 - Air Curtain Burner, Large

Scenario Description:
Using an air curtain burner to replace open pile burning of orchard/vineyard prunings, trimmings, and removals or forestry slash and removals for larger operations (>=60 acres).

Before Situation:
Orchard and vineyard or other crop tree prunings, trimmings, and removals or forestry slash and removals at larger operations (>=60 acres) are burned in open piles, resulting in substantial air emissions of particulate matter.

After Situation:
Orchard and vineyard prunings, trimmings, and removals or forestry slash and removals at larger operations (>=60 acres) are burned using an air curtain burner instead of open piles, resulting in a cleaner and more efficient burn and resulting in greatly reduced air emissions of particulate matter.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 200.0

Scenario Total Cost: $39,758.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $198.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 378 - Pond

Scenario: #1 - Excavated Pit

Scenario Description:

A low-hazard water impoundment structure on agricultural lands to maintain or improve water quality and to provide water for livestock, fish and wildlife, recreation, fire control, developing renewable energy systems, and other related uses. Pond is created solely by excavation and impounds less than 3 feet against the embankment or spoil. Excavated material is spoiled or hauled off site, not placed in a designed embankment. Earthen spillway is constructed as needed. The resource concerns addressed include inadequate livestock water, excessive suspended sediment and turbidity in surface water, damage from sediment deposition, and reduced capacity of conveyances by sediment deposition.

Before Situation:

Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, fire control, developing renewable energy systems, and other related uses, and to maintain or improve water quality. Failure of the pond will not result in l

After Situation:

The typical pond is constructed by excavating 2000 cubic yards and spreading the spoil outside the pool area when possible but most often hauling material offsite using an excavator, dozer, and/or similar excavation equipment. Vegetation will be completed under critical area planting (342). Other associated practices include 382, 516, 521A, 533, 614, 587, 396.

Feature Measure: Excavated Volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,000.0

Scenario Total Cost: $22,598.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 378 - Pond

Scenario: #2 - Embankment Pond without Pipe

Scenario Description:

A water impoundment structure on agricultural land to maintain or improve water quality or to provide water for livestock, fish and wildlife, recreation, fire control, developing renewable energy systems, and other related uses. An earthen embankment will be constructed with an earthen auxiliary spillway. The resource concerns addressed include inadequate livestock water, excessive suspended sediment and turbidity in surface water, damage from sediment deposition, and reduced capacity of conveyances by sediment deposition.

Before Situation:

Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, fire control, developing renewable energy systems, and other related uses, and to maintain or improve water quality. Failure of the embankment will not resul

After Situation:

The typical pond is constructed by excavating the pool area, constructing the auxiliary spillway, preparing the foundation as designed, and using 3100 cubic yards to create an embankment. The product of the storage times the effective height of the dam is less than 3,000. The effective height of the dam is 35 feet or less. The earthen auxiliary spillway will be constructed as designed. No principle spillway pipe will be used. Vegetation will be completed under critical area planting (342). Other associated practices include 382, 516, 521A, 533, 614, 587, 396.

Feature Measure: Embankment Volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 3,100.0

Scenario Total Cost: $23,023.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 378 - Pond

Scenario: #3 - Embankment Pond with Pipe

Scenario Description:

A low-hazard water impoundment structure on agricultural land to maintain or improve water quality and to provide water for livestock, fish and wildlife, recreation, fire control, developing renewable energy systems, and other related uses. An earthen embankment will be constructed with a principle spillway conduit and earthen auxiliary spillway, as designed. The resource concerns addressed include inadequate livestock water, excessive suspended sediment and turbidity in surface water, damage from sediment deposition, and reduced capacity of conveyances by sediment deposition.

Before Situation:

Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, fire control, developing renewable energy systems, and other related uses, and to maintain or improve water quality. Failure of the embankment will not resul

After Situation:

The typical low hazard pond is constructed by excavating the pool area, constructing the auxiliary spillway, preparing the foundation as designed, and using 3100 cubic yards to create an embankment. The product of the storage times the effective height of the dam is less than 3,000. The effective height of the dam is 35 feet or less. The principle spillway is installed using an approved conduit material. The earthen auxiliary spillway will be constructed as designed. Vegetation will be completed under critical area planting (342). Other associated practices include 382, 516, 521A, 533, 614, 587, 396.

Feature Measure: Embankment Volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 3,100.0

Scenario Total Cost: $27,994.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 378 - Pond

Scenario: #68 - Pond Sediment & Debris Removal – Conventional Excavation

Scenario Description:

An existing freshwater impoundment has an excessive accumulation of sediment and/or organic debris. The accumulated material is reducing pond capacity, reducing water depth, smothering fish habitat, or contributing to water quality impairments from internal nutrient loading within the impoundment. The existing impoundment is dewatered, incoming stream flows are diverted, and the sediment / organic debris is partially dewatered in place. Sediment and debris volumes are based on in-situ material volume estimates of 3900 cubic yards. The accumulated material is removed through standard excavation equipment via dump truck, and stockpiled to allow for further dewatering. After full dewatering, the excavated material will be spread locally (less than 0.5 miles haul distance) using 466-Land Smoothing. Vegetation shall be established on all exposed areas, using 342—Critical Area Planting or 327-Conservation Cover. Pond must meet all requirements of 378, Pond CPS for this scenario to be considered fully implemented.

Before Situation:

An existing freshwater impoundment has an excessive accumulation of sediment and/or organic debris. The accumulated material is reducing pond capacity, reducing water depth, smothering fish habitat, and/or contributing to water quality impairments from in

After Situation:

The accumulated sediment and organic debris is removed from the pond. Pond depth, water capacity, or fish habitat is restored, water quality is improved, and the intended uses of the pond are met. Resource concerns addressed may include; Surface Water Depletion, Ground Water Depletion, Naturally Available Water, Sediment Transported to Surface Water, Elevated Water Temperature, Aquatic Habitat for Fish and Wildlife, and Inadequate Livestock Water Quality, Quantity and Distribution. Relocation and spreading of dredged material is to be completed under 466-Land Smoothing. Vegetation shall be established on all exposed areas, using 342—Critical Area Planting or 327-Conservation Cover. Other associated practices may include 315-Herbaceous Weed Treatment, 326- Clearing and Snagging, 390-Riparian Herbaceous Buffer, 396-Aquatic Organism Passage, 399-Fishpond Management, 432-Dry Hydrant, 500-Obstruction Removal, 533-Pumping Plant, 580-Streambank and Shoreline Protection, 587-Structure for Water Control, 638- Water and Sediment Control Basin, 644 Wetland Wildlife Habitat Management, 649-Structures for Wildlife, 659-Wetland Enhancement.

Feature Measure: Volume of Sediment Remov

Scenario Unit: Cubic Yard

Scenario Typical Size: 3,900.0

Scenario Total Cost: $167,735.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $43.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 378 - Pond

Scenario: #70 - Pond Spillway Pipe Repair, Dam Height 12 ft or Less

Scenario Description:

An existing low-hazard water impoundment structure on agricultural land used for maintaining or improving water quality, and/or to provide water for livestock, irrigation, fish and wildlife, recreation, fire control, developing renewable energy systems and other related uses, requires repair of a principal spillway or low-flow drain pipeline running transverse through the embankment. Resource concerns addressed will be site specific and dependent on pond's current purpose and usage, but may include: Bank Erosion from Streams, Shorelines or Water Conveyance Channels; Ponding and Flooding; Surface Water Depletion; Naturally Available Moisture Use; Inefficient Irrigation Water Use; Sediment Transported to Surface Water; Aquatic Habitat for Fish and Other Organisms; Inadequate Livestock Water Quantity, Quality and Distribution. Vegetation shall be established on all exposed areas, using 342—Critical Area Planting. Pond must meet all requirements of 378, Pond CPS for this scenario to be considered fully implemented.

Before Situation:

A low-hazard existing impoundment with a dam height of 12 feet or less, has a principal and/or low-flow drain pipe that is inadequately sized to pass the peak flow from the required design storm or in bad disrepair. This scenario assumes the existing pipe

After Situation:

The existing reservoir will be either completely or partially dewatered in order to access the area where work is to be performed and existing stream flows will be rerouted to a safe area downstream of the dam. Work will consist of excavating down to existing appurtenant structure(s), stockpiling excavated material, removal of the appurtenance via a crane, and hauling and disposal to a solid waste facility via a dump truck. Replacement pipe is assumed to be 80 L.F. of fusion welded 22" (O.D.) IPS DR 11, 200 PSI HDPE pipe meeting AWWA C906 and ASTM D3035. Pipe is lain in a minimum 70" wide trench bottom, with a 3:1 side slope to the existing top of dam or dam abutment. A 3' L x 9' W x 11' H sand diaphragm is installed in the embankment to prevent piping of fines. Pipe will be backfilled and compacted using hand tampers/plate compactors for the first three feet of trench, thereafter, a bulldozer will be used to place backfill, fill scarified, and then a sheepsfoot roller will be used over the fill to achieve compaction effort and restore the dam back to original grade. Vegetation will be completed under Critical Area Planting (342), inlet Riser should be completed using 587, Structure for Water Control. If needed, due to construction access issues or unsuitable ground conditions, temporary access to the site may be completed using CPS 560, Access Road. Other associated practices may include but are not limited to: 606-Subsurface Drain, 521-Pond Sealing and Lining, 468-Lined Waterway or Outlet, 326-Clearing and Snagging(for trees on dam embankments), 516-Livestock Pipeline, 587-Structure for Water Control, 396-Aquatic Organism Passage, 533-Pumping Plant, 614-Stockwatering, 432-Dry Hydrant, 574-Spring Development and 570-Stormwater Runoff Control.

Feature Measure: Length of Pipe

Scenario Unit: Diameter Inch Foot

Scenario Typical Size: 1,760.0

Scenario Total Cost: $157,333.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $89.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 378 - Pond

Scenario: #71 - Pond Embankment Rehabilitation

Scenario Description:

An existing embanked freshwater impoundment with a 12' total height dam, 200' long needs rehabilitation to: meet the current CPS-378 standard, address infrastructure deficiencies, address existing resource concerns from the current pond condition, and/or alleviate potential future resource concerns associated with a failure of the existing embankment. Consideration should be given to both the impoundment and down gradient resources. The planned treatment is in accordance with the practice scenario and is based on the recommendations from a comprehensive engineering inspection report. The existing embankment has structural deficiencies such as inadequate top width, seepage, settlement, failing or inadequate earthen emergency spillways, inadequate side slopes/height/freeboard, deficient/incompatible core materials, woody plant growth, or other inadequate water control structures. Removal of woody plant growth will be accomplished with 326 – Clearing and Snagging or 500 -Obstruction Removal. Repair or replacement of water control structures will be accomplished with 587 – Structure for Water Control, 460 – Lined Waterway or Outlet, 606 – Underground outlet and/or other practice standards/Pond 378 scenarios as applicable.

Before Situation:

The existing 200' embankment has structural deficiencies such as inadequate top width (6' width assumed), seepage, settlement, boils, inadequate side slopes (2:1 sideslopes assumed for slopes), inadequate height/freeboard, inadequate emergency spillway, i

After Situation:

The existing dam surface materials on the back side of the dam are stripped away, suitable embankment material is secured from an offsite location, placed and compacted, a top width of 10' is established and necessary embankment slopes are created (3:1/2:1 Upstream/Downstream), the top of the embankment and side slope are covered with topsoil. Total length is assumed to be the same (200'). Total cubic yardage added to dam embankment is 1155 c.y. of fill dirt. Topsoil is overlain 4" thick over the entire upstream and downstream embankment to prep for critical area planting and reestablish appropriate vegetation. Woody vegetation has been removed from the earthen embankment as specified in a comprehensive engineering report. Critical area planting will be used for seeding down exposed soil with an appropriate herbaceous conservation cover. Vegetation shall be established on all exposed areas, using 342—Critical Area Planting or 327-Conservation Cover. Other associated practices may include 315-Herbaceous Weed Treatment, 326- Clearing and Snagging, 390-Riparian Herbaceous Buffer, 396-Aquatic Organism Passage, 399-Fishpond Management, 432-Dry Hydrant, 500-Obstruction Removal, 533-Pumping Plant, 580-Streambank and Shoreline Protection, 587-Structure for Water Control, 638- Water and Sediment Control Basin, 644 Wetland Wildlife Habitat Management, 649-Structures for Wildlife, 659-Wetland Enhancement and/or other practice standards/Pond 378 scenarios as applicable.

Feature Measure: Volume of Embankment Re

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,155.0

Scenario Total Cost: $197,882.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $171.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 379 - Forest Farming

Scenario: #16 - Canopy Treatment

Scenario Description:

Management of existing overstory tree canopy to enhance the structure, density and diversity within existing forests within an unmanaged or native forest stand. Canopy thinning, density, and patch structure will be determined by the desired shade/light requirements of understory crops and to meet landowner's desired future conditions. Overstory canopy trees to be thinned or removed will be marked and all activities are to be supervised by a certified Agroforester, Forester or qualified professional. Treatment of tree canopy conditions will be undertaken to reduce and open up existing canopy, requiring trained and skilled labor using chainsaws and other hand tools. Resource concerns include: Plant structure and composition; Plant productivity and health; Terrestrial habitat for wildlife and invertebrates; and, Sheet and rill erosion.

Before Situation:

Existing tree canopy structure, composition and plant condition is negatively affecting the resource setting. Canopy density shades out desired woody perennial, herbaceous, annual or cultural crop plants as well as native wildlife/pollinator plants. Lando

After Situation:

The typical resource setting is <1 ac to 5 ac, 2 ac is average. Existing tree and plant canopies are managed in combination to enhance landowner conservation and production. Management supports increased wildlife/native pollinators forage and nesting habitat. Onsite orientation and management of large stems, branches and leaves provides adequate ground cover, organic matter to enhance and sustain soil and protect setting from excessive soil erosion or runoff.

Feature Measure: Each

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $2,622.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,311.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 379 - Forest Farming

Scenario: #17 - Native Tree Planting

Scenario Description:

Management of existing overstory tree canopy to enhance the structure, density and diversity within existing forests within an unmanaged or native forest stand. Native or non-native trees or shrubs are planted to enhance existing or degraded agroforest/forest farm conditions. Underplanting and spacing of trees or shrubs will be determined by the desired shade/light requirements and to meet landowner's desired future conditions for multi-story cropping and associated benefits. Tree and shrub planting sites and orientation and overstory canopy thinning and/or whole tree removals will be marked and supervised by a certified Agroforester, Forester or qualified professional. Treatment of tree canopy will be undertaken to reduce and open the existing canopy layers, requiring trained and skilled labor using chainsaws and other hand tools. Resource concerns include: Plant structure and composition; Plant productivity and health; Terrestrial habitat for wildlife and invertebrates; and, Sheet and rill erosion.

Before Situation:

Existing tree canopy structure, composition and plant condition is negatively affecting the resource setting. Canopy gaps allow significant sunlight onto the forest floor that affects shrub and other understory plant health. Canopy density shades out desi

After Situation:

The typical resource setting is <1ac to 5ac, 2ac is average. Existing tree and plant canopies are managed in combination to enhance landowner conservation and production. Management supports increased wildlife/native pollinators forage and nesting habitat. Onsite orientation and management of large stem, branches/leaves provides adequate ground cover, organic matter and woody material to enhance and sustain soil and protect setting from excessive soil erosion or runoff.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $4,846.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,423.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 379 - Forest Farming

Scenario: #18 - Tree and Shrub Planting

Scenario Description:

Native or non-native trees or shrubs are hand-planted to enhance existing or degraded agroforest/forest farm conditions or to establish agroforest on cropland settings where shrubs, trees, and/or dwarf trees will grow. Planting site orientation and spacing will be marked by a certified Agroforester, Forester or qualified professional. Resource concerns include: Plant structure and composition; Plant productivity and health; Terrestrial habitat for wildlife and invertebrates; and, Sheet and rill erosion.

Before Situation:

Existing overstory tree canopy is degraded or absent which negatively affects existing or planned plantings on the site. Shrub species exist and landowner desires to establish a tree overstory to improve growing conditions and diversity. Wildlife species

After Situation:

The typical Agroforest is <1 acres to 5 acres, 2 acres is average. Native or non-native trees were planted that will grow and provide shade for the existing managed shrubs and/or trees and to create habitat that will benefit terrestrial species. Onsite management and orientation of stems, branches/leaves provides adequate ground cover, organic matter and woody material to enhance and sustain soil and protect setting from excessive soil erosion or runoff.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $2,157.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,078.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 379 - Forest Farming

Scenario: #21 - Native Forb Planting

Scenario Description:

Management of existing understory to enhance the structure, density and diversity within existing forests within an unmanaged or native forest stand. Native or non-native grasses or forbs are planted to enhance existing or degraded agroforest/forest farm conditions. Underplanting and spacing will be determined by the desired shade/light/soil requirements and to meet landowner's desired future conditions for forest farming and associated benefits. Planting sites and orientation and overstory canopy thinning and/or whole tree removals will be marked and supervised by a certified Agroforester, Forester or qualified professional. Treatment of tree canopy will be undertaken to reduce and open the existing canopy layers, requiring trained and skilled labor using chainsaws and other hand tools. Resource concerns include: Plant structure and composition; Plant productivity and health; Terrestrial habitat for wildlife and invertebrates; and, Sheet and rill erosion.

Before Situation:

Existing tree canopy structure, composition and plant condition is negatively affecting the resource setting. Canopy gaps allow significant sunlight onto the forest floor that affects shrub and other understory plant health. Canopy density shades out desi

After Situation:

The typical resource setting is <1ac to 5ac, 2ac is average. Existing tree and plant canopies are managed in combination to enhance landowner conservation and production. Management supports increased wildlife/native pollinators forage and nesting habitat. Onsite orientation and management of large stem, branches/leaves provides adequate ground cover, organic matter and woody material to enhance and sustain soil and protect setting from excessive soil erosion or runoff.

Feature Measure: Acres of planted area

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $3,330.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,665.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #1 - One Row, Manual Plant Shrubs

Scenario Description:

Single 500 foot row of shrubs for wind protection, wildlife habitat, or snow management. Shrubs planted by hand 4 feet apart. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed may include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, or to manage snow deposition. Additional wildlife food and cover.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $420.36

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #2 - One Row, Manual Plant Trees

Scenario Description:

Single 500 foot row of conifer tree seedlings for wind protection, wildlife habitat, or snow management. Trees planted by hand 10 feet apart. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed may include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, or to manage snow deposition. Additional wildlife food and cover.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $171.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #3 - Two Rows, Machine Plant Shrubs

Scenario Description:

Two 500 foot rows of shrubs for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Shrubs planted with a tree planting machine 4 feet apart in the row with rows 16 feet apart. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, pesticides transported to surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Livestock Production Limitation (inadequate shelter); Air Quality Impacts (emission of particulate matter, objectionable odors); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $528.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #4 - Two Rows, Machine Plant Trees

Scenario Description:

Two 500 foot rows of hardwood trees for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Trees planted with a tree planting machine 10 feet apart in the row with rows 16 feet apart. Herbivores (deer, rabbits, etc.) are NOT expected to browse tree seedlings, tree protection is not needed. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, pesticides transported to surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Livestock Production Limitation (inadequate shelter); Air Quality Impacts (emission of particulate matter, objectionable odors); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $509.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #6 - Three or More Rows, Manual Plant Shrubs

Scenario Description:

Three or more 500 foot rows of shrubs for wind protection, energy conservation, wildlife habitat, air quality, snow management. Shrubs planted with a tree planting machine, 4 feet apart in the row with rows 16 feet apart. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, pesticides transported to surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Livestock Production Limitation (inadequate shelter); Air Quality Impacts (emission of particulate matter, objectionable odors); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screening or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $1,083.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #7 - Three or More Rows, Machine Plant Trees

Scenario Description:

Three or more 500 foot rows of trees for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. The outside rows are conifers the inside row(s) are hardwoods. Trees 10 feet apart with rows 16 feet apart, planted with a tree planting machine. Herbivores are not expected to browse planted seedlings, so tree shelters are not needed. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, pesticides transported to surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Livestock Production Limitation (inadequate shelter); Air Quality Impacts (emission of particulate matter, objectionable odors); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screening or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $536.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #61 - Renovation, Supplemental Manual Plant with Container or Bareroot Stock

Scenario Description:

Parts of the windbreak being renovated have died, but it is not necessary to cut or mechanically remove the dead wood. Supplemental plantings of containerized or bare root trees/shrubs within the existing footprint of the windbreak will improve its effectiveness and longevity. The windbreak/shelterbelt is renovated through hand planting of containerized tree and/or shrub seedlings at a average spacing of 8' (shrubs 4'-6', deciduous/conifer trees 8'-12') within row and 15'-20' between rows. A windbreak width of 60' and length of 726' are used in calculations; this is equivalent to an area of 1 acre. For planting that expands the footprint of an existing windbreak, use scenarios for Windbreak/Shelterbelt Establishment. Resource concerns include: Plant pest pressure, Plant productivity and health, Inadequate livestock shelter, Wind erosion.

Before Situation:

The health of trees and/or shrubs in a windbreak/shelterbelt has degraded as plants age, or plants may have been damaged by weather events or pests, decreasing the effectiveness of the original windbreak design. Plants lack leaf cover, have dead branches,

After Situation:

The integrity of 726 linear feet (one acre) of windbreak/ shelterbelt has been restored and is functioning properly to reduce wind impacts to plants, animals, humans, and structures.

Feature Measure: Length of Renovation

Scenario Unit: Foot

Scenario Typical Size: 726.0

Scenario Total Cost: $2,398.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #62 - Renovation, Greater Than 8 Inches Diameter Breast Height, Manual Plant

Scenario Description:

Windbreak/shelterbelt renovation to remove and replace deteriorated, damaged, diseased, or unsuitable trees or shrubs. The treatment may include removal of entire rows, or removal of selected trees/shrubs in order to prepare for the necessary planting of replacement trees and shrubs within the footprint of an existing windbreak, to improve the health and function of the windbreak. The treatment uses mechanized equipment to remove trees and/or shrubs with average DBH >8 inches. Trees and shrubs are cleared with a Dozer. All woody debris from cutting and pruning is either scattered and crushed, piled and crushed, chipped, or removed from the treatment area. Hand planting is used to replace the trees/shrubs that were removed, improving the effectiveness and longevity of the windbreak. Various types and combinations of plant materials may be used, including bare root and/or containerized trees/shrubs, and conifer and/or deciduous species or mixtures. Windbreak width of 60' and length of 726' are used in calculations; this is equivalent to an area of 1 acre. For planting that expands the footprint of an existing windbreak, use scenarios for Windbreak/Shelterbelt Establishment. Resource concerns include: Plant pest pressure, Plant productivity and health, Inadequate livestock shelter, Wind erosion.

Before Situation:

The health of trees and/or shrubs in a windbreak/shelterbelt has degraded as plants age, or plants may have been damaged by weather events or pests, decreasing the effectiveness of the original windbreak design. Plants lack leaf cover, have dead branches,

After Situation:

The integrity of 726 linear feet (one acre) of windbreak/ shelterbelt has been restored and is functioning properly to reduce wind impacts to plants, animals, humans, and structures.

Feature Measure: Length of Renovation

Scenario Unit: Foot

Scenario Typical Size: 726.0

Scenario Total Cost: $4,936.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #63 - Renovation, Thinning or Removal of Trees and Shrubs, Manual Plant

Scenario Description:

Windbreak/shelterbelt renovation to remove and replace deteriorated, damaged, diseased, or unsuitable trees or shrubs. The treatment may include removal of entire rows, or removal of selected trees/shrubs in order to prepare for the necessary planting of replacement trees and shrubs within the footprint of an existing windbreak, to improve the health and function of the windbreak. The treatment uses mechanized equipment to remove trees and/or shrubs with average DBH < 8 inches. Trees and shrubs are cleared by a Skidsteer with a tree sheer or saw. All slash material from cutting and pruning is either scattered and crushed, piled and crushed, chipped, or removed from the treatment area. Hand planting is used to replace the trees/shrubs that were removed, to improve the effectiveness and longevity of the windbreak. Various types and combinations of plant materials may be used, including bare root and/or containerized trees/shrubs, and conifer and/or deciduous species or mixtures. Windbreak width of 60' and length of 726' are used in calculations; this is equivalent to an area of 1 acre. For planting that expands the footprint of an existing windbreak, use scenarios for Windbreak/Shelterbelt Establishment. Resource concerns include: Plant pest pressure, Plant productivity and health, Inadequate livestock shelter, Wind erosion.

Before Situation:

The health of trees and/or shrubs in a windbreak/shelterbelt has degraded as plants age, or plants may have been damaged by weather events or pests, decreasing the effectiveness of the original windbreak design. Plants lack leaf cover, have dead branches,

After Situation:

The integrity of 726 linear feet (one acre) of windbreak/shelterbelt has been restored and is functioning properly to reduce wind impacts to plants, animals, humans, and structures.

Feature Measure: Length of Renovation

Scenario Unit: Foot

Scenario Typical Size: 726.0

Scenario Total Cost: $4,440.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #124 - One Row, Small

Scenario Description:
One row of containerized shrubs planted to address resource concerns; Inefficient Energy Use, Air Quality Impacts and/or Fish and Wildlife Habitat. This practice is typically applied on cropland at field edges and around homesteads.

Before Situation:
Agricultural field or farmstead needing protections from wind, additional wildlife food and cover, odor mitigation, visual screening. The area generally includes arid or drought conditions that greatly reduce the success of tree survival.

After Situation:
A windbreak of containerized shrubs is installed by hand planting shrubs 6 ft apart. Wind velocity suitably diminished to reduce soil erosion or energy loss. Additional wildlife food and cover, mixing of odor plumes and visual screening. Greatly improved success rate of the windbreak due to the supplemental water during establishment.

Feature Measure: Length of windbreak row

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $461.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #155 - Two Rows, Machine Plant Trees with Shelters

Scenario Description:

Two 500 foot rows of hardwood tree seedlings for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Trees planted with a tree planting machine 10 feet apart in the row with rows 16 feet apart. Environmental impacts are likely, so each tree must be protected with a rigid tube tree shelter. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, pesticides transported to surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Livestock Production Limitation (inadequate shelter); Air Quality Impacts (emission of particulate matter, objectionable odors); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $1,452.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #156 - Three or More Rows, Machine Plant Trees with Shelters

Scenario Description:

Three or more 500 foot rows of hardwood trees for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Trees planted with a tree planting machine 10 feet apart in the row with rows 16 feet apart. Environmental impacts are likely, so each tree must be protected with a rigid tube tree shelter. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, pesticides transported to surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Livestock Production Limitation (inadequate shelter); Air Quality Impacts (emission of particulate matter, objectionable odors); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $1,777.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #157 - Renovation, Removal of Trees and Shrubs, Manual Plant

Scenario Description:

Windbreak/shelterbelt renovation to remove and replace deteriorated, damaged, diseased, or unsuitable trees or shrubs. The treatment may include removal of entire rows, or removal of selected trees/shrubs in order to prepare for the necessary planting of replacement trees and shrubs within the footprint of an existing windbreak, to improve the health and function of the windbreak. Supplemental plantings of bare root and/or containerized trees/shrubs, of conifer and/or deciduous species, or mixtures, are applied to improve the effectiveness and longevity of the windbreak. Windbreak width of 60' and length of 726' are used in calculations; this is equivalent to an area of 1 acre. For planting that expands the footprint of an existing windbreak, use scenarios for Windbreak/Shelterbelt Establishment. Resource concerns include: Plant pest pressure, Plant productivity and health, Inadequate livestock shelter, Wind erosion.

Before Situation:

The health of trees and/or shrubs in a windbreak/shelterbelt has degraded as plants age, or plants may have been damaged by weather events or pests, decreasing the effectiveness of the original windbreak design. Plants lack leaf cover, have dead branches,

After Situation:

The integrity of 726 linear feet (one acre) of windbreak/shelterbelt has been restored and is functioning properly to reduce wind impacts to plants, animals, humans, and structures.

Feature Measure: Length of Renovation

Scenario Unit: Foot

Scenario Typical Size: 726.0

Scenario Total Cost: $3,469.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario: #252 - Three or More Rows, Manual Plant Trees

Scenario Description:

Three or more 500 foot rows of trees for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. The outside rows are conifers the inside row(s) are hardwoods. Trees 10 feet apart with rows 16 feet apart, planted with a tree planting machine. Planted seedlings are not likely to be impacted by environmental stressors, so tree shelters are not needed. This practice is typically applied to crop, pasture or range lands. Resource Concerns to be addressed include: Soil Erosion (wind); Excess/Insufficient Water (drifted snow, inefficient moisture management); Water Quality Degradation (excess nutrients in surface waters, pesticides transported to surface waters, excessive sediment in surface waters,); Degraded Plant Condition (undesirable plant productivity and health); Inadequate habitat for Fish and Wildlife (food, cover/shelter, continuity); Livestock Production Limitation (inadequate shelter); Air Quality Impacts (emission of particulate matter, objectionable odors); Inefficient Energy Use (facilities, farming/ranching practices and field operations).

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screening or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Feature Measure: length of windbreak row(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $470.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 381 - Silvopasture

Scenario: #3 - Native Perennial Grass, Non-Commercial

Scenario Description:
Non-commercial thinning of an existing stand of trees followed by establishment of native grasses.

Before Situation:
10-acre forest stand that is overstocked, with a basal area of 100 sq. ft. per acre. There is very little available forage for livestock, due to the dense shade of the tree canopy. Resource Concerns include Degraded Plant Condition - Undesirable Plant Pro

After Situation:
The stand is thinned non-commercially to a basal area of 50 sq. ft. per acre, which will allow adequate sunlight to the forest floor for grass production, yet still provide shade and some protection from the elements for livestock and wildlife. Debris is removed, all tree cutting will leave the shortest possible stump height. The soil is prepared for planting using chemical and mechanical means, then a mix of native warm-season grasses will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Feature Measure: Acres of silvopasture establi

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $8,716.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $871.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 381 - Silvopasture

Scenario: #4 - Introduced Perennial Grass, Non-Commercial

Scenario Description:
Non-commercial thinning of an existing stand of trees followed by establishment of introduced grasses.

Before Situation:
10-acre forest stand that is overstocked, with a basal area of 100 sq. ft. per acre. There is very little available forage for livestock, due to the dense shade of the tree canopy. Resource Concerns include Degraded Plant Condition - Undesirable Plant Pro

After Situation:
The stand is thinned non-commercially to a basal area of 50 sq. ft. per acre, which will allow adequate sunlight to the forest floor for grass production, yet still provide shade and some protection from the elements for livestock and wildlife. Debris is removed, all tree cutting will leave the shortest possible stump height. The soil is prepared for planting using chemical and mechanical means, then a mix of cool-season grasses and legumes will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Feature Measure: Acres of silvopasture establi

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $7,618.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $761.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 381 - Silvopasture

Scenario: #5 - Native and Introduced Perennial Mix

Scenario Description:
Establishment of native grasses into an existing stand of trees that is already at an adequate density .

Before Situation:
10-acre forest stand that has a basal area of 50 sq. ft. per acre. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and H

After Situation:
The soil is prepared for planting using chemical and mechanical means, then a mix of native warm-season grasses will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Feature Measure: Acres of silvopasture establi

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $5,115.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $511.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 381 - Silvopasture

Scenario: #6 - Introduced Perennial Grass

Scenario Description:
Establishment of introduced grasses into an existing stand of trees that is already at an adequate density .

Before Situation:
10-acre forest stand that has a basal area of 50 sq. ft. per acre. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and H

After Situation:
The soil is prepared for planting using chemical and mechanical means, then a mix of cool-season grasses and legumes will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Feature Measure: Acres of silvopasture establi

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $4,017.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $401.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 381 - Silvopasture

Scenario: #7 - Potted Hardwood and Native and Introduced Perennial Mix

Scenario Description:

Establishment of trees and grasses and legumes into a field that contains neither suitable forage nor suitable tree cover for a silvopasture system. Primary resource concerns include inadequate livestock shelter (shade), inadequate feed and forage, undesirability plant productivity and health and plant structure and composition. Also, naturally available moisture use; emissions of greenhouse gases - GHGs; soil compaction; soil aggregate instability; organic matter depletion; and soil organism habitat.

Before Situation:

10-acre field without suitable forage for livestock nor tree cover. Undesirable species dominate the pasture. There is limited shade cover resulting in heat stress and wear and tear on the limited shady areas. Hot, dry summers in open pastures results in

After Situation:

Field is prepared for seeding by controlling the existing, undesirable species, and lime and nutrients are spread according to soil test results. An appropriate pasture seed mix is established, and then 70 trees per acre are planted, providing shade and in time, producing a viable wood products or tree fodder crop. Tree cover improves forage productivity during hot dry periods, as a result of hydraulic lift. This scenario is based on planting trees in rows, spaced approximately 40-60' apart, depending on the producer's objectives, livestock species and equipment size. Spacing and layout may vary based on the site characteristics and producer objectives. Appropriate tree species are selected to meet the resource concern and producer’s objectives. Trees are properly protected until they are established well enough to allow livestock grazing without stand loss. Additional practices to plan: Tree/Shrub Site Preparation (490) to control the vegetation in a small planting area, approximately 4 to 8 sf/tree. Mulching (484) is used to protect the new trees from vegetative growth. Portable (or possibly interior) fence (382) may be planned to protect trees while grazing the areas between the trees. Brush management (314) may be needed in advance of site prep to control woody invasive species. Prescribed Grazing (528) is planned to manage the grazing. All resource concerns are addressed.

Feature Measure: Acres of silvopasture establi

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $25,253.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,525.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 381 - Silvopasture

Scenario: #8 - Bareroot Conifer and Introduced Perennial Grass

Scenario Description:
Establishment of trees and introduced grasses and legumes into a field that contains neither suitable forage nor suitable tree cover for a silvopasture system.

Before Situation:
10-acre old field without suitable forage for livestock nor tree cover. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity

After Situation:
The site will be prepared using chemical and mechanical means, a mix of cool-season grasses and legumes will be established, and then 200 pine trees per acre will be planted, providing forage to livestock and wildlife, and, in time, producing a viable wood products crop. Per the conservation practice standard, livestock grazing will be deferred until the trees reach adequate height to resist damage, or use exclusion measures are established. All Resource Concerns listed above are addressed.

Feature Measure: Acres of silvopasture establi

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $6,459.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $645.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 381 - Silvopasture

Scenario: #9 - Potted Hardwood

Scenario Description:

Establishment of trees into an existing pasture that contains desirable forage. Primary resource concerns include inadequate livestock shelter, inadequate feed and forage and undesirability plant productivity and health. Also, naturally available moisture use; emissions of greenhouse gases – GHGs; soil compaction; soil aggregate instability; organic matter depletion; and soil organism habitat.

Before Situation:

10-acre pasture with desirable forage has limited shade resulting in loafing and wear of pasture on partially shaded field boundary. Hot, dry summers in open pastures results in high evapotranspiration, leading to poor forage productivity and soil health.

After Situation:

Approximately 70 trees per acre are planted, providing shade to livestock, and in time, producing a viable wood products or tree fodder crop. Tree cover improves forage productivity during hot dry periods, as a result of hydraulic lift. This scenario is based on planting trees in rows, spaced approximately 40-60' apart, depending on the producer's objectives, livestock species and equipment size. Spacing and layout may vary based on the site characteristics and producer objectives. Appropriate tree species are selected to meet the resource concern and producer’s objectives. Trees are properly protected until they are established well enough to allow livestock grazing without stand loss. Additional practices to plan: Tree/Shrub Site Preparation (490) to grub out a small planting area, approximately 4 to 8 sf/tree. Mulching (484) is used to protect the new trees from vegetative growth. Portable (or possibly interior) fence (382) may be planned to protect trees while grazing the areas between the trees. Brush management (314) may be needed in advance of site prep to control woody invasive species. All resource concerns are addressed.

Feature Measure: Trees planted

Scenario Unit: Each

Scenario Typical Size: 700.0

Scenario Total Cost: $18,746.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #1 - High Tensile, Two to Four Wire Electric

Scenario Description:

Typically used to install a 2-4 wire electrified high tensile fence according to state specifications. Assumes posts, wire, fasteners, gates, fence charger, and labor. Fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds.

Before Situation:

On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality may be impacted by increased erosion and runoff, livestock access to water bodies may be unco

After Situation:

Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, fence charger, etc... Two to four (three) strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 2,640.0

Scenario Total Cost: $10,199.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #2 - High Tensile, Five to Six Wire Electric

Scenario Description:

Typically used to install a 5-6 wire electrified high tensile fence according to state specifications. Assumes posts, wire, fasteners, gates, fence charger, and labor. Fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds.

Before Situation:

On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality may be impacted by increased erosion and runoff, livestock access to water bodies may be unco

After Situation:

Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, fence charger, etc...5 or 6 strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 2,640.0

Scenario Total Cost: $11,318.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #3 - Woven Wire

Scenario Description:

Install a woven wire fence that is typically used for sheep, goats, horses, camelids, wildlife exclusion, shelterbelt/tree protection, etc. Woven wire fence includes posts, wire, fasteners, gates, and labor. Fence is installed according to state specifications and typically includes the use of barbed or electrified smooth wire for predator control. Fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive areas, improved water quality, and reduction of noxious and invasive weeds.

Before Situation:

On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality may be impacted by increased erosion and runoff, livestock access to water bodies may be unco

After Situation:

Installation of fence will allow for implementation of a rotational grazing plan that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Woven wire fence includes posts, wire, fasteners, gates, etc. Woven wire is typically used in applications with sheep, goats, horses and camelids.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 2,640.0

Scenario Total Cost: $17,093.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.47

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #4 - Barbed Wire

Scenario Description:

Install a multi-wire barbed wire according to state specifications. Assumes posts, wire, fasteners, gates, fence charger, and labor. Fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds.

Before Situation:

On grazinglands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. Re

After Situation:

Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, fence charger, etc... Two to three strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 2,640.0

Scenario Total Cost: $12,409.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #5 - Interior, electrified

Scenario Description:

Install permanent or semi-permanent light-duty electrified fence for interior subdivisions for a grazing system. Installation of fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds.

Before Situation:

On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality may be impacted by increased erosion and runoff, livestock access to water bodies may be unco

After Situation:

Installation of interior fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence is used for laneways and/or subdivisions of grazing system.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 1,320.0

Scenario Total Cost: $2,262.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #6 - Portable

Scenario Description:

Used for portable electrified fence that is manufactured for managing livestock on grazing systems within the confines of a permanent perimeter fence which supplies the electric charge. Typically used for polywire/tape fencing. Fence is installed according to state specifications and will facilitate implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive areas, improved water quality, reduction of noxious and invasive weeds. This fence might also be used as an extension of a permanent fence where seasonal flooding or other conditions dictate use of a removable fence. Typically one portable fence setup is used for a grazing system, and may be transported to fields within the system.

Before Situation:

On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality may be impacted by increased erosion and runoff, livestock access to water bodies may be unco

After Situation:

Pasture is subdivided into appropriately-sized paddocks to control animal access to forage. Fence is comprised of materials manufactured for this use, including poly wire, rope, or tape, fiberglass rods, and reels to hold the conductors. Typical pasture is subdivided with a movable system to control livestock and allow for appropriate rest and recovery of forage.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $912.36

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #7 - Confinement

Scenario Description:
Install a rugged wood board or woven wire fence in confinement areas such as HUA's. Typically used on an areas less than 1/4 to 1/2 acre in size, such as a Heavy Use Area, Vegetated Treatment Area, or other situations where installation of fence reduces resource concerns associated with livestock feeding operations.

Before Situation:
Lack of HUA and/or appropriate confinement fence results in degradation of pasture, vegetated treatment areas, or other sensitive areas.

After Situation:
Installation of fence reduces resource concerns associated with livestock access and/or prevents conflicts between humans and threatened, endangered or sensitive species.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 330.0

Scenario Total Cost: $4,493.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #8 - Chain Link

Scenario Description:
A barrier (fence) implemented on an NRCS constructed waste storage system according to engineering design to exclude human access. Permanently installed fence built to keep humans away from waste ponds & lagoons.

Before Situation:
Where a NRCS designed and constructed waste storage pond is planned, and significant risk to human safety is determined to be evident.

After Situation:
A five foot high chain link fence is installed to exclude humans and livestock from the waste storage pond for safety purposes. The fenced area would typically be 100 wide x 175 long with one gate and installed by a fencing contractor.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $8,912.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #9 - Exclusion, 96 Inch

Scenario Description:
Installation of fence reduces resource concerns associated with livestock feeding operations and/or wildlife access to prevent conflicts between humans and livestock or wildlife species.

Before Situation:
Wildlife negatively impacting sensitive areas such as riparian areas, windbreaks and shelterbelts or feed storage. Disease transmission from wildlife posses a significant health risk to domestic animals.

After Situation:
Installation of fence reduces resource concerns associated with livestock and/or wildlife access and prevents conflicts between humans and threatened, endangered or sensitive species. Fence includes posts, wire, fasteners, gates, etc...

Feature Measure: Length of fence

Scenario Unit: Foot

Scenario Typical Size: 1,320.0

Scenario Total Cost: $18,103.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #77 - Barbed or Smooth Wire for Difficult Terrain, Multi-Strand

Scenario Description:

Barbed, Smooth ,or Woven Wire Difficult Installation - Installation of fence in difficult situations will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Constructed using fencing materials rather than a pre-manufactured gate.

Before Situation:

On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. R

After Situation:

Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, brace posts, etc... Fence will be installed with wildlife friendly considerations.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 1,320.0

Scenario Total Cost: $5,509.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #109 - Barbed or Smooth Wire, Multi-Strand

Scenario Description:

Multi-strand, Barbed or Smooth Wire - Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Constructed using fencing materials rather than a pre-manufactured gate.

Before Situation:

On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. R

After Situation:

Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, etc... Four strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 1,320.0

Scenario Total Cost: $4,221.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #110 - Electric

Scenario Description:
Electric - Installation of fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds.

Before Situation:
On grazinglands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. Re

After Situation:
Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, fence charger, etc... Two to three strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 1,320.0

Scenario Total Cost: $3,815.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #157 - Woven Wire, 96 Inch

Scenario Description:

Woven Wire fencing installed for large livestock such as Bison, large ungulate herbivores, captive cervidae that are not domesticated. Because of the size and behavior differences relative to domesticated livestock, fences, handling facilities and loading facilities must be more robust to accommodate bison. Fence allows for the implementation of a grazing management under a CPS 528 Prescribed Grazing plan. Fence facilities the movement of livestock for forage management and protection of sensitive areas. All fence components are included. Fence encloses <= 20 acres or 2640 foot linear run connection with 5-8 wire fencing. Install fence with considerations for wildlife corridors.

Before Situation:

Livestock have access to forage and sensitive areas without management of intensity, duration and frequency of grazing events. Plant productivity and health is degraded. Water quality may be impaired by sediment and livestock access to water.

After Situation:

Installation of the tall woven wire high tensile electric fence allows for grazing management to be implemented. Fence is installed to specifications meeting the producer's objective and livestock type. Fence is installed with wildlife friendly considerations and known wildlife corridors.

Feature Measure: length

Scenario Unit: Foot

Scenario Typical Size: 2,640.0

Scenario Total Cost: $23,624.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #173 - High Tensile, Eight Wire Electric

Scenario Description:

A high tensile wire fence which is electrified for large livestock such as Bison, large ungulate herbivores, captive cervidae that are not domesticated. Eight strands of wire are used for visual barrier with a minimum of 3 wires electrified. Fence allows for the implementation of a grazing management plan. Because of the size and behavior differences relative to domesticated livestock, fences, handling facilities and loading facilities must be more robust to accommodate bison. Fence allows for the implementation of grazing management under CPS Prescribed Grazing plan. Fence facilities the movement of livestock for forage management and protection of sensitive areas. All fence components are included. Fence encloses 40 acres. Install fence considering wildlife and known wildlife corridors.

Before Situation:

Livestock have access to forage and sensitive areas without management of intensity, duration and frequency of grazing events. Plant productivity and health is degraded. Water quality may be impaired by sediment and livestock access to water.

After Situation:

Installation of the 8 wire high tensile electric fence allows for grazing management to be implemented. Fence is installed to specifications meeting the producer's objective and livestock type. Fence is installed with wildlife friendly considerations and known wildlife corridors.

Feature Measure: length

Scenario Unit: Foot

Scenario Typical Size: 5,280.0

Scenario Total Cost: $19,455.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 382 - Fence

Scenario: #189 - High Tensile, Five Wire Electric

Scenario Description:

A five strand high tensile wire fence which is electrified for large livestock such as Bison, large ungulate herbivores, captive cervidae that are not domesticated. Because of the size and behavior differences relative to domesticated livestock, fences, handling facilities and loading facilities must be more robust to accommodate bison. Fence allows for the implementation of a grazing management under CPS 528 Prescribed Grazing plan. Fence facilities the movement of livestock for forage management and protection of sensitive areas. All fence components are included. Fence encloses 40 acres. Install fence considering wildlife friendly design and adjustment for wildlife corridors.

Before Situation:

Livestock have access to forage and sensitive areas without management of intensity, duration and frequency of grazing events. Plant productivity and health is degraded. Water quality may be impaired by sediment and livestock access to water.

After Situation:

Installation of the 5 wire high tensile electric fence allows for grazing management to be implemented. Fence is installed to specifications meeting the producer's objective and livestock type. Fence is installed with wildlife friendly considerations and known wildlife corridors.

Feature Measure: length

Scenario Unit: Foot

Scenario Typical Size: 5,280.0

Scenario Total Cost: $17,480.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 383 - Fuel Break

Scenario: #45 - Mechanical and Chemical Application

Scenario Description:

Fuel Break installation requires tree thinning, treating woody residue, pruning, and mowing. Thinning treatment and pruning is done by hand, treating woody residue (piling/burning, crushing, or off-site removal) and mowing are mechanized. Resource concerns are degraded plant condition - wildfire hazard, excess biomass accumulation & undesirable productivity and health.

Before Situation:

Forest stand is overstocked with desirable and undesirable trees. Overstocking creates conditions conducive to wildfire movement across the landscape, and severe loss/damage of the forest stand. Shrub levels are high and significantly increase wildfire ri

After Situation:

Fuel Break is installed at the property line or a key locations to reduce crown fire spread. Size of fuel break is 4 acres; the width varies due to site conditions. The trees are thinned so open gaps are created in crown overstory, branches on remaining trees are pruned to 8 to 10 feet in height, all woody residue (thinned trees and pruned branches) are treated (piled/burned or lopped/scattered) so little remains in the fuel break and understory vegetation is mowed down to less than 1 foot in height. Cut stumps have been chemically treated to control sprouting.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 4.0

Scenario Total Cost: $8,430.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,107.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 383 - Fuel Break

Scenario: #46 - Mechanical and Chemical Application with Masticator

Scenario Description:

Fuel Break installation requires tree thinning, treating woody residue, pruning, and mowing. Thinning treatment and pruning is done by hand; treating woody residue (piling/burning, crushing, or off-site removal) and mowing are mostly mechanized. Resource concerns are degraded plant condition - wildfire hazard, excess biomass accumulation & undesirable productivity and health.

Before Situation:

The forest stand is overstocked with trees (desirable and undesirable) and is at risk of loss if a wildfire should occur. Tree crowns are touching, trees retain limbs down to understory vegetation creating a "ladder" for fire movement into the overstory,

After Situation:

Fuel Break is installed at the property line or key locations to reduce crown fire spread. Size of fuel break is 4 acres; the width varies due to site conditions. The trees are thinned so open gaps are created in crown overstory, branches on remaining trees are pruned to 8 to 10 feet in height, all woody residue (thinned trees, pruned branches and brush) are mostly masticated but some is piled/burned, hauled of site or lopped/scattered) understory vegetation is cut down to less than 1 foot in height. Cut stumps have been chemically treated to control sprouting.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 4.0

Scenario Total Cost: $8,617.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,154.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 383 - Fuel Break

Scenario: #47 - Manual Application

Scenario Description:

Fuel Break installation requires tree thinning, treating woody residue, pruning, and mowing. Thinning treatment, pruning, brush cutting and treating woody residue (piling/burning, crushing, or off-site removal), is done by hand. Resource concerns are degraded plant condition - wildfire hazard, excess biomass accumulation & undesirable productivity and health.

Before Situation:

Forest stand is overstocked with desirable and undesirable trees. Overstocking creates conditions conducive to wildfire movement across the landscape, and loss of the forest stand. Excess stocking is impacting the health of the desired forest ecosystem an

After Situation:

A fuel break is installed by hand cutting trees, hand pruning remaining trees, piling and burning or removal of woody residue from tree cutting and pruning. FB installation is at property lines, around structures, at roadways, or other key locations to reduce continuity of vegetation cover. Width of fuel break varies based on site conditions.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 4.0

Scenario Total Cost: $11,256.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,814.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 383 - Fuel Break

Scenario: #48 - Mechanical Application, Non-Forest Land

Scenario Description:

A non forest fuel break occurs outside of forestlands where brush, grass and forbs dominate. Land uses where this scenario will be applied may be range, pasture or wetlands. The fuel break area is mowed/bushhog so standing vegetation is reduced to a low height. Resource concerns are degraded plant condition - wildfire hazard.

Before Situation:

Wildfire movement is a concern within the designated area. Vegetation is tall, dense and continuous creating conditions conducive for fire movement across the landscape.

After Situation:

A fuel break is installed by shredding/mowing/bushhogging a defined width at property lines, around structures, at roadways, or other key locations to reduce continuity of vegetation cover. Width of fuel break varies based on site conditions.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 4.0

Scenario Total Cost: $1,500.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $375.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #2 - Restoration, Conservation Treatment After Catastrophic Events

Scenario Description:

The use of a combination of hand (chainsaw) and heavy equipment similar to those used in logging to treat slash resulting from catastrophic events such as fire, wind, severe pest outbreak, ice storm, etc. This scenario will remove/treat the larger material the size of which is consistent with the large equipment used. Resource concerns include: Excessive plant pest pressure, Potential emissions of particulate matter, Wildfire hazard from excessive biomass accumulation, and Habitat degradation.

Before Situation:

A large amount of slash and woody residue is created as a result of a non-silvicultural event such as a wind storm, wildfire, ice storm, pest outbreak, etc. Because the slash and residue is created by a catastrophic event that can cause tree-lodging, snag

After Situation:

The material resulting from the catastrophic event is reduced to a level that will minimize the resource concerns.

Feature Measure: Acres of affected forest

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $20,244.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,012.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #3 - Mechanical Control, Light Slash

Scenario Description:

Treating an area of forest slash to reduce hazardous fuels and the risk of insect and disease, improve organic matter and reduce erosion while improving water quality. Slash is treated with both hand (cutting, lopping, etc.) and mechanically (masticating, chipping, etc.). Typically done by hand and light equipment. Resource concerns include: Wildfire hazard from excessive biomass accumulation and potential Excessive plant pest pressure.

Before Situation:

Woody material resulting from a silvicultural practice such as pruning or a light thinning operation is causing both fire hazard and pest issues.

After Situation:

Fire and pest issues are reduced with slash spread out and in contact with the ground. Additional benefits include reduced soil movement. The soil is protected and/or enhanced.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $12,253.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $306.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #4 - Mechanical and Manual Control, Chipping and Hauling Offsite

Scenario Description:

Reducing woody waste created during forestry, agroforestry and horticultural activities by gathering, chipping, and hauling off site to achieve management objectives. Does not include transport from property to a commercial facility. Resource concerns include potential Emissions of particulate matter, potential Excessive plant pest pressure, and Wildfire hazard from excessive biomass accumulation .

Before Situation:

Woody residue causes management issues including resource access, fire hazard and sites for harboring pests.

After Situation:

Fire and pest issues are reduced. Air and energy resources are conserved.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $7,618.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $380.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #5 - Mechanical and Manual Control, Medium or Heavy Slash

Scenario Description:

Treating an area of significant woody plant residues to reduce hazardous fuels and the risk of insect and disease, improve organic matter, decrease unwanted habitat, and reduce erosion while improving water quality. Slash is to be lopped/treated/crushed within a foot of the ground or moved off site to meet state fire hazard reduction standards. Typically heavy equipment are used such as masticators, mulchers, drum choppers, etc. Hand work with chainsaws are used on steep slopes. Resource concerns include potential Emission of particulate matter, Wildfire hazard from excessive biomass accumulation, Excessive plant pest pressure, and Habitat degradation.

Before Situation:

Heavy woody material (difficult to walk through) resulting from silvicultural/management operations caused both fire hazard, access, potential harm to humans and animals, and pest issues.

After Situation:

Fire, access, and pest issues are reduced with slash spread out and in contact with the ground. An additional benefit is reduced soil movement.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $20,024.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $500.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #54 - Mechanical and Manual Control for Slash, Less Than 5 Tons per Acre

Scenario Description:

This scenario treats woody residue that is considered to be of low complexity. Low complexity could include residue amount, size, volatility and accessibility by equipment. An increase in one factor could cause the use of the medium scenario. Typically, treatment is implemented by hand tools and light equipment to lop and scatter, hand pile to reduce continuity of woody residue that addresses a resource concerns. In General, these could be used following a light thinning/pruning. Resource concerns include Excessive plant pest pressure, Air Quality emissions, Wildfire hazard from excessive biomass accumulation, and degraded plant condition and habitat.

Before Situation:

Area has low amount of woody residue (i.e. <5 tons/ac, 6in diameter) that is easily accessible. Residue was created by management activity or natural weather event that is causing a resource concern or potential resource concern.

After Situation:

The residue is treated to an acceptable level to address the resource concern.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $6,811.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $170.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #70 - Mechanical and Manual Control for Slash, 5 to 15 Tons per Acre

Scenario Description:

This scenario treats woody residue that is considered to be a medium complexity. Medium complexity could include residue amount, size, volatility, and accessibility by equipment (moderate terrain). An increase in any of these factors could cause the need for the Heavy scenario. Typical treatment is implemented by medium sized equipment such as chipper, masticator, skid steer to reduce the dimensions of the woody residue to address resource concerns. Resource concerns include; Excessive plant pest pressure, Air Quality emissions, Wildfire hazard from excessive biomass accumulation, and degraded plant condition and habitat.

Before Situation:

Area has moderate amount of woody residue (i.e. 5-15 tons/ac, 8-12 in diameter). Residue was created by management activity or natural weather event that is causing a resource concern or potential resource concern.

After Situation:

The residue is treated to an acceptable level to address resource concern.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $13,417.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $670.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #86 - Mechanical and Manual Control for Slash, Greater Than 15 Tons per Acre

Scenario Description:

This scenario treats woody residue that is considered to be a high complexity. high complexity could include residue amount, size, volatility, and accessibility by equipment (steep/rough terrain). Typical treatment is implemented by heavy sized equipment such as masticators, mulchers, drum choppers, (Hand work with chainsaws could be used on steep slopes) to reduce the dimensions of the woody residue to address resource concerns. Resource concerns include: Excessive plant pest pressure, Air Quality emissions, Wildfire hazard from excessive biomass accumulation, and degraded plant condition and habitat.

Before Situation:

Area has high amount of woody residue (i.e. >15 tons/ac, >12 in diameter). Residue was created by management activity or natural weather event that is causing a resource concern or potential resource concern.

After Situation:

The residue is treated to an acceptable level to address resource concern

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $35,419.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,770.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #102 - Restoration/conservation treatment following catastrophic events

Scenario Description:
Use equipment to treat slash and woody reside within an area following a Catastrophic Event such as fire, wind, severe pest outbreak, ice storm, etc. to help restore/rehabilitate the site. Resource concerns could include: Excessive plant pest pressure, Air Quality emissions, Wildfire hazard from excessive biomass accumulation, and degraded plant condition and habitat.

Before Situation:
A large amount of slash and woody residue is created as a result of a Catastrophic event. The event has caused tree-lodging, snags, broken tops, etc.; and treatment is both difficult and dangerous. The presence of this material causes many adverse effects

After Situation:
The material resulting from the catastrophic event is reduced to a level that will minimize the resource concerns.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $54,519.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,726.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 384 - Woody Residue Treatment

Scenario: #118 - Air Curtain Burner

Scenario Description:
Addressing Air Quality Emissions Resource concerns by using an air curtain burner to replace open pile burning.

Before Situation:
Woody residue would typically be burned in open piles, resulting in substantial air quality issues

After Situation:
Air quality concerns are lessened by using air curtain burner instead of open pile burning.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $12,066.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $241.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 386 - Field Border

Scenario: #5 - Native Species

Scenario Description:
A strip of permanent vegetation established at the edge or around the perimeter of an agricultural field. Practice includes seedbed prep and planting of organic seed for herbaceous species.

Before Situation:
Before practice conditions may vary widely. Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field

After Situation:
The 386 Implementation Requirements have been developed and applied for the site. This practice when applied around a field may support and connect other buffer practices while creating a buffer between organic systems and conventional cropping systems. Native grasses and legumes will be established in the field border to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall be adapted to the site, not function as a host for diseases of a field crop, and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Feature Measure: number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $233.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $233.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 386 - Field Border

Scenario: #6 - Introduced Species

Scenario Description:
A strip of permanent vegetation established at the edge or around the perimeter of an agricultural field. Practice includes seedbed prep and planting of introduced species.

Before Situation:
Before practice conditions may vary widely. Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field

After Situation:
The 386 Implementation Requirements have been developed and applied for the site. This practice when applied around a field may support and connect other buffer practices within and between fields. Introduced grasses and legumes will be established in the field border to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall be adapted to site, will not function as a host for diseases of a field crop, and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $156.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $156.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 386 - Field Border

Scenario: #7 - Pollinator

Scenario Description:

A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of pollinator friendly species.

Before Situation:

Before practice conditions may vary widely. Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field

After Situation:

The 386 Implementation Requirements have been developed and applied for the site. This practice when applied around a field may support and connect other buffer practices within and between fields. Pollinator herbaceous plantings will provide species which flower throughout the growing season. This provides a source of nectar for adult pollinators and a diversity of herbaceous material for immature pollinator life stages and for nesting. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall be adapted to site, will not function as a host for diseases of a field crop, and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $648.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $648.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 386 - Field Border

Scenario: #28 - Native Species, Foregone Income

Scenario Description:

A strip of permanent vegetation established at the edge or around the perimeter of an agricultural field. Practice includes seedbed prep and planting of native species. The area of the field border is taken out of production.

Before Situation:

Before practice conditions may vary widely. Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field

After Situation:

The 386 Implementation Requirements have been developed and applied for the site. This practice when applied around a field may support and connect other buffer practices within and between fields. Native grasses, legumes and forbs will be established in the field borders to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Native species shall be selected that do not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Feature Measure: number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $640.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $640.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 386 - Field Border

Scenario: #29 - Introduced Species, Foregone Income

Scenario Description:

A strip of permanent vegetation established at the edge or around the perimeter of an agricultural field. Practice includes seedbed prep and planting of introduced species. The area of the field border is taken out of production.

Before Situation:

Before practice conditions may vary widely. Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field

After Situation:

The 386 Implementation Requirements have been developed and applied for the site. This practice when applied around a field may support and connect other buffer practices within and between fields. Introduced grasses and legumes will be established for the field border to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Introduced species of grasses, legumes, forbs or shrubs shall be selected that are adapted to site, will not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $564.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $564.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 386 - Field Border

Scenario: #30 - Pollinator, Foregone Income

Scenario Description:

A strip of permanent vegetation established at the edge or around the perimeter of an agricultural field. Practice includes seedbed prep and planting of pollinator friendly herbaceous species. The area of the field border is taken out of production.

Before Situation:

Before practice conditions may vary widely. Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field

After Situation:

The 386 Implementation Requirements have been developed and applied for the site. This practice when applied around a field may support and connect other buffer practices within and between fields. Pollinator herbaceous plantings will provide species which flower throughout the growing season. This provides a source of nectar for adult pollinators and a diversity of herbaceous material for immature pollinator life stages and for nesting. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall meet the pollinator habitat requirements of the state and be adapted to site; not function as a host for diseases of a field crop and; have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,055.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,055.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 386 - Field Border

Scenario: #79 - Field Border, Small

Scenario Description:
A strip of permanent vegetation established at the edge or around the perimeter of an agricultural field. Practice includes seedbed prep and planting of introduced plant species.

Before Situation:
Before practice conditions may vary based on farm size and location. Fields may have erosion by wind or water. Site provides little wildlife food or cover or pollinator habitat. Site soil organic matter is depleting. Particulate matter as dust is generate

After Situation:
The 386 Implementation Requirements have been developed and applied for the site. Field border widths are based on NRCS local design criteria specific to the purpose for installing the practices. Species selected shall be adapted to site and not host disease or pests of the adjacent field crop. Species have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Feature Measure: planted area

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 2.0

Scenario Total Cost: $182.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $91.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 388 - Irrigation Field Ditch

Scenario: #8 - Irrigation Field Ditch

Scenario Description:

This scenario is the construction of an Irrigation Field Ditch. Typical construction dimensions are 2' wide bottom x 2' deep x 1320' length with a side slope of 2:1. Resource concerns: Excess/Insufficient Water - Inefficient Use of Irrigation Water Associated Conservation Practices: 320-Irrigation Canal or Lateral; 443-Irrigation System, Surface or Subsurface Water; 533-Pumping Plant; 430-Irrigation Pipeline.

Before Situation:

Water supply for an area is inadequate for crop production and irrigation water application is inefficient.

After Situation:

An earthen canal that has adequate capacity to convey sufficient irrigation water to meet the demands of the system and make irrigation practical for the crops being grown.

Feature Measure: Volume of earth excavated

Scenario Unit: Cubic Yard

Scenario Typical Size: 587.0

Scenario Total Cost: $2,241.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 390 - Riparian Herbaceous Cover

Scenario: #2 - Plugging and Seeding

Scenario Description:

Plugging: This scenario addresses inadequate herbaceous plant community function or diversity within the specific transitional zone between terrestrial and aquatic habitats in rangeland, pasture, cropland, and forest where natural seeding methods and/or management is unlikely to improve the plant community within a reasonable time period. This scenario applies to work not covered under NRCS Conservation Practice Range Planting (528), Forage and Biomass Planting (512), Critical Area Planting (342), Filter Strip (393), Restoration and Management of Rare and Declining Habitats (643), Streambank and Shoreline Protection (580), Vegetated Treatment Area (635), Wetland Enhancement (659), or Wetland Restoration (657). This practice can be used nation wide. The typical setting for this scenario is usually a narrow strip between the aquatic and terrestrial habitats subject to intermittent flooding and saturated soils where the existing plant community has been disturbed, destroyed, or the species diversity is unable to provide proper function and/or adequate habitat. Where the establishment of a diverse riparian herbaceous plant community is desired, an adapted mix of grasses, sedges, rushes, ferns, legumes, and/or forbs tolerant to the site conditions will be planted. Grasses such as prairie cordgrass (Spartina pectinata), sedges, rushes, and/or ferns will be planted using plugs. Additional site adapted species of grasses, legumes, and/or forbs may be added by broadcast and/or no-till or range drill seeding methods as necessary to accomplish the intended purpose(s). Where chemical control of undesirable vegetation, including invasives, is required to reduce competition for the desired plant community the Herbaceous Weed Control (315) practice should be used. Seedbed preparation may require LIGHT TILLAGE (disking). WHEN POLLINATOR HABITAT IS A CONSIDERATION: Include 5-10 adapted forb species that bloom sequentially throughout the growing season where feasible. To address the high diversity of riparian plant communities and their adjacent stream types that exist from the tropics to the tundra, and the deserts, prairies, mountains, and lowlands across the various regions and/or MLRA's, up to 20 adapted riparian plant community-specific scenarios may be required

Before Situation:

The riparian zone, the specific area between terrestrial and aquatic habitats, is currently an undesirable or inadequate stand of perennial or annual vegetation and natural reseeding or vegetation management is unlikely to improve the plant community with

After Situation:

The riparian zone, the transitional zone between the terrestrial and aquatic habitats, is established to an adapted, diverse vegetative plant community and is under close management to insure long term survival and ecological succession. The quality and quantity of the riparian zone components are managed to support the species that depend on it for habitat as well as the functions it performs for stabilizing the streambank and/or shoreline, dissipating stream energy and trapping sediment, and improving and/or maintaining water quality. These functions include: stream temperature moderation through shading, recruitment of non-woody organic matter, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

Feature Measure: Acres of Riparian Herbaceou

Scenario Unit: Acre

Scenario Typical Size: 0.5

Scenario Total Cost: $12,084.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24,169.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 390 - Riparian Herbaceous Cover

Scenario: #3 - Native Perennial Grasses, Low Density

Scenario Description:

Warm Season Grasses with Forbs: This scenario addresses inadequate herbaceous plant community function or diversity within the specific transitional zone between terrestrial and aquatic habitats in rangeland, pasture, cropland, and forest where natural seeding methods and/or management is unlikely to improve the plant community within a reasonable time period. This scenario applies to work not covered under NRCS Conservation Practice Range Planting (528), Forage and Biomass Planting (512), Critical Area Planting (342), Filter Strip (393), Restoration and Management of Rare and Declining Habitats (643), Streambank and Shoreline Protection (580), Vegetated Treatment Area (635), Wetland Enhancement (659), or Wetland Restoration (657). This practice can be used nation wide. The typical setting for this scenario is usually a narrow strip between the aquatic and terrestrial habitats subject to intermittent flooding and saturated soils where the existing plant community has been disturbed, destroyed, or the species diversity is unable to provide proper function and/or adequate habitat. Where the establishment of a diverse riparian herbaceous plant community is desired, an adapted mix of primarily warm season grasses, legumes, and/or forbs tolerant to the site conditions will be planted by broadcast and/or no-till or range drill seeding methods as necessary to accomplish the intended purpose(s). Where chemical control of undesirable vegetation, including invasives, is required to reduce competition for the desired plant community the Herbaceous Weed Control (315) practice should be used. Seedbed preparation may require LIGHT TILLAGE (disking). WHEN POLLINATOR HABITAT IS A CONSIDERATION: Include 5-10 adapted forb species that bloom sequentially throughout the growing season where feasible. To address the high diversity of riparian plant communities and their adjacent stream types that exist from the tropics to the tundra, and the deserts, prairies, mountains, and lowlands across the various regions and/or MLRA's, up to 20 adapted riparian plant community-specific scenarios may be required

Before Situation:

The riparian zone, the specific area between terrestrial and aquatic habitats, is currently an undesirable or inadequate stand of perennial or annual vegetation and natural reseeding or vegetation management is unlikely to improve the plant community with

After Situation:

The riparian zone, the transitional zone between the terrestrial and aquatic habitats, is established to an adapted, diverse vegetative plant community and is under close management to insure long term survival and ecological succession. The quality and quantity of the riparian zone components are managed to support the species that depend on it for habitat as well as the functions it performs for stabilizing the streambank and/or shoreline, dissipating stream energy and trapping sediment, and improving and/or maintaining water quality. These functions include: stream temperature moderation through shading, recruitment of non-woody organic matter, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

Feature Measure: Acres of Riparian Herbaceou

Scenario Unit: Acre

Scenario Typical Size: 0.5

Scenario Total Cost: $970.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,941.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 390 - Riparian Herbaceous Cover

Scenario: #4 - Cool Season Grasses w/ Forbs

Scenario Description:

Cool Season Grasses with Forbs: This scenario addresses inadequate herbaceous plant community function or diversity within the specific transitional zone between terrestrial and aquatic habitats in rangeland, pasture, cropland, and forest where natural seeding methods and/or management is unlikely to improve the plant community within a reasonable time period. This scenario applies to work not covered under NRCS Conservation Practice Range Planting (528), Forage and Biomass Planting (512), Critical Area Planting (342), Filter Strip (393), Restoration and Management of Rare and Declining Habitats (643), Streambank and Shoreline Protection (580), Vegetated Treatment Area (635), Wetland Enhancement (659), or Wetland Restoration (657). This practice can be used nation wide. The typical setting for this scenario is usually a narrow strip between the aquatic and terrestrial habitats subject to intermittent flooding and saturated soils where the existing plant community has been disturbed, destroyed, or the species diversity is unable to provide proper function and/or adequate habitat. Where the establishment of a diverse riparian herbaceous plant community is desired, an adapted mix of primarily cool season grasses, legumes, and/or forbs tolerant to the site conditions will be planted by broadcast and/or no-till or range drill seeding methods as necessary to accomplish the intended purpose(s). Where chemical control of undesirable vegetation, including invasives, is required to reduce competition for the desired plant community the Herbaceous Weed Control (315) practice should be used. Seedbed preparation may require LIGHT TILLAGE (disking). WHEN POLLINATOR HABITAT IS A CONSIDERATION: Include 5-10 adapted forb species that bloom sequentially throughout the growing season where feasible. To address the high diversity of riparian plant communities and their adjacent stream types that exist from the tropics to the tundra, and the deserts, prairies, mountains, and lowlands across the various regions and/or MLRA's, up to 20 adapted riparian plant community-specific scenarios may be required

Before Situation:

The riparian zone, the specific area between terrestrial and aquatic habitats, is currently an undesirable or inadequate stand of perennial or annual vegetation and natural reseeding or vegetation management is unlikely to improve the plant community with

After Situation:

The riparian zone, the transitional zone between the terrestrial and aquatic habitats, is established to an adapted, diverse vegetative plant community and is under close management to insure long term survival and ecological succession. The quality and quantity of the riparian zone components are managed to support the species that depend on it for habitat as well as the functions it performs for stabilizing the streambank and/or shoreline, dissipating stream energy and trapping sediment, and improving and/or maintaining water quality. These functions include: stream temperature moderation through shading, recruitment of non-woody organic matter, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

Feature Measure: Acres of Riparian Herbaceou

Scenario Unit: Acre

Scenario Typical Size: 0.5

Scenario Total Cost: $970.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,941.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 390 - Riparian Herbaceous Cover

Scenario: #58 - Pollinator Habitat

Scenario Description:

Pollinator Habitat: This scenario addresses inadequate herbaceous plant community function or diversity within the specific transitional zone between terrestrial and aquatic habitats in rangeland, pasture, cropland, and forest where natural seeding methods and/or management is unlikely to improve the plant community within a reasonable time. The typical setting for this scenario is a narrow strip between the aquatic and terrestrial habitats subject to intermittent flooding and saturated soils where the existing plant community has been disturbed, destroyed, or the species diversity is unable to provide adequate habitat. Where the establishment of a diverse riparian herbaceous plant community is desired, an adapted mix of grasses, sedges, rushes, ferns, legumes, and/or forbs tolerant to the site conditions will be planted. Site adapted species of grasses, legumes, and/or forbs will be planted by no-till or range drill seeding methods as necessary to accomplish the intended purpose(s). Where chemical control of undesirable vegetation, including invasive species, is required to reduce competition for the desired plant community the Herbaceous Weed Control (315) practice should be used. Include 5-10 adapted forb species that bloom sequentially throughout the growing season. This scenario applies to work not covered under NRCS Conservation Practice Range Planting (528), Forage and Biomass Planting (512), Critical Area Planting (342), Filter Strip (393), Restoration and Management of Rare and Declining Habitats (643), Streambank and Shoreline Protection (580), Vegetated Treatment Area (635), Wetland Enhancement (659), or Wetland Restoration (657). This practice can be used nationwide.

Before Situation:

Riparian zone vegetation is currently an undesirable or inadequate stand of perennial or annual vegetation as determined by the NRCS Stream Visual Assessment Protocol. Natural reseeding or vegetation management is unlikely to improve the plant community w

After Situation:

The riparian zone is established to an adapted, diverse vegetative plant community and is under close management to insure long term survival and ecological succession. The quality and quantity of the riparian zone components are managed to support the species that depend on it for habitat as well as the functions it performs for stabilizing the streambank and/or shoreline, dissipating stream energy and trapping sediment, and improving and/or maintaining water quality. These functions include: stream temperature moderation through shading, recruitment of non-woody organic matter, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

Feature Measure: Acres of Riparian Herbaceou

Scenario Unit: Acre

Scenario Typical Size: 0.5

Scenario Total Cost: $756.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,512.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #1 - Bare Root, All Shelters

Scenario Description:

Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. Typically used to plant bare-root trees and/or shrubs according to state specifications . Assumes all hardwood trees have shelters/protectors. Does not include weed barrier - use Mulching (484).

Before Situation:

Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and or

After Situation:

A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3,653.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,653.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #2 - Bare Root, Half Shelters

Scenario Description:

Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. Typically used to plant bare-root trees and/or shrubs according to state specifications . Assumes half of the hardwood trees have shelters/protectors. Does not include weed barrier - use Mulching (484).

Before Situation:

Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and or

After Situation:

A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3,168.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,168.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #3 - Bare Root, No Shelters

Scenario Description:

Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. Typically used to plant bare-root trees and/or shrubs according to state specifications . Assumes none of the hardwood trees have shelters/protectors. Does not include weed barrier - use Mulching (484).

Before Situation:

Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and or

After Situation:

A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,683.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,683.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #5 - High Risk Areas

Scenario Description:

Installation of a riparian buffer on annually tilled cropland which lacks a native seed source of woody plants. In addition, ice scour, droughty soils, undercut banks, and shorter growing seasons create a situation where increasing the planting density improves the success of the buffer in difficult conditions by allowing for mortality.

Before Situation:

The riverbank lacks woody vegetation and is in sod or corn which creates a situation where topple along the river bank is common on an annual basis at a rate of up-to 10 feet per year or more. The riverbank is vertical or undercut. Impacts to water qualit

After Situation:

Planted woody vegetation begins to shade competing herbaceous vegetation, allowing native regeneration, and developing a faster response to reducing bank erosion. As larger deeply rooted trees and shrubs slide into the river, the riverbank returns to a more normal angle of repose. Bank erosion isn't stopped on outside bends of the river, but the erosion is slowed to a more normal rate.

Feature Measure: Area of Planting

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $9,604.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,604.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #27 - Large container, hand planted

Scenario Description:

Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and provide conservation benefits. The buffer will be located adjacent to a watercourse or waterbody and designed with dimensions and plant spacings that fully implement the practice. The planting will consist of hand-planted large shrubs, evergreen, and deciduous trees. Tree shelters will be placed on all trees and shrubs. Resource concerns include: Plant productivity and health, Plant structure and composition, Sediment transported to surface water, Nutrients transported to surface water, Elevated water temperature, Pesticides transported to surface water, Pathogens and chemicals from manure, biosolids, or compost applications transported to surface water, Bank erosion from streams, shorelines, or water conveyance channels, Terrestrial habitat for wildlife and invertebrates, Aquatic habitat for fish and other organisms.

Before Situation:

Typical settings include degraded or converted riparian forests, and nonforest conditions with undesirable amounts or types of vegetation. Active bank erosion is contributing sediment, nutrients, pesticides, pathogens, chemicals, or organics into surface

After Situation:

A riparian buffer of trees and shrubs has been restored and is functioning properly to provide stability, filtration, shade, and desirable habitat to address identified resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 3.0

Scenario Total Cost: $10,350.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,450.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #31 - Small area hand planting with container or bare root stock

Scenario Description:

Establish a small (<1 ac) buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and provide conservation benefits. The buffer will be located adjacent to a watercourse or waterbody and designed with dimensions and plant spacings that fully implement the practice. The planting will consist of hand-planted containerized or bare-root trees or shrubs in combinations that emulate the native species composition of the area. The planted area will be no more than one acre in size, such that quantities of trees and shrubs are small and bulk pricing does not apply. This scenario includes tree/shrub components representative of small-area pricing; other trees and/or shrubs sizes/ages may be substituted. Resource concerns include: Plant productivity and health, Plant structure and composition, Sediment transported to surface water, Nutrients transported to surface water, Elevated water temperature, Pesticides transported to surface water, Pathogens and chemicals from manure, biosolids, or compost applications transported to surface water, Bank erosion from streams, shorelines, or water conveyance channels, Terrestrial habitat for wildlife and invertebrates, Aquatic habitat for fish and other organisms.

Before Situation:

Typical settings include degraded or converted riparian forests, and nonforest conditions with undesirable amounts or types of vegetation. Active bank erosion is contributing sediment, nutrients, pesticides, pathogens, chemicals, or organics into surface

After Situation:

A riparian buffer of trees and shrubs has been restored and is functioning properly to provide stability, filtration, shade, and desirable habitat to address identified resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3,224.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,224.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #32 - Small area hand planting with container or bare root stock, with tree shelters

Scenario Description:

Establish a small (<1 ac) buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and provide conservation benefits. The buffer will be located adjacent to a watercourse or waterbody and designed with dimensions and plant spacings that fully implement the practice. The planting will consist of hand-planted containerized or bare-root trees or shrubs in combinations that emulate the native species composition of the area. Tree shelters will be placed on all trees and/or shrubs. The planted area will be no more than one acre in size, such that quantities of trees and shrubs are small and bulk pricing does not apply. This scenario includes tree/shrub components representative of small-area pricing; other trees and/or shrubs sizes/ages may be substituted. Resource concerns include: Plant productivity and health, Plant structure and composition, Sediment transported to surface water, Nutrients transported to surface water, Elevated water temperature, Pesticides transported to surface water, Pathogens and chemicals from manure, biosolids, or compost applications transported to surface water, Bank erosion from streams, shorelines, or water conveyance channels, Terrestrial habitat for wildlife and invertebrates, Aquatic habitat for fish and other organisms.

Before Situation:

Typical settings include degraded or converted riparian forests, and nonforest conditions with undesirable amounts or types of vegetation. Active bank erosion is contributing sediment, nutrients, pesticides, pathogens, chemicals, or organics into surface

After Situation:

A riparian buffer of trees and shrubs has been restored and is functioning properly to provide stability, filtration, shade, and desirable habitat to address identified resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $5,666.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,666.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #33 - Seeding

Scenario Description:

Establish a buffer of trees and/or shrubs to restore riparian plant communities and provide associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body and will be at least 35 feet wide. The planting will consist of trees and/or shrubs planted through direct broadcast seeding, incorporated with light tillage. The planting rate will be approximately 30 pounds of seeds per acre. Resource concerns to be addressed are: Nutrients Transported to Surface Water; Sediment Transported to Surface Water; Bank Erosion from Streams, Shorelines or Water Conveyance Channels; Elevated Water Temperature; Plant Structure and Composition; Plant Productivity and Health; Terrestrial Habitat for Wildlife and Invertebrates; Aquatic Habitat for Fish and other Organisms.

Before Situation:

Typical sites include former riparian forests, and habitat used for forage, cropland, associated ag land, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and org

After Situation:

A buffer of trees and shrubs has been established along the riparian corridor to provide stability, filtration, shade, and desirable habitat to address the resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $4,581.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $458.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 391 - Riparian Forest Buffer

Scenario: #34 - Cuttings

Scenario Description:

Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of tree and/or shrub poles and live stakes (whips) planted by hand. Materials will be from a nearby, off-site location. The ratio of whips to poles will be 5:1. The cuttings will be planted in a mosaic pattern while still dormant. Tree mesh will be placed on the large cuttings. Resource concerns to be addressed are Soil Erosion - excessive bank erosion; Water Quality - excess sediment and organics in surface waters and elevated temperature; Degraded Plant Condition - inadequate structure and composition; and Inadequate Habitat for Fish and Wildlife - habitat degradation.

Before Situation:

Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and or

After Situation:

A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $6,650.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,650.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 393 - Filter Strip

Scenario: #5 - Native Species

Scenario Description:

A strip or area of herbaceous vegetation that removes contaminants from overland flow. Practice includes seedbed prep and planting of native species.

Before Situation:

Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring

After Situation:

The 393 Implementation Requirements are developed for the site and applied. The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of native species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and seed. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas.

Feature Measure: number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $335.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $335.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 393 - Filter Strip

Scenario: #6 - Introduced Species

Scenario Description:
A strip or area of herbaceous vegetation that removes contaminants from overland flow. Practice includes seedbed prep and planting of introduced species.

Before Situation:
Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring

After Situation:
The 393 Implementation Requirements are developed for the site and applied. The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of introduced species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and seed. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $251.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $251.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 393 - Filter Strip

Scenario: #23 - Native Species, Foregone Income

Scenario Description:

A strip or area of herbaceous vegetation that removes contaminants from overland flow. Practice includes seedbed prep and planting of native species. The area of the filter strip is taken out of production.

Before Situation:

Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring

After Situation:

The 393 Implementation Requirements are developed for the site and applied. The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of native species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and seed. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on the contribution area while protecting environmentally-sensitive areas. The area of the filter strip is taken out of production.

Feature Measure: number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $742.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $742.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 393 - Filter Strip

Scenario: #24 - Introduced Species, Foregone Income

Scenario Description:

A strip or area of herbaceous vegetation that removes contaminants from overland flow. Practice includes seedbed prep and planting of introduced species. The area of the filter strip is taken out of production.

Before Situation:

Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring

After Situation:

The 393 Implementation Requirements are developed for the site and applied. The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of introduced species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and seed. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas. The area of the filter strip is taken out of production.

Feature Measure: Number of acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $659.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $659.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 394 - Firebreak

Scenario: #16 - Bare Soil, Light Equipment

Scenario Description:

Installation of a bare-ground firebreak of a minimum width of 15' around a 20 acre field/farm using farm equipment (2 passes). Generally water control devices such as water bars are not needed due either to the lack of steep terrain or the temporary nature of the firebreak. Resource concerns include Wildfire hazard from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, and Habitat degradation.

Before Situation:

Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Installation will be accomplished by making two passes with the use of typical farm equipment such as tractors, plows, disks, or similar

After Situation:

The property is adequately protected from wildfire or can be safely prescribe burned.

Feature Measure: Length of firebreak

Scenario Unit: 100 Feet

Scenario Typical Size: 40.0

Scenario Total Cost: $210.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 394 - Firebreak

Scenario: #17 - Bare Soil, Less Than or Equal to 15 Percent Slope

Scenario Description:

Use of medium equipment such as small dozers to blade, disk, plow, etc. 10' wide bare-soil firebreaks on slopes less than 15%. Generally, water control devices such as water bars are limited to 10 or less per 1,000 feet when properly planned and installed using the same equipment. Resource concerns include Wildfire hazards from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, and Habitat degradation.

Before Situation:

Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical.

After Situation:

The property is adequately protected from wildfire or can be safely prescribe burned and the potential for excessive erosion from the firebreak is negligible.

Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 3,000.0

Scenario Total Cost: $2,435.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 394 - Firebreak

Scenario: #18 - Bare Soil, Greater Than 15 Percent Slope

Scenario Description:

Use of equipment such as small dozers to blade 10' wide bare-soil firebreaks on slopes greater than 15%. Water control devices such as water bars placed at approximately 15 to 25 per 1,000 ft section of firebreak, are necessary to control erosion. These will be installed with the same equipment. Resource concerns include Wildfire hazard from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, Habitat degradation, Soil erosion, and Excessive sediment in surface waters.

Before Situation:

Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical. As slopes incre

After Situation:

The property is adequately protected from wildfire or can be safely prescribe burned and the potential for excessive erosion from the firebreak is minimized.

Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $2,351.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 394 - Firebreak

Scenario: #19 - Permanent Vegetation, 20 Feet

Scenario Description:

Establishing a 20 foot wide strip of permanent vegetation that will serve as a green firebreak. Scenario includes clearing the site, preparing the seedbed, seeding (typically cool season grasses and/or legumes), and applying needed soil amendments. Clearing will be achieved with the use of a bush hog or similar equipment. Seedbed preparation and vegetation establishment will be accomplished with farm equipment. Soil amendments will be applied according to local FOTG guidance. This scenario does not include follow-up maintenance operations such as weed control. mowing, etc. Resource concerns include Wildfire hazard from excessive biomass accumulation, Soil erosion, and Excessive sediment in surface waters.

Before Situation:

Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn.

After Situation:

The property is adequately protected from wildfire or can be safely prescribe burned. Wildlife habitat will also be enhanced and the potential for erosion from the firebreak is minimized.

Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 3,000.0

Scenario Total Cost: $1,267.82

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 394 - Firebreak

Scenario: #20 - Bare Soil, Bladed or Disked, Greater Than or Equal to 30 Feet

Scenario Description:

Installing a bare-ground firebreak with a width of 30' or more on gently to strongly sloping slopes with equipment such as a dozer with a heavy disk. Using smaller equipment, erosion control devices such as water bars will be installed at approximately 15 to 25 per 1,000 feet of firebreak length. Devices will have stable outlets. Resource concerns include Wildfire hazard from excessive biomass accumulation, Undesirable plant productivity and health, Inadequate plant structure and composition, Habitat degradation, Soil erosion, and Excessive sediment in surface waters.

Before Situation:

Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Wide firebreaks are needed due to topography, high wildfire risk or to their use as down-wind breaks for prescribed burns. Conditions su

After Situation:

The property is adequately protected from wildfire or can be safely prescribe burned and the potential for excessive erosion from the firebreak is minimized.

Feature Measure: Length of firebreak

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $4,997.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #2 - Wood Structure, Root Wads, Instream Mechanical

Scenario Description:

This scenario involves placement of large wood (logs, root wads, log structures) into a stream channel in order to improve aquatic habitat that currently does not meet quality criteria for stream species habitat. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components lacking for aquatic species (i.e. large wood, pools). A project design for wood placement will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large wood and root wads placed into the stream will mimic genus, age, and size of mature trees found in intact, reference riparian areas in the MLRA where the project is located. Large wood/trees with rootwads intact should be placed in streams to create pool habitat according to NRCS engineering specifications and with close review & approval of a fish habitat biologist. Boulders placed to provide ballast shall only be used if the geomorphic setting and project design demand this component. The planned activity will meet the current 395 standard, and facilitating practice standards utilized, including timing of work windows required for protected aquatic and riparian species, and protecting/restoring vegetation and substrates of/to areas impacted by heavy equipment. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Monitoring records demonstrating implementation of this scenario will address resource concerns for stream species of concern are required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat c

After Situation:

Stream habitat within the project reach is improving as a result of placing logs, root wads, and/or wood structures in the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: Bankfull width x reach lengt

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $23,326.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23,326.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #3 - Rock Structure, Boulders Instream

Scenario Description:

This scenario describes the implementation of a stream habitat improvement and management project that places individual boulders or boulder clusters, or rock structures in or adjacent to the stream channel as habitat components. A project design for boulder placement will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Boulders should be placed in streams to create pool habitat and hydraulic complexity according to NRCS engineering specifications and with close review & approval of a fish habitat biologist onsite during implementation of the project design. Spawning gravel placement should be placed to restore spawning area substrates potentially disturbed by rock placement. The planned activity will meet the current 395 standard, and facilitating practice standards utilized. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, spawning habitat, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of stream habitat assessment, and project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern will be required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat conn

After Situation:

Stream habitat within the project reach is improving as a result of placing boulders or constructing rock structures in the channel and/or along the stream bank. Hydraulic complexity of the habitat in the reach is increased, and hiding cover, food availability and refuge habitat for stream species is improving. Streambank vegetation is increasing and contributing to stability of the streambanks.

Feature Measure: Bankfull width x reach lengt

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $20,555.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20,555.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #4 - Rock and Wood Structure

Scenario Description:

This scenario describes the implementation of a stream habitat improvement and management project where practices are focused on instream habitat improvement with a combination of rock AND wood structures. This scenario involves placement of large wood and rock structures into a stream channel in order to improve aquatic habitat that currently does not meet quality criteria for stream species habitat. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components (such as large wood, pools) are not currently present in the stream or are limited for aquatic species. A project design for placement of habitat structures (boulders, boulder clusters, wood, wood structures) will be based on assessment of (a) the target stream reach characteristics and (b) those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Rock boulder sizes should also reflect the geomorphic setting of the stream reach. Large wood placed into the stream under this scenario should be similar in species, age, and size (diameter) as trees found in the surrounding riparian area, to the extent possible. Wood, boulders and/or boulder clusters will be placed in the stream to create pool habitat and hydraulic complexity according to NRCS engineering specifications and with close review & approval of a fish habitat biologist onsite during the planning and implementation of the project. This scenario involves restoring one acre of stream. The planned activity will meet the current 395 standard, and facilitating practice standards utilized. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern will be required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5. The site does not have adequate food, cover, and perhaps habitat connectiv

After Situation:

Stream habitat within the project reach is improving as a result of placing logs, rocks, or constructing wood and rock structures in the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: stream length X bank full wi

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $37,584.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $37,584.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #5 - Revetment, Conifer Trees

Scenario Description:

This scenario involves placement of anchored conifer trees along the streambank in order to improve bank stability and aquatic habitat that currently does not meet quality criteria for stream species habitat. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components lacking for aquatic species (i.e. large wood, pools). A project design for conifer tree revetment will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Conifer tree revetments should be placed in streams to protect stream banks and create habitat according to NRCS engineering specifications and with close review & approval of a fish habitat biologist. Boulders placed to provide ballast shall only be used if the geomorphic setting and project design demand this component. The planned activity will meet the current 395 standard, and facilitating practice standards utilized, including timing of work windows required for protected aquatic and riparian species, and protecting/restoring vegetation and substrates of/to areas impacted by heavy equipment. Implementation will result in the improvement of bank stability and instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Monitoring records demonstrating implementation of this scenario will address resource concerns for stream species of concern are required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat c

After Situation:

Stream habitat within the project reach is improving as a result of placing conifer tree revetments or similar wood structures in the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: Cubic Yard of CTR

Scenario Unit: Cubic Yard

Scenario Typical Size: 200.0

Scenario Total Cost: $16,436.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $82.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #6 - Engineered Log Jam

Scenario Description:

This scenario involves placement of anchored hardwood trees (known as a constructed log jam) along the streambank in order to improve aquatic habitat that currently does not meet quality criteria for stream species habitat. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components lacking for aquatic species (i.e. large wood, pools). A project design for constructed log jam will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Constructed log jams should be placed in streams to create habitat according to NRCS engineering specifications and with close review & approval of a fish habitat biologist. Boulders placed to provide ballast shall only be used if the geomorphic setting and project design demand this component. The planned activity will meet the current 395 standard, and facilitating practice standards utilized, including timing of work windows required for protected aquatic and riparian species, and protecting/restoring vegetation and substrates of/to areas impacted by heavy equipment. Implementation will result in the improvement of bank stability and instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Monitoring records demonstrating implementation of this scenario will address resource concerns for stream species of concern are required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat c

After Situation:

Stream habitat within the project reach is improving as a result of placing constructed log jams or similar wood structures in the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: Cubic Yard of CLJ

Scenario Unit: Cubic Yard

Scenario Typical Size: 130.0

Scenario Total Cost: $13,738.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $105.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #7 - Rock Structure, Boulders

Scenario Description:

This scenario describes the implementation of a stream habitat improvement and management project that places individual boulders or boulder clusters, or rock structures in or adjacent to the stream channel as habitat components. A project design for boulder placement will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Boulders should be placed in streams to create pool habitat and hydraulic complexity according to NRCS engineering specifications and with close review & approval of a fish habitat biologists onsite during implementation of the project design. Spawning gravel placement should be placed to restore spawning area substrates potentially disturbed by rock placement. The planned activity will meet the current 395 standard, and facilitating practice standards utilized. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, spawning habitat, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of stream habitat assessment, and project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern will be required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat conn

After Situation:

Stream habitat within the project reach is improving as a result of placing boulders or constructing rock structures in the channel and/or along the stream bank. Hydraulic complexity of the habitat in the reach is increased, and hiding cover, food availability and refuge habitat for stream species is improving. Streambank vegetation is increasing and contributing to stability of the streambanks.

Feature Measure: Cubic Yard of Boulder Cluste

Scenario Unit: Cubic Yard

Scenario Typical Size: 25.0

Scenario Total Cost: $4,998.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $199.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #8 - Rock Structure, J-Hook or Rock Vanes

Scenario Description:

This scenario describes the implementation of a stream habitat improvement and management project that places a complex stream structure such as a J-Hook or Rock Vane in or adjacent to the stream channel as habitat components. A project design for a complex stream structure will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact (but must be sized for adequate stability) reference stream reaches in the MLRA where the project is located. Boulders should be placed in streams to create pool habitat and hydraulic complexity according to NRCS engineering specifications and with close review & approval of a fish habitat biologist onsite during implementation of the project design. Spawning gravel placement should be placed to restore spawning area substrates potentially disturbed by rock placement. The planned activity will meet the current 395 standard, and facilitating practice standards utilized. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, spawning habitat, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of stream habitat assessment, and project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern will be required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat conn

After Situation:

Stream habitat within the project reach is improving as a result of placing complex stream structures including J-Hooks and Rock Vanes in the channel and/or along the stream bank. Hydraulic complexity of the habitat in the reach is increased, and hiding cover, food availability and refuge habitat for stream species is improving. Streambank vegetation is increasing and contributing to stability of the streambanks.

Feature Measure: Cubic Yard of Stream Struct

Scenario Unit: Cubic Yard

Scenario Typical Size: 20.0

Scenario Total Cost: $16,916.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $845.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #9 - Stream Restoration, Low

Scenario Description:

This scenario describes the implementation of a stream habitat improvement and management project where the existing stream shows a low departure from targeted stream conditions but restoration is necessary to increase habitat and functionality of the stream. A combination of structures, excavation, channel shaping, and woody materials are considered based on natural channel design concepts. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components (such as large wood, pools) are not currently present in the stream or are limited for aquatic species. A project design for restoration of the stream channel (channel shaping, boulder placement, wood, wood structures, etc.) will be based on assessment of (a) the target stream reach characteristics and (b) those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Rock boulder sizes should also reflect the geomorphic setting of the stream reach. Large wood placed into the stream under this scenario should be similar in species, age, and size (diameter) as trees found in the surrounding riparian area, to the extent possible. Stream restoration components including wood, boulders and/or boulder clusters will be placed in the stream to create pool habitat and hydraulic complexity according to NRCS engineering specifications and with close review & approval of a fish habitat biologist onsite during the planning and implementation of the project. This scenario involves restoring 0.35 acre of stream. The planned activity will meet the current 395 standard, and facilitating practice standards utilized. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern will be required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5. The site does not have adequate food, cover, and perhaps habitat connectiv

After Situation:

Stream habitat within the project reach is improving as a result of completing a stream restoration based on natural channel designing the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: Area of Stream Restoration

Scenario Unit: Acre

Scenario Typical Size: 0.4

Scenario Total Cost: $64,289.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $183,685.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #10 - Stream Restoration, Medium

Scenario Description:

This scenario describes the implementation of a stream habitat improvement and management project where the existing stream shows a moderate departure from targeted stream conditions and restoration is necessary to increase habitat and functionality of the stream. A combination of structures, excavation, channel shaping, and woody materials are considered based on natural channel design concepts. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components (such as large wood, pools) are not currently present in the stream or are limited for aquatic species. A project design for restoration of the stream channel (channel shaping, boulder placement, wood, wood structures, etc.) will be based on assessment of (a) the target stream reach characteristics and (b) those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Rock boulder sizes should also reflect the geomorphic setting of the stream reach. Large wood placed into the stream under this scenario should be similar in species, age, and size (diameter) as trees found in the surrounding riparian area, to the extent possible. Stream restoration components including wood, boulders and/or boulder clusters will be placed in the stream to create pool habitat and hydraulic complexity according to NRCS engineering specifications and with close review & approval of a fish habitat biologist onsite during the planning and implementation of the project. This scenario involves restoring 0.35 acre of stream. The planned activity will meet the current 395 standard, and facilitating practice standards utilized. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern will be required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5. The site does not have adequate food, cover, and perhaps habitat connectiv

After Situation:

Stream habitat within the project reach is improving as a result of completing a stream restoration based on natural channel designing the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: Area of Stream Restoration

Scenario Unit: Acre

Scenario Typical Size: 0.4

Scenario Total Cost: $103,391.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $295,404.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #11 - Stream Restoration, High

Scenario Description:

This scenario describes the implementation of a stream habitat improvement and management project where the existing stream shows a high departure from targeted stream conditions and restoration is necessary to increase habitat and functionality of the stream. A combination of structures, excavation, channel shaping, and woody materials are considered based on natural channel design concepts. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components (such as large wood, pools) are not currently present in the stream or are limited for aquatic species. A project design for restoration of the stream channel (channel shaping, boulder placement, wood, wood structures, etc.) will be based on assessment of (a) the target stream reach characteristics and (b) those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Rock boulder sizes should also reflect the geomorphic setting of the stream reach. Large wood placed into the stream under this scenario should be similar in species, age, and size (diameter) as trees found in the surrounding riparian area, to the extent possible. Stream restoration components including wood, boulders and/or boulder clusters will be placed in the stream to create pool habitat and hydraulic complexity according to NRCS engineering specifications and with close review & approval of a fish habitat biologist onsite during the planning and implementation of the project. This scenario involves restoring 0.35 acre of stream. The planned activity will meet the current 395 standard, and facilitating practice standards utilized. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern will be required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5. The site does not have adequate food, cover, and perhaps habitat connectiv

After Situation:

Stream habitat within the project reach is improving as a result of completing a stream restoration based on natural channel designing the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: Area of Stream Restoration

Scenario Unit: Acre

Scenario Typical Size: 0.4

Scenario Total Cost: $160,455.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $458,443.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 395 - Stream Habitat Improvement and Management

Scenario: #18 - Wood Structure, Root Wads, Instream Manual

Scenario Description:

This scenario involves placement of large wood (trees, and trees with root wads) into a stream channel in order to improve aquatic habitat that currently does not meet quality criteria for stream species habitat. Implementation of this scenario includes the use of only manual equipment and chainsaws. The large wood will not be anchored or cabled. The large wood will be naturally sorted and naturally pinned. Large wood additions implemented as a result of this scenario will use a combination of griphoist pulled-downed trees (leaving roots attached to the bank or pulled in from the forested landscape) and "cut and drop" techniques. A stream assessment (e.g., Stream Visual Assessment Protocol) should be conducted in order to document habitat components lacking for aquatic species (i.e. large wood, pools). A project design for wood placement will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large wood placed into the stream will mimic genus, age, and size of mature trees found in intact, reference riparian areas in the MLRA where the project is located. Large wood should be placed in streams to create pool habitat according to NRCS engineering specifications and with close review & approval of a fish habitat biologist. The planned activity will meet the current 395 standard, and facilitating practice standards, and include work windows to protect aquatic and riparian species, and to protect vegetation and substrates impacted by equipment. Implementation will result in the improvement of instream habitat complexity, hiding and resting cover, and/or increased food availability for fish and other stream species. Payment for implementation is to defray the costs of project implementation. Records demonstrating implementation of this scenario will address resource concerns for stream species of concern are required.

Before Situation:

In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat c

After Situation:

Stream habitat within the project reach is improving as a result of placing large wood in the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

Feature Measure: Bankfull width x reach lengt

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $8,032.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,032.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #1 - Removal, Concrete Dam

Scenario Description:

Full or partial removal of a concrete dam to restore aquatic organism passage, improve water quality, and promote functional river ecology and geomorphology. The extent of removal (full or partial) is determined through consultations with the dam owner in consideration of prevailing regulations and site historical status. Adjacent floodplain surfaces above and below the target dam are considered in the planning process to account for shifts in streamflow and geomorphic regime. Resulting channel dimensions and profile are determined on a site-specific basis to reflect--to the fullest extent possible--pre-dam conditions. Pre-removal sediment assays are completed to determine the toxicity of sediment stored behind the dam. Planning for the reclamation and management of stored sediments is completed according to geomorphic conditions, prevailing regulations, and the results of sediment toxicity investigations. Removal is done with an assortment of equipment, including tracked excavators outfitted with hydraulic chisels, hammers and/or buckets with "thumbs", bull dozers, skid steers, cranes, front-end loaders, and dump trucks. Alternative demolition techniques may include the use of high explosives, diamond-chain, or similar circular saws to remove the dam in a piecewise manner. Removed materials are trucked away and disposed or recycled off-site. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed in the active channel and floodplain to account for post-removal changes to stream plan, pattern, or profile, or reclamation of any former impounded areas. Additional structural measures may be necessary to address constructed features associated with the removed dam including canals, raceways, adjacent spillways, navigation locks, access and maintenance roads, or similar civil works. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature. Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection, (587) Structure for Water Control

Before Situation:

A channel-spanning concrete dam no longer has functional use, may be failing, or creates a hazard to downstream capital infrastructure or communities. The dam blocks upstream aquatic organism migration, and downstream migrants may be diverted into hydraul

After Situation:

The existing dam is removed and reach geometry and slope are restored to pre-dam conditions to the fullest extent practicable. Aquatic organism passage and river ecology and geomorphic conditions are restored to pre-dam conditions to the fullest extent practicable. Resource Concerns are addressed within the context of the site.

Feature Measure: Cubic Yards of concrete in d

Scenario Unit: Cubic Yard

Scenario Typical Size: 250.0

Scenario Total Cost: $178,279.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $713.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #2 - Removal, Earthen Dam Less Than or Equal to 1,000 Cubic Yards

Scenario Description:

Full removal of an earthen dam to restore aquatic organism passage, improve water quality, and promote functional river ecology and geomorphology. The removal extent is determined through consultations with the dam owner in consideration of prevailing regulations and site historical status. Adjacent floodplain surfaces above and below the target dam are considered in the planning process to account for shifts in streamflow and geomorphic regime. Resulting channel dimensions and profile are determined on a site-specific basis to reflect, to the fullest extent possible, pre-dam conditions. Pre-removal sediment assays are be completed as necessary to determine the toxicity of sediment stored behind the dam. Planning for the reclamation and management of stored sediments is completed according to geomorphic conditions, prevailing regulations, and the results of sediment toxicity investigations. Removal is done with an assortment of equipment, including tracked excavators outfitted with hydraulic chisels, hammers and/or buckets with "thumbs", bull dozers, skid steers, cranes, front-end loaders, and dump trucks. Removed materials are trucked away and disposed or recycled off-site, unless native streambed material found in the embankment can be used in site reclamation. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed in the active channel and floodplain to account for post-removal changes to stream plan, pattern, or profile, or reclamation of any former impounded areas. Additional structural measures may be necessary to address constructed features associated with the removed dam including head gates, canals, raceways, access and maintenance roads, or similar civil works. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature. Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection, (587) Structure for Water Control

Before Situation:

A channel-spanning earthen dam no longer has functional use, may be failing, or creates a hazard to downstream capital infrastructure or communities. The dam blocks upstream aquatic organism migration, and downstream migrants may be diverted into hydrauli

After Situation:

The existing dam is removed and reach geometry and slope are restored to pre-dam conditions to the fullest extent practicable. Aquatic organism passage and river ecology and geomorphic conditions are restored to pre-dam conditions to the fullest extent practicable. Resource Concerns are addressed within the context of the site.

Feature Measure: Cubic Yards of earthen emb

Scenario Unit: Cubic Yard

Scenario Typical Size: 500.0

Scenario Total Cost: $80,789.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $161.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #3 - Removal, Passage Barriers

Scenario Description:

Removal of passage barriers, including small relict earthen diversions (e.g., splash dams), failing or undersized culverts, and sediment or large woody material (>10cm diameter and 2m length) from mass wasting or major flood events. Instream material associated with the previously mentioned circumstances or structures prevents aquatic organism passage by the creation of channel-spanning blockages, or areas of shallow depth, high velocities, or extensive changes in water surface elevation. In addition, these features may encourage abrupt channel changes that endanger adjacent capital infrastructure or transportation corridors. Excessive stream bank erosion by flows deflected around or impounded behind these features may impair water quality by introducing fine sediment out of phase with the natural hydrograph and the life history requirements of native aquatic species. Removal is done with an assortment of equipment, including tracked excavators outfitted with buckets with "thumbs", bull dozers, skid steers, front-end loaders, and dump trucks. The channel and adjacent floodplain are restored to pre-blockage conditions to the fullest extent practicable. Removed materials are trucked away and disposed or recycled off-site, unless native streambed material found in the blockage can be used in site reclamation. Large woody material, if present, is used for instream reclamation, replaced in the channel downstream of the blockage, or trucked offsite for disposal or stockpiling for future projects. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed in the active channel and floodplain. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; (643) Restoration and Management of Rare and Declining Habitats. ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An instream feature spanning the active channel creates hydraulic conditions that exceed the swimming or crawling abilities of native aquatic organisms. Event-driven mass wasting or instream deposits of coarse sediment create channel blockages or areas of

After Situation:

The instream barrier is removed by a combination of methods and equipment and the channel and affected floodplain are restored to pre-blockage conditions to the fullest extent practicable. Resource Concerns are addressed within the context of the site.

Feature Measure: Cubic Yards of mineral sedi

Scenario Unit: Cubic Yard

Scenario Typical Size: 200.0

Scenario Total Cost: $8,587.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $42.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #4 - Fishway, Nature-Like

Scenario Description:

Nature-like fishways, also known as roughened channels, rock ramps, or bypass channels, are constructed features that provide passage around an instream barrier or in place of a removed barrier. Fishway design is based on simulating or mimicking adjacent stream characteristics, using natural materials, and providing suitable passage conditions over a range of flows for a wide variety of fish species and other aquatic organisms. Nature-like fishways provide enhanced passage conditions compared to concrete or aluminum (Alaskan Steeppass) ladders, and are not as susceptible to debris-related operational issues. When used to bypass an instream barrier, they require a larger footprint than instream structures, and may also require control structures to regulate flow through the fishway or address tailwater fluctuations affecting the fishway entrance (downstream end). Fishway design includes an assessment of adjacent stream characteristics, including channel geometry, slope, sediment texture and composition, and major geomorphic units that govern channel plan, pattern and profile. In the case of a fishway that bypasses an instream barrier, the design is tailored to these elements, the elevation required to ascend the barrier, and the known range of flow variation or operations. For fishways constructed in the place of a removed barrier, the design may be a hybrid approach that meets the same criteria, although in a smaller instream footprint. Nature-like fishways are constructed with an assortment of equipment used for excavation, placing material, and delivering and removing material. Construction elements generally include an assortment of rock used to create riffles, cascades, or riffle-pool sequences with between 6 to 12 inches of water surface elevation drop between adjacent structures. Large woody material is used to create channel structural elements in some settings, when available and where approved by oversight agencies. Removed materials are trucked away and disposed or recycled off-site, unless excavated native streambed material can be used in fishway construction. Large woody material or removed trees, if present, are used for fishway construction trucked offsite for disposal, or trucked offsite for stockpiling for future projects. Disturbed areas are revegetated using Critical Area Planting (342) and access control and signage are provided. Scenario does not include additional measures needed in the active channel and floodplain or at an existing dam necessary to control flow associated with nature-like fishway. Scenario based on a fishway that is 100 ft long and 25 ft wide. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. --- Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection, (587) Structure for Water Control

Before Situation:

An instream barrier prevents upstream migration of native aquatic organisms and no support exists for removal. Similarly, an instream barrier is removed, and interested parties require maintenance of an upstream pool or pond. The subject stream contains a

After Situation:

A nature-like fishway is constructed in place of a removed barrier or around an existing barrier. The fishway is designed to mimic the adjacent natural stream, and is constructed of rock and/or large woody material that provides quality passage conditions for a number of species and geomorphic stability over a range of flows. Resource Concerns are addressed within the context of the site.

Feature Measure: Length of Fishway x Width o

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $199,762.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $79.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #6 - Culvert, Stream Simulation with Headwall

Scenario Description:

A multi-plate galvanized steel or aluminum culvert (arch or box) used at a road-stream crossing to provide aquatic organism passage (AOP) and promote stream ecological and geomorphic function. They commonly attach to preformed reinforced or poured-in-place concrete footings. Bottomless culverts used for AOP are sized according to geomorphic analyses, not just an estimate of runoff and streamflow at the site from the contributing watershed. In addition, bottomless culverts used for AOP are filled with a mixture of rock and gravel sized to emulate site stream conditions and geomorphic units in the channel. The simulated streambed material is continuous throughout the culvert barrel, and blended with the intact streambed at the culvert inlet and outlet. The first estimate of culvert span is obtained by analyzing bank full channel width on a reach of stream not affected by an existing road crossing or other conditions that alter self-formed conditions. In the case of a culvert replacement, bank full investigations are begun at least 10-20 estimated bank full channel widths above the existing stream crossing. Culvert span is then increased according to channel bed composition and texture, bank characteristics, channel alignment at the crossing section, and other parameters that may affect channel dynamics and stability. Typical size 14' span, 4' rise, 38' length Once the culvert span is determined, culvert length will be dictated by roadway geometry and loading requirements, and site stream conditions. Concrete headwalls and/or wingwalls may be necessary in shorter installations and/or where fill/roadway cover is limited or the stream alignment is not perpendicular to the road axis. Culvert wall thickness and footing requirements are determined by road loading requirements and site geotechnical investigations. Generally, the preferred footing is a T-design with a spread footing with stem wall. Connecting the culvert leg to the footing can be done by welding, grouting, or bolting. Stream geomorphic characteristics, including the reach longitudinal profile, channel cross-sectional shape, substrate composition and arrangement, and bank shape and composition are determined. Bottomless arch or box culverts are commonly delivered in sections and bolted together in the field. Smaller arches can be delivered in one piece. They are installed with an assortment of equipment used for excavation, placing material, and delivering and removing material. Construction elements generally include an assortment of rock used to create riffles, cascades, or riffle-pool sequences with between 6 to 12 inches of water surface elevation drop between adjacent structures. Stream dewatering and diversion around the work site is often required, and temporary road closure or re-routing may also be required. Channel bed material within the culvert barrel varies according to prevailing stream characteristics at the crossing site. Footings are placed or poured, and the new streambed is set at a slope that matches the design longitudinal profile, and backfilled with a bed mixture that mimics adjacent stream characteristics with special attention to channel pattern. Once the simulated streambed between the footings is complete, the culvert sections are assembled and attached to the footings. Larger rock may be placed along the footing/culvert stemwall to protect the connection from damage by transported bedload. The roadway is replaced and any necessary armoring and revegetating material is placed at the culvert inlet and outlet where it intersects the road fill prism. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert, and topsoil conservation for site reclamation. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the stream crossing. Scenario does not include concrete for head or wingwalls. Scenario based on a structure with 16' span and 20' long with bolt on metal footings. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing undersized culvert has contributed to general bed and bank scour downstream of a road crossing, and may have contributed to the deposition of a wedge of sediment upstream of the road crossing. The road may be overtopped by high flows, resultin

After Situation:

The undersized culvert is replaced with a bottomless arch or box culvert sized, placed, and backfilled with material determined by geomorphic analyses performed in a reference reach upstream of the crossing location. Aluminum headwalls are included with the installation which allows for a shorter installation length. Geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. In addition, because the culvert is sized to promote the transport of streamflow and the materials it carries, it requires decreased maintenance activities over time. Landowners are able to access their holdings across a range of flows, and are able to seek and receive emergency and post-flood recovery services. Resource Concerns are addressed within the context of the site.

Feature Measure: horizontal surface area (spa

Scenario Unit: Square Foot

Scenario Typical Size: 532.0

Scenario Total Cost: $88,930.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $167.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #7 - Culvert, Stream Simulation

Scenario Description:

A multi-plate galvanized steel or aluminum culvert (arch or box) used at a road-stream crossing to provide aquatic organism passage (AOP) and promote stream ecological and geomorphic function. They commonly attach to preformed reinforced or poured-in-place concrete footings or a bolt on metal plate footer. Bottomless culverts used for AOP are sized according to geomorphic analyses, not just an estimate of runoff and stream flow at the site from the contributing watershed. In addition, bottomless culverts used for AOP are filled with a mixture of rock and gravel sized to emulate site stream conditions and geomorphic units in the channel. The simulated streambed material is continuous throughout the culvert barrel, and blended with the intact streambed at the culvert inlet and outlet. The first estimate of culvert span is obtained by analyzing bank full channel width on a reach of stream not affected by an existing road crossing or other conditions that alter self-formed conditions. In the case of a culvert replacement, bank full investigations are begun at least 10-20 estimated bank full channel widths above the existing stream crossing. Culvert span is then increased according to channel bed composition and texture, bank characteristics, channel alignment at the crossing section, and other parameters that may affect channel dynamics and stability. Once the culvert span is determined, culvert length will be dictated by roadway geometry and loading requirements, and site stream conditions. Concrete headwalls and/or wingwalls are not included in this scenario. Culvert wall thickness and footing requirements are determined by road loading requirements and site geotechnical investigations. Generally, the preferred footing is a T-design with a spread footing with stem wall. Connecting the culvert leg to the footing can be done by welding, grouting, or bolting. Stream geomorphic characteristics, including the reach longitudinal profile, channel cross-sectional shape, substrate composition and arrangement, and bank shape and composition are determined. Bottomless arch or box culverts are commonly delivered in sections and bolted together in the field. Smaller arches can be delivered in one piece. They are installed with an assortment of equipment used for excavation, placing material, and delivering and removing material. Construction elements generally include an assortment of rock used to create riffles, cascades, or riffle-pool sequences with between 6 to 12 inches of water surface elevation drop between adjacent structures. Stream dewatering and diversion around the work site is often required, and temporary road closure or re-routing may also be required. Channel bed material within the culvert barrel varies according to prevailing stream characteristics at the crossing site. Footings are placed or poured, and the new streambed is set at a slope that matches the design longitudinal profile, and backfilled with a bed mixture that mimics adjacent stream characteristics with special attention to channel pattern. Once the simulated streambed between the footings is complete, the culvert sections are assembled and attached to the footings. Larger rock may be placed along the footing/culvert stemwall to protect the connection from damage by transported bedload. The roadway is replaced and any necessary armoring and revegetating material is placed at the culvert inlet and outlet where it intersects the road fill prism. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert, and topsoil conservation for site reclamation. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the stream crossing. Scenario does not include concrete for head or wingwalls. Scenario based on metal arch culvert 12' span, 48' long RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing undersized culvert has contributed to general bed and bank scour downstream of a road crossing, and may have contributed to the deposition of a wedge of sediment upstream of the road crossing. The road may be overtopped by high flows, resultin

After Situation:

The undersized culvert is replaced with a bottomless arch or box culvert sized, placed, and backfilled with material determined by geomorphic analyses performed in a reference reach upstream of the crossing location. Geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. In addition, because the culvert is sized to promote the transport of streamflow and the materials it carries, it requires decreased maintenance activities over time. Landowners are able to access their holdings across a range of flows, and are able to seek and receive emergency and post-flood recovery services. Resource Concerns are addressed within the context of the site.

Feature Measure: horizontal area (span x lengt

Scenario Unit: Square Foot

Scenario Typical Size: 576.0

Scenario Total Cost: $72,697.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $126.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #8 - Culvert, Concrete Box

Scenario Description:

A four-sided precast concrete box (square or rectangular) culvert used at a road-stream crossing to provide aquatic organism passage (AOP) and promote stream ecological and geomorphic function. Concrete box culverts are generally available in sections of 1-foot increments. Concrete box culverts used for AOP are sized according to geomorphic analyses, not just an estimate of runoff and streamflow at the site from the contributing watershed. In addition, concrete box culverts used for AOP are filled with a mixture of rock and gravel sized to emulate site stream conditions and geomorphic units in the channel. The simulated streambed material is continuous throughout the culvert barrel, and blended with the intact streambed at the culvert inlet and outlet. The first estimate of culvert width is obtained by analyzing bank full channel width on a reach of stream not affected by an existing road crossing or other conditions that alter self-formed conditions. In the case of a culvert replacement, bank full investigations are begun at least 10-20 estimated bank full channel widths above the existing stream crossing. Culvert width is then increased according to channel bed composition and texture, bank characteristics, channel alignment at the crossing section, and other parameters that may affect channel dynamics and stability. Once the culvert width is determined, culvert length will be determined by roadway geometry and loading requirements, and site stream conditions. Concrete headwalls and/or wingwalls may be necessary in shorter installations and/or where fill/roadway cover is limited or the stream alignment is not perpendicular to the road axis. Stream geomorphic characteristics, including the reach longitudinal profile, channel cross-sectional shape, substrate composition and arrangement, and bank shape and composition are determined. Concrete box culverts are delivered in sections and assembled onsite, and require adequate bed compaction throughout the crossing section. They are installed with an assortment of equipment used for excavation, placing material, and delivering and removing material. Construction elements generally include an assortment of rock used to create riffles, cascades, or riffle-pool sequences with between 6 to 12 inches of water surface elevation drop between adjacent structures. Stream dewatering and diversion around the work site is often required, and temporary road closure or re-routing may also be required. Channel bed material within the culvert barrel varies according to prevailing stream characteristics at the crossing site. The new streambed is set at a slope that matches the design longitudinal profile, and backfilled with a bed mixture that mimics adjacent stream characteristics with special attention to channel pattern. The roadway is replaced and any necessary armoring and revegetating material is placed at the culvert inlet and outlet where it intersects the road fill prism. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert, and topsoil conservation for site reclamation. Disturbed areas are revegetated with Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the stream crossing. Scenario based on box culvert with 8' span and 20' long RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing undersized culvert as contributed to general bed and bank scour downstream of a road crossing, and may have contributed to the deposition of a wedge of sediment upstream of the road crossing. The road may be overtopped by high flows, resulting

After Situation:

The undersized culvert is replaced with a concrete box culvert sized, placed, and backfilled with material determined by geomorphic analyses performed in a reference reach upstream of the crossing location. Geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. In addition, because the culvert is sized to promote the transport of streamflow and the materials it carries, it requires decreased maintenance activities over time. Landowners are able to access their holdings across a range of flows, and are able to seek and receive emergency and post-flood recovery services. Resource Concerns are addressed within the context of the site.

Feature Measure: horizontal area (span x lengt

Scenario Unit: Square Foot

Scenario Typical Size: 160.0

Scenario Total Cost:	$49,589.27	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$309.93	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #10 - Bridge, Precast Abutment

Scenario Description:

A channel-spanning structure that carries a road or trailway across a river or stream. Constructed of timber, I-beams, or concrete, bridges are attached at either end to prefabricated or precast concrete. Longer span bridges may require instream pilings to support the travel surface. Bridge decking can be timber, concrete, asphalt, or some combination thereof. Bridge design is completed to conform to loading requirements and site conditions. Geotechnical investigations are used to determine the best support structure suited to a given site. The bridge deck is designed to rest on abutments placed on the adjacent floodplain. Bridge components are delivered to the site and assembled by a combination of equipment and manual labor. They are installed with an assortment of equipment used for excavation, placing material, delivering and removing material, and lifting bridge components from delivery trucks onto the constructed bridge support elements. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert (if applicable), and topsoil conservation for site reclamation. Stream diversion is not necessary since the bridge will be constructed above the active channel. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the bridge crossing. Scenario based on bridge 16 feet wide and 30 feet long RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing stream crossing outfitted with an undersized culvert has a history of maintenance issues and failure. The downstream channel has experienced bed and bank scour, and the crossing may have to the deposition of a wedge of sediment upstream of the

After Situation:

The undersized culvert is replaced with a timber bridge placed on precast concrete abutments. The bridge deck is composed of timber planks, and elevated, continuous railings run down each side connecting one abutment to its counterpart on the opposite bank. Signs on either approach indicate bridge capacity and weight restrictions. Because the bridge spans the active channel and sits atop the adjacent floodplain surface, geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. Landowners are able to access their holdings across a range of flows, and are able to seek and receive emergency and post-flood recovery services. Resource Concerns are addressed within the context of the site. Typical dimensions: 16' wide x 30' long bridge sitting on 6' tall abutments.

Feature Measure: Area of bridge deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $120,032.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $250.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #11 - Bridge, Prefabricated

Scenario Description:

A channel-spanning structure constructure from a manufactured concrete or steel bridge structure that has been certified by a PE that carries a road or trailway across a river or stream. Bridge design is completed to conform to loading requirements and site conditions. The bridge deck is designed to rest on abutments placed on the adjacent floodplain. Bridge components are delivered to the site and assembled by a combination of equipment and manual labor. They are installed with an assortment of equipment used for excavation, placing material, delivering and removing material, and lifting bridge components from delivery trucks onto the constructed bridge support elements. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert (if applicable), and topsoil conservation for site reclamation. Channel diversion or dewatering is required since an existing blockage will be removed for bridge construction. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the bridge crossing. Typical size 30' long and 16' wide. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Associated Practices: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; (395) Stream Habitat Improvement and Management, (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing undersized culvert creates an upstream passage blockage to fish and other aquatic organisms. The existing crossing does not meet State or Federal fish passage guidance.

After Situation:

The undersized culvert is replaced with a manufactured bridge placed on precast concrete abutments. The bridge deck is composed of concrete or steel and elevated, continuous railings run down each side connecting one abutment to its counterpart on the opposite bank. Signs on either approach indicate bridge capacity and weight restrictions. Because the bridge spans the active channel and sits atop the adjacent floodplain surface, geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. Resource Concerns are addressed within the context of the site. Typical Scenario is for a 30' span bridge 15' wide on precast concrete abutments.

Feature Measure: Area of Bridge Deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $97,071.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $202.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #12 - Ladder, Concrete

Scenario Description:

Formed, reinforced, poured-in-place concrete structures outfitted with baffles (Denil), vertical slots, pools and weirs, submerged orifices, chutes or some combination thereof to provide upstream passage for aquatic organisms over dams and other hydraulic structures. Although fish ladder designs vary according to target species and site conditions, they can generally be described as a three-sided concrete channel with integrated hydraulic features that provide a gradual elevation increase across some distance that allows aquatic organism to swim over a barrier--they convert the total barrier head elevation into passable increments. Concrete ladders are often constructed with resting pools and may have switchbacks. The primary water source for a concrete ladder comes from streamflow diverted into the ladder exit (upstream end) and since it is passed through the ladder to the river below, it is not a consumptive use. These ladders often require flow control and regulating devices (sometimes automated), gates, and may need auxiliary pumps to provide attraction flows at the ladder entrance (downstream end) or augment flow in the ladder. Gages above and below the dam are required to inform ladder operation. Trash racks are used at the upstream end to block debris from entering the ladder. Concrete ladders also require frequent maintenance, and flow through unautomated ladders may need to be adjusted manually when adjacent river conditions or dam operations change. Concrete ladder designs can be complex and require interactions between engineering and ecological sciences for successful implementation. For example, the ladder entrance is one of the most important elements of the structure, and placement of this entrance in the downstream reach is a function of site characteristics and aquatic organism biology. In addition, some aquatic animals will not swim through a submerged orifice, so use of pool-orifice ladders is not recommended. Partners associated with dam ownership and operation, regulatory agencies, and others are consulted and included in the design and construction process. Ladder designs account for run volume and timing, and the swimming capabilities of target species. Some ladders in highly visible areas are finished with masonry facades to blend the ladder to the site in the interest of aesthetics or to conform with historic appearances. Concrete ladders are constructed with equipment for excavation, placing material, and delivering and removing material. Lifts or booms are required to place concrete into forms. Because ladders are often attached to existing dams, personnel familiar with the dam structure are involved at all phases of the process to ensure that plans conform with site requirements. Bed and bank excavation are necessary to create the location for concrete ladders, so site isolation and sediment and erosion control measures are used. Disturbed areas are revegetated using Critical Area Planting (342) and access control and signage are provided. Scenario does not include additional measures in the adjacent active channel necessary to control flow, address channel elevation or stability, or encourage fish guidance into the concrete ladder. Scenario does not include structures used as counting stations or to trap and sample upstream migrants. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection, (587) Structure for Water Control

Before Situation:

An operational, low hazard class fixed crest concrete dam becomes the target of parties interested in providing fish passage. The dam presently blocks the upstream migration of a number of native aquatic organisms, and suitable spawning and rearing habita

After Situation:

A concrete pool and chute ladder outfitted with aluminum internal features and 2 turn/resting pool is installed. The ladder is attached to the face and abutment of the dam, and the entrance is located along the streambank where migrating aquatic organisms are likely to encounter it. The ladder passes the estimated run volume with minimal delays, and native aquatic animals are able to reach upstream spawning and rearing areas and successfully produce offspring that become part of the population. The ladder has an operating plan that stipulates actions and responsible parties for every month of the year. The ladder is fenced to control access and signage indicating its function and relevant warnings is provided at numerous locations. Resource Concerns are addressed within the context of the site. Typical size to raise fish 10 ft: 15' wide x 250 ft long. Each step will raise the water 6 inches.

Feature Measure: Barrier height (feet)

Scenario Unit: Foot

Scenario Typical Size: 10.0

Scenario Total Cost: $1,228,595.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $122,859.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #15 - Crossing, Low Water

Scenario Description:

Structure installed on low volume or on unimproved roads at watercourse crossings. Primary use is to allow livestock and equipment access to other parcels of land or operational units. Low-water crossings provide safe and stable stream crossings that don't negatively impact water and ecological quality while remaining stable across a wide range of flows. Variations exist, but a common application consists of an improved or hardened ford located above a hydraulic control (e.g., bedrock outcropping, riffle, or step composed of coarse substrates). Properly designed and installed low water crossings provide aquatic organism passage (AOP), promote stream ecological and geomorphic function, remain stable over time, and can pass sediment and woody debris. Conservation planning and interaction with the landowner is vital to determine if existing crossings can be consolidated into fewer, more reliable locations. Characterizing a site according to its watershed position and geomorphic function will aid design decisions. Optimal AOP conditions are usually realized when the backfill is composed of a mixture that mimics bed material as evaluated from a reference reach adjacent to the crossing—preferably at least 10-20 estimated bank full channel widths above an existing crossing to avoid effects that alter channel geometry or bedform composition and spacing. Low water crossings are installed with an assortment of equipment used for excavation, placing material, and delivering and removing material. Low water crossings provide the best mix of function and longevity when they are designed and built to conform to existing channel geometry and slope, constructed to match the shape of the existing channel, and oriented to cross the stream at a 90 degree angle. Crossing width, measured along the downstream axis, should not exceed 2X bank full width. Low water crossings are commonly constructed by over excavating the crossing section 6-12 inches below the existing streambed and backfilling the void with well-graded rock back to natural bed elevation. Geotextile lining may be required in some settings. Rock size and gradation is the smallest mix needed to remain stable under prevailing flow conditions—larger rock can endanger livestock and turbulence impairs passage. Sand or soil may be added into the mix to seal the section to ensure that the stream doesn't percolate into the crossing substrate. Smaller material increases bed diversity, chokes voids between bigger stones, and helps preserve passage quality. Smaller rock smaller (< 2 inches) at the finished surface may become lodged in livestock hooves. The road/trail surface of the crossing should be extended to an elevation that exceeds the known high water level on each side of the crossing. The downstream edge of the crossing should not produce a sharp drop in water surface to preserve AOP quality and discourage sediment deposition and debris accumulation. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert, and topsoil conservation for site reclamation. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the stream crossing. Stream corridor fencing should be considered to control livestock access and preserve water and riparian quality. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection, (587) Structure for Water Control

Before Situation:

A small farming operation has a mixture of pastures, hay meadows, and crops that all require seasonal movement of equipment and livestock between parcels. Four unimproved stream crossings provide unreliable access across the property and require yearly ma

After Situation:

An improved ford is constructed by excavating the channel just upstream of the boulder/cobble hydraulic control. The cut is lined with geotextile to control seepage and subsurface flow, and backfilled up to the existing bed elevation with a well-graded mix of rock sized to mimic the material in the channel upstream of the crossing. The finished crossing surface is at grade with the up and downstream channel elevation, and no drop exists along the downstream edge. Approaches on either side of the crossing are extended up to the adjacent floodplain surface, and the finished instream portion of the ford matches the existing channel cross section. Approach slopes are shallow enough for expected equipment traffic, including towed combinations, and armored as needed with larger rock to protect against erosion that may occur when the floodplain is inundated. The crossing is fenced and gated to control livestock access and provide greater flexibility to the landowner's grazing needs. AOP is provided, and the crossing remains stable across a range of flow and sediment and debris transport events. Resource Concerns are addressed within the context of the site.

Feature Measure: Cubic Yard of Crossing Mate

Scenario Unit: Cubic Yard

Scenario Typical Size: 42.0

Scenario Total Cost:	$14,187.75	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$337.80	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #16 - Weir, Step Pool

Scenario Description:

Step pool weirs are constructed features that provide passage around an instream barrier or in place of a removed barrier. Step Pool Weirs are constructed with an assortment of equipment used for excavation, placing material, and delivering and removing material. Disturbed areas are revegetated using Critical Area Planting (342) and access control and signage are provided. Scenario does not include additional measures needed in the active channel and floodplain or at an existing dam necessary to control flow associated with nature-like fishway. Typical size 100' long, 35' wide RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Associated Practices (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment, 580 Streambank and Shoreline Protection, (395) Stream Habitat Improvement and Management, (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection, (587) Structure for Water Control580 Streambank and Shoreline Protection

Before Situation:

An instream barrier prevents upstream migration of native aquatic organisms and no support exists for removal. Similarly, an instream barrier is removed, and interested parties require maintenance of an upstream pool or pond.

After Situation:

A step pool weir is constructed in place of a removed barrier. The step pool weir is constructed of rock that provides quality passage conditions for a number of species and geomorphic stability over a range of flows. Resource Concerns are addressed within the context of the site. The typical scenario is for a 35' wide channel 100 feet long with weirs every 10'.

Feature Measure: length x width of fishway

Scenario Unit: Square Foot

Scenario Typical Size: 3,500.0

Scenario Total Cost: $472,172.77

Total Cost per Unit: $134.91

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #45 - Bridge, Timber with Block Abutments

Scenario Description:

Install a bridge to allow stream flows to cross under access road or animal trail. Bridge opening determined by sizing for storm event dictated in standard. Scenario includes dewatering, abutments, girders, decking. Work consists of site preparation, dewatering, acquiring and installing abutments, girders, decking with necessary hardware, backfilling abutments, and armoring with geotextile and riprap. Riprap and geotextile are used to stabilize and protect abutments as needed. Scenario based on precast concrete block abutments, steel girders, and timber deck. Travel surface shall be wooden or concrete deck surface. Load is H-25. Width is 16 feet including curbs. Abutments are <= 6 feet. Typical size: 20' long, 16' wide with 6' abutments.

Before Situation:

An undersized structure is causing a velocity, depth, or jump barrier for aquatic organisms. Existing structure may also be causing stream or road erosion.

After Situation:

Access and water flow are able to cross each other in a stable manner while providing for passage of aquatic organisms. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: square footage of bridge de

Scenario Unit: Square Foot

Scenario Typical Size: 320.0

Scenario Total Cost: $48,232.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $150.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #46 - Bridge, Cast-In-Place Abutment with Geotechnical Investigation

Scenario Description:

A channel-spanning structure that carries a road or trailway across a river or stream. Constructed of timber, I-beams, or concrete, bridges are attached at either end to prefabricated, reinforced and poured-in-place, or piling abutments capped/surrounded with concrete. Longer span bridges may require instream pilings to support the travel surface. Bridge decking can be timber, concrete, asphalt, or some combination thereof. Typical size 30' long and 16' wide. Bridge design is completed to conform to loading requirements and site conditions. Geotechnical investigations are used to determine the best support structure suited to a given site. The bridge deck is designed to rest on abutments placed on the adjacent floodplain. Bridge components are delivered to the site and assembled by a combination of equipment and manual labor. They are installed with an assortment of equipment used for excavation, placing material, delivering and removing material, and lifting bridge components from delivery trucks onto the constructed bridge support elements. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert (if applicable), and topsoil conservation for site reclamation. Stream diversion is not necessary since the bridge will be constructed above the active channel. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the bridge crossing. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing stream crossing outfitted with an undersized culvert has a history of maintenance issues and failure. The downstream channel has experienced bed and bank scour, and the crossing may have to the deposition of a wedge of sediment upstream of the

After Situation:

The undersized culvert is replaced with a timber bridge placed on precast concrete abutments. The bridge deck is composed of timber planks, and elevated, continuous railings run down each side connecting one abutment to its counterpart on the opposite bank. Signs on either approach indicate bridge capacity and weight restrictions. Because the bridge spans the active channel and sits atop the adjacent floodplain surface, geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. Landowners are able to access their holdings across a range of flows, and are able to seek and receive emergency and post-flood recovery services. Resource Concerns are addressed within the context of the site.

Feature Measure: Area of bridge deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $94,193.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $196.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #49 - Removal, Existing Crossing with Abutments

Scenario Description:

Removal of existing crossing consisting of failing or undersized culverts that is causing a barrier to aquatic organism passage. Abutments will be placed so that a temporary bridge can be used during timber harvest and removed when it is no longer needed. Using a temporary bridge will reduce maintenance expense for the producer. Instream material associated with the previously mentioned circumstances or structures prevents aquatic organism passage by the creation of channel-spanning blockages, or areas of shallow depth, high velocities, or extensive changes in water surface elevation. In addition, these features may encourage abrupt channel changes that endanger adjacent capital infrastructure or transportation corridors. Excessive streambank erosion by flows deflected around or impounded behind these features may impair water quality by introducing fine sediment out of phase with the natural hydrograph and the life history requirements of native aquatic species. Removal is done with an assortment of equipment, including tracked excavators outfitted with buckets with "thumbs" and dump trucks. The channel and adjacent floodplain are stabilized to the fullest extent practicable. Removed materials are trucked away and disposed or recycled off-site, unless native streambed material found in the blockage can be used in site reclamation. Large woody material, if present, is used for instream reclamation, replaced in the channel downstream of the blockage, or trucked offsite for disposal or stockpiling for future projects. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed in the active channel and floodplain. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; (643) Restoration and Management of Rare and Declining Habitats. ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An instream feature spanning the active channel creates hydraulic conditions that exceed the swimming or crawling abilities of native aquatic organisms. Event-driven mass wasting or instream deposits of coarse sediment create channel blockages or areas of

After Situation:

The instream barrier is removed by a combination of methods and equipment and the channel and affected floodplain are restored to pre-blockage conditions to the fullest extent practicable. Resource Concerns are addressed within the context of the site

Feature Measure: Number of crossings to dec

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $35,535.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $35,535.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #55 - Removal, Earthen Dam

Scenario Description:

Full removal of an earthen dam to restore aquatic organism passage, improve water quality, and promote functional river ecology and geomorphology. The removal extent is determined through consultations with the dam owner in consideration of prevailing regulations and site historical status. Adjacent floodplain surfaces above and below the target dam are considered in the planning process to account for shifts in streamflow and geomorphic regime. Resulting channel dimensions and profile are determined on a site-specific basis to reflect, to the fullest extent possible, pre-dam conditions. Pre-removal sediment assays are be completed as necessary to determine the toxicity of sediment stored behind the dam. Planning for the reclamation and management of stored sediments is completed according to geomorphic conditions, prevailing regulations, and the results of sediment toxicity investigations. Removal is done with an assortment of equipment, including tracked excavators outfitted with hydraulic chisels, hammers and/or buckets with "thumbs", bull dozers, skid steers, cranes, front-end loaders, and dump trucks. Removed materials are trucked away and disposed or recycled off-site, unless native streambed material found in the embankment can be used in site reclamation. Disturbed areas are revegetated with a mix of site-adapted species. Scenario does not include additional measures needed in the active channel and floodplain to account for post-removal changes to stream plan, pattern, or profile, or reclamation of any former impounded areas. Additional structural measures may be necessary to address constructed features associated with the removed dam including head gates, canals, raceways, access and maintenance roads, or similar civil works. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature. Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection, (587) Structure for Water Control

Before Situation:

A channel-spanning earthen dam no longer has functional use, may be failing, or creates a hazard to downstream capital infrastructure or communities. The dam blocks upstream aquatic organism migration, and downstream migrants may be diverted into hydrauli

After Situation:

The existing dam is removed and reach geometry and slope are restored to pre-dam conditions to the fullest extent practicable. Aquatic organism passage and river ecology and geomorphic conditions are restored to pre-dam conditions to the fullest extent practicable. Resource Concerns are addressed within the context of the site.

Feature Measure: Cubic Yards of earthen emb

Scenario Unit: Cubic Yard

Scenario Typical Size: 500.0

Scenario Total Cost: $46,024.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $92.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #56 - Bridge, Prefabricated with Metal Abutments

Scenario Description:

A channel-spanning structure constructed from a manufactured steel bridge structure that has been certified by a PE that carries a road or trailway across a river or stream. Bridge design is completed to conform to loading requirements and site conditions. The bridge deck is designed to rest on abutments placed on a bolted metal crib filled with gravel or rock. Other abutment types are not practical due to distance from an improved road. Bridge components are delivered to the site and assembled by a combination of equipment and manual labor. They are installed with an assortment of equipment used for excavation, placing material, delivering and removing material, and lifting bridge components from delivery trucks onto the constructed bridge support elements. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert (if applicable), and topsoil conservation for site reclamation. Channel diversion or dewatering is required since an existing blockage will be removed for bridge construction. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the bridge crossing. Typical size 30' long and 16' wide. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Associated Practices: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; (395) Stream Habitat Improvement and Management, (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing undersized culvert creates an upstream passage blockage to fish and other aquatic organisms. The existing crossing does not meet State or Federal fish passage guidance

After Situation:

The undersized culvert is replaced with a manufactured bridge placed on precast concrete abutments. The bridge deck is composed of concrete or steel and elevated, continuous railings run down each side connecting one abutment to its counterpart on the opposite bank. Signs on either approach indicate bridge capacity and weight restrictions. Because the bridge spans the active channel and sits atop the adjacent floodplain surface, geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. Resource Concerns are addressed within the context of the site. Typical Scenario is for a 30' span bridge 15' wide on precast concrete abutments.

Feature Measure: Area of Bridge Deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $183,529.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $382.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 396 - Aquatic Organism Passage

Scenario: #67 - Bridge

Scenario Description:

A channel-spanning structure that carries a road or trailway across a river or stream. Constructed of timber, I-beams, or concrete, bridges are attached at either end to prefabricated, reinforced and poured-in-place, or piling abutments capped/surrounded with concrete. Longer span bridges may require instream pilings to support the travel surface. Bridge decking can be timber, concrete, asphalt, or some combination thereof. Typical size 30 ft span bridge, with most single lane bridges being 16 ft width= 480 sq ft Bridge design is completed to conform to loading requirements and site conditions. Geotechnical investigations are used to determine the best support structure suited to a given site. The bridge deck is designed to rest on abutments placed on the adjacent floodplain. Bridge components are delivered to the site and assembled by a combination of equipment and manual labor. They are installed with an assortment of equipment used for excavation, placing material, delivering and removing material, and lifting bridge components from delivery trucks onto the constructed bridge support elements. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert (if applicable), and topsoil conservation for site reclamation. Stream diversion is not necessary since the bridge will be constructed above the active channel. Disturbed areas are revegetated with a mix of site-adapted species. Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the bridge crossing. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Payments for these associated practices are made separately and are covered by other typical scenarios and payment schedules. See relevant CPS for additional information. ---Site Preparation and Reclamation associated with project footprint: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; ---Reach Planning/Habitat Enhancement: (395) Stream Habitat Improvement and Management, ---Structural Measures Associated with Scenario but outside of project footprint: (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing stream crossing outfitted with an undersized culvert has a history of maintenance issues and failure. The downstream channel has experienced bed and bank scour, and the crossing may have to the deposition of a wedge of sediment upstream of the

After Situation:

The undersized culvert is replaced with a timber bridge placed on precast concrete abutments. The bridge deck is composed of timber planks, and elevated, continuous railings run down each side connecting one abutment to its counterpart on the opposite bank. Signs on either approach indicate bridge capacity and weight restrictions. Because the bridge spans the active channel and sits atop the adjacent floodplain surface, geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. Landowners are able to access their holdings across a range of flows, and are able to seek and receive emergency and post-flood recovery services. Resource Concerns are addressed within the context of the site.

Feature Measure: square feet of bridge deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $120,320.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $250.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 397 - Aquaculture Pond

Scenario: #2 - Pond, Aquaculture with Rock Bottom

Scenario Description:

Typical practice is 1 acre (surface area) pond , 3:1 side slopes, average 5' depth with a 6" gravel placed in pond bottom as required for certain species of fish. The construction of a aquaculture pond to facilitate the containment of cultured organisms, efficient use of water and the maintenance of water quality. This practice is to be used where the soils and conditions on site are conducive to the creation of a gravel-lined pond, an earthen pond with gravel lining is suitable for the cultured species as well as the planned aquaculture system, and the respective state agencies allow for the culture of the targeted species in earthen ponds. The resource concerns addressed include excess nutrients in surface and ground waters, inefficient water use, and habitat degradation. Typical pond inlet and outlet shall be Structure for Water Control (587). Costs include all equipment necessary to excavate, grade and shape an aquaculture pond and furnish and place gravel. Water Control Structure and Seeding not included.

Before Situation:

In the before situation, an aquaculture producer has an existing aquaculture pond system that one or more of the following concerns: excessive seepage or frequent release of nutrient laden aquaculture water, potential of loss of non-native aquaculture pro

After Situation:

Aquaculture pond is typically 1 acre in surface area, 5 feet deep with 3:1 side slopes with 6” of gravel on the bottom. The identified resource concerns on site are addressed. The practice is installed using a dozer. Drainage tile, if needed, will be installed according to Subsurface Drain (606). Outlets, if needed will be installed using Structure for Water Control (587). Liner if needed will be installed using Pond Sealing (521 A, B, C, or D). Water Well, Pumps, and Access Roads may also be needed and will be installed using those standards as appropriate.

Feature Measure: Acre of Aquaculture Pond

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $63,268.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $63,268.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 397 - Aquaculture Pond

Scenario: #5 - Pond, Aquaculture Concrete

Scenario Description:

Typical practice is a 90' by 45' pond, average 4' depth (16,200 cubic feet) with a waste sump constructed of 10 CY of concrete to collect and remove waste. The construction of an aquaculture pond to facilitate the efficient collection and transfer of waste, the containment of cultured organisms, efficient use of water and the maintenance of water quality. This practice is to be used where the soils and conditions on site are not conducive to the creation of an earthen pond, an earthen pond is not suitable for the planned aquaculture system, or the respective state agencies will not allow for the culture of the targeted species in earthen ponds. This scenario could also be used when a producer has an existing earthen pond(s), and a flow-through aquaculture system, and is going to convert to a recirculating aquaculture system (RAS) to conserve surface or groundwater withdrawals. This scenario is used where the frequent removal of wasted from the culture unit are required, to meet water quality objectives. The resource concerns addressed include excess nutrients in surface and ground waters, inefficient water use, and habitat degradation. Typical pond inlet and outlet shall be a Structure for Water Control (587). Costs include all equipment necessary to excavate, grade and shape an aquaculture pond and construct reinforced concrete waste sump. Water Control Structure and Seeding not included.

Before Situation:

In the before situation, an aquaculture producer has an existing aquaculture pond system with one or more of the following concerns: excessive seepage or frequent release of nutrient laden aquaculture water, potential of loss of non-native aquaculture pro

After Situation:

Aquaculture pond is typically 4,050 square feet in surface area (90' by 45'), 4 feet deep, with floor slab and walls constructed of reinforced concrete, and a waste sump. The identified resource concerns are addressed. The practice is installed using a dozer and concrete equipment. Drainage tile, if needed, will be installed according to Subsurface Drain (606). Inlets and outlets, if needed will be installed using Structure for Water Control (587). Liner if needed will be installed using Pond Sealing (521 A, B, C, or D). Water Well, Pumps, and Access Roads may also be needed and will be installed using those standards as appropriate.

Feature Measure: Cubic Yard of Aquaculture P

Scenario Unit: Cubic Yard

Scenario Typical Size: 600.0

Scenario Total Cost: $126,356.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $210.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 397 - Aquaculture Pond

Scenario: #13 - Pond, Aquaculture

Scenario Description:

Typical practice is 1 acre pond surface area, 3:1 side slopes, average 5' depth. The construction of an aquaculture pond to facilitate the efficient collection and transfer of waste, the containment of cultured fish, efficient use of water and the maintenance of water quality. The resource concerns addressed include excess nutrients in surface and ground waters, inefficient water use, and habitat degradation. Typical pond outlet is a Structure for Water Control (587). Costs include all equipment necessary to excavate, grade and shape an aquaculture pond. Water Control Structure and Seeding not included.

Before Situation:

In the before situation, an aquaculture producer has an aquaculture pond system that has one or more of the following concerns: excessive seepage or frequent release of nutrient laden aquaculture water, potential of loss of non-native aquaculture producti

After Situation:

Aquaculture pond is typically 1 acre in surface area, 5 feet deep with 3:1 side slopes. The practice is installed using a dozer. Drainage tile, if needed, will be installed according to Subsurface Drain (606). Outlets, if needed will be installed using Structure for Water Control (587). A liner, if needed, will be installed using Pond Sealing or Lining, Compacted Soil Treatment 520, or Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner. Water Well, Pumps, and Access Roads may also be needed and will be installed using those standards as appropriate.

Feature Measure: Acre of Aquaculture Pond

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $28,794.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28,794.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 398 - Fish Raceway or Tank

Scenario: #2 - Raceway, Parallel

Scenario Description:

The construction of a concrete fish raceway to facilitate the collection of wastes, the containment of cultured fish, and to maintain water quality. Typical practice is side by side 100' long x 6' wide x 3.5' deep concrete raceway with a quiescent zone for waste collection and sloped floors as per the conservation practice standard. This scenario includes all necessary labor and materials for excavation, aggregate, cast-in-place concrete, fish screens, weir boards, and concrete sealing with epoxy paint.

Before Situation:

In the before situation, an aquaculture producer has an aquaculture production system with one or more of the following concerns: excessive seepage or frequent release of nutrient laden aquaculture water, potential of loss of non-native aquaculture produc

After Situation:

Fish raceway is typically 4,480 cubic feet in size (100'x12.8'x3.5') with 0.8' thick slab and 0.8' thick walls of cast in place, reinforced concrete. The practice is installed using a hydraulic excavator, and concrete pump truck. Drainage tile, if needed, will be installed according to Subsurface Drain (606). Inlets and outlets, if needed will be installed using Structure for Water Control (587). Pipeline, Pumping Plant, Water Well, and Access Roads may also be needed and will be installed using those standards as appropriate.

Feature Measure: Cubic Foot of Fish Raceway

Scenario Unit: Cubic Foot

Scenario Typical Size: 4,480.0

Scenario Total Cost: $67,542.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #3 - Aeration, Surface

Scenario Description:

Aerator added to existing fishpond to obtain desired oxygen levels. Typically 1 aerator needed per pond. Certain oxygen levels in the fishpond are needed for optimum vegetation, habitat and water quality. Oxygen levels and size of aerator needed are determined by a conservation planner, engineer or per existing supported data. Aerator planning and placement specifications can be found in "AEN-3: Aeration of ponds used in aquaculture". Resource concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation; Water Quality Degradation - Elevated water temperature.

Before Situation:

Existing fishpond has insufficient levels of oxygen available for desired fish species in pond. Habitat and water quality degraded, as well as health of the fish population.

After Situation:

Aerator sized appropriately for fishpond has been established and oxygen is at an optimum level. Participant will follow Operation and Maintenance guidance to ensure aerator maintained to continually provide appropriate oxygen levels for fishpond.

Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,132.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,132.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #4 - Aeration, Subsurface

Scenario Description:

Aerator added to existing fishpond to obtain desired oxygen levels. Typically 1 aerator needed per pond. Certain oxygen levels in the fishpond are needed for optimum vegetation, habitat and water quality. Oxygen levels and size of aerator needed are determined by a conservation planner, engineer or per existing supported data. Aerator planning and placement specifications can be found in "AEN-3: Aeration of ponds used in aquaculture". Resource concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation; Water Quality Degradation - Elevated water temperature. Associated Practice: Critical Area Planting - 342

Before Situation:

Existing fishpond has insufficient levels of oxygen available for desired fish species in pond. Habitat and water quality degraded, as well as health of the fish population.

After Situation:

Aerator sized appropriately for fishpond has been established and oxygen is at an optimum level. Participant will follow Operation and Maintenance guidance to ensure aerator maintained to continually provide appropriate oxygen levels for fishpond.

Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $4,161.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,161.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #5 - Vegetation, Native

Scenario Description:

Native, aquatic vegetation will be established by plugs and or tubers. Both emergent and submerged vegetation will be established using hand tools or other small equipment as needed. Vegetation will be established to ensure appropriate cover for desired fish species. Plants will be established at a rate, location and density as prescribed by the conservation planner or other resource. A typical setting will plant between 2-5 aquatic plants per 10 SF. This scenario may include replacing of non desired plants with appropriate native plants. Resource Concerns addressed include: Degraded Plant Condition - Excessive plant pest pressure; Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures.

Before Situation:

Established fish pond which has had insufficient vegetation for desired fish species. Vegetation consists either primarily of non-desired plants or is not of a density to provide adequate cover for fish species. Fishpond is typically 1 acre in size, 1/4 a

After Situation:

Vegetation in fishpond is of a density and composition that is suitable for desired fish species. Vegetation is native plants. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidelines to ensure established plants will thrive. If plant die-off occurs prior to lifespan of practice, participant is required to re-establish vegetation to NRCS Standards and Specifications.

Feature Measure: Acre of vegetation planted

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3,700.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,700.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #6 - Pond Restoration, Sediment Removal

Scenario Description:

Management of existing fishpond by excavation or placement of material to create deep open water. Fishpond currently does not provide optimum habitat for desired species. Excavated material will either be relocated within fish pond, or sited appropriately so as to not cause any negative environmental effects. Changes to depth will be based upon recommendations by conservation planner or other individual with appropriate credentials. Resource Concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures. Associated Practice (if required): Critical Area Planting - 342

Before Situation:

Existing fish pond lacks sufficient depth, diversity of depth or desired bottom structure to provide optimum habitat for desired fish species.

After Situation:

Depth and bottom structure of fishpond are appropriate for desired fish species. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $26,276.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26,276.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #7 - Depth Management, Littoral Shelf

Scenario Description:

Management of existing fishpond by excavation or placement of material to create deep open water and creation of littoral shelves. Fishpond currently does not provide optimum habitat for desired species. Excavated material will either be relocated within fish pond, or sited appropriately so as to not cause any negative environmental effects. Changes to depth will be based upon recommendations by conservation planner or other individual with appropriate credentials. Resource Concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures. Associated Practice (if required): Critical Area Planting - 342

Before Situation:

Existing fish pond lacks sufficient depth, diversity of depth or desired bottom structure to provide optimum habitat for desired fish species.

After Situation:

Depth and bottom structure of fishpond are appropriate for desired fish species. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $28,160.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28,160.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #8 - Depth Management

Scenario Description:

Management of existing fishpond by creation of littoral shelf. Fishpond currently does not provide optimum habitat for desired species. Changes to depth will be based upon recommendations by conservation planner or other individual with appropriate credentials. Resource Concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures. Associated Practice (if required): Critical Area Planting - 342

Before Situation:

Existing fish pond lacks sufficient depth, diversity of depth or desired bottom structure to provide optimum habitat for desired fish species.

After Situation:

Depth and bottom structure of fishpond are appropriate for desired fish species. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $5,490.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,490.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #16 - Chemical Application, Invasive Weed

Scenario Description:

Chemical application to existing fishpond to remove invasive or undesired vegetation. Typically use Diquat dibromide or other appropriate herbicide. Chemical control will be applied by a certified pesticide applicator per state code. Resource concerns addressed include: Degraded Plant Condition - Excessive plant pest pressure; Degraded Plant Condition - Inadequate structure and composition; Inadequate Habitat for Fish and Wildlife - Habitat degradation.

Before Situation:

Existing fishpond is negatively impacted by invasive vegetation. Invasive vegetation is reducing availability of resources for desired fish species.

After Situation:

Chemical application has been completed to manage the invasive vegetation. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure control has been achieved through regular monitoring and will address any negative impacts to ensure an invasion does not occur again within the lifespan of the practice.

Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $305.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $305.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 399 - Fishpond Management

Scenario: #17 - Structure, Habitat

Scenario Description:

Fishpond lacks a diversity of habitat to provide adequate habitat for desired fish species. Creation of habitat structures as recommended by conservation planner or other individual with appropriate credentials. Suggested improvements will determine type of structure needed, number of structures, density and location of structures. Habitat structures are typically submerged or emergent. Structures may include log cribs, rock piles, log and rock cribs, pipe and limber cribs, conifer cribs, PVC-tree structures, gravel spawning beds, catfish cages, concrete blocks stacked and filled with sticks or cuttings or plastic barrels filled with sand and sticks. Resource Concerns addressed include: Inadequate Habitat for Fish and Wildlife - Habitat degradation. Practice installation may also address: Water Quality Degradation - Elevated water temperatures.

Before Situation:

Existing fish pond lacks sufficient habitat diversity to provide optimum conditions for desired fish species.

After Situation:

Habitat structures within fishpond are appropriate for desired fish species. Typical installation in 1 ac pond: 12 structures of 24 concrete blocks stacked and wired together, with sticks placed within blocks. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

Feature Measure: Acre of pond managed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $7,108.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,108.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 400 - Bivalve Aquaculture Gear and Biofouling Control

Scenario: #2 - Infaunal Culture, Years Two and Three

Scenario Description:

The acquisition and use of additional aquaculture gear and biofouling control on 1 acre of bivalves, usually clams that are seeded in the substrate, in intertidal marine areas where biofouling of aquaculture production gear occurs. The biofouled gear is removed from the farm site and taken on land to be cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, and/or a combination of the aforementioned methods. The gear is cleaned and stored on land at an acceptable location, such as a heavy use area suitable for the size and intensity of the aquaculture operation. The planned practice will meet the current 400 conservation practice standard. Implementation will result in the proper rate, method and timing of gear and biofouling controls, including increased level of monitoring, frequency of cleaning, cycling/rotating and hauling gear, disposing of waste gear, and keeping records demonstrating implementation of the 400 criteria. Payment for implementation is to defray the costs of increased labor above normal operating procedures and recordkeeping for the first year of the growth cycle.

Before Situation:

Aquaculture gear (predator exclusion apparatus) is overgrown with biofouling organisms; water flow and food supply is significantly reduced endangering shellfish health and growth. Increased drag increases risk of gear escaping into the marine environment

After Situation:

The aqua culturist has additional gear (approximately 20%) which is cycled with biofouled gear in the water. The biofouled gear is cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, or a combination of methods. The gear is cleaned and stored on land at an acceptable location for the size and intensity of the aquaculture operation. Damaged gear is removed from the farm site and transported on shore for proper disposal. Records documenting the cycling of gear are maintained. Additional conservation practices such as 561- Heavy Use Area, and 422- Hedgerow Planting should be considered and planned under the respective scenarios. The material removed from the cage will be land applied, composted, or land filled as appropriate. The influx of biofouling to the marine environment as a result of cleaning gear is eliminated.

Feature Measure: 20 beds/acre; 900sf/bed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $757.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $757.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 400 - Bivalve Aquaculture Gear and Biofouling Control

Scenario: #5 - Epifaunal-Bags Only-Yrs.2&3

Scenario Description:

The acquisition and use of additional aquaculture gear to cycle with production gear in near-shore, intertidal and sub tidal marine areas where biofouling of aquaculture production gear occurs. The cultured organisms are transferred from the biofouled gear to the "clean gear" and returned to the water. The biofouled gear is removed from the farm site and taken on land to be cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, and/or a combination of the aforementioned methods. The gear is cleaned and stored on land at an acceptable location, such as a heavy use area suitable for the size and intensity of the aquaculture operation. The planned practice will meet the current 400 conservation practice standard. Implementation will result in the proper rate, method and timing of gear and biofouling controls, including increased level of monitoring, frequency of cleaning, cycling/rotating and hauling gear, disposing of waste gear, and keeping records demonstrating implementation of the 400 criteria. Payment for implementation is to defray the costs of increased labor above normal operating procedures and recordkeeping for the second and third year of the growth cycle.

Before Situation:

Aquaculture gear (predator exclusion apparatus) is overgrown with biofouling organisms; water flow and food supply is significantly reduced endangering shellfish health and growth. Increased drag increases risk of gear escaping into the marine environment

After Situation:

The aqua culturist has additional gear (approximately 20%) which is cycled with biofouled gear in the water. The biofouled gear is cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, or a combination of methods. The gear is cleaned and stored on land at an acceptable location for the size and intensity of the aquaculture operation. Damaged gear is removed from the farm site and transported on shore for proper disposal. Records documenting the cycling of gear are maintained. Additional conservation practices such as 561-Heavy Use Area, and 422- Hedgerow Planting should be considered and planned under the respective scenarios. The material removed from the cage will be land applied, composted, or land filled as appropriate. The influx of biofouling to the marine environment as a result of cleaning gear is eliminated.

Feature Measure: 50,000 bivalves

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $662.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $662.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 400 - Bivalve Aquaculture Gear and Biofouling Control

Scenario: #10 - Epifaunal-Cage Cycling-Yrs.2&3

Scenario Description:

The acquisition and use of additional aquaculture gear to cycle with production gear in near-shore, intertidal and sub tidal marine areas where biofouling of aquaculture production gear occurs. The cultured organisms are transferred from the biofouled gear to the "clean gear" and returned to the water. The biofouled gear is removed from the farm site and taken on land to be cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, and/or a combination of the aforementioned methods. The gear is cleaned and stored on land at an acceptable location, such as a heavy use area suitable for the size and intensity of the aquaculture operation. The planned practice will meet the current 400 conservation practice standard. Implementation will result in the proper rate, method and timing of gear and biofouling controls, including increased level of monitoring, frequency of cleaning, cycling/rotating and hauling gear, disposing of waste gear, and keeping records demonstrating implementation of the 400 criteria. Payment for implementation is to defray the costs of increased labor above normal operating procedures and recordkeeping for the second and third year of the growth cycle.

Before Situation:

Aquaculture gear (predator exclusion apparatus) is overgrown with biofouling organisms; water flow and food supply is significantly reduced endangering shellfish health and growth. Increased drag increases risk of gear escaping into the marine environment

After Situation:

The aqua culturist has additional gear (approximately 20%) which is cycled with biofouled gear in the water. The biofouled gear is cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, or a combination of methods. The gear is cleaned and stored on land at an acceptable location for the size and intensity of the aquaculture operation. Damaged gear is removed from the farm site and transported on shore for proper disposal. Records documenting the cycling of gear are maintained. Additional conservation practices such as 561-Heavy Use Area, and 422- Hedgerow Planting should be considered and planned under the respective scenarios. The material removed from the cage will be land applied, composted, or land filled as appropriate. The influx of biofouling to the marine environment as a result of cleaning gear is eliminated.

Feature Measure: 50,000 bivalves

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,460.82

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,460.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 400 - Bivalve Aquaculture Gear and Biofouling Control

Scenario: #11 - Epifaunal-Trip- Cage Cyc-Yrs.2&3

Scenario Description:

The acquisition and use of additional aquaculture gear to cycle with production gear in near-shore, intertidal and sub tidal marine areas where biofouling of aquaculture production gear occurs. The cultured organisms are transferred from the biofouled gear to the "clean gear" and returned to the water. The biofouled gear is removed from the farm site and taken on land to be cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, and/or a combination of the aforementioned methods. The gear is cleaned and stored on land at an acceptable location, such as a heavy use area suitable for the size and intensity of the aquaculture operation. The planned practice will meet the current 400 conservation practice standard. Implementation will result in the proper rate, method and timing of gear and biofouling controls, including increased level of monitoring, frequency of cleaning, cycling/rotating and hauling gear, disposing of waste gear, and keeping records demonstrating implementation of the 400 criteria. Payment for implementation is to defray the costs of increased labor above normal operating procedures and recordkeeping for the second and third year of the growth cycle.

Before Situation:

Aquaculture gear (predator exclusion apparatus) is overgrown with biofouling organisms; water flow and food supply is significantly reduced endangering shellfish health and growth. Increased drag increases risk of gear escaping into the marine environment

After Situation:

The aqua culturist has additional gear (approximately 20%) which is cycled with biofouled gear in the water. The biofouled gear is cleaned using environmentally appropriate biofoul control methods, including but not limited to air drying, brine dip, vinegar dip, fresh water dip, sweeping, power washing, or a combination of methods. The gear is cleaned and stored on land at an acceptable location for the size and intensity of the aquaculture operation. Damaged gear is removed from the farm site and transported on shore for proper disposal. Records documenting the cycling of gear are maintained. Additional conservation practices such as 561- Heavy Use Area, and 422- Hedgerow Planting should be considered and planned under the respective scenarios. The material removed from the cage will be land applied, composted, or land filled as appropriate. The influx of biofouling to the marine environment as a result of cleaning gear is eliminated.

Feature Measure: 50,000 bivalves

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,325.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,325.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 400 - Bivalve Aquaculture Gear and Biofouling Control

Scenario: #70 - Infaunal Culture, Year One

Scenario Description:

This scenario describes the implementation of aquaculture gear and biofouling control on 1 acre of bivalves, usually clams, that are seeded IN the substrate of the ocean floor and tended and grown for two to three years until they reach marketable size. The planned practice will meet the current 400 standard. Implementation will result in the proper rate, method and timing of gear and biofouling controls, including increased level of monitoring, frequency of cleaning, cycling/rotating and hauling gear, disposing of waste gear, and keeping records demonstrating implementation of the 400 criteria. Payment for implementation is to defray the costs of redundant gear, increased labor above normal operating procedures and recordkeeping for the first year of the growth cycle.

Before Situation:

Aquaculture gear (predator exclusion apparatus) is overgrown with biofouling organisms; water flow and food supply is significantly reduced endangering shellfish health and growth. Increased drag increases risk of gear escaping into the marine environment

After Situation:

Producer uses environmentally sound methods to maintain adequate water flow to bivalves by monitoring, minimizing and removing biofouling organisms. Damaged or excessively fouled gear is removed from the water and transported on-shore for cleaning or disposal.

Feature Measure: 20 beds/acre; 900sf/bed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $5,047.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,047.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 402 - Dam

Scenario: #4 - Pipe, Spillway

Scenario Description:

This scenario is the construction of an earthen embankment to impound water. A corrugated metal pipe (CMP) principal spillway will be constructed. A metal trash guard protects the spillway inlet. A circular CMP riser connects to a CMP barrel that runs through the dam to outlet safely downstream. A sand diaphragm is installed in the embankment. This scenario assists in addressing the resource concerns: excessive runoff, flooding or ponding, inefficient water use on irrigated land, reduced capacity of conveyances by sediment deposition.

Before Situation:

Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, fire control, flood control, or irrigation. The site meets satisfactory conditions according to the standard.

After Situation:

The typical dam is constructed by excavation and compaction to create an embankment. The principal spillway is completed by using a CMP riser with a metal trash guard and a CMP barrel. A sand diaphragm is installed. Vegetation will be completed under Critical Area Planting (342) standard. . Other associated practices such as; Fence (382), Pipeline (516), Pumping Plant (533), Watering Facility (614), Structure For Water Control (587), and Aquatic Organism Passage (396) will use the corresponding Standard(s) as appropriate.

Feature Measure: Embankment Volume

Scenario Unit: Cubic Yard

Scenario Typical Size: 25,000.0

Scenario Total Cost: $188,878.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #1 - Check Dams

Scenario Description:

Typical setting is on a 40-acre pasture/hayland field having a slope of 5 to 10 percent where ephemeral gullies have formed. Typical installation consists of stabilizing/regrading a gully and installing six check dams with a top width of 3', average height of 2.5', 19' length, and 2:1 side slopes; containing an average of 14 CY of rock riprap for a total of 84 CY. The check dams are underlain with geotextile fabric. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as water quality degradation and soil erosion-concentrated flow erosion.

Before Situation:

The operator presently has erosion gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed vegetation of disturbed areas use Critical Area Planting (342).

Feature Measure: Cubic Yards of Riprap, as me

Scenario Unit: Cubic Yard

Scenario Typical Size: 84.0

Scenario Total Cost: $16,228.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $193.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #2 - Pipe, Less Than or Equal to 6 Inch

Scenario Description:

An earthen embankment dam with a principal spillway pipe of 6 inches or less. Assessment shows anti-seep collars or sand diaphragms are not required. To stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 2,000 cubic yards, and 80 feet of pipe 6" PVC pipe with a canopy inlet. A small, non-lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Feature Measure: Cubic Yards of Earthfill

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,000.0

Scenario Total Cost: $14,075.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #3 - Pipe, 8 to 12 Inch

Scenario Description:

An earthen embankment dam with a principle spillway pipe between 8 and 12 inches, anti-seep collars or sand diaphragm, and excavated plunge pool basin. Installed to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 2,500 cubic yards, 90 feet of 10" PVC pipe with a canopy inlet, and 3 cubic yard sand diaphragm. A non-lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Feature Measure: Cubic Yards of Earthfill

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,500.0

Scenario Total Cost: $21,055.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #4 - Pipe, Greater Than 12 Inch

Scenario Description:

An earthen embankment dam with a principle spillway pipe greater than 12 inches. Installed to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 2,500 cubic yards, smooth steel drop inlet principle spillway with a 7 ft riser and 90 ft barrel, and 82 Square feet of anti-seep collars. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Feature Measure: Cubic Yards of Earthfill

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,500.0

Scenario Total Cost: $29,266.06

Total Cost per Unit: $11.71

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #5 - Embankment, Soil Treatment

Scenario Description:

An earthen embankment dam with a principal spillway pipe where on site soils are not acceptable and require extra processing or hauling from off farm, distances greater than one mile. Installed to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a typical amount of earthfill of 2,500 cubic yards, 90 feet of 10" PVC, pipe with a canopy inlet, and 3 cubic yard sand diaphragm. A non-lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Pumping Plant (533), Watering Facility (614), and Livestock Pipeline (516) will use the corresponding Standard(s) as appropriate.

Feature Measure: Cubic Yards of Earthfill

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,500.0

Scenario Total Cost: $31,996.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #6 - Pipe Drop, Plastic

Scenario Description:

A full flow pipe drop (i.e.: riser and barrel) grade stabilization structure designed and constructed using plastic pipe without anti-seep collars. This is typically a earthen dry dam structure with no permanent storage (water or sediment), however some structures may have some permanent pool / storage but do not have 35 years of sediment life. Payment rate is based upon the riser weir length (Diameter x 3.14) in feet times the length of the pipe barrel in (feet). Installed to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon 6 ft high 18" (1.5') PVC riser with a 40 ft long barrel (1.5' x 3.14 x 40' = 188 SF). Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), and Irrigation Canal or Lateral (320) will use the corresponding Standard(s) as appropriate.

Feature Measure: Riser Weir Length x Barrel L

Scenario Unit: Square Foot

Scenario Typical Size: 188.0

Scenario Total Cost: $11,331.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $60.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #7 - Pipe Drop, Steel

Scenario Description:

A full flow pipe drop (i.e.: riser and barrel) grade stabilization structure designed and constructed with a metal anti-seep collar. This is typically a earthen dry dam structure with no permanent storage (water or sediment), however some structures may have some permanent pool / storage but do not have 35 years of sediment life. Payment rate is based upon the riser weir length (Diameter x 3.14) in feet times the length of the pipe barrel in (feet). Installed to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a smooth steel pipe drop structure with a 36", 12' tall riser and a 100' long 30" barrel (Riser Weir length x Barrel Length = 3ft x 3.14 x 30ft = 940). Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), and Irrigation Canal or Lateral (320) will use the corresponding Standard(s) as appropriate.

Feature Measure: Riser Weir Length x Barrel L

Scenario Unit: Square Foot

Scenario Typical Size: 940.0

Scenario Total Cost: $53,305.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $56.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #8 - Drop Structure, Straight, Semicircular, or Box

Scenario Description:

A Straight, semicircular, or Box Drop structure composed of metal or reinforced concrete used to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a semicircular steel toe wall structure with a drop of 3ft and weir length of 30ft (90 square feet). The unit of payment measurement is defined as weir length times drop in "feet". The drop (feet) is defined as the structure inlet crest elevation minus the control outlet elevation (i.e.: outlet apron elevation).Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Feet of Weir length times Dr

Scenario Unit: Square Foot

Scenario Typical Size: 90.0

Scenario Total Cost: $14,438.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $160.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #9 - Rock Drop

Scenario Description:

A Straight Drop structure constructed of rock riprap held in place by galvanized wire, such as, gabion baskets, fence panels, or "sausage" baskets. This structure could also be constructed of non reinforced concrete blocks. These structures are used to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a gabion wall structure with a drop of 3ft and weir length of 8ft (48 square feet). The unit of payment measurement is defined as weir length times drop in "feet". The drop (feet) is defined as the structure inlet crest elevation minus the control outlet elevation (i.e.: outlet apron elevation).Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Feet of Weir length times Dr

Scenario Unit: Square Foot

Scenario Typical Size: 48.0

Scenario Total Cost: $6,790.29

Total Cost per Unit: $141.46

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #10 - Drop Structure, Log

Scenario Description:

A Straight Drop structure constructed using bioengineering principles. In this instance the drop structure is constructed of logs, rock riprap, and earthfill. These structures are used to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon an 8 foot weir length and 3 foot drop. The unit of payment measurement is each. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized using an engineered structure utilizing natural materials (bioengineered). The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $9,251.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,251.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #11 - Drop Structure, Box with Sheet Pile

Scenario Description:

A Straight, Square, or Box Drop structure composed of steel sheet pile used to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a semicircular steel toe wall structure with a drop of 3ft and weir length of 30ft (90 square feet). The unit of payment measurement is defined as weir length times drop in "feet". The drop (feet) is defined as the structure inlet crest elevation minus the control outlet elevation (i.e.: outlet apron elevation).Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Feet of Weir length times Dr

Scenario Unit: Square Foot

Scenario Typical Size: 90.0

Scenario Total Cost: $34,435.60

Total Cost per Unit: $382.62

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #12 - Drop Structure with Reinforced Concrete, Weir

Scenario Description:

A Straight Drop structure constructed of reinforced concrete. These structures are used to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a reinforced concrete structure with a drop of 3ft and weir length of 8ft (48 square feet). The unit of payment measurement is defined as weir length times drop in "feet". The drop (feet) is defined as the structure inlet crest elevation minus the control outlet elevation (i.e.: outlet apron elevation).Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Feet of Weir length times Dr

Scenario Unit: Square Foot

Scenario Typical Size: 48.0

Scenario Total Cost: $14,542.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $302.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #13 - Catch Basin and Pipe =< 24 inch

Scenario Description:

A catch basin structure constructed of concrete and a grate with an outlet pipe. These structures are used to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a standard catch basin plus length of pipe. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Catch Basin Structure

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $9,583.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,583.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #14 - Catch Basin and Pipe >24 inch

Scenario Description:

A catch basin structure constructed of concrete and a grate with an outlet pipe. These structures are used to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon a standard catch basin plus length of pipe. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Catch Basin Structure

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $16,796.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16,796.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 410 - Grade Stabilization Structure

Scenario: #15 - Chute Structure, Rock

Scenario Description:

A Rock Chute structure constructed of rock riprap, bedding, and geotextile. Structure includes inlet and outlet apron. These structures are used to stabilized the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Cost estimate is based upon an 8' bottom width chute with 3:1 side slopes. Costs developed from scenario created using NRCS Rock Chute spreadsheet. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as soil erosion-concentrated flow erosion and water quality degradation.

Before Situation:

The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters

After Situation:

Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Pond (378), Dam (402), Fence (382), Channel Bed Stabilization (584), Dike (356), Grassed Waterway (412), Structure for Water Control (587), Subsurface Drain (606), and Underground Outlet (620) will use the corresponding Standard(s) as appropriate.

Feature Measure: Cubic Yard of Rock Chute M

Scenario Unit: Cubic Yard

Scenario Typical Size: 200.0

Scenario Total Cost: $33,430.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $167.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 412 - Grassed Waterway

Scenario: #2 - Base Waterway, Seeding

Scenario Description:

Typical grassed waterway is 500 ' long, 12' bottom, 8:1 side slopes, 1.5' depth, half excavation. (Foot print of waterway = 500' x 36' = 18,000 SF). A grassed waterway that is a shaped or graded channel and is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. This practice addresses Concentrated Flow Erosion (Classic Gully & Ephemeral Erosion) and Excessive Sediment in surface waters. Waterway area measured from top of bank to top of bank. Seeding area is 20% greater than waterway area to account for disturbed areas. Costs include excavation, associated work to construct the overall shape and grade of the waterway as well as lime, fertilizer, and seed.

Before Situation:

The field has a small gulley which is cutting deeper into the field as time goes on, so it needs to be stopped or controlled. Excessive sedimentation and soil erosion as a result from ephemeral or classic gully erosion. Gully has formed in field as a resu

After Situation:

Installed grassed waterway is 500 ' long, 12' bottom, 8:1 side slopes, 1.5' depth. (Foot print of waterway = 500' x 36' = 18,000 SF). The practice is installed using a dozer. If erosion control blankets for seedbed establishment/protection is needed, use conservation practice Mulching (484). Drainage tile, if needed, will be installed according to Subsurface Drain (606). Outlets, if needed will be installed using Structure for Water Control (587). If inlet Structures are needed with the drainage tile, then those will be installed using Underground Outlet (620).

Feature Measure: Area of Waterway in Square

Scenario Unit: Square Foot

Scenario Typical Size: 18,000.0

Scenario Total Cost: $8,208.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 412 - Grassed Waterway

Scenario: #23 - With Checks

Scenario Description:

Typical practice is 1200 ' long, 12' bottom, 8:1 side slopes, 1.5' depth, half excavation. A grass waterway that is a shaped or graded channel and is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. Fabric or stone checks are installed every 100 feet along the length of the waterway perpendicular to waterflow and are 2/3 the waterway top width to reduce maintenance and provide temporary protection until vegetation is established. Fabric Checks are installed 18" deep with 12" laid over on the surface. (Alternatively, rock checks could be installed). This practice addresses Concentrated Flow Erosion (Classic Gully & Ephemeral Erosion) and Excessive Sediment in surface waters. Waterway area measured from top of bank to top of bank. Seeding area is 20% greater than waterway area to account for disturbed areas. Costs include excavation and associated work to construct the overall shape and grade of the waterway.

Before Situation:

The field has a small gulley which is cutting deeper into the field as time goes on, so it needs to be stopped or controlled. Excessive sedimentation and soil erosion as a result from ephemeral or classic gully erosion. Gully has formed in field as a resu

After Situation:

Installed grassed waterway is 1200 ' long, 12' bottom, 8:1 side slopes, 1.5' depth. Fabric checks are installed every 100 feet along the length of the waterway. The practice is installed using a dozer. Fabric or stone checks are installed with small backhoe and labor. If erosion control blankets or mulching for seedbed establishment/protection are needed, use conservation practice Mulching (484). Drainage tile, if needed, will be installed according to Subsurface Drain (606). Outlets, if needed will be installed using Structure for Water Control (587). If inlet Structures are needed with the drainage tile, then those will be installed using Underground Outlet (620).

Feature Measure: Acre of Waterway

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $4,304.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,304.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 412 - Grassed Waterway

Scenario: #24 - Base Waterway

Scenario Description:

Typical practice is 1200 ' long, 12' bottom, 8:1 side slopes, 1.5' depth, half excavation. A grass waterway that is a shaped or graded channel and is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. This practice addresses Concentrated Flow Erosion (Classic Gully & Ephemeral Erosion) and Excessive Sediment in surface waters. Waterway area measured from top of bank to top of bank. Seeding area is 20% greater than waterway area to account for disturbed areas. Costs include excavation and associated work to construct the overall shape and grade of the waterway.

Before Situation:

The field has a small gulley which is cutting deeper into the field as time goes on, so it needs to be stopped or controlled. Excessive sedimentation and soil erosion as a result from ephemeral or classic gully erosion. Gully has formed in field as a resu

After Situation:

Installed grassed waterway is 1200 ' long, 12' bottom, 8:1 side slopes, 1.5' depth. The practice is installed using a dozer. If erosion control blankets or mulching for seedbed establishment/protection are needed, use conservation practice Mulching (484). Drainage tile, if needed, will be installed according to Subsurface Drain (606). Outlets, if needed will be installed using Structure for Water Control (587). If inlet Structures are needed with the drainage tile, then those will be installed using Underground Outlet (620).

Feature Measure: Acre of Waterway

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,858.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,858.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #126 - Highly Specialized Habitat Requirements (Monarch) on Non-Cropland, No FI

Scenario Description:

A wildlife habitat evaluation or plant community inventory indicates a potential to improve specialized wildlife habitat (Monarch) by altering the current vegetation conditions (species diversity, richness, structure and pattern) by establishing herbaceous plants. This practice scenario applies to cropland not in production and non-cropland. The inadequate wildlife habitat resource concern is met by planting highly specialized seed and plant materials that are not readily available. To avoid excessive weed competition, more intensive site prep and post-planting management (e.g. mowing) is necessary for establishment of desired species. Control or suppression of noxious or invasive species is not required or was previously controlled through the successful implementation of CPS 314 or CPS 315.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and have the potential to meet or exceed the minimum criteria. Current conditions and management are insufficient to address identified limiti

After Situation:

The Wildlife Habitat Planting criteria have been successfully installed. The land is covered with permanent vegetation which provides cover and food for Monarch butterflies, wildlife and beneficial insects. The site meets or exceeds planning criteria for inadequate wildlife habitat.

Feature Measure: Acres planted

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,313.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,313.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #165 - High Species Diversity on Fallow or Non-Cropland, no Foregone Income

Scenario Description:

A wildlife habitat evaluation or plant community inventory indicates a potential to improve wildlife habitat by altering the current vegetation conditions (species diversity, richness, structure and pattern) by establishing herbaceous plants. This practice scenario applies to areas not in production (e.g. – fallow areas, forest understory, and non-cropped areas in and around crop fields). Control or suppression of a well-established existing stand of undesirable vegetation should have been completed prior to implementation of this practice scenario through successful implementation of other practice standards, including CPS 314 or CPS 315. This scenario, when appropriately installed, will address the inadequate wildlife habitat resource concern by planting a moderately diverse mix of seeds that is readily available for purchase from multiple vendors in combination with minor seed bed preparation. Seed is typically not available from traditional agricultural vendors and requires making a special order or ordering online. Other practices are planned and installed after planting to manage the habitat as needed.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and do not have the potential to meet or exceed the minimum criteria through vegetative management activities alone. Current conditions and ma

After Situation:

Desired species have been planted and the Wildlife Habitat Planting criteria have been successfully implemented. The area will provide the identified habitat requirements for target species and will meet or exceed planning criteria for inadequate wildlife habitat.

Feature Measure: acres planted (per acre)

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $3,529.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $705.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #166 - Specialized Habitat Requirements on Non-Cropland, no Foregone Income

Scenario Description:

A wildlife habitat evaluation or plant community inventory indicates a potential to improve wildlife habitat by altering the current vegetation conditions (species diversity, richness, structure and pattern) by establishing herbaceous plants. This practice scenario applies to areas not in production (e.g. – fallow areas, forest understory, and non-cropped areas in and around crop fields). Control or suppression of a well-established existing stand of undesirable vegetation should have been completed prior to implementation of this practice scenario through successful implementation of other practice standards, including CPS 314 or CPS 315. This scenario, when appropriately installed, will address the inadequate wildlife habitat resource concern by planting a specialized and often diverse mix of seeds that is NOT readily available for purchase, in combination with minor seed bed preparation. Seed is not available from traditional agricultural vendors and requires making a special order. Cost of seed is high due to limited availability and plant materials selected are needed to meet specific habitat requirements or ecosystem functions. Other practices are planned and installed after planting to manage the habitat as needed.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and do not have the potential to meet or exceed the minimum criteria through vegetative management activities alone. Current conditions and ma

After Situation:

Desired species have been planted and the Wildlife Habitat Planting criteria have been successfully implemented. The area will provide the identified habitat requirements for target species and will meet or exceed planning criteria for inadequate wildlife habitat.

Feature Measure: acres planted (per acre)

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $7,727.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,545.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #167 - High Species Diversity on Cropland with Foregone Income

Scenario Description:

A wildlife habitat evaluation or plant community inventory indicates a potential to improve wildlife habitat by altering the current vegetation conditions (species diversity, richness, structure and pattern) and changing use (annual crop to permanent vegetation) by establishing herbaceous plants. This practice scenario applies to cropland currently in production. The inadequate wildlife habitat resource concern is met by planting a moderately diverse mix of seeds that is readily available for purchase from multiple vendors in combination with minor seed bed preparation. Seed is typically not available from traditional agricultural vendors and requires making a special order or ordering online. Weed pressure is minimal due to current and past management. Control or suppression of existing undesirable vegetation is accomplished through a single herbicide treatment. Post-planting weed treatment, beyond normal practice maintenance if necessary, will be accomplished by applying additional practice standards as appropriate.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and do not have the potential to meet or exceed the minimum criteria through vegetative management activities alone. Current conditions and ma

After Situation:

The land is no longer in crop production. Desired species have been planted and the Wildlife Habitat Planting criteria have been successfully implemented. As a result, the site will meet or exceed planning criteria for inadequate wildlife habitat.

Feature Measure: acres planted (per acre)

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $6,440.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,288.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #168 - Specialized Habitat Requirements on Cropland with Foregone Income

Scenario Description:

A wildlife habitat evaluation or plant community inventory indicates a potential to improve wildlife habitat by altering the current vegetation conditions (species diversity, richness, structure and pattern) and changing use (annual crop to permanent vegetation) by establishing herbaceous plants. This practice scenario applies to cropland currently in production. The inadequate wildlife habitat resource concern is met by planting a specialized and often diverse mix of seeds that is NOT readily available for purchase, in combination with minor seed bed preparation. Seed is not available from traditional agricultural vendors and requires making a special order. Cost of seed is high due to limited availability and plant materials selected are needed to meet specific habitat requirements or ecosystem functions. Weed pressure is minimal due to current and past management. Control or suppression of existing undesirable vegetation is accomplished through a single herbicide treatment. Post-planting weed treatment, beyond normal practice maintenance if necessary, will be accomplished by applying additional practice standards as appropriate.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and do not have the potential to meet or exceed the minimum criteria through vegetative management activities alone. Current conditions and ma

After Situation:

The land is no longer in crop production. Desired species have been planted and the Wildlife Habitat Planting criteria have been successfully implemented. As a result, the site will meet or exceed planning criteria for inadequate wildlife habitat.

Feature Measure: acres planted (per acre)

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $9,658.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,931.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #169 - Very Small Acreage (<.5 ac) Planting with Seedlings

Scenario Description:

This scenario is applicable to very small areas (typical size is ¼ acre) in need of wildlife habitat establishment by planting of potted plants, plugs, or similar non-seed plant materials. A wildlife habitat evaluation found the need to improve habitat by altering the current vegetative conditions (diversity, richness, structure or pattern). Potted herbaceous plants and/or shrubs are planted in 6' rows and a 4' spacing (1815 plants/acre) to facilitate access of the site with mechanical equipment (e.g., ATV, hand or riding mower) for weed control or other management after establishment. The site preparation requires treatment with broad spectrum herbicide to kill the existing vegetation. Then tillage, smoothing and firming of the soil is conducted prior to planting the plant materials.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and have the potential to meet or exceed the minimum criteria. Current conditions and management are insufficient to address identified limiti

After Situation:

The Wildlife Habitat Planting criteria have been successfully implemented. The site has been mechanically and chemically treated and planting has occurred. The area is adequately stocked with desired species and full coverage of permanent vegetation is expected. The vegetative cover will provide the desired habitat requirements for target wildlife. The site meets or exceeds planning criteria for inadequate wildlife habitat.

Feature Measure: sg ft planted (1/4 acre)

Scenario Unit: Square Foot

Scenario Typical Size: 10,890.0

Scenario Total Cost: $7,580.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #170 - Low Species Diversity on Non-Cropland, no Foregone Income

Scenario Description:

A wildlife habitat evaluation or plant community inventory indicates a potential to improve wildlife habitat by altering the current vegetation conditions (species diversity, richness, structure and pattern) by establishing herbaceous plants. This practice scenario applies to areas not in production (e.g. – fallow areas, forest understory, and non-cropped areas in and around crop fields). Control or suppression of a well-established existing stand of undesirable vegetation should have been completed prior to implementation of this practice scenario through successful implementation of other practice standards, including CPS 314 or CPS 315. This scenario, when appropriately installed, will address the inadequate wildlife habitat resource concern by planting a low diversity, low cost mix of readily available seeds in combination with minor seed bed preparation. Other practices are planned and installed after planting to manage the habitat as needed.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and do not have the potential to meet or exceed the minimum criteria through vegetative management activities alone. Current conditions and ma

After Situation:

Desired species have been planted and the Wildlife Habitat Planting criteria have been successfully implemented. The area will provide the identified habitat requirements for target species and will meet or exceed planning criteria for inadequate wildlife habitat.

Feature Measure: acres planted (per acre)

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $1,801.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $360.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #171 - Low Species Diversity on Cropland with Foregone Income

Scenario Description:

A wildlife habitat evaluation or plant community inventory indicates a potential to improve wildlife habitat by altering the current vegetation conditions (species diversity, richness, structure and pattern) and changing use (annual crop to permanent vegetation) by establishing herbaceous plants. This practice scenario applies to cropland currently in production. The inadequate wildlife habitat resource concern is met by planting a low diversity, low cost mix of readily available seeds in combination with minor seed bed preparation. Weed pressure is minimal due to current and past management. Control or suppression of existing undesirable vegetation is accomplished through a single herbicide treatment. Post-planting weed treatment, beyond normal practice maintenance if necessary, will be accomplished by applying additional practice standards as appropriate.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria and do not have the potential to meet or exceed the minimum criteria through vegetative management activities alone. Current conditions and ma

After Situation:

The land is no longer in crop production. Desired species have been planted and the Wildlife Habitat Planting criteria have been successfully implemented. As a result, the site will meet or exceed planning criteria for inadequate wildlife habitat.

Feature Measure: acres planted (per acre)

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $4,222.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $844.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #267 - Interplanting with potted plants or shrubs

Scenario Description:

Herbaceous potted plants (e.g., milkweed) or shrubs are interplanted into existing herbaceous habitat to meet a missing life-need or habitat component. The typical scenario includes treatment of broad-spectrum herbicide prior to planting on a 4.5 X 50-foot area, followed by hand planting of 12 potted plants, plugs, or seedlings at 4-foot spacings. Noxious weeds are controlled during the 1st summer by spot treatment (hand removal or herbicide). An alternative arrangement for this scenario is a block planting of a 15 X 15 area, with three rows spaced 4 feet apart.

Before Situation:

The habitat is lacking a single life-need.

After Situation:

The habitat is providing all life needs of the identified wildlife species, considering the scale of the land unit.

Feature Measure: square feet treated and pla

Scenario Unit: Square Foot

Scenario Typical Size: 225.0

Scenario Total Cost: $447.90

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 420 - Wildlife Habitat Planting

Scenario: #287 - Very Small Acreage (<.5 ac) Planting with Plugs

Scenario Description:

This scenario is applicable to small areas (typical size is ¼ acre) in need of wildlife habitat establishment by plugs, or similar non-seed plant materials. A wildlife habitat evaluation or plant community inventory indicates a potential to improve wildlife habitat by altering the current vegetation conditions (species diversity, richness, structure and pattern) by establishing small patches of native vegetation. Herbaceous plugs are planted in 18” x 18” staggered row spacing (43560 sqft per acre/2.25 sqft per plant = 19,360 plants/acre OR 4840 plants per ¼ acre). Seed bed preparation requires treatment with broad spectrum herbicide, tillage, smoothing and firming of the soil prior to planting materials. Participant will typically hire labor to assist with portions of implementation. Utilizing plugs/sprigs following plant bed preparation is needed to ensure successful establishment due to site restrictions.

Before Situation:

Vegetative habitat conditions (species diversity, richness, structure and pattern) do not meet planning criteria. The planner has determined that the planning unit has the potential to meet or exceed the minimum criteria. Current conditions and management

After Situation:

The Wildlife Habitat Planting criteria have been successfully implemented. The site has been mechanically and chemically treated and planting has occurred. The area is adequately stocked with desired species and full coverage of permanent vegetation is expected. The vegetative cover will provide the desired habitat requirements for target wildlife. The site meets or exceeds planning criteria for inadequate wildlife habitat.

Feature Measure: Area Planted

Scenario Unit: Square Foot

Scenario Typical Size: 10,890.0

Scenario Total Cost: $13,643.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 422 - Hedgerow Planting

Scenario: #1 - Pollinator Habitat

Scenario Description:

Where pollinator habitat is an additional wildlife habitat concern this scenario addresses the resource concern of inadequate fish and wildlife habitat. It provides both physical habitat by providing areas that are not disturbed by annual tillage and provides pollen and nectar throughout the growing season by establishing a diverse mixture of flowering plants. Typically a mixture of 5 or more species is planted to improve diversity so that pollen and nectar are available as long as possible. Typical installation is in or at the edge of cropland or pasture. Typical installation involves tillage to prepare the site for planting. Flowering trees and shrubs adapted for local climatic and edaphic conditions are typically planted at eight foot intervals (this will vary with species selection and density goals). A native grass adapted to the local climatic and edaphic conditions will be drilled into the site at a rate that will achieve a minimum of 20 seeds per square foot. A locally adapted mixture of at 3 pollen and nectar producing plants will be drilled into the site. The species list in the component section of this scenario are strictly for deriving a cost. Species adapted to local climatic and edaphic conditions will be listed in the specification for the site. There is tremendous overlap between this practice and conservation practice 380 Windbreak/Shelterbelt establishment. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials. If a fence is needed to facilitate establishment use practice 382, Fence.

Before Situation:

Pollen and nectar sources are lacking or are only available for part of the growing season. Large cropland tracks lack undisturbed areas for ground nesting bees

After Situation:

Flowering plants supply pollen and nectar throughout the growing season. Undisturbed areas provide nesting sites for bees and other native pollinators.

Feature Measure: Length of Hedgerow

Scenario Unit: Foot

Scenario Typical Size: 800.0

Scenario Total Cost: $3,670.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 422 - Hedgerow Planting

Scenario: #2 - Contour

Scenario Description:

Typically installation of this scenario is within an annually cropped field. The hedge row is planted on the contour to provide a physical and visual aid to contour farming. This scenario is used to facilitate additional measures that address the resource concerns of; sheet and rill soil erosion and Water Quality Degradation, excess sediment in surface waters. Trees, shrubs, and grasses adapted for local climatic and edaphic conditions are typically planted at eight foot intervals (this will vary with species selection and density goals). Species selected should be at least three feet tall at maturity. There is tremendous overlap between this practice and conservation practice 380 Windbreak/Shelterbelt establishment. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials. If a fence is needed to facilitate establishment use practice 382, Fence.

Before Situation:

Contour farming practices are made difficult or less effective due to a lack of visual clues as to the location of the contours. Soil is lost to sheet and rill erosion. Sediments are deposited into surface waters.

After Situation:

Hedgerow planted on the contour presents a physical and visual guide for tillage and planting operations on the contour. Soil erosion from sheet and rill sources is reduced and the resultant deposition of sediment to surface waters is in turn reduced.

Feature Measure: Length of Hedgerow

Scenario Unit: Foot

Scenario Typical Size: 800.0

Scenario Total Cost: $3,896.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 422 - Hedgerow Planting

Scenario: #4 - Wildlife, Warm Season Grass

Scenario Description:

Typically installed in or at the edge of cropland or pasture this scenario is used to address the Inadequate Habitat for Fish and Wildlife resource concern. Specifically, the establishment of dense vegetation in a linear design can be used to provide for several habitat elements depending on the needs identified in the habitat assessment. This scenario can provide: habitat connectivity, food, and cover for wildlife depending on design and plant species selection. The 422 standard for wildlife criteria calls for a minimum of two species of native plants. Typical installation involves tillage to prepare the site for planting. 2 Trees and/or shrubs adapted for local climatic and edaphic conditions are typically plant at eight foot intervals (this will vary with species selection and density goals). A mix of 2 native warm season grasses adapted to the local climatic and edaphic conditions will be drilled into the site at a rate that will achieve a minimum of 20 seeds per square foot. The species list in the component section of this scenario are strictly for deriving a cost. Plant species adapted to the local climatic and edaphic conditions that address the resource concern will be stated in the specification for the site. There is tremendous overlap between this practice and conservation practice 380 Windbreak/Shelterbelt establishment. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials. If a fence is needed to facilitate establishment use practice 382, Fence.

Before Situation:

Habitat patches lack connectivity. Cover is inadequate to allow wildlife to exploit cropland food resources. Berries and mast are limited.

After Situation:

Inadequate habitat for fish and wildlife is addressed for needs identified in the resource assessment. Habitat patches are connected by dense hedgerow vegetation. Food resources in crop fields are made available by their proximity to hedgerow cover. Planting may include fruit and mast bearing species, improving food supply, depending on needs being addressed.

Feature Measure: Length of Hedgerow

Scenario Unit: Foot

Scenario Typical Size: 800.0

Scenario Total Cost: $3,940.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 422 - Hedgerow Planting

Scenario: #6 - Wildlife Cool Season

Scenario Description:

Typically installed in or at the edge of cropland or pasture this scenario is used to address the Inadequate Habitat for Fish and Wildlife resource concern. Specifically, the establishment of dense vegetation in a linear design can be used to provide for several habitat elements depending on the needs identified in the habitat assessment. This scenario can provide: habitat connectivity, food, and cover for wildlife depending on design and plant species selection. The 422 standard for wildlife criteria calls for a minimum of two species of native plants. Typical installation involves tillage to prepare the site for planting. 2 Trees and/or shrubs adapted for local climatic and edaphic conditions are typically plant at eight foot intervals (this will vary with species selection and density goals). A native cool season grass adapted to the local climatic and edaphic conditions will be drilled into the site at a rate that will achieve a minimum of 20 seeds per square foot. The species list in the component section of this scenario are strictly for deriving a cost. Plant species adapted to the local climatic and edaphic conditions that address the resource concern will be stated in the specification for the site. There is tremendous overlap between this practice and conservation practice 380 Windbreak/Shelterbelt establishment. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials. If a fence is needed to facilitate establishment use practice 382, Fence.

Before Situation:

Habitat patches lack connectivity. Cover is inadequate to allow wildlife to exploit cropland food resources. Berries and mast are limited.

After Situation:

Inadequate habitat for fish and wildlife is addressed for needs identified in the resource assessment. Habitat patches are connected by dense hedgerow vegetation. Food resources in crop fields are made available by their proximity to hedgerow cover. Planting may include fruit and mast bearing species, improving food supply, depending on needs being addressed.

Feature Measure: Length of Hedgerow

Scenario Unit: Foot

Scenario Typical Size: 800.0

Scenario Total Cost: $4,572.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 423 - Hillside Ditch

Scenario: #3 - Channel, Hand Labor

Scenario Description:

A hillside ditch is a channel that has a supporting ridge on the lower side, constructed with hand labor across the slope at defined gradient and horizontal or vertical interval, with or without a vegetative barrier to safely control the flow of water by diverting runoff from upland sloping areas to a stable outlet. The resource concerns addressed include soil erosion, water quality degradation, and excess runoff.

Before Situation:

Hillside Ditch applies to steeply sloping sites where surface flow is damaging sloping upland, and there is sufficient soil depth for constructing a hillside ditch system. Hillside ditches shall not be used to provide protection to buildings, roads, or ot

After Situation:

A hillside ditch is constructed with hand labor and consist of approximately 300 feet of channel that has a supporting ridge on the lower side, constructed across the slope at defined gradient and horizontal or vertical interval, with or without a vegetative barrier to safely control the flow of water by diverting runoff from upland sloping areas to a stable outlet. A hiiside ditch controls and reduces soil erosion, water quality degradation, and excess runoff. Any needed vegetation will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Critical Area Planting (342), Grassed Waterway (412), Underground Outlet (620), Mulching (484), Subsurface Drainage (606), Lined Waterway or Outlet (468), Underground Outlet (620), and Grade Stabilization Structure (410).

Feature Measure: Length of Channel

Scenario Unit: Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $694.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 423 - Hillside Ditch

Scenario: #4 - Channel, Equipment

Scenario Description:

A hillside ditch is a channel that has a supporting ridge on the lower side, constructed with equipment across the slope at defined gradient and horizontal or vertical interval, with or without a vegetative barrier to safely control the flow of water by diverting runoff from upland sloping areas to a stable outlet. The resource concerns addressed include soil erosion, water quality degradation, and excess runoff.

Before Situation:

A hillside ditch applies to steeply sloping sites where surface flow is damaging sloping upland, and there is sufficient soil depth for constructing a hillside ditch system. Hillside ditches shall not be used to provide protection to buildings, roads, or

After Situation:

A hillside ditch is constructed with equipment and consists of approximately 200 cubic yards of excavated channel that has a supporting ridge on the lower side, constructed across the slope at defined gradient and horizontal or vertical interval, with or without a vegetative barrier to safely control the flow of water by diverting runoff from upland sloping areas to a stable outlet. A hiiside ditch controls and reduces soil erosion, water quality degradation, and controls excess runoff. Any needed vegetation will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Critical Area Planting (342), Grassed Waterway (412), Underground Outlet (620), Mulching (484), Subsurface Drainage (606), Lined Waterway or Outlet (468), Underground Outlet (620), and Grade Stabilization Structure (410).

Feature Measure: Volume of Channel

Scenario Unit: Cubic Yard

Scenario Typical Size: 200.0

Scenario Total Cost: $779.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 428 - Irrigation Ditch Lining

Scenario: #14 - Concrete Lining

Scenario Description:

Construct quarter mile of concrete (2.5 inch in thickness) lining in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Typical scenario includes filling the old ditch with on-site fill material, compacting, and constructing an 8 ft pad with on site fill material. This scenario does not include any check or outlets gates. A trapezoidal trencher forms the ditch (typical cross-section: 1 ft bottom, 2 ft depth including freeboard, and 1:1 side slope) and lining with concrete slip forms (total width = 7.32 ft). Resource Concerns: Insufficient water - Inefficient use of irrigation water; Soil erosion - Excessive bank erosion from streams shorelines or channels. Associated Practices: 320-Irrigation Canal or Lateral; 388-Irrigation Field Ditch; 443-Irrigation System, Surface or Subsurface Water; 533-Pumping Plant; 430-Irrigation Pipeline; 587-Structure for Water Control.

Before Situation:

Leaky and erosive earthen irrigation ditch.

After Situation:

Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

Feature Measure: Surface Area of Lining

Scenario Unit: Square Yard

Scenario Typical Size: 1,074.0

Scenario Total Cost: $22,058.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 428 - Irrigation Ditch Lining

Scenario: #16 - Flexible Lining

Scenario Description:

Construct quarter mile of uncovered flexible membrane (30mil HDPE) lining in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Typical scenario includes subgrade preparation via clearing & grubbing, shaping old channel with no bedding or geotextile cushion to place, and placing membrane with 8 inch tuck/anchor on each side (total liner width = 8 ft). Scenario assumes typical trapezoidal ditch (1 ft bottom, 2 ft depth including freeboard, and 1:1 side slope). Resource Concerns: Insufficient water - Inefficient use of irrigation water; Soil erosion - Excessive bank erosion from streams shorelines or channels. Associated Practices: 320-Irrigation Canal or Lateral; 388-Irrigation Field Ditch; 443-Irrigation System, Surface or Subsurface Water; 533-Pumping Plant; 430-Irrigation Pipeline; 587-Structure for Water Control.

Before Situation:

Leaky and erosive earthen irrigation ditch.

After Situation:

Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

Feature Measure: Surface Area of Lining

Scenario Unit: Square Yard

Scenario Typical Size: 1,173.0

Scenario Total Cost: $13,522.12

Total Cost per Unit: $11.53

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #1 - PVC (Iron Pipe Size) 8in or less diam

Scenario Description:

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Class 125 (SDR-32.5), PVC pipeline with appurtenances, installed below ground with a minimum of 2.5 feet of ground cover. The unit is weight of pipe material in pounds. 1,000 feet of 6-inch, Class 125 (SDR-32.5) PVC pipe weighs 2.596 lb./ft, or a total of 2,596 pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

1,000 LF of 6" Diam PVC 125 psi pipeline is installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 2,596.0

Scenario Total Cost: $12,392.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #2 - PVC (Iron Pipe Size) 8in or less diameter with 4 in sand bedding

Scenario Description:

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Class 125 (SDR-32.5), PVC pipeline with appurtenances, installed below ground with a minimum of 2.5 feet of ground cover. The unit is weight of pipe material in pounds. 1,000 feet of 6-inch, Class 125 (SDR-32.5) PVC pipe weighs 2.596 lb./ft, or a total of 2,596 pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to rocky soils which require 4" of sand bedding. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

1,000 LF of 6" Diam PVC 125 psi pipeline with 4" of sand bedding is installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 2,596.0

Scenario Total Cost: $13,069.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #3 - PVC (Iron Pipe Size) 10in or more diameter

Scenario Description:

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 12-inch. Construct 1,000 feet of 12-inch, Class 200 (SDR-21), PVC pipeline with appurtenances, installed below ground with a minimum of 2.5 feet of ground cover. The unit is weight of pipe material in pounds. 1,000 feet of 12-inch, Class 200 (SDR-21) PVC pipe weighs 14.43 lb./ft, or a total of 14,430 pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

1,000 LF of 12" Diam PVC 200 psi pipeline is installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 14,430.0

Scenario Total Cost: $44,058.82

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #4 - PVC (Iron Pipe Size) 10in or more diameter with 4 in sand bedding

Scenario Description:

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 12-inch. Construct 1,000 feet of 12-inch, Class 200 (SDR-21), PVC pipeline with appurtenances, installed below ground with a minimum of 2.5 feet of ground cover. The unit is weight of pipe material in pounds. 1,000 feet of 12-inch, Class 200 (SDR-21) PVC pipe weighs 14.43 lb./ft, or a total of 14,430 pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

1,000 LF of 12" Diam PVC 200 psi pipeline is installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 14,430.0

Scenario Total Cost: $44,736.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #5 - HDPE (Iron Pipe Size & Tubing) greater than 3in to 8in diameter

Scenario Description:

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Class 100 (SDR-17), HDPE pipeline with appurtenances, installed below ground with a minimum 2.5 feet of ground cover. The unit is weight of pipe material in pounds. 1,000 feet of 6-inch, Class 100 (SDR-17), HDPE weighs 3.251 lb./ft, or a total of 3,251 pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

1,000 LF of 6" Diam HDPE 100 psi pipeline is installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 3,251.0

Scenario Total Cost: $18,152.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #6 - HDPE (Iron Pipe Size & Tubing) 10in or more diameter

Scenario Description:

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 12-inch. Construct 1,000 feet of 12-inch, Class 130 (SDR-13.5), HDPE pipeline with appurtenances, installed below ground with a minimum 2 feet of ground cover. The unit is weight of pipe material in pounds. 1,000 feet of 12-inch, Class 130 (SDR-13.5), HDPE weighs 14.89 lb./ft, or a total of 14,890 pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

1,000 LF of 12" Diam HDPE 130 psi pipeline. Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 14,890.0

Scenario Total Cost: $60,351.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #7 - Surface HDPE (Iron Pipe Size & Tubing)

Scenario Description:

Description: On-ground surface installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 2-inch. Construct 1,000 ft of 2-inch, Class 200 (SDR-9.0), HDPE pipeline with appurtenances, installed on the ground surface. The unit is weight of pipe material in pounds. 1,000 feet of 2-inch, Class 200 (SDR-9.0), HDPE weighs 0.744 lb./ft, or a total of 744 pounds. Appurtenances include: fittings, air vents, pressure relief valves, anchors, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 15% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

1000 LF of 2" HDPE 200 psi pipeline is installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 744.0

Scenario Total Cost: $3,903.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #8 - Horizontal Boring

Scenario Description:

Install an irrigation pipeline under a road using directional drilling or horizontal boring equipment. Boring is done approximately 50" below the road surface. Road is approximately 30' wide and length of boring is 50'. This scenario shall only be used if no other alignment is feasible. The only length of pipeline included is the scenario is for the road crossing. This scenario only pertains to horizontal boring through overburden material, not rock. Typical installation applies to soils with no special bedding requirements. The typical scenario costs include a12" steel carrier pipe, 6" PVC irrigation pipeline, horizontal boring equipment, excavator and misc. labor. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

50 LF of 6" PVC irrigation pipeline will be installed with a carrier pipe to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Foot of Pipe

Scenario Unit: Foot

Scenario Typical Size: 50.0

Scenario Total Cost: $11,896.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $237.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #47 - Surface Aluminum (Aluminum Irrigation Pipe)

Scenario Description:

Description: On-ground surface installation of Aluminum Irrigation Pipe (AIP) pipeline. AIP is manufactured in sizes (nominal diameter) from 2-inch to 12-inch; typical practice sizes range from 6-inch to 12-inch; and typical scenario size is 8-inch. Construct 1/8 mile (660 feet) of 8-inch, 0.050-inch wall, Aluminum Irrigation Pipe (AIP) with appurtenances, installed on the ground surface. The unit is weight of pipe in pounds of pipe material. 660 feet of 8-inch, 0.050-inch wall, AIP weighs 1.47 lb./ft, or a total of 970 pounds. Appurtenances include: couplings, fittings, air vents, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 970.0

Scenario Total Cost: $5,702.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #49 - HDPE (Iron Pipe Size & Tubing) up to 3 inch diameter

Scenario Description:

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 3/4-inch to 3-inch; and typical scenario size is 1.5-inch. Construct 500 feet of 1.5-inch, Class 100 (SDR-17), HDPE pipeline with appurtenances, installed below ground with a minimum 2.5 feet of ground cover. The unit is pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Typical size: 500 ft x 0.271 lbs./ft = 136 lbs. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

500 LF of 1.5" Diameter HDPE 100 psi pipeline is installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of pipeline used

Scenario Unit: Pound

Scenario Typical Size: 136.0

Scenario Total Cost: $5,242.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #63 - PVC (Iron Pipe Size), less than or equal to 4 inch, Small Scale System

Scenario Description:

Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch; and typical scenario size is 3-inch. Construct 260 feet of 3-inch, Class 125 (SDR-32.5), PVC pipeline with appurtenances, installed below ground with a minimum of 2 feet of ground cover. The unit is weight of pipe material in pounds. 260 feet of 3-inch, Class 125 (SDR-32.5) PVC pipe weighs 0.730 lb./ft, or a total of 189.8 pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface &Subsurface; 447 - Irrigation and Drainage Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Length of Pipe

Scenario Unit: Linear Foot

Scenario Typical Size: 260.0

Scenario Total Cost: $2,760.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #110 - HDPE (Iron Pipe Size and Tubing), less than or equal to 2 inch, Small Scale

Scenario Description:

Below ground installation of HDPE (Iron Pipe Size &Tubing) pipeline. HDPE (IPS &Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; and typical scenario size is 1-inch. Construct 260 feet of 1-inch, Class 130 (SDR 13.5), HDPE pipeline with appurtenances, installed below ground with a minimum 2 feet of ground cover. The unit is weight of pipe material in pounds. 260 feet of 1-inch, Class 130 (SDR-13.5), HDPE weighs 0.16 lb./ft, or a total of 42 pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface &Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 42.0

Scenario Total Cost: $2,989.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $71.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 430 - Irrigation Pipeline

Scenario: #111 - Surface HDPE (Iron Pipe Size and Tubing), less than or equal to 2 inch, Small Scale

Scenario Description:

On-ground surface installation of HDPE (Iron Pipe Size &Tubing) pipeline. HDPE (IPS &Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; and typical scenario size is 1-inch. Construct 260 feet of 1-inch, Class 130 (SDR 13.5), HDPE pipeline with appurtenances. The unit is weight of pipe material in pounds. 260 feet of 1-inch, Class 130 (SDR-13.5), HDPE weighs 0.16 lb./ft, or a total of 42 pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface &Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation:

Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 42.0

Scenario Total Cost: $485.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 432 - Dry Hydrant

Scenario: #2 - PVC

Scenario Description:

A non-pressurized permanent PVC pipe assembly system installed into an adequate water source with an all weather access that permits the withdrawal of water by suction for fire suppression, livestock, small acreage irrigation, or wetland management. The location must have an adequate volume of water available, facilitate movement to and from the hydrant site, and where a source of water is needed for fire suppression, livestock, small acreage irrigation, or wetland management.

Before Situation:

A location where an adequate volume of water is available, facilitate movement to and from the hydrant site, and where an adequate source of water is needed for fire suppression, livestock, small acreage irrigation, or wetland management

After Situation:

The typical dry hydrant will use 200 ft. of 6 inch PVC pipe, installed into an adequate water source with an all weather access that permits the withdrawal of water by suction. The pipe is fitted with an intake strainer and hydrant head for quick connect/release. Plastic pipe is protected from ultraviolet rays. The dry hydrant is constructed by installing the pipe using a backhoe or other trenching equipment. Vegetation of disturbed areas will be completed under critical area planting (342). All weather access will use Heavy Use Area Protection (561). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Pond (378), Dam (402), Access Road (560), and Access Control (472).

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $5,650.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,650.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #1 - Embankment Dam with On-Site Borrow

Scenario Description:

The reservoir, created by an embankment built across a natural depression, with an 18" diameter principal spillway outlet through the embankment, is controlled by a canal-style gate. Outlet can also serve as overflow protection with a 12" diameter standpipe and tee to the 18" pipe. Any watershed runoff will be diverted around reservoir. It will be built with approximately 4,500 cubic yards of on-site material. It will be about 19.9 feet high and 200 feet long and hold approximately 1,000,000 gallons (3 acre-feet). The top of berm will be 10 feet wide and the embankment side slopes will be 2.5 H to 1 V up and down stream. Resource concern: Insufficient Water - Inefficient use of irrigation water. Associated practices include: 521 - Pond Sealing or Lining (various); 320 - Irrigation Canal or Lateral; 430 - Irrigation Pipeline; 428 - Irrigation Ditch Lining; 533 - Pumping Plant; 440 series - Irrigation Systems; 378 - Pond; 447 - Irrigation System, Tailwater Recovery; 484 - Mulching; and 342 - Critical Area Planting.

Before Situation:

Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application. Divert water around - no spillway

After Situation:

This is an embankment, installed across a natural off-stream intermittent watercourse, used to store water for subsequent irrigation. It will be used to accumulate and store water for timely and efficient application of water through an irrigation system The water source could be a well, irrigation district pipeline, and/or a pump from a stream. It is designed to deliver water by gravity to an open ditch or non-pressurized pipeline, generally in excess of 5 cfs. All earthen materials will be from on-site sources.

Feature Measure: Volume of Compacted Eartfi

Scenario Unit: Cubic Yard

Scenario Typical Size: 4,500.0

Scenario Total Cost: $28,345.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #2 - Embankment Reservoir under 30 Acre-Feet

Scenario Description:

This is a small rectangular embankment reservoir with a 10" diameter principal spillway through the embankment controlled by a canal-type gate. It is designed to accumulate, store, and deliver water by gravity to an open ditch or non-pressurized pipeline, in excess of 5 cfs. It will have an inside dimension of about 375 feet square, with 12 feet of fill and about 1600 feet total length of embankment (along the centerline). The embankment top will be 10 feet wide and the side slopes will no steeper than 2.5 H to 1 V inside and out. It will be built with approximately 28,500 cubic yards of on-site material. It will have a maximum water depth of 10 feet with 2 feet of freeboard and no auxiliary spillway. Volume is approximately 30 ac-ft (10,000,000 gallons). Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 521 - Pond Sealing or Lining (various); 320 - Irrigation Canal or Lateral; 430 - Irrigation Pipeline; 428 - Irrigation Ditch Lining; 533 - Pumping Plant; 440 series - Irrigation Systems; 447 - Irrigation System, Tailwater Recovery; 378 - Pond; 484 - Mulching; and 342 - Critical Area Planting.

Before Situation:

Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation:

The square reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be a stream, an irrigation well, or an irrigation district canal.

Feature Measure: Volume of Compacted Earth

Scenario Unit: Cubic Yard

Scenario Typical Size: 28,500.0

Scenario Total Cost: $132,103.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #5 - Plastic Tank

Scenario Description:

A 3,000 Gallon, above-ground, High Density Polyethylene plastic enclosed tank, is installed on 6" of well-compacted drain rock or a 4" thick reinforced concrete support pad, to store water from a reliable source for irrigation of an area less than one acre. The scenario assumes the typical dimensions of the tank are 102" in diameter and 93" tall. The scenario also assumes a 126" diameter gravel base or concrete pad to extend a minimum of 12" past the base of tank for adequate foundation support. This cost estimate scenario is for cost of the tank and pad only and does not include estimate for pumps, pipe, or connecting fittings. Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 533 - Pumping Plant; 447 - Irrigation System, Tailwater Recovery.

Before Situation:

Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation:

An above-ground plastic tank, constructed to withstand the elements, is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a large roof area, a water ram , or a pump drawing water from a stream.

Feature Measure: Volume of Tank Storage

Scenario Unit: Gallon

Scenario Typical Size: 3,000.0

Scenario Total Cost: $8,202.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #6 - Plastic Tank Buried

Scenario Description:

A 3,000 Gallon, High Density Polyethylene plastic enclosed tank, is buried with a gravel base and 2' of cover, to store water from a reliable source for greenhouse irrigation of an area less than one acre. The tank is buried to prevent freezing if water is needed in the winter when seedling are started. The scenario assumes the typical dimensions of the tank are 102" in diameter and 93" tall. The scenario also assumes a 126" diameter gravel base to extend a minimum of 12" past the base of tank for adequate foundation support. This cost estimate scenario is for cost of the tank, gravel base, excavation and backfill only and does not include estimate for pumps, pipe, or connecting fittings. Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 533 - Pumping Plant; 447 - Irrigation System, Tailwater Recovery.

Before Situation:

Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation:

A buried plastic tank is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a large roof area, a water ram , or a pump drawing water from a stream.

Feature Measure: Volume of Tank Storage

Scenario Unit: Gallon

Scenario Typical Size: 3,000.0

Scenario Total Cost: $8,724.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #7 - Fiberglass Tank

Scenario Description:

A 10,000 Gallon above ground, enclosed, fiberglass tank, is installed on 6" of well compacted drain rock support pad. The tank is used to store water from a reliable source for irrigation of areas less than 3 acres. The scenario assumes the typical dimensions of the tank are 15 feet in diameter and 8 feet tall. The scenario also assumes a 19 feet diameter gravel base pad to extend a minimum of 2 feet past the base of tank for adequate foundation support. This cost estimate scenario is for cost of the tank and pad only and does not include estimate for pumps, pipe, fittings for the pipeline, or catchment area. Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 533 - Pumping Plant; 447 - Irrigation System, Tailwater Recovery.

Before Situation:

Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation:

A large fiberglass enclosed tank, capable of withstanding the elements, is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application and better efficiency. Sources of water could be a well, a domestic water system, a very large roof area, a water ram , or a pump drawing water from a stream.

Feature Measure: Volume of Tank Storage

Scenario Unit: Gallon

Scenario Typical Size: 10,000.0

Scenario Total Cost: $19,121.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #8 - Excavated Spread On Site

Scenario Description:

A reservoir with top width and lengths of 100'x100', 10ft deep, 1ft freeboard, 2:1 slopes is excavated in a relatively flat site and earthfill is spread on site. It is designed to accumulate, store, deliver or regulate water for a surface irrigation system. Resource concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 521 - Pond Sealing or Lining (various); 320 - Irrigation Canal or Lateral; 430 - Irrigation Pipeline; 428 - Irrigation Ditch Lining; 533 - Pumping Plant; 440 series - Irrigation Systems; 447 - Irrigation System, Tailwater Recovery; 378 - Pond; 484 - Mulching; and 342 - Critical Area Planting.

Before Situation:

Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation:

An excavated reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be a stream or a spring.

Feature Measure: Volume of excavated earth

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,400.0

Scenario Total Cost: $18,536.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #9 - Excavated Spread Off Site

Scenario Description:

A reservoir with top width and lengths of 100'x100', 10ft deep, 1ft freeboard, 2:1 slopes is excavated in a relatively flat site and earthfill is hauled for spreading off site. It is designed to accumulate, store, deliver or regulate water for a surface irrigation system. Resource concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 521 - Pond Sealing or Lining (various); 320 - Irrigation Canal or Lateral; 430 - Irrigation Pipeline; 428 - Irrigation Ditch Lining; 533 - Pumping Plant; 440 series - Irrigation Systems; 447 - Irrigation System, Tailwater Recovery; 378 - Pond; 484 - Mulching; and 342 - Critical Area Planting.

Before Situation:

Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation:

An excavated reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be a stream or a spring.

Feature Measure: Volume of excavated earth

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,400.0

Scenario Total Cost: $23,898.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #10 - Tailwater Recovery Greenhouse

Scenario Description:

A 1,000 Gallon, High Density Polyethylene plastic enclosed tank, is installed in a greenhouse to recover, store, and re-use tailwater from ebb and flow benches. Typical sizing would be 0.5 gal/SF of bench area. The tank are typically installed below the greenhouse floor. The scenario assumes a typical 1,000 gal tank dimensions of 100" L x 52" X 66" H. Sand gravel mix is assumed for backfill up to 30". This cost estimate scenario is for cost of the tank and pad only and does not include estimate for pumps, pipe, or connecting fittings. Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 533 - Pumping Plant; 447 - Irrigation System, Tailwater Recovery.

Before Situation:

Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation:

A below ground plastic tank, is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a large roof area, a water ram , or a pump drawing water from a stream.

Feature Measure: Volume of Tank Storage

Scenario Unit: Gallon

Scenario Typical Size: 1,000.0

Scenario Total Cost: $6,710.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #19 - Excavated Tailwater Pit

Scenario Description:

This is an excavated pit with a control structure. It is designed to accumulate, store, deliver or regulate water for a surface irrigation system. It will have a bottom width of 20 ft and length of 1,250 feet. The side slopes will be no steeper than 1.5 H to 1 V inside and out. It will be built with approximately 20,000 cubic yards of on-site material. It will have a maximum water depth of 10 feet with 1 feet of freeboard. Volume is approximately 12 ac-ft (3,950,303 gallons). Resource concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 521 - Pond Sealing or Lining (various); 320 - Irrigation Canal or Lateral; 430 - Irrigation Pipeline; 428 - Irrigation Ditch Lining; 533 - Pumping Plant; 440 series - Irrigation Systems; 447 - Irrigation System, Tailwater Recovery; 378 - Pond; 484 - Mulching; and 342 - Critical Area Planting.

Before Situation:

Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation:

An excavated regulating reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be a stream or an irrigation district canal.

Feature Measure: Volume of Earth Excavated

Scenario Unit: Cubic Yard

Scenario Typical Size: 19,600.0

Scenario Total Cost: $54,422.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #25 - Steel Tank

Scenario Description:

A 20,000 Gallon, above ground, enclosed fabricated Steel or bottomless Corrugated Metal (with plastic liner and cover) tank with fittings, is installed on 6" of well compacted drain rock support pad with sand padding (CM tank), to store water from a reliable source for irrigation of an area less than 5 acres. The scenario assumes the typical dimensions of the tank are 24 feet in diameter and 6 feet tall. The scenario also assumes a 28 feet diameter gravel base pad to extend a minimum of 2 feet past the base of tank for adequate foundation support. This cost estimate scenario is for cost of the tank and pad only and does not include the cost for pumps, pipe, or fittings for the pipeline. Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 533 - Pumping Plant; 447 - Irrigation System, Tailwater Recovery.

Before Situation:

Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation:

An above ground, enclosed fabricated steel or bottomless corrugated metal tank (with plastic liner and cover), capable of withstanding the elements, is used to accumulate and store water between irrigation cycles for a small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a very large roof area, a water ram , or a pump drawing water from a stream.

Feature Measure: Volume of Tank Storage

Scenario Unit: Gallon

Scenario Typical Size: 20,000.0

Scenario Total Cost: $24,041.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #28 - Plastic tank, less than or equal to 1,000 gallons

Scenario Description:

A 1,000 Gallon, above-ground, High Density Polyethylene plastic enclosed tank, is installed on 6" of well-compacted drain rock or a 4" thick reinforced concrete support pad, to store water from a reliable source for irrigation of an area less than one acre. The scenario assumes the typical dimensions of the tank are 72" in diameter and 66" tall. The scenario also assumes a 96" diameter gravel base or concrete pad to extend a minimum of 12" past the base of tank for adequate foundation support. This cost estimate scenario is for cost of the tank and pad only and does not include estimate for pumps, pipe, or connecting fittings. Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 533 - Pumping Plant; 447 - Irrigation System, Tailwater Recovery.

Before Situation:

Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation:

An above-ground plastic tank, constructed to withstand the elements, is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a large roof area, a water ram , or a pump drawing water from a stream.

Feature Measure: Volume of Tank Storage

Scenario Unit: Gallon

Scenario Typical Size: 1,000.0

Scenario Total Cost: $6,018.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 436 - Irrigation Reservoir

Scenario: #49 - Excavation and Embankment Pond

Scenario Description:

A natural shaped reservoir built on slightly sloped ground with a combination of excavation and embankment. It is designed to accumulate, store, and deliver water through a pump and pressurized pipeline to an irrigation system. Typical scenario will have inside top dimensions of 350 ft by 500 ft, 12 feet deep for an estimated storage volume of 33 ac ft or 54,400 cy strike full. The pond will have 2:1 inside slopes and 3:1 outside slopes. The embankment top will be 10 feet wide with a 4' deep keyway under the embankment. Embankment will run for half of the perimeter of the pond for an estimated length of 675 ft. Embankment will be constructed of material excavated from reservoir. Excess material will be spread on site as needed. Embankment and keyway will be built with approximately 4000 cubic yards of on-site material. It will have a maximum water depth of 10 feet with 2 feet of freeboard and spillway. Spillway to be contracted under 468 Lined Waterway or Outlet. A concrete or sheet pile weir will be used at upstream end of outlet to control water surface elevation. Pond sealing and lining will be used as needed when existing soils are insufficient to hold water Resource Concern: Insufficient Water - Inefficient use of irrigation water. Associated Practices: 521 - Pond Sealing or Lining ; 430 - Irrigation Pipeline; 533 - Pumping Plant; 440 series - Irrigation Systems; 447 - Irrigation System, Tailwater Recovery; 378 - Pond; 484 - Mulching; 468 - Lined Waterway or Outlet; 533 - Pumping Plant; and 342 - Critical Area Planting.

Before Situation:

Current system relies on an insufficient water source. This results in untimely and/or inefficient water application. Water source is a regulated surface water source with insufficient flow for water withdraw and supporting aquatic life.

After Situation:

The reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be surface or ground water or a combination of the two. Producer will no longer need to draw water from a regulated surface water source

Feature Measure: Strike full volume of pond

Scenario Unit: Cubic Yard

Scenario Typical Size: 54,400.0

Scenario Total Cost: $649,813.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #1 - SDI (Subsurface Drip Irrigation)

Scenario Description:

A subsurface drip irrigation system (SDI) with a lateral spacing between 37-59 inches. This buried drip irrigation system utilizes a thin wall dripperline (drip tube) or durable 10 to 15 mil tape with inline emitters at a uniform spacing for the system laterals. The dripperline or tape is normally installed by being plowed in approx. 10-14 inches deep with a chisel shank type plow equipped with tape reels. This type of drip irrigation system utilizes a buried supply manifold with automated zone control valves and a buried flush manifold with manual flush valves. This permanent micro-irrigation system includes an automated filter station, flow meter, backflow prevention device, automated control box or timer, the thin wall dipperline or tape for laterals, both a supply and a flushing manifold and numerous types of water control valves. This is an all-inclusive system starting with the filter station including all required system components out to the flush valves. The water supply line from the water source to the filter station is an irrigation pipeline (430) and is not included as part of this system. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590 - Nutrient Management.

Before Situation:

Typical before irrigation situation would normally be an existing inefficient surface or sprinkler irrigation system on a cropland or hayland field. The existing irrigation system would experience poor, non-uniform irrigation applications and significant

After Situation:

A typical practice would be the installation of a subsurface drip irrigation system (SDI) on a 15 acre of permanent crops such as berries. The system lateral (thin wall dripperline or tape) spacing would 6ft. This highly efficient SDI (buried) irrigation system provides irrigation water directly to the plant root zone eliminating application losses resulting in a very high water application efficiency and properly designed these SDI systems are capable of very uniform water applications. Typical field size is 15 acres.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 15.0

Scenario Total Cost: $36,293.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,419.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #2 - Automated Surface Permanent PE Tube with Media Filter Laterals 9 ft oc

Scenario Description:

An permanent automated micro-irrigation system is installed above-ground or on trellis utilizing surface UV resistant PE tubing with integrated emitters to provide irrigation for an orchard, vineyard, or other perennial crop grown in a grid pattern. The typical system is a permanent system installed on a 10 acre orchard. The orchard has a plant spacing of 8 feet x 9 feet. Laterals are spaced 9 feet apart. This system typically includes automatic controls, a media filter system, PE tubing laterals, PVC manifolds, and submains, valves, fittings, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual lateral discharge point. Does not include the pumping plant, power source, or water source (well or reservoir). Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590 - Nutrient Management.

Before Situation:

An orchard has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

An automated surface microirrigation system with media filter with laterals at 9ft o.c. is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $37,132.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,713.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #3 - Surface Permanent PE tube with Media Filter Laterals 9 ft oc

Scenario Description:

An permanent micro-irrigation system is installed utilizing surface UV resistant PE tubing with integrated emitters to provide irrigation for an orchard, vineyard, or other perennial crop. The typical system is a permanent system installed on a 10 acre orchard on the ground surface or attached to a trellis. The orchard has a plant spacing of 8 feet x 9 feet. Laterals are spaced 9 feet apart. This system typically includes manual controls, a media filter system, PE tubing laterals, PVC manifolds, and submains, valves, fittings, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual lateral discharge point. Does not include the pumping plant, power source, or water source (well or reservoir). Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590 - Nutrient Management.

Before Situation:

An orchard has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface microirrigation system with media filter with laterals at 9ft o.c. is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $36,255.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,625.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #4 - Surface Permanent PE Tube Disk or Screen Filter Laterals 9 ft oc

Scenario Description:

An permanent micro-irrigation system is installed utilizing surface UV resistant PE tubing with integrated emitters to provide irrigation for an orchard, vineyard, or other perennial crop. The typical system is a permanent system installed on a 10 acre orchard on the ground surface or attached to a trellis. The orchard has a plant spacing of 8 feet x 9 feet. Laterals are spaced 9 feet apart. This system typically includes manual controls, disk or screen filters, PE tubing laterals, PVC manifolds, and submains, valves, fittings, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual lateral discharge point. This scenario assumes a well water source. Does not include the pumping plant, power source, or water source (well or reservoir). Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590 - Nutrient Management.

Before Situation:

Ann orchard has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface microirrigation system with disk or screen filters with laterals at 9ft o.c. is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $28,809.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,880.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #5 - Automated Surface Permanent PE Tube with Media Filter Laterals 14 ft oc

Scenario Description:

An permanent automated micro-irrigation system is installed utilizing surface UV resistant PE tubing with integrated emitters to provide irrigation for an orchard, vineyard, or other permanent crop. The typical system is installed on a 10 acre orchard on the ground surface or attached to a trellis. The orchard has a plant spacing of 12 feet x 14 feet. Laterals are spaced 14 feet apart. This system typically includes automatic controls, a media filter system, PE tubing laterals, PVC manifolds, and submains, valves, fittings, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual lateral discharge point. Does not include the pumping plant, power source, or water source (well or reservoir). Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449-Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590-Nutrient Management.

Before Situation:

An orchard has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

An automated surface microirrigation system with media filter and laterals at 14 ft o.c. is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $30,064.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,006.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #6 - Surface Permanent PE Tube with Media Filter Laterals 14 ft oc

Scenario Description:

An permanent micro-irrigation system is installed utilizing surface UV resistant PE tubing with integrated emitters to provide irrigation for an orchard, vineyard, or other permanent crop. The typical system is installed on a 10 acre orchard on the ground surface or attached to a trellis. The orchard has a plant spacing of 12 feet x 14 feet. Laterals are spaced 14 feet apart. This system typically includes manual controls, a media filter system, PE tubing laterals, PVC manifolds, and submains, valves, fittings, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual lateral discharge point. Does not include the pumping plant, power source, or water source (well or reservoir). Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590-Nutrient Management.

Before Situation:

Ann orchard has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface microirrigation system with media filter and laterals at 14 ft o.c. is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $29,663.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,966.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #7 - Surface Permanent PE Tube with Disk or Screen filter laterals 14 ft oc

Scenario Description:

An permanent micro-irrigation system is installed utilizing surface UV resistant PE tubing with integrated emitters to provide irrigation for an orchard, vineyard, or other permanent crop. The typical system is installed on a 10 acre orchard on the ground surface or attached to a trellis. The orchard has a plant spacing of 12 feet x 14 feet. Laterals are spaced 14 feet apart. This system typically includes manual controls, a disk or screen filter system, PE tubing laterals, PVC manifolds, and submains, valves, fittings, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual lateral discharge point. Does not include the pumping plant, power source, or water source (well or reservoir). Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590-Nutrient Management.

Before Situation:

An orchard has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface microirrigation system with disk or screen filter and laterals at 14 ft o.c. is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $22,218.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,221.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #8 - Microjet with Filter

Scenario Description:

A micro-irrigation system, utilizing micro-jets to provide irrigation and\or frost protection for an orchard or other specialty crops grown in a grid pattern. The system is installed with all fittings, control valves, pressure reducing/regulating valves, air/vacuum release, disc filters, pressure gauges, submains, lateral lines, and micro-jet sprayers to deliver water to the trees. This practice applies to systems designed to discharge < 60 gal/hr. at each individual lateral discharge point. Does not include Pump, Power source, Water source (well or reservoir). The typical installation is a permanent, microjet -irrigation system installed on a 60 acre orchard. Typical tree spacing is 20' x 20' feet. The water supply line from the water source to the zone valves is an irrigation pipeline (430) and is not included as part of this system. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, and 590-Nutrient Management.

Before Situation:

An orchard has an inefficient irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A micro-spray microirrigation system is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 60.0

Scenario Total Cost: $221,909.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,698.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #9 - Surface Tape <5 acres

Scenario Description:

A micro-irrigation system using drip tape or similar type micro-irrigation material placed on the soil surface for vegetables or field crops. Spacing of drip tape or similar type micro irrigation material is based on soil type or row alignment but will typically vary from 18" to 36". This system typically includes a filter system, PE manifolds fittings, drip tape, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual discharge point. Does not include the pumping plant, power source, or water source. Surface placed drip tape will not meet the 441 practice life and will normally need replacement every year. After first installation drip tape will be replaced as operation and maintenance issue as required for proper operation of the system. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and Facilities. Associated Practices: 533-Pumping Plant, 449-Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, 590 Nutrient Management, and 595-Itegrated Pest Management.

Before Situation:

A typical before irrigation situation would normally be an existing inefficient sprinkler or surface irrigation system for vegetable or other crop production system. The existing irrigation system would experience poor, nonuniform irrigation applications

After Situation:

A surface placed microirrigation system is utilized to provide highly efficient irrigation to a field. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced. Drip tape will be replaced as operation and maintenance issue as required for proper operation of the system. A typical scenario consists of a 1/2 acre irrigated field with lateral spacing of 2 feet.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 0.5

Scenario Total Cost: $2,345.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,690.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #10 - Surface Tape > or = 5 acres

Scenario Description:

A micro-irrigation system using drip tape or similar type micro-irrigation material placed on the soil surface for vegetables or other field crops. Spacing of drip tape similar type micro irrigation material is based on soil type or row alignment but will typically vary from 18" to 36". This system typically includes a filter system, PE manifolds fittings, drip tape, etc. Does not include the pumping plant, power source, or water source. Surface placed drip tape will not meet the 441 practice life and will normally need replacement every year. After first installation drip tape will be replaced as a part of regular operation and maintenance as required for proper operation of the system. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and Facilities. Associated Practices: 533-Pumping Plant, 449-Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, 590 Nutrient Management, and 595-Itegrated Pest Management.

Before Situation:

A typical before irrigation situation would include an existing inefficient sprinkler or surface irrigation system used to irrigate vegetables or other crops. The existing irrigation system would supply excessive or inadequate non-uniform irrigation appli

After Situation:

A surface placed microirrigation system is utilized to provide highly efficient irrigation to a field. Crop water requirements are met. Water applications are normally reduced and runoff eliminated. Offsite water quality is improved, and on site water use reduced. Drip tape will be replaced as operation and maintenance issue as required for proper operation of the system. A typical scenario consists of a 20 acre irrigated field with lateral spacing of 2 feet.

Feature Measure: Acres in System

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $59,854.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,992.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #11 - Multiple Outlet Drip

Scenario Description:

A micro-irrigation system is installed in a commercial greenhouse or nursery. The system is installed with all fittings, control valves, pressure reducing/regulating valves, air/vacuum release, screen filter, pressure gauges, submain, lateral lines, and emitters to deliver water to potted plants or in-ground crops. Multiple outlet drip (MOD) emitters or micro sprays are used. Associated Practices: Irrigation Pipeline (430), Irrigation Water Management (449)

Before Situation:

Crops in a 5,000 SF greenhouse have an inefficient irrigation system causing irrigation water loss. A surface water source is available.

After Situation:

A micro-spray or multiple outlet drip microirrigation system is utilized to provide highly efficient irrigation to a greenhouse. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Sq Ft in Green House system

Scenario Unit: Square Foot

Scenario Typical Size: 5,000.0

Scenario Total Cost: $2,555.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #12 - Hoop House Surface Microirrigation

Scenario Description:

Surface Microirrigation system for 30' x 96' seasonal high tunnel, 24" rows with emitters on a 12" spacing. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 328-Conservation Crop Rotation, and 590 Nutrient Management.

Before Situation:

A field has an inefficient garden-hose based sprinkler irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface placed microirrigation system is utilized to provide highly efficient irrigation to an area. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

Feature Measure: Microirrigation area

Scenario Unit: Square Foot

Scenario Typical Size: 2,880.0

Scenario Total Cost: $551.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #38 - Small Microirrigation System

Scenario Description:

A small scale surface microirrigation system using drip tape or similar type micro-irrigation material placed on the soil surface to irrigate vegetables or field crops. Typically applied on a 40' by 40' plot, with 24" spaced rows, and emitters on a 12" spacing. Submains break plot into several smaller zones. System includes disk filter and chemical injection for chemigation. Water meter is not included. Natural Resource Concern(s): Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533 - Pumping Plant, 449 - Irrigation Water Management, 430 - Irrigation Pipeline, 436 - Irrigation Reservoir, 328 - Conservation Crop Rotation, and 590 - Nutrient Management.

Before Situation:

A field has an inefficient garden-hose based sprinkler irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface placed microirrigation system is utilized to provide highly efficient irrigation to a small plot. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on-site water use is reduced.

Feature Measure: Microirrigation area

Scenario Unit: Square Foot

Scenario Typical Size: 1,600.0

Scenario Total Cost: $2,074.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #74 - Small Surface Tape System

Scenario Description:

A small scale micro-irrigation system using drip tape or similar type micro-irrigation material placed on the soil surface for vegetables or field crops. Spacing of drip tape or similar type micro irrigation material is based on soil type or row alignment but will typically vary from 18" to 36". This system typically includes a filter system, PE manifolds fittings, drip tape, etc. This practice applies to systems designed to discharge < 60 gal/hr. at each individual discharge point. Does not include Pump, power source, water source. Surface placed drip tape will not meet the 441 practice life and will normally need replacement every year. After first installation drip tape will be replaced as operation and maintenance issue as required for proper operation of the system. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and Facilities. Associated Practices: 533-Pumping Plant, 449-Irrigation Water Management, 430 - Irrigation Pipeline, 610 - Salinity & Sodic Soil Management, 328-Conservation Crop Rotation, 590 Nutrient Management, and 595-Itegrated Pest Management.

Before Situation:

A field has an inefficient garden-hose based sprinkler irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface placed microirrigation system is utilized to provide highly efficient irrigation to a field. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced. Drip tape will be replaced as operation and maintenance issue as required for proper operation of the system. A typical scenario consists of a 1,600 square feet irrigated field with lateral spacing of 2 feet.

Feature Measure: Microirrigation area

Scenario Unit: Square Foot

Scenario Typical Size: 1,600.0

Scenario Total Cost: $1,689.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 441 - Irrigation System, Microirrigation

Scenario: #92 - Precision Irrigation, hanging basket

Scenario Description:

A permanent automated micro-irrigation system is installed utilizing precision spray units that fill hanging baskets to a prescribed weight. The typical system is installed on hanging basket tracks. The system provides a single point of irrigation rather than pot drippers throughout the greenhouse. This system typically includes automatic controls. Does not include the pipeline to the system, pumping plant, power source, or water source (well or reservoir). Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 436 Irrigation Water Reservoir, 587 - Structure for Water Control

Before Situation:

A greenhouse has an inefficient hand watering or pot dripper irrigation system causing irrigation water loss that impacts water quality and water quantity. Inefficient watering can cause over watering or under watering of the plants. Some unused pot dripp

After Situation:

An automated hanging basket precision watering system is used to provide highly efficient irrigation to the baskets. Water applications are reduced and runoff eliminated. On site water use is reduced and overwatering and underwatering of plants is eliminated.

Feature Measure: each spray unit

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,356.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,356.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #3 - Lateral Move System > 1000 LF

Scenario Description:

Installation of a linear or lateral move sprinkler system with flow meter and with sprinklers on drops with or without drag hoses to improve irrigation efficiency and reduce soil erosion. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications), Inefficient Energy Use (Equipment and facilities e.g. pumping) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449) Payment rate is figured per foot of installed hardware length.

Before Situation:

A 76 acre field is irrigated with a high flow sprinkler system. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the e

After Situation:

A typical unit is approximately 76 acres in size with the sprinkler system up to 1280 feet in length with drop tubes that have a minimum of 30" spacing. The new irrigation system has a coefficient of uniformity above 85%. Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

Feature Measure: Length of Linear Move Later

Scenario Unit: Foot

Scenario Typical Size: 1,280.0

Scenario Total Cost: $172,080.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $134.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #6 - Solid Set System

Scenario Description:

A solid set irrigation system. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449)

Before Situation:

The typical installation will be on cropland with some existing inefficient irrigation. The farm is typically producing specialty crops, such as fresh vegetables.

After Situation:

The typical system is installed on 4 acres. The installed solid set system has 1-6 inch pipe sizes and sprinklers set 30 - 50 ft apart. Improved distribution uniformity and irrigation efficiency will result.

Feature Measure: Area of Irrigation System

Scenario Unit: Acre

Scenario Typical Size: 4.0

Scenario Total Cost: $23,031.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,757.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #7 - Traveling Gun System, < 2 inch Hose

Scenario Description:

A portable small gun system used to apply irrigation water on small fields. A small traveling gun irrigation system is installed to apply water uniformly and at an acceptable application rate operated under pressure to effectively irrigate less than 5 acres. The irrigation system is installed with all necessary appurtenances. Resource concerns: Soil Erosion (Concentrated flow erosion, e.g. overflowing waste storage) and Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from liquid manure) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449), Conservation Crop Rotation (328), Cover Crop (340), Nutrient Management (590), Waste Utilization (633), Manure Transfer (634)

Before Situation:

An existing traveling gun on a 5 acre field is inefficient and is not applying water uniformly or not at an acceptable application rate. Excess applied water causes irrigation induced erosion, runoff and deep percolation. The runoff and deep percolation d

After Situation:

A small traveling gun irrigation system is installed to irrigate 5 acres based on the determined spacing needs. Irrigation is applied efficiently and uniformly to maintain adequate soil water for plant growth without causing excessive water loss, erosion, or water quality degradation The irrigation system is installed with all necessary appurtenances.

Feature Measure: Number of Traveling Gun Sy

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $15,612.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15,612.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #8 - Traveling Gun System, 2 inch to 3 inch Hose

Scenario Description:

A portable big gun system used to apply waste water from animal feeding operations. This traveling big gun unit includes a sprinkler, towable cart, 1000' or more of PE hard hose, a self propelled reel that moves the sprinkler toward the reel during operation. The reel attaches to a mainline with appropriately designed towpath width. The scenario describes an irrigation system that is typical to confined animal feeding operations. Resource concerns: Soil Erosion (Concentrated flow erosion, e.g. overflowing waste storage) and Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from liquid manure) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449), Conservation Crop Rotation (328), Cover Crop (340), Nutrient Management (590), Waste Utilization (633), Manure Transfer (634)

Before Situation:

A confined, animal operation has a waste management system that exceeds its capacity, or a operation that does not have a waste management system in place. The inefficiency of the existing system or the lack of a waste management system has an impact on t

After Situation:

The big gun applies animal manure in an appropriate quantity and location that eliminates both runoff of the manure and deep percolation of excess nutrients, salts, and pathogens. The big gun system is typically located on 50 acres or less of hay/pasture land, or 100 acres or less of cropland. The system includes a large irrigation gun with 1" to 1½" orifice mounted onto a movable cart. 1000' or more flexible 3" PE pipe is attached to the cart on one end and a large reel on the other end. The reel serves as storage are for the pipe as the cart moves back to the reel. The reel is turned by a small engine which gradually pulls the flexible pipe and cart back to the reel/base.

Feature Measure: Number of Traveling Gun Sy

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $25,603.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25,603.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #9 - Traveling Gun System, > 3 inch Hose

Scenario Description:

A portable big gun system used to apply waste water from animal feeding operations. This traveling big gun unit includes a sprinkler, towable cart, 1200' or more of PE hard hose, a self propelled reel that moves the sprinkler toward the reel during operation. The reel attaches to a mainline with appropriately designed towpath width. The scenario describes an irrigation system that is typical to confined animal feeding operations. Resource concerns: Soil Erosion (Concentrated flow erosion, e.g. overflowing waste storage) and Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from liquid manure) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449), Conservation Crop Rotation (328), Cover Crop (340), Nutrient Management (590), Waste Utilization (633), Manure Transfer (634)

Before Situation:

A confined, animal operation has a waste management system that exceeds its capacity, or a operation that does not have a waste management system in place. The inefficiency of the existing system or the lack of a waste management system has an impact on t

After Situation:

The big gun applies animal manure in an appropriate quantity and location that eliminates both runoff of the manure and deep percolation of excess nutrients, salts, and pathogens. The big gun system is typically located on 50 acres or less of hay/pasture land, or 100 acres or less of cropland. The system includes a large irrigation gun with 1" to 1½" orifice mounted onto a movable cart. 1200' or more flexible 4" PE pipe is attached to the cart on one end and a large reel on the other end. The reel serves as storage are for the pipe as the cart moves back to the reel. The reel is turned by a small engine which gradually pulls the flexible pipe and cart back to the reel/base.

Feature Measure: Number of Traveling Gun Sy

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $53,018.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $53,018.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #10 - Pod System

Scenario Description:

A portable irrigation system consisting of Polyethylene (PE) pipe and pods that have attached sprinklers. This scenario addresses installation of all pod style irrigation sprinkler systems. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449)

Before Situation:

Pastureland is flood irrigated and has poor irrigation efficiency and distribution uniformity. The slope and irregular shape of the field limit the potential for improved management to improve the irrigation efficiency or the distribution uniformity. Irri

After Situation:

A 10 acre irrigated pasture with a medium pressure irrigation system consisting of sprinkler pods along a PE line is installed. The pods and PE line are placed in different sections of the pasture by dragging both with a four wheeler. The PE line is 660 feet in length and has 14 pods evenly spaced along its length. The improved distribution uniformity and irrigation efficiency reduces the inefficient use of water on irrigated land, reducing irrigation water applied and energy use. Water application rates meet the pasture vegetation consumptive use requirements. Runoff and deep percolation as a result of irrigation are eliminated, and the receiving waters are no longer degraded.

Feature Measure: Number of Sprinkler Pods

Scenario Unit: Each

Scenario Typical Size: 14.0

Scenario Total Cost: $5,615.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $401.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #37 - Linear Move System

Scenario Description:

Installation of a linear or lateral move sprinkler system with sprinklers on drops with or without drag hoses to improve irrigation efficiency and reduce soil erosion. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications), Inefficient Energy Use (Equipment and facilities e.g. pumping) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449) Payment rate is figured per foot of installed hardware length.

Before Situation:

A 76 acre field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers ex

After Situation:

A typical unit is approximately 76 acres in size with the sprinkler system up to 1280 feet in length with drop tubes that have a minimum of 30" spacing. The new irrigation system has a coefficient of uniformity above 85%. Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

Feature Measure: Length of Linear Move Later

Scenario Unit: Foot

Scenario Typical Size: 1,280.0

Scenario Total Cost: $185,737.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $145.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #40 - Traveling Boom

Scenario Description:

A portable traveling boom sprayer system used to apply irrigation water. A traveling boom irrigation system is installed to apply water uniformly and at an acceptable application rate operated under pressure to effectively irrigate field crops. The irrigation system is installed with all necessary appurtenances. Resource concerns: Soil Erosion (Concentrated flow erosion, e.g. overflowing waste storage) and Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449), Conservation Crop Rotation (328), Cover Crop (340), Nutrient Management (590), Waste Utilization (633), Manure Transfer (634)

Before Situation:

An existing traveling gun is inefficient and is not applying water uniformly or not at an acceptable application rate. Excess applied water causes irrigation induced erosion, runoff and deep percolation. The runoff and deep percolation degrade the receivi

After Situation:

The spray cart applies irrigation water in an appropriate quantity and location that eliminates both runoff and deep percolation. By reducing the time the spray is traveling through the air evaporation losses are reduced greatly increasing efficiency. The traveling boom system is typically located on 50 acres or less of hay/pasture land, or 100 acres or less of cropland. The system includes an irrigation boom mounted onto a movable cart. 1200’ or more flexible 4” PE pipe is attached to the cart on one end and a large reel on the other end. The reel serves as storage for the pipe as the cart moves back to the reel. The reel is turned by a small engine which gradually pulls the flexible pipe and cart back to the reel/base.

Feature Measure: Length of sprayer fully exte

Scenario Unit: Linear Foot

Scenario Typical Size: 160.0

Scenario Total Cost: $83,131.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $519.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #46 - Center Pivot System

Scenario Description:

Installation of a low pressure center pivot system. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications). Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449)

Before Situation:

A 160 acre field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers e

After Situation:

The existing surface irrigation system is converted to a low pressure center pivot. Corners are converted to non-irrigated cropland. The pivot is 1300 feet in length with pressure regulators and low pressure sprinklers on drops. The new irrigation system has a coefficient of uniformity above 85%. Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated. This center pivot scenario includes all hardware from the pivot point, including the concrete pad the pivot is placed on.

Feature Measure: Length of Center Pivot Later

Scenario Unit: Foot

Scenario Typical Size: 1,300.0

Scenario Total Cost: $122,159.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $93.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #66 - Small Solid Set, Above Ground Laterals

Scenario Description:

A permanent solid set irrigation system with buried submains and above ground laterals such as polyethylene flexible tubing. The typical system is installed on a 2 acre orchard or nursery, with plant spacing of 15 feet x 22 feet. Laterals are spaced 22 feet apart, however other spacing for this scenario apply. This system utilizes sprayers or minisprinklers at each tree or plant. This system typically includes a filter system, PE tubing laterals, PVC manifolds, and submains, valves, fittings, and emitters. System installation does not include a flowmeter, Pump, Power source, Irrigation Water Conveyance to the irrigated field, or Water source (well or reservoir). Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449).

Before Situation:

The typical installation will be on an orchard, nursery, or vineyard with an existing inefficient irrigation system.

After Situation:

An irrigation system is utilized to provide improved distribution uniformity and irrigation efficiency to an orchard, nursery, or vineyard. Runoff and water applications are reduced, resulting in offsite water quality improvement and on site water use reduction.

Feature Measure: Area in Irrigation System

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $7,172.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,586.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #99 - Gravity to Pivot Conversion with VRI Zone Control

Scenario Description:

Upgrading existing irrigation system with a more uniform and efficient (vendor provided and installed modular system) Center Pivot or Linear Move system for the purpose of protecting water quality and utilizing water effectively. Integrating variable application technology onto a center pivot system for precision zone placement of water along the length of the system for water savings. A variable application over the field based on either 1) EC mapping, 2) previous year(s) harvest yield maps, 3) soil properties, 4) within field ET variability, 5) topography, or combination of each. This scenario is a new system to replace an existing gravity system, with the proper components, nozzles, and pressure regulating devices along with other needed components for installation of a VRI system for more effective utilization of water. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications), Inefficient Energy Use (Equipment and facilities e.g. pumping), and protection of wetland areas enrolled in conservation program and other environmentally sensitive areas. Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449), Wetland Restoration (657), Wetland Enhancement (658) Wetland Creation (659)

Before Situation:

Flood application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers excess nutrients, salts, and che

After Situation:

A new Center Pivot or Linear Move sprinkler system with a span of 1300 linear feet and a modular VRI system increases irrigation efficiency utilizing a modern center pivot system, resulting in water savings. The irrigation water is applied efficiently to maintain adequate soil moisture for optimum plant growth. Runoff is eliminated, deep percolation is controlled based on salt leaching requirements, and the surface and groundwater is no longer degraded. The irrigation induced soil erosion caused by runoff is also eliminated. The reduced water volume delivered to the sprinklers reduces the energy used by the pump.

Feature Measure: Length of Center Pivot or La

Scenario Unit: Linear Foot

Scenario Typical Size: 1,300.0

Scenario Total Cost: $178,900.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $137.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #100 - VRI System Retrofit Zone

Scenario Description:

Integrating variable application technology onto a center pivot system or linear move for precision zone placement of water along the length of the system. A variable application over the field based on either1) EC mapping, 2) previous year(s) harvest yield maps, 3) soil properties, 4) within field ET variability, 5) topography, or combination of each. This scenario is to renovate a previously installed pivot or linear move irrigation system with proper modular components and pressure regulating devices, GPS for field locations, new control panel, valves, and other needed components to install a VRI system for more effective utilization of water. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and groundwater, Excess pathogens and chemicals from manure, bio-solids or compost applications), Inefficient Energy Use (Equipment and facilities e.g. pumping), and protection of wetland areas enrolled in conservation program and other environmental sensitive areas. Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449), Wetland Restoration (657), Wetland Enhancement (658) Wetland Creation (659)

Before Situation:

A center pivot or lateral move system applies water at the same rate regardless of variations in the field that affect crop health or water quality. Deep percolation in some parts of the field degrades the groundwater quality. Chemigation applications are

After Situation:

A Center Pivot or Linear Move sprinkler system with a span of 1300 linear feet is has modular VRI components added to the system which increases irrigation efficiency, by utilizing a modern center pivot system, resulting in water savings. The irrigation water is applied efficiently to maintain adequate soil moisture for optimum plant growth. Runoff is eliminated and deep percolation is controlled based on salt leaching requirements. The surface and ground water is no longer degraded. The irrigation induced soil erosion caused by runoff is also eliminated. The reduced water volume delivered to the sprinklers reduces the energy used by the pump. Chemigation applications do not apply inappropriate amounts of chemicals near sensitive areas.

Feature Measure: Length of Center Pivot or La

Scenario Unit: Linear Foot

Scenario Typical Size: 1,300.0

Scenario Total Cost: $65,304.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 442 - Sprinkler System

Scenario: #101 - Mobile Drip Irrigation Retrofit, Center Pivot

Scenario Description:

Center pivot sprinkler systems are used to irrigate low-profile crops (e.g., alfalfa or small grains) to medium-profile crops (e.g., corn) in fields with regular field borders and flat to slightly sloping terrain. The scenario involves retrofitting an existing center pivot irrigation system to incorporate dragged low-pressure drip irrigation lines to improve efficiency of water use and reduce energy use. A typical scenario assumes a 1,300 linear foot span, retrofitted to include heavy wall drip hoses in place of nozzles or sprinkler heads. Drip hoses are spaced 20 to 60 inches apart and include drippers of 1 to 2 gallon per hour flowrate and are spaced approximately every 6 to 12 inches on the driplines. Systems with shorter profile crops may have a manifold that is 3 to 4 feet from the ground. Crops are typically planted in a circular pattern relative to the center pivot path. In-line mesh filtration and chemigation is included. Sand separator not included. Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio solids or compost applications), Inefficient Energy Use (Equipment and facilities e.g. operating pressure and volume pumped) Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449)

Before Situation:

A center pivot system that has high pressure sprinklers. The nozzles are worn and water is applied non-uniformly. Water runs off the field and degrades receiving waterbodies. Deep percolation in some parts of the field degrades groundwater quality. The hi

After Situation:

A center pivot sprinkler system with a span of 1,300 linear feet is retrofitted to apply water through dragged surface drip irrigation lines. Irrigation water is applied efficiently and uniformly directly to the soil surface to maintain soil moisture for optimal plant growth. Runoff and deep percolation are addressed, and surface waterbodies are no longer degraded. Lower pressure requirements and higher application efficiency of the center mobile drip irrigation retrofit reduces the energy used by the pump.

Feature Measure: Length of Lateral Retrofitted

Scenario Unit: Linear Foot

Scenario Typical Size: 1,300.0

Scenario Total Cost: $24,771.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $19.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 443 - Irrigation System, Surface and Subsurface

Scenario: #1 - Flood Floor Irrigation

Scenario Description:

The scenario consists of a concrete floor and under floor water distribution system. The plants receive water from the flooded floor through the root zone. Only needed water is taken up by the soil medium. After irrigation completed all water is cycled to the holding tank and is reused for the next irrigation cycle. For pumps - use 533 - Pumping Plant , for piping use 430 - Irrigation Pipeline. Based on flood floor design.

Before Situation:

The greenhouse plants are watered by hand or by sprinkler system. Water drips onto the floor and sinks into the earthen floor, runs off or evaporates. Water is lost to the plants and can become contaminated with fertilizers or pesticides.

After Situation:

Greenhouse irrigation water is supplied by a Flood-Floor irrigation system. Water is taken up by the soil medium. All remaining water is recycled for reuse. No water is wasted or contaminated.

Feature Measure: Square foot of flooded area

Scenario Unit: Square Foot

Scenario Typical Size: 21,600.0

Scenario Total Cost: $182,388.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 443 - Irrigation System, Surface and Subsurface

Scenario: #2 - Flood (Ebb and Flow) Bench Irrigation

Scenario Description:

The scenario consists of an aluminum flood bench system. The plants receive water from the flooded bench through the root zone. Only needed water is taken up by the soil medium. After irrigation completed all water is cycled to the holding tank and is reused for the next irrigation cycle. For pumps - use 533 - Pumping Plant, for holding tank use 436 - Irrigation Reservoir , for piping use 430 - Irrigation Pipeline. The component includes the piping and manifold distribution system for the benches. Also includes the return piping to the holding tank.

Before Situation:

The greenhouse plants are watered by hand or by sprinkler system. Water drips onto the floor and sinks into the earthen floor, runs off or evaporates. Water is lost to the plants and can become contaminated with fertilizers or pesticides.

After Situation:

Greenhouse plants are irrigated with an aluminum flood bench (Ebb and Flow) system. The plants receive water from the flooded bench through the root zone. Water is taken up by the soil medium. All remaining water is recycled for reuse. No water is wasted or contaminated.

Feature Measure: Square foot of bench install

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $39,385.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $19.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 443 - Irrigation System, Surface and Subsurface

Scenario: #22 - Ebb and Flow Benches

Scenario Description:

Water tight benches, that are housed within the interior of a greenhouse, are installed that re-circulates (ebb and flow) water for irrigation purposes. Typical system consist of bay with three benches 4 feet wide and 100 feet long (1200 sq ft). The bench is flooded then slowly drained to allow water to upflux of water into potted plants located on the bench. This type of drip irrigation system utilizes a buried supply manifold with automated zone control valves and a buried drainage manifold. This permanent subsurface irrigation system will include a filter station, flow meter, backflow prevention device, automated control box or timer, both a supply and drainage manifold, sump and numerous types of water control valves. This scenario includes all material and labor to install the benches filter and automation system. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation Excessive leaching of nutrients into ground and surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 430 - Irrigation Pipeline, 436 - Irrigation Reservoir, 533-Pumping Plant, 620-Underground Outlet

Before Situation:

An existing inefficient microirrigation or sprinkler irrigation system in a greenhouse. The existing irrigation system experiences poor, non-uniform irrigation applications and significant water losses affecting both water quantity and water quality.

After Situation:

This highly efficient subsurface irrigation system provides irrigation water directly to the plant root zone by capillary action and recirculates excess water for reuse, eliminating application losses resulting from water leaching through the pot during irrigation or being applied to areas without pots.

Feature Measure: Square Feet

Scenario Unit: Square Foot

Scenario Typical Size: 1,200.0

Scenario Total Cost: $24,376.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 443 - Irrigation System, Surface and Subsurface

Scenario: #66 - Nutrient Film Technique (NFT)

Scenario Description:

A nutrient film technique (NFT) system where a very shallow stream (film) of water containing nutrients required for plant growth circulates between gently sloped growing channels (troughs) and a nutrient reservoir housed within a greenhouse. Plant roots are contained in watertight growing channels and are in contact with the nutrient solution. Typical system has an overall footprint of 3,000 sq. ft. and consists of nutrient reservoir tank, submersible pump for nutrient solution recirculation, growing channels, metal table framing, and all the necessary plumbing. The scenario includes all material and labor to install the NFT system. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation Excessive leaching of nutrients into ground and surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 430 - Irrigation Pipeline and 620-Underground Outlet

Before Situation:

An existing inefficient microirrigation or sprinkler irrigation system in a greenhouse. The existing irrigation system experiences poor, non-uniform irrigation applications and significant water losses affecting both water quantity and water quality.

After Situation:

This highly efficient subsurface irrigation system provides irrigation water directly to the plant root zone by capillary action and recirculates excess water for reuse, eliminating application losses resulting from water leaching through the pot during irrigation or being applied to areas without pots.

Feature Measure: Square Feet

Scenario Unit: Square Foot

Scenario Typical Size: 3,000.0

Scenario Total Cost: $32,743.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 447 - Irrigation and Drainage Tailwater Recovery

Scenario: #7 - Delta Tail Water Pit

Scenario Description:

A recovery pit is constructed to temporality store the excess irrigation water and create a pumping pool so that the excess water can be recovered and reused. Typical pit size is trapezoidal ditch with 14ft bottom x 10ft depth x 1750 ft length with 2:1 side slopes. The total yardage of earthwork is 22,037 cy. Construction is typically done with either tractors and pans or with dozer and excavator.

Before Situation:

Excess irrigation water collects at lower ends of field and backs up into crops and causes plant stress or causes erosion and travels off farm in a drainage ditch causing water quality issues in lower watersheds. Excess irrigation water and runoff during

After Situation:

Excess irrigation water is collected and directed into a recovery system where the water can be recycled and reused for irrigation. Sedimentation has a chance to settle out of the water allowing for less sediment to travel down stream. All runoff has an opportunity to be collected.

Feature Measure: Excavated Material

Scenario Unit: Cubic Yard

Scenario Typical Size: 22,307.0

Scenario Total Cost: $46,210.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 447 - Irrigation and Drainage Tailwater Recovery

Scenario: #8 - Tailwater Collection Structure

Scenario Description:

A collection structure designed and constructed to efficiently direct excess tailwater from a field and deliver into a tailwater recovery ditch or tailwater recovery pit. Typical installation will be a flashboard riser or drop inlet structure placed at edge of field through an earthen berm to direct tailwater into tailwater recovery system. Resource concern(s): Water quality, inefficient use of water. Cost estimate based on 18' weir and 55' long, 15" diameter barrel.

Before Situation:

During irrigation, tailwater exits the field in an uncontrolled manner and is being lost downstream and cannot be recovered for future use.

After Situation:

Tailwater is collected through structure at a prescribed location and directed into tailwater recovery system for re-use. Other associated practices may include Irrigation reservoir (436), Irrigation and Drainage Tailwater Recovery Pit (447), Surface Drain, Main or Lateral (608), Surface Drain, Field Ditch (607)

Feature Measure: weir dia (in) x barrel length (

Scenario Unit: Inch-Foot

Scenario Typical Size: 990.0

Scenario Total Cost: $4,836.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #1 - Basic IWM <= 30 acres

Scenario Description:

A low Intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). For a typical scenario, soil moisture is determined by the feel method, volumes of irrigation water are based on energy or water district bills, records are kept on paper copies, and calculations are made by hand. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, 443-Irrigation System Surface and Subsurface.

Before Situation:

The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 30 acre corn field with a surface irrigation system.

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Irrigated Area Managed

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $1,147.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #2 - Basic IWM > 30 acres

Scenario Description:

A low Intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). For a typical scenario, soil moisture is determined by the feel method, volumes of irrigation water are based on energy or water district bills, records are kept on paper copies, and calculations are made by hand. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface.

Before Situation:

The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 125 acre corn field with a sprinkler irrigation syst

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Irrigated Area Managed

Scenario Unit: Acre

Scenario Typical Size: 125.0

Scenario Total Cost: $1,783.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #3 - Intermediate IWM <= 30 acres

Scenario Description:

A medium intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). For a typical scenario, soil moisture is determined by in-field moisture sensors with manual downloads. Irrigation amounts are recorded from a flow meter near the pump. Records are input manually into an irrigation scheduling computer program. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface.

Before Situation:

The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 30 acre corn field with a surface irrigation system.

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Irrigated Area Managed

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $1,530.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $51.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #4 - Intermediate IWM > 30 acres

Scenario Description:

A medium intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). For a typical scenario, soil moisture is determined by in field moisture sensors with manual downloads. Irrigation amounts are recorded from a flow meter near the pump. Records are input manually into an irrigation scheduling computer program. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface.

Before Situation:

The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 125 acre corn field with a sprinkler irrigation system.

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Irrigated Area Managed

Scenario Unit: Acre

Scenario Typical Size: 125.0

Scenario Total Cost: $2,291.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $18.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #5 - Advanced IWM <= 30 acres

Scenario Description:

A high intensity irrigation water management system for producers using a checkbook method with advanced methods of determining irrigation water applied, and estimating crop evapotranspiration, monitoring field soil moisture, or monitoring crop temperature stress. Typical methods include flow measurement, daily record keeping, and use of real-time evapotranspiration estimates (such as those provided dedicated weather stations) and/or soil moisture sensors with automated data logging to monitor field soil moisture content and/or crop temperature. For this scenario, soil moisture is determined by automated soil moisture monitoring stations equipped with telemetry data. Irrigation amounts are recorded from a flow meter near the pump. Telemetry data is automatically sent to a computer with irrigation software. Irrigator also receives real time data via mobile phone applications. Some data such as total water applied may be entered into computer software manually. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface.

Before Situation:

The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 30 acre corn field with a surface irrigation system.

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Irrigated Area Managed

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $1,913.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $63.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #6 - Advanced IWM > 30 acres

Scenario Description:

A high intensity irrigation water management system for producers using a checkbook method with advanced methods of determining irrigation water applied, and estimating crop evapotranspiration, monitoring field soil moisture, or monitoring crop temperature stress. Typical methods include flow measurement, daily record keeping, and use of real-time evapotranspiration estimates (such as those provided dedicated weather stations) and/or soil moisture sensors with automated data logging to monitor field soil moisture content and/or crop temperature. For this scenario, soil moisture is determined by automated soil moisture monitoring stations equipped with telemetry data. Irrigation amounts are recorded from a flow meter near the pump. Telemetry data is automatically sent to a computer with irrigation software. Irrigator also receives real time data via mobile phone applications. Some data such as total water applied may be entered into computer software manually. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface.

Before Situation:

The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 125 acre corn field with sprinkler irrigation.

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Irrigated Area Managed

Scenario Unit: Acre

Scenario Typical Size: 125.0

Scenario Total Cost: $2,800.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #7 - Soil Moisture Sensors_1st Year

Scenario Description:

This practice includes the installation of soil moisture sensors such as tensiometers, gyp blocks, capacitance sensors etc., that are installed and read to determine point in time soil moisture by depth; and the labor of using the equipment for the first year. The installation includes the purchase of soil moisture meters and sensors, installation equipment, and labor to install and utilize sensors and readings in making IWM decisions during first year. Typical Scenario involves installation of resistance sensor blocks in a 80 acre field of irrigated cropland. Producer periodically monitors soil moisture sensors during the growing season. Meters used to read sensors may be portable. This scenario only applies to year one IWM. The appropriate labor only IWM scenario applies in subsequent contract years. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface, 587-Structure for water Control, 328-Conservation Crop Rotation, and 590-Nutrient Management.

Before Situation:

Producer uses feel method to estimate soil moisture for scheduling irrigation.

After Situation:

Producer has installed four sensors at each monitoring site to a depth of four feet with one sensor representing each foot of depth. Producer uses periodic soil moisture measurements to schedule irrigation resulting in improved irrigation water management and reduced energy use.

Feature Measure: Number of Measuring Sites

Scenario Unit: Each

Scenario Typical Size: 2.0

Scenario Total Cost: $3,611.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,805.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #8 - Soil Moisture Sensors with Data Recorder_1stYear

Scenario Description:

This practice includes the installation of electrical soil moisture sensors such as capacitance or resistance sensors that are monitored to determine soil moisture. The installation includes the purchase of soil moisture sensors, installation equipment (probe or auger), and a data logger to log continuous soil moisture data that can be downloaded to a personal computer and associated graphing software. The scenario also includes the labor associated with using the equipment for the first year. Typical Scenario involves installation of resistance sensor blocks in a 120 acre field of sprinkler irrigated cropland. Producer periodically monitors soil moisture sensors during the growing season. This scenario only applies to year one of the IWM. The appropriate labor only IWM scenario applies in subsequent contract years. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface, 587-Structure for water Control, 328-Conservation Crop Rotation, and 590-Nutrient Management.

Before Situation:

Producer uses feel method to estimate soil moisture for scheduling irrigation in the field.

After Situation:

Producer has installed four sensors at each monitoring site to a depth of four feet with one sensor representing each foot of depth. Producer periodically downloads continuously recorded soil moisture measurements that are used to schedule irrigation more effectively resulting in improved irrigation water management and reduced energy use.

Feature Measure: Number of Measuring Sites

Scenario Unit: Each

Scenario Typical Size: 2.0

Scenario Total Cost: $4,833.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,416.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #9 - Irrigation Auto Start

Scenario Description:

An irrigation auto start system designed to remotely monitor and control irrigation, frost protection, and crop cooling through user-defined start and stop settings for temperature and soil moisture. This is the installation of a self-contained control unit, custom harness, one pump-house master radio, two field radios with up to 1 mile line of sight in protective enclosure each with wireless temperature and soil moisture sensors, heavy-duty discharge pressure sensor, and cellular communications kit. An internet connection is required. One auto-start system is required for each irrigation pump. Typical scenario is a 15 acre irrigated field. Resource concerns: Insufficient water - Inefficient use of irrigation water; Inefficient energy use - Equipment and facilities and Farming/ranching practices and field operations. Associated Practices: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, and 443-Irrigation System Surface and Subsurface.

Before Situation:

Irrigation Setting: Producer uses "feel" method to estimate soil moisture for scheduling irrigation in the fields, traveling to and from multiple pumps to manually start and stop them. Result is over/under water application, runoff, water loss and energy

After Situation:

An irrigation auto start system is installed on an existing pumping plant meeting Nebraska performance criteria. The pump is remotely controlled allowing user-defined start and stop settings based on real-time data collected by soil moisture sensors and wireless temperature sensors in the fields, reducing water, energy usage, and runoff.

Feature Measure: Number of pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $8,004.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,004.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #14 - IWM w weather station

Scenario Description:

This practice includes the installation of a weather station that is monitored to determine crop water use, status of heat and/or frost conditions to permit the producer to make informed irrigation decisions. The installation includes the purchase and installation of equipment, and a data logger to log continuous weather data including rainfall, temp, solar radiation, humidity, wind speed and soil moisture sensors that can be downloaded to a personal computer and associated graphing software. Typical Scenario involves installation on a 120 acre field of irrigated cropland. Producer periodically monitors the station during the growing season to determine timing and amounts of water to apply based on soil moisture sensors, field checks and weather station data. Producer keeps records of collected data and resulting irrigation decisions. This scenario only applies to year one of IWM. The appropriate labor-only IWM scenario applies in subsequent contract years. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Water Quality; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, 443-Irrigation System Surface and Subsurface

Before Situation:

To meet crop water requirements, the producer schedules irrigations based on the calendar and what has apparently worked in the past. For cooling/frost protection, irrigation start and run times are based on broad regional weather forecasts.

After Situation:

Producer has installed a weather station and periodically downloads continuously recorded data that is used to schedule irrigation more effectively resulting in improved irrigation water management and reduced energy use. Field checks are made by irrigator to ground truth station data with crop.

Feature Measure: Number of weather stations

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,321.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,321.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #124 - Basic IWM < 1 acre

Scenario Description:

A low Intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). The irrigation water management system is typically located on a small-scale agricultural operation cultivated by an individual or a group of people (e.g., repurposed land, private or community-gardens). Multiple crops are grown in the same space or within the growing season on less than 1 acre. For a typical scenario, soil moisture is determined by the feel method, volumes of irrigation water are based on energy or water district bills, records are kept on paper copies, and calculations are made by hand. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 442-Irrigation System Sprinkler, 443-Irrigation System Surface and Subsurface.

Before Situation:

A sub-acre mixed or intercropped area is irrigated with a sprinkler or microirrigation system. The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,147.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,147.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #128 - Intermediate IWM < 1 acre

Scenario Description:

A medium intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). The irrigation water management system is typically located on a small-scale agricultural operation cultivated by an individual or a group of people (e.g., repurposed land, private or community-gardens). Multiple crops are grown in the same space or within the growing season on less than 1 acre. For a typical scenario, soil moisture is determined by in-field moisture sensors with manual downloads. Irrigation amounts are recorded from a flow meter near the pump. Records are input manually into an irrigation scheduling computer program. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System, Microirrigation; 442-Irrigation System, Sprinkler; 443-Irrigation System, Surface and Subsurface.

Before Situation:

A sub-acre mixed or intercropped area is irrigated with a sprinkler or microirrigation system. The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,530.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,530.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 449 - Irrigation Water Management

Scenario: #129 - Advanced IWM < 1 acre

Scenario Description:

A high intensity irrigation water management system for producers using a checkbook method with advanced methods of determining irrigation water applied, and estimating crop evapotranspiration, monitoring field soil moisture, or monitoring crop temperature stress. The irrigation water management system is typically located on a small-scale agricultural operation cultivated by an individual or a group of people (e.g., repurposed land, private or community-gardens). Multiple crops are grown in the same space or within the growing season on less than 1 acre. Typical methods include flow measurement, daily record keeping, and use of real-time evapotranspiration estimates (such as those provided dedicated weather stations) and/or soil moisture sensors with automated data logging to monitor field soil moisture content and/or crop temperature. For this scenario, soil moisture is determined by automated soil moisture monitoring stations equipped with telemetry data. Irrigation amounts are recorded from a flow meter near the pump. Telemetry data is automatically sent to a computer with irrigation software. Irrigator also receives real time data via mobile phone applications. Some data such as total water applied may be entered into computer software manually. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use- Equipment and facilities. Associated Practices: 441-Irrigation System, Microirrigation; 442-Irrigation System, Sprinkler; 443-Irrigation System, Surface and Subsurface.

Before Situation:

A sub-acre mixed or intercropped area is irrigated with a sprinkler or microirrigation system. The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent

After Situation:

Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,913.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,913.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 450 - Anionic Polyacrylamide (PAM) Application

Scenario: #5 - PAM Application

Scenario Description:

Control of irrigation induced erosion (typically in furrow irrigated fields) through the direct application of water-soluble Polyacrylamide (PAM) into the irrigation water supply (1 to 3 ounce sprinkled at 3-5 ft furrow inlet or metered at 10 ppm directly into the head ditch). PAM comes in granular, liquid oil emulsion, tablet, and block forms. This typical application is for an 80-acre furrow irrigated row crop field, with one PAM application (1-1.5 lb./ac, creating a 10 ppm concentration of the granular PAM in the head ditch metered via large fish feeder) at first irrigation followed by two additional applications (reduced rates of 0.5-1 lb./ac, or about 1-5 ppm in the inflow water) after cultivations. Resource Concern: Soil erosion. Associated Practices: 443-Irrigation System, Surface and Subsurface, 449-Irrigation Water Management.

Before Situation:

Irrigated lands susceptible to irrigation-induced erosion, excluding peat soils, and where the sodium adsorption ratio (SAR) of irrigation water is less than 15.

After Situation:

Erosion is minimized in furrow irrigated field.

Feature Measure: Weight of PAM Applied

Scenario Unit: Pound

Scenario Typical Size: 240.0

Scenario Total Cost: $1,164.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 460 - Land Clearing

Scenario: #1 - Non-Heavy Equipment

Scenario Description:
Site preparation of a field with a labor crew, chainsaws, chippers or similar equipment removing trees and shrubs to achieve a conservation objective. Typical scenario is approximately 1 acre of trees and shrubs to be cleared. The resource concern is determined by the conservation objective met with the final practice applied to the field.

Before Situation:
Forested field of approximately 1 acre, with moderate density evenly spaced tree canopy.

After Situation:
Labor crew uses chainsaws, chippers, or similar equipment to clear trees and prepare the field for a conservation objective, includes on-site disposal as necessary. Associated practices, like plantings, other structures, or irrigation/drainage water management practices, would be contracted separately as needed.

Feature Measure: Area Cleared

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,229.82

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,229.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 460 - Land Clearing

Scenario: #2 - Heavy Equipment

Scenario Description:
Site preparation of a field with dozer or equivalent heavy equipment to achieve a conservation objective. Typical scenario is approximately 10 acres of trees and shrubs to be cleared. The resource concern is determined by the conservation objective met with the final practice applied to the field.

Before Situation:
Forested field of approximately 10 acres, with moderate density evenly spaced tree canopy.

After Situation:
Crew uses 200 HP dozer to clear trees and prepare field for conservation objective, includes on-site debris disposal as necessary. Associated practices, like plantings, other structures, or irrigation/drainage water management practices, would be contracted separately as needed.

Feature Measure: Area Cleared

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $12,107.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,210.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 462 - Precision Land Forming and Smoothing

Scenario: #16 - Minor Shaping

Scenario Description:
The land surface is shaped or leveled to a specific elevation and grade for various land uses. Cuts and fills are small. The resource concerns are EXCESS / INSUFFICIENT WATER -(Ponding, Flooding) and SOIL EROSION -(Sheet, Rill)

Before Situation:
The field has minor topographic issues or problems with surface drainage or erosion which can be corrected without land leveling or land smoothing. Site conditions require attention to elevation and grade. Typical situation is a 5 acre field. Material to

After Situation:
Land has been shaped to the required elevations and grades. Resource concerns have been treated. Associated practices, like plantings or drainage water management practices, would be contracted separately as needed.

Feature Measure: Acres of land treated

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $4,090.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $818.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 462 - Precision Land Forming and Smoothing

Scenario: #17 - Site Stabilization

Scenario Description:
The site contains a gully or other site specific topographic problem. Site conditions require attention to elevation and grade. Resource concerns are EXCESS / INSUFFICIENT WATER -(Ponding, Flooding) and SOIL EROSION -(Sheet, Rill)

Before Situation:
The site, commonly a crop field or CAFO, has localized gully or topographic issues causing drainage or erosion problems. Typical situation is a gully 10 feet wide and 5 feet deep.

After Situation:
Land has been shaped to the required elevations and grades. Resource concerns have been treated. Associated practices, like plantings or drainage water management practices, would be contracted separately as needed.

Feature Measure: Cubic yards of material plac

Scenario Unit: Cubic Yard

Scenario Typical Size: 6,000.0

Scenario Total Cost: $16,627.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 462 - Precision Land Forming and Smoothing

Scenario: #37 - Minor Shaping - Field Scale

Scenario Description:
Removing irregularities on the land surface of cropland by use of heavy equipment.

Before Situation:
Field damaged by flooding, past agricultural practices, or other topographic issues causing drainage or field workability issues. Typically less than 100 cy/acre material moved.

After Situation:
Land level, backhoe, bulldozer or other heavy equipment used to correct irregularities and address drainage or workability issues.

Feature Measure: Acres of land treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $4,311.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $107.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 462 - Precision Land Forming and Smoothing

Scenario: #65 - Cranberry Bog Leveling

Scenario Description:
Leveling of the base of cranberry bogs during bog renovation to reduce water needs during flooding and improve equipment operation and efficiency.

Before Situation:
Uneven old bogs require excessive water for flooding.

After Situation:
Irregularities in the land surface are removed using a laser level and dozer. Multiple small bog cells are accessed for treatment.

Feature Measure: Acres of land treated

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $3,618.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $723.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 464 - Irrigation Land Leveling

Scenario: #23 - Irrigation Land Leveling

Scenario Description:

This is scenario will level a typical 80 acres of irrigated crop land surface to enhance uniform flow of surface water to improve irrigation efficiency using dirtpans/carry-all/pan-scraper equipment. The typical volume of earth moved is 100 to 500 cubic yards per acre. Resource Concern: Excess/Insufficient - Inefficient Use of Irrigation Water Associated Conservation Practices: 433 - Irrigation System, Surface and Subsurface; 607 - Surface Drain, Field Ditch; 388 - Irrigation Field Ditch; 449 - Irrigation Water Management; or 587 - Structure for Water Control.

Before Situation:

Irregular field surface reduces uniformity of surface application and thus irrigation efficiency by localized ponding and/or excess runoff/runon.

After Situation:

Cropland will be reshaped to provide uniform distribution of irrigation water in order to promote irrigation efficiencies.

Feature Measure: Volume of Earth Moved

Scenario Unit: Cubic Yard

Scenario Typical Size: 28,000.0

Scenario Total Cost: $74,377.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 464 - Irrigation Land Leveling

Scenario: #24 - Small Scale Irrigation Land Leveling

Scenario Description:

This is scenario will level a typical 10 acres of irrigated crop land surface to enhance uniform flow of surface water to improve irrigation efficiency using dirtpans/carry-all/pan-scraper equipment. The typical volume of earth moved is 100 to 500 cubic yards per acre. Resource Concern: Excess/Insufficient - Inefficient Use of Irrigation Water Associated Conservation Practices: 433 - Irrigation System, Surface and Subsurface; 607 - Surface Drain, Field Ditch; 388 - Irrigation Field Ditch; 449 - Irrigation Water Management; or 587 - Structure for Water Control.

Before Situation:

Irregular field surface reduces uniformity of surface application and thus irrigation efficiency by localized ponding and/or excess runoff/run-on.

After Situation:

Cropland will be reshaped to provide uniform distribution of irrigation water in order to promote irrigation efficiencies.

Feature Measure: Acres of Area

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $12,533.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,253.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 468 - Lined Waterway or Outlet

Scenario: #1 - Turf Reinforced Matting

Scenario Description:

Install 300 ' long by 15' wide by 1.5' deep trapezoidal or parabolic shaped waterway lined with Turf Reinforced Matting (TRM). 1/2 the channel is excavated. Excess excavation is spoiled in the immediate area. TRM is installed over 100% of the width of the waterway to prevent scour and aid in waterway establishment. Cost include excavation, spoiling of excess material, and furnishing and installing TRM. Lined waterway width is measured from top of bank to top of bank. Scenario includes seeding and mulching disturbed areas on both sides of waterway (~20'). 300' x 40' / 43,560 ~ 0.25 Acre.

Before Situation:

Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.

After Situation:

TRM lined waterway is 300 ' long by 15' wide by 1.5' deep. The practice is installed using a hydraulic excavator. TRM is installed by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).

Feature Measure: Square Foot of Waterway

Scenario Unit: Square Foot

Scenario Typical Size: 4,500.0

Scenario Total Cost: $6,497.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 468 - Lined Waterway or Outlet

Scenario: #2 - Riprap

Scenario Description:

Install 300 ' long by 15' wide by 1.5' deep trapezoidal or parabolic shaped waterway lined with riprap (D100 = 9", Velocity ~ 8 ft/sec). Volume of riprap placed = 205 CY. 1/2 the channel depth is excavated, before excavation for riprap. Excess excavation is spoiled in the immediate area. Riprap is installed over 100% of the width of the waterway to prevent scour. Cost include excavation, spoiling of excess material, geotextile underlayment and installing 9" Rock Riprap. Lined waterway width is measured from top of bank to top of bank. Scenario also includes seeding and mulching disturbed areas on both sides of waterway (~20 feet). 300' x 40' / 43560 ~ 0.25 Acre.

Before Situation:

Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.

After Situation:

Rock lined waterway is 300 ' long by 15' wide by 1.5' deep (Riprap = 205 CY). Waterway is excavated and rock is placed using a hydraulic excavator. Geotextile underlayment is installed by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).

Feature Measure: Cubic Yards of Riprap Placed

Scenario Unit: Cubic Yard

Scenario Typical Size: 205.0

Scenario Total Cost: $35,329.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $172.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 468 - Lined Waterway or Outlet

Scenario: #3 - Concrete

Scenario Description:

Install 300 ' long by 15' wide by 1.5' deep trapezoidal or parabolic shaped waterway lined with concrete. 1/2 the channel is excavated, before excavation for concrete and subgrade material. Excess excavation is spoiled in the immediate area. Concrete is installed over 100% of the width of the waterway to prevent scour. Cost include excavation, spoiling of excess material, 6" of clean sand or gravel subgrade, and 5" reinforced concrete slab. Lined waterway width is measured from top of bank to top of bank.

Before Situation:

Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway. Usually installed in locations where rock or othe

After Situation:

Concrete lined waterway is 300 ' long by 15' wide by 1.5' deep. Waterway is excavated using a hydraulic excavator. Concrete slab is placed on 6" of clean sand or #57 stone. Concrete is placed, graded and screeded by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).

Feature Measure: Square Foot of Waterway

Scenario Unit: Square Foot

Scenario Typical Size: 4,500.0

Scenario Total Cost: $39,284.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 468 - Lined Waterway or Outlet

Scenario: #9 - Stone Centered Grassed Waterway

Scenario Description:

Typical stone centered grassed waterway is 500 ' long, 8' bottom, 8:1 side slopes, 1.0' depth, half excavation. A stone centered grassed waterway is a shaped or graded channel with the middle one third of the channel lined with rock or stone. Waterway is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. This practice addresses Concentrated Flow Erosion (Classic Gully & Ephemeral Erosion) and Excessive Sediment in surface waters. Stone Centered Grassed Waterway area is measured from top of bank to top of bank. Seeding area is 20% greater than foot print of the waterway area to account for disturbed areas. Costs include excavation, rock center with geotextile and associated work to construct the overall shape and grade of the waterway.

Before Situation:

The field has a small gulley which is cutting deeper into the field as time goes on, so it needs to be stopped or controlled. Excessive sedimentation and soil erosion as a result from ephemeral or classic gully erosion. Gully has formed in field as a resu

After Situation:

Installed stone centered grassed waterway is 500 ' long, 8' bottom, 8:1 side slopes, 1.0' depth. The practice is installed using a dozer. Use Critical Area Planting (342) for establishment of waterway vegetation. If erosion control blankets or mulching for seedbed establishment/protection are needed, use conservation practice Mulching (484). Drainage tile, if needed, will be installed according to Subsurface Drain (606). Outlets, if needed will be installed using Structure for Water Control (587). If inlet Structures are needed with the drainage tile, then those will be installed using Underground Outlet (620).

Feature Measure: Total Area of Waterway in S

Scenario Unit: Square Foot

Scenario Typical Size: 12,000.0

Scenario Total Cost: $25,253.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 468 - Lined Waterway or Outlet

Scenario: #12 - Concrete Block

Scenario Description:

Install 36' long (including inlet and outlet aprons) by 15' wide by 1.5' deep trapezoidal shaped waterway or chute lined with concrete blocks. 1/2 the channel is excavated. Excess excavation is spoiled in the immediate area. 8"x8"x16" standard concrete blocks are installed over 100% of the width of the waterway/chute to prevent scour. Cost include excavation, spoiling of excess material, 3" stone subgrade, geotextile and furnishing and installing standard concrete blocks. Lined waterway width is measured from top of bank to top of bank.

Before Situation:

Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway. Usually installed in locations where rock or othe

After Situation:

Concrete block lined waterway or chute is 36 ' long by 15' wide by 1.5' deep. Chute is installed on a 3 to 1 slope. The practice is installed using a hydraulic excavator. Geotextile and concrete blocks are installed by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).

Feature Measure: Square Foot of Waterway

Scenario Unit: Square Foot

Scenario Typical Size: 540.0

Scenario Total Cost: $4,554.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 468 - Lined Waterway or Outlet

Scenario: #22 - Rock Lined, 12 inch

Scenario Description:

Install 300 ' long by 15' wide by 1.5' deep trapezoidal or parabolic shaped waterway lined with riprap (D100 = 9", Velocity ~ 8 ft/sec). 1/2 the channel is excavated, before excavation for riprap. Excess excavation is spoiled in the immediate area. Riprap is installed over 100% of the width of the waterway to prevent scour. Cost include excavation, spoiling of excess material, geotextile underlayment and installing 9" Rock Riprap. Lined waterway width is measured from top of bank to top of bank.

Before Situation:

Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.

After Situation:

Rock lined waterway is 300 ' long by 15' wide by 1.5' deep. Waterway is excavated and rock is placed using a hydraulic excavator. Geotextile underlayment is installed by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).

Feature Measure: Square Foot of Waterway

Scenario Unit: Square Foot

Scenario Typical Size: 4,500.0

Scenario Total Cost: $34,283.91

Total Cost per Unit: $7.62

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 472 - Access Control

Scenario: #1 - Trails/Roads Access Control

Scenario Description:

Restricting access to the use of forest/farm roads and trails by the use of a gate and limited fencing. Resource concerns include Undesirable plant productivity and health, Concentrated flow erosion, Soil compaction, Excessive sediment in surface waters, and Wildlife habitat degradation.

Before Situation:

Roads are damaged or misused, illegal activities occur and/or forest resources are at risk. Extensive amount of fencing (other than that needed to restrict access at the site of ingress) is not included in this scenario, but instead will be planned and in

After Situation:

Roads are protected, illegal activities are stopped and/or forest resources are secure.

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $916.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $916.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 472 - Access Control

Scenario: #2 - Animal exclusion from sensitive areas

Scenario Description:

Excluding animals from an area in order to address identified resource concerns. This is for facilitating exclusion of animals to protect or enhance natural resource values. Control will be by temporary electric fencing. Any need for permanent fencing will be planned and installed using the Fence practice (382). Clearing of brush and trees is not necessary. Resource concerns include Wildlife Habitat degradation, Undesirable plant productivity and health, and/or Excessive sediment in surface waters.

Before Situation:

Sensitive areas are threatened by the adverse actions of domestic and/or wild animals. The importance of the sensitive areas can include (but are not limited to): wildlife habitat, plant species composition, newly established trees and/or plants, stream b

After Situation:

Sensitive areas are protected from the adverse actions of domestic and/or wild animals by excluding them from the area.

Feature Measure: Length of fence

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $1,462.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 472 - Access Control

Scenario: #3 - Forest/Farm Access Control

Scenario Description:
Restricting human access to a field/farm/property through use of signage and other markings. Resource concerns include Undesirable plant productivity and health, Excessive sediment in surface waters, Concentrated flow erosion, and Wildlife habitat degradation.

Before Situation:
A 20 acre tract (field, farm. forests, etc.) is being damaged or misused by illegal activities that put the resources/property at risk or needs controlled access due to an active management operation such as pest management or timber harvesting. The perim

After Situation:
The property is adequately marked and protected, illegal activities are stopped and/or forest resources are secure.

Feature Measure: <Unknown>

Scenario Unit: Foot

Scenario Typical Size: 1,500.0

Scenario Total Cost: $396.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 472 - Access Control

Scenario: #4 - Navigational Delineation

Scenario Description:

Marine bivalve aquaculture operations or restored native oyster reefs located in tidal and subtidal working waters that are controlled by the operator and leased from state local authorities. Growing areas average 2 acres in size and are typically sited in close proximity to other aquaculture operations/facilities, and interface with other resource uses including public boating and swimming. Restored reef areas range in size from 1/4 acres to 1 acre . Reef are being delineated to prevent harvesting since they are located in established sanctuaries. Natural resource concerns addressed by this option include water quality degradation - Excessive Sediment in Surface Waters and Petroleum, Heavy Metals and Other Pollutants Transported to Surface Water , and resulting from uncontrolled access by boats and other human activities. Resource concerns addressed by delineating restored reefs include: Water Quality Degradation, Excessive Nutrient in Surface Water and Fish and Wildlife – Inadequate Habitat – Inadequate Habitat Cover/Shelter.

Before Situation:

Shellfish aquaculture operations and restored oyster reefs that are located in tidal and subtidal working waters that are controlled by the participant and leased from local authorities are not delineated . The shellfish beds average 2 acres in size and a

After Situation:

Shellfish producer shall install standard navigational delineation devices to mark the boundaries of shellfish growing areas to avoid boat strikes, petrochemical spills, and accidental intrusions by small craft (kayaks) or swimmers. Restored reefs are protected from harvesting since both recreational and commercial harvesters know these areas are protected.

Feature Measure: Buoy/rope system for delin

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $994.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $994.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 472 - Access Control

Scenario: #5 - Hibernaculum Bat Gate

Scenario Description:

Installation of a gate to control access to caves and other natural formation that provide bat roosting and hibernation sites. Bats are most vulnerable when they are hibernating. Human intrusion stirs and wakes up the bats, causing them to deplete their fat supplies at an accelerated rate and reducing their chances of surviving the winter. Gating hibernacula entrances to prevent trespass is one of the chief measures of protecting bat species. Additionally, gates prevent human access to dangerous and unstable mines, reducing chances of serious accidents. Gates allow bats to pass through, don't interfere with air circulation, and prevent unauthorized access.

Before Situation:

Caves and other natural formations that provide roosting and hibernating habitat have can be accessed during all times of the years. Access by humans for recreation disturbs the bats during critical life cycles. This can cause a decrease in population of

After Situation:

Hibernaculum gates are installed to control access to important bat roosting and hibernating sites. The controlled access will help protect the colonies of bats

Feature Measure: <Unknown>

Scenario Unit: Square Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $8,333.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $83.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 472 - Access Control

Scenario: #31 - Trail/Road Access Control with hand tools

Scenario Description:
Restricting access to the use of forest/farm/garden roads and trails by the use of a gate and limited fencing. Resource concerns include undesirable plant productivity and health, concentrated flow erosion, soil compaction, and excessive sediment in surface waters.

Before Situation:
Roads or trails are damaged or misused, illegal activities occur, and/or forest/farm/garden resources are at risk. Extensive amount of fencing (other than that needed to restrict access at the site of ingress) is not included in this scenario, but instead

After Situation:
Road/trails are protected, illegal activities are stopped and/or forest/farm/garden resources are secure.

Feature Measure: Number

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $883.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $883.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #1 - Natural Material, Manual

Scenario Description:

Manual application of straw/hay mulch or other state approved natural material to reduce erosion, moderate soil temperature, conserve soil moisture and/or facilitate the establishment of vegetative cover.

Before Situation:

Typical scenario ranges from a 0.1 to 1.0 acre disturbed site around a newly constructed structural practice to a 5-10 acre irrigated orchard/vineyard. Water quantity and soil moisture is a concern. The potential for soil erosion is high and mulch is need

After Situation:

Straw mulch has been applied to areas needing mulch. Erosion and sedimentation is reduced, water and soil quality is protected, and vegetative cover is established. Soil moisture is conserved, energy use associated with irrigation is decreased.

Feature Measure: Area Covered by Mulch

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,581.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,581.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #2 - Natural Material, Mechanical

Scenario Description:
Mechanical application of straw/hay mulch using large round hay bales and a bale mulcher/processor. Practice will reduce erosion, moderate soil temperature, conserve soil moisture and/or facilitate the establishment of vegetative cover.

Before Situation:
Potatoes or other crops are harvested too late to establish winter cover in northern regions. Harvest churns up soil form digging/harvest and ground is left bare through winter. Fall and spring rains, along with snow melt, cause excessive soil loss.

After Situation:
Mulch is applied to fields using large round hay bales and a bale mulcher/processor. Erosion and sedimentation is reduced, water and soil quality is protected, and vegetative cover is established. Soil moisture is conserved, energy use associated with irrigation is decreased.

Feature Measure: Area Covered by Mulch

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $8,325.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $832.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #4 - Erosion Control Blanket

Scenario Description:
Installation of erosion control blanket on critical areas with steep slopes, grassed waterways or diversions. Blanket is typically made of coconut coir, wood fiber, or straw and is typically covered on both sides with polypropylene netting. Used to help control erosion and establish vegetative cover.

Before Situation:
There are areas of concentrated flow and a grassed waterway is being installed. Soil erosion is a concern and there is little to no vegetation.

After Situation:
The erosion control blanket is placed on concentrated flow areas and secured with ground staples. Soil erosion is minimized and vegetative cover is established.

Feature Measure: Area Covered by Mulch

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 10.0

Scenario Total Cost: $2,862.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $286.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #5 - Synthetic Material

Scenario Description:
Installation of geotextile, biodegradable plastic, polyethylene plastic, or other state approved synthetic mulch to conserve soil moisture, moderate soil temperature and provide erosion control. Payment based on total acres mulched (not the actual area of the rows that are mulched). Assumes 4 ft wide material with 6 feet between rows providing 7260 ft of material per acre.

Before Situation:
Site conditions very. Typically scenarios include new tree and shrub plantings, irrigated orchards or vineyards, or annual and perennial specialty crops. Water quantity and soil moisture is a concern.

After Situation:
Synthetic mulch is applied in rows with a mulch layer or by other mechanized means. Soil moisture is conserved, energy use associated with irrigation is decreased.

Feature Measure: Acres Mulched

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $478.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $478.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #6 - Tree and Shrub

Scenario Description:
Weed barrier fabric or other suitable natural or synthetic mulch is installed with a new tree and shrub planting. Typically used to prevent erosion and conserve soil moisture during the installation of conservation practices. Rate is per tree/shrub.

Before Situation:
Site conditions vary. Typical scenario is an installation of 100 native trees and shrubs to enhance wildlife habitat. Sites are often remote and trees may not be planted in rows, requiring each tree to be mulched individually

After Situation:
Weed barrier squares are installed around individual trees and shrubs. Soil moisture is conserved and establishment of trees/shrubs is improved. Erosion is minimized.

Feature Measure: Number of Trees Mulched

Scenario Unit: Each

Scenario Typical Size: 100.0

Scenario Total Cost: $74.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #69 - Natural Material, Partial Coverage

Scenario Description:

Application of straw mulch or other state approved natural material (such as wood chips, compost, or hay) to reduce erosion, moderate soil temperature and suppress weeds. Typically used to provide partial coverage (either in-row or between rows) to suppress weeds. Payment based on total acres mulched, assuming 3-5 ft. swatch and 10-12 ft. row spacing.

Before Situation:

Site conditions vary. Typically scenarios include new tree and shrub plantings, irrigated orchards or vineyards, or annual and perennial specialty crops. Water quantity and soil moisture is a concern.

After Situation:

Implementation Requirements are prepared according to the 484 Mulching Standard and implemented. Straw or other natural mulch is applied in rows by hand or by mechanized means. Soil moisture is conserved, energy use associated with irrigation is decreased, and weed growth is suppressed.

Feature Measure: Total Acres Mulched

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $2,853.33

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $285.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #91 - Wood Chips

Scenario Description:

Application of wood chips or other state approved material where mulch is needed. Wood chips are preferred due to durability and Extension research recommendations. Typically used to prevent erosion, improve vegetative cover, improve soil quality, or conserve soil moisture per Extension Service specifications. Mulch is applied at the recommended rate (volume over a given area) to treat the identified resource concerns. Planning by volume enables planning flexibility to best address resource concern(s).

Before Situation:

Vegetative cover is poor/declining/absent. Potential for soil erosion is high in exposed soil areas. Where cover is poor or declining, evaporative moisture losses are a contributing factor.

After Situation:

Exposed soil is mulched with appropriate materials according to state specifications. Erosion and sedimentation is reduced, water and soil quality is protected. Poor or declining vegetation is mulched with appropriate materials according to state specifications. Evaporative moisture losses are reduced.

Feature Measure: Cubic Yards of Mulch Placed

Scenario Unit: Cubic Yard

Scenario Typical Size: 270.0

Scenario Total Cost: $14,512.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $53.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #92 - Synthetic Material, Row

Scenario Description:

Synthetic rolled or biodegradable sheet mulch is applied as partial coverage (rows or beds) to reduce weed pressure, conserve soil moisture, and moderate soil temperatures. Facilitates micro irrigation and irrigation water management. Area with mulch cover is less than or equal to 1 acre or 7260 square feet. Typical row is 4 ft wide and 2000 ft long. Synthetic mulch rolls are 2000 ft length.

Before Situation:

Typical installation for small operations, market gardens, and community gardens where rows or bedded rows or raised beds are used for crop production. Soil erosion, plant productivity and health are resource concerns. Improper irrigation management, natu

After Situation:

Synthetic mulch applied to rows or beds to improve moisture management, natural precipitation use and as appropriate improve irrigation efficiency. Quantities of pesticides used are reduced as mulch prevents weed competition in the crop rows or beds. Synthetic mulch is applied at the beginning of growing season and removed at the end of the season. Synthetic mulch is disposed of properly and not incorporated into the soil.

Feature Measure: Area under synthetic mulch

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 8.0

Scenario Total Cost: $1,506.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $188.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 484 - Mulching

Scenario: #93 - Natural Material, Small Bale

Scenario Description:

Application of straw mulch or other state approved natural material to reduce erosion and facilitate the establishment of vegetative cover. Mulch provides full coverage over the row, shaped bed or raised bed. Typical row length is 2000 ft. Mulch is hand applied/spread minimum of 2 inches thick.

Before Situation:

Current crop production does not manage natural precipitation and soil moisture efficiently. Weed competition for soil moisture degrades plant productivity. Pesticides applied for full area coverage.

After Situation:

Implementation Requirements are prepared according to the 484 Mulching Standard. Straw mulch has been applied to areas needing mulch. Rows or beds received natural mulch to improve efficiency of naturally available water use. Pesticide use is reduced because the mulch prevents weeds in the crop rows.

Feature Measure: Area Covered by Mulch

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $809.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #1 - Mechanical - Heavy

Scenario Description:

This practice involves the use of heavy machinery to treat an area in order to improve site conditions for establishing trees and/or shrubs. Typical sites include trees and brush cover that is not appropriate to the site or providing the desired condition for the landowner. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition and soil quality degradation - soil erosion - sheet and rill.

Before Situation:

The site is dominated by undesirable vegetation including herbaceous plants and significant amounts of woody vegetation (trees and brush) occupying the site. There is also a significant component of woody debris onsite. Noxious and invasive species may al

After Situation:

Undesirable vegetation has been removed using mechanical methods reducing competition for target trees and/or shrubs. Woody debris has been removed to facilitate tree/shrub planting operations. Soil compaction has been alleviated, allowing penetration of moisture and allowing roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size is 40 acres.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $10,648.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $266.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #2 - Mechanical - Light

Scenario Description:

This practice involves the use of light/moderate machinery to clear above ground vegetation and to also rip/cut/lift underground root systems in order to improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, agricultural fields or forestlands that have been harvested. This following resource concerns: soil quality degradation - compaction, soil erosion - sheet and rill, and degraded plant condition - undesirable plant productivity and health and inadequate structure and composition.

Before Situation:

Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of tar

After Situation:

Undesirable vegetation has been removed using a bush hog to knock down stand vegetation and heavy tillage equipment is used to breakup and lift root systems, breakup plow pans (<18" deep), thus enhancing the conditions for planting and survival of trees and/or shrubs. Soil compaction has been alleviated, allowing penetration of moisture and allowing roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $4,317.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $107.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #3 - Chemical - Ground Application

Scenario Description:

This practice involves the use of various herbicides applied using ground-based machinery (and some hack-n-squirt treatment of select trees) in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, agricultural fields or forestland that was recently harvested. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition.

Before Situation:

Undesirable vegetation is present on the site including herbaceous plants and woody vegetation. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target spec

After Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $8,829.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $220.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #4 - Chemical - Aerial Application

Scenario Description:

This practice involves the use of herbicides applied by helicopter in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. This typical scenario includes open land such as abandoned fields, pastures or forestlands that were recently harvested. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition.

Before Situation:

Undesirable vegetation is present on the site including herbaceous plants and woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target spe

After Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,821.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $70.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #5 - Chemical - Hand Application

Scenario Description:

This practice involves the use of various herbicides applied using backpack sprayer or similar equipment, and hack-n-squirt for tree control, in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Typical sites include lands such as old fields, pastures, rangelands, agricultural fields, previous forestlands that have been abandoned and are now covered with a mixture of grasses, forbs, shrubs and some remnant trees. Resource concerns are: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition.

Before Situation:

Undesirable vegetation, including woody and herbaceous plants, occupy 100 % of the on the site. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target spec

After Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $4,806.36

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $120.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #6 - Hand site preparation

Scenario Description:

This practice typically involves grubbing all vegetation from the area of ground prior to the establishment of trees and/or shrubs. Typical sites include land such as old fields, pastures, rangelands, agricultural fields, or abandoned forests that are mostly grass or weed covered. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure.

Before Situation:

The site contains undesirable vegetation including herbaceous and woody plants. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and

After Situation:

All undesirable vegetation has been grubbed out of a 4 ft by 4 ft area, leaving bare soil, at each planting spot. Tree seedlings and/or shrubs are planted at each spot. Adequate moisture, space and light is available allowing plants to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size is 10 acres.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $2,883.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $288.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #7 - Windbreak - Site Preparation

Scenario Description:

This practice involves the use of various chemical/tillage methods to allow for the planting of a windbreak. Site preparation includes chemically killing vegetation prior to mechanical site preparation that includes appropriate methods to allow for planting of the site which may include one or all of the following, ripping, disking, and harrowing. This practice may be applied on all lands needing treatment to facilitate establishment of trees and/or shrubs to facilitate establishment of a windbreak. Typical sites include open land such as old fields, pastures, rangelands and agricultural fields. Resource concerns: Soil erosion--Wind erosion, .

Before Situation:

Undesirable vegetation, including woody and herbaceous plants, is present on the site. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of tr

After Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size is 1.5 acres.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 1.5

Scenario Total Cost: $965.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $643.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 490 - Tree/Shrub Site Preparation

Scenario: #63 - Tree-Shrub Site Prep - small acreage

Scenario Description:

This practice involves the use of various chemical and tillage methods to allow for the planting of agroforestry practices and hedgerows. Site preparation includes chemically killing vegetation prior to mechanical site preparation that includes appropriate methods to allow for planting of the site which may include one or all of the following: ripping, disking, and harrowing. This practice may be applied on all lands needing treatment to facilitate establishment of trees and shrubs to facilitate establishment of agroforestry practices (alley cropping, forest farming, riparian forest buffer, silvopasture, and windbreak) and hedgerows. Resource concern: Soil erosion - wind erosion.

Before Situation:

Undesirable vegetation, including woody and herbaceous plants, is present on the site. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of tr

After Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and shrubs. Site conditions are favorable for successful establishment of trees and shrubs. The typical size is 0.5 acre.

Feature Measure: Area of treatment

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 22.0

Scenario Total Cost: $449.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #3 - Removal and Disposal of Fence

Scenario Description:

Remove and disposal of all existing fences by demolition, excavation or other means required for removal. Dispose of all fence materials from the site so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all materials by removal to an approved landfill, wood chipping and land distribution, or recycling center, burial at an approved location or burning. If burning is used, implement appropriate smoke management to protect public health and safety. Remove and dispose of the unwanted fence obstruction in order to apply conservation practices such as Upland Wildlife Habitat Management (645) or facilitate the planned land use. Fence removal will address the resource concerns of the prevention or hindrance to the installation of conservation practices or present a hazard to their use and enjoyment and reduce hazards to wildlife.

Before Situation:

On any land where existing fence interferes with planned land use development, public safety, wildlife movement and habitat, or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected

After Situation:

The typical fence will be 2640 in linear feet. The removal of the fence will be performed with the use of equipment and hand labor. Dispose of all debris from the fence removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape such as Upland Wildlife Habitat Management (645).

Feature Measure: Length of Fence

Scenario Unit: Foot

Scenario Typical Size: 2,640.0

Scenario Total Cost: $3,950.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #4 - Removal and Disposal of Rock and or Boulders

Scenario Description:

Remove and disposal of rock and or boulders by drilling, blasting, demolition, excavation or other means required for removal. Dispose of all rocks and or boulders so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all rock and or boulders by removal to an approved location, or reuse location. Remove and dispose all rock and or boulders in order to apply conservation practices or facilitate the planned land use. Rocks and or boulders will address the resource concerns of the prevention or hindrance to the installation of conservation practices or present a hazard to their use and enjoyment.

Before Situation:

On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This

After Situation:

The typical area will be a 20 acre impaired area. The removal of rock and or boulders will be performed by drilling, blasting, demolition, excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all rocks and boulders from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape. For blueberry fields, rock removal allows pruning by mowing reducing air pollution.

Feature Measure: Area

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $197,215.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,860.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #5 - Removal and Disposal of Steel and or Concrete Structures

Scenario Description:

Remove and disposal of steel and or concrete structures by demolition, excavation or other means required for removal. Dispose of all steel and or concrete structures so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all steel and or concrete structures by removal to an approved location, or reuse location. Remove and dispose all steel and or concrete structures in order to apply conservation practices or facilitate the planned land use. Steel and or concrete structure removal will address the resource concerns of the prevention or hindrance to the installation of conservation practices or present a hazard to their use and enjoyment.

Before Situation:

On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This

After Situation:

The typical area will be a 2000 square feet of impaired land. The removal of steel and or concrete structures will be performed by demolition, excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all steel and or concrete structures from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

Feature Measure: Land Area

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $34,544.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #6 - Removal and Disposal of Wood Structures

Scenario Description:

Remove and disposal of wood structures by demolition, excavation or other means required for removal. Dispose of all wood structures so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all wood structures by removal to an approved location, landfill, or reuse location. Remove and dispose all wood structures in order to apply conservation practices or facilitate the planned land use. Wood structure removal will address the resource concerns of the prevention or hindrance to the installation of conservation practices or present a hazard to their use and enjoyment.

Before Situation:

On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This

After Situation:

The typical area will be a 2000 square feet of impaired land. The removal of wood structures will be performed by demolition, excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all wood structures from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

Feature Measure: Land Area

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $17,272.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #7 - Rock Excavation

Scenario Description:

Drilling, blasting, excavation and removal of "competent" (non-rippable) rock. Rock is excavated so that it does not impede the installation of a conservation practice. Excavated rock is hauled to an approved staging area for reuse or disposal area. Rock excavation is necessary to install a conservation practices or to facilitate the planned land use. Resource concerns is the prevention and/or hindrance of installing a conservation practices or removal of a safety hazard.

Before Situation:

On any land where "competent rock" interferes with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This is

After Situation:

The excavation of "competent" (non-rippable) rock will be performed by drilling, blasting, excavation, demolition, or other means required for removal with the use of heavy equipment. Rock shall be removed from the sites so that it does not impede in the subsequent installation of conservation practices or cause a safety hazard. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

Feature Measure: Cubic Yards of Rock to be Ex

Scenario Unit: Cubic Yard

Scenario Typical Size: 200.0

Scenario Total Cost: $10,897.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $54.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #8 - Concrete Slab Removal

Scenario Description:

Cutting, demolition, excavation and removal of concrete slab. Concrete slab is demolished and removed so that it does not impede the installation of a conservation practice. Excavated concrete rubble is hauled to an approved disposal area. Concrete slab demolition and removal is necessary to install a conservation practices or to facilitate the planned land use. Resource concerns is the prevention and/or hindrance of installing a conservation practices or removal of a safety hazard.

Before Situation:

On any land where an existing concrete slab interferes with planned land use development, public safety or infrastructure. The site may be an existing heavy use area (barnyard), waste storage facility, building foundation, etc.

After Situation:

The demolition and removal of a concrete slab will be performed by cutting the concrete with a diamond saw, breaking and removing the concrete with an excavator, removing the concrete rubble from the construction site with a skidsteer load and hauling the rubble off site with a dump truck. Concrete slab shall be removed from the sites so that it does not impede in the subsequent installation of conservation practices or cause a safety hazard. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape. Other associated practices are 313 - Waste Storage Facility, 561 - Heavy Use Area Protection, 634 - Waste Transfer, 533 - Pumping Plant, 558 - Roof Runoff Structure, etc.

Feature Measure: Square Feet of Concrete Sla

Scenario Unit: Square Foot

Scenario Typical Size: 750.0

Scenario Total Cost: $5,411.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #55 - Removal and disposal of light sand and flood sediment 12-30 inches

Scenario Description:

Remove and disposal of 12" to 30" of sand and flood deposited sediments by excavation or other means required for removal. Dispose of all sand and flood deposited sediments so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all sand and flood deposited sediments by removal to an approved location, or re-use location. Sand and/or silt removal will only address sand and/or silt obstructing farmland and cropland

Before Situation:

On any land where existing obstructions interfere with the return of land to its function prior to the occurrence of a natural disaster. The site may be cropland, farms, or ranches affected by natural disasters. This is not intended for the removal of obs

After Situation:

The typical area will be a 30 acre impaired area. The removal of sand and flood deposited sediments will be performed by excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all sand and flood deposited sediments from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

Feature Measure: area covered by sediment

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $108,943.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,631.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #56 - Removal and disposal of light scattered debris

Scenario Description:

Removal of debris from farmland deposited by natural disaster. Includes the cost of all labor, equipment and disposal. Debris is defined as woody material, rock, trash, and personal property deposited by natural disaster. This disposal shall be in accordance with all applicable Federal, State, and local laws, rules, and regulations. Dispose of all scattered debris so it does not impede farm operations or cause onsite or offsite damage. Dispose of all scattered debris by removal to an approved location, landfill, or reuse location. Scattered debris removal will only address debris obstructing farmland not in the footprint of a structure

Before Situation:

On any crop, farm, or ranch land where debris from storm damage interfere with planned land use development, public safety or infrastructure. The site is covered with light debris, (wood, trees, metal, and other damage materials) on a percentage of the fi

After Situation:

Debris is removed from the field and land returned to prior use

Feature Measure: Area of debris scatter

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $5,449.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $544.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #57 - Removal and disposal of heavy scattered debris

Scenario Description:

Removal of a heavy concentration of debris from farmland deposited by natural disaster. Includes the cost of all labor, equipment and disposal from area of debris. Debris is defined as woody material, rock, concrete, trash, and personal property deposited by natural disaster. This disposal shall be in accordance with all applicable Federal, State, and local laws, rules, and regulations. Dispose of all scattered debris so it does not impede farm operations or cause onsite or offsite damage. Dispose of all scattered debris by removal to an approved location, landfill, or reuse location. Scattered debris removal will only address debris obstructing farmland not in the footprint of a structure

Before Situation:

On any crop, farm or ranch land where debris from storm damage interfere with planned land use development, public safety or infrastructure. The site is covered with light debris, (wood, trees, metal, and other damage materials). Debris is scattered over

After Situation:

Scattered debris is removed from a affected area of the field.

Feature Measure: Area of debris

Scenario Unit: Square Foot

Scenario Typical Size: 12,000.0

Scenario Total Cost: $19,606.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #82 - Removal and disposal of light sand and flood sediment > 30 inches

Scenario Description:

Remove and disposal of > 30" of sand and flood deposited sediments by excavation or other means required for removal. Dispose of all sand and flood deposited sediments so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all sand and flood deposited sediments by removal to an approved location, or re-use location. Sand and/or silt removal will only address sand and/or silt obstructing farmland and cropland

Before Situation:

On any land where existing obstructions interfere with the return of land to its function prior to the occurrence of a natural disaster. The site may be recreation areas, farms, ranches, or other areas affected by natural disasters. This is not intended f

After Situation:

The typical area will be a 30 acre impaired area. The removal of sand and flood deposited sediments will be performed by excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all sand and flood deposited sediments from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

Feature Measure: area covers by sediment gre

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $156,644.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,221.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #107 - Removal and Disposal of Brush and Trees > 6 inch Diameter

Scenario Description:

Remove and disposal of brush and trees > 6 inches in diameter by demolition, excavation or other means required for removal. Dispose of all brush and trees so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all brush and trees by removal to an approved landfill, wood chipping and or land distribution, or recycling center, burial at an approved location or burning. If burning is used, implement appropriate smoke management to protect public health and safety. Remove and dispose of brush and trees in order to apply conservation practices or facilitate the planned land use. Brush and tree removal will address the resource concerns of the prevention or hindrance to the installation of conservation practices or present a hazard to their use and enjoyment.

Before Situation:

On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This

After Situation:

The typical area will be a 2.0 acre impaired area. The removal of brush and trees > 6 inch diameter will be performed with the use of equipment and hand labor. Dispose of all brush and trees from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

Feature Measure: Land Area

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $5,387.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,693.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 500 - Obstruction Removal

Scenario: #108 - Removal and Disposal of Brush and Trees < 6 inch Diameter

Scenario Description:

Remove and disposal of brush and trees < 6 inches in diameter by demolition, excavation or other means required for removal. Dispose of all brush and trees so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all brush and trees by removal to an approved landfill, wood chipping and or land distribution, or recycling center, burial at an approved location or burning. If burning is used, implement appropriate smoke management to protect public health and safety. Remove and dispose of brush and trees in order to apply conservation practices or facilitate the planned land use. Brush and tree removal will address the resource concerns of the prevention or hindrance to the installation of conservation practices or present a hazard to their use and enjoyment.

Before Situation:

On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This

After Situation:

The typical area will be a 2.0 acre impaired area. The removal of brush and trees < 6 inch diameter will be performed with the use of equipment and hand labor. Dispose of all brush and trees from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetate or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

Feature Measure: Land Area

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $3,267.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,633.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 511 - Forage Harvest Management

Scenario: #1 - Improved Forage Quality

Scenario Description:
Improved cultural practices and recordkeeping result in better forage quality and better livestock performance.

Before Situation:
Forage cutting heights are as close to the ground as equipment will allow resulting in very low stubble height. Plant regrowth is very slow. Forage quality tests are not regularly done. Records of forage quality components, cutting heights, moisture conte

After Situation:
Forage cutting heights are raised to leave at least 3-4" stubble height for cool season grasses and 6- 8" (use a boot on the mower) for warm season grasses. Increased residual forage results in much faster plant regrowth. Forage quality tests are submitted to an accredited lab for analysis. Records of forage quality components, cutting heights, moisture content, and harvest schedule are regularly kept to track increased forage quality and improved livestock performance.

Feature Measure: Improved Relative Feed Val

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $192.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 511 - Forage Harvest Management

Scenario: #2 - Organic Preemptive Harvest

Scenario Description:
Preemptive harvest of forage crops to prevent damage from insects (such as leafhopper on alfalfa) or other pests results in better forage quality and better livestock performance.

Before Situation:
Forage pests are usually controlled with pesticides.

After Situation:
In organic or transitioning to organic systems, forage pests are controlled by executing a preemptive harvest before pests can damage forage quality. Forage yields are reduced because of immature stage of forage growth and forage quality may also be affected. Forage tests are submitted to an accredited lab for analysis to verify forage quality. Records of forage quality components are used to adjust feeding rations.

Feature Measure: Relative Feed Value Maintai

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $601.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 511 - Forage Harvest Management

Scenario: #3 - Perennial Crops - Delayed Mowing

Scenario Description:

In perennial forage crops, the delaying the harvest of the first cutting to promote the reproduction of ground nesting birds. Delaying the harvest of the first cutting will benefit ground nesting birds; research at the University of Vermont showed that breeding success for declining grassland songbirds (e.g. Bobolink) went from 0 on a regularly harvested hay field to 2.8 fledglings per female per year when the first harvest on a hayfield was delayed until August 1st. Bobolinks, Eastern Meadowlarks, and Savannah Sparrows require a nesting period to fledge young that lasts through the end of July in most parts of the eastern US. The delayed harvest results in a decrease in overall forage quality. Farmers could see as much as a 50% reduction in market value due to declines in protein (~50%) and digestibility (~20%), making the forage crop less palatable and lower in relative feed value. The selected fields should be large enough to promote ground nesting birds. After young have fledged the field will be harvested for dry forages.

Before Situation:

Perennial forage crops are produced and harvested; ground nesting birds are disturbed and/or fledgling birds are killed in the process.

After Situation:

Annual crops are harvested with a delayed mowing; forage quality is compromised, however, the survival of ground nesting birds is promoted.

Feature Measure: Increased grassland bird po

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $805.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #1 - Cool Season, Establish or Reseed

Scenario Description:

Establish/reseed adapted perennial introduced cool season grasses and legumes. Used for either conventional or no-till seeding of perennial introduced cool season grasses for pasture or hayland. Assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding ,and spreading. Does not include foregone income for conversion of cropland.

Before Situation:

Typically installed on an a poor or nonexistent stand of grass species. Resource concerns include: sheet and rill erosion, ephemeral gully erosion, decreased water quality from runoff of sediment, low soil quality (including organic matter depletion) and

After Situation:

Field is prepared for seeding, and lime and nutrients are spread according to soil test results. Cool season grasses and legumes are established on pasture or hayland. Erosion is minimized and there is reduced sedimentation and nutrient runoff. Water and soil quality is improved (including an increase in organic matter).

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $5,543.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $554.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #3 - Cool Season, Establish or Reseed, Organic

Scenario Description:

Establish/reseed adapted organic perennial introduced cool season grasses and legumes. Used for either conventional or no-till seeding of perennial introduced cool season grasses for pasture or hayland. Assumes nutrients, seed, equipment and labor for seed bed prep, tillage, seeding ,and spreading.

Before Situation:

Typically installed on an a poor or nonexistent stand of grass species that is certified organic or transitioning to organic. Resource concerns include: sheet and rill erosion, ephemeral gully erosion, decreased water quality from runoff of sediment, low

After Situation:

Field is prepared for seeding, and lime and nutrients are spread according to soil test results. Organic cool season grasses and legumes are established on pasture or hayland. Erosion is minimized and there is reduced sedimentation and nutrient runoff. Water and soil quality is improved (including an increase in organic matter).

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $6,229.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $622.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #4 - Cool Season, Establish or Reseed, Organic, Foregone Income

Scenario Description:

Establish/reseed adapted organic perennial introduced cool season grasses and legumes. Used for either conventional or no-till seeding of perennial introduced cool season grasses for pasture or hayland. Assumes nutrients, seed, equipment and labor for seed bed prep, tillage, seeding ,and spreading. Includes foregone income for conversion of certified organic cropland, typically silage corn, to pasture or hay.

Before Situation:

Typically installed on an a poor or nonexistent stand of grass species that is certified organic or transitioning to organic. Resource concerns include: sheet and rill erosion, ephemeral gully erosion, decreased water quality from runoff of sediment, low

After Situation:

Field is prepared for seeding, and lime and nutrients are spread according to soil test results. Organic cool season grasses and legumes are established on pasture or hayland. Erosion is minimized and there is reduced sedimentation and nutrient runoff. Water and soil quality is improved (including an increase in organic matter).

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $10,804.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,080.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #5 - Warm Season, Native, Establish or Reseed

Scenario Description:

Establish or reseed adapted perennial native warm season grasses. Used for either conventional or organic perennial native warm season grasses for pasture, hayland, or biomass crops. Assumes nutrients, seed, equipment and labor for seed bed prep, tillage, seeding ,and spreading.

Before Situation:

Typically installed on an overgrazed, 10 acre pasture that is a weedy mix of cool season grasses. Plant productivity is poor, weed species dominate, and low water quantity and high temperatures during the summer months suppress the growth of the cool seas

After Situation:

Field is prepared for seeding, lime and nutrients are spread according to soil test results, and warm season grasses are established. Weeds are managed during establishment through mowing and chemical control. Pasture is managed for long-term grazing. Erosion is minimized and there is reduced sedimentation and nutrient runoff, and improved water and soil quality (including an increase in organic matter and fertility). Plant productivity during the "summer slump" increases and weed composition decreases. Livestock nutrition is improved and energy is saved by producing on-farm forage crops and reducing amount of imported feed.

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $5,986.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $598.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #6 - Warm Season, Native, Establish or Reseed, Foregone Income

Scenario Description:

Establish or reseed adapted perennial native warm season grasses. Used for either conventional or organic perennial native warm season grasses for pasture, hayland, or biomass crops. Assumes nutrients, seed, equipment and labor for seed bed prep, tillage, seeding ,and spreading. Includes foregone income for conversion of cropland, typically silage corn, to native/warm season pasture or hay.

Before Situation:

Typically installed on an overgrazed, 10 acre pasture that is a weedy mix of cool season grasses. Plant productivity is poor, weed species dominate, and low water quantity and high temperatures during the summer months suppress the growth of the cool seas

After Situation:

Field is prepared for seeding, lime and nutrients are spread according to soil test results, and warm season grasses are established. Weeds are managed during establishment through mowing and chemical control. Pasture is managed for long-term grazing. Erosion is minimized and there is reduced sedimentation and nutrient runoff, and improved water and soil quality (including an increase in organic matter and fertility). Plant productivity during the "summer slump" increases and weed composition decreases. Livestock nutrition is improved and energy is saved by producing on-farm forage crops and reducing amount of imported feed.

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $9,856.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $985.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #8 - Rejuvenate, Organic

Scenario Description:

Used to rejuvenate rundown pasture or hayland on organic or transitioning to organic land by applying nutrients and overseeding/sodseeding (frost, dormant, no-till, after aerator etc.) adapted legumes or grass/legume mixes. Assumes lime, potassium and seeding costs.

Before Situation:

Typical situation is a 10 acre organic or transitioning to organic pasture/hayfield with invasive weeds and poor legume composition. Existing stand of perennial grasses is in poor condition and percent ground cover is low. Overall plant diversity is low a

After Situation:

Approved organic legumes or grass/legume mixed are established and lime and potassium is spread to soil test recommendations. Ground cover and plant diversity improves and results in lower weed pressure. Plant productivity and soil quality improves from the increase in biological nitrogen fixation.

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $4,239.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $423.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #9 - Overseed

Scenario Description:

Broadcast approved cool-season forage seeds (typically red and ladino clover) into existing pasture or hayland with low legume composition and low species diversity. Typically used for frost-seeding (early spring just after snowmelt), dormant seeding (late winter just before snowfall), or when soil is prepared using an aerator. Assumes seeding costs only, and should be used when pH and soil test nutrients are within an acceptable range .

Before Situation:

5 acres of pasture/hayland that was previously established as a grass/legume mix now has less than 5-10% legume composition. Forage and plant quality is poor due to low biological N fixation and species diversity. Small areas have bare soil resulting in e

After Situation:

Legume seed is broadcast in late winter or early spring. Legume composition is increased above 20% and forage and plant quality is improved due to an increase in species diversity and biological N fixation. Small bare areas of soil are covered with legumes and erosion and weed potential is reduced. Energy is saved through the use of legume nitrogen versus Haber-Bosch nitrogen.

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $825.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $165.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #10 - Overseed, Organic

Scenario Description:

Broadcast approved, certified organic cool-season forage seeds (typically red and ladino clover) into existing organic or transitioning to organic pasture or hayland with low legume composition and low species diversity. Typically used for frost-seeding (early spring just after snowmelt), dormant seeding (late winter just before snowfall), or when soil is prepared using an aerator. Assumes seeding costs only, and should be used when pH and soil test nutrients are within an acceptable range .

Before Situation:

5 acres of organic or transitioning to organic pasture/hayland that was previously established as a grass/legume mix now has less than 5-10% legume composition. Forage and plant quality is poor due to low biological N fixation and species diversity. Small

After Situation:

Certified organic legume seed is broadcast in late winter or early spring. Legume composition is increased above 20% and forage and plant quality is improved due to an increase in species diversity and biological N fixation. Small bare areas of soil are covered with legumes and erosion and weed potential is reduced.

Feature Measure: Acres of Forage and Biomas

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $963.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $192.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 512 - Pasture and Hay Planting

Scenario: #89 - Introduced Cool Season Grasses with Legumes

Scenario Description:

Establish or reseed adapted perennial introduced cool season grasses and legumes to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial introduced cool season grasses for pasture, hayland, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation:

Poor or nonexistent stand of grass species. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation:

Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland ,hayland, pasture, and/or biomass production.

Feature Measure: Acres of Planting

Scenario Unit: Acre

Scenario Typical Size: 30.0

Scenario Total Cost: $13,772.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $459.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #1 - PE Pipe less than or equal to 1 in. Dia., Buried 4 ft Deep

Scenario Description:

Description: Install 1" dia. polyethylene pipe, buried below frost depth to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 1 inch, Polyethylene (PE) pipeline with appurtenances, installed below ground a minimum 4 feet of ground cover. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $5,491.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #3 - PE Pipe, greater than 1in Dia., Buried 4ft Deep

Scenario Description:

Description: Install 2" dia. polyethylene pipe, buried below frost depth to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 1 inch, Polyethylene (PE) pipeline with appurtenances, installed below ground a minimum 4 feet of ground cover. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $7,294.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #4 - PE Pipe less than or equal to 1 in. Dia., Buried 4ft Deep w/sand bedding

Scenario Description:

Description: Install 1" dia. polyethylene pipe with sand bedding, buried below frost depth to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 1 inch, Polyethylene (PE) pipeline with appurtenances, installed below ground a minimum 4 feet of ground cover. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $10,034.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #6 - PE Pipe, greater than 1 in Dia., Buried 4ft Deep w/ sand bedding

Scenario Description:

Description: Install 2" dia. polyethylene pipe with sand bedding, buried below frost depth to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 1 inch, Polyethylene (PE) pipeline with appurtenances, installed below ground a minimum 4 feet of ground cover. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $11,836.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #7 - PE Pipe less than or equal to 1in. Dia., Buried 2ft Deep

Scenario Description:

Description: Install 1" dia. polyethylene pipe, buried less than 2 feet below the ground surface to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 1 inch, Polyethylene (PE) pipeline with appurtenances, installed below ground with less than 2 feet of ground cover. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $3,977.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #9 - PE Pipe, greater than 1in Dia., Buried 2ft Deep

Scenario Description:

Description: Install 2" dia. polyethylene pipe, buried less than 2 feet below the ground surface to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 2 inch, Polyethylene (PE) pipeline with appurtenances, installed below ground with less than 2 feet of ground cover. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $5,780.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #10 - PE Pipe, less than or equal to 1 in. Dia., Above Ground

Scenario Description:

Description: Install 1" dia. polyethylene pipe, above ground to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 1 inch, Polyethylene (PE) pipeline with appurtenances, installed above ground. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $2,493.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #12 - PE Pipe, greater than 1in diam, Above Ground

Scenario Description:

Description: Install 2" dia. polyethylene pipe, above ground to supply water for livestock watering facility. Practice is installed in conjunction with 614 - Watering Facility. Construct 1000 FT of 2 inch, Polyethylene (PE) pipeline with appurtenances, installed above ground. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and Frost free hydrant. Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), and Watering Facility (614).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $5,134.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #77 - Horizontal Boring, 3in or less diam pipe

Scenario Description:

Install a livestock watering pipeline under a road using directional drilling or horizontal boring equipment. Road is approximately 30 feet wide and boring extends 50 feet. This scenario shall only be used if no other alignment or road crossing options are available. The only length of pipeline included in this scenario is for the road crossing. This scenario only pertains to horizontal boring through overburden material, not rock. Typical installation applies to soils with no special bedding requirements. The typical scenario costs include a 4in steel carrier pipe, 1.25in PE livestock pipeline, horizontal boring equipment, excavation and misc. labor. Associated practices: 614 - Watering Facilities, 528 - Prescribed Grazing, 533 - Pumping Plant

Before Situation:

A livestock pipeline is needed to replace or supplement insufficient water supply to livestock.

After Situation:

50LF of 1.25"PE pipeline will be installed with a carrier pipe to convey water to a livestock watering system, minimizing non-beneficial water use, reducing soil erosion, and improving animal health.

Feature Measure: Foot of pipeline

Scenario Unit: Linear Foot

Scenario Typical Size: 50.0

Scenario Total Cost: $4,338.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $86.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #122 - HDPE (Iron Pipe Size and Tubing), Small Scale

Scenario Description:

Below ground installation of HDPE (Iron Pipe Size &Tubing) pipeline. HDPE (IPS &Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; and typical scenario size is 1-inch. Construct 260 feet of 1-inch, Class 130 (SDR 13.5), HDPE pipeline with appurtenances, installed below ground with a minimum 2 feet of ground cover. The unit is weight of pipe material in pounds. 260 feet of 1-inch, Class 130 (SDR-13.5), HDPE weighs 0.16 lb./ft, or a total of 42 pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 42.0

Scenario Total Cost: $2,989.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $71.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #123 - Surface HDPE (Iron Pipe Size and Tubing), Small Scale

Scenario Description:

On-ground surface installation of HDPE (Iron Pipe Size &Tubing) pipeline. HDPE (IPS &Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; and typical scenario size is 1-inch. Construct 260 feet of 1-inch, Class 130 (SDR 13.5), HDPE pipeline with appurtenances. The unit is weight of pipe material in pounds. 260 feet of 1-inch, Class 130 (SDR-13.5), HDPE weighs 0.16 lb./ft, or a total of 42 pounds. Appurtenances include fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 42.0

Scenario Total Cost:	$953.72	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$22.71	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #124 - PVC (Iron Pipe Size)

Scenario Description:

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1½-inch. Construct one mile (5,280 feet) of 1½-inch, Schedule 40, PVC Pipeline with appurtenances, installed below ground with a minimum 1.5 feet of ground cover. The scenario unit is weight of pipe material in pounds. 5,280 feet of 1½-inch, Schedule 40, PVC pipe weighs 0.501 lb./ft, or a total of 2,645 pounds. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 10% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 2,645.0

Scenario Total Cost: $18,201.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #125 - HDPE (Iron Pipe Size & Tubing)

Scenario Description:

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS &Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1½-inch. Construct one mile (5,280 feet) of 1½-inch, Class 200 (SDR-9.0, PE4708), HDPE Pipeline with appurtenances, installed below ground with a minimum 1.5 feet of ground cover. Typical size range of pipe installed: 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. 5,280 feet of 1½-inch, Class 200 (SDR-9.0, PE4708), HDPE pipe weighs 0.475 lb./ft, or a total of 2,508 pounds. Appurtenances include: fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 10% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 2,508.0

Scenario Total Cost: $18,370.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #138 - Rural Water Connection Equipment

Scenario Description:

The rural water connection includes the 4' manhole, meter, 500' of pipe, valves, and necessary installation for connecting from a rural water pipeline to a livestock distribution pipeline. This item includes installation, all materials, appurtenances, and labor required to construct and install the meter pit. This item does not include the hook-up fees to the rural water system. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636), Spring Development (574), and Prescribed Grazing (528).

Before Situation:

Inadequate water supply for domestic animals located on grazed range, pasture, or grazed forest in the northern plains region.

After Situation:

A rural water connection which provides access to a reliable, high quality water supply for meeting the needs of domestic animals on grazed range, pasture, or grazed forest in the northern plains region. The 4' manhole, meter, pipe and appurtenances will enable the pipeline to meet the quantity requirements of domestic animals.

Feature Measure: Rural Water Connection

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $5,722.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,722.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #139 - Steel (Iron Pipe Size)

Scenario Description:

Description: Below ground installation of Steel (Iron Pipe Size) pipeline. Steel (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1½-inch. Construct one mile (5,280 feet) of 1½-inch, Schedule 40, Galvanized Steel Pipeline with appurtenances, installed below ground with a minimum 1.5 feet of ground cover. Typical size range of pipe installed: 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. 5,280 feet of 1½-inch, Schedule 40, Galvanized Steel Pipe weighs 2.718 lb./ft, or a total of 14,351 pounds. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 10% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 14,351.0

Scenario Total Cost: $50,325.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #140 - Surface Steel (Iron Pipe Size)

Scenario Description:

Description: on-ground surface installation of Steel (Iron Pipe Size) pipeline. Steel (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1½-inch. Construct one mile (5,280 feet) of 1½-inch, Schedule 40, Galvanized Steel Pipeline with appurtenances, installed on the ground surface. Typical size range of pipe installed: 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. 5,280 feet of 1½-inch, Schedule 40, Galvanized Steel Pipe weighs 2.718 lb./ft, or a total of 14,351 pounds. Appurtenances include: couplings, fittings, expansion joints, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 15% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 14,351.0

Scenario Total Cost: $42,158.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 516 - Livestock Pipeline

Scenario: #141 - Surface HDPE (Iron Pipe Size & Tubing)

Scenario Description:

Description: on-ground surface installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch; and typical scenario size is 1½-inch. Construct one mile (5,280 feet) of 1½-inch, Class 200 (SDR-9.0, PE4708), HDPE Pipeline with appurtenances, installed on the ground surface. Typical size range of pipe installed: 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. 5,280 feet of 1½-inch, Class 200 (SDR-9.0, PE4708), HDPE pipe weighs 0.475 lb./ft, or a total of 2,508 pounds. Appurtenances include: couplings, fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1), and are included in the cost of pipe material (additional 15% of pipe material quantity). Revegetation is not included. Resource Concerns: Inadequate Livestock Water, Inefficient Energy Use. Associated Practices: Critical Area Planting (342), Pumping Plant (533), Watering Facility (614), and Water Harvesting Catchment (636).

Before Situation:

Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation:

Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

Feature Measure: Weight of Pipe

Scenario Unit: Pound

Scenario Typical Size: 2,508.0

Scenario Total Cost: $11,070.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 520 - Pond Sealing or Lining, Compacted Soil Treatment

Scenario: #58 - Material haul > 1 mile

Scenario Description:

Construction of a compacted soil liner, treated with compacted clay, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes compaction of the soil liner under proper moisture conditions to the designed liner thickness, and protection of the finished liner. Material haul > 1 mile. Associated practices include PS378, PS313, & other waste water impoundments.

Before Situation:

In-place soils at site exhibit seepage rates in excess of acceptable limits. An adequate quantity of soil suitable for constructing a clay liner without amendments is available at an economical haul distance.

After Situation:

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Volume of Liner Material (in

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,420.0

Scenario Total Cost: $36,727.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 520 - Pond Sealing or Lining, Compacted Soil Treatment

Scenario: #59 - Material haul < 1 mile

Scenario Description:

Construction of a compacted soil liner, treated with compacted clay, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes compaction of the soil liner under proper moisture conditions to the designed liner thickness, and soil cover to protect the finished liner. Material haul < 1 mile. Associated practices include PS378, PS313, & other waste water impoundments.

Before Situation:

In-place soils at site exhibit seepage rates in excess of acceptable limits. An adequate quantity of soil suitable for constructing a clay liner without amendments is available at an economical haul distance. Material haul < 1 mile.

After Situation:

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Volume of Liner Material (in

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,420.0

Scenario Total Cost: $30,165.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.47

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #1 - 40 mil Flexible Membrane Liner up to 15K Square Feet

Scenario Description:

Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Total quantity of synthetic liner <= 15,000 square feet. Cost includes all labor, materials and equipment to install a 40 mil LLDPE, HDPE, EDPM, etc. membrane liner, 8 oz non-woven geotextile underlayment, excavation and backfill of anchor trench, specialist to weld seams and install "boots", leak detection manhole. Quantity is inside surface are of the earthen waste storage facility plus an additional 10' around the inside top of berm to accommodate the anchor trench. Assumed quantity = 10,000 SF. Associated practices include 378- Pond, 313 - Waste Storage Facility, 561 - Heavy Use Area Protection, etc. Under drain system for leak detection shall be paid for under 606 - Subsurface Drain.

Before Situation:

In-place soils exhibit seepage rates in excess of acceptable limits. Ref. AWMFH Appendix 10D.

After Situation:

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Surface area of Liner Materi

Scenario Unit: Square Foot

Scenario Typical Size: 10,000.0

Scenario Total Cost: $27,187.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #2 - 40 mil Flexible Membrane Liner over 15K Square Feet

Scenario Description:

Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Total quantity of synthetic liner > 15,000 square feet. Cost includes all labor, materials and equipment to install a 40 mil LLDPE, HDPE, EDPM, etc. membrane liner, 8 oz non-woven geotextile underlayment, excavation and backfill of anchor trench, specialist to weld seams and install "boots", leak detection manhole. Quantity is inside surface area of the earthen waste storage facility plus an additional 10' around the inside top of berm to accommodate the anchor trench. Assumed quantity = 22,500 SF. Associated practices include 378- Pond, 313 - Waste Storage Facility, 561 - Heavy Use Area Protection, etc. Under drain system for leak detection shall be paid for under 606 - Subsurface Drain.

Before Situation:

In-place soils exhibit seepage rates in excess of acceptable limits. Ref. AWMFH Appendix 10D.

After Situation:

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Surface area of Liner Materi

Scenario Unit: Square Foot

Scenario Typical Size: 22,500.0

Scenario Total Cost: $47,859.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #45 - 60 Mil Flexible Membrane Liner over 15K Square Feet

Scenario Description:

Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Total quantity of synthetic liner > 15,000 square feet. Cost includes all labor, materials and equipment to install a 60 mil LLDPE, HDPE, EDPM, etc. membrane liner, 8 oz non-woven geotextile underlayment, excavation and backfill of anchor trench, specialist to weld seams and install "boots", leak detection manhole. Quantity is inside surface area of the earthen waste storage facility plus an additional 10' around the inside top of berm to accommodate the anchor trench. Assumed quantity = 22,500 SF. Associated practices include 378- Pond, 313 - Waste Storage Facility, 561 - Heavy Use Area Protection, etc. Under drain system for leak detection shall be paid for under 606 - Subsurface Drain.

Before Situation:

In-place soils exhibit seepage rates in excess of acceptable limits. Ref. AWMFH Appendix 10D.

After Situation:

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Total Area of Liner including

Scenario Unit: Square Foot

Scenario Typical Size: 22,500.0

Scenario Total Cost: $76,814.54

Total Cost per Unit: $3.41

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #46 - 60 Mil Flexible Membrane Liner up to 15K Square Feet

Scenario Description:

Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Total quantity of synthetic liner <= 15,000 square feet. Cost includes all labor, materials and equipment to install a 60 mil LLDPE, HDPE, EDPM, etc. membrane liner, 8 oz non-woven geotextile underlayment, excavation and backfill of anchor trench, specialist to weld seams and install "boots", leak detection manhole. Quantity is inside surface are of the earthen waste storage facility plus an additional 10' around the inside top of berm to accommodate the anchor trench. Assumed quantity = 10,000 SF. Associated practices include 378- Pond, 313 - Waste Storage Facility, 561 - Heavy Use Area Protection, etc. Under drain system for leak detection shall be paid for under 606 - Subsurface Drain.

Before Situation:

In-place soils exhibit seepage rates in excess of acceptable limits. Ref. AWMFH Appendix 10D.

After Situation:

Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Square Feet of Liner, includi

Scenario Unit: Square Foot

Scenario Typical Size: 10,000.0

Scenario Total Cost: $39,629.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #56 - Flexible Membrane - Uncovered without liner drainage or venting

Scenario Description:
Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes a geotextile or soil cushion to protect the liner from subgrade damage. Associated practices include PS378 Pond, PS313 Waste Storage Facility.

Before Situation:
In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation:
Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Surface area of Liner Materi

Scenario Unit: Square Yard

Scenario Typical Size: 2,420.0

Scenario Total Cost: $54,806.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #57 - Flexible Membrane - Uncovered with liner drainage or venting

Scenario Description:
Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes a geotextile or soil cushion to protect the liner from subgrade damage, and liner drainage or venting. Associated practices include PS378 Pond, PS313 Waste Storage Facility.

Before Situation:
In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation:
Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Surface area of Liner Materi

Scenario Unit: Square Yard

Scenario Typical Size: 2,420.0

Scenario Total Cost: $80,618.36

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $33.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #58 - Flexible Membrane - Covered without liner drainage or venting

Scenario Description:
Installation of a flexible geosynthetic membrane liner to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes 1 foot of soil cover for liner protection, and a geotextile or soil cushion to protect liner from subgrade damage. Associated practices include PS378 Pond, PS313 Waste Storage Facility.

Before Situation:
In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation:
Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Surface area of Liner Materi

Scenario Unit: Square Yard

Scenario Typical Size: 2,420.0

Scenario Total Cost: $59,308.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 521 - Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner

Scenario: #59 - Flexible Membrane - Covered with liner drainage or venting

Scenario Description:
Installation of a flexible geosynthetic membrane liner to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes 1 foot of soil cover for liner protection, a geotextile or soil cushion to protect liner from subgrade damage, and liner drainage or venting. Associated practices include PS378 Pond, PS313 Waste Storage Facility.

Before Situation:
In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation:
Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

Feature Measure: Surface area of Liner Materi

Scenario Unit: Square Yard

Scenario Typical Size: 2,420.0

Scenario Total Cost: $84,120.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $34.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 522 - Pond Sealing or Lining - Concrete

Scenario: #13 - Concrete Liner <= 16K Square Feet

Scenario Description:

Install a water tight concrete liner inside an earthen WSF to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Solid/Liquid Waste Separation Facility (632), and Pumping Plant (533).

Before Situation:

Manure and other agricultural waste by-products are not being utilized, controlled, or managed in an environmentally safe manner. In situ soils do not meet NRCS permeability requirements. The situation poses an environmental threat of excessive nutrients,

After Situation:

A watertight concrete liner is desired to properly store manure and other agricultural waste by-products in an environmentally safe manner. Concrete liner is desired to minimize seepage of agricultural waste into the ground water while allowing the operator to mobilize equipment into the waste storage facility so he/she can remove accumulated solids and sand bedding. This facility will also allow the operator to store waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design : Liner will be installed on the inside slope of an earthen waste storage facility, liner will cover the bottom and side slopes of the facility. The liner will be 5" thick with steel rebar reinforcement. 6" of drainfill material will be placed and compacted on the bottom to absorb excess water produced by rain or small seeps. Drainfill for side slopes is not needed. Watertight construction joints will have to be installed at critical locations in the liner. Typical liner size = 15,232 square feet. (WSF - 12' Deep, 60' x 60' at bottom, 2.5 to 1 side slopes)

Feature Measure: Surface Area of Concrete Lin

Scenario Unit: Square Foot

Scenario Typical Size: 15,232.0

Scenario Total Cost: $133,641.34

Total Cost per Unit: $8.77

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 522 - Pond Sealing or Lining - Concrete

Scenario: #14 - Concrete Liner > 16K Square Feet

Scenario Description:

Install a water tight concrete liner inside an earthen WSF to store wastes such as manure, wastewater, and contaminated runoff as part of an agricultural waste management system. This practice will address soil and water quality by reducing the pollution potential for surface water and groundwater quality degradation. Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Waste Transfer (634), Heavy Use Area Protection (561), Solid/Liquid Waste Separation Facility (632), and Pumping Plant (533).

Before Situation:

Manure and other agricultural waste by-products are not being utilized, controlled, or managed in an environmentally safe manner. In situ soils do not meet NRCS permeability requirements. The situation poses an environmental threat of excessive nutrients,

After Situation:

A watertight concrete liner is desired to properly store manure and other agricultural waste by-products in an environmentally safe manner. Concrete liner is desired to minimize seepage of agricultural waste into the ground water while allowing the operator to mobilize equipment into the waste storage facility so he/she can remove accumulated solids and sand bedding. This facility will also allow the operator to store waste until it can be utilized in a proper manner in accordance with a nutrient management plan. Typical design : Liner will be installed on the inside slope of an earthen waste storage facility, liner will cover the bottom and side slopes of the facility. The liner will be 5" thick with steel rebar reinforcement. 6" of drainfill material will be placed and compacted on the bottom to absorb excess water produced by rain or small seeps. Drainfill for side slopes is not needed. Watertight construction joints will have to be installed at critical locations in the liner. Typical liner size = 30,194 square feet. (WSF - 12' Deep, 110' x 110' at bottom, 2.5 to 1 side slopes)

Feature Measure: Surface Area of Concrete Lin

Scenario Unit: Square Foot

Scenario Typical Size: 30,194.0

Scenario Total Cost: $266,994.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 528 - Prescribed Grazing

Scenario: #1 - Weekly moves

Scenario Description:

Animals are moved to new ground weekly. Paddocks are designed to allow at least 30 days rest. Design and implementation of a grazing system will enhance pasture condition and ecosystem function as well as optimize efficiency.

Before Situation:

Current grazing system is continuous, without rest and rotation. Inefficient use of forage plants has a negative impact on pasture condition, as well as soil and water resources. Stocking rates are likely higher than the current level of production and ef

After Situation:

Typical scenario is a small beef or sheep producer who has adequate land base for number of livestock, has at least 5 paddocks, and moves animals at least once per week. Management is centered on maintaining desired residual forage heights. Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through protection of sensitive areas, and efficient harvest of forage resources. Grazing system success will be evaluated through short term monitoring.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $1,002.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 528 - Prescribed Grazing

Scenario: #2 - Twice weekly moves

Scenario Description:

Animals are moved to new ground at least twice weekly. Paddocks are designed to allow at least 30 days rest. Design and implementation of a grazing system will enhance pasture condition and ecosystem function as well as optimize efficiency.

Before Situation:

Current grazing system is continuous, without rest and rotation. Inefficient use of forage plants has a negative impact on pasture condition, as well as soil and water resources. Stocking rates are likely higher than the current level of production and ef

After Situation:

Typical scenario is a small beef or sheep producer who has adequate land base for number of livestock, has at least 9 paddocks, and moves animals at least twice per week. Management is centered on maintaining desired residual forage heights. Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through protection of sensitive areas, and efficient harvest of forage resources. Grazing system success will be evaluated through short term monitoring.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $2,496.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $124.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 528 - Prescribed Grazing

Scenario: #3 - Intensive

Scenario Description:

Animals are moved to new ground daily or twice per day. Paddocks are designed to allow at least 30 days rest. Design and implementation of a grazing system will enhance pasture condition and ecosystem function as well as optimize efficiency.

Before Situation:

Current grazing system is a long rotation, without sufficient rest and rotation to achieve highest production possible. Inefficient use of forage plants has a negative impact on pasture condition, as well as soil and water resources. Stocking rates are li

After Situation:

Typical scenario is a small dairy operation, but may be any operation that moves animals daily or every other day minimum and maintains desired residual forage heights. Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through proper rest and recovery periods, protection of sensitive areas, proper utilization, and efficient harvest of forage resources. Grazing system success will be evaluated through long term monitoring.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $7,523.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $150.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 528 - Prescribed Grazing

Scenario: #4 - Deferred grazing

Scenario Description:

Defer the pasture for 90 days and up to a growing season to manage for invasive weeds when necessary, to improve the health of the plants and/or provide nesting habitat for wildlife species. Keep records of dates out and monitor to determine when desired objectives of deferment are met. Associated Practices: Brush Management (314), Herbaceous Weed Control (315) Fence (382), Access Control (472), Forage and Biomass Planting (512), Nutrient Management (590), Feed Management (592), Upland Wildlife Habitat Management (645).

Before Situation:

Over-grazed pasture, a pasture with a low condition score, or a newly established pasture converted from cropland with a need for proper grazing management.

After Situation:

Improve the health and vigor of the sward, through deferment of grazing and improve the nesting habitat for wildlife.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $938.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $46.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 528 - Prescribed Grazing

Scenario: #54 - Prescribed Grazing Management, 5 acres or less

Scenario Description:
Plan, implement and monitor a rotational grazing system that will enhance and maintain ecosystem function as well as optimize efficiency and economic return on small farm (5 acres or less) grazing lands.

Before Situation:
Area is degraded due to inappropriate timing, duration, frequency and intensity of animal utilization resulting in impaired ecosystem functions. Overuse and degradation of the soil and plant resources are occurring and animal health is compromised.

After Situation:
Planned rotational movement of animals meet ecosystem functions due to proper timing, duration, frequency and intensity of animal utilization. Monitoring is showing that animals are in balance with available forage resources and ecological function and processes for soil, water and plant resources are being improved.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $1,463.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $292.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #1 - Electric Powered Pump less than 3 Hp

Scenario Description:

A 1 Hp submersible electric-powered pump is installed in a well or structure; or a close-coupled 1 Hp electric-powered centrifugal pump is mounted on a platform. It is used for watering livestock as part of a prescribed grazing system; or for pressurizing a small irrigation system; or for transferring liquid waste in a waste transfer system. Resource Concerns: Livestock Production Limitation - Inadequate livestock water; Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Livestock: The present gravity flow system is inadequate to provide the proper flow rate for a prescribed grazing system. Irrigation: Available water is at an insufficient pressure to allow for even distribution of water. Waste Transfer: Contaminated wate

After Situation:

Livestock: Water is transferred at a sufficient rate and pressure to meet the requirements of a prescribed grazing system. Irrigation: A properly designed pump is installed to improve irrigation efficiency and reduce energy usage. Waste Transfer: Liquid wastes that have been collected through a waste transfer system are now efficiently transferred to an appropriate treatment or storage facility.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 1.0

Scenario Total Cost: $3,107.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,107.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #2 - Electric Powered Pump Less Than 3 HP with Adequate Pump Controls

Scenario Description:

A 1 Hp submersible electric-powered pump is installed in a well or structure; or a close-coupled 1 Hp electric-powered centrifugal pump is mounted on a platform. Practice includes installation of necessary pump controls which could consist of, but is not limited to: level float switches, pump controllers, check valves, pressure gages, pressure tank, etc.. This practice does not include provisions for a variable frequency drive. It is used for watering livestock as part of a prescribed grazing system; or for pressurizing a small irrigation system. Resource Concerns: Livestock Production Limitation - Inadequate livestock water; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline.

Before Situation:

Livestock: The present gravity flow system is inadequate to provide the proper flow rate for a prescribed grazing system. Irrigation: Available water is at an insufficient pressure to allow for even distribution of water.

After Situation:

Livestock: Water is transferred at a sufficient rate and pressure to meet the requirements of a prescribed grazing system. Irrigation: A properly designed pump is installed to improve irrigation efficiency and reduce energy usage.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 1.0

Scenario Total Cost: $3,548.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,548.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #3 - Electric-Powered Pump 3 up to less than 10 HP

Scenario Description:

A 7.5 Hp submersible electric-powered pump is installed in a well or structure; or a close-coupled 7.5 Hp electric-powered centrifugal pump is mounted on a platform. It is used for a large, high-pressure (200psi) livestock pipeline as part of a prescribed grazing system; or for pressurizing a medium-sized (200gpm at 40psi) irrigation system; or a medium-sized (400gpm at 20 psi) waste transfer system. Resource Concerns: Livestock Production Limitation - Inadequate livestock water; Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Livestock: Current system consists of a series of medium pressure and inefficient pump stations to transport water to a distant and higher-elevation watering facility. Irrigation: An existing irrigation system employs an inefficient, improperly sized pump

After Situation:

Livestock: A single, efficient, high-pressure pumping plant is installed, eliminating intermediate pump stations, reducing energy use and enabling better system management. Irrigation: A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency. Waste Transfer: Collected wastes are now efficiently transferred to an appropriate treatment or storage facility.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 7.5

Scenario Total Cost: $11,278.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,503.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #4 - Electric-Powered Pump 3 up to less than 10 HP with Adequate Pump Controls

Scenario Description:

A 7.5 Hp submersible electric-powered pump is installed in a well or structure; or a close-coupled 7.5 Hp electric-powered centrifugal pump is mounted on a platform. Practice includes installation of necessary pump controls which could consist of, but is not limited to: level float switches, pump controllers, check valves, pressure gages, pressure tank, etc.. This practice does not include provisions for a variable frequency drive. It is used for a large, high-pressure (200psi) livestock pipeline as part of a prescribed grazing system; or for pressurizing a medium-sized (200gpm at 40psi) irrigation system; or a medium-sized (400gpm at 20 psi) waste transfer system. Resource Concerns: Livestock Production Limitation - Inadequate livestock water; Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Livestock: Current system consists of a series of medium pressure and inefficient pump stations to transport water to a distant and higher-elevation watering facility. Irrigation: An existing irrigation system employs an inefficient, improperly sized pump

After Situation:

Livestock: A single, efficient, high-pressure pumping plant is installed, eliminating intermediate pump stations, reducing energy use and enabling better system management. Irrigation: A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency. Waste Transfer: Collected wastes are now efficiently transferred to an appropriate treatment or storage facility.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 7.5

Scenario Total Cost: $11,917.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,588.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #5 - Electric-Powered Pump 10 to 40 HP

Scenario Description:

This is a close-coupled, 3-phase, 20 Hp electric-powered centrifugal pump mounted on a platform for pressurizing a medium-sized (500 gpm and 50 psi) sprinkler or large microirrigation (1,000 gpm and 30 psi) system or a large-sized surface irrigation system (1,500 gpm) or a large-sized (1,200 gpm and 25 psi) waste transfer system. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Irrigation: An existing irrigation system employs an inefficient, improperly sized pump that prevents efficient water application resulting in water loss and high energy use. Waste Transfer: Various types of semi-solid or liquid waste are uncollected caus

After Situation:

Irrigation: A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency. Waste Transfer: Collected wastes are now efficiently transferred to an appropriate treatment or storage facility or to a distribution system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 20.0

Scenario Total Cost: $20,764.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,038.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #6 - Electric-Powered Pump over 40 HP

Scenario Description:

This is a close-coupled, 3-phase, 50 Hp electric-powered centrifugal pump mounted on a platform for pressurizing a large-sized (1,200 gpm and 50 psi) sprinkler or very large microirrigation (1,700 gpm and 35 psi) system or a very large-sized surface irrigation system (2,800 gpm) or a very large-sized (2,400 gpm and 25 psi) waste transfer system. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 449 - Irrigation Water Management; 313 - Waste Storage Facility; and 634 - Waste Transfer.

Before Situation:

Irrigation: An existing irrigation system employs an inefficient, improperly sized pump that prevents efficient water application resulting in water loss and high energy use.

After Situation:

Irrigation: A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 50.0

Scenario Total Cost: $37,357.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $747.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #7 - Variable Frequency Drive Less Than 10HP

Scenario Description:

This is an installation of electrical and electronic components designed to vary the frequency of the voltage to an electric motor and thus the ability to vary the speed of the motor. This directly affects pressure and flowrate. This also could give the operator the flexibility to operate several systems separately or at the same time. Resource concerns: Insufficient water - Inefficient use of irrigation water; Inefficient energy use - Equipment and facilities and Farming/ranching practices and field operations. Associated Practices: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline; and 614 - Watering Facility.

Before Situation:

Standard electrical connection from electrical utility to pump motor. No capability to match pump output pressure and/or flowrate to field(s) need(s). Result is over/under pressure(s) and/or flow rate(s), possible hydraulic anomalies, energy loss, and or

After Situation:

VFD Modifications are implemented on an existing pumping plant meeting Nebraska performance criteria to allow for varying the speed of a 1.5 Hp electric motor to match the pressure and flow requirements for small microirrigation system.

Feature Measure: Pump Power Requirement

Scenario Unit: Horsepower

Scenario Typical Size: 1.5

Scenario Total Cost: $396.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $264.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #8 - Variable Frequency Drive over 10HP

Scenario Description:

This is an installation of electrical and electronic components designed to vary the frequency of the voltage to an electric motor and thus the ability to vary the speed of the motor. This directly affects pressure and flowrate. This also could give the operator the flexibility to operate several systems separately or at the same time. Resource concerns: Insufficient water - Inefficient use of irrigation water; Inefficient energy use - Equipment and facilities and Farming/ranching practices and field operations. Associated Practices: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline; and 614 - Watering Facility.

Before Situation:

Standard electrical connection from electrical utility to pump motor. No capability to match pump output pressure and/or flowrate to field(s) need(s). Result is over/under pressure(s) and/or flow rate(s), possible hydraulic anomalies, energy loss, and or

After Situation:

VFD Modifications are implemented on an existing pumping plant meeting Nebraska performance criteria to allow for varying the speed of a 10 Hp electric motor to match the pressure and flow requirements for an irrigation system.

Feature Measure: Pump Power Requirement

Scenario Unit: Horsepower

Scenario Typical Size: 10.0

Scenario Total Cost: $1,796.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $179.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #9 - Internal Combustion Powered Pump less than 7.5 HP

Scenario Description:

The typical scenario supports replacement of a pump in an existing irrigation system on cropland with a 5 HP pump. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. Scenario could also be used for a 5 HP pump for silage leachate, barnyard runoff, and milk house waste (as part of a waste transfer system) at farm headquarters. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley. Resource Concerns: Livestock Production Limitation - Inadequate livestock water; Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 449 - Irrigation Water Management; 516 - Livestock Pipeline; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs, or Waste Transfer: various types of semi-solid or liquid waste at the headquarters is u

After Situation:

Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage. Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 5.0

Scenario Total Cost: $6,279.09

Total Cost per Unit: $1,255.82

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #10 - Internal Combustion-Powered Pump 7.5 to 75 HP

Scenario Description:

The typical scenario supports installation of a pump in an existing irrigation system or installation of a new pump on cropland with a 45 BHP pump. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 313 - Waste Storage Facility; 634 - Waste Transfer; 436 - Irrigation Reservoir; and 447 - Irrigation System, Tailwater Recovery; and 614 - Watering Facility.

Before Situation:

Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs, or Waste Transfer: various types of semi-solid or liquid waste at the headquarters is u

After Situation:

Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage. Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 45.0

Scenario Total Cost: $39,587.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $879.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #11 - Internal Combustion-Powered Pump over 75 HP

Scenario Description:

The typical scenario supports replacement of a pump in an existing irrigation system or installation of a new pump on cropland that is 75 break HP pump or larger. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. Scenario could also be used for a pump for silage leachate, barnyard runoff, and milk house waste (as part of a waste transfer system) at farm headquarters. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs, or Waste Transfer: various types of semi-solid or liquid waste at the headquarters is u

After Situation:

Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage. Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 100.0

Scenario Total Cost: $70,029.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $700.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #12 - Tractor Power Take Off (PTO) Pump

Scenario Description:

This scenario involves a PTO driven pump to either transfer water for an irrigation system from a Pond - 378 (includes backflow prevention as appropriate) to cropland or; to transfer semi-solid/ liquid manure (as part of a waste transfer system) at the farm headquarters from a Waste Storage Facility - 313, to an irrigation system or waste treatment facility. In both cases, a PTO driven pump is selected because the landowner has equipment available to supply power to the pump. Electricity is not readily available and/or a stationary engine is not a practical alternative. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 430 - Irrigation Pipeline; 442 - Irrigation System, Sprinkler; 449 - Irrigation Water Management; 590 - Nutrient Management; 378 - Pond; 313 - Waste Storage Facility; and 634 - Waste Transfer.

Before Situation:

Irrigation Setting: An existing surface irrigation system employs an inefficient, improperly sized pump that leads to inefficient water delivery resulting in high energy costs; Waste Transfer Setting: various types of semi-solid or liquid waste at the hea

After Situation:

Irrigation Setting: A properly designed PTO-driven pump is installed, to transfer water to an Irrigation Pipeline (430) or Irrigation Canal or Lateral (320). Waste Transfer Setting: Wastes that have been collected through a waste transfer system are now efficiently transferred from a Waste Storage Facility (313) to an appropriate treatment facility or to an irrigation system. The pump typically will move 2,000 gallons per minute and is portable so that it can be used at several locations.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 60.0

Scenario Total Cost: $10,683.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $178.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #16 - Livestock Nose Pump

Scenario Description:

A Nose Pump is a diaphragm pump located in a pasture for the purpose of providing water to cattle. For a permanent installation, it is typical to also install Heavy Use Area Protection (561) (separate contract item) where the cattle congregate around the pump. It is powered and operated by cattle to transfer water from a stream to a drinking bowl. The objective is to provide water to the cattle outside of a live stream or other natural water source thereby eliminating a significant erosion situation and while also improving water quality. The cattle thus have access to drinking water without having to enter the stream. Generally one nose pump is adequate for 20 cattle. Resource Concerns: Insufficient stockwater; Inefficient energy use - Equipment and facilities. Associated Practices include: 374 - Farmstead Energy Improvement; 382 - Fence; 516 - Livestock Pipeline; 561 - Heavy Use Area Protection; and, 614 - Watering Facility.

Before Situation:

Livestock have open access to a live stream or other existing natural water supply. Water supply is contaminated due to animal activity and stream banks are eroded on a daily basis. Improper cattle distribution results in poor water quality, poor grazing

After Situation:

One nose pump is installed with all appurtenances anchored to concrete pad with 6"x6"x10 Gauge reinforcement wire (9 ft x 4 ft x 5 in) or other appropriate secure base to supply water to cattle for improved livestock herd management. Additional Heavy Use Area Protection (561) in the form of crushed rock and at least 5 feet wide, may be installed (separate contract item) surrounding the concrete pad. Improved: water quality, soil quality, grazing management, plant diversity, and animal health.

Feature Measure: Number of Pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,540.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,540.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #17 - Piston Manure Pump

Scenario Description:

Install a 16" solid piston manure pump to transfer manure from a barn to a waste storage facility. Costs include pump, delivery, appurtenances, and installation. Costs also include, excavation, backfill and concrete slab and walls. Scenario is based on VT Reception Pit Design 2x12x26Pump. Associated practices include: Waste Transfer (634), Waste Storage Facility (313), Roofs and Covers (367)

Before Situation:

Manure from the barn and barnyard is not collected or contained and is allowed to flow into nearby surface and subsurface water resources.

After Situation:

A solid piston manure pump, hydraulically actuated, 12" or greater discharge, 7.5 HP w/ accessories is installed in conjunction with a manure transfer pipe (634-Waste Transfer) to convey manure from the barn to the waste storage facility. The transferred waste is disposed of in accordance with the CNMP.

Feature Measure: Number of Pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $68,697.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $68,697.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #19 - Manure PTO Vertical Shaft Pump

Scenario Description:

Install a PTO manure pump to transfer manure from a barn to a waste storage facility. Costs include pump, delivery, appurtenances, installation, and a small insulated pump house installed to protect pump and appurtenances from freezing and wet weather. Associated practices include: Waste Transfer (634), Waste Storage Facility (313)

Before Situation:

Manure from the barn and barnyard is not collected or contained and is allowed to flow into nearby surface and subsurface water resources.

After Situation:

A vertical shaft PTO manure pump, 6" discharge, HP 70 to 110 (540 RPM) or HP 125 to 140 (1000 RPM), with agitating nozzle and propeller is installed to convey manure from the barn to the waste storage facility. The transferred waste is disposed of in accordance with the CNMP.

Feature Measure: Number of Pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $48,728.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $48,728.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #21 - PTO Side Mounted Manure Pump

Scenario Description:
Install a PTO driven side mounted unloading pump to unload manure from an above ground waste storage facility. Costs include pump, delivery, appurtenances, and installation. Associated practices include: Waste Transfer (634), Waste Storage Facility (313)

Before Situation:
Manure from the barn and barnyard is not collected or contained and is allowed to flow into nearby surface and subsurface water resources.

After Situation:
Side mounted pump allows manure to be unloaded from an above ground waste storage facility into a manure spreader or irrigation system so manure can be properly transported and field applied in accordance with an approved the CNMP.

Feature Measure: Number of Pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $70,500.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $70,500.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #23 - Solids Handling Wastewater Pump up to 2Hp

Scenario Description:
Install a solids handling wastewater pump <or= 2 Hp to transfer wastewater to a storage or treatment area. Costs include pump, delivery, appurtenances, installation. Associated practices include: Waste Transfer (634), Waste Storage Facility (313)

Before Situation:
Wastewater is not collected or contained and is allowed to flow into nearby surface and subsurface water resources.

After Situation:
A submersible 2" solids handling pump with 2" to 3" Discharge, 0.5 to 2 HP is installed.

Feature Measure: Number of Pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $5,933.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,933.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #24 - Solids Handling Wastewater Pump over 2Hp

Scenario Description:
Install a solids handling wastewater pump > 2Hp to transfer wastewater to a storage or treatment area. Costs include pump, delivery, appurtenances, installation. Associated practices include: Waste Transfer (634), Waste Storage Facility (313)

Before Situation:
Wastewater is not collected or contained and is allowed to flow into nearby surface and subsurface water resources.

After Situation:
A submersible 2" solids handling pump, recessed impeller, with 2" to 3" Discharge, > 2 HP is installed.

Feature Measure: Number of Pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $11,632.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,632.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #91 - Photovoltaic-Powered Pump, <4 kW

Scenario Description:

The typical scenario assumes installation of a submersible solar-powered pump in a well or a live stream. The installation includes the pump, wiring, drop pipe, solar panels, mounts, inverter, and all appurtenances. Note: It is generally not advisable to use a storage battery for a number of reasons. A storage tank is generally the most efficient method to store energy. Grazing - Livestock exclusion from surface water will result in improved surface water quality and reduced erosion. Irrigation - energy consumption will be reduced and the increased pressure and flow rates will improve irrigation efficiency. Resource Concerns: Insufficient stockwater. Associated Practices include: 374 - Farmstead Energy Improvement; 382 - Fence; 430 - Irrigation Pipeline; 436 - Irrigation Reservoir; 516 - Livestock Pipeline; 561 - Heavy Use Area Protection; and, 614 - Watering Facility.

Before Situation:

Livestock: Inadequate supply or location of water for a prescribed grazing system. Eroded stream banks and degraded water quality due to livestock access to stream. Cattle are not well-distributed because of remote water location. Irrigation: Pressure and

After Situation:

The typical scenario assumes installation of 1 kilowatt of photovoltaic (PV) panels, capable of operating a 1 horsepower solar-powered submersible pump in a well or other water source (Notes: 1) A PV panel is rated under standard and ideal conditions which will most likely not be replicated in the field; 2) 1 Horsepower is defined as 0.746 kilowatts.. The installation includes the pump, wiring, pipeline in the well, solar panels, frame mounts, controller, and all appurtenances. Water will be pumped to an existing storage tank at a higher elevation from which it will be used to pressurize the Livestock Pipeline (516) or Irrigation Pipeline (430). Grazing - Livestock exclusion from surface water will result in improved surface water quality and reduced erosion. Grazing has potential to be well distributed. Irrigation: Improved pressure and flow rate will improve irrigation efficiency.

Feature Measure: Pumping plant photovoltaic

Scenario Unit: Kilowatt

Scenario Typical Size: 1.0

Scenario Total Cost: $8,513.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8,513.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #134 - Electric-Powered Pump <= 5 Hp

Scenario Description:

A 1 Hp submersible electric-powered pump is installed in a well or structure; or a close-coupled 1 Hp electric-powered centrifugal pump is mounted on a platform. It is used for watering livestock as part of a prescribed grazing system; or for pressurizing a small irrigation system; or for transferring liquid waste in a waste transfer system. Resource Concerns: Livestock Production Limitation - Inadequate livestock water; Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Livestock: The present gravity flow system is inadequate to provide the proper flow rate for a prescribed grazing system. Irrigation: Available water is at an insufficient pressure to allow for even distribution of water. Waste Transfer: Contaminated wate

After Situation:

Livestock: Water is transferred at a sufficient rate and pressure to meet the requirements of a prescribed grazing system. Irrigation: A properly designed pump is installed to improve irrigation efficiency and reduce energy usage. Waste Transfer: Liquid wastes that have been collected through a waste transfer system are now efficiently transferred to an appropriate treatment or storage facility.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 2.5

Scenario Total Cost: $3,823.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,529.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #135 - Electric-Powered Pump <= 5 HP with Pressure Tank

Scenario Description:

A 1 Hp submersible electric-powered pump is installed in a well or structure; or a close-coupled 1 Hp electric-powered centrifugal pump is mounted on a platform. It is used for watering livestock as part of a prescribed grazing system; or for pressurizing a small irrigation system. Resource Concerns: Livestock Production Limitation - Inadequate livestock water; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline.

Before Situation:

Livestock: The present gravity flow system is inadequate to provide the proper flow rate for a prescribed grazing system. Irrigation: Available water is at an insufficient pressure to allow for even distribution of water.

After Situation:

Livestock: Water is transferred at a sufficient rate and pressure to meet the requirements of a prescribed grazing system. Irrigation: A properly designed pump is installed to improve irrigation efficiency and reduce energy usage.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 1.0

Scenario Total Cost: $3,234.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,234.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #136 - Electric-Powered Pump >5 HP<=30 hp

Scenario Description:

This is a close-coupled, 3-phase, 20 Hp electric-powered centrifugal pump mounted on a platform for pressurizing a medium-sized (500 gpm and 50 psi) sprinkler or large microirrigation (1,000 gpm and 30 psi) system or a large-sized surface irrigation system (1,500 gpm) or a medium-sized (1,000 gpm and 25 psi) waste transfer system. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 449 - Irrigation Water Management; 313 - Waste Storage Facility; and 634 - Waste Transfer.

Before Situation:

Irrigation: An existing irrigation system employs an inefficient, improperly sized pump that prevents efficient water application resulting in water loss and high energy use.

After Situation:

Irrigation: A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 20.0

Scenario Total Cost: $20,764.79

Total Cost per Unit: $1,038.24

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #137 - Electric-Powered Pump >30 hp <=75

Scenario Description:

This is a close-coupled, 3-phase, 50 Hp electric-powered centrifugal pump mounted on a platform for pressurizing a large-sized 1,000 gpm and 50 psi) sprinkler or very large microirrigation (2,000 gpm and 30 psi) system or a very large-sized surface irrigation system (3,000 gpm) or a large-sized (2,000 gpm and 25 psi) waste transfer system. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 449 - Irrigation Water Management; 313 - Waste Storage Facility; and 634 - Waste Transfer.

Before Situation:

Irrigation: An existing irrigation system employs an inefficient, improperly sized pump that prevents efficient water application resulting in water loss and high energy use.

After Situation:

A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency

Feature Measure: <Unknown>

Scenario Unit: Brake Horse Power

Scenario Typical Size: 50.0

Scenario Total Cost: $37,357.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $747.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #138 - Electric-Powered Pump >75

Scenario Description:

This is a close-coupled, 3-phase, 100 Hp electric-powered centrifugal pump mounted on a platform for pressurizing a very large (2500 gpm and 50 psi) sprinkler or a large-sized surface irrigation system (3,000 gpm). Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 449 - Irrigation Water Management; 313 - Waste Storage Facility; and 634 - Waste Transfer.

Before Situation:

Irrigation: An existing irrigation system employs an inefficient, improperly sized pump that prevents efficient water application resulting in water loss and high energy use.

After Situation:

Irrigation: A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 100.0

Scenario Total Cost: $42,986.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $429.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #139 - Variable Frequency Drive

Scenario Description:

This is an installation of electrical and electronic components designed to vary the frequency of the voltage to an electric motor and thus the ability to vary the speed of the motor. This directly affects pressure and flowrate. This also could give the operator the flexibility to operate several systems separately or at the same time. Resource concerns: Insufficient water - Inefficient use of irrigation water; Inefficient energy use - Equipment and facilities and Farming/ranching practices and field operations. Associated Practices: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 516 - Livestock Pipeline; and 614 - Watering Facility.

Before Situation:

Standard electrical connection from electrical utility to pump motor. No capability to match pump output pressure and/or flowrate to field(s) need(s). Result is over/under pressure(s) and/or flow rate(s), possible hydraulic anomalies, energy loss, and or

After Situation:

VFD Modifications are implemented at the pump site to allow for varying the speed of a 40 Hp electric motor to match the pressure and flow requirements for a center pivot irrigation system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 50.0

Scenario Total Cost: $6,904.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $138.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #140 - Internal Combustion-Powered Pump <= 50HP

Scenario Description:

The typical scenario supports installation of a pump in an existing irrigation system or installation of a new pump on cropland with a 30 BHP pump. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 313 - Waste Storage Facility; 634 - Waste Transfer; 436 - Irrigation Reservoir; and 447 - Irrigation System, Tailwater Recovery; and 614 - Watering Facility.

Before Situation:

Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs, or Waste Transfer: various types of semi-solid or liquid waste at the headquarters is u

After Situation:

Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage. Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 30.0

Scenario Total Cost: $28,193.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $939.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #141 - Internal Combustion-Powered Pump > 50 to 70 HP

Scenario Description:

The typical scenario supports installation of a pump in an existing irrigation system or installation of a new pump on cropland with a 60 BHP pump. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 313 - Waste Storage Facility; 634 - Waste Transfer; 436 - Irrigation Reservoir; and 447 - Irrigation System, Tailwater Recovery; and 614 - Watering Facility.

Before Situation:

Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs, or Waste Transfer: various types of semi-solid or liquid waste at the headquarters is u

After Situation:

Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage. Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 60.0

Scenario Total Cost: $45,531.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $758.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #142 - Internal Combustion-Powered Pump > 70 HP

Scenario Description:

The typical scenario supports replacement of a pump in an existing irrigation system or installation of a new pump on cropland that is 75 break HP pump or larger. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. Scenario could also be used for a pump for silage leachate, barnyard runoff, and milk house waste (as part of a waste transfer system) at farm headquarters. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Insufficient water - Inefficient use of irrigation water. Associated Practices include: 374 - Farmstead Energy Improvement; 430 - Irrigation Pipeline; 441 - Irrigation System, Microirrigation; 449 - Irrigation Water Management; 313 - Waste Storage Facility; 634 - Waste Transfer; and 614 - Watering Facility.

Before Situation:

Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs, or Waste Transfer: various types of semi-solid or liquid waste at the headquarters is u

After Situation:

Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage. Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

Feature Measure: Pump Power Requirement

Scenario Unit: Brake Horse Power

Scenario Typical Size: 100.0

Scenario Total Cost: $70,029.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $700.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #144 - Windmill-Powered Pump

Scenario Description:

A windmill is installed in order to supply a reliable water source for livestock and/or wildlife. The windmill includes the tower, concrete footings, wheel blade unit, sucker rod, down pipe, gear box, pump, plumbing, and well head protection concrete pad. The typical scenario will be a windmill system with a 10 ft diameter mill and 27-foot tower which is pumping from a 150-foot well. As a result of installing this windmill, resource concerns of inadequate stock water, plant establishment, growth, productivity, health, and vigor, and water quantity can be addressed. Resource Concerns: Insufficient stockwater.

Before Situation:

In a rangeland or pasture setting, a reliable source of water for livestock is not available, or the spacing between water sources is such that grazing distribution and plant health are adversely impacted.

After Situation:

A windmill, with a wheel ranging from 6' to 16' in diameter, will be installed over a well that is located to provide a reliable source of livestock water at the rate of at least 2 gpm, to facilitate proper grazing distribution and improved plant health. To increase reliability, water is pumped into a storage tank to provide a given number of days of supply. Installation includes the footings, wellhead protection concrete pad, tower, gear box, sail, sucker rod, down hole accessories, and a short outlet pipe to a storage tank.

Feature Measure: Diameter of Mill Wheel

Scenario Unit: Foot

Scenario Typical Size: 10.0

Scenario Total Cost: $13,998.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,399.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 533 - Pumping Plant

Scenario: #145 - Water Ram Pump

Scenario Description:

A water ram is used to transfer water from a live stream to a Watering Facility (614) or small Irrigation Reservoir (436) utilizing the energy of moving water to transfer a portion of that water to a higher elevation. It is anchored to a small concrete pad. Bypass water (which could easily be 90% of the water diverted from the stream) is returned to the stream or transferred in a pipe, to a lower elevation tank (614 or 436), without erosion or impairment to water quality. In the livestock scenario, the objective is to provide water to the cattle outside of a live stream or other natural water source thereby eliminating a significant erosion situation while also improving water quality. The cattle thus have access to drinking water without having to enter the stream. The water ram may need to be fenced for protection from curious bovines. While it is generally not considered practical for irrigation, in the irrigation scenario, water can be retrieved from a stream and stored in a small 436 to provide water for a very small (0.1 acre) irrigation system. Resource Concerns: Insufficient stockwater. Associated Practices: 374 - Farmstead Energy Improvement; 382 - Fence; 430 - Irrigation Pipeline; 436 - Irrigation Reservoir; 516 - Livestock Pipeline; 561 - Heavy Use Area Protection; and, 614 - Watering Facility.

Before Situation:

Water in a nearby stream is not available at the desired location, pressure and/or flow rate.

After Situation:

A 2" diameter inlet pipe is installed and connected to a water ram pump with all appurtenances and anchored to a concrete pad (9 ft x 4 ft x 5 in) or other appropriate secure base. Depending upon the application, either a 1-inch diameter Livestock Pipeline (516) or an Irrigation Pipeline (430) is installed from the water ram to a 5,000 gallon storage facility. Improved water quantity or quality, grazing management, plant diversity, animal health, and/or irrigation purposes as outlined in the appropriate NRCS irrigation system standard. A 2" water ram, with 10 gpm of inlet flow and 10 feet of drop, can supply about 1.0 gpm to a location about 50 feet higher than the water ram.

Feature Measure: Number of Ram Pumps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,420.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,420.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 548 - Grazing Land Mechanical Treatment

Scenario: #4 - Pastureland Mechanical Treatment

Scenario Description:
This also applies to organic operations as well. Chisel plowing or subsoiling will be used to break the restrictive layers that will increase water infiltration, break up sod and thatch on introduced forages. Depth of treatment will be 1" deeper than the restrictive layer.

Before Situation:
Forage growth on pastureland is limited by compacted soils layers and /or dense sod with a thatch build up.

After Situation:
Forage growth is increased due to greater rooting depths and water infiltration.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $2,402.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $48.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 548 - Grazing Land Mechanical Treatment

Scenario: #5 - Range - mechanical less than 5 percent slope

Scenario Description:
Using heavy modified plow or combinations of equipment that modifies physical soil layer or plant conditions on rangelands.

Before Situation:
Desired Ecological plant community is limited by a plant or soil layer that physically restricts change over a threshold.

After Situation:
Desired Ecological plant community has changed by overcoming the threshold or the seeded vegetation establishes and sustains its function and ecological processes for the life of the practice.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 250.0

Scenario Total Cost: $7,093.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 548 - Grazing Land Mechanical Treatment

Scenario: #7 - Range mechanical more than 5 percent slope

Scenario Description:
On the contour, using mechanical equipment or combinations of equipment that modifies physical soil layer or plant conditions on rangeland.

Before Situation:
Desired Ecological plant community is limited by a plant or soil layer that physically restricts change over a threshold.

After Situation:
Desired Ecological plant community has changed by overcoming the threshold or the seeded vegetation establishes and sustains its function and ecological processes for the life of the practice and geomorphology of the site.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 25.0

Scenario Total Cost: $3,312.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $132.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 554 - Drainage Water Management

Scenario: #5 - Drainage Water Management (DWM)

Scenario Description:

This scenario is the process of managing water discharges from surface and/or subsurface agricultural drainage systems by reducing nutrient loading into surface waters. Typical systems consist of a 75 acre field with existing drainage tile lines and installed water control structures. The operator goes to the field in order to adjust water control structures (riser boards). While on site the date and adjustment information is recorded/logged. The number of yearly adjustments is based on 6 trips to a field 5 miles from headquarters. The field time to make and record each adjustment is 0.5 hours per structure (including travel time). The typical field will contain 5 water control structures; 3 structures control field water levels and 2 structures control a single denitrifying bioreactor. Resource Concern: Water Quality - Excess Nutrients in surface and ground waters. Associated Practices: 606-Subsurface Drain; 607-Surface Drain, Field Ditch; 608-Surface Drain, Main or Lateral; 587-Structure for Water Control; 590-Nutrient Management .

Before Situation:

Existing drainage systems are in place and water flows uncontrolled.

After Situation:

Existing drainage systems are managed to reduce flow of field drainage waters from the site and reduce nitrate loading by denitrification.

Feature Measure: Number of Control Structur

Scenario Unit: Each

Scenario Typical Size: 5.0

Scenario Total Cost: $662.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $132.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 554 - Drainage Water Management

Scenario: #20 - Automated Drainage Water Management

Scenario Description:

This scenario is the process of managing the drainage water discharge volume and water table elevation by regulating the flow from surface and/or subsurface agricultural drainage systems utilizing automation. Typical systems consist of a field with a fairly flat slope (less than 2% and preferably less than 1%) with existing drainage tile lines and installed water control structures which are operated with automated slide gates, and telemetry data systems coupled with cloud data management. Typical affected area for an automated drainage water management structure is 10 to 20 acres. The operator, from handheld device, adjusts water control structures (gate elevation) and logs data. Educational meeting is conducted between consultant and operator(s) annually for essential knowledge transfer Resource Concern: Water Quality - Excess Nutrients in surface and ground waters. Associated Practices: 606-Subsurface Drain; 607-Surface Drain, Field Ditch; 608-Surface Drain, Main or Lateral; 587-Structure for Water Control; 590-Nutrient Management.

Before Situation:

Existing inefficient drainage systems are in place and water flows uncontrolled, resulting in sediment and nutrient laden outflow entering ditches or streams.

After Situation:

Existing drainage systems are managed utilizing telemetry and real-time data to retain moisture in the soil for plant uptake and to allow for enhanced nutrient utilization.

Feature Measure: Acres of Managed Drainage

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $478.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 555 - Rock Wall Terrace

Scenario: #13 - Rock/Geotextile/Gravel Barrier

Scenario Description:

A rock retaining wall with rock riprap on geotextile and gravel bedding constructed across the slope to form and support a bench terrace that will control the flow of water and check erosion on sloping land. The rock retaining wall will stabilize steeply sloping land so that it can be farmed with minimal soil loss. The resource concerns addressed include soil erosion, water quality degradation, and excess water.

Before Situation:

Rock barriers are applicable to agricultural land that is steeply sloping with a soil depth adequate for benching and where the effectiveness of less intensive measures for soil and water conservation are inadequate. This standard applies to sites with la

After Situation:

A rock barrier, approximately 200 feet in length, with 90 cubic yards of rock, with a gravel bedding of approximately 26 cubic yards on geotextile, constructed across the slope to form and support a bench terrace that will control the flow of water and check erosion on sloping land to stabilize steeply sloping land so that it can be farmed with minimal soil loss. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Terrace (600), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Feet of Rock Barrier

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $16,056.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $80.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 555 - Rock Wall Terrace

Scenario: #14 - Grouted Rock Geotextile Gravel Barrier

Scenario Description:

A rock retaining wall with grouted rock riprap on geotextile and gravel bedding constructed across the slope to form and support a bench terrace that will control the flow of water and check erosion on sloping land. The rock retaining wall will stabilize steeply sloping land so that it can be farmed with minimal soil loss. The resource concerns addressed include soil erosion, water quality degradation, and excess water.

Before Situation:

Rock barriers are applicable to agricultural land that is steeply sloping with a soil depth adequate for benching and where the effectiveness of less intensive measures for soil and water conservation are inadequate. This standard applies to sites with la

After Situation:

A rock barrier, approximately 200 feet in length, with 90 cubic yards of grouted rock, with a gravel bedding of approximately 12 cubic yards with approximately 230 square yards of geotextile, constructed across the slope to form and support a bench terrace that will control the flow of water and check erosion on sloping land to stabilize steeply sloping land so that it can be farmed with minimal soil loss. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Terrace (600), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Feet of Rock Barrier

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $31,339.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $156.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 555 - Rock Wall Terrace

Scenario: #15 - Gabion Rock Barrier

Scenario Description:

A rock retaining wall with rock filled gabions on geotextile and gravel bedding constructed across the slope to form and support a bench terrace that will control the flow of water and check erosion on sloping land. The rock retaining wall will stabilize steeply sloping land so that it can be farmed with minimal soil loss. The resource concerns addressed include soil erosion, water quality degradation, and excess water.

Before Situation:

Rock barriers are applicable to agricultural land that is steeply sloping with a soil depth adequate for benching and where the effectiveness of less intensive measures for soil and water conservation are inadequate. This standard applies to sites with la

After Situation:

A rock barrier, approximately 200 feet in length, with 90 cubic yards of rock in gabions, with a gravel bedding of approximately 12 cubic yards with approximately 230 square yards of geotextile, constructed across the slope to form and support a bench terrace that will control the flow of water and check erosion on sloping land to stabilize steeply sloping land so that it can be farmed with minimal soil loss. Vegetation of disturbed areas will be completed under critical area planting (342). Erosion control during construction activities will use Stormwater Runoff Control (570). Other associated practices include Terrace (600), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Feet of Rock Barrier

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $19,710.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $98.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 557 - Row Arrangement

Scenario: #1 - Establishing Row Direction, Grade, & Length.

Scenario Description:

Row Arrangement establishes the direction, grade and length for crop rows by setting a baseline by ground survey, GPS, GIS, or other appropriate methods that will provide the planned results to provide drainage, erosion control. Used as part of drainage system, control runoff, reduces soil erosion. Crop rows will be on planned grades and lengths. Direction and length of rows will vary according to local situation. Planner will consider crop, exposure, aspect, flow of water, and use of additional practices. May be used on dryland areas to fully and effectively utilize rainfall. This scenario addresses the resource concern of Soil Erosion / irrigation induced soil erosion / sheet & rill.

Before Situation:

This practice applies to all crop land areas where there is a need for reducing soil erosion ,improving irrigation efficiency, improving drainage and improving production practices which improve energy efficiency and minimize the application of chemicals

After Situation:

Crop rows are established in direction, grade and length by setting a baseline by ground survey, GPS, GIS, or other appropriate methods on approximately 25 acres that will provide the planned results. To remove irregularities on land surface with special equipment, that may require a needed change of length, direction, or slope of crop rows and slope, the field will need to be smoothed or leveled to correct irregularities and address drainage or Irrigation Issues, then other Conservation Practices should be used to address these concerns by using Land Smoothing (466), Precision Land Leveling (462), Irrigation Land Leveling (464), Other associated practices that maybe used are Grassed Waterway (412), Sediment Basin (350), Terrace (600), Filter Strip (393), Irrigation Water Management (449), Grade Stabilization (410), Conservation Cover (327), and Cover Crop (340)

Feature Measure: Area to Set Row Direction, G

Scenario Unit: Acre

Scenario Typical Size: 25.0

Scenario Total Cost: $299.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 558 - Roof Runoff Structure

Scenario: #1 - Roof Gutter, Small

Scenario Description:

A roof runoff structure, consisting of gutter(s) <=6", downspout(s), and appropriate outlet facilities. Used to keep roof clean water runoff uncontaminated and provide a stable outlet to ground surface. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Watering Facility (614), Underground Outlet (620), Diversion (362), and any relevant irrigation practices.

Before Situation:

Applicable where: (1) a roof runoff management facility is included in an overall plan for an overall plan for a waste management system; (2) roof runoff needs to be diverted away from structures or contaminated areas; (3) there is a need to collect, cont

After Situation:

A gutter and downspout system servicing the portion of the building roof that would otherwise drain into a waste management system or create erosion. Roof line of 200 ft serviced with aluminum gutter and 6 aluminum downspouts. Cost include aluminum gutter, aluminum downspout, hangers and miscellaneous hardware. Cost also include heavy duty PVC pipe to protect downspout damage by livestock. Underground pipe outlet shall be included with 620 - Underground Outlet.

Feature Measure: Length of Gutter

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $2,422.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 558 - Roof Runoff Structure

Scenario: #2 - Roof Gutter, Large

Scenario Description:

A roof runoff structure, consisting of gutter(s) >=6", downspout(s), measures for snow protection (is needed), and appropriate outlet facilities. Used to keep roof clean water runoff uncontaminated and provide a stable outlet to ground surface. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Watering Facility (614), Underground Outlet (620), Diversion (362), and any relevant irrigation practices.

Before Situation:

Applicable where: (1) a roof runoff management facility is included in an overall plan for an overall plan for a waste management system; (2) roof runoff needs to be diverted away from structures or contaminated areas; (3) there is a need to collect, cont

After Situation:

A gutter and downspout system servicing the portion of the building roof that would otherwise drain into a waste management system or create erosion. Roof line of 200 ft serviced with aluminum gutter, snow protection measures, and aluminum downspouts. Cost include aluminum gutter, aluminum downspout, hangers and miscellaneous hardware. Underground pipe outlet shall be included with 620 - Underground Outlet.

Feature Measure: Length of Gutter

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $4,703.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 558 - Roof Runoff Structure

Scenario: #3 - Concrete Swale

Scenario Description:

A roof runoff structure, consisting of a concrete curb or parabolic channel installed on existing impervious surface or the ground with appropriate outlet facilities. Environmental/design considerations, for example – snow loads, or a building without proper structural support needed for gutters dictate the use of an on-ground concrete curb. Used to keep roof clean water runoff uncontaminated and provide a stable outlet to ground surface. Facilitates waste management and protects the environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Underground Outlet (620), and Diversion (362).

Before Situation:

Applicable where: (1) a roof runoff management facility is included in an overall plan for an overall plan for a waste management system; (2) roof runoff needs to be diverted away from structures or contaminated areas; (3) there is a need to collect, cont

After Situation:

A concrete channel with curbs constructed to divert roof runoff. Concrete curb is 6" high and extends the length roof (200'). Typically installed to divert "clean" roof runoff away from waste management systems or to stop erosion caused by concentrated roof runoff.

Feature Measure: Length of Swale

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $5,386.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 558 - Roof Runoff Structure

Scenario: #5 - Trench Drain

Scenario Description:

A roof runoff structure, consisting of a trench filled with rock, with 4, 6 or 8 inch polyethylene, corrugated, perforated drain tile installed in trench bottom. Used to keep roof clean water runoff uncontaminated and provide a stable outlet to ground surface. Environmental/design considerations, for example – snow loads, or a building without proper structural support needed for gutters dictate the use of a trench drain. Facilitates waste management and protects the environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Underground Outlet (620), and Diversion (362).

Before Situation:

Applicable where: (1) a roof runoff management facility is included in an overall plan for an overall plan for a waste management system; (2) roof runoff needs to be diverted away from structures or contaminated areas; (3) there is a need to collect, cont

After Situation:

A 2' deep by 3' wide by 200' long trench filled with clean stone w/ 4-8" tile drained. Trench drain typically installed at ground level under the eave of a roof. Outlet from "Trench Drain" to stable outlet shall be covered under 620 - Underground Outlet. Typically installed to divert "clean" roof runoff away from waste management systems or to stop erosion caused by concentrated roof runoff.

Feature Measure: Length of Trench Drained

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $3,402.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 558 - Roof Runoff Structure

Scenario: #23 - Roof Gutter with Fascia

Scenario Description:

Existing roof does not have adequate fascia material to support the required roof gutter for a roof runoff structure. Practice installation requires a fascia board, gutter(s), downspout(s), and appropriate outlet facilities. Used to keep roof clean water runoff uncontaminated and provide a stable outlet to ground surface. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Watering Facility (614), Underground Outlet (620), Diversion (362), and any relevant irrigation practices.

Before Situation:

Applicable where: (1) a roof runoff management facility is included in an overall plan for an overall plan for a waste management system; (2) roof runoff needs to be diverted away from structures or contaminated areas; (3) there is a need to collect, cont

After Situation:

A gutter, downspout, and outlet system servicing the portion of the building roof that would otherwise drain into a waste management system or create erosion. Roof line of 200 ft serviced with gutter, four downspouts, and appurtances. New 2" x 8" fascia board needed for proper attachment.

Feature Measure: Linear Length of Roof to be

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $5,628.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 558 - Roof Runoff Structure

Scenario: #26 - High Tunnel Roof Runoff Trench Drain and Storage

Scenario Description:

NOT TO BE USED WHERE CONTAMINATED SOIL EXIST. An urban agricultural producer wishes to address a resource concern such as a need for water or erosion around high tunnel from roof runoff and collect and store roof runoff for reuse as supplemental irrigation/water supply water. Associated Practice: High Tunnel

Before Situation:

Producer has resource concern such as erosion caused by roof runoff from an installed high tunnel

After Situation:

A 2' deep by 3' wide by 100' long trench filled with clean stone w/ 4-8 inch perforated PE pipe located on both sides of the high tunnel collect the roof runoff and divert to an underground storage tank. Trench drain typically installed at ground level under the edge of a high tunnel. Outlet from 'Trench Drain' conveys water to a buried storage tank. Typically installed to capture water for reuse or to stop erosion caused by concentrated roof runoff.

Feature Measure: Length of high tunnel

Scenario Unit: Linear Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $5,032.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 558 - Roof Runoff Structure

Scenario: #46 - Roof Gutter, 6 inches wide with runoff Storage Tank

Scenario Description:

A roof runoff structure, consisting of gutter(s), downspout(s), and a storage tank. Used to keep roof clean water runoff uncontaminated, provide storage for on-farm use of roof water and a stable outlet for any excess to ground surface in a way that avoids erosion. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Watering Facility (614), Underground Outlet (620), Diversion (362), and any relevant irrigation practices.

Before Situation:

Applicable where: (1) a roof runoff management facility is included in an overall plan for an overall plan for a waste management system; (2) roof runoff needs to be diverted away from structures or contaminated areas; (3) there is a need to collect, cont

After Situation:

A gutter and downspouts servicing the portion of the building roof that would otherwise drain into a waste management system or create erosion. Roof line of 200 ln.ft. serviced with gutter, downspouts, and appurtances. A 1,500 gallon tank is installed for storage and use of roof runoff.

Feature Measure: Linear Length of Roof to be

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $4,374.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $21.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #1 - New earth road in dry, level terrain.

Scenario Description:

Newly constructed compacted earth road in relatively level terrain and dry areas. Terrain should be considered level for slopes of 0-5%. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide at the top, mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $5,249.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #2 - New 12 inch gravel road in soft, level terrain

Scenario Description:

Newly Constructed gravel road with min. 12 inch thick compacted gravel surface over geotextile in relatively level ground in soft areas. Terrain should be considered level for slopes of 0-5%. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide with geotextile and 12 inch gravel surfacing at the top. It is mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $14,118.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #3 - New geocell road in soft, level terrain

Scenario Description:

Newly Constructed geotextile, gravel, and geocell road with min. 6 inch thick compacted gravel with geocell surface in relatively level ground in soft areas. Terrain should be considered level for slopes of 0-5%. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide with geotextile, 6 inch gravel, and geocell surfacing. It is mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $34,580.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $69.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #4 - Rehabilitation of existing earth road in dry, level terrain

Scenario Description:

Repair and rehabilitation of compacted earth road in existing alignment in dry, level terrain. Terrain should be considered level for slopes of 0-5%. The extent of construction work over an existing alignment is assumed to average 30% of the work for a new installation. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition , it will result in continued compaction, excessive sediment in surface

After Situation:

The damaged portions of the road will be repaired to a full 14 feet width at the top, mostly in embankment less than 3 feet in height, (average 2 ft), typical side slopes 2:1. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $2,850.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #5 - Rehabilitation of existing road using gravel in soft, level terrain

Scenario Description:

Repair and rehabilitation of a compacted earth or gravel road where it is determined that gravel is needed for the repair with min. 12 inch thick compacted gravel surface over geotextile on existing alignment in soft, level terrain. Terrain should be considered level for slopes of 0-5%. The extent of construction work over an existing alignment is assumed to average 30% of the work for a new installation. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface materials, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition , it will result in continued compaction, excessive sediment in surface

After Situation:

The damaged portions of the road will be repaired to a full 14 feet width with a geotextile and 12" gravel surface at the top, mostly in embankment less than 3 feet in height, (average 2 ft), typical side slopes 2:1. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided.. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $6,032.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #6 - Rehabilitation of existing road using geocell in soft, level terrain

Scenario Description:

Repair and rehabilitation of compacted earth, gravel, or geocell road where it is determined that geocell is required for the repair with min. 6 inch thick compacted gravel with geocell surface on existing alignment in soft, level terrain. Terrain should be considered level for slopes of 0-5%. The extent of construction work over an existing alignment is assumed to average 30% of the work for a new installation. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition , it will result in continued compaction, excessive sediment in surface

After Situation:

The road will be 14 feet wide with geotextile, 6 inch gravel, and geocell surfacing. It is mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $12,171.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #7 - New earth road in dry, sloped terrain

Scenario Description:

Newly constructed compacted earth road in steep sloped terrain but relatively dry areas. Terrain should be considered sloped for slopes of >5%. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide at the top, 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft) typical cut and fill side slopes 2:1. Out of total excavation, 60% is considered common earth and 40% hard dig or rocks. A properly constructed, well defined access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $7,296.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #8 - New 12 inch gravel road in soft, sloped terrain

Scenario Description:

Newly Constructed gravel road with min. 12 inch thick compacted gravel surface over geotextile in steep sloped ground in soft areas. Terrain should be considered sloped for slopes of >5%. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide with a geotextile and 12 inch gravel surfacing at the top. It is 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft) typical side slopes 2:1. Out of total excavation, 60% is considered common earth and 40% hard dig or rocks. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $16,620.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $33.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #9 - New geocell road in soft, sloped terrain

Scenario Description:

Newly Constructed geotextile, gravel, and geocell road with min. 6 inch thick compacted gravel and geocell surface in steep sloped ground in soft areas. Terrain should be considered sloped for slopes of >5%. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide with geotextile, 6 inch gravel, and geocell surfacing. It is mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. Out of total excavation, 60% is considered common earth and 40% hard dig or rocks. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $37,083.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $74.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #10 - Rehabilitation of existing earth road in soft, sloped terrain

Scenario Description:

Repair and rehabilitation of compacted earth road in existing alignment in relatively soft soil conditions on a steep sloped terrain. Terrain should be considered sloped for slopes of >5%. The extent of construction work over an existing alignment is assumed to average 30% of the work for a new installation. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, some surfacing material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition , it will result in continued compaction, excessive sediment in surface

After Situation:

The damaged portions of the road will be repaired to a full 14 feet width at the top, 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft), typical side slopes 2:1. Out of total excavation, 60% is considered common earth excavation and 40% hard dig or rocks. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $3,444.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #11 - Rehabilitation of existing road using gravel in soft, sloped terrain

Scenario Description:

Repair and rehabilitation of compacted earth or gravel road where it is determined that gravel is needed for the repair with min. 12 inch thick compacted gravel surface over geotextile on existing alignment in soft, steep sloped terrain. Terrain should be considered sloped for slopes of >5%. The extent of construction work over an existing alignment is assumed to average 30% of the work for a new installation. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition , it will result in continued compaction, excessive sediment in surface

After Situation:

The damaged portions of the road will be repaired to a full 14 feet width with a geotextile and 12" gravel surface at the top, 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft), typical side slopes 2:1. Out of total excavation, 60% is considered common earth and 40% hard dig or rocks. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $6,783.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #12 - Rehabilitation of existing road using geocell in soft, sloped terrain

Scenario Description:

Repair and rehabilitation of compacted earth, gravel, or geocell road where it is determined that geocell is needed for the repair with min. 6 inch thick compacted gravel with geocell surface on existing alignment in soft, steep sloped terrain. Terrain should be considered sloped for slopes of >5%. The extent of construction work over an existing alignment is assumed to average 30% of the work for a new installation. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas, and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition , it will result in continued compaction, excessive sediment in surface

After Situation:

The road will be 14 feet wide with geotextile, 6 inch gravel, and geocell surfacing. It is mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. Out of total excavation, 60% is considered common earth and 40% hard dig or rocks. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373). Mulching should be addressed under Mulching (484).

Feature Measure: Length of Roadway

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $12,922.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #50 - New 6 inch gravel road in wet, level terrain less than 300 feet

Scenario Description:

Newly Constructed gravel road with min. 6 inch thick compacted gravel surface in relatively level ground in wet areas. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide with 6 inch gravel surfacing at the top. It is mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

Feature Measure: Length of road

Scenario Unit: Linear Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $4,215.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 560 - Access Road

Scenario: #51 - New earth road in dry, level terrain less than 300 feet

Scenario Description:

Newly constructed compacted earth road in relatively level terrain and dry areas. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compact

After Situation:

The road will be 14 feet wide at the top, mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or revegetation of disturbed areas is provided. Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

Feature Measure: Length of roadway

Scenario Unit: Linear Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $2,575.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #1 - Gravel or Wood Chip Pad

Scenario Description:

Gravel pad installed to stabilize areas around watering troughs, barn entrances, etc. Where applicable and allowable, wood chips may be used for stabilization over a gravel foundation to collect runoff. The stabilization of an area that is frequently and intensively used by people, livestock and equipment by surfacing with rock and or gravel on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Typical scenario is a pad which is 25' x 25'. Typically, site is excavated below topsoil. ~12" of bankrun gravel or similar material is directly placed by dump truck on non-woven geotextile and compacted to form a hard durable surface. Practice will address soil erosion and water quality degradation. Alternatively, a similar scenario would include ~18" of gravel with perforated pipe over geotextile with ~12" to 18" 2"x2"x0.25" wood chip aggregate. Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Transfer (634), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Gravel Pad

Scenario Unit: Square Foot

Scenario Typical Size: 625.0

Scenario Total Cost: $3,698.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #2 - Curb with Footer

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete with curb on a sand or gravel foundation to provide a stable, non-eroding surface. Curb is necessary to directly contaminated runoff to proper location. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Curb is installed to direct contaminated runoff to proper location and to assist in the movement, handling and management of manure. Concrete curb is 24" tall and 8" wide and 100' long. Footing is 3' wide and 6" deep. Curbing is reinforced with rebar. Curb is underlain by 6" of drainfill. Area is frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. Associated practices are Access Road (560), Stream Crossing (578), Critical Area Planting (342). Provisions to store, utilize, and/or treat contaminated runoff shall be addressed under Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Length of Curb

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $8,146.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $81.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #3 - Curb without Footer

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete with curb on a sand or gravel foundation to provide a stable, non-eroding surface. Curb is necessary to directly contaminated runoff to proper location. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Curb is installed to direct contaminated runoff to proper location and to assist in the movement, handling and management of manure. Concrete curb is 24" tall and 8" wide and 100' long. Curb is installed on top of existing slab, no footing. Hole are drilled into existing slab to accommodate vertical rebar. Area is frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. Associated practices are Access Road (560), Stream Crossing (578), Critical Area Planting (342). Provisions to store, utilize, and/or treat contaminated runoff shall be addressed under Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Length of Curb

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $3,473.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $34.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #4 - Concrete with Curb up to 1000 SF

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete with curb on a sand or gravel foundation to provide a stable, non-eroding surface. Curb is necessary to directly contaminated runoff to proper location. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Unstable area is surfaced with 630 square feet of concrete with curbing. Curb is installed to direct contaminated runoff to proper location and to assist in the movement, handling and management of manure. Concrete slab is 5" thick with 6" of compacted drainfill underneath. Concrete curb is 24" tall and 8" wide with 3' wide footing, with reinforcing steel. Assume seeding is equal to 50% of the HUAP size (315 sf). Area is frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. Associated practices are Access Road (560), Stream Crossing (578), etc. Provisions to store, utilize, and/or treat contaminated runoff shall be addressed under Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Concrete Pad

Scenario Unit: Square Foot

Scenario Typical Size: 630.0

Scenario Total Cost: $9,866.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #5 - Concrete/Asphalt without Curb up to 1000 SF

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete or asphalt on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Unstable area is surfaced with 630 square feet of concrete or asphalt, no curbing. Concrete/Asphalt slab is 5" thick with 6" of compacted drainfill underneath. Asphalt may require additional compacted drainfill. Assume 0.1 acres of seeding. Area is frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. Associated practices are Access Road (560), Stream Crossing (578), Critical Area Planting (342). Provisions to store, utilize, and/or treat contaminated runoff shall be addressed under Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Concrete Pad

Scenario Unit: Square Foot

Scenario Typical Size: 630.0

Scenario Total Cost: $7,390.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #6 - Concrete with Curb over 1000 SF

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete with curb on a sand or gravel foundation to provide a stable, non-eroding surface. Curb is necessary to directly contaminated runoff to proper location. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Unstable area is surfaced with 2500 square feet of concrete with curbing. Curb is installed to direct contaminated runoff to proper location and to assist in the movement, handling and management of manure. Concrete slab is 5" thick with 6" of compacted drainfill underneath. Concrete curb is 24" tall and 8" wide with 3' wide footing, with reinforcing steel. Area is frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. Associated practices are Access Road (560), Stream Crossing (578), Critical Area Planting (342). Provisions to store, utilize, and/or treat contaminated runoff shall be addressed under Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Concrete Pad

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $31,527.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #7 - Concrete/Asphalt without Curb over 1000 SF

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Unstable area is surfaced with 2500 square feet of concrete, no curbing. Concrete slab is 5" thick with 6" of compacted drainfill underneath. Assume 0.1 acres of seeding and roughly 2 c.y. of excavation to prep foundation due to existing uneven ground. Area is frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. Associated practices are Access Road (560), Stream Crossing (578), Critical Area Planting (342). Provisions to store, utilize, and/or treat contaminated runoff shall be addressed under Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Concrete Pad

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $23,326.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #15 - Bunk Silo Slab

Scenario Description:

The stabilization of areas under a bunk silo that is frequently and intensively used by heavy equipment by surfacing with reinforced concrete over a sand or gravel foundation to provide a stable, non-eroding surface. An additional 3" of asphalt is installed over the concrete to protect it from the acidic and caustic nature of silage leachate. Installation includes all materials, equipment, and labor to install this practice. The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all bunk silos where frequently and/or intensively used areas requiring treatment to address soil erosion and water quality degradation.

After Situation:

Unstable area is surfaced with 2500 square feet of concrete, no curbing. Concrete slab is 5" thick with 6" of compacted drainfill (gravel) underneath. An additional 3" of asphalt is installed over the concrete to protect it from the acidic and caustic nature of silage leachate. Assume 0.1 acres of seeding. Area is frequently and intensively used by heavy equipment used to load, compact silage and unload the silo. Practice will address soil erosion and water quality degradation. Associated practices are Access Road (560), Obstruction Removal (500), Critical Area Planting (342). Provisions to store, utilize, and/or treat silage leachate and contaminated runoff shall be addressed under Sediment Basin (350), Waste Storage Facility (313), Waste Treatment (629), or Vegetated Treatment Area (635) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Slab

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $29,366.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #31 - Confined Poultry outdoor access

Scenario Description:

This scenario only applies to confined poultry with outdoor access. Newly constructed heavy use area protection with a minimum 6" inch thick crushed #1 gravel will be installed around the static house and extend 10feet. Geogrid or Astroturf will be installed for 20feet from the gravel and length of building. The area will need to be overseeded with a locally appropriate vegetation.

Before Situation:

Area around the confined poultry area with outdoor access is denuded around the static boundary. Erosion and nutrient accumulation will occur and continue to occur, which will lead to soil and water quality degradation.

After Situation:

The site around the confined poultry area with outdoor access has been stabilized with an gravel, astroturf type material and vegetation.

Feature Measure: Protection area

Scenario Unit: Square Foot

Scenario Typical Size: 9,000.0

Scenario Total Cost: $33,976.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #37 - Reinforced Concrete with sand or gravel foundation

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas, and labor to install this practice, The stabilized area will address the resource concerns soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation:

The stabilized area is surfaced with approximately 630 square feet of approximately 8 cubic yards of welded wire mesh reinforced concrete with 8 cubic yards of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area

Scenario Unit: Square Foot

Scenario Typical Size: 630.0

Scenario Total Cost: $4,564.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #38 - Rock/Gravel on Geotextile

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with rock and or gravel on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice, The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation:

The stabilized area is surfaced with approximately 630 square feet of rock and or gravel on approximately 70 square yards of geotextile fabric foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Rock and or Gravel

Scenario Unit: Square Foot

Scenario Typical Size: 630.0

Scenario Total Cost: $1,334.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 561 - Heavy Use Area Protection

Scenario: #39 - Rock/Gravel-GeoCell-Geotextile

Scenario Description:

The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with rock and or gravel in a cellular containment grid on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice. The stabilized area will address the resource concerns of soil erosion and water quality degradation.

Before Situation:

This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation:

The stabilized area is surfaced with approximately 630 square feet of rock and or gravel in approximately 70 square yards of cellular containment grid on approximately 70 square yards of geotextile fabric foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Any needed vegetation of disturbed areas must use Critical Area Planting (342). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

Feature Measure: Area of Rock and or Gravel

Scenario Unit: Square Foot

Scenario Typical Size: 630.0

Scenario Total Cost: $2,888.90

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 570 - Stormwater Runoff Control

Scenario: #1 - Combination, Most common Best Management Practices

Scenario Description:

This scenario involves installation of silt fence, straw wattles, and straw bales on the construction site as part of one conservation engineering system. The combined system shall include two or more components and will address the resource concerns related with concentrated flow erosion, excessive sediment in surface waters as well as protection of existing inlets and structures depending on the combination.

Before Situation:

The combination scenario is applicable in all construction sites and watersheds including those in the urban and suburban areas. Which component would apply in a particular situation would depend on the site condition, slope etc.

After Situation:

When properly installed, the combination structures slow down runoff flow velocity and reduce high velocity erosion, detain and filter the stormwater runoff and provide a controlled release to the downstream areas. In seeded areas, straw wattles also enable seeds to settle and germinate, aiding the revegetation process. By filtering overland runoff and holding sediment on the slope, Straw Wattles also help to protect lakes, ponds, rivers and streams from sediment pollution. By filtering overland runoff and holding sediment on the slope, straw bales can also help to protect water quality. Silt fence are installed along the downstream perimeter of a construction site to prevent sediment transport off construction areas. A typical silt fence consists of a synthetic filter fabric stretched between a series of fence stakes, with the stakes installed on the downstream side of the perimeter and the fabric trenched into the soil on the upstream side and backfilled. All erosion control blankets and straw mulches will be covered under 484-Mulching. If earthen basins are warranted for water quality improvement or retention/detention purposes, use Sediment Basin (350). If seeding is warranted for water quality and erosion control purposes, all temporary and permanent vegetation will use Critical Area Planting (342).

Feature Measure: Area of construction site

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,338.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,338.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 570 - Stormwater Runoff Control

Scenario: #2 - Silt Fence

Scenario Description:

This scenario involves installation and removal of silt fence. Typical scenario includes the installation of 200 feet of silt fence to minimize the volume of sediment leaving the construction site. Silt fence is typically 3' high and is anchored into the ground. Stakes are installed every 10'. Silt fence shall be removed when construction is completed and vegetation has been established.

Before Situation:

Large area of vegetation is disturbed to construct and install a conservation practice. Potential for sedimentation is very high.

After Situation:

Silt fence is installed along the downstream perimeter of a construction site to prevent sediment transport off construction areas. A typical silt fence consists of a synthetic filter fabric stretched between a series of fence stakes, with the stakes installed on the downstream side of the perimeter and the fabric trenched into the soil on the upstream side and backfilled. Associated practices shall be 342 - Critical Area Seeding and 484-Mulching.

Feature Measure: Linear Feet of Silt Fence Inst

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $879.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 570 - Stormwater Runoff Control

Scenario: #9 - Rain Garden, greater than 750 sqft

Scenario Description:
Typical Size: 36' x 30' area, 4-8" deep. Additional Considerations from the practice standard that would be addressed by the practice are: Design stormwater control practices to fit into the visual landscape as well as to function for runoff control. If properly designed, stormwater control practices can be beneficial to wildlife.

Before Situation:
Stormwater is managed to prevent erosion from farmstead impervious surfaces and practice standard is met

After Situation:
Stormwater is managed to prevent erosion, reduce quantity of runoff, enhance visual impact and increase wildlife habitat and/or food.

Feature Measure: square feet of rain garden

Scenario Unit: Square Foot

Scenario Typical Size: 1,080.0

Scenario Total Cost: $1,481.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 570 - Stormwater Runoff Control

Scenario: #30 - Rain Garden, 750 sqft or less

Scenario Description:

Typical Size: Drainage area 3750sqft. Garden size 20' x 30' area, 4-8" deep. Additional Considerations from the practice standard that would be addressed by the practice are: Design stormwater control practices to fit into the visual landscape as well as to function for runoff control. If properly designed, stormwater control practices can be beneficial to wildlife.

Before Situation:

Stormwater from farmstead impervious surfaces causes erosion and flooding

After Situation:

Stormwater is managed to prevent erosion, reduce quantity of runoff, enhance visual impact and increase wildlife habitat and/or food.

Feature Measure: sqft of rain garden

Scenario Unit: Square Foot

Scenario Typical Size: 600.0

Scenario Total Cost: $1,286.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 572 - Spoil Disposal

Scenario: #6 - Spoil Spreading

Scenario Description:
A spoil pile is spread over a designated area according to an approved plan. The resource concerns are Soil Erosion and Water Quality Degradation.

Before Situation:
Spoil material is available from excavation of channels, drainage ditches, irrigation canals, or other construction sites.

After Situation:
Land has been shaped to the required elevations and grades. Resource concerns have been treated. Associated practices, like critical area planting or irrigation/drainage water management practices, would be contracted separately as needed.

Feature Measure: Cubic yards of spoil spread

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,000.0

Scenario Total Cost: $2,099.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 574 - Spring Development

Scenario: #1 - Solid Well Tile & Pipe Development

Scenario Description:

Develop a water source from a natural spring or seep (i.e., spring development) to provide water for livestock, and/or wildlife needs. The collection system is commonly composed of a single or a network of perforated 4 inch diameter drainage pipe placed in an excavated collection trench that runs across the slope. This typical scenario includes excavating and exposing the water source at the spring/seep (typically on a hillside) and constructing a water collection structure by installing a 100 ft long, 4 inch diameter HDPE perforated pipe enclosed in a sand/gravel envelope overlaid by 2 ft wide filter fabric (50 ft long). Water is then directed (via 20 ft long, 4 inch PVC) to a spring box (36-48 inch diameter x 8 ft long concrete well tile) that is located below the collection trench, equipped with a watertight lid and two outlets. One outlet serves as overflow pipe to account for occasions where inflow exceeds outflow. The outflow pipe from the spring box can be directed to buried large storage (not included) and/or to a watering facility (not included) for use. Resource Concern: Livestock production limitation - Inadequate livestock water. Associated Practices: 516-Livestock Pipeline; 614-Watering Facility; 382-Fence; Critical Area Planting (342).

Before Situation:

Livestock operation with inadequate fresh water for livestock and an on-site undeveloped spring/seep.

After Situation:

Spring development system provides adequate water for the intended use. The system typically runs all year long in most zones.

Feature Measure: Number of Developments

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,524.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,524.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 574 - Spring Development

Scenario: #2 - Perforated Well Tile Development

Scenario Description:

Develop a water source from a natural spring, seep, or other wet area to provide water for livestock and/or wildlife needs. This typical scenario includes excavating and exposing the water source at the spring/seep and installing a 3'-4' dia x 8' deep perforated concrete well tile enveloped in crushed stone, with geotextile fabric placed along the stone soil interface. Water seeps through the fabric and stone into the collection well. The perforated concrete well tile is equipped with a watertight lid and two outlets. One outlet serves as overflow pipe to account for occasions where inflow exceeds outflow. The outflow pipe (not included) from the well can be directed to buried large storage (not included), and/or to a watering facility (not included) for use. Resource Concern: Livestock production limitation - Inadequate livestock water. Associated Practices: 516-Livestock Pipeline; 614-Watering Facility; 382-Fence; Critical Area Planting (342).

Before Situation:

Livestock operation with inadequate fresh water for livestock and an on-site undeveloped spring/seep.

After Situation:

Spring development system provides adequate water for the intended use. The system typically runs all year long in most zones.

Feature Measure: Number of Developments

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,424.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,424.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 574 - Spring Development

Scenario: #11 - Spring Development

Scenario Description:

Develop a water source from a natural spring or seep (i.e., spring development) to provide water for livestock and/or wildlife needs. This typical scenario includes excavating and exposing the water source at the spring/seep (typically on a hillside), constructing a water collection structure by installing a 50 ft long, 4 inch diameter HDPE perforated pipe enclosed in a sand/gravel envelope overlaid by 2 ft wide filter fabric (50 ft long) and behind a concrete cutoff wall (6 inch x 4 ft height x 25 ft long) to retain water. Water is directed (via 20 ft long, 4 inch PVC) to a spring box (48 inch diameter x 6 ft long CMP) that is located at the cutoff wall or below the wall, equipped with a watertight lid and two outlets. One outlet serves as overflow pipe to account for occasions where inflow exceeds outflow. The collection system is commonly composed of a single or a network of perforated 4 inch diameter drainage pipe placed in an excavated collection trench that runs across the slope. The outflow pipe from the spring box can be directed to buried large storage (not included), and to a watering facility (not included) for use Resource Concern: Livestock production limitation - Inadequate livestock water. Associated Practices: 516-Livestock Pipeline; 614-Watering Facility; 382-Fence; Critical Area Planting (342).

Before Situation:

Livestock operation with inadequate fresh water for livestock and an on-site undeveloped spring/seep.

After Situation:

Spring development system provides adequate water for the intended use. The system typically runs all year long in most zones.

Feature Measure: Number of Developments

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,512.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,512.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #1 - Earth or Vegetated Trail

Scenario Description:

Layout and construct an earth or vegetated trail to facilitate the movement of animals, people, or off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide trails for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, earth and or vegetated surfaces and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by off-road vehicles, such as All-Terr

After Situation:

The typical trail will be a 8 foot wide 300 foot long, 2400 square foot lane of earth and vegetation. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is 15 CY. Assume 0.1 acre of seeding to stabilize disturbed areas on both sides. Consider the adequacy of natural surfacing. If the lane requires planting, the vegetation is provided. Where earth and or vegetation is not practical, adequate surface protection is provided under a different scenario. Stream Crossing, Code 578, will be used when the trail or lane crosses streams or shallow water areas. Consider the use of water bars to control and direct water flow in the trail. All culverts will be applied under Structure for Water Control (587). Use Access Road, Code 560 and Diversion (362) as appropriate. Fencing, Code 382, will be used when needed to control animal movement.

Feature Measure: Length of Walkway

Scenario Unit: Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $2,904.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #2 - Reinforced Concrete Walkway

Scenario Description:

Layout and construct an reinforced concrete walkway on a sand foundation to facilitate the movement of animals, people, or off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide walkways for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, reinforced concrete surfacing, vegetation of disturbed areas, all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by off-road vehicles, such as All-Terr

After Situation:

The typical walkway will be a 8 foot wide 300 foot long, 2400 square foot of reinforced concrete. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is reinforced concrete of 2400 square foot for surfacing. Assume 0.1 acre of seeding to stabilize disturbed areas on both sides. The walkway consist of approximately 44.5 CY of excavation, 30 CY of reinforced concrete with a 30 CY sand foundation. Stream Crossing, Code 578, will be used when the walkway crosses streams or shallow water areas. All culverts will be applied under Structure for Water Control (587). Use Access Road, Code 560 and Diversion (362) as appropriate. Fencing, Code 382, will be used when needed to control animal movement.

Feature Measure: Length of Walkway

Scenario Unit: Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $16,457.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $54.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #3 - Rock/Gravel on Geotextile, Walkway

Scenario Description:

Layout and construct a walkway with rock and or gravel on a geotextile fabric foundation surface treatment, to facilitate the movement of animals, people, or off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide walkways for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, rock and or gravel, geotextile, vegetation of disturbed areas, all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by off-road vehicles, such as All-Terr

After Situation:

The typical walkway will be a 8 foot wide 300 foot long, 2400 square foot of rock and or gravel on a geotextile fabric foundation surface treatment. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is aggregate gravel of 2400 square foot for surfacing. Assume 0.1 acre of seeding to stabilize disturbed areas on both sides. The walkway consist of approximately 67 CY of excavation, 67 CY of aggregate gravel on a 267 SY of geotextile fabric foundation. Stream Crossing, Code 578, will be used when the walkway crosses streams or shallow water areas. All culverts will be applied under Structure for Water Control (587). Use Access Road, Code 560 and Diversion (362) as appropriate. Fencing, Code 382, will be used when needed to control animal movement.

Feature Measure: Length of Walkway

Scenario Unit: Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $6,898.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #28 - Wood Chips, Walkway, greater than 1000 sqft

Scenario Description:

Layout and construct a wood chip surface treatment on a earthen foundation walkway to facilitate the movement of animals, people, or off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide walkways for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, wood chip surfacing, vegetation of disturbed areas, all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by off-road vehicles, such as All-Terr

After Situation:

The typical walkway will be a 12 foot wide 300 foot long, 3600 square foot of wood chip surface treatment on earthen foundation. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is wood chips of 3600 square foot for surfacing, and vegetation of 900 square foot of disturbed areas. The walkway consist of approximately 22 CY of excavation, 3600 square feet of wood chip surfacing. Stream Crossing, Code 578, will be used when the walkway crosses streams or shallow water areas. All culverts will be applied under Structure for Water Control (587). Use Access Road, Code 560 and Diversion (362) as appropriate. Fencing, Code 382, will be used when needed to control animal movement.

Feature Measure: Area of Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600.0

Scenario Total Cost: $3,908.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #29 - Rock/Gravel in GeoCell on Geotextile, Walkway

Scenario Description:

Layout and construct a walkway with rock and or gravel in a cellular containment grid on a geotextile fabric foundation surface treatment, to facilitate the movement of animals, people, or off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide walkways for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, rock and or gravel, containment grid, geotextile, vegetation of disturbed areas, all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by off-road vehicles, such as All-Terr

After Situation:

The typical walkway will be a 12 foot wide 300 foot long, 3600 square foot of rock and or gravel in a cellular containment grid on a geotextile fabric foundation surface treatment. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is aggregate gravel of 3600 square foot for surfacing, and vegetation of 900 square foot of disturbed areas. The walkway consist of approximately 22 CY of excavation, 45 CY of aggregate gravel in 400 SY of 4 inch geocell on a 400 SY of geotextile fabric foundation. Stream Crossing, Code 578, will be used when the walkway crosses streams or shallow water areas. All culverts will be applied under Structure for Water Control (587). Use Access Road, Code 560 and Diversion (362) as appropriate. Fencing, Code 382, will be used when needed to control animal movement.

Feature Measure: Area of Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600.0

Scenario Total Cost: $12,793.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #30 - Bituminous Concrete Pavement, Walkway

Scenario Description:

Layout and construct a bituminous concrete pavement surface treatment on aggregate gravel foundation walkway to facilitate the movement of animals, people, or off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide walkways for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, bituminous concrete pavement surfacing, vegetation of disturbed areas, all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by off-road vehicles, such as All-Terr

After Situation:

The typical walkway will be a 12 foot wide 300 foot long, 3600 square foot of bituminous concrete pavement on aggregate gravel foundation. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is bituminous concrete pavement of 3600 square foot for surfacing, and vegetation of 900 square foot of disturbed areas. The walkway consist of approximately 22 CY of excavation, 3600 square feet bituminous concrete pavement, with a 45 CY gravel foundation. Stream Crossing, Code 578, will be used when the walkway crosses streams or shallow water areas. All culverts will be applied under Structure for Water Control (587). Use Access Road, Code 560 and Diversion (362) as appropriate. Fencing, Code 382, will be used when needed to control animal movement.

Feature Measure: Area of Walkway

Scenario Unit: Square Foot

Scenario Typical Size: 3,600.0

Scenario Total Cost: $13,055.25

Total Cost per Unit: $3.63

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #51 - Wood Chips, Walkway, 1000 sqft or less

Scenario Description:

Layout and construct a wood chip surface treatment on a earthen foundation walkway to facilitate the movement of animals, people, or small off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide walkways for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, wood chip surfacing, vegetation of disturbed areas, all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by small off-road vehicles, such as Al

After Situation:

The typical walkway will be a 6 foot widex100 foot longx4" thick , 600 square foot of wood chip surface treatment on earthen foundation. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is wood chips of 600 square foot for surfacing.

Feature Measure: sqft of walkway

Scenario Unit: Square Foot

Scenario Typical Size: 600.0

Scenario Total Cost: $1,331.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 575 - Trails and Walkways

Scenario: #72 - Earth or vegetated trail 1000 sqft or less

Scenario Description:

Layout and construct an earth or vegetated trail to facilitate the movement of animals, people, or off-road vehicles to provide or improve access to forage, water, working/handling facilities, and/or shelter, Improve grazing efficiency and distribution, and/or protect ecologically sensitive, erosive and/or potentially erosive sites, pedestrian or off-road vehicle access to agricultural, construction, or maintenance operations, provide trails for recreational activities or access to recreation sites and address the resource concerns of soil erosion and water quality degradation. Costs include excavation, shaping, grading, earth and or vegetated surfaces and all equipment, labor and incidental materials necessary to install the practice.

Before Situation:

This practice applies on all lands where management of animal or human movement is needed to address soil erosion and water quality resource concerns. This practice applies to a trails or walkways constructed for use by off-road vehicles, such as All-Terr

After Situation:

The typical trail will be a 6 foot wide 100 foot long, 600 square foot lane of earth and vegetation. All excavation, grading and shaping necessary to provide a smooth permanent travel surface for livestock or people is included. Included is clearing, grading, leveling, and tilling with 0.1 acres of seeding to stabilize disturbed areas on both sides. Consider the adequacy of natural surfacing. If the lane requires planting, the vegetation is provided. Where earth and or vegetation is not practical, adequate surface protection is provided under a different scenario. Stream Crossing, Code 578, will be used when the trail or lane crosses streams or shallow water areas. Consider the use of water bars to control and direct water flow in the trail. All culverts will be applied under Structure for Water Control (587). Use Access Road, Code 560 and Diversion (362) as appropriate. Fencing, Code 382, will be used when needed to control animal movement.

Feature Measure: sqft of walkway

Scenario Unit: Square Foot

Scenario Typical Size: 600.0

Scenario Total Cost: $991.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 576 - Livestock Shelter Structure

Scenario: #15 - Prefabricated Portable Shade Structure

Scenario Description:

A flexible membrane or fabric-like roof placed on a steel or wood portable frame used to promote animal health where prescribed grazing practices have limited livestock access to shade. Cost estimate is based upon a 10 ft x 20 ft prefab portable structure. Associated practices include Fence (382), Prescribed Grazing (528), and Watering Facility (614).

Before Situation:

Livestock are being managed using a prescribed grazing plan resulting in a lack of shade during the summer months. The livestock are stressed and eat less frequently.

After Situation:

Livestock shade structures are rotated and sized according to NRCS plans and specifications. Livestock access to water, shade, and forage are dispersed to decrease animal stress and promote a better grazing and nutrient spreading.

Feature Measure: Area of Roof Frame

Scenario Unit: Square Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $1,496.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #1 - Culvert Installation, greater than or equal to 30 inch diameter

Scenario Description:

Install a new culvert equal to or greater than 30" in diameter. HDPE and CMP are acceptable materials under this scenario. For culverts less than 30" use Practice Standard 587 Structure for Water Control. Work includes dewatering, site preparation and removing any old crossing, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and building headwalls. If a different travel surface is needed, refer to another appropriate standard for the surfacing. 36 inch Culvert installation with <75 cy of fill needed and < 2 yds rock riprap for headwalls. Pipe is 40 feet long. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic. Use (587) Structure for Water Control instead, for ditch cross culverts and other intermittent flows and culverts less than 30" in diameter.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access road and waterflow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Culvert

Scenario Unit: Inch-Foot

Scenario Typical Size: 1,440.0

Scenario Total Cost: $7,057.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #2 - Low Water Crossing, Riprap or Rock

Scenario Description:

Stabilize the bottom and slope of a stream channel using rock or riprap. This scenario includes site preparation, dewatering, acquiring and installing gravel or geotextile with rock riprap on channel bottom and approaches. Final travel surface shall be the riprap. Typical stream has 30 foot bottom width and approaches. Width is 14 feet for a total area as 420sf. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Square feet of Rock or Ripra

Scenario Unit: Square Foot

Scenario Typical Size: 420.0

Scenario Total Cost: $3,583.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #3 - Low water crossing using prefabricated products

Scenario Description:

To install a stable crossing medium on channel bottom and approaches. Medium includes but not limited to precast concrete blocks, geocells, pavers, and gabions. If a different travel surface is needed, refer to another appropriate standard for the surfacing. Typical stream has 30 foot bottom width and approaches. Width is 14 feet for a total area as 420sf. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access road and waterflow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: low water crossing

Scenario Unit: Square Foot

Scenario Typical Size: 420.0

Scenario Total Cost: $10,749.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #5 - Timber Bridge with Block Abutments

Scenario Description:

Install a bridge to allow stream flows to cross under access road or animal trail. Bridge opening determined by sizing for storm event dictated in standard. Scenario includes dewatering, abutments, girders, decking. Work consists of site preparation, dewatering, acquiring and installing abutments, girders, decking with necessary hardware, backfilling abutments, and armoring with geotextile and riprap. Riprap and geotextile are used to stabilize and protect abutments as needed. Scenario based on cast in place concrete abutments, steel girders, and timber deck. Travel surface shall be wooden deck surface. If a different travel surface is needed, refer to another appropriate standard for the surfacing. Span is less than 14 feet. Load is H-20. Abutments are <= 6 feet. Typical Bridge is 16' wide and 20' long

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access and waterflow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: square footage of bridge de

Scenario Unit: Square Foot

Scenario Typical Size: 320.0

Scenario Total Cost: $35,328.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $110.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #6 - Bridge with cast in place abutments, span > 14 feet

Scenario Description:

Install a bridge to allow stream flows to cross under access road or animal trail. Bridge opening determined by sizing for storm event dictated in standard. Scenario includes dewatering, abutments, girders, decking. Work consists of site preparation, dewatering, acquiring and installing abutments, girders, decking with necessary hardware, backfilling abutments, and armoring with geotextile and riprap. Riprap and geotextile are used to stabilize and protect abutments as needed. Scenario based on cast in place concrete abutments, steel girders, and timber deck. Travel surface shall be wooden deck surface. If a different travel surface is needed, refer to another appropriate standard for the surfacing. Span is greater than 14 feet. Load is H-20. Width is 15 feet including curbs. Abutment height as needed from design. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic. Bridge used to build scenario 15' wide, 30' long, 450 sq ft.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access and water flow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Area of bridge deck

Scenario Unit: Square Foot

Scenario Typical Size: 450.0

Scenario Total Cost: $91,259.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $202.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #7 - Bridge with precast abutments

Scenario Description:

Install a bridge to allow stream flows to cross under access road or animal trail. Bridge opening determined by sizing for storm event dictated in standard. Scenario includes dewatering, abutments, girders, decking. Work consists of site preparation, dewatering, acquiring and installing abutments, girders, decking with necessary hardware, backfilling abutments, and armoring with geotextile and riprap. Riprap and geotextile are used to stabilize and protect abutments as needed. Scenario based on precast concrete abutments, steel girders, and timber deck. Travel surface shall be wooden deck surface. If a different travel surface is needed, refer to another appropriate standard for the surfacing. Span is 30 feet. Width is 16 feet. Abutment height as needed from design. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access and water flow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Area of bridge deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $131,309.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $273.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #8 - Bridge, prefabricated

Scenario Description:

Install a bridge to allow stream flows to cross under access road or animal trail. Bridge opening determined by sizing for storm event dictated in standard. Scenario includes dewatering, abutments, girders, decking installed as a prefabricated unit. Work consists of site preparation, dewatering, acquiring and installing the prefabricated unit with necessary hardware, backfilling abutments, and armoring with geotextile and riprap. Riprap and geotextile are used to stabilize and protect abutments as needed. Scenario based on prefabricated bridge structure. Travel surface shall be part of the prefabricated bridge structure. If a different travel surface is needed, refer to another appropriate standard for the surfacing. Load is HS-25. Width is 16 feet including curbs. Abutment height as needed from design. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic. Scenario is based on a typical bridge 16x30

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access and waterflow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Area of Bridge Deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $97,071.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $202.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #9 - Stream Simulation Culvert, with Headwalls

Scenario Description:

Install a stream simulation culvert with a headwall where a particular culvert geometry is needed even though aquatic organism passage may not be the primary concern. For culverts less than 30" use Practice Standard 587 Structure for Water Control. Work includes dewatering, site preparation and removing any old crossing, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and building headwalls. If a different travel surface is needed, refer to another appropriate standard for the surfacing. Pipe is 20 feet long and headwalls are included. Typical arch size may be 14' X 5'3" X 38' arch with 2'X3' precast footings Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic. Use (587) Structure for Water Control instead, for ditch cross culverts and other intermittent flows and culverts less than 30" in diameter.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access road and water flow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: horizontal surface area (spa

Scenario Unit: Square Foot

Scenario Typical Size: 532.0

Scenario Total Cost: $88,930.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $167.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #10 - Stream Simulation Culvert, without Headwalls

Scenario Description:

Install a stream simulation culvert without a headwall where a particular culvert geometry is needed even though aquatic organism passage may not be the primary concern. For culverts less than 30" use Practice Standard 587 Structure for Water Control. Work includes dewatering, site preparation and removing any old crossing, acquiring and installing culvert pipe with gravel bedding and fill (compacted). If a different travel surface is needed, refer to another appropriate standard for the surfacing. Pipe is 40 feet long and therefore headwalls are not included. Typical arch size may be 12' X 5'3" X 48' arch with 2'X3' precast footings Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic. Use (587) Structure for Water Control instead, for ditch cross culverts and other intermittent flows and culverts less than 30" in diameter.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access road and water flow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Horizontal surface area (len

Scenario Unit: Square Foot

Scenario Typical Size: 576.0

Scenario Total Cost: $47,365.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $82.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #11 - Concrete Box Culvert

Scenario Description:

Install a concrete box culvert where a particular culvert geometry is needed even though aquatic organism passage may not be the primary concern. For culverts less than 30" use Practice Standard 587 Structure for Water Control. Work includes dewatering, site preparation and removing any old crossing, acquiring and installing concrete box culvert with gravel bedding and fill (compacted). If a different travel surface is needed, refer to another appropriate standard for the surfacing. Concrete box culvert is a 6' by 8' box and is 20 feet long. Headwalls are not included. Typical concrete box culvert size is 6' by 8' by 20'. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic. Use (587) Structure for Water Control instead, for ditch cross culverts and other intermittent flows and culverts less than 30" in diameter.

Before Situation:

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

After Situation:

Access road and water flow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Horizontal Area (length x sp

Scenario Unit: Square Foot

Scenario Typical Size: 160.0

Scenario Total Cost: $49,721.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $310.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #12 - Bridge, Light Weight Timber

Scenario Description:

Light Weight Timber bridge is constructed of 6" x 10" timbers side by side bolted together by ASTM A307 Bolts to provide a deck for animal traffic and light weight equipment such as ATV's. Deck is fabricated into 3 - 4'x20' panels which are moved into position by an excavator. Bridge is placed across a narrow incised stream where installing a ford or other type of crossing is not practical. Bridge deck is mounted on precast concrete blocks which are buried 1/2 to 3/4 into the ground. Approaches to both ends of the bridge are graded to meet the contour of the existing or proposed animal trail. Bridge opening determined by sizing for storm event dictated in standard. Streambanks and bed at crossing location are generally stable. Work consists of furnishing and installing four precast blocks to mount bridge, furnishing 24 - 6" x 10" timbers and assembling the bridge on site, necessary hardware, and lifting bridge panels into place by hydraulic excavator. Span is less than 14 feet. Bridge is intended for cattle passage and not for heavy weight equipment. Bridge width is 12 feet. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic.

Before Situation:

Access to pasture is not possible without causing excessive erosion and other water quality water concerns.

After Situation:

Access and waterflow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for light weight equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

Feature Measure: Area of Bridge Deck in Squar

Scenario Unit: Square Foot

Scenario Typical Size: 240.0

Scenario Total Cost: $12,415.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $51.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 578 - Stream Crossing

Scenario: #25 - Bridge, Prefabricated with Bolted Metal Abutments

Scenario Description:

A channel-spanning structure constructed from a manufactured steel bridge structure that has been certified by a PE that carries a road or trailway across a river or stream. Bridge design is completed to conform to loading requirements and site conditions. The bridge deck is designed to rest on abutments placed on a bolted metal crib filled with gravel or rock. Other abutment types are not practical due to distance from an improved road. Bridge components are delivered to the site and assembled by a combination of equipment and manual labor. They are installed with an assortment of equipment used for excavation, placing material, delivering and removing material, and lifting bridge components from delivery trucks onto the constructed bridge support elements. Other actions include construction staking and signage, soil erosion and pollution control, removal and disposal of the old culvert (if applicable), and topsoil conservation for site reclamation. Channel diversion or dewatering is required since an existing blockage will be removed for bridge construction. Disturbed areas are revegetated using Critical Area Planting (342). Scenario does not include additional measures needed to address channel incision, bank stability, and other factors associated with the presence of the bridge crossing. Typical size 30' long and 16' wide. RESOURCE CONCERNS: INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation; EXCESS WATER – Ponding, flooding, seasonal high water table, seeps, and drifted snow; WATER QUALITY DEGRADATION – Elevated water temperature; SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels Associated Practices: (326) Clearing and Snagging, (342) Critical Area Planting, (382) Fence, (390) Riparian Herbaceous Cover, (391) Riparian Forest Buffer, (612) Tree/Shrub Establishment; (395) Stream Habitat Improvement and Management, (410) Grade Stabilization Structure, (582) Open Channel, (584) Channel Bed Stabilization, (580) Streambank and Shoreline Protection

Before Situation:

An existing undersized culvert creates an upstream passage blockage to fish and other aquatic organisms. The existing crossing does not meet State or Federal fish passage guidance

After Situation:

The undersized culvert is replaced with a manufactured bridge placed on precast concrete abutments. The bridge deck is composed of concrete or steel and elevated, continuous railings run down each side connecting one abutment to its counterpart on the opposite bank. Signs on either approach indicate bridge capacity and weight restrictions. Because the bridge spans the active channel and sits atop the adjacent floodplain surface, geomorphic and ecological functions are preserved through the crossing site, enhancing AOP, water quality, and culvert longevity. Resource Concerns are addressed within the context of the site. Typical Scenario is for a 30' span bridge 15' wide on precast concrete abutments

Feature Measure: Area of Bridge Deck

Scenario Unit: Square Foot

Scenario Typical Size: 480.0

Scenario Total Cost: $181,872.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $378.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 580 - Streambank and Shoreline Protection

Scenario: #1 - Riprap

Scenario Description:

Protection of streambanks using riprap to stabilize and protect banks of streams against scour and erosion. The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Payment cost include shaping bank, geotextile, and furnishing and placing rock rip rap. Typical scenario is a 2.0 feet thick blanket of rock riprap, placed on a 1.5 to 1 slope, installed on an eroded streambank which is 200 feet long. Streambank is typically 6 feet high. Riprap toe is excavated 3 feet into stream bottom. The bank above the riprap will be graded to a stable slope and revegetated. Resource Concerns: Soil Erosion - Excessive Bank Erosion from Streams, Shoreline and Water Conveyance Channels; Water Quality Degradation - Excessive Sediment in Surface Waters; Water Quality Degradation - Elevated Water Temperature; Excess/Insufficient Water - Excessive Sediment in Surface Waters; Inadequate Habitat for Fish and Wildlife- Habitat Degradation. Associated Practices include: 560 - Access Road; 342 - Critical Area Planting; 382 - Fence; 391 - Riparian Forest Buffer; 390 - Riparian Herbaceous Cover; 395 - Stream Habitat Improvement and Management; 614 - Watering Facility; 484-Mulching; 570-Stromwater Runoff Control.

Before Situation:

A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has severely degraded streambanks that are unstable and show signs of active erosion. Soil Erosion: The streamb

After Situation:

The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream. For Soil Erosion: The streambank is stable. For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat. For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized. For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

Feature Measure: Volume of Riprap

Scenario Unit: Cubic Yard

Scenario Typical Size: 240.0

Scenario Total Cost: $41,270.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $171.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 580 - Streambank and Shoreline Protection

Scenario: #2 - Bioengineered

Scenario Description:

Bioengineering consist of non-structural measures such as fascines, wattles, woody cuttings, revetments and other non-structural measures to stabilize and protect the streambank against scour and erosion. Soil bioengineering is a system of living plant materials that are installed to provide immediate protection and reinforcement of the soil along the streambank. Bioengineering is generally installed on the streambank above structural measures or toe protection such as rock riprap. Vegetation in the form of trees, bushes, grass re-establishment is covered under 342 - Critical Area Planting. In addition, soil bioengineering systems create resistance to sliding or shear displacement in a streambank as they develop roots or fibrous inclusions. Environmental benefits derived from bioengineering materials include diverse and productive riparian habitats, shade, organic additions to the stream, cover for fish, and improvements in aesthetic value and water quality. Soil bioengineering installations work best in conjunction with structural measures such as rock riprap to provide more permanent protection and healthy function, enhance aesthetics, and create a more environmentally acceptable product. Soil bioengineering systems normally use unrooted plant parts in the form of cut branches and rooted plants. For streambanks, living systems include brush mattresses, live stakes, joint plantings, vegetated geogrids, branchpacking, and live fascines. Typical bioengineering scenario is a plot of land which is 200' long by 10' wide (2000 sf) installed on the upper part of the streambank. Resource Concerns: Soil Erosion - Excessive Bank Erosion from Streams, Shoreline and Water Conveyance Channels; Water Quality Degradation - Excessive Sediment in Surface Waters; Water Quality Degradation - Elevated Water Temperature; Excess/Insufficient Water - Excessive Sediment in Surface Waters; Inadequate Habitat for Fish and Wildlife-Habitat Degradation. Associated Practices include: 560 - Access Road; 342 - Critical Area Planting; 382 - Fence; 391 - Riparian Forest Buffer; 390 - Riparian Herbaceous Cover; 395 - Stream Habitat Improvement and Management; 614 - Watering Facility; 484-Mulching; 570-Stromwater Runoff Control.

Before Situation:

A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the upper part of the streambank is degraded, unstable and show signs of active erosion. Generally installed above more pe

After Situation:

The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream. For Soil Erosion: The streambank is stable. For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat. For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized. For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

Feature Measure: Area of Bio-Engineering App

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $10,826.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 580 - Streambank and Shoreline Protection

Scenario: #29 - Vegetative

Scenario Description:

Protection of streambanks consisting of conventional plantings of vegetation to stabilize and protect against scour and erosion. The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Payment cost include shaping bank, critical area vegetation and erosion control fabric; a 6-foot high bank at 3(H):1(V) slope for 1000 linear feet (0.46 acres) is used for estimation purposes. Resource Concerns: Soil Erosion - Excessive Bank Erosion from Streams, Shoreline and Water Conveyance Channels; Water Quality Degradation - Excessive Sediment in Surface Waters; Water Quality Degradation - Elevated Water Temperature; Excess/Insufficient Water - Excessive Sediment in Surface Waters; Inadequate Habitat for Fish and Wildlife- Habitat Degradation. Associated Practices include: 560 - Access Road; 342 - Critical Area Planting; 382 - Fence; 391 - Riparian Forest Buffer; 390 - Riparian Herbaceous Cover; 395 - Stream Habitat Improvement and Management; 614 - Watering Facility

Before Situation:

A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has marginally degraded streambanks that are unstable and show signs of active erosion. Soil Erosion: The strea

After Situation:

The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream. For Soil Erosion: The streambank is stable. For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat. For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized. For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

Feature Measure: Linear Feet of Streambank/S

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $30,564.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 580 - Streambank and Shoreline Protection

Scenario: #30 - Structural

Scenario Description:

Protection of streambanks using structural measures such as riprap, concrete block, gabions, etc. to stabilize and protect banks of streams or excavated channels against scour and erosion. Additional structural measures may also include tree revetments; log, rootwad and boulder revetments; dormant post plantings; piling revetments with wire or geotextile fencing; piling revetments with slotted fencing; jacks or jack fields; rock riprap; stream jetties; stream barbs; and gabions. The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Payment cost include shaping bank, critical area vegetation, geotextile, and rock rip rap; a 6-foot high bank at 3(H):1(V) slope for 1000 linear feet (0.46 acres) is used for estimation purposes. The rock toe will be 3' thick and 5' high. The bank above the riprap will be graded to a stable slope and revegetated. Resource Concerns: Soil Erosion - Excessive Bank Erosion from Streams, Shoreline and Water Conveyance Channels; Water Quality Degradation - Excessive Sediment in Surface Waters; Water Quality Degradation - Elevated Water Temperature; Excess/Insufficient Water - Excessive Sediment in Surface Waters; Inadequate Habitat for Fish and Wildlife- Habitat Degradation. Associated Practices include: 560 - Access Road; 342 - Critical Area Planting; 382 - Fence; 391 - Riparian Forest Buffer; 390 - Riparian Herbaceous Cover; 395 - Stream Habitat Improvement and Management; 614 - Watering Facility

Before Situation:

A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has severely degraded streambanks that are unstable and show signs of active erosion. Soil Erosion: The streamb

After Situation:

The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream. For Soil Erosion: The streambank is stable. For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat. For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized. For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

Feature Measure: Linear Feet of Streambank/S

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $310,046.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $310.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 582 - Open Channel

Scenario: #5 - Cranberry By-Pass Channel

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 5' deep x 6' wide bottom x 750' length with a side slope of 2:1. Excavation and earth fill is required. The practice is used to create or improve channels to convey low frequency storm flows by-passing cranberry bogs during chemigation. Normal conditions include: a location easily accessible from a main road, soils without large rock or difficult clay to excavate, and/or other aspects that are average compared to excavation work in the area. This scenario assists in addressing the resource concerns: water pollution, streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

No drainage channels exist to convey flows outside of chemigated bogs or a channel with inadequate capacity needs improvements to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

A cranberry by-pass earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Some fill was used to complete the channel shape. Water pollution, flooding and erosion are no longer resource concerns.

Feature Measure: <Unknown>

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,250.0

Scenario Total Cost: $17,361.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 582 - Open Channel

Scenario: #6 - Cranberry By-Pass Channel with Rock

Scenario Description:

This scenario is the construction or improvement of a channel in which water flows with a free surface. Typical construction dimensions are 5' deep x 6' wide bottom x 750' length with a side slope of 2:1. Excavation and earth fill is required. The practice is used to create channels to convey low frequency storm flows by-passing cranberry bogs during chemigation. Normal conditions include: a location easily accessible from a main road, soils without large rock or difficult clay to excavate, and/or other aspects that are average compared to excavation work in the area. This scenario assists in addressing the resource concerns: water pollution, streambank erosion, sediment deposition, excessive flooding or ponding. Conservation practices that may be associated are: 356-Dike, 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Before Situation:

No drainage channel exist to convey flows outside of chemigated bogs or a channel with inadequate capacity needs improvements to handle the flow needed for flood prevention, drainage or erosion prevention.

After Situation:

A cranberry by-pass earthen channel was excavated to allow unrestricted flow of water and to stabilize the bottom and side slopes. Some fill was used to complete the channel shape and 0.5ft of rock was installed in the flow area to prevent damage from excessive velocities. Water pollution, flooding and erosion are no longer resource concerns.

Feature Measure: Volume of earth excavated i

Scenario Unit: Cubic Yard

Scenario Typical Size: 2,400.0

Scenario Total Cost: $28,703.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 582 - Open Channel

Scenario: #8 - Two Stage Ditch

Scenario Description:

This scenario is the improvement of a channel in which water flows with a free surface. The practice is used for the restoration of a natural or artificial channel to improve nutrient (phosphorus and nitrate) reduction and ecological function by creating a floodplain bench. Installation conditions are normal which means the location is easily accessible from a main road, soils are without large rock or difficult clay to excavate, and/or other aspects are average compared to excavation work in the area.

Before Situation:

A stream or channel with active streambank erosion and excess nutrient load from upstream or tile entry sources. This scenario assists in addressing the resource concerns: water quality, streambank erosion, sediment deposition.

After Situation:

An earthen floodplain bench is excavated above low channel flow to create floodplain flow area and to stabilize the bottom and side slopes. Nutrients are reduced in the water through bench saturation. Erosion is no longer a resource concern. Typical construction dimensions are similar to Fig. 10-9 in Stream Restoration Design handbook with 10 ft wide benches excavated on either side of 6 ft deep ditch. Total excavation = 5' x 10' X 2 sides = 100 cubic feet per foot. Cool season grasses are established on the bench and slope areas using 342 Critical Area Planting. Need for mulching (straw or erosion control blanket) would be accomplished through 484-Mulching as necessary. Associated practices: 356-Dike, 393-Filter Strip, 484-Mulching 587-Structure For Water Control, 533-Pumping Plant, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 578 Stream Crossing.

Feature Measure: Length of Ditch

Scenario Unit: Linear Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $15,061.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 584 - Channel Bed Stabilization

Scenario: #8 - Bio-engineering

Scenario Description:

Stabilize the bottom and slope of a stream channel using bioengineering methods. Bio-engineering methods include live stakes, fascines, plantings, bare root stock, willow waddles, and live stakes. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting. Typical stream has 50 foot bottom width and 6 foot banks. Length of area 100 feet. Planting entire area at a 2x2 grid with live stakes, potted plants, and bare root mix

Before Situation:

Bed of an existing or newly constructed alluvial or threshold channel is undergoing damaging aggradation or degradation. Stream cannot be feasibly controlled with clearing and snagging, vegetation, bank protection or upstream water control. Soil Erosion:

After Situation:

Stream channel is stable and vegetated. Other associated practices could be (326) Clearing and Snagging, (396) Aquatic Organism Passage, (395) Stream Habitat Improvement and Management, (580) Streambank and Shoreline Protection, or (587) Structure for Water Control. For Soil Erosion: The streambank is stable. For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat. For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized. For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

Feature Measure: Area of planting

Scenario Unit: Square Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $15,905.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 584 - Channel Bed Stabilization

Scenario: #9 - Rock structures

Scenario Description:

Stabilize the bottom and slope of a stream channel using rock riprap or engineered products that consist primarily of rock or concrete. This includes but not limited to gabions, rock veins, rock weirs, concrete blacksmith. Typical stream has 50 foot bottom width and 6 foot banks. Length of area 100 feet. Based on degrading channel that needs to be riprapped its entire wetted perimeter.

Before Situation:

Bed of an existing or newly constructed alluvial or threshold channel is undergoing damaging aggradation or degradation. Changes cannot be controlled feasibly with clearing and snagging, vegetation, bank protection or upstream water control. Soil Erosion:

After Situation:

Stream channel is stable. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting. Other associated practices could be (326) Clearing and Snagging, (396) Aquatic Organism Passage, (395) Stream Habitat Improvement and Management, (580) Streambank and Shoreline Protection, or (587) Structure for Water Control. For Soil Erosion: The streambank is stable. For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat. For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized. For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

Feature Measure: Area to be stabilized.

Scenario Unit: Cubic Yard

Scenario Typical Size: 575.0

Scenario Total Cost: $97,092.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $168.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 584 - Channel Bed Stabilization

Scenario: #10 - Wood structures

Scenario Description:

Stabilize the bottom and slope of a stream channel using engineered structures consisting primarily of wood. This includes but not limited to toe wood, log weirs, log vanes, root wads, log step pools, etc. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting. Typical stream has 50 foot bottom width and 6 foot banks. Length of area 100 feet. Structures spaced at 50 foot intervals.

Before Situation:

Bed of an existing or newly constructed alluvial or threshold channel is undergoing damaging aggradation or degradation. Changes cannot be controlled feasibly with clearing and snagging, vegetation, bank protection or upstream water control. Soil Erosion:

After Situation:

Stream channel is stable. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting. Other associated practices could be (326) Clearing and Snagging, (396) Aquatic Organism Passage, (395) Stream Habitat Improvement and Management, (580) Streambank and Shoreline Protection, or (587) Structure for Water Control. For Soil Erosion: The streambank is stable. For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat. For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized. For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

Feature Measure: Number of structures

Scenario Unit: Each

Scenario Typical Size: 3.0

Scenario Total Cost: $15,270.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,090.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 585 - Stripcropping

Scenario: #1 - Erosion, Wind and Water

Scenario Description:

This scenario describes the implementation of a strip cropping system that is designed specifically for the control of wind and water erosion or minimizing the transport of sediments or other water borne contaminants originating from runoff on cropland. The planned strip cropping system will meet the current 585 standard. Implementation will result in alternating strips of erosion susceptible crops with erosion resistant crops that are oriented as close to perpendicular to water flows as possible. The designed system will reduce erosion/sediment/contaminants to desired objectives. The scenario includes the costs of designing the system, installing the strips on the landscape appropriately, and integrating a crop rotation that includes water erosion resistant species.

Before Situation:

In this geographic area, excessive water erosion is caused by raising crops in a manner that allows sheet water flows to travel down the slope causing sheet and rill erosion or concentrated flow conditions, degradation of soil health through loss of topso

After Situation:

A strip cropping system that includes at least two or more strips within the planning slope will be designed to include parallel strips of approximately equal widths of water erosion resistant crop species with non-water erosion resistant crop species. Widths will be determined using current water erosion prediction technology to meet objectives. The design and implementation of a stripcropping system will minimize wind, sheet and rill erosion, protect soil quality, reduce offsite sedimentation, and benefit offsite aquatic wildlife habitat. Erosion prediction before and after practice application will be recorded showing the design and benefits of the practice. Erosion resistant strips in rotation must be managed to maintain the planned vegetative cover and surface roughness.

Feature Measure: area of strips

Scenario Unit: Acre

Scenario Typical Size: 80.0

Scenario Total Cost: $196.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #1 - Inlet Flashboard Riser, Metal

Scenario Description:

A Flashboard Riser fabricated of metal and used in a water management system that maintains a desired water surface elevation, controls the direction or rate of flow, or conveys water to address the resource concerns: Inadequate Water - Inefficient use of Irrigation Water and Inadequate habitat for Fish and Wildlife. The water surface elevation is controlled by addition or removal of slats or "stoplogs". This scenario is applicable to variable crest weir structures where the elevation is controlled at the inlet (Half-Rounds). They are often fabricated from half pipes (i.e. half-rounds) or sheet steel in a box shape. Payment rate is based upon the Flashboard Weir Length in inches multiplied by the outlet length in feet (Inch-Foot). Cost estimate is based on a "Half-Round" flashboard riser shop fabricated using a longitudinal cut 36" smooth steel pipe, a 50' long - 30" outlet pipe passing through an embankment.

Before Situation:

The operator presently flood irrigates his field and has no means to accurately maintain a constant water level at varying elevations resulting in a lack of flexibility, and inefficient use of water and energy during pumping. The operator also desires to

After Situation:

The operator has the capability to more efficiently control and maintain a range of water surface elevations thereby reducing the flow rate needed. Less water is wasted and both water and energy is conserved. The operator is now able to maintain adequate water during the winter as a benefit to waterfowl. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Irrigation Water Management (449), Irrigation Land Leveling (464), Irrigation Canal or Lateral (320), Irrigation System, Tailwater Recovery (447), Dike (356), and Grade Stabilization Structure (410) will use the corresponding Standard(s) as appropriate.

Feature Measure: Flashboard Weir Length (in)

Scenario Unit: Inch-Foot

Scenario Typical Size: 1,800.0

Scenario Total Cost: $9,513.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #2 - Inline Flashboard Riser, Metal

Scenario Description:

A Flashboard Riser fabricated of metal and used in a water management system that maintains a desired water surface elevation, controls the direction or rate of flow, or conveys water to address the resource concerns: Inadequate Water - Inefficient use of Irrigation Water and Inadequate habitat for Fish and Wildlife. The water surface elevation is controlled by addition or removal of slats or "stoplogs". This scenario is applicable to variable crest weir structures where the elevation is controlled at the embankment. They are often fabricated from vertical pipes with the stoplogs are located in the middle (i.e. Full-Rounds) or sheet steel in a box shape. Payment rate is based upon the Flashboard Weir Length in inches multiplied by the outlet length in feet (Inch-Foot). Cost estimate is based on a "Half-Round" flashboard riser shop fabricated using a longitudinal cut 36" smooth steel pipe, a 50' long - 30" outlet pipe passing through an embankment.

Before Situation:

The operator presently flood irrigates his field and has no means to accurately maintain a constant water level at varying elevations resulting in a lack of flexibility, and inefficient use of water and energy during pumping. The operator also desires to

After Situation:

The operator has the capability to more efficiently control and maintain a range of water surface elevations thereby reducing the flow rate needed. Less water is wasted and both water and energy is conserved. The operator is now able to maintain adequate water during the winter as a benefit to waterfowl. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Irrigation Water Management (449), Irrigation Land Leveling (464), Irrigation Canal or Lateral (320), Irrigation System, Tailwater Recovery (447), Dike (356), and Grade Stabilization Structure (410) will use the corresponding Standard(s) as appropriate.

Feature Measure: Flashboard Weir Length (in)

Scenario Unit: Inch-Foot

Scenario Typical Size: 1,800.0

Scenario Total Cost: $9,708.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #3 - Commercial Inline Flashboard Riser

Scenario Description:

An Inline Water Control Structure (WCS) composed of plastic that maintains a desired water surface elevation, controls the direction or rate of flow, or conveys water to address the resource concern: Inadequate habitat for Fish and Wildlife. The water surface elevation is controlled by addition or removal of slats or "stoplogs". This scenario is applicable to variable crest weir structures where the elevation is controlled at point along a pipe extending through an embankment, providing ease of access to the structure and provide better protection against beaver activity. There are commercially available models composed of plastic that are commonly used when the width of the is 24" or less. Payment rate is based upon the Flashboard Weir Length in inches multiplied by the outlet length in feet (Inch-Foot). Cost estimate is based on a using a such a commercial product. The typical scenario is an inline structure with a width of 20", height of six feet, The pipe is 50' of 15" SCH 40 PVC (inlet and outlet combined).

Before Situation:

The landowner wishes to provide for a way to control the water surface elevation in a wetland area. The landowner wishes to enhance and enlarge the area to provide habitat for fish and wildlife.

After Situation:

A WCS is installed in a flow line allowing shallow water impoundments. A wetland area is enhanced and water levels can be varied to better accommodate wildlife needs. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Wetland Creation (658), Wetland Enhancement (659) Wetland Wildlife Habitat Management (644), Dike (356), and Grade Stabilization Structure (410) will use the corresponding Standard(s) as appropriate.

Feature Measure: Flashboard Weir Length (in)

Scenario Unit: Inch-Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $8,489.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #4 - Culvert <30 inches HDPE

Scenario Description:

Install a new HDPE culvert under 30 inches in diameter to convey water under roads or other barriers. A typical scenario would be an 24 inch diameter pipe, 40 feet in length. Work includes site preparation, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and riprap protection of side slopes. Use (396) Aquatic Organism Passage when the primary intent is biological concerns, not hydrologic. Use (578) Stream Crossing for culverts ≥ 30 inches or perennial flow.

Before Situation:

Water flow needs to be conveyed under an access road, ditch or other barrier. Water must be conveyed in a controlled fashion.

After Situation:

Water is conveyed in a controlled manner. Associated practices could be Access Road (560), Animal Trails and Walkways (575), Critical Area Planting (342), Drainage Water Management (554), Irrigation Canal or Lateral (320), Irrigation Pipeline (430), Irrigation Reservoir (436), Irrigation System, Surface and Subsurface (443), Irrigation System, Tailwater Recovery (447), Irrigation Water Management (449), Lined Waterway or Outlet (468), Obstruction Removal (500), Pond (378), Stormwater Runoff Control (570), Surface Drain, Field Ditch (607), Surface Drain, Main or Lateral (608), and Trails and Walkways (568).

Feature Measure: Pipe Diameter (In) x Pipe Le

Scenario Unit: Inch-Foot

Scenario Typical Size: 960.0

Scenario Total Cost: $3,984.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #5 - Culvert <30 inches CMP

Scenario Description:

Install a new Corrugated Metal Pipe (CMP) culvert under 30 inches in diameter to convey water under roads or other barriers. A typical scenario would be an 24 inch diameter pipe, 40 feet in length. Work includes site preparation, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and riprap protection of side slopes. Use (396) Aquatic Organism Passage when the primary intent is biological concerns, not hydrologic. Use (578) Stream Crossing instead for culverts ≥ 30 inches or perennial flow.

Before Situation:

Water flow needs to be conveyed under an access road, ditch or other barrier. Water must be conveyed in a controlled fashion.

After Situation:

Water is conveyed in a controlled manner. Associated practices could be Access Road (560), Animal Trails and Walkways (575), Critical Area Planting (342), Drainage Water Management (554), Irrigation Canal or Lateral (320), Irrigation Pipeline (430), Irrigation Reservoir (436), Irrigation System, Surface and Subsurface (443), Irrigation System, Tailwater Recovery (447), Irrigation Water Management (449), Lined Waterway or Outlet (468), Obstruction Removal (500), Pond (378), Stormwater Runoff Control (570), Surface Drain, Field Ditch (607), Surface Drain, Main or Lateral (608), and Trails and Walkways (568).

Feature Measure: Pipe Diameter (In) x Pipe Le

Scenario Unit: Inch-Foot

Scenario Typical Size: 960.0

Scenario Total Cost: $4,168.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #6 - Slide Gate

Scenario Description:

This scenario is the installation of a permanent slide gate structure to control the conveyance of water. The typical size is a 4' diameter opening. The slide gate may be installed on an open channel, pipeline, or aquaculture pond. The slide gate is made of steel and has a hand operated mechanical lifting system, i.e. screw. This scenario assists in addressing the resource concerns: water management. Conservation practices that may be associated are: 533-Pumping Plant.

Before Situation:

A channel, aquaculture pond, or pipeline is in need of a head gate to control the flow of water.

After Situation:

A 4' slide gate is installed and operated by hand is installed.

Feature Measure: diameter

Scenario Unit: Foot

Scenario Typical Size: 4.0

Scenario Total Cost: $10,180.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,545.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #7 - Flap Gate

Scenario Description:

This scenario is the installation of a permanent flap (tide) gate structure to control the direction of flow resulting from tides or high water or back-flow from flooding. The typical size is a 4' diameter opening. The gate may be installed on an open channel or pipeline. It is made of steel and operates automatically. This scenario assists in addressing the resource concerns: water management. Conservation practices that may be associated are:

Before Situation:

A wetland or other area is in need of a flap gate to control the direction of the water.

After Situation:

A flap gate 4' wide is installed.

Feature Measure: Feet Diameter (of Gate)

Scenario Unit: Foot

Scenario Typical Size: 4.0

Scenario Total Cost: $10,614.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,653.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #8 - Flap Gate w/ Concrete Wall

Scenario Description:

Install a concrete cut off wall with tide gate at the outlet of a channel. A typical scenario would be installed in a 25 foot channel, 6 foot deep, with 2:1 side slopes. A concrete wall will extend 10 feet on each side, and include a 4' flap gate structure to control flooding. Work includes site preparation, forming and pouring concrete, backfilling and acquiring and installing the tide gate.

Before Situation:

Tides or flooding inundate and affect water quality of wetlands or other managed systems.

After Situation:

Tide or flood inundation is controlled. Associated practices could be Aquaculture Ponds (397), Aquatic Organism Passage (396), Bivalve Aquaculture Gear and Biofouling Control (400), Constructed Wetland (656), Drainage Water Management (554), Irrigation Canal or Lateral (320), Irrigation Field Ditch (388), Irrigation System, Surface and Subsurface (443), Irrigation Water Management (449), Salinity and Sodic Soil Management (610), Subsurface Drain (606), Surface Drain, Field Ditch (607), Surface Drain, Main or Lateral (608), Wetland Creation (658), Wetland Enhancement (659), Wetland Restoration (657), and Wetland Wildlife Habitat Management (644).

Feature Measure: Cubic Yards of Concrete

Scenario Unit: Cubic Yard

Scenario Typical Size: 10.0

Scenario Total Cost: $16,099.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,609.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #10 - In-Stream Structure for Water Surface Profile

Scenario Description:

Typical setting is in a stream that has become incised and is therefore disconnected from the floodplain. Typical installation consists of installing a "Vee" shaped concrete structure which points facing upstream for the purpose of raising the water surface profile. Cost estimate is for one cross vane with a effective length (Streambed width) of 36', and total length of 65', effective height of 3', max height of 6', and a 3' by 1.5' footer; containing 19 cubic yards of Concrete. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as water quality degradation and soil erosion-concentrated flow erosion.

Before Situation:

The stream presently is incised with near vertical banks caused by bank toe erosion and sloughing. This condition has caused the floodplains to be disconnected from the stream, with only floods well above normal high-water escaping the high banks of the s

After Situation:

Banks are stabilized, and pools are created raising the water surface elevation and effectively reducing the slope. Riffle pool scheme is restored and banks are protected. Water quality is protected downstream due to erosion protection, and wetland features are restored in the floodplain. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Streambank and Shoreline Protection (580) Channel Bed Stabilization (584), Stream Habitat Improvement and Management (395), and Wetland Wildlife Habitat Management (644) will use the corresponding Standard(s) as appropriate.

Feature Measure: Streambed Width

Scenario Unit: Foot

Scenario Typical Size: 36.0

Scenario Total Cost: $11,194.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $310.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #12 - Concrete Turnout Structure - Small

Scenario Description:

A reinforced concrete turnout structure equipped with slide boards or panels diverts irrigation water from a ditch or canal into a field, field ditch, or aquaculture facility. This scenario is for a four ft tall, two foot wide, and five foot long turnout structure.

Before Situation:

A ditch or canal exists, but a means to move water from the ditch into a smaller ditch, field, or aquaculture pond does not exist. A water supply of sufficient quantity and quality is available for irrigation.

After Situation:

Water is diverted from a canal or ditch to meet irrigation requirements. A two foot wide and four foot tall turnout structure equipped with slots for slide boards and panels conducts water through the canal berm into a field. The concrete structure is five feet long and has an end sill. All footings, floors. and walls have a minimum thickness of six inches. The structure delivers water to field elevation or ditch bottom elevation. The top of the pipe inlet is below canal water surface elevation.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,947.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,947.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #14 - Flow Meter with Mechanical Index

Scenario Description:

Permanently installed water flow meter with mechanical, cumulative volume and rate index. Meters can be any flow measurement device that meets CPS 433, (i.e. meters: turbine, propeller, acoustic, magnetic, venturi, orifice, etc.) with or without straightening vanes. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, and Inefficient Energy Use - Equipment and facilities Associated Practices: 533-Pumping Plant, 449-Irrigation Water Management, 441-Irrigation System, Microirrigation, 443-Irrigation System Surface and Subsurface, 442-Irrigation System, Sprinkler, 328-Conservation Crop Rotation, 634-Waste Transfer, and 590-Nutrient Management.

Before Situation:

Producer estimates seasonal and individual irrigation application flow rate and volumes based on energy costs, system operating pressure, or other means.

After Situation:

Producer is able to access instantaneous rate and cumulative flow volume data at the meter location. The information gained will enable the irrigator to improve irrigation water management, recognize system performance issues before they become critical, and reduce energy use.

Feature Measure: Nominal Diameter of Meter

Scenario Unit: Inch

Scenario Typical Size: 10.0

Scenario Total Cost: $2,256.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $225.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #15 - Flow Meter with Electronic Index

Scenario Description:

Permanently installed water flow meter with an electronic index . Meters can be any flow measurement device that meets CPS 433, (i.e., meters: turbine, propeller, acoustic, magnetic, venturi, orifice, etc.) with or without straightening vanes or data logging capability. Meter nominal diameter for insert type turbine meters will be installation pipe size. Typical installation would include installation of a 10 inch turbine flow meter, with electronic index output. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, and Inefficient Energy Use - Equipment and facilities Associated Practices: 533-Pumping Plant, 449-Irrigation Water Management, 441-Irrigation System, Microirrigation, 443-Irrigation System Surface and Subsurface, 442-Irrigation System, Sprinkler, 328-Conservation Crop Rotation, 634-Waster Transfer, and 590-Nutrient Management.

Before Situation:

Producer estimates seasonal and individual irrigation application flow rate and volumes based on energy costs, system operating pressure, or other means.

After Situation:

Producer is able to access instantaneous rate and cumulative flow volume data at the meter location. The information gained will enable the irrigator to improve irrigation water management, recognize system performance issues before they become critical, and reduce energy use.

Feature Measure: Nominal Diameter of Meter

Scenario Unit: Inch

Scenario Typical Size: 10.0

Scenario Total Cost: $4,311.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $431.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #16 - Flow Meter with Electronic Index & Telemetry

Scenario Description:

Permanently installed water flow meter with an electronic flow rate and volume index and data telemetry transmission system. Meters can be any flow measurement device that meets CPS 433, (i.e. meters: turbine, propeller, acoustic, magnetic, venturi, orifice, etc.) with or without straightening vanes. Meter nominal diameter for insert type turbine meters will be installation pipe size. Typical installation would include installation of a 10 inch magnetic flow meter, with electronic index output and telemetry data transfer system for monitoring irrigation system flow rate. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, and Inefficient Energy Use - Equipment and facilities Associated Practices: 533-Pumping Plant, 449-Irrigation Water Management, 441-Irrigation System, Microirrigation, 443-Irrigation System Surface and Subsurface, 442-Irrigation System, Sprinkler, 328-Conservation Crop Rotation, 634-Waste Transfer, and 590-Nutrient Management.

Before Situation:

Producer estimates seasonal and individual irrigation application flow rate and volumes based on energy costs, system operating pressure, or other means.

After Situation:

Producer is able to access instantaneous rate and cumulative flow volume data from a personal computer or cell phone at any time. The information gained will enable the irrigator to improve irrigation water management, recognize system performance issues before they become critical, and reduce energy use.

Feature Measure: Nominal Diameter of Meter

Scenario Unit: Inch

Scenario Typical Size: 10.0

Scenario Total Cost: $5,902.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $590.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #17 - Fish Screens <= 400 gpm

Scenario Description:

An inline intake screens assembly is designed according to applicable Federal and State guidelines, to avoid entrainment or trapping of aquatic organisms. This practice can also be used at the inlet and/or outlet of an aquaculture facility to prevent the emigration of cultured organisms or the entrainment of native aquatic organisms into the influent water supply. Typical scenario is a screen assembly rated for 250gpm including the clamp, screen body, rings and adapters.

Before Situation:

The intake pipe of an irrigation system or aquaculture facility is not properly screened resulting in excessive velocities prejudicial to T&E fish species or other aquatic organisms, or the outlet of a fish culture facility is not properly screened result

After Situation:

A fish screen is installed on a pipe inlet to prevent the entrainment or trapping of aquatic organisms, or a fish screen is installed on the outlet of an aquaculture facility to prevent the unintentional emigration of cultured species.

Feature Measure: Number of screens

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,331.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,331.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #18 - Fish Screen > 400gpm

Scenario Description:

An inline intake screens assembly is designed according to applicable Federal and State guidelines, to avoid entrainment or trapping of aquatic organisms. This practice can also be used at the inlet and/or outlet of an aquaculture facility to prevent the emigration of cultured organisms or the entrainment of native aquatic organisms into the influent water supply. Typical scenario is a screen assembly rated for 600gpm including the clamp, screen body, rings and adapters.

Before Situation:

The intake pipe of an irrigation system or an aquaculture facility is not properly screened resulting in excessive velocities detrimental to aquatic organisms, or the outlet of an fish culture facility is not properly screen resulting in the unintentional

After Situation:

A fish screen is installed on a pipe inlet to prevent the entrainment or trapping of aquatic organisms, or a fish screen is installed on the outlet of an aquaculture facility to prevent the unintentional emigration of cultured species.

Feature Measure: Number of screens

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,159.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,159.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #19 - Catch Basin, 3 ft width

Scenario Description:
This scenario involves installation of a small catch basin to control surface water or overflow water and provide a safe outlet for the water. Catch basin is precast concrete with a typical size of 3 feet (square or round) and 6 feet deep. Catch basin is placed on firm bedding and is backfilled using aggregate and/or earthfill.

Before Situation:
Prior to installation of the practice surface runoff is causing erosion. No safe outlet exists for surface water.

After Situation:
Water is collected in a controlled manner and a safe outlet is provided significantly reducing or eliminating erosion in the area. Associated practices may include: Waste Storage Facility (313), Diversion (362), Grade Stabilization Structure (410), Livestock Pipeline (516), Underground Outlet (620), Waste Transfer (634), or others.

Feature Measure: Vertical Foot of Catch Basin

Scenario Unit: Vertical Foot

Scenario Typical Size: 6.0

Scenario Total Cost: $3,099.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $516.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #20 - Catch Basin, 5 ft diameter

Scenario Description:
This scenario involves installation of a large catch basin to control surface water or overflow water and provide a safe outlet for the water. Catch basin is precast concrete with a typical size of 60 inches in diameter and 6 feet deep. Catch basin is placed on firm bedding and is backfilled using aggregate and/or earthfill.

Before Situation:
Prior to installation of the practice surface runoff is causing erosion. No safe outlet exists for surface water.

After Situation:
Water is collected in a controlled manner and a safe outlet is provided significantly reducing or eliminating erosion in the area. Associated practices may include: Waste Storage Facility (313), Diversion (362), Grade Stabilization Structure (410), Livestock Pipeline (516), Underground Outlet (620), Waste Transfer (634), or others.

Feature Measure: Vertical Foot of Catch Basin

Scenario Unit: Vertical Foot

Scenario Typical Size: 6.0

Scenario Total Cost: $4,511.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $751.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #321 - Miscellaneous Structure, Extra Small

Scenario Description:

There are many potential structures that could be installed with this practice to control water. One option is a concrete water control structure with a 12 inch diameter slide gate for a pipeline inlet or water level management in a canal or other system. This scenario is for a 3 ft tall, 5 foot wide, and 6 foot long structure with a sloping steel trash rack. All footings, floors. and walls have a minimum thickness of six inches. If needed fish screens may be installed at the inlet.

Before Situation:

An open channel system exists, but an adequate means to transfer or control water is not available. A water supply of sufficient quantity and quality is available for the intended purpose.

After Situation:

Water is transferred or controlled efficiently to meet project requirements.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $5,500.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,500.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #322 - Miscellaneous Structure, Small

Scenario Description:

There are many potential structures that could be installed with this practice to control water. One option is a concrete water control structure with a 24 inch diameter slide gate for a pipeline inlet or water level management in a canal or other system. This scenario is for a 5 ft tall, 8 foot wide, and 10 foot long structure with a sloping steel trash rack. All footings, floors. and walls have a minimum thickness of six inches. If needed fish screens may be installed at the inlet.

Before Situation:

An open channel system exists, but an adequate means to transfer or control water is not available. A water supply of sufficient quantity and quality is available for the intended purpose.

After Situation:

Water is transferred or controlled efficiently to meet project requirements.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $11,921.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,921.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #323 - Miscellaneous Structure, Medium

Scenario Description:

There are many potential structures that could be installed with this practice to control water. One option is a concrete water control structure with a 36 inch diameter slide gate for a pipeline inlet or water level management in a canal or other system. This scenario is for a 6 ft tall, 8 foot wide, and 12 foot long structure with a sloping steel trash rack. All footings, floors. and walls have a minimum thickness of 6 inches. If needed fish screens may be installed at the inlet.

Before Situation:

An open channel system exists, but an adequate means to transfer or control water is not available. A water supply of sufficient quantity and quality is available for the intended purpose.

After Situation:

Water is transferred or controlled efficiently to meet project requirements.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $26,225.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26,225.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #324 - Miscellaneous Structure, Large

Scenario Description:

There are many potential structures that could be installed with this practice to control water. One option is a concrete water control structure with a 48 inch diameter screw gate for a pipeline inlet or water level management in a canal or other system. This scenario is for a 8 ft tall, 10 foot wide, and 15 foot long structure with a sloping steel trash rack. All footings, floors. and walls have a minimum thickness of 8 inches. If needed fish screens may be installed at the inlet.

Before Situation:

An open channel system exists, but an adequate means to transfer or control water is not available. A water supply of sufficient quantity and quality is available for the intended purpose.

After Situation:

Water is transferred or controlled efficiently to meet project requirements.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $36,128.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $36,128.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #325 - Miscellaneous Structure, Very Large

Scenario Description:

There are many potential structures that could be installed with this practice to control water. One option is a concrete water control structure with a 48 inch diameter screw gate and 48 inch diameter CMP for a pipeline inlet or water level management in a canal or other system. The structure is 8 ft tall, 20 foot wide, and 15 foot long with a sloping steel trash rack to control debris flow through the gate. All footings, floors. and walls have a minimum thickness of 8 inches. If needed fish screens may be installed at the inlet.

Before Situation:

An open channel system exists, but an adequate means to transfer or control water is not available. A water supply of sufficient quantity and quality is available for the intended purpose.

After Situation:

Water is transferred or controlled efficiently to meet project requirements.

Feature Measure: Cubic Yard of Reinforced Co

Scenario Unit: Cubic Yard

Scenario Typical Size: 20.0

Scenario Total Cost: $90,662.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,533.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #337 - Beaver Exclusion and Flow Device

Scenario Description:

This scenario is applied on woodland and farm roads when beavers plug the upstream end of a culvert with debris. When culverts are plugged with debris, impounding of water occurs resulting in flooding and erosion. Eroded material from the road travels downstream and settles out of the water column, resulting in the degradation of aquatic habitat. Damage also occurs when roadbeds become saturated with water and settles. The overall stability of the road decreases. This practice scenario involves the installation of fencing and a flexible pond leveler pipe. Fencing is installed around the upstream end of the culvert which excludes beavers from the culvert. The inlet end of the leveling pipe is upstream (20'-40') and protected by a domed fence. The domed fence keeps beavers from the inlet of the pipe. Beavers focus their damming energy on the fence that surrounds the culvert. As a result, the flexible pond leveler pipe maintains a steady flow of water and flooding and erosion is avoided.

Before Situation:

Frequent flooding occurs due to a plugged culvert that was installed under a farm or woodlot road. The upstream ponded area is at least 3 feet deep. Roadside erosion is evident, and the overall stability of the road is compromised. Trapping may have occur

After Situation:

Debris has been removed from the upstream end of the culvert. Fencing prevents beavers from establishing a dam directly on the upstream end of the culvert. A flexible pond leveler pipe is caged at its upstream end (out in the pond) and extends through the fence adjacent to the culvert. Beavers are unable to detect or access the flow of water that enters the intake end of the pipe because it is situated in the deepest water possible and is enclosed by a cage (large cylinder of fencing). The pipe maintains a steady flow of water.

Feature Measure: 1

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,500.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,500.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #345 - Automated DWM Control Structure, 12 to 18 inch diameter pipe

Scenario Description:

A subsurface drainage system on a field with a fairly flat slope (less than 2% and preferably less than 1%) that outlets through a control structure which is operated with an automated slide gate and accommodates 12 to 18 inch diameter pipe sizes. This structure configuration facilitates meeting the conservation practice standard 554 - Drainage Water Management by managing the subsurface water table year-round. This allows the operator to keep the water in the soil profile when it is not critical to dry the soil for crop health or field operations. This retention time reduces the volume of water discharged and thereby the quantity of nutrients lost. A single automated structure may have its influence extended by buried float-activated structures to provide a greater area of control. Resource Concerns: Water Quality Degradation (Nutrients). Associated Practices: 606 - Subsurface Drain; 554 - Drainage Water Management

Before Situation:

Uncontrolled discharge from a subsurface drainage system enters ditches or streams, often laden with sediment and nutrients.

After Situation:

The water surface profile in the subsurface drainage system is managed in a manner which retains moisture in the soil for plant update and to allow for enhanced nutrient utilization. The use of automated control structures allow water levels to be monitored and adjusted remotely to allow for more active management in accordance with the drainage systems Drainage Water Management plan. Typical affected area for a single structure is 10 to 20 acres. A single structure with an automated slide gate may have its influence extended by use of buried float-activated control structures.

Feature Measure: Number of Structures

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $12,118.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,118.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #361 - Automation Retrofit to Manual Drainage Water Management Control Structure

Scenario Description:

A subsurface drainage system on a field with a fairly flat slope (less than 2% and preferably less than 1%) that outlets through a control structure which has been retrofitted to operate with an automated slide gate. This structure configuration facilitates meeting the conservation practice standard 554 - Drainage Water Management by managing the subsurface water table year-round. This allows the operator to keep the water in the soil profile when it is not critical to dry the soil for crop health or field operations. This retention time reduces the volume of water discharged and thereby the quantity of nutrients lost. A single retrofitted automated retrofit structure may have its influence extended by buried float-activated structures to provide a greater area of control. Resource Concerns: Field Sediment, Nutrient and Pathogen Loss. Associated Practices: 606 - Subsurface Drain; 554 - Drainage Water Management.

Before Situation:

Control structure with manually operated slide gate.

After Situation:

The water surface profile in the subsurface drainage system is managed in a manner which retains moisture in the soil for plant update and to allow for enhanced nutrient utilization. The use of retrofitted control structures for automated slide gate operation allow water levels to be monitored and adjusted remotely to allow for more active management in accordance with the drainage systems Drainage Water Management plan. Typical affected area for a single structure is 10 to 20 acres. A single structure with a retrofitted automated slide gate may have its influence extended by use of buried float-activated control structures.

Feature Measure: Number of Structures

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $6,014.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,014.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #400 - Rock Checks for Water Surface Profile

Scenario Description:

Typical setting is in a stream that has become incised and is therefore disconnected from the floodplain. Typical installation consists of installing a "Vee" shaped rock structures with points facing upstream for the purpose of raising the water surface profile. Cost estimate is for three check dams with a top width of 3', max height of 6', min height of 3', and 28' length; containing an average of 58 cubic yards or 29 tons of rock for a total of 87 tons. The check dams are underlain with geotextile fabric. Disturbed areas are protected with permanent vegetative cover. Addresses resource concerns such as water quality degradation and soil erosion-concentrated flow erosion.

Before Situation:

The stream presently is incised with near vertical banks caused by bank toe erosion and sloughing. This condition has caused the floodplains to be disconnected from the stream, with only floods well above normal high-water escaping the high banks of the s

After Situation:

Banks are stabilized, and pools are created raising the Water Surface Profile elevation and effectively reducing the slope. Riffle pool scheme is restored and banks are protected. Water quality is protected downstream due to erosion protection, and wetland features are restored in the floodplain. Any needed re-vegetation of disturbed areas use Critical Area Planting (342). Other associated practices such as; Streambank and Shoreline Protection (580), Channel Bed Stabilization (584), Stream Habitat Improvement and Management (395), and Wetland Wildlife Habitat Management (644) will use the corresponding Standard(s) as appropriate.

Feature Measure: Tons of rock installed

Scenario Unit: Ton

Scenario Typical Size: 87.0

Scenario Total Cost: $10,436.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $119.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #401 - CMP Turnout

Scenario Description:
A corrugated metal pipe (CMP) equipped with a slide gate diverts water from a ditch or canal into a field or field ditch. This scenario is for a 15 inch diameter gate and pipe that will transmit approximately 4 cfs of flow.

Before Situation:
A ditch or canal exists, but a means to move water from the ditch into a smaller ditch or field does not exist. A water supply of sufficient quantity and quality is available for irrigation.

After Situation:
Water is diverted from a canal or ditch to meet irrigation requirements. A 15 inch diameter CMP is installed through the canal containment dike,. A 15 inch diameter slide gate is attached to the upstream end of the pipe. The top of the pipe inlet is below canal water surface elevation.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,688.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,688.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #402 - Concrete Turnout Structure

Scenario Description:

A reinforced concrete turnout structure equipped with a 48 inch screw gate diverts irrigation water from a canal into a field or field ditch. This scenario is for a six ft tall, eight foot wide, and ten foot long turnout structure. A sloping trash rack fabricated from rebar is installed on the inlet. If needed fish screens may be installed at the inlet..

Before Situation:

A delivery canal exists, but a means to move water from the canal into a smaller ditch or field does not exist. A water supply of sufficient quantity and quality is available for irrigation.

After Situation:

Water is diverted from a canal to meet irrigation requirements. A eight foot wide and six foot tall turnout structure equipped with a 48 inch slide gate conducts water through the canal berm. The concrete structure is ten feet long and has an end sill. All footings, floors. and walls have a minimum thickness of six inches. The structure delivers water to field or ditch bottom elevation.

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $13,041.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13,041.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 587 - Structure for Water Control

Scenario: #423 - Automated DWM Control Structure, 6 to 10 inch diameter pipe

Scenario Description:

A subsurface drainage system on a field with a fairly flat slope (less than 2% and preferably less than 1%) that outlets through a control structure which is operated with an automated slide gate and accommodates 6 to 10 inch diameter pipe sizes. This structure configuration facilitates meeting the conservation practice standard 554 - Drainage Water Management by managing the subsurface water table year-round. This allows the operator to keep the water in the soil profile when it is not critical to dry the soil for crop health or field operations. This retention time reduces the volume of water discharged and thereby the quantity of nutrients lost. A single automated structure may have its influence extended by buried float-activated structures to provide a greater area of control. Resource Concerns: Water Quality Degradation (Nutrients). Associated Practices: 606 - Subsurface Drain; 554 - Drainage Water Management

Before Situation:

Uncontrolled discharge from a subsurface drainage system enters ditches or streams, often laden with sediment and nutrients.

After Situation:

The water surface profile in the subsurface drainage system is managed in a manner which retains moisture in the soil for plant update and to allow for enhanced nutrient utilization. The use of automated control structures allow water levels to be monitored and adjusted remotely to allow for more active management in accordance with the drainage systems Drainage Water Management plan. Typical affected area for a single structure is 10 to 20 acres. A single structure with an automated slide gate may have its influence extended by use of buried float-activated control structures.

Feature Measure: Number of Structures

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,230.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,230.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #9 - NM with Nitrification or Urease Inhibitor (Non-Organic/Organic)

Scenario Description:

This scenario takes a conventional cropping system where either no nutrient management or only a very basic level of nutrient management is being practiced and improves it to address air quality (reduce emissions for N fertilizer) and/or minimize agricultural nonpoint source pollution of surface and groundwater. The planned NM system will meet the current Nutrient Management (590) CPS general and additional criteria. Nutrient management system includes such items as split applications, nitrification or urease inhibitors, additional nutrient tests including PSNT (pre-side dress nitrogen test), CSNT (corn stalk nitrate test), and PPSN (pre-plant soil nitrate test), chlorophyll meters, and/or spectral analysis may be used to further refine nutrient applications. Payment for implementation is to defray the costs of grid or zone soil testing, additional testing and analysis, nitrification or urease inhibitors, equipment, implementation of the NMP and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

In this geographic area, conventional fertility programs involve very little or no soil or manure testing. Application of fertilizers, including manures and amendments, are completed annually based upon tradition that does not specifically consider the de

After Situation:

A nutrient management system will be developed to meet the current Nutrient Management (590) CPS general and additional criteria, when applicable system will also meet NOP regulations. Development and implementation of a Nutrient Management Plan (NMP) base on the 4Rs will benefit plant productivity while reducing potential of off-site movement of nutrients, including the use of nitrification or urease inhibitors to reduce nitrogen emissions. NMP may include practices such as use of split applications, slow release nutrients, nitrification inhibitors, urease inhibitors, proper timing of application, more appropriate formulations, banding, etc. Additional nutrient tests including PSNT (pre-side dress nitrogen test), CSNT (corn stalk nitrate test), and PPSN (pre-plant soil nitrate test), chlorophyll meters, spectral analysis, etc., may also be used to further refine nutrient applications. Use of a post-harvest soil test or tissue tests will help establish the adequacy of the plan in meeting crop needs while minimizing P application rate and residual N, thus reducing the potential for off-site impacts. Potential for offsite movement of nutrient may be further reduced by identifying variability across the field(s) by using soil survey maps or other simple techniques to establish management zones, along with grid or zone soil testing. Nutrients are applied at rates based on soil test zone analyses. Nitrogen and Phosphorus risk assessment tools are completed and results included in the nutrient management system specifications as required by current NRCS 590 CPS criteria and any mitigation measures are included in the conservation plan if determined needed by risk assessment results. Soil testing is completed according to LGU recommendations. Analysis are completed at least once every three years for N-P-K, and for N annually. A nutrient budget is developed for each field or management zone annually. Records will be provided annually of the current soil test, analysis, application rates, forms and rates of nutrients for each field, including crop yields.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,626.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $40.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #10 - NM with grid/zone soil sampling, soil nitrate/plant tissue test (Non-Organic/Organic)

Scenario Description:

This scenario takes a conventional cropping system where either no nutrient management or only a very basic level of nutrient management is being practiced and improves it to minimize agricultural nonpoint source pollution of surface and groundwater. The planned NM system will meet the current Nutrient Management (590) CPS general and additional criteria. Nutrient management system includes such items as split applications, additional nutrient tests including PSNT (pre-side dress nitrogen test), CSNT (corn stalk nitrate test), and PPSN (pre-plant soil nitrate test), chlorophyll meters, and/or spectral analysis may be used to further refine nutrient applications. Payment for implementation is to defray the costs of grid or zone soil testing, additional testing and analysis, equipment, implementation of the NMP and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

In this geographic area, conventional fertility programs involve very little or no soil or manure testing. Application of fertilizers, including manures and amendments, are completed annually based upon tradition that does not specifically consider the de

After Situation:

A nutrient management system will be developed to meet the current Nutrient Management (590) CPS general and additional criteria, when applicable system will also meet NOP regulations. Development and implementation of a Nutrient Management Plan (NMP) base on the 4Rs will benefit plant productivity while reducing potential of off-site movement of nutrients. NMP may include practices such as use of split applications, slow release nutrients, proper timing of application, more appropriate formulations, banding, etc. Additional nutrient tests including PSNT (pre-side dress nitrogen test), CSNT (corn stalk nitrate test), and PPSN (pre-plant soil nitrate test), chlorophyll meters, spectral analysis, etc., may also be used to further refine nutrient applications. Use of a post-harvest soil test or tissue tests will help establish the adequacy of the plan in meeting crop needs while minimizing P application rate and residual N, thus reducing the potential for off-site impacts. Potential for offsite movement of nutrient may be further reduced by identifying variability across the field(s) by using soil survey maps or other simple techniques to establish management zones, along with grid or zone soil testing. Nutrients are applied at rates based on soil test zone analyses. Nitrogen and Phosphorus risk assessment tools are completed and results included in the nutrient management system specifications as required by current NRCS 590 CPS criteria and any mitigation measures are included in the conservation plan if determined needed by risk assessment results. Soil testing is completed according to LGU recommendations. Analysis are completed at least once every three years for N-P-K, and for N annually. A nutrient budget is developed for each field or management zone annually. Records will be provided annually of the current soil test, analysis, application rates, forms and rates of nutrients for each field, including crop yields.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,176.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #262 - Basic NM with Manure Injection

Scenario Description:

This scenario describes the implementation of a basic nutrient management system on > = 40 acres of cropland or hayland where manure is injected (below soil surface 4-6 inches). Scenario is applicable on non-organic and organic land. The planned NM system will meet the current Nutrient Management (590) CPS. Implementation will result in the proper rate, source, method of placement, and timing of nutrient application. Payment for implementation is to defray the costs of soil testing, manure analysis, and implementation of the nutrient management plan and recordkeeping. Records demonstrating implementation of the 4 R's of NM will be required. Scenario is designed to encourage producers to effectively utilize commercial fertilizers, organic fertilizers, manure, and/or compost appropriately improving soil quality and minimizing runoff of nutrients from fields to surface waters. The basis for nutrient applications will be recommendations based on soil, manure, and compost analyses.

Before Situation:

In this geographic area, a fertility program is either nonexistent or at a basic level. Application of fertilizers, including manures, composts, and amendments, are completed annually based upon tradition that does not specifically consider the detrimenta

After Situation:

A nutrient management system will be developed to meet the current Nutrient Management (590) CPS, when applicable system will also meet NOP regulations. Development and implementation of a nutrient management plan (NMP) will benefit plant productivity while also reducing potential for off-site degradation. A nutrient management budget will be developed for each field(s) based on soil test analysis and land grant university recommendations or crop removal rates. On planning units typically 40 acres or larger, soil testing is completed according to LGU recommendations. Applications of manure are based on risk assessments (PI - phosphorus index). Records will be provided annually documenting current soil tests and manure tests analyses, date and rate of application, form and placement of nutrients for each field, including post-harvest yields. Manure applications are injected 4-6' below the soil surface to minimize nutrient runoff and to capture ammonia-N that otherwise might be lost to volatilization. Nutrient applications will be completed according to the Nutrient Management Plan that minimizes nutrient runoff and leaching or buildup of excess nutrient concentrations.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $3,485.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $87.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #267 - Adaptive NM

Scenario Description:

The practice scenario is for the implementation of nutrient management on a small plot, as detailed in outlined in Agronomy Technical Note 7 - Adaptive Nutrient Management. Scenario includes implementing replicated strip trials on a field plot to evaluate, identify and implement various nutrient use efficiency improvement methods for timing, rate, method of application, or source of nutrients.

Before Situation:

The practice will be installed on cropland (small grain rotation or typical corn-soybean rotation) to address water quality degradation, air quality degradation and energy concerns. The scenario applies to non-organic and organic operations.

After Situation:

Installation of this scenario will result in adopting the four R's of nutrient management following the procedures outlined in Agronomy Technical Note 7 - Adaptive Nutrient Management. Implementation involves establishing the replicated plots to evaluate one or more of the 4 R's. The plot will consist of at least 4 replicated plots designed, laid out, managed and evaluated with the assistance of a consultant or extension professional knowledgeable in nutrient management and experimental design and data collection. Results are used to make nutrient application decisions to address water quality degradation issues and nutrient use efficiencies. Yields will be measured and statistically analyzed and summarized following the procedures in Agronomy Technical Note 7. The yields for each plot will be adjusted to the appropriate moisture content.

Feature Measure: <Unknown>

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,268.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,268.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #295 - Small Scale Basic Nutrient Management

Scenario Description:

This scenario applies to small farms with diversified cropping systems which will improve the current level of management in applying nutrients. Improved level of management will be such to prevent nonpoint source pollution of surface and ground waters. Typical size is less than 1.0 acre. This scenario includes hand-labor as well as equipment.

Before Situation:

Little to no soil or manure testing is being conducted and typically lacks a nutrient budget. Application of fertilizers, including manures and amendments, are conducted based upon traditional fertilizer recommendations from LGU or based on historic use r

After Situation:

Implementation Requirements have been developed to manage nutrients according to the criteria found in Nutrient Management (590) Conservation Practice Standard for either organic or non-organic operations as appropriate. A nutrient budget has been developed for each field or management zone. Nutrients are applied according to the 4 R's. (Right rate, Right time, Right place and Right source). Records needed to complete the nutrient budget are provided which may include variety of pre-season, in-season, and post-season soil nutrient and plant tissue tests and analysis; compost or manure tests; application timing, method and rate; nutrient sources; and yield data for each field or management zone. Nutrient runoff into adjacent streams is minimized improving water quality and preventing leaching into shallow ground water sources.

Feature Measure: planted area

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 43.0

Scenario Total Cost: $1,646.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #314 - Prescription Nutrient Efficiency

Scenario Description:

The planned Precision Nutrient Efficiency system will meet the current Nutrient Management (590) CPS general and additional criteria. Precision nutrient efficiency system involves the testing or evaluation of crop and/or soil during the growing season to more accurately determine if additional nutrient application(s) are needed. This includes methods or technologies such as PPSN (pre-plant soil nitrate test), PSNT (pre-side dress nitrogen test), LSNT (late spring soil nitrate test), CSNT (corn stalk nitrate test) and chlorophyll meters, and/or spectral analysis may be used to determine if additional nutrients are needed. Nitrification or urease inhibitors (as well as other Enhanced Efficiency Fertilizer technologies recognized by Land Grant Universities) may also be used. Payment for implementation is to defray the costs of additional soil and plant nutrient testing and analysis, in-season crop nutrient testing, equipment, labor, implementation of the NMP and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

This scenario takes a conventional cropping system where either no nutrient management or only a basic level of nutrient management is being practiced and improves it to address air quality (reduce emissions for N fertilizer) and/or minimize agricultural

After Situation:

A Precision Nutrient Management Efficiency system will be developed to meet the current Nutrient Management (590) CPS general and additional criteria. When applicable the system will also meet NOP (National Organic Program) regulations, including reducing nitrogen emissions. Implementation of the adopted efficiency system improves the 4R Stewardship installation which will reduce nutrient loss reducing the potential of off-site movement of nutrients. A nutrient budget is developed for each field or management zone annually for the crop rotation or sequence. The Nutrient Management Plan will include current soil test results, nutrient application rates, source, timing, and placement of all nutrients applied, risk assessments and actual crop yields. Record keeping includes documentation of as applied nutrients by field annually plus and State record keeping requirements.

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,518.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $62.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #341 - Nutrient Management

Scenario Description:

The scenario describes the development and implementation of a Nutrient Management (NM) system which will meet the current Nutrient Management (590) CPS General as well as Additional Criteria and utilizes synthetic fertilizer as well as animal manure as nutrient sources for crop production. The system provides crop nutrient recommendations which accounts for the removal of nitrogen (N), phosphorus (P), and potassium (K). Management of nutrients is based on the 4Rs of Nutrient Stewardship & SMART Nutrient Management (apply the right nutrient source at the right rate, time and place) including activities to reduce nutrient loss by Assessment of comprehensive, site-specific conditions within the field. Nutrient management intensity must be sufficient to address site-specific risk for nutrient loss. Payment is to defray the costs of implementation of the NM system and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

Currently, a nutrient management system for the farm operation accounting for all know measurable nutrient sources does not exist or does not meet the Nutrient Management (590) CPS requirements for General and Additional Criteria. Management of nutrients

After Situation:

A Nutrient Management (NM) system is developed and implemented to meet the current Nutrient Management (590) CPS for General and Additional Criteria, with nutrient management intensity sufficient to address site-specific risks for nutrient loss. Development and implementation of the NM system is based on site-specific risk assessment of comprehensive, site-specific conditions for the application of nutrients for each nutrient loss pathway that can negatively impact soil, water and air quality with excess nutrient loss. The NM system utilizes the 4Rs of nutrient stewardship and SMART Nutrient Management – the right Source, right Method, right Rate, and right Timing to meet both plant productivity and natural resource conservation goals.

Feature Measure: Ac.

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,648.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #342 - Nutrient Management - Non-Organic

Scenario Description:

The scenario describes the development and implementation of a Nutrient Management (NM) system which will meet the current Nutrient Management (590) CPS General as well as Specific Criteria and utilizes synthetic fertilizers as sole nutrient source for crop production. The system provides crop nutrient recommendations which accounts for the removal of nitrogen (N), phosphorus (P), and potassium (K). Management of nutrients is based on the 4Rs of Nutrient Stewardship & SMART Nutrient Management (apply the right nutrient source at the right rate, time and place) including activities to reduce nutrient loss by Assessment of comprehensive, site-specific conditions within the field. Nutrient management intensity must be sufficient to address site-specific risk for nutrient loss. Payment is to defray the costs of implementation of the NM system and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

Currently, a nutrient management system for the farm operation accounting for all know measurable nutrient sources does not exist or does not meet the Nutrient Management (590) CPS requirements for General and Additional Criteria. Management of nutrients

After Situation:

A Nutrient Management (NM) system is developed and implemented to meet the current Nutrient Management (590) CPS for General and Additional Criteria, with nutrient management intensity sufficient to address site-specific risks for nutrient loss. Development and implementation of the NM system is based on site-specific risk assessment of comprehensive, site-specific conditions for the application of nutrients for each nutrient loss pathway that can negatively impact soil, water and air quality with excess nutrient loss. The NM system utilizes the 4Rs of nutrient stewardship and SMART Nutrient Management – the right Source, right Method, right Rate, and right Timing to meet both plant productivity and natural resource conservation goals.

Feature Measure: Ac.

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,223.36

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #343 - Nutrient Management - Manure Incorporation

Scenario Description:

The scenario describes the development and implementation of a Nutrient Management Plan (NMP) which will meet the current Nutrient Management (590) CPS General as well Additional Criteria and utilizes manure as a nutrient source for crop production. Manure nutrient sources will be incorporated into the soil after application. This scenario is applicable for all manure nutrient sources (manure, compost and other organic sources of nutrients). Management of nutrients is based on the 4Rs of Nutrient Stewardship & SMART Nutrient Management (apply the right nutrient source at the right rate, time and place) including activities to reduce nutrient loss by Assessment of comprehensive, site-specific conditions within the field. Nutrient management intensity must be sufficient to address site-specific risk for nutrient loss. Payment is to defray the costs of implementation of the NMP and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

Currently, a nutrient management plan for the farm operation accounting for all know measurable nutrient sources does not exist or does not meet the Nutrient Management (590) CPS requirements for General and Additional Criteria. Management of nutrients is

After Situation:

A Nutrient Management Plan (NMP) is developed to meet the current Nutrient Management (590) CPS for General and Additional Criteria with nutrient management intensity sufficient to address site-specific risks for nutrient loss. Development and implementation of the NMP is based on site-specific risk assessment of comprehensive, site-specific conditions for the application of nutrients for each nutrient loss pathway that can negatively impact soil, water and air quality with excess nutrient loss. Manure applications are incorporated into the soil. The NMP utilizes the 4Rs of nutrient stewardship and SMART Nutrient Management – the right Source, right Method, right Rate, and right Timing to meet both plant productivity and natural resource conservation goals.

Feature Measure: Ac.

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,428.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $60.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #344 - Nutrient Management - Manure Injection

Scenario Description:

The scenario describes the development and implementation of a Nutrient Management (NM) system which will meet the current Nutrient Management (590) CPS General as well as Additional Criteria and utilizes liquid manure as a nutrient source. Manure nutrients will be injected or placed subsurface. The system provides crop nutrient recommendations which accounts for the removal of nitrogen (N), phosphorus (P), and potassium (K). Management of nutrients is based on the 4Rs of Nutrient Stewardship & SMART Nutrient Management (apply the right nutrient source at the right rate, time and place) including activities to reduce nutrient loss by Assessment of comprehensive, site-specific conditions within the field. Nutrient management intensity must be sufficient to address site-specific risk for nutrient loss. Payment is to defray the costs of implementation of the NM system, injection of manure nutrients and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

Currently, a nutrient management system for the farm operation accounting for all know measurable nutrient sources does not exist or does not meet the Nutrient Management (590) CPS requirements for General and Additional Criteria. Liquid manure is current

After Situation:

A Nutrient Management (NM) system is developed and implemented to meet the current Nutrient Management (590) CPS for General and Additional Criteria, with nutrient management intensity sufficient to address site-specific risks for nutrient loss. Liquid manure applications are injected below the soil surface at appropriate depth according to the nutrient management system using manure injection equipment to reduce nitrogen loss through surface runoff, leaching and ammonia volatilization. Development and implementation of the NM system is based on site-specific risk assessment of comprehensive, site-specific conditions for the application of nutrients for each nutrient loss pathway that can negatively impact soil, water and air quality with excess nutrient loss. The NM system utilizes the 4Rs of nutrient stewardship and SMART Nutrient Management – the right Source, right Method, right Rate, and right Timing to meet both plant productivity and natural resource conservation goals.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $7,927.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $198.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 590 - Nutrient Management

Scenario: #387 - Precision Nutrient Application

Scenario Description:

The planned Precision Nutrient Application system will meet the current Nutrient Management (590) CPS General and Additional Criteria. The Application system will include soil sampling methodology for variable rate application and systems. Use of additional nutrient/soil tests including chlorophyll meters, and/or spectral analysis may be used to further refine nutrient applications. Management of nutrients is based on the 4Rs of Nutrient Stewardship & SMART Nutrient Management (apply the right nutrient source at the right rate, time and place) including activities to reduce nutrient loss by Assessment of comprehensive, site-specific conditions within the field. Nutrient management intensity must be sufficient to address site-specific risk for nutrient loss. Payment for implementation is to defray the costs of Precision Nutrient Application system, equipment to implement the practice, implementation of the NMP and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

Currently, a nutrient management system for the farm operation accounting for all know measurable nutrient sources does not exist or does not meet the Nutrient Management (590) CPS requirements for General and Additional Criteria. Management of nutrients

After Situation:

A Precision Nutrient Application system will be developed to meet the current Nutrient Management (590) CPS General and Additional Criteria with nutrient management intensity sufficient to address site-specific risks for nutrient loss. Development and implementation of the NM system is based on site-specific risk assessment of comprehensive, site-specific conditions for the application of nutrients for each nutrient loss pathway that can negatively impact soil, water and air quality with excess nutrient loss. The NM system utilizes the 4Rs of nutrient stewardship and SMART Nutrient Management – the right Source, right Method, right Rate, and right Timing to meet both plant productivity and natural resource conservation goals. Utilizing GIS and GPS technologies, nutrients are applied based on soil test results for each grid or management zone using automated variable rate application equipment. Records provided annually include, the current soil test reports, planned nutrient application rates for each grid or management zone (prescription maps) and/or as applied maps, source, timing, and placement of all nutrients applied, actual crop yields and/or generated yield maps.

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $3,465.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $86.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 592 - Feed Management

Scenario: #23 - Animal Group

Scenario Description:

Feed ration management on an animal operation that does not have access to enough acres to spread all of its manure nutrients at an agronomic rate. The resource concerns are water quality degradation, excessive manure nutrients, particularly nitrogen and phosphorus. The goal of the practice is to reduce the amount of nutrients in the raw manure so that it is easier for “landlocked” farmers to apply the manure at agronomic rates, thereby reducing or eliminating water quality degradation concerns. Associated practices: Nutrient Management (590), Prescribed Grazing (528), Forage Harvest Management (511).

Before Situation:

Producer is feeding a higher level of protein and/or phosphorus than is needed to meet National Research Council (NRC) recommendations for a group of animals of this type and at this stage of production. The operation does not have all of the available ac

After Situation:

The scenario assumes that a specific group of animals is being evaluated. A baseline analysis of 4 samples each with 4 quarterly reports of manure, and feed will be completed to determine the current inputs and outputs. The producer will reduce feed protein and phosphorus levels to that of NRC recommendations for a group of animals of this type and at this stage of production. The producer will explore alternative feedstuffs and alternative feeding strategies to bring manure nitrogen and/or phosphorus levels down without hurting production of the animals or profitability of the operation. Alternative feeding strategies can include such things as grouping animals by similar age, sex, or stage of production, feeding based on individual rolling average production, or feeding “homegrown” or local feedstuffs.

Feature Measure: Group

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,492.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,492.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 592 - Feed Management

Scenario: #39 - Feed Additive

Scenario Description:

Feed ration management on an animal operation by inclusion of a feed additive. The resource concerns may be water quality degradation (pathogens, soluble nutrients), air quality (odors, green house gas). The goal of the practice is to add an approved feed additive that has been proven to reduce pathogens, or tie up soluble nutrients, or improve air quality by reducing odors, ammonia, or green house gases to the animal diet. For this scenario, zeolite will be added to beef and dairy rations to reduce ammonia emissions. Associated practices: Nutrient Management (590).

Before Situation:

Producer is feeding a balanced diet to his animals. He knows that the diet, however is leading to resource concerns by soluble nutrients or pathogens entering the surface water from his operation, or that odors, NOx, or Methane are affecting air quality.

After Situation:

The scenario assumes that a specific group of animals is being evaluated for a resource concern, and that a proven feed additive can have an effect on that concern. For this particular scenario, a zeolite is added to a beef or dairy ration at a rate of 2% of the daily ration. The zeolite will absorb ammonia and other compounds, resulting in lower nitrogen excretion and thus lower ammonia emissions from the manure and result in improved air quality. Assume that one hour of general labor will be needed per year per animal unit to load/unload zeolite into feed mixing equipment. Assume that the zeolite is added based on a 2% inclusion rate of the dry matter ration of 25 pounds/day/animal unit or the amount of zeolite needed is 0.5 pounds/day/animal unit or about 0.1 tons/year/animal unit.

Feature Measure: Per Animal unit, per year

Scenario Unit: Animal Unit

Scenario Typical Size: 1.0

Scenario Total Cost: $70.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $70.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #53 - Plant Health PAMS (acs) Low Labor and Materials

Scenario Description:
PAMS activities with low labor and material costs will be implemented on a large scale crop production area.

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (resistant cultivar selection, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (Degree day monitoring, field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure).

Feature Measure: Acres of Management Appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $939.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $23.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #54 - Plant Health PAMS (acs) Low labor only

Scenario Description:
PAMS activities with low labor costs will be implemented on a large scale crop production area.

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (resistant cultivar selection, pest habitat removal, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure).

Feature Measure: Acres of management appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $685.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #55 - Pest Management Precision Ag

Scenario Description:

This scenario takes a conventional cropping system where either no pest management or only a basic level of pest management is being practiced and improves it to address air quality and/or minimize agricultural nonpoint sources pollution of surface and groundwater. The planned Pest Management system will meet the current Pest Management Conservation System (595) CPS general and additional criteria. Precision pest management system includes such items as pest monitoring, targeted applications, eliminates overlap, tissue testing, specialized nozzles etc. to further refine pesticide applications. Payment for implementation is to defray the costs of tissue testing, additional testing and analysis, equipment implementation of the PMCS and recordkeeping. Typical treatment area is 40 acres.

Before Situation:

Conventional pest management programs involve little or no monitoring and testing. Application of pesticides are completed annually based upon product salesmen recommendations that do not specifically consider the detrimental affects of inexact applicatio

After Situation:

A precision pest management system will be developed to meet the current Pest Management Conservation System (595) CPS general and additional criteria, when applicable the system will also meet NOP regulations. Development and implementation of a PMCS will benefit plant productivity while reducing potential of off-site movement of pesticides. PMCS may include practices such as use of spot applications, proper timing of applications, more appropriate formulations etc. Additional monitoring and tissue testing may also be used to further refine pesticide applications. Smart sprayer and advanced nozzle technology may also be employed. Records will be provided annually of the current monitoring, test analysis, application rates, formulations for each field including crop yields.

Feature Measure: Acres of management appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,751.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $68.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #56 - Plant Health PAMS activities (Small Farm - each) labor, materials and mitigation.

Scenario Description:
PAMS activities with labor and material costs plus mitigation will be implemented on a small scale crop production area.

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (Netting to exclude insect or birds, resistant cultivar selection, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (Degree day monitoring, field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure). Mitigation over 30 points.

Feature Measure: Small farm, typically = 5Ac

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $6,921.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,921.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #57 - Plant Health PAMS (acs) High labor only (intensive scouting etc.)

Scenario Description:
Plant Health PAMS (acs) High labor only (intensive scouting etc.)

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (resistant cultivar selection, pest habitat removal, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure).

Feature Measure: Acres of Management Appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,133.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $53.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #58 - Plant health PAMS (Small Farm - each) labor and mitigation.

Scenario Description:
PAMS activities with labor costs will be implemented plus mitigation on a small scale crop production area.

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (resistant cultivar selection, pest habitat removal, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure). Mitigation up to 30 points.

Feature Measure: Small farm, typically = 5Ac

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,990.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,990.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #59 - Plant Health PAMS (acs) High Labor, materials and mitigation.

Scenario Description:

PAMS activities with high labor and material costs (weather station, netting, field sanitation, mating disruption) plus mitigation will be implemented on a large scale crop production area.

Before Situation:

Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:

Planned Prevention (Netting to exclude insect or birds, resistant cultivar selection, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (Degree day monitoring, field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure). Mitigation over 30 points.

Feature Measure: Acres of management appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $23,100.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $577.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #60 - Plant Health PAMS (acs) Low Labor, materials and mitigation.

Scenario Description:
PAMS activities with low labor and material costs will be implemented plus mitigation on a large scale crop production area.

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (Netting to exclude insect or birds, resistant cultivar selection, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (Degree day monitoring, field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure). Mitigation up to 30 points.

Feature Measure: Acres of Management Appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,571.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $64.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #61 - Water Quality Pesticide Mitigation > 30 Point AND/OR Beneficial Insect Pesticide Mitigation - Small Farm

Scenario Description:

The minimum amount of planned IPM mitigation techniques needed to reduce water quality pesticide-related resource concerns is > 30 mitigation index score. An IPM plan will be developed in accordance with this standard and the CPS 595 Implementation Requirement will document how specific pesticide hazards will be prevented or mitigated AND/OR impacts to wildlife-beneficial insects including pollinators.

Before Situation:

Before practice conditions vary widely. Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many differe

After Situation:

An IPM system with planned. Mitigation techniques (>30 points) have been implemented to meet the minimum criteria for the identified resource concerns (i.e. Water Quality - Impacts to Human Drinking Water or Fish) AND 10 points of mitigation for Wildlife (beneficial insects including pollinators) with either risk prevention (i.e. planned pesticides have no risk to the identified resource concern) or risk mitigation (i.e. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 AND Agronomy Technical Note 9).

Feature Measure: Small Farm, typically <= 5 ac

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,098.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,098.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #62 - Plant Health PAMS (acs) High Labor and materials

Scenario Description:
PAMS activities with high labor and material costs will be implemented on a large scale crop production area (weather station, netting, field sanitation, mating disruption etc.).

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (Netting to exclude insect or birds, resistant cultivar selection, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (Degree day monitoring, field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure).

Feature Measure: Acres of Management Appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $20,864.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $521.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #63 - Water Quality Pesticide Mitigation = 30 Point AND/OR Beneficial Insect Pesticide Mitigation - Small Farm

Scenario Description:

The minimum amount of planned IPM mitigation techniques needed to reduce water quality pesticide-related resource concerns is = 30 mitigation index score. An IPM plan will be developed in accordance with this standard and the CPS 595 Implementation Requirement will document how specific pesticide hazards will be prevented or mitigated AND/OR impacts to wildlife-beneficial insects including pollinators.

Before Situation:

Before practice conditions vary widely. Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many differe

After Situation:

An IPM system with planned. Mitigation techniques (=30 points) have been implemented to meet the minimum criteria for the identified resource concerns (i.e. Water Quality - Impacts to Human Drinking Water or Fish) AND/OR 10 points of mitigation for Wildlife (beneficial insects including pollinators) with either risk prevention (i.e. planned pesticides have no risk to the identified resource concern) or risk mitigation (i.e. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 AND/OR Agronomy Technical Note 9).

Feature Measure: Small Farm, typically <= 5 ac

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,273.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,273.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #64 - Water Quality Pesticide Mitigation > 30 Point AND/OR Beneficial Insect Pesticide Mitigation

Scenario Description:

The minimum amount of planned IPM mitigation techniques needed to reduce water quality pesticide-related resource concerns is > 30 mitigation index score. An IPM plan will be developed in accordance with this standard and the CPS 595 Implementation Requirement will document how specific pesticide hazards will be prevented or mitigated AND/OR impacts to wildlife-beneficial insects including pollinators.

Before Situation:

Before practice conditions vary widely. Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many differe

After Situation:

An IPM system with planned. Mitigation techniques (>30 points) have been implemented to meet the minimum criteria for the identified resource concerns (i.e. Water Quality - Impacts to Human Drinking Water or Fish) AND/OR 10 points of mitigation for Wildlife (beneficial insects including pollinators) with either risk prevention (i.e. planned pesticides have no risk to the identified resource concern) or risk mitigation (i.e. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 AND/OR Agronomy Technical Note 9).

Feature Measure: Acres of Management Appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,928.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $73.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #66 - Water Quality Pesticide Mitigation = 30 Point AND/OR Beneficial Insect Pesticide Mitigation

Scenario Description:

The minimum amount of planned IPM mitigation techniques needed to reduce water quality pesticide-related resource concerns is = 30 mitigation index score. An IPM plan will be developed in accordance with this standard and the CPS 595 Implementation Requirement will document how specific pesticide hazards will be prevented or mitigated AND/OR impacts to wildlife-beneficial insects including pollinators.

Before Situation:

Before practice conditions vary widely. Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many differe

After Situation:

An IPM system with planned. Mitigation techniques (=30 points) have been implemented to meet the minimum criteria for the identified resource concerns (i.e. Water Quality - Impacts to Human Drinking Water or Fish) AND/OR 10 points of mitigation for Wildlife (beneficial insects including pollinators) with either risk prevention (i.e. planned pesticides have no risk to the identified resource concern) or risk mitigation (i.e. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 AND Agronomy Technical Note 9).

Feature Measure: Acres of Management Appli

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,673.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #67 - Plant health PAMS (Small Farm - each) labor only

Scenario Description:
PAMS activities with labor costs will be implemented on a small scale crop production area.

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (resistant cultivar selection, pest habitat removal, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure).

Feature Measure: Small farm, typically <= 5 ac

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $643.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $643.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 595 - Pest Management Conservation System

Scenario: #68 - Plant Health PAMS activities (Small Farm - each) labor and materials

Scenario Description:
PAMS activities with labor and material costs will be implemented on a small scale crop production area.

Before Situation:
Before practice conditions vary widely. Conditions range from the client is not using any PAMS techniques to the client is using many different PAMS techniques for many different pests. In all cases at least one planned PAMS technique has risk to an ident

After Situation:
Planned Prevention (Netting to exclude insect or birds, resistant cultivar selection, etc.), Avoidance (IWM for disease avoidance, change in rotation to avoid problem spots, etc.), and Monitoring (Degree day monitoring, field scouting, etc.) activities have been implemented to help meet the minimum criteria for the identified resource concerns (i.e. Plant Pest Pressure).

Feature Measure: Small Farm, typically <= 5 ac

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,112.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,112.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 600 - Terrace

Scenario: #1 - Broadbased

Scenario Description:

An earthen embankment with channel constructed across the field slope as part of a system to shorten slope lengths and reduce sheet, rill, and gully erosion in a cropped field. The typical installation is a broadbased terrace having 5:1 upstream and 5:1 downstream slopes measuring 1,000 feet in a field with slopes from 2% to 8% constructed in loam soils or similar in regards to workability. Channel and berm are farmed. A stable outlet is provided in the form of a Grassed Waterway or Underground Outlet. Costs include all equipment and forces necessary to excavate, shape, and compact terrace. This practice addresses Concentrated Flow Erosion and Excessive Sediment in surface waters.

Before Situation:

Long slope lengths contribute to excessive sedimentation and soil erosion in cropped fields as a result of gully, rill, and sheet erosion. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient tran

After Situation:

A system of broadbased terraces measuring 1,000 feet in length, 2.5 height, and 5:1 front and back slopes is installed with spacing designed to intercept flow of water and shorten slope length to reduce erosion to acceptable levels. Work is done with dozer, scraper, or road grader. The installed terrace is typically farmed. Associated practices are Critical Area Planting (342), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Length of Terrace

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $4,773.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 600 - Terrace

Scenario: #32 - Flat Channel

Scenario Description:

An earthen embankment with channel constructed across the field slope as part of a system to shorten slope lengths, and reduce sheet, rill, and gully erosion in a cropped field. The typical installation is a flat channel (level) terrace storing runoff with a length of 2,500 feet and side slopes of 8:1 or greater in a field with slopes from 2% to 8% constructed in loam soils or similar in regards to workability. Costs include all equipment and forces necessary to excavate, shape, and compact terrace. This practice addresses Concentrated Flow Erosion and Excessive Sediment in surface waters.

Before Situation:

Long slope lengths contribute to excessive sedimentation and soil erosion in cropped fields as a result of gully, rill, and sheet erosion. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient tran

After Situation:

A system of flat channel (level) terraces with approximately 8:1 front and back slopes, 2.5 feet height, and 2,500 feet in length is installed with spacing designed to intercept flow of water and shorten slope length to reduce erosion to acceptable levels. Work is done with dozer, scraper, or road grader. The installed terrace is typically farmed. Associated practices are Critical Area Planting (342), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Length of Terrace

Scenario Unit: Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $9,884.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 600 - Terrace

Scenario: #33 - Grass Backed

Scenario Description:

{Only name change from 5 to 1 & 2 to 1 to Grass Back} An earthen embankment with channel constructed across the field slope as part of a system to shorten slope lengths and reduce sheet, rill, and gully erosion in a cropped field. The typical installation is a system of terraces (2,500 feet in length) that have one relatively flat (5:1) slope and one steep (2:1) slope constructed in a field with slopes from 2% to 8% installed in loam soils or similar soils in regards to workability. The steep slope is established to permanent vegetation with the flatter slope farmed. A stable outlet is provided in the form of a Grassed Waterway or Underground Outlet. Costs include all equipment and forces necessary to excavate, shape, and compact terrace. Seeding is not included. This practice addresses Concentrated Flow Erosion and Excessive Sediment in surface waters.

Before Situation:

Long slope lengths contribute to excessive sedimentation and soil erosion in cropped fields as a result of gully, rill, and sheet erosion. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient tran

After Situation:

A system of terraces with one steep (2:1) and one flat (5:1) slope measuring 2,500 feet in length and 2.5' height is installed with spacing designed to intercept flow of water and shorten slope length to reduce erosion to acceptable levels. Work is done with dozer, scraper, or road grader. Associated practices are Critical Area Planting (342), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Length of Terrace

Scenario Unit: Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $3,869.92

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 600 - Terrace

Scenario: #34 - Narrow Base, less than 8% slope

Scenario Description:

An earthen embankment with channel constructed across the field slope as part of a system to shorten slope lengths and reduce sheet, rill, and gully erosion in a cropped field. The typical installation is a system of narrow base terraces with 2:1 slopes, 2,500' length, and 2.5' height in a field with slopes from 3% to 8% constructed in loam soils or similar in regards to workability. A stable outlet is provided in the form of a Grassed Waterway or Underground Outlet. Costs include all equipment and forces necessary to excavate, shape, and compact terrace. Permanent vegetation is established. Seeding is not included. This practice addresses Concentrated Flow Erosion and Excessive Sediment in surface waters.

Before Situation:

Long slope lengths contribute to excessive sedimentation and soil erosion in cropped fields as a result of gully, rill, and sheet erosion. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient tran

After Situation:

A system of narrow base terraces with approximately 2:1 front and back slopes measuring 2,500 feet in length and 2.5 feet height is constructed with spacing designed to intercept flow of water and shorten slope length to reduce erosion to acceptable levels. Work is done with dozer, scraper, or road grader. Associated practices are Critical Area Planting (342), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Length of Terrace

Scenario Unit: Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $4,629.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 600 - Terrace

Scenario: #35 - Narrow Base, greater than 8% slope

Scenario Description:

An earthen embankment with channel constructed across the field slope as part of a system to shorten slope lengths and reduce sheet, rill, and gully erosion in a cropped field. The typical installation is a system of narrow base terraces with 2:1 slopes, 2,500' length, and 2.5' height in a field with slopes exceeding 8% constructed in loam soils or similar in regards to workability. A stable outlet is provided in the form of a Grassed Waterway or Underground Outlet. Costs include all equipment and forces necessary to excavate, shape, and compact terrace. Permanent vegetation is established. Seeding is not included. This practice addresses Concentrated Flow Erosion and Excessive Sediment in surface waters.

Before Situation:

Long slope lengths contribute to excessive sedimentation and soil erosion in cropped fields as a result of gully, rill, and sheet erosion. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient tran

After Situation:

A system of narrow base terraces with approximately 2:1 front and back slopes measuring 2,500 feet in length and 2.5' height is constructed with spacing designed to intercept flow of water and shorten slope length to reduce erosion to acceptable levels. Work is done with dozer, scraper, or road grader. Associated practices are Critical Area Planting (342), Grassed Waterway (412), and Underground Outlet (620).

Feature Measure: Length of Terrace

Scenario Unit: Foot

Scenario Typical Size: 2,500.0

Scenario Total Cost: $4,981.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 601 - Vegetative Barrier

Scenario: #2 - Seeded Barrier

Scenario Description:
Permanent strips of stiff, dense vegetation established along the general contour of slopes.

Before Situation:
Significant erosion is occurring resulting in substantial transport of sediment across the slope. A large amount of sediment is subsequently delivered to the edge of the field and/or waterways.

After Situation:
Implementation Requirements are prepared and implemented for the site according to the Vegetative Barrier (601) standard. A strip or strips of stiff, dense vegetation is established by seeding along the general contour of the slope that effectively settles a significant amount of sediment above the leading edge of the vegetative barrier. Barrier may also help to connect green areas to provide shelter for wildlife.

Feature Measure: Per 1000 Linear feet of prac

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $367.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 601 - Vegetative Barrier

Scenario: #3 - Vegetative Planting

Scenario Description:
Permanent strips of stiff, dense vegetation established along the general contour of slopes.

Before Situation:
Significant erosion is occurring resulting in substantial transport of sediment across the slope. A large amount of sediment is subsequently delivered to the edge of the field and/or waterways.

After Situation:
Implementation Requirements are prepared and implemented for the site according to the Vegetative Barrier (601) standard. A strip or strips of stiff, dense vegetation such as Vetiver Grass is/are established along the general contour of the slope that effectively settles a significant amount of sediment above the leading edge of the vegetative barrier. Barrier may also help to connect green areas to provide shelter for wildlife.

Feature Measure: Per 100 foot Linear feet of p

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $914.93

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 603 - Herbaceous Wind Barriers

Scenario: #1 - Cool Season

Scenario Description:

This scenario describes the implementation of herbaceous barriers to reduce wind velocities and wind-borne particulate matter. In this scenario barriers are composed of cool season annual or perennial vegetation. Plant materials shall be selected for local adaptation and climatic conditions and are resistant to lodging and are non-spreading in their habit. Barriers will be designed as close to perpendicular to prevailing winds as practical. Barrier direction, spacing, and composition needed to achieve the desired purpose shall be designed using the currently approved wind erosion technology.

Before Situation:

Typically cropland has excessive soil disturbance and unsheltered distance that results in excessive wind erosion that affect soil resources. Seedling development and wildlife habitat are negatively affected by wind-borne sediment and sediment-borne conta

After Situation:

Implementation Requirements will be prepared and implemented for the site according to the Herbaceous Wind Barrier (603) standard. Implementation of herbaceous wind barriers will modify the flow and velocity of air dependent upon barrier height, porosity, spacing and wind speed. Orientation is generally placed across an entire field perpendicular to applicable prevailing wind direction. Implementation will reduce soil loss, protect growing plants from damage by wind-blown soil particles, and provide food and cover for wildlife. The scenario includes the design and implementation of annual barriers and required reestablishment.

Feature Measure: linear feet of barrier plante

Scenario Unit: Linear Foot

Scenario Typical Size: 1,320.0

Scenario Total Cost: $159.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 603 - Herbaceous Wind Barriers

Scenario: #6 - Annual Species, Small

Scenario Description:

This scenario describes the annual implementation of herbaceous barriers to reduce wind velocities and wind-borne particulate matter. In this scenario barriers are composed of annual living vegetation. Plant materials shall be selected for local adaptation and climatic conditions and are resistant to lodging and are non-spreading in their habit. Barriers will be designed as close to perpendicular to prevailing winds as practical. Barrier direction, spacing, and composition needed to achieve the desired purpose shall be designed using the currently approved wind erosion technology. Establishment is done either by using light tillage or chemical application and no till drill.

Before Situation:

Typically cropland has excessive soil disturbance and un-sheltered distance that results in excessive wind erosion that affect soil resources. Seedling development and wildlife habitat are negatively affected by wind-borne sediment and sediment-borne cont

After Situation:

Implementation Requirements will be prepared for the site according to the 603 Herbaceous Wind Barrier Standard and implemented. Implementation of herbaceous wind barriers will modify the flow and velocity of air dependent upon barrier height, porosity, spacing and wind speed. Orientation is generally placed across an entire field perpendicular to applicable prevailing wind direction. Implementation will reduce soil loss; protect growing plants from damage by wind blown soil particles, provide food and cover for wildlife. Payment is for the design and implementation of annual barriers and required reestablishment.

Feature Measure: Linear Feet Planted

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $339.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 604 - Saturated Buffer

Scenario: #12 - Saturated Buffer

Scenario Description:

Water discharging from a subsurface drainage system is dispersed along a buffer strip (often a riparian buffer). The water flows underground through the buffer area where nutrients and sediment can be removed before the water reaches the stream. Resource Concerns: Water Quality Degradation (Nutrients) Associated Practices: 606 - Subsurface Drain; 554 - Drainage Water Management; 587 - Structure for Water Control

Before Situation:

Water from a subsurface drainage system flows directly into a stream, carrying sediment and nutrients.

After Situation:

Water from a subsurface drainage system is dispersed through at 400 feet of 5" HDPE single wall perforated pipe tile drain along an established vegetated buffer strip at least 30 feet from the receiving stream. Drainage pipe is trenched in at 4 feet depth. The water is detained by passing underground where the nitrogen is removed by bacteria and natural processes.

Feature Measure: Length of Dispersal conduit

Scenario Unit: Foot

Scenario Typical Size: 400.0

Scenario Total Cost: $4,334.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 605 - Denitrifying Bioreactor

Scenario: #9 - Denitrifying Bioreactor

Scenario Description:

Scenario describes a structure containing a carbon source installed to intercept subsurface drain (tile) flow or ground water, and reduce the concentration of nitrate-nitrogen. Woodchips serve as the carbon source necessary to the denitrification process. This bioreactor has geotextile fabric (or polyethylene - PE) between the wood chips and the surrounding soil plus the following components: woodchip filled pit, two water control structures (to allow management of the flow rate and free water elevation within the bioreactor), and piping to convey water to and from the bioreactor. Woodchips serve as the carbon source necessary to the denitrification process. Associated practices: Subsurface Drain (606), Structure for Water Control (587), Drainage Water Management (554). Resource concern: Water Quality Degradation - Excess nutrients in surface and ground waters. Management and maintenance of the bioreactor (including chip replenishment), as well as monitoring and reporting to demonstrate the performance of the practice are not included in this scenario.

Before Situation:

Before the installation, the subsurface drainage system is contributing nitrates to a surface water source (ditch or stream), high nitrates are a resource concern to the receiving water, and it is feasible to install a bioreactor to reduce the nitrate loa

After Situation:

Bioreactor has geotextile fabric (or polyethylene - PE) between the wood chips and the surrounding soil plus the following components: woodchip filled pit, two water control structures (to allow management of the flow rate and free water elevation within the bioreactor), and piping to convey water to and from the bioreactor. The approximate bioreactor excavated pit volume is 333 cubic yards (e.g. 6 feet deep, 15 feet wide and 100 feet long). Woodchips occupy the 6 feet of the pit plus 10% crowned (366 cu. yd.) and will be mounded above ground level to shed precipitation. A geotextile fabric (or PE material) surrounds the chips to prevent migration of soil into the pit. Water control structures should be installed using practice standard (587) Structure for Water Control. Two inline water control structures are in place. Upper WCS connected to the upper 6" diameter single-wall CPT manifold pipe (15' each, note that 6' HDPE dual wall is the only type available and used in the scenario components) by 6" diameter dual wall pipe (20' each). 20' of 6" dual wall pipe connects the downstream manifold to the lower WCS which is connected back to the main with additional 20' of 6" dual wall pipe. Flow rates are dependent upon the availability of drainage water from the 10' drainage mainline. 40' of mainline is replaced with non-perforated 10' above and below the upper WCS. The soil excavated from the pit is spoiled onto the nearby field. Associated practices: Subsurface Drain (606), Structure for Water Control (587), Drainage Water Management (554).

Feature Measure: Volume of Pit excavation

Scenario Unit: Cubic Yard

Scenario Typical Size: 333.0

Scenario Total Cost: $30,348.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $91.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 605 - Denitrifying Bioreactor

Scenario: #10 - Denitrifying Bioreactor, No Liner

Scenario Description:

Scenario describes a structure containing a carbon source installed to intercept subsurface drain (tile) flow or ground water, and reduce the concentration of nitrate-nitrogen. Woodchips serve as the carbon source necessary to the denitrification process. This bioreactor has the following components: woodchip filled pit, a soil cover, two water control structures (to allow management of the flow rate and free water elevation within the bioreactor), and piping to convey water to and from the bioreactor. Woodchips serve as the carbon source necessary to the denitrification process. Associated practices: Subsurface Drain (606), Structure for Water Control (587), Drainage Water Management (554). Resource concern: Water Quality Degradation - Excess nutrients in surface and ground waters. Management and maintenance of the bioreactor (including chip replenishment), as well as monitoring and reporting to demonstrate the performance of the practice are not included in this scenario.

Before Situation:

Before the installation, the subsurface drainage system is contributing nitrates to a surface water source (ditch or stream), high nitrates are a resource concern to the receiving water, and it is feasible to install a bioreactor to reduce the nitrate loa

After Situation:

Bioreactor has the following components: woodchip filled pit, a soil cover, two water control structures (to allow management of the flow rate and free water elevation within the bioreactor), and piping to convey water to and from the bioreactor. The approximate bioreactor excavated pit volume is 333 cubic yards (e.g. 6 feet deep, 15 feet wide and 100 feet long). Woodchips occupy the lower 4 feet of the pit (222 cu. yd.) and a soil blanket over the woodchips is 2.0 ft. and will be mounded above ground level to shed precipitation. A geotextile fabric (or PE material) surrounds the chips to prevent migration of soil into the pit. Water control structures should be installed using practice standard (587) Structure for Water Control. Two inline water control structures are in place. Upper WCS connected to the upper 6' diameter single-wall CPT manifold pipe (15' each, note that 6' HDPE dual wall is the only type available and used in the scenario components) by 6' diameter dual wall pipe (20' each). 20' of 6' dual wall pipe connects the downstream manifold to the lower WCS which is connected back to the main with additional 20' of 6' dual wall pipe. Flow rates are dependent upon the availability of drainage water from the 10' drainage mainline. 40' of mainline is replaced with non-perforated 10' above and below the upper WCS. The soil excavated from the pit is spoiled onto the nearby field. Associated practices: Subsurface Drain (606), Structure for Water Control (587), Drainage Water Management (554).

Feature Measure: Volume of Carbon Source

Scenario Unit: Cubic Yard

Scenario Typical Size: 222.0

Scenario Total Cost: $20,484.43

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $92.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #1 - Corrugated Plastic Pipe (CPP), Single-Wall, <= 6 inch (No Gravel)

Scenario Description:

Description: Below ground installation of perforated HDPE (Corrugated Plastic Pipe) pipeline, using a backhoe. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Single-Wall, perforated HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth 5 feet. The unit is in length of pipe. The typical number of mainline connections for 1,000 feet of subsurface drainline is ~ 2 each. Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606- Underground Outlet, and 554 - Drainage Water Management.

Before Situation:

Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).

After Situation:

The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.

Feature Measure: Length of pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $5,504.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #2 - Corrugated Plastic Pipe (CPP), Single-Wall, <= 6 inch (with 1'x2' Env.of Gravel)

Scenario Description:

Description: Below ground installation of perforated HDPE (Corrugated Plastic Pipe) pipeline with Sand-Gravel envelope, using a or backhoe. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Single-Wall, perforated HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth of 5 feet, and surrounded with a sand-gravel envelope lined with geotextile. The unit is in length of pipe. The typical volume sand-gravel for 1,000 feet of 2'wide x 12' high envelope is 74 cubic yards. The typical number of mainline connections for 1,000 feet of subsurface drainline is a total of 2 each. Resource Concerns: Excess Water (seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606-Underground Outlet, and 554 - Drainage Water Management.

Before Situation:

Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).

After Situation:

The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.

Feature Measure: length of pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $9,966.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #3 - Corrugated Plastic Pipe (CPP), Single-Wall, <= 6 inch, 10 feet deep (with 1'x2' Env. of Gravel)

Scenario Description:

Description: Below ground installation of perforated HDPE (Corrugated Plastic Pipe) pipeline with Sand-Gravel envelope, using a backhoe. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 6-inch. Construct 1,000 feet of 6-inch, Single-Wall, perforated HDPE Corrugated Plastic Pipe (CPP), installed below ground to a depth of 10 feet, and surrounded with a sand-gravel envelope. The unit is in length of pipe. The typical volume sand-gravel for 1,000 feet of 2'wide x 12" high envelope is 74 cubic yards. The typical number of mainline connections for 1,000 feet of subsurface drainline is a total of 2 each. Resource Concerns: Excess Water (seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606-Underground Outlet, and 554 - Drainage Water Management.

Before Situation:

Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).

After Situation:

The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.

Feature Measure: length of pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $15,936.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #4 - Corrugated Plastic Pipe (CPP), Single-Wall, >= 8 inch (No Gravel)

Scenario Description:

Description: Below ground installation of HDPE (Corrugated Plastic Pipe) pipeline, using a backhoe. HDPE (CPP) Single-Wall is manufactured in sizes (nominal diameter) from 3-inch to 24-inch; typical practice sizes range from 3-inch to 12-inch; and typical scenario size is 10-inch. Construct 1,000 feet of 10-inch, Single-Wall, HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth 5 feet. The unit is in length of pipe of pipe in feet. Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; and 554 - Drainage Water Management.

Before Situation:

Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).

After Situation:

The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.

Feature Measure: Length of Pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $14,325.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #5 - Corrugated Plastic Pipe (CPP), Twin-Wall, >= 8 inch (with 2'x3' Env. of Gravel)

Scenario Description:

Description: Below ground installation of HDPE (Corrugated Plastic Pipe) pipeline, using a backhoe. HDPE (CPP) Twin-Wall is manufactured in sizes (nominal diameter) from 4-inch to 60-inch; typical practice sizes range from 8-inch to 15-inch; and typical scenario size is 12-inch. Construct 1,000 feet of 12-inch, Twin-Wall, HDPE Corrugated Plastic Pipe (CPP), installed below ground to a minimum depth 5 feet. The unit is in length of pipe in feet. Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Condition; Water Quality Degradation (Nutrients). Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; and 554 - Drainage Water Management.

Before Situation:

Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.).

After Situation:

The drainage modifications result in reduced plant stress due to excessive wetness caused by a seasonal high water table, or improved drainage water quality due to system retrofit enabling drainage water management.

Feature Measure: length of pipe

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $22,897.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #8 - 6 inch Footing Drain w/ Geotextile Fabric

Scenario Description:

Description: Below ground installation of 4" Perf PVC or 6 inch Perf corrugated plastic pipe to improve soil drainage. PVC installed where greater strength is needed under high traffic areas; in locations where replacement may be difficult; both installed in conjunction with other structural conservation practices to remove excess water and ensure proper function of that practice. Pipe usually installed in a crushed stone envelope, w/ geotextile around base of structure. All excavation is included in other associated practice(s). Resource Concerns: Excess Water (Seasonal High Water Table); Water Quality Degradation (Nutrients). Per practice it supports. Associated Practices: 607 - Surface Drain, Field Ditch; 608 - Surface Drain, Main or Lateral; 587 - Structure for Water Control, 533 - Pumping Plant; 606 Underground Outlet, 313 Waste Storage Facility, and 554 - Drainage Water Management.

Before Situation:

Before installation soil conditions are excessively wet due to poor internal soil drainage. Excess soil water threatens stability/functionality of proposed conservation practice.

After Situation:

The drainage modifications result in improved drainage of groundwater to ensure function and longevity of supporting practice.

Feature Measure: length of pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $980.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #13 - Curtain Drain <= 4 Feet Deep

Scenario Description:

This scenario consist of the installation of a curtain drain. Typical scenario is a 6 inch HDPE Perforated Corrugated Plastic Pipe is installed in a trench 4 feet deep by 3 feet wide by 200 feet long. The trench is backfilled with clean stone or gravel over the pipe. The volume of trench excavation and clean gravel is 90 CY (neat line volume). Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Conditions; Water Quality Degradation (Nutrients) Associated Practices: 608- Surface Drain, Main or Lateral; 587 - Structure for Water Control; 533 - Pumping Plant; 620 - Underground Outlet; and 554 - Drainage Water Management

Before Situation:

Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.). Also, excess ground water and saturate

After Situation:

The drainage modifications results in reduced plant stress due to excessive wetness caused by seasonal high water table, or improved drainage water quality due to the system retrofit enabling drainage water management. Also allows other conservation practices such as waste storage facility, grassed waterway, etc. to operate and function properly.

Feature Measure: Length of Pipe

Scenario Unit: Linear Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $7,177.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $35.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 606 - Subsurface Drain

Scenario: #14 - Curtain Drain > 4 Feet Deep

Scenario Description:

This scenario consist of the installation of a curtain drain. Typical scenario is a 6 inch HDPE Perforated Corrugated Plastic Pipe (Optional) is installed in a trench 8 feet deep by 3 feet wide by 200 feet long. The trench is backfilled with clean stone or gravel over the pipe. The volume of trench excavation and clean gravel is 180 CY (neat line volume). This scenario assumes that trench access by laborers is not necessary. NO additional cost is included for shoring, trench box, benching or sloping of trench side slopes, etc.
Resource Concerns: Excess Water (Seasonal High Water Table); Degraded Plant Conditions; Water Quality Degradation (Nutrients)
Associated Practices: 608- Surface Drain, Main or Lateral; 587 - Structure for Water Control; 533 - Pumping Plant; 620 - Underground Outlet; and 554 - Drainage Water Management

Before Situation:

Before installation soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations (seed bed preparation, planting, etc.). Also, excess ground water and saturate

After Situation:

The drainage modifications results in reduced plant stress due to excessive wetness caused by seasonal high water table, or improved drainage water quality due to the system retrofit enabling drainage water management. Also allows other conservation practices such as waste storage facility, grassed waterway, etc. to operate and function properly.

Feature Measure: Length of Pipe

Scenario Unit: Linear Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $12,829.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $64.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 607 - Surface Drain, Field Ditch

Scenario: #3 - Field Drainage Ditch

Scenario Description:

This scenario is the construction of a surface drain, field ditch. Typical construction dimensions are 4' bottom x 2.5' deep x 1320' length with a side slope of 3:1. Excess water is either reused in an Irrigation System, Tailwater Recovery (447) system, or conveyed to a receiving water body. Resource concerns: Excess/Insufficient Water - Inefficient Use of Irrigation Water and Water Quality Degradation - Excessive Sediment in Surface Waters. Associated Conservation Practices: 608-Surface Drain, Main or Lateral; 587 - Structure For Water Control; 554 - Drainage Water Management

Before Situation:

Excess water has no outlet and backs up into the fields causing damage or loss of the crop.

After Situation:

An earthen ditch that follows the natural slope of the land at the low end of the field will be constructed to carry excess water to an outlet.

Feature Measure: Volume of Earth Excavated

Scenario Unit: Cubic Yard

Scenario Typical Size: 1,406.0

Scenario Total Cost: $4,396.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 609 - Surface Roughening

Scenario: #15 - Emergency Tillage

Scenario Description:
Emergency Tillage on soils that are stable enough to sustain effective ridges and cloddiness and have a high wind erosion potential due to lack of surface cover. Wind erodibility factor (I) is less than 104.

Before Situation:
Current well -planned and properly applied wind erosion control systems have failed. Tillage operations have not effectively reduced soil erosion from wind and wind-borne sediment, Particulate Matter emissions occur. Crop damage from wind-borne particles

After Situation:
Emergency Tillage has been conducted to produce random roughness (RR) values large enough to achieve a 25% reduction in the potential erosion rate, or reduced wind erosion during the management period by 25%.

Feature Measure: Acres of Surface Roughenin

Scenario Unit: Acre

Scenario Typical Size: 160.0

Scenario Total Cost: $4,285.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 609 - Surface Roughening

Scenario: #16 - Ripper or Subsoiler

Scenario Description:
Emergency Tillage on soils that are stable enough to sustain effective ridges and cloddiness and have a high wind erosion potential due to lack of surface cover.

Before Situation:
Current well-planned and properly applied wind erosion control systems have failed. Tillage operations have not effectively reduced soil erosion from wind and wind-borne sediment, Particulate Matter emissions occur. Crop damage from wind-borne particles c

After Situation:
Emergency Tillage has been conducted to produce random roughness (RR) values large enough to achieve a 25% reduction in the potential erosion rate, or reduced wind erosion during the management period by 25%.

Feature Measure: Acres of Surface Roughenin

Scenario Unit: Acre

Scenario Typical Size: 160.0

Scenario Total Cost: $4,676.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #1 - Hardwood Hand Planting-bare root-protected

Scenario Description:

Improving the hardwood forest setting by hand planting hardwood tree seedlings. Seedlings are protected from deer browsing. The number of trees to plant is lower than establishing a new forest. Resource concerns are degraded plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation.

Before Situation:

In an existing upland forest the present trees are poor quality, at low stocking levels, or are undesirable species. Existing conditions do not meet landowner objectives of growing high quality trees. Wildlife habitat is poor due to the above described co

After Situation:

The area of treatment is 10 acres. Bare root hardwood seedlings are planted by hand in the best locations for seedling survival. Solid tree tubes are installed to protect seedlings from animal browsing damage. Post planting vegetation control is planned to ensure seedling survival.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $8,009.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $800.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #2 - Hardwood Planting 1 gal pots

Scenario Description:

Hardwood seedlings (potted) to be planted to reestablish an upland hardwood forest. Planting will be by hand. The resource setting is an area that historically was an upland hardwood forest. Resource concerns are degrade plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife.

Before Situation:

The native forest that has been removed and the land is either row cropped, grazed or hayed or brushy forest. If any upland trees exist they are poor quality tree or undesirable species. Terrain is gently to moderately sloping with soil erosion-sheet and

After Situation:

The area of treatment is 2 acres. Potted/containerized hardwood seedlings are planted by hand. Post vegetation control should be evaluated and conducted it necessary.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $14,559.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,279.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #3 - Hardwood Est.-Direct Seeding

Scenario Description:

Native seed (acorns, nuts, etc.) from native tree species are directly planted in the soil. Site preparation is completed (discing to eliminate competing vegetation). The native seed are collected/purchased locally so as to get trees known to be adapted to local conditions. Resource concerns are degraded plant condition, inadequate habitat for fish and wildlife.

Before Situation:

The hardwood forest is degrading. High value species, lumber and wildlife habitat, are not regenerating due to changes in the natural disturbance regime or past harvesting. Unwanted shade tolerant tree species have regenerated and are in the overstory com

After Situation:

Seed from native species are collected or purchased and planted at prescribed rates. Site preparation is done prior to direct seeding. Degraded plant condition is on an upward trend and habitat for wildlife will improve.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $2,103.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,051.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #4 - Plant Small Areas/Quantities

Scenario Description:

Trees and shrubs are planted to improve habitat and the successional process. Trees and shrubs are planted in an upland or wetland setting. The resource concerns are insufficient cover/shelter and insufficient food for wildlife. Small quantities of trees and shrubs are needed to plant portions of fields to meet habitat and food needs.

Before Situation:

Old fields or other open areas lack sufficient cover/shelter and food for species of concern. There is a lack of native woody cover and the open areas are dominated by forbs and grass.

After Situation:

A 5 acre field will have portions planted to trees and shrubs in a scattered pattern equaling about an acre of planting. Small quantities of trees and shrubs, 200 stems, will need to be ordered. Larger trees and shrubs will be planted to compete better with idle area forbs and tall grasses.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3,768.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,768.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #5 - Shrub Planting - Each

Scenario Description:

Shrubs are selected, arranged, and planted on farms to provide a more diverse habitat and to enhance cover, food (fruit, nectar, pollen, nesting sites) for pollinators that are beneficial to the crops, and other shrub-dependent wildlife. Shrub planting density is variable depending on the objective (e.g., protective cover, fruit, nectar, pollen). A typical planting footprint will be approximately half an acre, and is rectangular in shape. It will provide benefits to a much broader area than the footprint (i.e., a 25 acre field). Resource concerns are: inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife – food.

Before Situation:

On existing farm, there is insufficient food, cover and nesting opportunity for species that use shrublands for all or a significant portion of their life cycle. Existing conditions do not meet landowner objectives of creating cover, food, or nesting site

After Situation:

On existing farm, there is now sufficient food, cover and nesting opportunity for pollinators, birds, and other species that use shrubs for all or a significant portion of their life cycle. Existing conditions now meet the landowner's objectives of creating cover, food, or nesting sites for pollinators and desired wildlife. Resource concerns are now addressed for: inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife – food.

Feature Measure: Area of Treatment

Scenario Unit: Each

Scenario Typical Size: 200.0

Scenario Total Cost: $5,274.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #6 - Shrub Bare Root Hand Planting In Sod Grasses

Scenario Description:

This scenario is to enhance cover, food (fruit, nectar, pollen, nesting sites) for specific wildlife needs on land converted to agriculture and currently in grass sod for shrub dependent wildlife. Shrub planting density is variable depending on the objective (e.g., protective cover, food (e.g., fruit, nectar, pollen). Resource concerns are Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife - food. This scenario is only to be used for hand planting in sod where sod will choke out bare root seedlings; this scenario is not to be used for dibble- or mechanical-planting of shrubs in grassland, or woodland or existing cropland where grass groundcover is not a problem.

Before Situation:

In existing open grassland, there is insufficient food, cover and nesting opportunity for species that use shrublands for all or a significant portion of their life cycle. Existing conditions do not meet landowner objectives of creating cover, food, or ne

After Situation:

The area of treatment is 1 acre. Bare root hardwood shrub seedlings are planted by hand on a 6 x 6 spacing in a sod grass field by hand. Will require removal of sod in a 2-foot circle prior to planting bareroot seedlings to achieve adequate survival. Installation of post-planting practice mulching or other vegetation control is needed to enhance seedling survival.

Feature Measure: <Unknown>

Scenario Unit: Each

Scenario Typical Size: 1,200.0

Scenario Total Cost: $10,468.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #7 - Shrub Planting

Scenario Description:

Shrubs are planted to provide a more diverse habitat. Plantings are in either uplands or bottomlands. The site lacks ground level habitat structure and diversity for wildlife. Resource concern is inadequate habitat for fish and wildlife - habitat fragmentation.

Before Situation:

No shrubbery vegetation, or very little, is present under the forest overstory. Wildlife species that need shrub cover are not present. An adequate stand of overstory trees is present, but it is a single level, not multi-level.

After Situation:

A 10 acre area is planted with suitable shrubs based upon shade tolerance requirements. Shrubs are not planted over the entire 10 acres. They are planted in groups or motts. The motts, more or less circular in shape, are 50 feet in diameter, with 50 shrubs planted within each mott. 4 motts are planted per acre for a total of 200 shrubs per acre. Motts are randomly established to take advantage of site conditions and shrub species being planted.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $9,058.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $905.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #8 - Mostly Hardwood Hand Planting-bare root-protected

Scenario Description:

Improving a highly degraded site by hand planting tree seedlings, appropriate to the site. Seedlings are protected from deer browsing. The number of trees to plant is a minimum of 200 plants/ac. Resource concerns are degraded plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation.

Before Situation:

In an existing upland forest the present overstory trees are poor quality, at low stocking levels, or are undesirable species. Dense invasive species in the understory have prevented natural regeneration of native tree and shrub species. Existing conditio

After Situation:

The area of treatment is 10 acres. First, the invasive species are adequately controlled under a different conservation practice. The existing overstory canopy is also treated per the forester's recommendation in order to create the optimal light conditions for the new tree seedlings. Bare root hardwood and/or softwood seedlings are planted by hand at a minimum of 200 plants/ac. The species and planting rate are recommended by a forester in the forest management plan. Solid tree tubes are installed to protect seedlings from animal browsing damage. Post planting vegetation control is planned to ensure seedling survival.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $27,159.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,716.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #78 - Individual tree - hand planting

Scenario Description:

Tree seedlings will be hand planted in the forested area where few or no forest trees are growing, the existing stand of trees needs underplanting, or the previously planted seedling tree stocking level is below desirable conditions. Wildlife habitat is degraded by loss of forest conditions. This resource concern addressed is degraded plant condition -- and inadequate structure and composition, and inadequate wildlife & fish habitat.

Before Situation:

The stocking level of the forest does not meet the minimum recommended number of trees per acre. The existing condition of the forest stand does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat

After Situation:

The prescribed number of trees are hand planted on 20 acres, and the objectives of the landowner are met. The forest will provide wildlife habitat, provide a long term ground cover, and capture atmospheric carbon.

Feature Measure: Area Planted

Scenario Unit: Each

Scenario Typical Size: 6,000.0

Scenario Total Cost: $6,173.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #79 - Conifer seedling - hand planting - tree protection

Scenario Description:

Conifer tree seedlings will be hand planted in an area where forest is the objective. The area either lacks the desired number and species of forest trees, the existing stand will benefit from underplanting, and/or the previously planted seedling tree stocking level is below desirable conditions. Wildlife habitat will be improved by establishment of new trees. Standard forestry methods will be used to protect planted seedlings from environmental conditions. Resource concerns addressed are: Degraded Plant Condition - Inadequate structure and composition, and Inadequate wildlife & fish habitat.

Before Situation:

The stocking level does not meet the minimum recommended number of trees per acre and does not meet landowner objectives. Wildlife habitat is inadequate. Plant condition will not improve unless tree seedlings are planted. Environmental conditions are adve

After Situation:

The prescribed number of trees are hand planted on 20 acres, and the objectives of the landowner are met. Seedlings are protected by tree shelters to improve survival rates. The future forest will provide wildlife habitat, long-term ground cover, and carbon sequestration/storage.

Feature Measure: Each Planted Seedling

Scenario Unit: Each

Scenario Typical Size: 6,000.0

Scenario Total Cost: $15,432.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #86 - Tree/shrub Planted Area with Protection

Scenario Description:

Tree seedlings will be hand planted in a forested area where few or no forest trees are currently growing. When implemented with the guidance of a professional forester, a well-stocked stand of a predetermined species composition will result. Standard forestry measures are used to provide temporary protection for planted trees, to improve the likelihood of successful establishment and achieve landowner objectives for future forest stand composition. Seedlings are protected by temporary 8' high fencing materials or poly netting, designed to be moved when regeneration is established. Resource concerns include: Degraded Plant Condition - Inadequate structure and composition, Undesirable plant productivity and health, and/or Inadequate wildlife & fish habitat; and/or Water Quality Degradation - Excessive sediment in surface waters.

Before Situation:

Forest stands lack the desired species composition and/or structure, and/or have been impacted by environmental stressors and are unhealthy. Wildlife habitat is inadequate. Forest conditions do not meet landowner objectives. Environmental conditions are l

After Situation:

Trees have been successfully established on 20 acres of forest land. The regrowing forest exhibits the planned mix of diverse native tree species. The future forest will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, and sequester carbon.

Feature Measure: area

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $23,178.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,158.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #87 - Tree/Shrub Regeneration Area with Protection

Scenario Description:

Naturally regenerate a forest stand using properly timed even-aged overstory harvesting methods and necessary site preparation. When implemented with the guidance of a professional forester, such silvicultural activities result in well stocked stands representative of the natural community. Standard forestry measures are used to provide temporary protection for regenerating trees, to improve the likelihood of successful regeneration and achieve landowner objectives for future forest stand composition. Seedlings are protected by temporary 8' high fencing materials or poly netting, designed to be moved when regeneration is established. Clearing of brush and undesirable trees is not necessary. Resource concerns include: Degraded Plant Condition - Inadequate structure and composition, Undesirable plant productivity and health, and/or Inadequate wildlife & fish habitat; and/or Water Quality Degradation - Excessive sediment in surface waters.

Before Situation:

Forest stands lack the desired species composition and/or structure, and/or have been impacted by environmental stressors and are unhealthy. Wildlife habitat is inadequate. Forest conditions do not meet landowner objectives. Environmental conditions are l

After Situation:

Natural forest regeneration has been accomplished on 20 acres of forest land. Trees are successfully established and the forest exhibits the planned mix of diverse native tree species. The future forest will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, and sequester carbon.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $11,644.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $582.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #108 - Tree-Shrub Establishment - Small Acreage 5 acres or less

Scenario Description:

Seedling (potted) to be planted for conservation purposes other than reforestation. Planting will be by hand. The resource setting is an area that historically was an upland forest. Resource concerns are degraded plant condition - undesirable productivity and health, and inadequate structure and composition; inadequate habitat for fish and wildlife.

Before Situation:

The native forest has been removed and the land is either row cropped, farmstead, or associated agricultural land. If any upland trees exist, they are poor quality or undesirable species. Terrain is gently to moderately sloping with soil erosion-sheet and

After Situation:

Typical treatment area can range from less than 1 acre to 5 acres; typical scenario based on 1 ac, 150 TPA. Potted/containerized hardwood seedlings are planted by hand. Post vegetation control should be evaluated and conducted, if necessary.

Feature Measure: Planted Seedling

Scenario Unit: Each

Scenario Typical Size: 150.0

Scenario Total Cost: $4,273.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #114 - Tree/Shrub Regeneration with deer protection

Scenario Description:

Naturally regenerate a forest stand using properly timed even-aged overstory harvesting methods and necessary site preparation. When implemented with the guidance of a professional forester, such silvicultural activities result in well stocked stands representative of the natural community. Standard forestry measures are used to provide temporary protection for regenerating trees, to improve the likelihood of successful regeneration and achieve landowner objectives for future forest stand composition. Seedlings are protected by temporary 8' high fencing materials or poly netting, designed to be moved when regeneration is established. Clearing of brush and undesirable trees is not necessary. Resource concerns include: Degraded Plant Condition - Inadequate structure and composition, Undesirable plant productivity and health, and/or Inadequate Habitat for Fish and Wildlife - Habitat degradation; and/or Water Quality Degradation - Excessive sediment in surface waters.

Before Situation:

Forest stands lack the desired species composition and/or structure, and/or have been impacted by environmental stressors and are unhealthy. Wildlife habitat is inadequate. Forest conditions do not meet landowner objectives. Environmental conditions are l

After Situation:

Natural forest regeneration has been accomplished on 10 acres of forest land. Trees are successfully established and the forest exhibits the planned mix of diverse native tree species. The future forest will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, and sequester carbon

Feature Measure: Area of treatment

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $11,184.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,118.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #115 - High Density Hardwoods with Shelters

Scenario Description:

This practice involves planting of hardwood tree seedlings after the site has been prepared for seedling growth and establishment. Newly planted hardwood seedlings are protected from environmental impacts by installing shelters. The productivity of the site is good and will handle a high density planting rate of between 301 and 436 trees per acre depending on establishment goals and current tree stocking. Terrain is moderately to steeply sloping, too steep to be planted with a mechanical tree planter so the area is hand planted. Associated Practices: Mulching (484), Tree & Shrub Site Preparation (490), Brush Management (314), Herbaceous Weed Treatment (315) Resource concerns include: • Degraded plant condition: inadequate structure and composition • Degraded plant condition: undesirable plant productivity and health • Inadequate habitat for fish and wildlife: habitat degradation • Soil erosion: sheet, rill, and wind erosion • Air quality impacts: emissions of greenhouse gases - GHGs

Before Situation:

The land has a little/no tree cover. Competing vegetation limits the establishment of desirable tree cover. Soil condition is degraded due to the loss of the native forest ecosystem (organic matter in top soil depleted).

After Situation:

Ten acres of land is established with permanent tree cover that will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, sequester carbon and reduce invasive species presence. Establishing forest vegetation also creates corridors for wildlife movement. All planted trees are protected from environmental impacts by shelters (solid tree tubes or wire cages). Post-planting competing vegetation control is planned to ensure seedling survival

Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $58,677.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,867.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 612 - Tree/Shrub Establishment

Scenario: #116 - Individual Hardwood Trees with Shelters

Scenario Description:

Hardwood Tree seedlings will be hand planted in the forested area where few or no forest trees are growing. The existing stand of trees needs under-planting, or the previously planted seedling tree stocking level is below desirable conditions. Seedlings are planted at a rate of 201 to 300 trees per acre Seedlings are protected from environmental impacts. Wildlife habitat is degraded by loss of forest conditions. Associated Practices: Mulching (484), Tree & Shrub Site Preparation (490), Brush Management (314), Herbaceous Weed Treatment (315) Resource concerns include: • Degraded plant condition: inadequate structure and composition • Degraded plant condition: undesirable plant productivity and health • Inadequate habitat for fish and wildlife: habitat degradation • Soil erosion: sheet, rill, and wind erosion • Air quality impacts: emissions of greenhouse gases - GHGs

Before Situation:

The stocking level does not meet the minimum recommended number of trees per acre and does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor.

After Situation:

The prescribed number of trees are hand planted on 10 acres, and the objectives of the landowner are met. All planted trees are protected from environmental impacts by shelters (solid tree tubes or wire cages). Post-planting competing vegetation control is planned to ensure seedling survival. A forest will provide wildlife habitat, provide a long-term ground cover and capture atmospheric carbon.

Feature Measure: Each planted seedling

Scenario Unit: Each

Scenario Typical Size: 3,000.0

Scenario Total Cost: $40,992.83

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #1 - Permanent Drinking and/or Storage up to 500 Gallons

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with less than 500 gallons of capacity that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with less than 500 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 250.0

Scenario Total Cost: $1,862.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #2 - Permanent Drinking and/or Storage 500 to 1000 Gallons

Scenario Description:

A permanent watering facility for livestock and or wildlife with a capacity of 500 to 1,000 gallons that stores adequate quantity and quality of water for storage and or direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock and or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with a capacity of 500 to 1,000 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 750.0

Scenario Total Cost: $2,526.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #3 - Permanent Drinking and/or Storage 1000 to 5000 Gallons

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with greater than 1,000 to 5,000 gallons of capacity that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with a capacity of greater than 1,000 to 5,000 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 2,000.0

Scenario Total Cost: $4,798.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #4 - Permanent Drinking and/or Storage over 5000 Gallons

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with greater than 5,000 gallons of capacity that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with a capacity of greater than 5,000 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 10,000.0

Scenario Total Cost: $10,017.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #5 - Portable Drinking and/or Storage

Scenario Description:

A portable watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with less than 100 gallons of capacity. Watering facilities are used in rotational grazing systems and are moved from paddock to paddock to provide an adequate source of water for livestock. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock and or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A portable watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with less than 100 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Trough Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 100.0

Scenario Total Cost: $271.67

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #6 - Frost Free Trough

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife during all weather conditions, including sub-freezing temperatures. Facility will provide an adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed for all weather conditions, including sub-freezing conditions. Costs include all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Number of Frost Free Water

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,099.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,099.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #7 - Permanent Storage Tank

Scenario Description:

A permanent storage tank as a means of supplying water which will assist to provide controlled access to drinking water for livestock or wildlife. Tank will be less than 1500 gallons of capacity that stores adequate quantity and quality of water for direct drinking access. The storage tank will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The storage tank will be installed in conjunction with watering facility(s) that will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife. However, the existing source of water does not provide adequate quantity of water for grazing livestock during certain times of the year, makin

After Situation:

A permanent 1500 gallon polyethylene storage tank will provide adequate water supply for watering facilities as a means for providing controlled access to drinking water for livestock or wildlife. Cost include furnishing and installing all tank materials, tank plumbing, float valve, etc. that stores adequate quantity and quality of water. Tank will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The storage tank in conjunction with a watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The tank will be placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 1,500.0

Scenario Total Cost: $2,345.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #42 - Above ground poly storage tank <300 gallons

Scenario Description:

A permanent watering facility constructed of approved materials having <300 gallons of water storage capacity for an adequate quantity and quality of water in situations where a lower capacity water supply source such as a spring or solar pump is the only feasible water source and backup capacity is needed during peak water demand periods. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. Payment includes materials and labor costs for installing the storage tank. A stabilized area under and around the watering facility is not included and must be addressed through an associated practice of Heavy Use Area Protection (561). This watering facility will address the resource concerns of inadequate supply of water for livestock, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, or plant productiv

After Situation:

A permanent watering facility with water storage capacity of <300 gallons is typically installed to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife. Installation facilitates improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Feature Measure: number of Tanks

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,761.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,761.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #43 - Above ground poly storage tank 300 - 1000 gallons

Scenario Description:

A permanent watering facility constructed of approved materials having 300 to 1,000 gallons of water storage capacity for an adequate quantity and quality of water in situations where a lower capacity water supply source such as a spring or solar pump is the only feasible water source and backup capacity is needed during peak water demand periods. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. Payment includes materials and labor costs for installing the storage tank. A stabilized area under and around the watering facility is not included and must be addressed through an associated practice of Heavy Use Area Protection (561). This watering facility will address the resource concerns of inadequate supply of water for livestock, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, or plant productiv

After Situation:

A permanent watering facility with water storage capacity of 300 to 1,000 gallons is typically installed to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife. Installation facilitates improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Feature Measure: Number of tanks

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,382.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,382.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #44 - Above ground poly storage tank 1000 - 3000 gallons

Scenario Description:

A permanent watering facility constructed of approved materials having 1,000 to 3,000 gallons of water storage capacity for an adequate quantity and quality of water in situations where a lower capacity water supply source such as a spring or solar pump is the only feasible water source and backup capacity is needed during peak water demand periods. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. Payment includes materials and labor costs for installing the storage tank. A stabilized area under and around the watering facility is not included and must be addressed through an associated practice of Heavy Use Area Protection (561). This watering facility will address the resource concerns of inadequate supply of water for livestock, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, or plant productiv

After Situation:

to ensure an adequate supply and quality of water for livestock or wildlife. Installation facilitates improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Feature Measure: Number of tanks

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $4,428.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,428.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #73 - Water Ramp, Rock on Geotextile

Scenario Description:

A permanent watering facility-water ramp as a means for providing drinking water by storing or providing controlled access for livestock or wildlife constructed of approved materials consisting of rock and or gravel surfacing on geotextile fabric foundation. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility includes all materials, equipment, labor and needed vegetation of disturbed areas to install the surfacing material and will address the resource concerns of inadequate water, soil erosion, water quality degradation and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility-water ramp as a means for providing drinking water by storing or providing controlled access for livestock or wildlife constructed of approved materials consisting of 640 square feet of rock and or gravel surfacing on 84 square yards of geotextile fabric foundation for livestock or wildlife constructed of approved materials for providing controlled access to drinking water. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility includes all materials, equipment, and labor to install the surfacing material and any needed vegetation for stabilizing disturbed areas. Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), Pond (378), or Livestock Pipeline (516) as appropriate. All fencing will use Fence (382).

Feature Measure: Area of Ramp

Scenario Unit: Square Foot

Scenario Typical Size: 640.0

Scenario Total Cost: $1,487.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #74 - Water Ramp, Rock in GeoCell on Geotextile

Scenario Description:

A permanent watering facility-water ramp as a means for providing drinking water by storing or providing controlled access for livestock or wildlife constructed of approved materials consisting of rock and or gravel surfacing in cellar containment grid place on geotextile fabric foundation. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility includes all materials, equipment, labor, and needed vegetation of disturbed areas to install the surfacing material and will address the resource concerns of inadequate water, soil erosion, water quality degradation and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility-water ramp as a means for providing drinking water by storing or providing controlled access for livestock or wildlife constructed of approved materials consisting of 640 square feet of rock and or gravel surfacing in 72 square yards of 4 inch cellar containment grid on 84 square yards of geotextile fabric foundation for livestock or wildlife constructed of approved materials for providing controlled access to drinking water. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility includes all materials, equipment, and labor to install the surfacing material and any needed vegetation for stabilizing disturbed areas. Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), Pond (378), or Livestock Pipeline (516) as appropriate. All fencing will use Fence (382).

Feature Measure: Area of Ramp

Scenario Unit: Square Foot

Scenario Typical Size: 640.0

Scenario Total Cost: $3,149.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #82 - Tire Trough

Scenario Description:

A permanent watering facility for livestock and/or wildlife constructed from tires that stores adequate quantity and quality of water for storage and/or direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. This watering facility will address the resource concerns of inadequate supply of water for livestock and/or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

There is insufficient water to meet livestock or wildlife watering needs at a site. Animals may have access to streams or ponds, need to travel a long distance to available water or pasture use and rotation may be affected. This practice applies to all la

After Situation:

A permanent watering facility using a 10' diameter tire is installed with all tank materials, tank plumbing and float valve, to provide adequate water storage capacity to ensure an adequate supply and quality of water for livestock or wildlife for storage and/or direct drinking access and provides improved plant productivity and health, water quality, and habitat. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing. All needed pipelines are installed using Livestock Pipeline (516). Any needed vegetation of disturbed areas will use Critical Area Planting (342). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate.

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 981.0

Scenario Total Cost: $3,042.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #112 - Permanent Drinking or Storage, Capacity less than 500 Gallons

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with less than 500 gallons of capacity that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with less than 500 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 250.0

Scenario Total Cost: $1,759.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #113 - Permanent Drinking or Storage Capacity from 500 to 1000 Gallons

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with 500 to 1,000 gallons of capacity that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with a capacity of 500 to 1,000 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 750.0

Scenario Total Cost: $3,306.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #114 - Permanent Drinking or Storage, Capacity greater than 1000 to 5000 Gallons

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with greater than 1,000 to 5,000 gallons of capacity that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with a capacity of greater than 1,000 to 5,000 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 2,000.0

Scenario Total Cost: $5,629.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 614 - Watering Facility

Scenario: #115 - Permanent Drinking or Storage, Capacity greater than 5000 Gallons

Scenario Description:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with greater than 5,000 gallons of capacity that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health.

Before Situation:

This practice applies to all land uses where there is a need for a watering facility for livestock or wildlife, where there is a source of water that is adequate in quantity and quality for the purpose, and where soils and topography are suitable for a fa

After Situation:

A permanent watering facility as a means for providing controlled access to drinking water for livestock or wildlife constructed of approved materials with a capacity of greater than 5,000 gallons of capacity, installed with all tank materials, tank plumbing and float valve, that stores adequate quantity and quality of water for storage or direct drinking access. The watering facility will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. The watering facility will address the resource concerns of inadequate supply of water for livestock or wildlife, habitat degradation, water quality, and undesirable plant productivity and health. The watering facility is placed on a properly prepared foundation with all required materials, plumbing and vegetation for stabilizing disturbed areas. All needed pipelines are installed using Livestock Pipeline (516). All collectors or catchments for collecting precipitation will be addressed by using Water Harvesting Catchment (636). Any needed water source installation will use Water Well (642), Pumping Plant (533), Spring Development (574), or Livestock Pipeline (516) as appropriate. Areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns will be protected by using Heavy Use Area Protection (561) as appropriate. All fencing will use Fence (382).

Feature Measure: Capacity in Gallons

Scenario Unit: Gallon

Scenario Typical Size: 10,000.0

Scenario Total Cost: $10,855.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #1 - 4 inch Corrugated Plastic Pipe (CPP) only

Scenario Description:

Install 150 feet of 4" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 52" deep and 24" wide by hydraulic track excavator. Costs include 4" CPT or PVC pipe, trench excavation, pipe bedding, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with roof runoff practices.

Before Situation:

Roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

After Situation:

Clean storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342) and Roof Runoff Structure (558).

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $1,717.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #2 - 6 inch Corrugated Plastic Pipe (CPP) only

Scenario Description:

Install 150 feet of 6" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated approximately 54"deep and 24" wide by excavator. Costs include 6" HDPE corrugated single wall plastic tubing, trench excavation, trench backfill and compaction, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $2,474.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #3 - 8 inch Corrugated Plastic Pipe (CPP) only

Scenario Description:

Install 150 feet of 8" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated approximately 54"deep and 24" wide by excavator. Costs include 8" HDPE corrugated single wall plastic tubing, trench excavation, trench backfill and compaction, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $2,904.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $19.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #4 - 10 inch High Density Polyethylene (HDPE) Pipe only

Scenario Description:

Install 150 feet of 10" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench Excavation is 58" deep and 28" wide. Costs include 10" HDPE pipe, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $3,792.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #5 - 4 to 6 inch Corrugated Plastic Pipe (CPP) with Riser

Scenario Description:

Install 150 feet of 6" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated approximately 54"deep and 24" wide by excavator. Costs include 6" HDPE corrugated single wall plastic tubing, 8" Perforated PVC Riser Inlet, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $2,794.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $18.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #6 - 4 to 6 inch Polyvinyl Chloride (PVC) Pipe with Catch Basin up to 50 feet in length

Scenario Description:

Install 50 feet of 6" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 52" deep and 24" wide by hydraulic track excavator. Costs include 6" SDR-35 pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structures, or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes significantly contributes t

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), Roof Runoff Structure (558), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 50.0

Scenario Total Cost: $3,185.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $63.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #7 - 4 to 6 inch Polyvinyl Chloride (PVC)Pipe with Catch Basin over 50 feet in length

Scenario Description:

Install 150 feet of 6" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 52" deep and 24" wide by hydraulic track excavator. Costs include 6" SDR-35 pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structures, or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes significantly contributes t

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), Roof Runoff Structure (558), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $3,923.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #8 - 8 to 12 inch High Density Polyethylene (HDPE) Pipe with Riser

Scenario Description:

Install 150 feet of 10" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench Excavation is 58" deep and 28" wide. Costs include 10" HDPE pipe, 12" Perforated PVC Riser Inlet, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $4,237.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #9 - 8 to 12 inch High Density Polyethylene (HDPE) Pipe with Catch Basin up to 50 feet in length

Scenario Description:

Install 50 feet of 10" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench Excavation is 58" deep and 28" wide. Costs include 10" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 50.0

Scenario Total Cost: $3,974.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $79.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #10 - 8 to 12 inch High Density Polyethylene (HDPE) Pipe with Catch Basin over 50 feet in length

Scenario Description:

Install 150 feet of 10" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench Excavation is 58" deep and 28" wide. Costs include 10" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost:	$5,619.83	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$37.47	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #11 - 14 to 18 inch High Density Polyethylene (HDPE) Pipe with Catch Basin

Scenario Description:

Install 150 feet of 18" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 66" deep x 39" wide. Costs include 18" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often is installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $7,526.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #12 - 20 to 24 inch High Density Polyethylene (HDPE) Pipe with Catch Basin

Scenario Description:

Install 150 feet of 24" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 72" x 48" wide. Costs include 24" HDPE pipe, Precast concrete drop inlet with steel grate, 24" HDPE pipe, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. Practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $10,945.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $72.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #13 - 26 to 30 inch High Density Polyethylene (HDPE) Pipe with Catch Basin

Scenario Description:

Install 200 feet of 30" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 78" deep x 56" wide. Costs include 30" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. This practices is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $16,461.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $82.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #14 - Over 30 inch High Density Polyethylene (HDPE) Pipe with Catch Basin

Scenario Description:

Install 200 feet of 36" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 84" deep x 64" wide. Costs include 36" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $21,793.76

Total Cost per Unit: $108.97

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #15 - 4 to 6 inch Polyvinyl Chloride (PVC) Pipe with Catch Basin w/ Horizontal Boring

Scenario Description:

Install 150 feet of 6" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 52" deep and 24" wide by hydraulic track excavator. 50' of pipe installed under road with horizontal boring equipment. Costs include 6" SDR-35 pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, hor. boring equipment, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structures, or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes significantly contributes t

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), Roof Runoff Structure (558), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $12,978.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $86.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #16 - 8 to 12 inch High Density Polyethylene (HDPE) Pipe with Catch Basin w/ Horizontal Boring

Scenario Description:

Install 150 feet of 10" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench Excavation is 58" deep and 28" wide. 50' of pipe installed under road with horizontal boring equipment. Costs include 10" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, hor. boring equipment, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways, roof runoff structures, or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $13,271.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $88.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #69 - Blind Inlet for Water Quality

Scenario Description:

Install a blind inlet that is 14' x 14' and 3' into the ground. The blind inlet is installed with a 10' x 10' perforated PVC manifold pipe which is back filled with sand and gravel drainfill material. The inlet can will be tied into existing tile or underground outlet systems. Blind Inlet is typically installed in low areas to replace drop inlets, risers and other surface type inlets, thus reducing the direct flow of sediment into underground tile lines and out to the stream. Costs include labor, equipment and material to install the PVC manifold, drainfill materials and connecting it to an existing pipe outlet system. This practice can be installed in conjunction with small drainage areas, WASCOB's, storage diversions or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds 'T' from farm fields and other locations enters surface riser.

After Situation:

Runoff water is filtered through blind inlet before discharging through tile outlet. Excessive sedimentation and soil erosion is controlled. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Number of Blind Inlets

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,045.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,045.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #92 - 6 inch or less pipe

Scenario Description:

Install 500 feet of 6" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated 52" deep and 24" wide by hydraulic track excavator. Costs include 6" SDR-35 pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $6,538.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #93 - 6 inch or less, Riser

Scenario Description:

Install 500 feet of 6" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench is excavated approximately 54"" deep and 15" wide by trencher. Costs include 6" HDPE corrugated single wall plastic tubing, 8" Perforated PVC Riser Inlet, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $4,528.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #94 - 12 inch or less

Scenario Description:

Install 500 feet of 10" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench Excavation is 58" deep and 28" wide. Costs include 10" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $7,870.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #95 - 12 inch or less, riser

Scenario Description:

Install 500 feet of 10" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench Excavation is 58" deep and 28" wide. Costs include 10" HDPE pipe, 12" Perforated PVC Riser Inlet, trench excavation, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $8,127.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #96 - 18 inch or less

Scenario Description:

Install 500 feet of 18" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 66" deep x 39" wide. Costs include 18" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often is installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $15,437.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #97 - 24 inch or less

Scenario Description:

Install 500 feet of 24" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 72" x 48" wide. Costs include 24" HDPE pipe, Precast concrete drop inlet with steel grate, 24" HDPE pipe, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. Practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $23,083.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $46.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #98 - 30 inch or less

Scenario Description:

Install 500 feet of 30" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 78" deep x 56" wide. Costs include 30" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. This practices is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $31,005.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $62.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 620 - Underground Outlet

Scenario: #99 - Greater than 30 inch

Scenario Description:

Install 500 feet of 36" approved plastic pipe to convey stormwater from one location to a suitable and stable outlet. Trench excavation is 84" deep x 64" wide. Costs include 36" HDPE pipe, Precast concrete drop inlet with steel grate, trench excavation, bedding material, trench backfill, rodent guard and laid up stone headwall at outlet. This practice is often installed in conjunction with terraces, diversions, sediment control basins, waterways or similar practices.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contribu

After Situation:

Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste. Associated practices are Critical Area Planting (342), Grassed Waterway (412), Terrace (600), Diversion (342), Water and Sediment Control Basin (638), and Subsurface Drainage (606)

Feature Measure: Length of Conduit

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $38,637.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $77.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 627 - Wastewater Treatment – Milk House

Scenario: #12 - Dosing System and Bark Bed

Scenario Description:

This practice scenario includes a dosed treatment system with bark bed for milking parlor wastewater. The purpose of the practice is to address resource concerns related to water quality degradation due to (excess nutrient, salts and pathogens). Associated practices: Nutrient Management (590), Pumping Plant (533), Fence (382), & Waste Storage Facility (313)

Before Situation:

Milkhouse waste water currently outlets in an untreated manner which presents potential soil, water and air quality concerns.

After Situation:

This scenario assumes that the treatment system is designed for 500 gal/day of wastewater from the milking parlor. It assumes a two tank scenario. The grease trap acts as the primary settling basin. The wastewater overflows into the septic tank, which is then dosed to the treatment bed (bark bed or leaching gallery). It is assumed that the treatment bed is dosed at 0.16 gal/square ft (3125 sq ft). To maintain bark bed performance, additional bark may need to be added every 3 to 5 years as an O&M task. This practice scenario reduces nutrient content, organic strength, or pathogen levels of agricultural waste; improve air quality by reducing odors and gaseous emissions (methane or ammonia).

Feature Measure: Design Flow

Scenario Unit: Gallons per Day

Scenario Typical Size: 500.0

Scenario Total Cost: $39,621.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $79.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 627 - Wastewater Treatment – Milk House

Scenario: #13 - Dosing System

Scenario Description:

This practice scenario includes a dosed treatment system for milking parlor wastewater that will outlet to a constructed wetland and/or vegetated treatment area and/or other acceptable treatment. The purpose of the practice is to address resource concerns related to water quality degradation due to (excess nutrient, salts and pathogens). Associated practices: Constructed Wetland (656), Vegetated Treatment Area (635), Waste Transfer (634), Nutrient Management (590), Pumping Plant (533), Fence (382), &Waste Storage Facility (313)

Before Situation:

Milkhouse waste water currently (TEST} outlets in an untreated manner which presents potential soil, water and air quality concerns.

After Situation:

This scenario assumes that the treatment system is designed for 500 gal/day of wastewater from the milking parlor. It assumes a two tank scenario. The grease trap acts as the primary settling basin. The wastewater overflows into the septic tank, which is then dosed to a treatment area (constructed wetland and/or vegetated treatment area and/or other acceptable treatment). This practice scenario reduces nutrient content, organic strength, or pathogen levels of agricultural waste; improve air quality by reducing odors and gaseous emissions (methane or ammonia).

Feature Measure: Design Flow rate

Scenario Unit: Gallons per Day

Scenario Typical Size: 500.0

Scenario Total Cost: $14,878.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 629 - Waste Treatment

Scenario: #9 - Dairy - MHMP STS Leaching Galleries

Scenario Description:

This practice scenario consists of a subsurface treatment system using leaching galleries to treat wastewater from a small milk house and milking parlor. This system would apply to small dairy farms (up to 25 cows). This system assumes manure is scraped and removed. Raw milk also should not be allowed into this treatment system. Scraped manure and raw milk should be handled using other practices such as 313 Waste Storage Facility. Leaching galleries may be used where the following minimum separations can be achieved to the bottom of the gallery: two feet to seasonal high groundwater and four feet to bedrock. Possible associated practices include but are not limited to 533 Pumping Plant, 342 Critical Area Planting, 634 Waste Transfer. 313 Waste Storage Facility, or 362 Diversion.

Before Situation:

Milkhouse waste water currently outlets in an untreated manner which presents potential soil, water and air quality concerns..

After Situation:

This scenario assumes that the treatment system has a design flow of 200 gal/day of wastewater from the milkhouse and milking parlor. Using typical soil conditions and typical waste characteristics this equates to approximately 750 sf of leaching area necessary. It assumes pre-treatment in two tanks. The grease trap acts as the primary settling basin. The secondary settling tank is equipped with an effluent filter. The wastewater then goes to a distribution box that apportions the wastewater to the subsurface treatment system consisting of leaching galleries with 1 foot of 1"stone either side. The combination of leaching gallery and stone treats 8.8 sf of leaching area per linear foot. This practice scenario reduces nutrient content, organic strength, or pathogen levels of agricultural waste; improves air quality by reducing odors and gaseous emissions (methane or ammonia).

Feature Measure: Design Flow in Gallons per

Scenario Unit: Gallons per Day

Scenario Typical Size: 200.0

Scenario Total Cost: $22,522.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $112.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 629 - Waste Treatment

Scenario: #30 - Aerator less than or equal to 5 hp

Scenario Description:

This practice scenario includes installation of an aerator into a liquid storage pond or tank that has a surface area less than 1 acre. The purpose of the practice is to address resource concerns related to water quality degradation due to (excess nutrient and pathogens) and air quality impacts (PM & PM precursors, and objectionable odors). Associated practices: Nutrient Management (590) and Waste Storage Facility (313)

Before Situation:

A dairy, swine, or other agricultural operation in which the waste goes into a storage pond. The pond is not managed as an anaerobic lagoon and the nutrients stratify over time and odors are objectionable. It is difficult to properly estimate the nutrient

After Situation:

This scenario assumes that the producer would like to increase oxygen content in the storage pond and mix the waste for even nutrient distribution. Under aerobic conditions microorganisms can convert nutrients and odors will be reduced. Nutrient content of the liquid waste is more uniform which is better for uniform agronomic application rates improving nutrient management and to protect air and water quality resources.

Feature Measure: Horse Power of aerator

Scenario Unit: Horsepower

Scenario Typical Size: 1.0

Scenario Total Cost: $1,708.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,708.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 629 - Waste Treatment

Scenario: #31 - Aerator greater than 5 hp

Scenario Description:

This practice scenario includes installation of an aerator into a liquid storage pond or tank with a surface area larger than 1 acre. The purpose of the practice is to address resource concerns related to water quality degradation due to (excess nutrient and pathogens) and air quality impacts (PM & PM precursors, and objectionable odors). Associated practices: Nutrient Management (590) and Waste Storage Facility (313)

Before Situation:

A dairy, swine, or other agricultural operation in which the waste goes into a storage pond. The pond is not managed as an anaerobic lagoon and the nutrients stratify over time and odors are objectionable. It is difficult to properly estimate the nutrient

After Situation:

This scenario assumes that the producer would like to increase oxygen content in the storage pond and mix the waste for even nutrient distribution. Under aerobic conditions microorganisms can convert nutrients and odors will be reduced. Nutrient content of the liquid waste is more uniform which is better for uniform agronomic applications rates improving nutrient management and to protect air and water quality resources.

Feature Measure: Horse Power of aerator

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $14,562.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14,562.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 629 - Waste Treatment

Scenario: #32 - Straw Pond Cover

Scenario Description:

This practice scenario is a permeable organic cover applied to the liquid surface of a waste storage facility that has a surface area less than or equal to 2 acres. Straw cover applications can remain on top of the pond for between 2 and 6 months. The cover will reduce radiation and wind velocity over the surface of a manure storage to reduce transmission of odors and act as a medium for growth of microorganisms that utilize carbon, nitrogen, and sulfur to decompose odorous compounds. Associated practices include Waste Storage Facility (313).

Before Situation:

This practice is applicable on a dairy or swine operation in which the waste goes into a liquid storage pond or tank and the bio-treatment of emissions will improve air quality. The maximum recommended surface area is 2 acres.

After Situation:

Permeable organic cover applied to the liquid surface of a waste storage or treatment facility. Organic materials often used as covers include straws, cornstalks and peat moss. Typical application is an 8" straw application on a 120' diameter storage tank every 3 months. The scenario unit calculation is (Surface Area of Pond)*(Number of applications per year). For this scenario, the calculation is: (120/2)^2*pi *4 = 45,239sf Organic covers can reduce odors up to 90 percent if the straw cover is 12" deep.

Feature Measure: Surface Area of Pond or Tan

Scenario Unit: Square Foot

Scenario Typical Size: 45,239.0

Scenario Total Cost: $36,396.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 632 - Waste Separation Facility

Scenario: #1 - Mechanical Separation Facility - Greater than 300 Animal Units

Scenario Description:

A large mechanical separation facility to partition solids, liquids, and/or associated nutrients from animal waste streams typically used on facilities with greater than 300 animal units (AUs) . The partitioning of the previously mentioned components facilitates the protection of air and water quality, protects animal health, and improves the management of an animal waste management system. Mechanical separators may include, but are not limited to: static inclined screens, vibratory screens, rotating screens, screw or roller presses, or other systems. Associated practices include Nutrient Management (590), Composting Facility (317), Anaerobic Digester (366), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Amendments for the Treatment of Agricultural Waste (591), Pumping Plant (533), Vegetated Treatment Area (635), Pond Lining or Sealing (521A-D), and Waste Treatment (629).

Before Situation:

Applicable to situations where partitioning solids, liquids, and nutrients will facilitate the management of an animal waste management system, improve air quality (reduce odors), and address water quality concerns.

After Situation:

One large mechanical separation facility (a screw press) installed at livestock facility before storage or treatment or after treatment, for example, after an anaerobic digester. Part of an animal waste management system.

Feature Measure: Item

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $102,646.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $102,646.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 632 - Waste Separation Facility

Scenario: #2 - Earthen Settling Structure

Scenario Description:

An earthen structure, such as a basin or a terrace or dike like structure, used to capture and separate a portion of the solids from a liquid stream from a feedlot or confinement facility. A concrete pad should be installed on the bottom of the basin and around outlet structures to facilitate cleanout. Removes as portion of the solids to facilitate waste handling and to address water quality concerns. Associated practices include Nutrient Management (590), Composting Facility (317), Anaerobic Digester (366), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Vegetated Treatment Area (635), Pond Lining or Sealing (521A-D), and Waste Treatment (629).

Before Situation:

Applicable to situations where partitioning solids, liquids, and nutrients will facilitate the management of an animal waste management system, improve air quality (reduce odors), and address water quality concerns.

After Situation:

Earthen settling basin structure is 60 ft wide by 200 ft long average with 2:1 inside slopes. Basin is 3 ft deep, total with three screening outlet structures) constructed around or at a livestock feeding operation. Removes a portion of the solids that otherwise would leave with the runoff from an animal feeding operation. Part of an animal waste management system. Strike Full Volume includes freeboard, normal precipitation, solids build up, etc.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 36,000.0

Scenario Total Cost: $17,745.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 632 - Waste Separation Facility

Scenario: #3 - Concrete Basin

Scenario Description:

A concrete structure, such as a basin with concrete walls and floor, used to capture and separate a portion of the solids from a liquid stream from a feedlot or confinement facility. Removes a portion of the solids to facilitate waste handling and to address water quality concerns. Typical scenario consist of a concrete basin which is 20' wide x 30' long with 3' high concrete walls. A weeping/picket wall is located along one end to retain solids and to allow the liquid to pass through to another practice. Associated practices include Nutrient Management (590), Composting Facility (317), Anaerobic Digester (366), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Pumping Plant (533), Vegetated Treatment Area (635), Pond Lining or Sealing (521A-D), and Waste Treatment (629).

Before Situation:

Applicable to situations where partitioning solids, liquids, and nutrients will facilitate the management of an animal waste management system, improve air quality (reduce odors), and address water quality concerns.

After Situation:

Practice helps to alleviate the wastewater from leaving the farm and improve surface and subsurface water resources. Also, the removal of liquid from the solid portion of the waste stream will alleviate air quality concerns.

Feature Measure: Strike Full Volume

Scenario Unit: Cubic Foot

Scenario Typical Size: 1,800.0

Scenario Total Cost: $14,313.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 632 - Waste Separation Facility

Scenario: #4 - Concrete Sand Settling Lane

Scenario Description:

A concrete structure, a concrete lane with curbs, used to capture and separate a portion of the solids, mainly sand, from a liquid stream from a confinement facility. Removes as portion of the solids to facilitate waste handling and to address water quality concerns. Associated practices include Nutrient Management (590), Composting Facility (317), Anaerobic Digester (366), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Pumping Plant (533), Vegetated Treatment Area (635), Pond Lining or Sealing (521A-D), and Waste Treatment (629).

Before Situation:

Applicable to situations where partitioning solids, liquids, and nutrients will facilitate the management of an animal waste management system, improve air quality (reduce odors), and address water quality concerns.

After Situation:

One concrete settling lane structure (25 ft wide by 200 ft long by 0.5 ft thick) constructed around or at a livestock feeding operation. Removes a portion of the solids (sand) that otherwise would leave with the runoff from an animal feeding operation. Part of an animal waste management system.

Feature Measure: Square Foot of Settling Lane

Scenario Unit: Square Foot

Scenario Typical Size: 5,000.0

Scenario Total Cost: $53,565.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 632 - Waste Separation Facility

Scenario: #13 - Mechanical Separation Facility - less than 300 Animal Units

Scenario Description:

A small mechanical separation facility to partition solids, liquids, and/or associated nutrients from animal waste streams. The partitioning of the previously mentioned components facilitates the protection of air and water quality, protects animal health, and improves the management of an animal waste management system. Mechanical separators may include, but are not limited to: static inclined screens, vibratory screens, rotating screens, centrifuges, screw or roller presses, or other systems. Associated practices include Nutrient Management (590), Composting Facility (317), Anaerobic Digester (366), Waste Storage Facility (313), Waste Recycling (633), Waste Transfer (634), Amendments for the Treatment of Agricultural Waste (591), Pumping Plant (533), Vegetated Treatment Area (635), Pond Lining or Sealing (521A-D), and Waste Treatment (629).

Before Situation:

Applicable to situations where partitioning solids, liquids, and nutrients will facilitate the management of an animal waste management system, improve air quality (reduce odors), and address water quality concerns.

After Situation:

One small mechanical separation facility (a vibratory or rotating screen) installed at livestock facility before storage or treatment or after treatment, for example, after an anaerobic digester. Part of an animal waste management system.

Feature Measure: Item

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $68,852.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $68,852.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 633 - Waste Recycling

Scenario: #1 - Export Ag Waste By-products Recycled for Use Off Farm

Scenario Description:

Agricultural by-products on the farm are in excess of the ability of the farm and limited crop landbase to utilize. These waste materials are accumulating in such a manner that the water, soil and/or air quality have resource concerns. The application of a waste management plan will recycle these by-products such that the quality of the natural resources will be improved and the environment protected. The agricultural by-products are tested and exported off the farm operation for external uses. Records are kept detailing disposition of the waste, including date, amount, and receiver of the waste. Results of the agricultural by-product laboratory analysis is also provided to the receiver. Associated practices: 313-Waste Storage Facility, 317-Composting Facility, 590-Nutrient Management

Before Situation:

Agricultural by-products are produced or accumulated on the farm in amounts that cannot be utilized by the farm without causing resource concerns such as degradation of water quality, soil health and/or air quality.

After Situation:

Twice a year the excess agricultural by-products that have been collected at the farm are sampled and laboratory tested to determine the characteristics of the waste material that is recycled. The results of this analysis will determine the basis of its use. The agricultural by-products are then handled according to the waste management system plan. The intended off-farm use of the recycled agricultural waste by-products will refer to the laboratory analysis. Records shall be kept of the analysis, dates and quantities of recycled waste exported.

Feature Measure: Farm

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $531.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $531.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 633 - Waste Recycling

Scenario: #2 - Import Non-Ag Waste By-products, Compost with Manure for Use On Farm

Scenario Description:

A farm has soil quality resource concerns. The farm also has an energy goal to reduce their use of transportation fuels and is interested in utilizing locally available material. The farm is located near a food processor that has excess waste available for recycling. The farm has agreed to receive an amount of waste material which it plans to mix with animal manure solids. This blended waste material will be composted. The finished compost product will be used both for animal bedding and land applied as a soil amendment and nutrient source. The land applied material will comply with the nutrient management plan for agronomic crop nutrient utilization. Records are kept to document the methods and utilization of the non-agricultural products for agricultural purposes. Associated practices: 313-Waste Storage Facility, 317-Composting Facility, 590-Nutrient Management

Before Situation:

A farm has a soil quality resource concerns. The operator also has an energy goal to reduce the farm associated transportation fuels. Additional soil amendments could improve their soil quality but the local fertilizer dealer imports all their material by

After Situation:

A dairy farm has soil quality resource concerns and plans to improve their soil by utilizing non-agricultural waste materials available locally. The dairy is located near an oyster producer that needs to dispose of excess oyster shells. The calcium in oyster shells can be used to buffer the pH of their soils. The dairy has agreed to receive excess oyster shells which are blended with dairy manure solids and composted. The finished product is laboratory tested to determine the characteristics such as pH and nutrient content. The composted product is used both for dairy bedding and land applied as a soil amendment and nutrient source. Recordkeeping is done for the quantity of non-agricultural material received, ratio blended with manure solids, composting temperatures and times with the corresponding tested sample analysis. Records of the recycled non-agricultural by-products applied to the land is maintained as part of their dairy nutrient management plan.

Feature Measure: Cubic Foot

Scenario Unit: Cubic Foot

Scenario Typical Size: 400.0

Scenario Total Cost: $1,660.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 633 - Waste Recycling

Scenario: #3 - Import Non-Agricultural By-Products, Land Applied

Scenario Description:

A farm has resource concerns about the low soil organic matter content on several fields. The fields are located where a source of municipal green waste may be available. The green, municipal waste could contain material such as food waste, green yard waste and waste from local processing facilities. The farmer agrees to receive waste materials in bulk two times a year, once in the spring and once in the fall. A blended sample of the waste is tested for nutrients and any potential chemicals of concern. It is then land applied in such a manner that soil organic matter is enhanced, crop nutrients are available and soil compaction is minimized. Records of the tested samples and rates of land application are maintained and accounted for in the nutrient management plan. Associated practices: 590-Nutrient Management, (Temporary Field) Waste Storage

Before Situation:

A farm has several fields with low soil organic matter and is located near a community where the local municipality collects green waste. The farmer is concerned about land applying the green waste directly to the fields and that the applied material may

After Situation:

A farm has low soil organic matter content on several fields and can import non-agricultural green waste material. The farm imports the green waste material that has been chopped and screened for land application. The imported material is briefly stock piled, for no more than 7 days while a blended sample is tested. The sample is tested for nutrient content and any potential chemicals of concern. Based on results of the tested sample and in consultation with an agronomist the waste material is land applied on the agricultural fields. Soil is protected from compaction by applying the waste in an appropriate manner. Records of the sample test and rate of land application in the field are maintained. The sampled test information is used to adjust fertilizer application rates and to prevent crop nutrient tie-up resulting from increased carbon in the soil. The green waste recycling activity on the farm is documented and included in the nutrient management plan records.

Feature Measure: Ton

Scenario Unit: Ton

Scenario Typical Size: 20.0

Scenario Total Cost: $531.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #1 - Agitator-small used for mixing a basin or pit no more than 10 ft. deep.

Scenario Description:

This scenario is for a manure and wastewater agitator associated with an agricultural production operation to transfer agricultural waste product from the production source to a storage facility for proper utilization. This agitator is typically no more than 15 HP and is used for smaller waste storage facilities that are less than 10 feet deep. This scenario does not include a pump. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling The waste transfer equipment is installed to address water quality concerns by facilitating timely land application of waste at agronomic rates according to the nutrient management plan. This scenario addresses the potential for surface water and groundwater quality degradation.

Before Situation:

In this typical setting, the operator has a small waste storage structure from a confined animal feeding operation without an effective waste handling and transfer system to manage the waste stream departing from the facility.

After Situation:

The typical installation would be for a small manure 10 HP agitator to put settled manure solids into suspension for removal from an animal waste storage structure and transfer to the next step of waste treatment, utilization or storage. Part of an animal waste management system to address water quality concerns. If required a wastewater reception pit, concrete channel or transfer conduit scenario may need to be contracted to support the operation of this waste transfer system equipment.

Feature Measure: Agitator for wastewater, ins

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $12,801.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,801.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #4 - Stacker (Manure Elevator)

Scenario Description:
Install 60' elevator to transfer solid or semi-solid manure from the barn to a waste storage facility. Cost include elevator chute, drive unit, electric motor, chain w/ paddles, support system, freight, and labor to install the system.

Before Situation:
An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. Manure is heavily bedded and transferring manure via pump or

After Situation:
Install a 60 foot long elevator to transfer solid or semi-solid manure from the barn to a waste storage facility. This scenario includes the elevator chute, drive unit, electric motor, chains w/ paddles, support system, freight, and labor to assemble and install.

Feature Measure: Feet of Stacker Elevator

Scenario Unit: Foot

Scenario Typical Size: 60.0

Scenario Total Cost: $33,501.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $558.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #7 - 6 inch PVC Gravity Pipe

Scenario Description:

6" Gravity flow conduit is typically a water tight PVC sanitary sewer pipe used to transfer wastewater by gravity from one location to another. The pipe conveys the waste liquid or wastewater between the waste collection point and a waste storage facility or waste treatment area. Adequate head on the pipe must be available for the gravity system to function. This practice includes transfer pipe plus all other fittings, trench excavation and backfill, labor and equipment for installation. The inlet structure or hopper is covered under a different scenario under 634 - Waste Transfer. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area an

After Situation:

Install a 100 feet long gravity transfer pipe to collect and contain liquid waste, wastewater, and contaminated runoff to protect water quality resources. Pipe shall be 6" diameter PVC with a smooth interior and water tight joints. 6" diameter PVC sanitary sewer grade pipe that will flow to an outlet at the site of manure treatment or storage. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and elbows and backfill. Adequate head on the pipe must be available for the gravity system to function.

Feature Measure: Length of 6" PVC Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $2,526.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #8 - 12 inch HDPE Gravity Pipe

Scenario Description:

12" Gravity flow conduit is typically a large diameter water tight HDPE or PVC sanitary sewer pipe used to transfer manure by gravity from one location to another. The pipe conveys the slurry waste liquid or wastewater between the waste collection point and a waste storage facility or waste treatment area. Adequate head on the pipe must be available for the gravity system to function. This practice includes transfer pipe plus all other fittings, trench excavation and backfill, labor and equipment for installation. The inlet structure or hopper is covered under a different scenario under 634 - Waste Transfer. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area an

After Situation:

Install a 100 feet long gravity transfer pipe to collect and contain manure slurry, wastewater, contaminated runoff to protect water quality resources. Pipe shall be 6" diameter PVC with a smooth interior and water tight joints. 12" diameter water tight HDPE pipe that will flow to an outlet at the site of manure treatment or storage. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and elbows and backfill. Adequate head on the pipe must be available for the gravity system to function.

Feature Measure: Length of 12" HDPE Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $3,118.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $31.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #9 - 18 inch HDPE Gravity Pipe

Scenario Description:

18" Gravity flow conduit is typically a large diameter water tight HDPE or PVC sanitary sewer pipe used to transfer manure by gravity from one location to another. The pipe conveys the slurry waste liquid or wastewater between the waste collection point and a waste storage facility or waste treatment area. Adequate head on the pipe must be available for the gravity system to function. This practice includes transfer pipe plus all other fittings, trench excavation and backfill, labor and equipment for installation. The inlet structure or hopper is covered under a different scenario under 634 - Waste Transfer. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area an

After Situation:

Install a 100 feet long gravity transfer pipe to collect and contain manure slurry, wastewater, contaminated runoff to protect water quality resources. Pipe shall be 15" diameter HDPE with a smooth interior and water tight joints. 18" diameter HDPE pipe that will flow to an outlet at the site of manure treatment or storage. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and elbows and backfill. Adequate head on the pipe must be available for the gravity system to function.

Feature Measure: Length of 18" HDPE Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $5,213.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $52.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #10 - 24 inch HDPE Gravity Pipe

Scenario Description:

24" Gravity flow conduit is typically a large diameter water tight HDPE or PVC sanitary sewer pipe used to transfer manure by gravity from one location to another. The pipe conveys the slurry waste liquid or wastewater between the waste collection point and a waste storage facility or waste treatment area. Adequate head on the pipe must be available for the gravity system to function. This practice includes transfer pipe plus all other fittings, trench excavation and backfill, labor and equipment for installation. The inlet structure or hopper is covered under a different scenario under 634 - Waste Transfer. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area an

After Situation:

Install a 100 feet long gravity transfer pipe to collect and contain manure slurry, wastewater, contaminated runoff to protect water quality resources. Pipe shall be 24" diameter HDPE with a smooth interior and water tight joints. 24" diameter pipe will flow to an outlet at the site of manure treatment or storage. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and elbows and backfill. Adequate head on the pipe must be available for the gravity system to function.

Feature Measure: Length of 24" HDPE Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $6,080.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $60.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #11 - 30 inch HDPE Gravity Pipe

Scenario Description:

30" Gravity flow conduit is typically a large diameter water tight HDPE or PVC sanitary sewer pipe used to transfer manure by gravity from one location to another. The pipe conveys the slurry waste liquid or wastewater between the waste collection point and a waste storage facility or waste treatment area. Adequate head on the pipe must be available for the gravity system to function. This practice includes transfer pipe plus all other fittings, trench excavation and backfill, labor and equipment for installation. The inlet structure or hopper is covered under a different scenario under 634 - Waste Transfer. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site has a change in elevation between production area an

After Situation:

Install a 100 feet long gravity transfer pipe to collect and contain manure slurry, wastewater, contaminated runoff to protect water quality resources. Pipe shall be 30" diameter HDPE with a smooth interior and water tight joints. 30" diameter pipe will flow to an outlet at the site of manure treatment or storage. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and elbows and backfill. Adequate head on the pipe must be available for the gravity system to function.

Feature Measure: Length of 30" HPDE Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $7,869.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $78.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #12 - 3 inch PVC Pressure Pipe

Scenario Description:

3" PVC pipe conduit is typically a pressure rated water tight PVC pipe used to transfer manure from one location to another. Costs include pipe materials and assembly, trench excavation, pipe installation, bedding, and proper backfill. Pipe is typically installed 4 feet below grade. The pipe conveys the slurry waste liquid and wastewater between the waste collection point and a waste storage facility or waste treatment area. Transfer pump is covered under PS 533 - Pumping Plant. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site DOES NOT have sufficient change in elevation or head

After Situation:

Install a 100 foot long pressure rated water tight PVC pipe. Pipe shall be 3" diameter pressure rated PVC pipe with water tight joints. 3" diameter PVC pipe will direct flow of manure and wastewater to manure treatment or storage facility. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and backfill. The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Feature Measure: Length of 3" PVC Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $2,283.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #13 - 4 inch PVC Pressure Pipe

Scenario Description:

4" PVC pipe conduit is typically a pressure rated water tight PVC pipe used to transfer manure from one location to another. Costs include pipe materials and assembly, trench excavation, pipe installation, bedding, and proper backfill. Pipe is typically installed 4 feet below grade. The pipe conveys the slurry waste liquid and wastewater between the waste collection point and a waste storage facility or waste treatment area. Transfer pump is covered under PS 533 - Pumping Plant. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site DOES NOT have sufficient change in elevation or head

After Situation:

Install a 100 foot long pressure rated water tight PVC pipe. Pipe shall be 4" diameter pressure rated PVC pipe with water tight joints. 4" diameter PVC pipe will direct flow of manure and wastewater to manure treatment or storage facility. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and backfill. The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Feature Measure: Length of 4" PVC Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $2,456.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $24.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #14 - 6 inch PVC Pressure Pipe

Scenario Description:

6" PVC pipe conduit is typically a pressure rated water tight PVC pipe used to transfer manure from one location to another. Costs include pipe materials and assembly, trench excavation, pipe installation, bedding, and proper backfill. Pipe is typically installed 4 feet below grade. The pipe conveys the slurry waste liquid and wastewater between the waste collection point and a waste storage facility or waste treatment area. Transfer pump is covered under PS 533 - Pumping Plant. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site DOES NOT have sufficient change in elevation or head

After Situation:

Install a 100 foot long pressure rated water tight PVC pipe. Pipe shall be 6" diameter pressure rated PVC pipe with water tight joints. 6" diameter PVC pipe will direct flow of manure and wastewater to manure treatment or storage facility. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and backfill. The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Feature Measure: Length of 6" PVC Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $2,969.83

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #15 - 8 inch PVC Pressure Pipe

Scenario Description:

8" PVC pipe conduit is typically a pressure rated water tight PVC pipe used to transfer manure from one location to another. Costs include pipe materials and assembly, trench excavation, pipe installation, bedding, and proper backfill. Pipe is typically installed 4 feet below grade. The pipe conveys the slurry waste liquid and wastewater between the waste collection point and a waste storage facility or waste treatment area. Transfer pump is covered under PS 533 - Pumping Plant. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site DOES NOT have sufficient change in elevation or head

After Situation:

Install a 100 foot long pressure rated water tight PVC pipe. Pipe shall be 8" diameter pressure rated PVC pipe with water tight joints. 8" diameter PVC pipe will direct flow of manure and wastewater to manure treatment or storage facility. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and backfill. The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Feature Measure: Length of 8" PVC Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $4,013.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $40.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #16 - 12 inch PVC Pressure Pipe

Scenario Description:

12" PVC pipe conduit is typically a pressure rated water tight PVC pipe used to transfer manure from one location to another. Costs include pipe materials and assembly, trench excavation, pipe installation, bedding, and proper backfill. Pipe is typically installed 4 feet below grade. The pipe conveys the slurry waste liquid and wastewater between the waste collection point and a waste storage facility or waste treatment area. Transfer pump is covered under PS 533 - Pumping Plant. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site DOES NOT have sufficient change in elevation or head

After Situation:

Install a 100 foot long pressure rated water tight PVC pipe. Pipe shall be 12" diameter pressure rated PVC pipe with water tight joints. 12" diameter PVC pipe will direct flow of manure and wastewater to manure treatment or storage facility. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and backfill. The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Feature Measure: Length of 12" PVC Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $5,319.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $53.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #17 - 15 inch PVC Pressure Pipe

Scenario Description:

15" PVC pipe conduit is typically a pressure rated water tight PVC pipe used to transfer manure from one location to another. Costs include pipe materials and assembly, trench excavation, pipe installation, bedding, and proper backfill. Pipe is typically installed 4 feet below grade. The pipe conveys the slurry waste liquid and wastewater between the waste collection point and a waste storage facility or waste treatment area. Transfer pump is covered under PS 533 - Pumping Plant. This conduit is part of a manure transfer system for a planned waste management or comprehensive nutrient management plan. This scenario addresses the transport of liquid waste to a waste storage or treatment facility to prevent a water quality resource concern of excessive nutrients/organics and harmful levels of pathogens in surface water and/or excessive nutrients/organics in ground water. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. The site DOES NOT have sufficient change in elevation or head

After Situation:

Install a 100 foot long pressure rated water tight PVC pipe. Pipe shall be 15" diameter pressure rated PVC pipe with water tight joints. 15" diameter PVC pipe will direct flow of manure and wastewater to manure treatment or storage facility. This scenario includes the pipe, couplers and all other fittings, trench excavation, pipe bedding and backfill. The transfer conduit will provide collection and containment of the manure slurry, thereby protecting water quality resources.

Feature Measure: Length of 15" PVC Pipe

Scenario Unit: Foot

Scenario Typical Size: 100.0

Scenario Total Cost: $6,491.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $64.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #18 - Push-Off Ramp w/ Safety Gate

Scenario Description:

Installation of a three-sided vertical concrete push off ramp in an earthen WSF. Ramp is designed to be installed on the side slope of an earthen WSF so manure and wastewater can be pushed directly into the WSF via skid steer load or other type of scraping equipment. Scenario consist of a three-sided 10' vertical wall that is approximately 20' long by 15' wide (VT Drawing # VT031212SD). Scenario also includes a safety gate at the end of the ramp to prevent scraping equipment from accidentally falling into the WSF. Push off ramps are particularly effective with manure laden with sand or heavy straw/hay bedding. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated.

After Situation:

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Feature Measure: Number of Push-Off Ramps

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $27,509.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $27,509.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #19 - Concrete Channel

Scenario Description:

Installation of a concrete channel to convey silage leachate, barnyard runoff and other wastewater from the source to a waste storage and/or treatment facility. Typical scenario includes the installation of a parabolic concrete channel which is 6' wide by 100' long. Concrete is 5" thick and reinforced with rebar. Concrete is underlain by 6" of clean drainfill material. Livestock are generally excluded. Concrete channel is used in areas where the topography or geology does not allow the installation of an underground pipe system. Concrete channel allows for easy and frequent maintenance and cleanout. Concrete channel shall NOT be used to convey manure. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated.

After Situation:

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Feature Measure: Surface Area of Concrete Ch

Scenario Unit: Square Foot

Scenario Typical Size: 600.0

Scenario Total Cost: $6,884.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.47

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #20 - Concrete Scrape Alley

Scenario Description:

Installation of a concrete scrape alley which is 10' wide to collect, contain and transfer manure and/or wastewater from the barn or barnyard to a waste storage facility or waste transfer system. Manure will be conveyed by a skid steer loader or other type of scraping equipment. Typical scenario includes a 6" concrete slab which is 10' wide by 100' long with 24" tall curbs on both sides. Concrete slab is reinforced with rebar and underlain by 6" of clean drainfill material. Associated practices may include: PS 313 Waste Storage Facility for storage structures; PS 533, Pumping Plant; PS 430, Irrigation Pipeline; PS 632, Solid/Liquid Waste Separation Facility; PS 468, Lined Waterway or Outlet; PS 590 Nutrient Management for waste application; PS 633, Waste Recycling.

Before Situation:

Current facility operations are allowing liquid waste to flow uncontrolled during periods of precipitation events or cleaning operations such that water resources can be contaminated.

After Situation:

Water quality concerns will be addressed by preventing liquid waste from entering surface waters, and to facilitate timely land application of manure and wastewater at agronomic rates according to the CNMP. This scenario addresses the potential for surface water and groundwater quality degradation.

Feature Measure: Surface Area of Scrape Alley

Scenario Unit: Square Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $16,273.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #21 - Horizontal Boring

Scenario Description:

Install pressure or gravity pipe waste transfer system under a road using directional drilling or horizontal boring equipment. Scenario generally pertains to smaller diameter pipes less than 12" in diameter. Boring is done approximately 50" below the road surface. Road is approximately 30' wide and length of boring is 50'. This scenario shall only be used if there is no other option or location is available. Scenario only pertains to horizontal boring through overburden material, not rock. Costs include oversized sleeve, 6" PVC pipe, horizontal boring equipment, excavator and misc. labor. This practice is often installed in conjunction with 533 - Pumping Plant, 313 - Waste Storage Facility, 632 - Waste Separation Facility, 590 - Nutrient Management, etc.

Before Situation:

An area of waste production is separated from the waste storage facility and current operations may cause water quality concerns as it is not efficient in transporting the waste to the storage. Existing road or highway is in the way that impedes the insta

After Situation:

Installation of a gravity or pump transfer conduit will provide the collection and containment of manure and wastewater, thereby protecting surface and ground water resources.

Feature Measure: Each Road Crossing

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $11,236.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,236.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #50 - Drag Hose Transfer

Scenario Description:
Installation of a flexible hose to transfer waste from storage to field for waste application.

Before Situation:
Liquid waste is applied with a tanker. The application is not energy efficient, it causes excessive soil compaction, and often doesn't coincide with optimal application time.

After Situation:
The installation of a drag hose allows the transfer of waste from storage to field where it can be directly injected or applied through a hard hose reel irrigation system. Tanker traffic is reduced on road and in field, increasing energy efficiency, reducing soil compaction, and increasing opportunities for optimal application method and timing.

Feature Measure: Feet of Drag Hose

Scenario Unit: Foot

Scenario Typical Size: 5,000.0

Scenario Total Cost: $53,371.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #54 - Reception Pit or Hopper <= 1000 Gallons

Scenario Description:

Installation of a collection system, less than or equal to 1000 gallons, to collect manure, silage leachate, lot runoff and wastewater. This scenario includes excavation, earthfill, curbing, screens, precast manholes, sumps or catch basins. The manure and wastewater will typically be transferred from the collection system to a waste storage facility through a gravity or pressurized conduit. The conduit will be covered under a different scenario under 634, Waste Transfer. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management. This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots

Before Situation:

Manure and wastewater is not properly collected or contained which could pollute surface and groundwater resources. Inadequate storage or facilities exists to properly collect and direct manure and wastewater to a proper treatment or storage system.

After Situation:

Install a cast in place or pre-cast concrete tank or hopper to collect manure and wastewater and help direct to a gravity or pressurized conduit. This scenario includes excavation, earthfill, reinforced or pre-cast concrete collection tank or hopper, safety fence/gate or grate, labor and all other appurtenances necessary to install the system. Gravity or pressurized conduit will be covered under a different scenario under 634 – Waste Transfer. System will remove all potential hazards to surface and ground water resources.

Feature Measure: Volume of Inside of Tank, B

Scenario Unit: Gallon

Scenario Typical Size: 1,000.0

Scenario Total Cost: $11,510.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.51

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #55 - Reception Pit or Hopper, > 1000 and <= 5000 Gallons

Scenario Description:

Installation of a collection system, greater than 1000 gallons and less than or equal to 5000 gallons, to collect manure, silage leachate, lot runoff and wastewater. This scenario includes excavation, earthfill, reinforced concrete or pre-cast concrete reception pit for temporary storage and transfer of manure and wastewater. Reception pit includes safety fence w/gate or solid/grated cover. The wastewater will typically be transferred from the collection basin to a waste storage facility through a gravity or pressurized conduit. The conduit will be covered under a different scenario under 634, Waste Transfer. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management. This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots

Before Situation:

Manure and wastewater is not properly collected or contained which could pollute surface and groundwater resources. Inadequate storage or facilities exists to properly collect and direct manure and wastewater to a proper treatment or storage system.

After Situation:

Install a cast in place or pre-cast concrete tank or hopper to collect manure and wastewater and help direct to a gravity or pressurized conduit. This scenario includes excavation, earthfill, reinforced or pre-cast concrete collection tank or hopper, safety fence/gate or grate, labor and all other appurtenances necessary to install the system. Gravity or pressurized conduit will be covered under a different scenario under 634 – Waste Transfer. System will remove all potential hazards to surface and ground water resources.

Feature Measure: Internal Volume of Tank, Ba

Scenario Unit: Gallon

Scenario Typical Size: 4,300.0

Scenario Total Cost: $20,306.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 634 - Waste Transfer

Scenario: #56 - Reception Pit of Hopper, > 5000 Gallons

Scenario Description:

Installation of a collection system, greater than 5000 gallons, to collect manure, silage leachate, lot runoff and wastewater. This scenario includes excavation, earthfill, reinforced concrete or pre-cast concrete reception pit for temporary storage and transfer of manure and wastewater. Reception pit includes safety fence w/gate or solid/grated cover. The wastewater will typically be transferred from the collection basin to a waste storage facility through a gravity or pressurized conduit. The conduit will be covered under a different scenario under 634, Waste Transfer. Associated practices may include: 313 - Waste Storage Facility; 561 - Heavy Use Area Protection; 533 - Pumping Plant; 430 - Irrigation Pipeline; 632 - Waste Separation Facility; 590 Nutrient Management. This scenario addresses the potential for surface water and groundwater quality degradation from liquid wastewater running unchecked out of silage bunkers and off of animal feeding lots

Before Situation:

Manure and wastewater is not properly collected or contained which could pollute surface and groundwater resources. Inadequate storage or facilities exists to properly collect and direct manure and wastewater to a proper treatment or storage system.

After Situation:

Install a cast in place or pre-cast concrete tank or hopper to collect manure and wastewater and help direct to a gravity or pressurized conduit. This scenario includes excavation, earthfill, reinforced or pre-cast concrete collection tank or hopper, safety fence/gate or grate, labor and all other appurtenances necessary to install the system. Gravity or pressurized conduit will be covered under a different scenario under 634 – Waste Transfer. System will remove all potential hazards to surface and ground water resources.

Feature Measure: Internal Volume of Tank, Ba

Scenario Unit: Gallon

Scenario Typical Size: 8,600.0

Scenario Total Cost: $30,116.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #1 - VTA-surface application-gravity flow

Scenario Description:

This is a permanent herbaceous vegetative area or channel installed down slope from a livestock production area. Wastewater (runoff or milking parlor wastewater) is properly collected and released with a controlled gravity outflow into the VTA. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich wastewater that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment (629), Heavy Use Area (561)

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical VTA is 75'x150' (11250 SF) in size, includes a perforated pipe manifold at the top of the VTA for distribution flow (sheet flow). Typically requires grading and shaping, gravel spreader trenches at top of VTA below manifold pipe, at 50ft spacing along the VTA, and at the bottom of the VTA. A settling basin for wastewater collection is contracted using Solid/Liquid Waste Separation Facility (632). For milkhouse waste, Waste Treatment (629) could be contracted to provide pre-treatment prior to being released into the VTA. Seeding is contracted under Critical Area Planting (342). The VTA practice will provide a controlled release of nutrient rich wastewater into a designed vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich wastewater and prevent contamination of surface and ground water resources.

Feature Measure: Amount of VTA installed

Scenario Unit: Square Foot

Scenario Typical Size: 11,250.0

Scenario Total Cost: $10,088.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #2 - VTA Direct Flow - Surface Apply

Scenario Description:

This is a permanent herbaceous vegetative area or channel installed down slope from a compost pad. Wastewater is conveyed in sheet flow onto the VTA. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich wastewater that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment (629), Heavy Use Area (561), Composting Facility (317)

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical VTA is 75'x150' (11250 SF) in size. Typically requires grading and shaping, gravel spreader trenches at top of VTA, at 50ft spacing along the VTA, and at the bottom of the VTA. If needed, a settling basin for wastewater collection may be contracted using Solid/Liquid Waste Separation Facility (632). Seeding is contracted under Critical Area Planting (342). The VTA practice will provide a controlled release of nutrient rich wastewater into a designed vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich wastewater and prevent contamination of surface and ground water resources.

Feature Measure: Amount of VTA installed

Scenario Unit: Square Foot

Scenario Typical Size: 11,250.0

Scenario Total Cost: $7,032.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #3 - VTA New with Spreader Curb

Scenario Description:

This is a permanent herbaceous vegetative area or channel installed down slope from a livestock production area. Nutrient rich runoff is treated with overland flow through the VTA. A flow distribution component is installed to achieve sheet flow at the start of the VTA. Clean runoff is diverted where possible. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich runoff that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Irrigation System, Sprinkler (442), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment Area (629)

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical VTA is 75'x150' (11250 SF) in size, includes grading, distribution pipes from the collection area, a concrete curb, and gravel trenches to establish sheet flow onto and along the VTA where an existing permanent herbaceous vegetated area meets the requirements for a VTA. Seeding is contracted under Critical Area Planting (342). The VTA practice will provide a controlled release of nutrient rich runoff into an existing vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich runoff and prevent contamination of surface and ground water resources.

Feature Measure: Amount of VTA treating was

Scenario Unit: Square Foot

Scenario Typical Size: 11,250.0

Scenario Total Cost: $11,030.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #4 - VTA Existing with Spreader Curb

Scenario Description:

An existing permanent herbaceous vegetated area that meets the requirements for a VTA and is used as an overland flow area for nutrient rich runoff treatment. A flow distribution component is installed to achieve sheet flow at the start of the VTA. Clean runoff is diverted where possible. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich runoff that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Irrigation System, Sprinkler (442), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment Area (629)

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical VTA is 75'x150' (11250 SF) in size, includes distribution pipes from the collection area, a concrete curb, and gravel trenches to establish sheet flow onto and along the VTA where an existing permanent herbaceous vegetated area meets the requirements for a VTA. Does not include any grading or seeding. The VTA practice will provide a controlled release of nutrient rich runoff into an existing vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich runoff and prevent contamination of surface and ground water resources.

Feature Measure: Amount of VTA treating was

Scenario Unit: Square Foot

Scenario Typical Size: 11,250.0

Scenario Total Cost: $7,512.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #5 - Graded Area, Pumped Into A Basin, Gravity Flow Surface Application

Scenario Description:

This is a permanent herbaceous vegetative area or channel located upslope from the livestock production area. The topography of the site requires wastewater to be pumped uphill to the VTA designed system. Wastewater (runoff or milking parlor wastewater) is properly collected at the production area and pumped uphill to a shallow tank or basin where it has a controlled gravity outflow into the VTA. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich wastewater that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Irrigation System, Sprinkler (442), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment (629).

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical VTA is 1 ac (43560 SF) in size, includes the installation site to be upslope from the production area with a shallow tank or basin that provides a controlled gravity outflow into the VTA. Typically requires grading and shaping, gravel spreader trenches and perforated pipe to maintain sheet flow throughout the VTA. A settling basin for wastewater collection is contracted using Solid/Liquid Waste Separation Facility (632) and Pumping Plant (533) to get the wastewater upslope to the VTA distribution point. For milkhouse waste, Waste Treatment (629) could be contracted to provide pretreatment prior to being released into the VTA. Seeding is contracted under Critical Area Planting (342). The VTA practice will provide a controlled release of nutrient rich wastewater into a designed vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich wastewater and prevent contamination of surface and ground water resources.

Feature Measure: Amount of VTA installed

Scenario Unit: Square Foot

Scenario Typical Size: 43,560.0

Scenario Total Cost: $15,553.90

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #6 - Graded Area, Mechanical Distribution

Scenario Description:

This is a permanent herbaceous vegetative area located adjacent to a livestock production area. Wastewater (runoff or milking parlor wastewater) is properly collected at the production area and pumped to mechanically distribute wastewater onto the VTA. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich wastewater that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Irrigation System, Sprinkler (442), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment (629)

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical VTA is 1.0 ac in size, includes the sizing, grading and shaping of the VTA area. Typically requires grading and shaping to maintain sheet flow onto the VTA. A settling basin for wastewater collection is contracted using Solid/Liquid Waste Separation Facility (632) and Pumping Plant (533) to get the wastewater to the VTA mechanical distribution component that is contracted using Irrigation System, Sprinkler (442). For milkhouse waste, Waste Treatment (629) could be contracted to provide pretreatment prior to being pumped and distributed onto the VTA. Seeding is contracted under Critical Area Planting (342). The VTA practice will provide a controlled release of nutrient rich wastewater into a designed vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich wastewater and prevent contamination of surface and ground water resources.

Feature Measure: Amount of VTA installed

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3,409.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,409.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #16 - New VTA with added fill

Scenario Description:

This is a permanent herbaceous vegetative area or channel installed down slope from a livestock production area. Wastewater (runoff or milking parlor wastewater) is properly collected and released with a controlled gravity outflow into the VTA. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich wastewater that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment (629), Heavy Use Area (561)

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical VTA is 60'x100' (6000 SF) in size, includes a trench and rock spreader at the top of the VTA for distribution flow (sheet flow). Typically requires grading and shaping. A settling basin for wastewater collection is contracted using Solid/Liquid Waste Separation Facility (632) if needed. Due to permeability of existing soil, additional soil needs to be added to modify soil profile to meet standard requirements. Up to 6 inches of fine sandy loam or finer material will be added. Erosion control blanket will be used to prevent erosion until vegetation is established. The VTA practice will provide a controlled release of nutrient rich wastewater into a designed vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich wastewater and prevent contamination of surface and ground water resources.

Feature Measure: Area of treatment area

Scenario Unit: Square Foot

Scenario Typical Size: 6,000.0

Scenario Total Cost: $12,733.41

Total Cost per Unit: $2.12

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 635 - Vegetated Treatment Area

Scenario: #20 - Bioswale

Scenario Description:

Scenario: This is a permanent herbaceous vegetative area or channel installed down slope from a livestock production and/or tilled/ploughed field. Wastewater (storm water runoff or milking parlor wastewater) is properly collected and released with a controlled gravity outflow into the VTA. The VTA vegetation is harvested to removed nutrients on a regular basis. This practice addresses water quality degradation due to uncontrolled nutrient rich wastewater that can flow into surface waters or leach into ground water. Associated practices: Waste Storage Facility (313), Fence (382), Solid/Liquid Waste Separation Facility (632), Manure Transfer (634), Roof runoff Management (558), Pumping Plant (533), Subsurface Drain (606), Critical Area Planting (342), Terrace (600), Nutrient Management (590), Diversion (362), Pipeline (516), Land Smoothing (466), Precision Land Forming (462), Waste Treatment (629), Heavy Use Area (561)

Before Situation:

Nutrient rich wastewater is running off from an animal operation that has the potential to pollute surface waters or ponding and leaching into groundwater.

After Situation:

Typical Bioswale is 20'x400' (8000 SF) in size, includes a gravel infiltration layer separated by geotextile from the biological processing layer. Typically requires trenching for the treatment layers and grading and shaping to properly direct the water flow. A settling basin for wastewater solids collection is contracted using Solid/Liquid Waste Separation Facility (632) if needed. Due to permeability of existing soil, additional soil needs to be added to modify soil profile to meet standard requirements. Up to 30 inches of fine sandy loam or finer material will be added. Erosion control blanket will be used to prevent erosion until vegetation is established. The VTA practice will provide a controlled release of nutrient rich wastewater into a designed vegetative area for nutrient uptake. This system will improve water quality by treating nutrient rich wastewater and prevent contamination of surface and ground water resources.

Feature Measure: Square feet of swale

Scenario Unit: Square Foot

Scenario Typical Size: 8,000.0

Scenario Total Cost: $32,431.36

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 636 - Water Harvesting Catchment

Scenario: #11 - Surface Catchment

Scenario Description:

Construct an apron, approximately 50 feet wide by 90 feet long, utilizing: a plastic or rubber membrane laid on a prepared ground surface; or an asphalt or concrete surface with curbing; to collect rain water. Divert collected water from the surface catchment by gravity through an 8" diameter, PVC SDR-35 pipe to an existing tank or plastic-lined earthen reservoir. Exclusion of animals is required, so conservation practice 382 - Fencing, may be needed to protect the catchment. Resource Concern: Livestock production limitation - Inadequate livestock water. Associated Practices: 382 - Fencing; 614 - Watering Facility; 436 - Irrigation Reservoir; and 521A - Pond Sealing or Lining, Flexible Membrane.

Before Situation:

Inadequate water available to address resource concerns. Client hauls water to supply needs.

After Situation:

Design and construct an impervious surface as the primary collection component, and a pipe to convey the water to create a reliable water supply for livestock.

Feature Measure: Surface Area of Catchment

Scenario Unit: Square Yard

Scenario Typical Size: 500.0

Scenario Total Cost: $9,457.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $18.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 636 - Water Harvesting Catchment

Scenario: #12 - Elevated Catchment

Scenario Description:

Build a wooden frame, "post-and-pier" structure, with a corrugated metal roof (dimensions are 24 feet wide by 20 feet long), to collect rain water. The structure is supported by 9-each, "poured-in-place", concrete footings (dimensions are 2'x2' square x1' thick), 8 feet on-center, with tie-down straps. Divert collected water from catchment area with guttering and downspout through a 4" diameter PVC Schedule 40 pipe, to a tank (not included)for a reliable storage and subsequent use. Resource concerns: Livestock production limitation - Inadequate livestock water; Insufficient water - Inefficient use of irrigation water. Associated practices: 382 - Fence; 614 - Watering Facility; or 436 - Irrigation Reservoir.

Before Situation:

Inadequate water available to address resource concerns. Client hauls water to supply needs.

After Situation:

The guttering and downspouts collects the roof runoff and the water is conveyed through a pipe, by gravity, to a storage tank for use by livestock or a very small irrigation system. This system is the primary collection component of a Water Harvesting Catchment (CPS 636) facility. Divert collected water from roof with guttering and downspout through a 4" diameter PVC Sch-40 pipe,

Feature Measure: Surface Area of Catchment

Scenario Unit: Square Yard

Scenario Typical Size: 53.0

Scenario Total Cost: $10,197.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $192.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 636 - Water Harvesting Catchment

Scenario: #31 - Plastic tank, less than or equal to 1,000 gallons

Scenario Description:

Install a small, typically 1,000 gallons or less, above-ground polyethylene tank to store rainwater from an impervious surface on 6" of well-compacted drain rock or a 4" thick reinforced concrete support pad. The typical dimensions of the tank are 72" in diameter and 66" tall. The scenario also assumes a 96" diameter gravel base or concrete pad to extend a minimum of 12" past the base of tank for adequate foundation support. Stored water can be used with watering facilities, irrigation systems, or other conservation practices. The tank shall be constructed of approved materials that stores adequate quantity and quality of water for storage and or direct drinking access. Additional components may be needed to channel water from the impervious surface to the storage tank. All components used will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. Resource concerns addressed include: Inadequate water quantity for livestock, wildlife or crops; habitat degradation, water quality, and undesirable plant productivity and health. Associated Practices: 614 - Watering Facility; 516 - Livestock Pipeline; 558 - Roof Runoff Structure; 620 - Underground Outlet; 430 - Irrigation Pipeline; 441 - Micro Irrigation; 533 - Pumping Plant; 342 - Critical Area Planting; 382 - Fencing

Before Situation:

Impervious surface currently exists, but there is no storage available. Water quantity is not available or supplemented to provide for wildlife, livestock watering, irrigation, or for other conservation practices.

After Situation:

A 1,000 gallon above-ground Poly tank with all tank materials, stabilized in place, with overflow protection, is installed to collect and store water from an impervious surface. Tank will provide or support adequate water storage capacity to ensure against inadequate supply of water for livestock and or wildlife, habitat degradation, water quality, water quantity, crops, and undesirable plant productivity and health, and provide conservation benefit.

Feature Measure: Gallons of Tank Storage Cap

Scenario Unit: Gallon

Scenario Typical Size: 1,000.0

Scenario Total Cost: $2,589.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 638 - Water and Sediment Control Basin

Scenario: #1 - WASCOB less than 350 CY

Scenario Description:

Typical scenario is for excavating 100 CY to create an earthen WASCOB. The excavated material is used to build up an earthen embankment or combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin. Outlet is typically an underground outlet. Work is done with excavator and/ or dozer. Costs include all equipment necessary to excavate, shape, grade and compact the Water and Sediment Control Basin and mobilization of equipment. This practice is utilized to reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff. Sheet and rill erosion will be controlled by other conservation practices.

Before Situation:

Farming fields with excessive slope length has resulted in multiple rills and/or ephemeral gullies that will continue to worsen over time. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient tran

After Situation:

Water and Sediment Control Basin is constructed with 100 CY of excavation/earthfill with dozer, scraper and/or road grader. Rill and/or gully erosion is reduced. If riser and underground outlet are needed, then include Underground Outlet (620). Include Critical Area Planting (342) where necessary to prevent erosion following construction activities.

Feature Measure: Cubic Yard of WASCOB exca

Scenario Unit: Cubic Yard

Scenario Typical Size: 100.0

Scenario Total Cost: $1,314.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 638 - Water and Sediment Control Basin

Scenario: #2 - WASCOB less than 350 CY-Topsoil

Scenario Description:

Typical scenarios is for excavating 100 CY to create an earthen WASCOB. Prior to building the embankment, 6 inches of topsoil is removed and stockpiled. The excavated material is used to build up an earthen embankment or combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin. Topsoil is replaced following construction of the embankment. Outlet is typically an underground outlet. Costs include all equipment necessary to strip and stock pile topsoil, excavate, shape, grade and compact the Water and Sediment Control Basin, spread and replace topsoil after construction and mobilization of equipment. Seeding not included. This practice is utilized to reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff. Sheet and rill erosion will be controlled by other conservation practices. Work is done with dozer, scraper, or road grader.

Before Situation:

Site has shallow topsoil which if removed by earthwork for construction of embankment will significantly impact yields. Farming fields with excessive slope length has resulted in multiple rills and/or ephemeral gullies that will continue to worsen over ti

After Situation:

Water and Sediment Control Basis is constructed with 100 CY of excavation/earthfill with dozer, scraper and/or road grader. Rill and/or gully erosion is reduced. If riser and underground outlet are needed, then include Underground Outlet (620). Include Critical Area Planting (342) where necessary to prevent erosion following construction activities.

Feature Measure: Cubic Yard of WASCOB Exca

Scenario Unit: Cubic Yard

Scenario Typical Size: 100.0

Scenario Total Cost: $2,244.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 638 - Water and Sediment Control Basin

Scenario: #3 - WASCOB greater than or equal to 350 CY

Scenario Description:

Typical scenario is for excavating 700 CY to create an earthen WASCOB. Outlet is typically an underground outlet. The excavated material is used to build up an earthen embankment or combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin. Work is done with excavator and/or dozer. Costs include all equipment necessary to excavate, shape, grade and compact the Water and Sediment Control Basin and mobilization of equipment. This practice is utilized to reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff. Sheet and rill erosion will be controlled by other conservation practices.

Before Situation:

Farming fields with excessive slope length has resulted in multiple rills and/or ephemeral gullies that will continue to worsen over time. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient tran

After Situation:

Water and Sediment Control Basin is constructed with 700 CY of excavation/earthfill with dozer, scraper and/or road grader. Rill and/or gully erosion is reduced. If riser and underground outlet are needed, then include Underground Outlet (620). Include Critical Area Planting (342) where necessary to prevent erosion following construction activities.

Feature Measure: Cubic Yard of WASCOB Exca

Scenario Unit: Cubic Yard

Scenario Typical Size: 700.0

Scenario Total Cost: $5,762.81

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #1 - Dug Well

Scenario Description:

Typical construction is for the excavation of a shallow dug well. The purpose of the practice is to provide water for livestock. A typical dug well is 4 foot in diameter and 12 feet in depth. The well is excavated using a backhoe. Excavate to a depth where the water recharge is greater than the equipment can remove. Washed gravel is placed in the base of the dug opening. Concrete manhole risers are installed to hold the water. Pea gravel is placed above the washed gravel to transition to the earth backfill. The hole is backfilled and sloped to direct surface water away from entering the manhole cover.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Sufficient water is available for livestock or micro-irrigation. Utilize Pumping Plant (533), Pipeline (516), Irrigation Pipeline (430) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $13,371.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13,371.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #2 - Shallow Well

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur within 100 feet of the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or irrigation. An average well depth is 50 feet. Well casings is 4" in diameter. Steel casing is installed to a depth of 30 feet.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Sufficient water is available for livestock or irrigation. Utilize Pumping Plant (533), Irrigation Pipeline (430), Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $7,339.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,339.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #3 - Typical Well

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur 100 - 600 feet of the ground surface. The well shall be drilled, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or micro-irrigation. An average well depth is 400 feet. Well casings are 4-6" in diameter. Steel casing is installed to a depth of 100 feet.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Sufficient water is available for livestock or micro-irrigation. Utilize Pumping Plant (533), Irrigation Pipeline (430), and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $12,312.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,312.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #4 - Deep Well

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur > 600 feet of the ground surface. The well shall be drilled, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or micro-irrigation. An average well depth is 800 feet. Well casings are 4-6 in diameter. Steel casing is installed to a depth of 100 feet.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Sufficient water is available for livestock or micro-irrigation. Utilize Pumping Plant (533), Irrigation Pipeline (430), and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $22,769.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22,769.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #6 - High Volume Typical Well

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur 100 - 600 feet of the ground surface. The well shall be drilled, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or micro-irrigation. An average well depth is 400 feet. Well casings are = 8 in diameter. Steel casing is installed to a depth of 100 feet.

Before Situation:

There is insufficient water for use in irrigation.

After Situation:

Sufficient water is available for irrigation. Utilize Pumping Plant (533) and Irrigation Pipeline (430) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: No.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $17,477.88

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17,477.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #64 - 4 inch cased

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur within 100 feet of the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or irrigation. An average well depth is 250 feet. Well casings are 4 in diameter. Steel casing is installed to a depth of 110 feet.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Install a 250' deep well with 110' of 4 in casing. Casing grouted to seal out surface water. Sufficient water is available for livestock or irrigation. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: Total depth of well

Scenario Unit: Linear Foot

Scenario Typical Size: 250.0

Scenario Total Cost: $10,276.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #65 - Typical Well, 6 inch

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur 100 - 600 feet of the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or micro- irrigation. An average well depth is 400 feet. Well casings are 4-6 in diameter. Steel casing is installed to a depth of 150 feet.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Install a 400' deep well with 150' of 6 in casing. Casing grouted to seal out surface water. Sufficient water is available for livestock or micro-irrigation. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities

Feature Measure: Total depth of well

Scenario Unit: Linear Foot

Scenario Typical Size: 400.0

Scenario Total Cost: $15,522.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.81

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #66 - 4 inch limited casing

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur within 100 feet of the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or irrigation. The area is known for swallow wells and minimal depth to bedrock. An average well depth is 150 feet. Well casings are 4-6 in diameter. Steel casing is installed to a depth of 30 feet.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Install a 150' deep well with 30' of 4 in casing. Casing grouted to seal out surface water. Sufficient water is available for livestock or irrigation. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: Total depth of well

Scenario Unit: Foot

Scenario Typical Size: 150.0

Scenario Total Cost: $6,324.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $42.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #67 - High Volume Typical Well, 8 inch or greater

Scenario Description:
Typical construction is for the installation of a well, in areas where sufficient water is known to occur 100 - 600 feet of the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or micro- irrigation.

Before Situation:
There is insufficient water for use in irrigation.

After Situation:
A well is drilled with 150' feet of 8 in casing and a total depth of 500'. Sufficient water is available for livestock or micro-irrigation. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: Total depth of well

Scenario Unit: Linear Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $29,111.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $58.22

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 642 - Water Well

Scenario: #103 - Steel or Copper, 100 ft. or deeper

Scenario Description:

Typical construction is for the installation of a well, in areas where sufficient water is known to occur greater than 2000 feet from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or micro-irrigation. An average well depth is 2500 feet. Plastic Surface casings are 6 in diameter with smaller diameter casing and screen extending into the water bearing formation. Steel casing and screen is installed to a typical depth of 2500 feet.

Before Situation:

Livestock have insufficient water or are fenced from their water source. There is insufficient water for use in micro-irrigation.

After Situation:

Sufficient water is available for livestock or micro-irrigation. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Feature Measure: Depth of Well

Scenario Unit: Linear Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $146,281.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $73.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #2 - Oyster Reef and Disease Monitoring Year 1

Scenario Description:

This scenario is for monitoring the progress of native oyster reef restoration to make recommendations on adaptive management to improve the restored habitat. This is for Year 1 after 0.025 acres is restored. Monitoring will include temperature, salinity, dissolved oxygen, substrate type, submerged vegetation, oyster survival rates and other data listed in Conservation Practice Job Sheet -Oyster Monitoring. Additional disease monitoring will be completed annually to determine if specific diseases are impacting the reef organisms. Reef habitats will be monitored twice per season (Disease monitoring only once). A boat will be required to gain access to the site and diving may be required to collect the required data. All information will be documented on the data collection sheets provided.

Before Situation:

Rare or declining habitat is deficient due to the absence of annual monitoring and adaptive management actions of medium intensity and complexity.

After Situation:

Rare or declining habitat is improved by implementation of annual adaptive management actions of medium intensity and complexity.

Feature Measure: Monitoring efforts and adap

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $7,919.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,919.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #3 - Development of Shallow Micro-Topographic Features with Normal Farming Equipment.

Scenario Description:

This typical scenario is installed on open non-wetlands. The purpose is to increase plant species richness and diversity, create micro-habitats for invertebrates, increase water infiltration and reduce run-off. The area is plowed to loosen the soil. Then the soil is excavated with normal farming equipment (e.g. tractor and box-blade) to a depth of 2-6 inches and immediately deposited. This lowering and raising of a box-blade restores the original micro-topographic features (6' X 6' depressions and mounds) common to most landscapes and landforms prior to clearing, tilling, and annual mowing. Restoration of shallow but frequent micro-topographic features has been lost by the smoothing action of tillage, mowing and the original land-clearing. This scenario it typically implemented for ecosystem restoration projects such as prairie restoration and range-land restoration, and particularly on moderately well-drained soils.

Before Situation:

Micro-topographic features have been eliminated by past conversion to agriculture and/or past cultural practices. This has resulted in the lack of micro-soil moisture gradients within the field. The opportunity for plant species richness and diversity is

After Situation:

Shallow micro-depressions and mounds are numerous. This varied micro-topographic features provided varied moisture gradients required for high plant species richness and diversity. Wildlife habitat is improved. Water conservation is increased, increasing vegetative production. Water quality is improved as the micro depressions capture sediments, nutrients and manure. Over time, the micro-depressions become more nutrient rich than the micro-highs, further increasing plant species richness.

Feature Measure: hours of tractor use

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $1,176.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $58.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #4 - Development of Deep Micro-Topographic Features with Heavy Equipment.

Scenario Description:

This typical scenario is installed on open non-wetlands, where micro-topographic features have been removed by past farming and/or ranching cultural practices. The purpose is to increase plant species richness and diversity, create micro-habitats for invertebrates, increase water infiltration and reduce run-off. The area is plowed 2 weeks prior to excavation to kill existing vegetation and allow for proper dirt work. Then the soil is excavated with track equipment (dozer) to a depth of 6-12 inches and immediately deposited. This lowering and raising of a dozer -blade restores the original deep micro-topographic features (10' X10' depressions and mounds) common to many landscapes and landforms prior to the lands conversion to agricultural lands. This scenario it typically implemented for ecosystem restoration projects such as wetland restoration (herbaceous or prior to planting of woody species), prairie restoration and range-land restoration. It is most commonly applied to well-drained soils as the purpose is for the micro-depression to pond water for short duration (less than 7 days).

Before Situation:

Micro-topographic features have been eliminated by past conversion to agriculture and/or past cultural practices. This has resulted in the lack of micro-soil moisture gradients within the field. The opportunity for plant species richness and diversity is

After Situation:

Deep (6" - 12" depth) micro-depressions and mounds are numerous. These varied micro-topographic features provide varied moisture gradients required for development of high plant species richness and diversity. Wildlife habitat is improved. Water conservation is increased, increasing vegetative production. Water quality is improved as the deep micro-depressions capture sediments, nutrients and manure. Over time, the micro-depressions become more nutrient rich than the micro-highs, further increasing plant species richness.

Feature Measure: Hours

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $3,030.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $151.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #5 - Vernal Pool Creation

Scenario Description:

Creation of vernal pools to provide breeding habitats for amphibian species that are in decline. Vernal pools are usually located in forested landscapes. Vernal pools are usually 0.1-0.5 acres in size. Woody debris may be added to the vernal pools to improve the habitat. Resource concerns include Inadequate Cover/Shelter. Practice 643 is being used in lieu of Wetland Creation because a vernal pool may not support permanent wetland vegetation. Associated practices include: 390 Riparian Herbaceous Cove, 460 Land Clearing.

Before Situation:

Forested landscape has limited number of vernal pools. Surrounding lands have been developed resulting in a decrease number of sites for amphibian breeding. Lack of breeding has caused a decrease in amphibian populations.

After Situation:

A vernal pool is create which provides additional cover/shelter for breeding amphibians. The amphibian population increase in the area of the vernal pool.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 0.3

Scenario Total Cost: $3,116.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,465.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #6 - Flash Grazing for Bog Turtle Habitat Restoration

Scenario Description:

Landowners with habitat for Bog Turtles complete flash grazing to promote restoration and management of these habitats. This is usually carried out annually. Livestock are temporarily allowed to graze the habitat area. Stocking is 0.75 AU/Acre. A Biologist is required to locate all existing bog turtles and relocate during the flash grazing. Livestock are transported to the site for the grazing. Normally use cattle, sheep or goats depending on the availability of the livestock for grazing and the type of vegetation being grazed. Associated practices include: 472 Access Control. Resource Concerns include inadequate fish and wildlife habitat.

Before Situation:

Bog Turtle habitat is degraded due to an overgrowth of woody vegetation. The areas do not provide the necessary habitat to fully support the Bog Turtle.

After Situation:

After flash grazing the habitat regenerate to vegetation and a structure that is beneficial to the Bog Turtle.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $1,815.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $907.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #7 - Restoration of Coastal reef - Spat on Shell Only

Scenario Description:

This scenario can be used for oyster restoration at sites where seeding with live oyster is needed to stimulate the establishment of a self-sustaining oyster population. This could include sites that lack nearby oyster populations, which can supply free-floating oyster larvae to settle on newly established oyster reefs. Thus, the addition of live oysters serves to overcome the existing lack of natural reproduction and promotes continued oyster reef formation as these oysters mature. Important, all oysters used for reef creation must be diploids. The following factors must be considered for your site: 1) Suitable Recruitment - If the site has sufficient larval supply, but is "habitat" limited, planners must instead use scenario number #8 (Restoration of Coastal Reef - Shell Only). 2) Sites with Suitable Substrate – For sites with suitable substrate, this scenario can be used alone to either re-seed existing habitat or build new reefs. 3) Sites without both suitable substrate and recruitment - For sites without both suitable substrate and recruitment planners must combine this with scenario #8 (Restoration of Coastal Reef - Shell Only). The deployment of shell material is needed to establish a suitable substrate before deployment of live oysters (or else the fate of these oysters is likely burial in sediments). In this case without existing substrate, this scenario can only be used to create new reefs, and it must be paired with scenario number 8. 4) Predation or other conditions - If the site has been determined to have a high predation or other conditions which justify larger oysters for reef creation, planers must consider if scenario number #10 (Restoration of Coastal Reef – LARGE Spat on Shell or Single Live Oysters) would provide a higher likelihood of survival on these conditions and use that scenario instead. The typical scenario includes seeding 1/4 of a 0.1 acre plot. To accomplish this, laborers will bags of shell and transport those to the aquaculture facility. In the facility, eyed-larvae are added to the tanks for a setting density of 1 million spat over the 300 bags. After 7-10 days in the tanks, oyster larvae settle onto the shells, creating spat-on-shell. The bags are then transported to oyster farms to be grown for approximately 20 weeks (until they are approximately 1 in in height) prior to the deployment on the restoration sites. The oysters are placed on newly created or existing oyster reef. Each deployment will contain 45 totes and approximately 225,000 spat-on-shell oysters covering 1,100 sq. ft. Associated practices standards to this scenario include 643 - Restoration of Rare or Declining Natural Communities and 472 Access Control. Associated Scenarios are: #8 Restoration of coastal reef shell only (CODE 643), #18 Reef monitoring year 1(CODE 643), #19 Reef monitoring year 2(CODE 643), #14 Reef monitoring year 3 (CODE 643) AND #4 Navigation Delineation (CODE 472).

Before Situation:

Coastal estuaries and coastal ponds lack beneficial oyster populations. A combination of pollution, overharvesting, weather events, and disease have reduced oyster populations to a small fraction of their historical population size. As a result, the oyste

After Situation:

The biological and structural components of the oyster reefs are restored or enhanced. These oyster populations are self-sustaining and continue to re-seed the reef and can supply larvae to surrounding oyster populations. Oysters that settle on these restored reefs provide increased water quality and light penetration in coastal estuaries and coastal ponds, due to their expanded ability to filter feed on algae and sequester excess nutrients from the water. Wildlife habitat is improved, providing additional food and cover for native wildlife, including fish, crabs, worms, and waterfowl.

Feature Measure: Per Tote

Scenario Unit: Each

Scenario Typical Size: 45.0

Scenario Total Cost: $48,023.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,067.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #8 - Restoration of Coastal Reef - Communities with Shell Only

Scenario Description:

This scenario can be used for oyster restoration in sites where is needed to stimulate the establishment of a self-sustaining oyster population. Planners must inform participants that all shell material used must be allowed to age for at least one year to ensure that no tissue remains attached to shells or participants can used oyster shells that have been steamed shucked. Remaining tissue not properly removed could reduce water quality during setting and transfer pathogens. Planners must consult local requirements for what is the appropriate method acceptable to clean shells in their region. The following factors must be considered for your site: 1) Suitable Recruitment - If the site has sufficient larval supply, but is “habitat” limited, planners must plan 90 totes of clean cultch. Consideration should be made to the depth of the site, and reductions of the number of totes can be made as appropriate by reducing the planned amount. 2) Sites without both suitable substrate and recruitment - For sites without both suitable substrate and recruitment planners must combine this with either scenario#7 Restoration of Coastal reef – Spat on Shell Only OR #10 Restoration of Coastal Reef – LARGE spat on shell or Single Live Oysters as appropriate. The deployment of shell material is needed to establish a suitable substrate before deployment of live oysters (or else the fate of these oysters is likely burial in sediments). If the scenario is used as a substrate (foundation) of a new reef, while paired with the scenarios described above planners must use 45 totes instead. The typical scenario will be used within 1/4 of a 0.1 acre plot. Clean shell is placed in totes and loaded on boats to be taken to the reef restoration locations. Shell is place using manual labor on pre-selected sites. Volume of shell is usually 7 tons (10 cu yards) per 1,100 square feet (90 totes). Typical restoration site is normally 4,400 sq. ft. The clean shell will be placed in linear or concentric piles by the participant. Associated practices standards to this scenario include 643 - Restoration of Rare or Declining Natural Communities and 472 Access Control. Associated Scenarios are: #7 Restoration of Coastal reef – Spat on Shell Only, #10 Restoration of Coastal Reef – LARGE Spat on Shell or Single Live Oysters, (CODE 643), #18 Reef monitoring year 1(CODE 643), #19 Reef monitoring year 2(CODE 643), #14 Reef monitoring year 3 (CODE 643) AND #4 Navigation Delineation (CODE 472).

Before Situation:

Coastal estuaries and coastal ponds lack beneficial oyster populations. A combination of pollution, overharvesting, weather events, and disease have reduced oyster populations to a small fraction of their historical population size. As a result, the oyste

After Situation:

The biological and structural components of the oyster reefs are restored with oyster shells. These shells serve as a self-sustaining structure that will allow floating larvae to re-seed and become a reef. Oysters that settle on these restored reefs provide increased water quality and light penetration in coastal estuaries and coastal ponds, due to their expanded ability to filter feed on algae and sequester excess nutrients from the water. Wildlife habitat is improved, providing additional food and cover for native wildlife, including fish, crabs, worms, and waterfowl.

Feature Measure: Totes

Scenario Unit: Each

Scenario Typical Size: 90.0

Scenario Total Cost: $6,844.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $76.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #9 - Oyster Reef Barge Crane

Scenario Description:

Restoration of native oyster beds by placing oyster shells to form beds in coastal estuaries or coastal ponds. Typically requires 100 tons of shells placed on the bottom of the coastal estuary. The shell is transported to the site via a barge. The transportation and placement of the shell usually takes three days. Normally 100 tons of oyster or clam shell is dried over winter to remove disease and placed on the bottom in strategic locations based on bathymetric positions in the estuary. The shell creates habitat for both the oysters and other native wildlife.

Before Situation:

Coastal estuaries and coastal ponds are lacking beneficial oyster beds. The oyster beds have been degraded or eliminated due to poor water quality, weather events, or disease. The lack of or decrease in oyster beds limits wildlife food and cover. Water qu

After Situation:

The structural components of the oyster beds are restored. These beds can be seeded by native oyster population. Native wildlife habitat is increased. There is an increase in both food and cover for native wildlife. Oysters that set on the beds provide increased water quality by additional filtering of the water.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $22,515.23

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22,515.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #14 - Reef Monitoring Reef Year 3

Scenario Description:

This scenario is for Year 3 for monitoring the progress of native oyster reef restoration to make recommendations on adaptive management to improved the restored habitat. Monitoring will require the collection of 80 quadrats of data on the reef. The year 3 will be used once 4300 square feet of reef are restored. Monitoring will include temperature, salinity, dissolved oxygen, substrate type, submerged vegetation, oyster survival rates, disease testing (annually) and other data listed in Conservation Practice Job Sheet - Oyster Monitoring. Disease monitoring will be completed annually to determine if specific diseases are impacting the reef organisms .Reef habitats will be monitored twice per season. A boat will be required to gain access to the site and diving may be required to collect the required data. All information will be documented on the data collection sheets provided.

Before Situation:

Rare or declining habitat is deficient due to the absence of annual monitoring and adaptive management actions of medium intensity and complexity.

After Situation:

Rare or declining habitat is improved by implementation of annual adaptive management actions of medium intensity and complexity.

Feature Measure: Monitoring efforts and adap

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $11,608.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,608.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #18 - Oyster Reef Monitoring Year 1

Scenario Description:

This scenario is for monitoring the progress of native oyster reef restoration after year 1. This will assists to make recommendations on adaptive management to improved the restored habitat. This will be used after 1100 square feet of reef is restored. This will require collecting 20 quadrats of data on the reef. Monitoring will include temperature, salinity, dissolved oxygen, substrate type, submerged vegetation, oyster survival rates and other data listed in Conservation Practice Job Sheet -Oyster Monitoring. Reef habitats will be monitored twice per season. A boat will be required to gain access to the site and diving may be required to collect the required data. All information will be documented on the data collection sheets provided.

Before Situation:

Rare or declining habitat is deficient due to the absence of annual monitoring and adaptive management actions of medium intensity and complexity.

After Situation:

Rare or declining habitat is improved by implementation of annual adaptive management actions of medium intensity and complexity.

Feature Measure: Monitoring efforts and adap

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,485.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,485.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #19 - Reef Monitoring-Year 2

Scenario Description:

This scenario is for Year 2 for monitoring the progress of native oyster reef restoration to make recommendations on adaptive management to improved the restored habitat. At this time 4300 square feet of reef should be restored. It will be required to collect 40 quadrats of data on the restored reefs. Monitoring will include temperature, salinity, dissolved oxygen, substrate type, submerged vegetation, oyster survival rates, disease testing (annually) and other data listed in Conservation Practice Job Sheet -Oyster Monitoring. Disease monitoring will be completed annually to determine if specific diseases are impacting the reef organisms .Reef habitats will be monitored twice per season. A boat will be required to gain access to the site and diving may be required to collect the required data. All information will be documented on the data collection sheets provided.

Before Situation:

Rare or declining habitat is deficient due to the absence of annual monitoring and adaptive management actions of medium intensity and complexity.

After Situation:

Rare or declining habitat is improved by implementation of annual adaptive management actions of medium intensity and complexity.

Feature Measure: Monitoring efforts and adap

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $7,331.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,331.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #44 - Vernal Pool Creation with liner

Scenario Description:

Creation of vernal pool with liner to provide breeding habitats for amphibian species that are in decline. The liner is a critical component to ensure that water is retained in the pools we create until the tadpoles reach metamorph stage and leave the pool. Vernal pools are usually located in forested landscapes. Vernal pools are usually 0.1-0.5 acres in size. Woody debris may be added to the vernal pools to improve the habitat. Resource concerns include Inadequate Cover/Shelter. Practice 643 is being used in lieu of Wetland Creation because a vernal pool may not support permanent wetland vegetation. Associated practices include: 390 Riparian Herbaceous Cover, 460 Land Clearing.

Before Situation:

Forested landscape has limited number of vernal pools. Surrounding lands have been developed resulting in a decrease number of sites for amphibian breeding. Lack of breeding has caused a decrease in amphibian populations.

After Situation:

A vernal pool with liner to create which provides additional cover/shelter for breeding amphibians. The amphibian population will increase in the area of the vernal pool.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 0.3

Scenario Total Cost: $26,194.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $104,777.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #47 - Beetle Bank

Scenario Description:

Beetle banks are berms planted in dense stands of native bunch grasses designed to provide shelter and overwintering habitat for beetles, spiders and other beneficial insects that attack crop pests and weeds. They are generally 3ft to 6ft in width, and positioned in the center of, or at regular intervals throughout, crop fields. Resource concerns include Undesirable Plant Productivity and health; Wildlife habitat degradation.

Before Situation:

The tilled crop fields lack sufficient overall habitat conditions to support viable populations of targeted species including beetles, spiders and beneficial insects. The distances from areas on the edges of the fields able to support these species are to

After Situation:

The installation of a beetle bank supports the habitat requirements of beetles, spiders, and other beneficial insects that attack crop pests in agricultural fields.

Feature Measure: Linear feet of bank across th

Scenario Unit: Linear Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $2,055.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #64 - Habitat Monitoring and Management, High Intensity and Complexity

Scenario Description:

This scenario is applied to all landuse types including those with wildlife as a modifier, where any resource concern is identified for wildlife, and where high intensity and complexity of monitoring or management will treat the identified resource concern. Two - four monitoring efforts are needed and each requiring less than 2 people and less than 8 hours per effort. The adaptive management actions (2 - 5 efforts) such as cutting of limbs that are impeding access of birds into nest boxes, replacing damaged fence markers, cleaning of nest structures and debris around other structures requires hand labor and light equipment, requiring a 2-person crew less than 1 day per effort.

Before Situation:

Wildlife habitat is deficient due to the absence of annual monitoring and adaptive management actions of high intensity and complexity.

After Situation:

Wildlife habitat is improved by implementation of annual adaptive management actions of high intensity and complexity.

Feature Measure: Monitoring efforts and adap

Scenario Unit: Acre

Scenario Typical Size: 80.0

Scenario Total Cost: $2,495.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $31.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #74 - Restoration of Coastal Reef – LARGE spat on Shell or Single Live Oysters

Scenario Description:

This scenario can be used for oyster restoration at sites where seeding with larger size live oyster is needed to stimulate the establishment of a self-sustaining oyster population. This could include sites that lack nearby oyster populations, which can supply free-floating oyster larvae to settle on newly established oyster reefs but that implementing a smaller size oyster will result in high mortality and thus justify a larger size oyster be used instead. At the time of deployment, the oysters to be deployed in this scenario will be 2 inches or larger for spat on shell. In addition, this scenario will be used for implementing restorations with single live oysters that are at least 3.5 inches in height. When using this scenario for single live oysters a minimum of 20,000 oysters will be deployed, otherwise the typical extent of 60 totes of spat on shell (approximated 180,000 spat on shell) will apply. The equivalency for singles is 1,200 single oyster = 1 Tote Payment. Planners must use this equivalency as the data entry unit in the plan. Meaning to get one tote payment, 1,200 singles must be deployed. Important, all oysters used for reef creation must be diploids. The addition of larger spat on shell oysters or single live oysters serves to overcome the existing lack of natural reproduction and promotes continued oyster reef formation and increase habitat diversity as these oysters mature The following factors must be considered for your site: 1) Suitable Recruitment - If the site has sufficient larval supply, but is “habitat” limited, planners must instead use scenario number #8 (Restoration of Coastal Reef - Shell Only). 2) Sites with Suitable Substrate – For sites with suitable substrate, this scenario can be used alone to either re-seed existing habitat or build new reefs. In the case of the single live oysters, these oysters can be deployed in suitable substrate with or without an existing oyster reef. 3) Sites without both suitable substrate and recruitment - For sites without both suitable substrate and recruitment planners must combine this with scenario #8 (Restoration of Coastal Reef - Shell Only). The deployment of shell material is needed to establish a suitable substrate before deployment of live oysters (or else the fate of these oysters is likely burial in sediments). In this case without existing substrate, should only be used to create new reefs, and it must be paired with scenario number 8. 4) Predation or other conditions - If the site has been determined to NOT have a high predation or other conditions which justify LARGER oysters for reef creation, planers must use scenario number #7 Restoration of Coastal reef – Spat on Shell Only instead. The typical scenario includes seeding 1/4 of a 0.1 acre plot. To accomplish this, laborers will bag clean shell and transport those to the aquaculture facility. In the facility, eyed-larvae are added to the tanks for a setting density of 1 million spat over the 300 bags. After 7-10 days in the tanks, oyster larvae settle onto the shells, creating seed-on-shell. The bags are then transported to oyster farms to be grown for approximately June to June months (estimated 40 weeks of growth (until they are approximately 2 in in height or higher) prior to the deployment on the restoration sites. The oysters are placed on newly created, existing oyster reefs or suitable substrate. Each deployment will contain 180,000 seed-on-shell oysters covering approximately 1,100 sq ft. In addition, this scenario will be used for implementing restorations with single live oysters that are at least 3.5 inches in height. When using this scenario for single live oysters a minimum of 20,000 oysters will be deployed, otherwise the typical extent of 60 totes of spat on shell (approximated 180,000 spat on shell) will apply. The equivalency for singles is 1,200 single oyster = 1 Tote Payment. Planners must use this equivalency as the data entry unit in the plan. Meaning to get one tote payment, 1,200 singles must be deployed. So, if the minimum condition is 20,000/1,200=17 totes planned for deployment. Associated practices standards to this scenario include 643 - Restoration of Rare or Declining Natural Communities and 472 Access Control. Associated Scenarios are #8 (Restoration of Coastal Reef - Shell Only, (CODE 643), #18 Reef monitoring year 1(CODE 643), #19 Reef monitoring year 2(CODE 643), #14 Reef monitoring year 3 (CODE 643) AND #4 Navigation Delineation (CODE 472).

Before Situation:

Coastal estuaries and coastal ponds lack beneficial oyster populations. A combination of pollution, overharvesting, weather events, and disease have reduced oyster populations to a small fraction of their historical population size. As a result, the oyste

After Situation:

The biological and structural components of the oyster reefs are restored or enhanced with larger size spat on shell oysters or larger single live oysters. These oyster populations are self-sustaining and continue to re-seed the reef and can supply larvae to surrounding oyster populations. Oysters that settle on these restored reefs provide increased water quality and light penetration in coastal estuaries and coastal ponds, due to their expanded ability to filter feed on algae and sequester excess nutrients from the water. Wildlife habitat is improved, providing additional food and cover for native wildlife, including fish, crabs, worms, and waterfowl.

Feature Measure: Per Tote

Scenario Unit: Each

Scenario Typical Size: 60.0

Scenario Total Cost: $72,860.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,214.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #77 - Very small acres planting with seedlings or plugs

Scenario Description:

A resource concern has identified the need to re-establish, by planting of live plants (seedlings or plugs) to restore the site to the natural rare or declining plant community or community of local cultural importance. This practice scenario applies to areas not recently in crop production, including fallow cropland currently supporting native or non-native vegetation needing control prior to planting. The restoration effort will consist of planting a rich and diverse mix of species native to the area and representative of the historic plant community. Light site preparation will occur prior to planting via herbicide burndown followed by burning, mowing or disking. If the plant community supported difficult to control species; those species were treated previous to the planting via the implementation of CPS Brush Management (Code 314) and/or Herbaceous Weed Control (Code 315).

Before Situation:

The site supports a common plant community (not rare or declining) in the region and does not require aggressive techniques for control and the site is suitable for the implementation of Restoration on Rare or Declining Habitats (CPS Code 643).

After Situation:

Desired species have been established by planting seedlings or plugs, restoring the identified rare and declining community, or community of local cultural importance.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3,943.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,943.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #78 - High Species Richness on Fallow or Non-Cropland, no FI

Scenario Description:

A resource concern has identified the need to re-establish, by planting of seed, a rare or declining plant community or community of local cultural importance. This practice scenario applies to areas not recently in crop production, including fallow cropland currently supporting native or non-native vegetation needing control prior to planting. The restoration effort will consist of planting a rich and diverse mix of species native to the area and representative of the historic plant community. Seed for the desired species are not of limited supply (e.g. local genotypes), difficult to produce, or excessively difficult to harvest. Light site preparation will occur prior to planting via herbicide burndown, burning, mowing or disking. If the plant community supported difficult to control species; those species were treated previous to the planting via the implementation of CPS Brush Management (Code 314) and/or Herbaceous Weed Control (Code 315).

Before Situation:

The site supports a common plant community (not rare or declining) in the region and does not require aggressive techniques for control, making the site suitable establishment of the identified rare or declining community or community of local cultural im

After Situation:

Desired species have been established, restoring the identified rare and declining community, or community of local cultural importance.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $6,980.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $698.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #105 - Specialized Species on Fallow or Non-Cropland, no FI

Scenario Description:

A resource concern has identified the need to re-establish, by planting of seed, a rare or declining plant community or community of local cultural importance. This practice scenario applies to areas not recently in crop production, including fallow cropland currently supporting native or non-native vegetation needing control prior to planting. The restoration effort will consist of planting a rich and diverse mix of species native to the area and representative of the historic plant community. Seed for the desired species are of limited supply (e.g. local genotypes), difficult to produce, or excessively difficult to harvest. Light site preparation will occur prior to planting via herbicide burndown, burning, mowing or disking. If the plant community supported difficult to control species; those species were treated previous to the planting via the implementation of CPS Brush Management (Code 314) and/or Herbaceous Weed Control (Code 315).

Before Situation:

The site supports a common plant community (not rare or declining) in the region and does not require aggressive techniques for control, making the site suitable establishment of the identified rare or declining community or community of local cultural im

After Situation:

Desired specialized species have been established, restoring the identified rare and declining community, or community of local cultural importance.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $14,397.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,439.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #114 - Beaver Dam Analogues or Post-Assisted Log Structures

Scenario Description:

This scenario includes installation of low-tech woody structures (Beaver Dam Analogues (BDAs) or Post-Assisted Log Structures (PALS)) to facilitate process-based restoration in perennial, intermittent, or ephemeral streams and riparian areas. These simple structures are low, semi-permeable, and hand-built using native materials (wood, sod, etc.). Untreated wooden fence posts are added where necessary for extra stability. Structures are designed to be short-lived and used primarily as a temporary tool to promote natural process recovery. Structures mimic the function of natural beaver dams and wood accumulation in streams by reducing water velocities, raising water tables, enhancing floodplain connectivity, and inducing other dynamic ecological and hydrogeomorphic processes. Typically, complexes consisting of multiple structures within a reach are used to meet project objectives. Structures can be used on all land uses to address a variety of resource concerns and are strategically placed to meet specific purposes, such as, mesic and wetland vegetation expansion, floodplain development in incised channels, increased habitat complexity for fish and wildlife, and beaver re-establishment. Associated practices include: 528, 391, 644, 612, 382. Typical scenario includes 20 structures averaging 20 ft length each (total = 400 lin ft of structures). Crew of one biologist, one crew manager, and three laborers (one skilled).

Before Situation:

Degraded stream channel and associated riparian/mesic/wetland vegetation are impaired by lack of structural complexity, channel incision, reduced floodplain connectivity, or inadequate habitat features. Extent of potential riparian/mesic/wetland vegetatio

After Situation:

Low-tech structures mimic and promote ecological and physical processes that foster recovery of streams, riparian areas, wet meadows, or aquatic ecosystems. Channel complexity is increased and condition improved by promoting riparian/mesic/wetland vegetation expansion, reconnecting floodplains, and increasing habitat structure for fish and wildlife. Additional treatments may be needed through time until ecosystem is self-sustaining.

Feature Measure: Linear Feet

Scenario Unit: Linear Foot

Scenario Typical Size: 400.0

Scenario Total Cost: $20,276.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #125 - Oyster Bar Bag Dredging

Scenario Description:
Old oyster bars are buried in sediment. Restore oyster bar by bag-dredging. The restored oyster bar will provide substrate for oyster setting and habitat for fish and other aquatic organisms.

Before Situation:
Bay, estuary or tidal river bottom where conditions are appropriate for oyster growth and survival, but with insufficient shell is available on bottom for oyster production. The site has a significant source of buried shell that can be dredged to provide

After Situation:
One acre of oyster bar will be restored. The bar will consist of a minimum 2-inch thick shell will be uncovered. The restored oyster bar will support oyster growth and reproduction and provide habitat for many other aquatic species. The living oysters will remove significant quantities of nutrients and sediments, thereby enhancing water quality. These bars will be maintained by oyster farmers to ensure survival of the bar.

Feature Measure: Acres of bar restored

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $6,968.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6,968.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 644 - Wetland Wildlife Habitat Management

Scenario: #2 - Creation of Turtle Nesting Habitat

Scenario Description:

The creation of turtle nesting habitat through a combination of the following activities: clearing vegetation, stripping loam, and scarifying the soil.. Usually in Upland areas (suitable for turtle nesting habitat) that are adjacent to wetlands, rivers, lakes and streams. This provides benefits for Fish and Wildlife: Inadequate Space.

Before Situation:

Areas adjacent to wetland, rivers, lakes and streams do not have adequate turtle nesting habitat. Turtles have to travel excessive distances to find nesting sites. This situation can increase the mortality of the local population and impact the repopulati

After Situation:

Turtle nesting habits is created adjacent to wetland, rivers, lakes and streams. Turtles are less likely to be killed crossing roads and by predation. The typical size of the installed practice is 1.0 acres.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 0.5

Scenario Total Cost: $2,972.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,944.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 644 - Wetland Wildlife Habitat Management

Scenario: #51 - Establishment of seasonal wildlife forage or cover on non-cropland

Scenario Description:

The habitat assessment identifies the need to provide seasonal forage or cover for target wildlife species or guild. This habitat need will be met through the establishment of annual plants by planting of seed. The typical scenario will occur on areas supporting perineal herbaceous vegetation, not currently in cropland. Due to existing dense vegetation, these area will need to be mowed 2-3 weeks prior to disking (primarily disking), then followed by a light disking. Seed bed preparation will be furthered by firming the seed bed by cultipacking the site. Mixed fertilizer is required to establish planted wildlife forage. A seedmix consisting of annuals is typical for this activity.

Before Situation:

The existing habitat has an excess of herbaceous perineal habitat suitable for cover, but is lacking high quality forage seasonal forage, or the cover conditions is too thick and establishment of annuals create a diverse cover condition for the target wil

After Situation:

The availability of high-quality seasonal forage for the target wildlife species is provided and target wildlife health is improved, and populations are increased.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $1,910.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $191.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #1 - Mast/Apple Tree Release

Scenario Description:
Releasing individual Hardwood/Apple trees for mast, by reducing stocking and cutting undesirable competing species.

Before Situation:
Apple trees are being overtopped by other trees and plant productivity, health and vigor are negatively effected which limits flowering and fruit production. Food resources on the property are not meeting client's objectives for wildlife habitat. Healthy

After Situation:
Typical approach is to release individual trees from competition on 1 acre of land. Tools include chainsaw, brush saws, and bow saws. Trees competing with apple trees have been cut down so that there is sunlight on the apple tree for most of the day. The increase in sunlight will increase productivity, health and vigor of the apple tree stimulating future flowering and fruiting potential. Where larger trees are removed, there is also a flush of understory and forb/grass growth in the opening providing food and cover.

Feature Measure: Number of Trees Released

Scenario Unit: Each

Scenario Typical Size: 20.0

Scenario Total Cost: $582.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #2 - Snags

Scenario Description:
Create 8 snags by double girdling selected trees. Poor quality or deformed trees, such as those with broken tops or large branches, will be chosen for snags when available.

Before Situation:
Forest stands do not have a mix of dead wood among the growing trees. Cavity nesting birds and other wildlife species that use standing dead trees for shelter are declining in the vicinity due to insufficient cover.

After Situation:
8 snags per acre are created by double-girdling the selected trees in the stand. Snags provide habitat to innumerable organisms including fungi, insects and other invertebrates, and land animals such as amphibians, reptiles, birds, and mammals. Resource concerns for Wildlife-Insufficient nesting habitat is addressed.

Feature Measure: Number of snags

Scenario Unit: Each

Scenario Typical Size: 8.0

Scenario Total Cost: $116.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #4 - Grassland Bird Management

Scenario Description:

This scenario involves the monitoring and adaptive management related to a change in the mowing regime on productive hayland by ensuring an early hay cut in mid to late May followed by a delay in the second cut of 65 days. Transects are walked to observe ground nesting birds. Three transects will be run per 20 acres. Monitoring efforts (n=3) are conducted two weeks apart. Observation of nesting are documented on a job-sheet. Haying is delayed until no nest are observed during the monitoring efforts. A third cut is allowed. Research has shown that implementing this management on intensely managed hayfields will provide nearly the same productivity for grassland songbirds as a hayfield not mowed until August 1st. Facilitating practice include 315 Herbaceous Weed Control and 511 Forage Harvest Management. Resource concerns include Wildlife: food and cover.

Before Situation:

Typical setting for this practice is agricultural dominated landscapes with large fields. These agricultural landscapes, and other large grass areas such as airports or preserves, are often the most desirable areas for grassland birds in the Northeast. Br

After Situation:

Providing this 65 day period without cutting the field provides grassland birds with good nesting habitat to breed and successfully fledge young.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $2,156.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $107.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #324 - Downed Large Wood

Scenario Description:

Large tree is felled on the upland or riparian forest floor to provide cover, denning, thermal regulation, and/or forage sites for wildlife species such as small mammals, amphibians, and birds. Large wood is defined as a minimum tree diameter of 14 inches and 20 feet in length with some bark and limbs attached. Installation of downed trees deemed necessary following a Wildlife Habitat Evaluation score below planning criteria level. Primary resource concern is Inadequate Habitat for Fish or Wildlife-habitat degradation. This practice may be installed alone or in combination with facilitating practices. Facilitating practices may include 666 and 655.

Before Situation:

A habitat assessment (using State Office approved habitat assessment method, protocol or tool) has indicated a need for increased structural complexity in the forest understory to bring one or more habitat limiting factors under Inadequate Habitat for Fis

After Situation:

Installation of downed large wood brings the identified deficient habitat limiting factors up to planning criteria. The practice is installed using specialized labor with the use of common hand tools and small equipment.

Feature Measure: Large Wood

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,138.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,138.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #333 - Delayed Mowing on Hay Fields to Meet Life History Requirements

Scenario Description:

This scenario is applied on currently well-maintained hay fields (cropland) to protect field-nesting birds and other wildlife from mowing equipment and subsequent loss of cover. Maintained hay fields contain high quality forage grasses including orchard grass, timothy, and fescue. Some hay fields may also contain legumes, such as alfalfa or clover. Hay fields are mowed using a sickle bar or disc mower. When hay fields are mowed during critical seasons (e.g. primary nesting season), wildlife (e.g. birds, bees, and turtles) can be injured from mowing equipment or nests are exposed to predation. A wildlife habitat evaluation (WHEG) indicates that the timing and/or method of mowing is detrimental to the habitat for target species. This practice scenario involves delaying mowing to avoid those critical seasons. Examples include (1) delayed mowing until August 1 or (2) in suitable areas a 65-day delayed second cut following a first cut that occurs before the primary nesting season. When mowing is delayed the nutritional content and digestibility of forage is significantly reduced and often the crop loses most value as livestock feed resulting in a loss of income for the agricultural producer. Over time, this management strategy will degrade agricultural crop (hay) value of the plant community mildly to significantly. However, it will provide valuable food and cover for wildlife.

Before Situation:

The site is a productive hay field dominated by cool or warm season forage grasses. The producer receives income from harvesting and selling quality hay. Wildlife (e.g. birds, bees, and turtles) are injured or killed during mowing operations and cover hab

After Situation:

A wildlife habitat evaluation (WHEG) indicates that habitat degradation is addressed by the altered timing and method of harvest. Wildlife injury is reduced, and suitable cover is maintained because mowing operations are delayed. The hay field vegetative species composition transforms resulting in a greater variety of species. This change creates more structural diversity and provides valuable cover and forage for wildlife. The delay in mowing operations results in a loss of forage production quantity and quality as the field transitions towards more perennial broad leaf plants that are less valuable for hay production. The agricultural producer incurs a loss in income due to the delayed harvest beyond what is optimum for the forage.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $2,119.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $211.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #335 - Interseeding Milkweed Into Existing Habitat

Scenario Description:

Inter-seeding milkweed into an existing stand of vegetation that has sufficient nectar plant richness and distribution, but lacks reproductive habitat (milkweed is lacking). Existing vegetation will be treated with herbicides in strips. Entire area will be burned or mowed prior to application of herbicides to 6-10 foot wide strips. Drilling of milkweed will be in the treated (herbicide strips). Seeding in strips will be 25% of the field.

Before Situation:

An open field that may support enough forb species richness, abundance and distribution to provide good or excellent monarch nectaring habitat, but milkweed is lacking. These conditions fail to meet the limiting factor for monarchs as required to meet Upl

After Situation:

The open field supports good or excellent monarch reproductive habitat. Application of the Monarch WHEG finds the habitat quality rating to be good or excellent.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $1,042.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $208.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #339 - Establishment of seasonal wildlife forage or cover on cropland, no FI

Scenario Description:

This typical scenario occurs on cropland. The habitat assessment identified the need to provide seasonal forage or cover for target wildlife species or guild. This habitat need will be met through the establishment of annual food plants or cover plants by planting of seed. The typical scenario for seasonal forage or cover will be established outside of crop season, thus FI is not needed. Seedbed preparation (light tillage) will be furthered by firming the seed bed by cultipacking the site. The only fertilizer need is N as this is cropland and P and K levels are sufficient. Cropland, so mobilization of equipment not needed.

Before Situation:

Cropland that fails to provided food or cover for target species at the proper location and season to meet the needs of wildlife.

After Situation:

The availability of high-quality seasonal forage or seasonal cover for the target wildlife species is provided. Target wildlife health is improved and populations are increased.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $1,910.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $191.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #340 - Establishment of seasonal forage or cover for wildlife on cropland, with FI

Scenario Description:

The habitat assessment identified the need to provide seasonal forage or cover for target wildlife species or guild. This habitat needs will be met through the establishment of annuals by planting of seed. The typical scenario is for cropland. Seed bed preparation is limited to one light disking, furthered by firming the seed bed by cultipacking the site. The only fertilizer need is N as this is cropland and P and K levels are sufficient. These wildlife forages or seasonal cover will be available for wildlife during the cropping season, and are in lieu of the cash crops typically planted on the field. Thus, income from the cash crop will be foregone for a year.

Before Situation:

Cropland does not provide forage or cover needed for wildlife during the season on dearth.

After Situation:

Annual wildlife forages are planted in lieu of a cash crop. Target wildlife health is improved and populations are increased.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $5,686.82

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $568.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #341 - Establishment of seasonal forage or cover for wildlife on non-cropland.

Scenario Description:

The habitat assessment identifies the need to provide seasonal forage or cover for target wildlife species or guild. This habitat need will be met through the establishment of annual plants by planting of seed. The typical scenario is that this activity will occur on herbaceous areas, not currently in cropland. Due to existing dense vegetation, these area will need to be mowed 2-3 weeks prior to disking (primarily disking), then followed by a light disking. Seed bed preparation will be furthered by firming the seed bed by cultipacking the site. Mixed fertilizer is required to establish planted wildlife seasonal forage or seasonal cover..

Before Situation:

The existing habitat has an excess of herbaceous perineal habitat, but is lacking high-quality seasonal forage, or the existing cover is too dense and cover conditions found in annual plant communities are absent.

After Situation:

The availability of high-quality seasonal forage, or cover condition common in annual plant communities is provided and target wildlife health and populations are increased.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $3,809.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $381.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #366 - Turbo Fladry Carnivore Deterrent Fence - Year One

Scenario Description:

Year 1 - Install and take down a deterrent fence using turbo fladry to remove potential habitat sinks for large, widely ranging, at-risk (threatened, endangered or sensitive) carnivore species (primarily wolves) during times of day or periods of the year when young livestock are vulnerable to predators and cannot be supervised by human activity. Typically, turbo fladry will be employed to address small scale attractants.. Turbo fladry is highly effective for up to 75 days at which point wolves become habituated to its presence. If used correctly turbo fladry fence can be reinstalled for similar short periods of time in subsequent years. It will not be used in open range situations. Resource Concern addressed is Inadequate Terrestrial Wildlife Habitat. Notes: Prior to contracting this scenario all required coordination with the cognizant State Fish and Game Agency, U.S. Fish and Wildlife Service and / or APHIS must have been completed. (Year One provides for materials, equipment installation , labor and the mobilization costs needed to install and take down turbo fladry deterrent fence.)

Before Situation:

Anthropogenic attractants associated with livestock operations cause large carnivores (primarily wolves) to seek food sources in areas such as farm and ranch facilities, residences, and headquarters that result in conflicts (e.g. wolf-livestock). The heal

After Situation:

A predator deterrent fence dissuades large carnivores (primarily wolves) from seeking localized anthropogenic attractants on farm and ranch facilities reducing conflict. With hazards to wildlife removed and farm and ranching operations protected, large predators persist on the landscape allowing them to move unimpeded throughout their range.

Feature Measure: Length of Fence

Scenario Unit: Linear Foot

Scenario Typical Size: 5,280.0

Scenario Total Cost: $9,413.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 645 - Upland Wildlife Habitat Management

Scenario: #367 - Turbo Fladry Carnivore Deterrent Fence - Years Two Through Five

Scenario Description:

Years 2- 5 - Re-install and take down a deterrent fence using turbo fladry to remove potential habitat sinks for large, widely ranging, at-risk (threatened, endangered or sensitive) carnivore species (primarily wolves) during times of day or periods of the year when young livestock are vulnerable to predators and cannot be supervised by human activity. Typically, turbo fladry will be employed to address small scale attractants. Turbo fladry is highly effective for up to 75 days at which point wolves become habituated to its presence. If used correctly turbo fladry fence can be reinstalled for similar short periods of time in subsequent years. It will not be used in open range situations. Resource Concern addressed is Inadequate Terrestrial Wildlife Habitat. Notes: Prior to contracting this scenario all required coordination with the cognizant State Fish and Game Agency, U.S. Fish and Wildlife Service and / or APHIS must have been completed. (Years Two through Five provide for equipment installation, labor and the mobilization costs needed to re-install and take down turbo fladry deterrent fence.)

Before Situation:

Anthropogenic attractants associated with livestock operations cause large carnivores (primarily wolves) to seek food sources in areas such as farm and ranch facilities, residences, and headquarters that result in conflicts (e.g. wolf-livestock). The heal

After Situation:

A predator deterrent fence dissuades large carnivores (wolves) from seeking localized anthropogenic attractants on farm and ranch facilities reducing conflict. With hazards to wildlife removed and farm and ranching operations protected, large predators persist on the landscape allowing them to move unimpeded throughout their range.

Feature Measure: Length of Fence

Scenario Unit: Linear Foot

Scenario Typical Size: 5,280.0

Scenario Total Cost: $2,924.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 646 - Shallow Water Development and Management

Scenario: #3 - Shallow Water Management

Scenario Description:

This scenario addresses inadequate habitat for fish and wildlife on cropland. The resource concern is addressed by providing shallow water habitat for wildlife such as shorebirds, waterfowl, wading birds, mammals, fish, reptiles, amphibians, and other species that require shallow water for at least part of their life cycle. Sites are flooded up to a depth of 18" with an average depth of 9". Water is provided by natural flooding and/or precipitation.

Before Situation:

There is inadequate habitat to provide optimum resting, nesting, and feeding habitat for waterfowl, shorebirds, and other wildlife (amphibians, reptiles, mammals, invertebrates, etc.).

After Situation:

A single or series of shallow water areas that are managed per standard and specification. Water levels are regulated to maintain temporary wildlife habitat. Timing and duration of flooding and de-watering is dependent on specific species requirements. Water is pumped into area to be flooded. Flooded sites vary from mudflats to water depths of 18" with an average depth of 9". The hydrologic conditions of ponding and saturation (frequency, depth, duration, timing) provides optimum seasonal habitat for waterfowl, shorebirds, and other wildlife (amphibians, reptiles, mammals, invertebrates, etc.). If needed and dikes or water control structures are not currently present on the fields planned to be flooded, these practices may be planned for the same fields and cost shared under Structure for Water Control (587) and Dike (356). If a natural water source (i.e. precipitation or flooding) is not available, Pumping Plant (533) may be cost shared to provide a water source. Depending on local conditions, other Conservation Practices may also be required.

Feature Measure: Acre of shallow water

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $150.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $150.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 647 - Early Successional Habitat Development-Mgt

Scenario: #1 - Mowing

Scenario Description:

This scenario address inadequate habitat for fish and wildlife where setting back succession by mowing incoming woody species will improve habitat for the target species. Mowing can be used to increase structural diversity by creating areas of shorter vegetation preferred by some species or certain life stages of species. The typical setting for this scenario is woodlands and shrublands at the edge of crop fields, in pastures, hayland, at the edge of woodlands or brushy areas, and in odd areas such as pivot corners. Where chemical control of weeds, including invasives, is required to reduce competition for the desired plant community conservation practice 315 herbaceous weed control should be used. Where the seedbank is inadequate for natural regeneration and seeding is required use conservation practice 327 Conservation Cover.

Before Situation:

The site is static or trending to later successional plant community. The disturbance regime to maintain an earlier successional plant community is lacking. Pastures are often monotypic, lacking in diversity. Competition for sunlight from dense grass stan

After Situation:

Early successional habitat maintained. Mowing has provided more sun light for forb establishment. The heterogeneity of the habitat structure has been increased.

Feature Measure: width and length of treated

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $695.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $139.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 647 - Early Successional Habitat Development-Mgt

Scenario: #2 - Light Brush hogging

Scenario Description:

This scenario address inadequate habitat for wildlife where setting back succession by mowing incoming woody species will improve habitat for the target species. Brush hogging can be used to increase structural diversity by creating areas of shorter vegetation while maintaining brushy beneficial areas preferred by some species or certain life stages of species. The typical setting for this scenario is old fields.

Before Situation:

Describe the setting where the practice will be installed. The site is lacking vertical and horizontal diversity and trending to later successional plant community. The disturbance regime to maintain an earlier successional plant community is lacking or i

After Situation:

The field has been improved through better timed and implemented management to create a vertically and horizontally diverse habitat for species of concern providing necessary cover and nesting/rearing habitat.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $868.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $173.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 647 - Early Successional Habitat Development-Mgt

Scenario: #3 - Hand Cutting with Chainsaw

Scenario Description:
Using a brush saw and/or chainsaw to clear woody vegetation on pasture or wildlife openings that is 1 to 3" or less in diameter on ground with poor access and/or that is too steep or rocky for rotary mowing. Typical rate 1 acre per day.

Before Situation:
The site is static or trending to later successional plant community. The disturbance regime to maintain an earlier successional plant community is lacking. Area lacks diversity in the height of vegetation. Early successional wildlife are leaving the area

After Situation:
Early successional habitat maintained. Clearing has provided more light for early successional vegetation reestablishment. The heterogeneity of the habitat structure has been increased. The early successional wildlife are returning.

Feature Measure: width and length of treated

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $2,599.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,299.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 647 - Early Successional Habitat Development-Mgt

Scenario: #5 - Light Mechanical

Scenario Description:
Practice to be used in old fields and forests where size class is 2 inches DBH or less. Control is achieved with a brontosaurus, Davco mower, gyrotrac or other mechanical means.

Before Situation:
Area is reverting to forest from early successional. Mechanical treatment is needed to control woody vegetation. Wildlife needing early successional habitat is leaving the area.

After Situation:
Appropriate habitat is restored and wildlife needing early successional habitat is able to return.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $11,252.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $562.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 647 - Early Successional Habitat Development-Mgt

Scenario: #6 - Medium Mechanical

Scenario Description:
Practice to be used in old fields and forests where size class is between 2 inches and 4 inches DBH. Control is achieved with a brontosaurus, Davco mower, gyrotrac or other mechanical means and takes more time per acre.

Before Situation:
Area is reverting to pole sized forest from early successional. Mechanical treatment is needed to control woody vegetation. Wildlife needing early successional habitat is leaving the area.

After Situation:
Appropriate habitat is restored and wildlife needing early successional habitat is able to return. For New England Cottontail projects - Sufficient amounts of course and fine woody debris will be left behind as protection for wildlife and regeneration.

Feature Measure: acre of treatment

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $10,257.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,025.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 647 - Early Successional Habitat Development-Mgt

Scenario: #7 - Heavy Mechanical low intensity cut (Lg Patch Cut)

Scenario Description:

The implementation of early successional habitat in a moderately to heavily forested area consisting of trees with an average stand DBH of less than 6 inches. The size and density of vegetation to be removed requires mechanized forestry equipment such as a log skidder, feller buncher, forwarder, etc. Multiple pieces of equipment may be needed to complete the practice. The boundary of the cut, as well as any trees to be retained within the project area are to be marked in the field. Implementation is done in accordance with a site specific cutting plan developed by a licensed forester. The existing standing timber typically has adequate acceptable growing stock, as identified in the site specific management plan. Stand and site conditions allow for typical operation of equipment.

Before Situation:

Area is completely forested. Mechanical treatment is needed to control woody vegetation. Wildlife needing early successional habitat has left the area.

After Situation:

Appropriate habitat is restored and wildlife needing early successional habitat is able to return. For New England Cottontail projects - Sufficient amounts of course and fine woody debris will be left behind as protection for wildlife and regeneration.

Feature Measure: area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $12,113.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,211.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 647 - Early Successional Habitat Development-Mgt

Scenario: #8 - Heavy Mechanical High intensity cut

Scenario Description:

The implementation of early successional habitat in a moderately to heavily forested area consisting of trees with an average stand DBH of 6 inches or greater. The size and density of vegetation to be removed requires mechanized forestry equipment such as a log skidder, feller buncher, forwarder, etc. Multiple pieces of equipment may be needed to complete the practice. The boundary of the cut, as well as any trees to be retained in the cut are to be marked in the field. Implementation is done in accordance with a site specific cutting plan developed by a licensed forester. The existing forest stands typically have minimal acceptable growing stock, as identified in the site specific management plan. Stand or site conditions will reduce operating efficiency resulting in increased cost

Before Situation:

Area is completely forested. Mechanical treatment is needed to control woody vegetation. Wildlife needing early successional habitat has left the area.

After Situation:

Appropriate habitat is restored and wildlife needing early successional habitat is able to return. For New England Cottontail projects - Sufficient amounts of course and fine woody debris will be left behind as protection for wildlife and regeneration.

Feature Measure: area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $20,899.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,089.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #1 - Nesting Box, Small no pole

Scenario Description:
A structure is provided to support the nesting and rearing of smaller targeted species, such as bees and small birds, and is directly mounted to a tree, building or other structure. Addresses resource concern for wildlife of inadequate cover/shelter

Before Situation:
The area lacks sufficient nesting habitat sites (natural cavities). A suitable location to mount the box is available.

After Situation:
The installation of nesting and rearing boxes support the life-cycle needs of targeted species, such as small birds. These structures/features enhance habitat, cover, and improve species survivability.

Feature Measure: Number of structures

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $51.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $51.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #2 - Nesting Box, Small, with wood pole

Scenario Description:

Constructing a small nest box and mounting on a pole. A structure is provided to support the nesting and rearing of targeted species, such as blue birds. Trees, buildings or other structures are not available. These structures are designed to meet targeted species biology and life history needs. Addresses Resource Concern: Inadequate Cover/Shelter.

Before Situation:

This area lacked sufficient nesting sites to support viable populations of targeted species. Location and conditions suggest that predator guards are not needed.

After Situation:

The installation nesting and rearing boxes support the life-cycle needs of targeted species, such as blue birds. Location and conditions suggest that predator guards are not needed. These structures/features enhance habitat, cover, and improve species survivability.

Feature Measure: Number of structures with p

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $86.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $86.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #3 - Nesting Box, Large

Scenario Description:

A structure is provided to support the nesting and rearing of larger targeted species such as waterfowl or owls. The box is directly mounted to a tree, building or other structure. These structures are designed to meet targeted species biology and life history needs. Addresses Resource Concern: Inadequate Cover/Shelter.

Before Situation:

The area lacks sufficient overall habitat conditions to support viable populations of targeted species. A suitable location to mount the box is available. Predator guards not needed.

After Situation:

The installation of nesting and rearing boxes support the life-cycle needs of targeted species, such as birds, bats and pollinators. Because of suitable location and conditions the nesting box can be directly mounted such as on a tree or building, thereby eliminating the need for mounting poles and predator guards. Species such as cavity dwelling birds and pollinators use this approach, but this treatment is not limited to those species. These structures/features enhance habitat, cover, and improve species survivability.

Feature Measure: Number of structures.

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $129.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $129.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #4 - Nesting Box or Raptor Perch, Large, with Pole

Scenario Description:

Constructing a nest box or rapture perch on a steel pole with a predator guard where needed. A structure is provided to support the nesting and rearing of larger targeted species such as wood ducks, bats, barn owls or to provide needed perches or nesting structures for raptures. Addresses Resource Concern: Inadequate Cover/Shelter.

Before Situation:

The area lacks sufficient overall nesting sites to support viable populations of targeted species. Predator guards provide needed protection of target species during nesting and rearing.

After Situation:

The installation of pole mounted nesting and rearing boxes support the life-cycle needs of targeted species, such as bats and waterfowl.

Feature Measure: Number of structures

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $528.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $528.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #5 - Brush Pile - Large

Scenario Description:
Downed tree structures are created to provide shrubby/woody escape cover for wildlife. Existing sod will be killed prior to placement of tree structures. Felling of select trees and placement in selected locations to provide wildlife cover. Typical scenario of 30' x 50' area for structure covered by interlocking limbs of trees at least 12" in diameter.

Before Situation:
The existing habitat lacks escape, ground nesting and safe loafing cover.

After Situation:
Large brush piles provide needed escape, ground nesting and safe loafing cover for targeted wildlife species.

Feature Measure: brush piles

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $195.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $195.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #6 - Bat House - Large, Single Chamber

Scenario Description:

A single chamber large bat house (preferably built to Bat Conservation International's design standards) to support the roosting and rearing of approximately 50 colonial roosting bats and is directly mounted to a tree, building or other structure. Typically boxes are placed 12 to 15 feet from the ground with a south or southeast aspect and within 1/4 mile of water. Addresses resource concern for wildlife of inadequate cover/shelter.

Before Situation:

The area lacks sufficient summer roosting habitat (snags, cavity trees, trees with cracks or exfoliating bark) for bats, and a suitable location to mount the box is available.

After Situation:

The installation of such structures supports the life-cycle needs of many bat species. These structures/features enhance habitat, cover, and improve species survivability.

Feature Measure: Number of structures

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $183.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $183.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #7 - 3-Chamber Bat House

Scenario Description:

A 3-chamber bat house (preferably built to Bat Conservation International's design standards) to support the roosting and rearing of approximately 200 colonial roosting bats and is directly mounted to a tree, building or other structure. Typically boxes are placed 12 to 15 feet from the ground with a south or southeast aspect and within 1/4 mile of water. Addresses resource concern for wildlife of inadequate cover/shelter.

Before Situation:

The area lacks sufficient summer roosting habitat (snags, cavity trees, trees with cracks or exfoliating bark) for bats, and a suitable location to mount the box is available.

After Situation:

The installation of such structures supports the life-cycle needs of many bat species. These structures/features enhance habitat, cover, and improve species survivability.

Feature Measure: Number of Structures

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $280.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $280.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #8 - Osprey/Eagle Nesting Platform

Scenario Description:

A structure is provided to support the nesting and rearing of targeted species such as Ospreys found nesting in coastal areas. These structures are designed to meet targeted species biology and life history needs.

Before Situation:

These structures are targeted for areas that lack sufficient nesting sites to support viable populations of targeted species that nest along coastal estuaries and large water bodies or utilize nesting site such as poles that support high voltage lines tha

After Situation:

The installation of pole and nesting platform supports the life-cycle needs of targeted species, such as Ospreys and other types of raptors that nest along coastal estuaries and large water bodies. These structures/features enhance habitat, cover, and reduce predation. .

Feature Measure: <Unknown>

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $1,150.85

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,150.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #28 - Brush Pile - Small

Scenario Description:
Small brush piles are created to provide shrubby/woody escape cover for wildlife. Pushing or cutting of select small trees and placement in selected locations to provide wildlife cover. Typical scenario of 10' x 20' area for structure covered by interlocking limbs of trees less than 12 inches in diameter.

Before Situation:
The existing habitat lacks escape, ground nesting and safe loafing cover.

After Situation:
Small brush piles provide needed escape, ground nesting and safe loafing cover for targeted wildlife species.

Feature Measure: brush piles

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $44.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $44.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 649 - Structures for Wildlife

Scenario: #46 - Nest box, small, with wood pole and guard

Scenario Description:

Constructing a nest box and mounting on a pole. A structure is provided to support the nesting and rearing of targeted species, such as pollinators and birds. Trees, buildings or other structures are not available. These structures are designed to meet targeted species biology and life history needs. Addresses Resource Concern: Inadequate Cover/Shelter.

Before Situation:

This area lacked sufficient nesting sites to support viable populations of targeted species. Location and conditions suggest that predator guards are needed to prevent access by racoons or snakes.

After Situation:

The installation nesting and rearing boxes support the life-cycle needs of targeted species, such as blue birds and waterfowl. Location and conditions suggest that predator guards are needed. These structures/features enhance habitat, cover, and improve species survivability.

Feature Measure: Number of structures with p

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $143.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $143.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 654 - Road/Trail/Landing Closure and Treatment

Scenario: #1 - Road/Trail Abandonment/Rehabilitation (Light)

Scenario Description:

Reshaping a 12' wide trail to natural conditions. This scenario includes using light equipment such as a backhoe for the installation of water control devices such as water bars, rolling dips, controlling access, use of woody residue and pulling drainages on 500 feet of road on 35% hill slopes and a moderate grade. Cool season Native grasses are re-established by seeding. Some light hand work may be needed to clear site for the equipment. This practice addresses one or more resource concerns: Excessive sediment in surface waters, Habitat degradation, and Concentrated flow erosion. Since not all segments of the road/trail system may require this level of treatment, this scenario applies only to those segments that are causing the resource concerns.

Before Situation:

The legacy trail/roads are severely affecting wetland/riparian areas, slope stability, and water quality. The trail/roads can no longer serve it's intended use and is incapable of handling needed equipment and traffic. Alternative access is possible. Ther

After Situation:

The resource concerns are addressed by the abandonment of the road and its drainage elements, and by re-seeding to native grasses.

Feature Measure: length

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $2,215.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 654 - Road/Trail/Landing Closure and Treatment

Scenario: #2 - Road/Trail/Landing Closure and Treatment, <35% hillslope

Scenario Description:

The practice includes permanent road/trail/landing closure, treatment, or removal and to hydrologically reconnect the hillslope to applicable drainage networks. The treatment will prohibit future access. The typical scenario includes decommissioning a 500 ft of an 18-foot wide trail/road with a landing on 30% forest slopes, using heavy equipment such as a bulldozer or similar equipment (excavator or road grader with ripper) to re-shape and obliterate the road base and landings in order to re-establish native cool season vegetation. It also includes restoring hydrology with the removal of culverts and drainage fills. Necessary erosion control measures such as water bars are installed. Some hand-work may be necessary to clear the site for the equipment. The work will be supervised by a consultant forester, land manager, or other resource professional. Tree/Shrub Site Prep is not included, however, Tree/Shrub Planting is recommended. When completed, there is no additional maintenance with heavy equipment needed. This practice addresses one or more resource concerns: Excessive sediment in surface waters and Concentrated flow erosion. Since not all segments of the road/trail system may require this level of treatment, this scenario applies only to those segments that are causing the resource concerns.

Before Situation:

The legacy trail/road is severely affecting wetlands, riparian areas, slope stability, water quality and possibly T&E species. The trail/road can no longer serve it's intended use and is incapable of handling needed equipment and traffic. Alternative acce

After Situation:

The resource concerns are addressed by the abandonment of the road and its drainage elements, and by re-seeding to native grasses.

Feature Measure: length

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $4,591.54

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 654 - Road/Trail/Landing Closure and Treatment

Scenario: #3 - Road/Trail/Landing Closure and Treatment, >35% hillslope

Scenario Description:

The practice includes permanent road/trail/landing closure and treatment, and the hydrologically reconnection of the hillslope to applicable drainage networks. The treatment will limit future access. The typical scenario includes decommissioning a 24-foot wide, earthen road with landings on forest slopes over 35%, using a bulldozer or other heavy equipment such as an excavator or road grader with ripper to re-shape and obliterate the road base and landings in order to re-establish native vegetation. It also includes restoring hydrology with the removal of culverts and drainage fills. Necessary erosion control measures such as water bars are installed. The steep slopes makes this scenario costly due to the increased time needed to apply the measures and the need for additional water control devices. Some hand-work may be necessary to clear the site for the equipment. The work will be supervised by a consultant forester, land manager, or other resource professional. Tree/Shrub Site Prep is not included. However, Tree/Shrub Planting is recommended. When completed, there is no additional maintenance with heavy equipment needed. This practice addresses one or more resource concerns: Excessive sediment in surface waters and Concentrated flow erosion. Since not all segments of the road/trail system may require this level of treatment, this scenario applies only to those segments that are causing the resource concerns.

Before Situation:

The legacy trail/road is severely affecting wetlands, riparian areas, unstable slopes, water quality, and possibly T&E species. The trail/road can no longer serve it's intended use and is incapable of handling needed equipment and traffic. Alternative acc

After Situation:

The resource concerns are addressed by the abandonment of the road and its drainage elements, and by re-seeding to native grasses.

Feature Measure: length

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $7,078.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 654 - Road/Trail/Landing Closure and Treatment

Scenario: #4 - Road/Trail removal and restoration (Vegetative)

Scenario Description:

Minimal re-shaping to natural conditions using light equipment and the establishment of permanent vegetation. This scenario includes using smaller equipment (ag tractor/skidsteer/small dozer/backhoe/) for the installation of water control devices such as water bars and rolling dips, controlling access, and pulling drainages on 500 feet of 12' wide road on 5%-35% hill slopes and little grade. The site is re-vegetated to permanent improved grass and temporarily protected with a thin layer of hay mulch. Soil amendments are applied as per the FOTG guidance. This practice addresses one or more resource concerns: Excessive sediment in surface waters, Wildlife habitat degradation, and Concentrated flow erosion. Since not all segments of the road/trail system may require this level of treatment, this scenario applies only to those segments that are causing the resource concerns.

Before Situation:

Legacy trail/road is not necessary and is affecting wetlands, riparian areas, water quality, and possibly T&E species. The trail/road can no longer serve it's intended use and is incapable of handling needed equipment and traffic. Alternative access was p

After Situation:

The re-vegetated, eliminated road addressed the resource concern.

Feature Measure: length of landing/trail(s)

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $2,800.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #1 - Re-Route Sections

Scenario Description:

A professional forester, or qualified NRCS staff will layout a new trail location to re-route an existing trail. Problem sections of existing forest trails will be re-routed to avoid sensitive areas or to avoid continued use of problem steep sections with erosion. This scenario may also address fixing existing road sections that are severely eroding but that don't require the extensive work and gravel existing in other scenarios. This will primarily consist of earthwork. The resource concerns include but are not limited to soil erosion, water quality - sedimentation, and in some cases insufficient cover/shelter (when sensitive areas are avoided).

Before Situation:

Existing skid trails sections are located at low topographic areas running through wetlands, riparian areas or vernal pools damaging habitat for species of concern. Or, trail sections are located such that slopes are excessive and erosion is difficult to

After Situation:

Problem sections of existing forest trails will be relocated to minimize negative impacts and to reduce or eliminate soil erosion and sedimentation. New sections will avoid problem areas and tie in with existing skid trails through the forest. In some cases extra earthwork and equipment time will address erosion problems and not require re-routing the skid trail section. Typical length of application is 300 feet.

Feature Measure: Foot

Scenario Unit: Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $3,641.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #2 - Trail and Landing Installation

Scenario Description:

A professional/consulting forester, or qualified NRCS staff will layout a new trail location. Construction of forest trails and landings for the purpose of providing access to a gently sloping forested tract, Access will allow the application of other conservation practices, monitoring and the removal of forest products. It is not, however, to be used if the installation is done as part of a commercial operation such as timber harvesting. In such a case, the Scenario 1 should be used. Installation will include removal of trees and brush as needed, a minimum amount of blading and soil disturbance, and the installing of water control measures such as water bars, broad-based dips, wing ditches, etc. It will not include measures more common to access roads such as gravelling or ditching. Installation will be supervised by a consultant forester, land manager, or other resource professional. Resource concerns include Excessive sediment in surface waters, Sheet & rill erosion, and Concentrated flow erosion

Before Situation:

Access to the tract is not available for occasional travel by the landowner or manager for the purposes of monitoring, installing conservation practices and/or the removal of forest products. Improperly installed trails and landings will cause soil erosio

After Situation:

A trail system is installed that provides access to the forested tract and does not cause excessive erosion or water quality concerns.

Feature Measure: Length of trail treated

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $5,739.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #3 - Trail Erosion Control w/o Vegetation, Slopes < 35%

Scenario Description:

Rehabilitation of existing forest access trail segments on a 20% slope and a 4% grade by addressing legacy resource issues for long-term use. Typically the trail is a single lane (16-18-foot wide, including cut and fill), seasonal prism requiring sustained erosion control measures installed by using heavy equipment such as dozers, graders, backhoes, and/or excavators. The purpose is to hydrologically disconnect the existing trail/landing system from streams and natural drainages. This scenario includes designing and installing measures such as cross drains, rock drains, relief drains, out sloping (or changing surface drainage), rolling dips and water bars and ditch outs as needed, and applies to only those segments of the trail system that have resource concerns requiring rehabilitation. Some hand work (chainsaw) will be needed to allow the use of the equipment. Installation will be supervised. Other practices such as Stream Crossing, and Critical Area Planting, Access Road, and Structure for Water Control can be adjacent/appurtenant but not part of this practice scenario. Treatments are for long-term reduction of sediment, restoration of fish habitat, creation of fire access, and the removal of routes off unstable slopes. Resource concerns include: Excessive sedimentation in surface waters, Concentrated flow erosion, Sheet and rill erosion, and Degradation of wildlife species.

Before Situation:

Trails are delivering sediment to waterways, impacting riparian areas and wetlands and possibly affecting T&E species. The system's usefulness for access is also being compromised by inadequate erosion and drainage control systems. However rehabilitation

After Situation:

Trails and landings provide access and do not adversely affect the resources concerns.

Feature Measure: Length of trail treated

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $5,048.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #4 - Trail Erosion Control w/o Vegetation, Slopes >35%

Scenario Description:

Rehabilitation of existing forest trails and landings by addressing legacy resource issues such as gully erosion and sedimentation, for infrequent use. Typically the trail is a single lane, existing 10-12 foot wide skid trail on a steep (45%) slope on forestland requiring sustained erosion control measures applied by using heavy equipment such as dozers, backhoes, or excavators. The purpose is to hydrologically disconnect existing trail/landing system from the streams and natural drainages and reduce soil erosion. This includes the design and installation of drains, out sloping (or changing road surface drainage), water bars and ditch outs as needed This scenario applies to only those segments of the trail system that have resource concerns requiring rehabilitation. A typical water bar or rolling dip installed in this scenario is on a 30 foot spacing with a depth of about 2-3 foot (closeout style). Some hand work (chainsaw) will be needed to allow the use of the equipment. The work will be supervised. Other practices such as Stream Crossing, and Critical Area Planting, Access Road, Lined Waterway or Outlet and Structure for Water Control can be adjacent/appurtenant but not part of this practice scenario . Resource concerns include: Excessive sedimentation in surface waters, Concentrated flow erosion, Classic Gully erosion, and Degradation of wildlife species.

Before Situation:

Trails are delivering sediment to waterways, impacting riparian/wetlands and/or possibly affecting fish/T&E species. The usefulness of the trail/landing system is being adversely affected by erosion.

After Situation:

Trails and landings provide access and do not adversely affect the resources concerns. Erosion from the trail is controlled.

Feature Measure: Length of trail treated

Scenario Unit: Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $4,075.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #5 - Grading and Shaping with Vegetative Establishment

Scenario Description:

Rehabilitation of existing forest access trails and landings on a medium slope by addressing rutting, erosion, and sedimentation. Typically the trail is a single, existing 16 - 18-foot wide (including cut and fill) seasonal road prism on gently sloping terrain requiring sustained erosion control measures applied with heavy equipment such as dozers, graders, backhoes, and/or excavators. The purpose is to hydrologically disconnect the existing trail/landing system from streams and natural drainages and to establish a vegetative cover. This scenario includes designing and installation measures such as cross drains, rock drains, relief drainage, out sloping (or changing surface drainage), rolling dips and water bars and ditch outs as needed, and applies to only those segments of the trail system that have resource concerns requiring rehabilitation. The trail will be seeded down with an appropriate herbaceous seed mixture for the site. Some hand work will be needed to allow the use of the equipment. The work will be supervised. Other practices such as Stream Crossing, and Critical Area Planting. Access Road and Structure for Water Control can be adjacent/appurtenant but not part of the practice scenario. Treatments are for long-term reduction of sediment, restore fish habitat, create fire access and to move routes off unstable slopes. Resource concerns include: Excessive sediment in surface waters, Concentrated and Sheet & rill flow erosion, Soil compaction, and Habitat degradation.

Before Situation:

Trail/landings are delivering sediment to waterways, impacting riparian/wetlands and/or possibly affecting fish/T&E species. The usefulness of the trail/landing system is being adversely affected by erosion.

After Situation:

A trail system is installed that provides access to the forested tract and does not cause excessive erosion or water quality concerns.

Feature Measure: Length of trail treated

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $5,642.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #76 - Temporary Stream Crossing

Scenario Description:

The design and installation of a temporary stream crossing to address forest health and fish and wildlife habitat management and conservation needs. Improperly designed and/or installed stream crossings can have adverse effects on forest soils, water quality and aquatic wildlife. The temporary stream crossing will be restored and stabilized to natural conditions after use. Approaches to the stream crossing will also be stabilized and rehabilitated after use as necessary. Installation will be supervised by a professional forester, biologist or other qualified specialist. Permanent and/or high-traffic crossings will be designed and installed according to the Stream Crossing (578) Standard. Resource concerns include: Soil Erosion - Streambank, Shoreline, Water Conveyance Channels; Water Quality Degradation - Excessive sediment in surface waters; and, Fish and Wildlife - Inadequate Habitat - Water.

Before Situation:

Access to a forested tract is not available for the installation of conservation practices due to the lack of a suitable stream crossing(s), or, there is a likelihood that there will be traffic through the stream without the benefit of a designed and inst

After Situation:

Access was available for installing conservation practices, and the streambed, banks, and approaches have been restored to an initial or improved condition.

Feature Measure: Number of crossings

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $2,560.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,560.57

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #77 - Temporary Landing, Sensitive Site

Scenario Description:

The design and installation of a temporary landing/turnaround location on sensitive sites using construction mats that protect resource concerns and meet short-term forest health management and conservation needs. Improperly designed and/or installed landings have adverse effects on water quality and aquatic life. After use, the mats will be removed and the landing area will be restored and stabilized. Use NRCS Conservation Practice Standard (CPS) 654, Road/Trail/Landing Closure and Treatment if surface reshaping or water control is needed; use CPS 342, Critical Area Planting, if only tillage and revegetation is needed. Mat installation and removal will be supervised. Resource concerns include: Soil Erosion - Concentrated flow erosion, Ephemeral gully erosion, and Classic gully erosion; and, Water Quality - Excessive sediment in surface waters.

Before Situation:

Appropriate landing areas in a forested tract are not available for the installation of conservation practices due to sensitivity of the site. There is a likelihood that inappropriate areas will be used without the benefit of a designed and installed land

After Situation:

Conservation practices were installed using a construction mat to stabilize a temporary landing area. Resource damage was avoided, and the landing area has been restored to its previous or better condition.

Feature Measure: Area of landing

Scenario Unit: Square Foot

Scenario Typical Size: 8,400.0

Scenario Total Cost: $28,848.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #78 - Temporary Stream Crossing, Sensitive Site

Scenario Description:

The design and installation of a temporary stream crossing on a sensitive site using a wooden construction mat that protects resource concerns. Improperly designed and/or installed stream crossings can have adverse effects on forest soils, water quality and aquatic wildlife. The temporary stream crossing provides access to a forest stand to address forest health, fish and wildlife habitat management, and other conservation needs. The temporary stream crossing and mat are removed when the conservation activity is complete, and the stream crossing and approaches are restored and stabilized to natural conditions. Installation is supervised by a professional forester, biologist, or other qualified specialist. Permanent and/or high-traffic stream crossings must be designed and installed according to the Stream Crossing (578) Standard. Resource concerns include: Soil Erosion - Concentrated flow erosion, Ephemeral gully erosion, and Classic gully erosion; Fish and Wildlife - Inadequate Habitat - Water; and, Water Quality - Excessive sediment in surface waters.

Before Situation:

A forested tract on a sensitive site cannot be accessed for the installation of conservation practices due to the lack of a suitable stream crossing(s), or, there is a likelihood that there will be traffic through the stream without the benefit of a desig

After Situation:

The sensitive site was accessed for installing conservation practices, and the streambed, banks, and approaches have been restored and stabilized to natural conditions.

Feature Measure: Number of crossings of a 10

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $3,518.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,518.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #79 - Temporary Wetland Crossing, Sensitive Site

Scenario Description:

The design and installation of a temporary wetland crossing to gain access to a forest stand, built with construction mats to protect natural resources while addressing forest health management, wildlife habitat, and other conservation objectives. Improperly designed and/or installed wetland crossings can have adverse effects on soil health, water quality, and wildlife. After conservation activities are completed, the construction mats will be removed and the wetland crossing will be restored and stabilized to a natural condition. Installation is supervised by a professional forester, biologist, or other qualified specialist. Resource concerns include: Water Quality - Excessive sediment in surface waters, and Fish and Wildlife - Inadequate Habitat - Water.

Before Situation:

A forested tract on a sensitive site cannot be accessed for the installation of conservation practices due to the lack of a suitable wetland crossing(s). There is a likelihood that there will be traffic through the environmentally sensitive wetland withou

After Situation:

Conservation practices were installed in the forested tract. The environmentally sensitive wetland was crossed using a construction mat to stabilize the site, and the wetland was subsequently restored and stabilized to natural conditions.

Feature Measure: Crossing for 530 linear feet

Scenario Unit: Square Foot

Scenario Typical Size: 6,600.0

Scenario Total Cost: $22,376.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 655 - Forest Trails and Landings

Scenario: #80 - Trail/Landing Location and Marking

Scenario Description:

The use of professional assistance in trail design or redesign, including on-site marking of trail and landing locations or relocations, and assessment of site features and considerations. Costs for installing the trail and landings are not included. This scenario is used when a commercial operation will install simple trails and landings on a site where no stream or wetland crossings are needed, and where no steep slopes and/or erodible soils are present; otherwise, use Scenario 2, Trail and Landing Installation. Trails and landings are needed for conducting a conservation activity which may or may not also have a production benefit. The use of professional assistance in trail layout, marking, and site assessment will avoid resource damage that results from improper trail and landing placement. Note that payment for this trail/landing layout and marking scenario cannot be made until after the trails/landings have been properly installed and certified. Resource concerns include: Soil Erosion - Concentrated flow erosion, Ephemeral gully erosion, and Classic gully erosion; and, Water Quality - Excessive sediment in surface waters.

Before Situation:

Access to the tract is not available for occasional travel by the landowner or manager for the purposes of monitoring plant health or installing forestry conservation practices. Improperly installed trails and landings are causing, or will cause, soil ero

After Situation:

A trail and landing system is marked on the ground. It will provide access to a forested site and its location will not cause excessive erosion or water quality concerns.

Feature Measure: Length of trail marked

Scenario Unit: Foot

Scenario Typical Size: 5,280.0

Scenario Total Cost: $2,281.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 656 - Constructed Wetland

Scenario: #1 - Small, Less Than 0.1 ac

Scenario Description:

This practice scenario includes the basic earthwork and native and/or organic wetland vegetation needed to create a constructed wetland to treat contaminated agricultural runoff for a small site (i.e. <0.1 ac). All other components, such as water control structures, dikes or upstream sediment basins, must be paid for under facilitating practices. Soil sampling is required. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens. Associated practices: Structure for Water Control (587); Sediment Basin (350); Dike (356); Pond Sealing or Lining, Compacted Clay Treatment (521D); Pond Sealing or Lining, Flexible Membrane (521A); Fence (382); Grade Stabilization Structure (410); Pumping Plant (533); Waste Transfer (634)

Before Situation:

Contaminated agricultural runoff causes excess ponding and/or water quality degradation.

After Situation:

A 2000 sq foot constructed wetland (i.e. 20' x 100') will be constructed with an average 18" depth. Only the earthwork and wetland vegetation are considered in this scenario. Any structures or sediment basins will be designed under a separate practice. The constructed wetland treats the effluent by reducing excess nutrients and adding oxygen through wetland plants and functions before the effluent is transported to a waste storage facility or discharged off site, if permitted by regulation.

Feature Measure: Area of Constructed Wetlan

Scenario Unit: Square Foot

Scenario Typical Size: 2,000.0

Scenario Total Cost: $1,641.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.82

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 656 - Constructed Wetland

Scenario: #2 - Medium, 0.1 to 0.5 ac

Scenario Description:

This practice scenario includes the basic earthwork and native and/or organic wetland vegetation needed to create a constructed wetland to treat contaminated agricultural runoff for a medium site (i.e. 0.1 - 0.5 ac). All other components, such as water control structures, dikes or upstream sediment basins, must be paid for under facilitating practices. Soil sampling is required. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens. Associated practices: Structure for Water Control (587); Sediment Basin (350); Dike (356); Pond Sealing or Lining, Compacted Clay Treatment (521D); Pond Sealing or Lining, Flexible Membrane (521A); Fence (382); Grade Stabilization Structure (410); Pumping Plant (533); Waste Transfer (634)

Before Situation:

Contaminated agricultural runoff causes excess ponding and/or water quality degradation.

After Situation:

A 0.25 acre constructed wetland (i.e. 45' x 240') will be constructed with an average 18" depth. Only the earthwork and wetland vegetation are considered in this scenario. Any structures or sediment basins will be designed under a separate practice. The constructed wetland is sited near the property boundary, but still takes cropland out of production (1/2 wetland acreage). The constructed wetland treats the effluent by reducing excess nutrients and adding oxygen through wetland plants and functions before the effluent is transported to a waste storage facility or discharged off site, if permitted by regulation.

Feature Measure: Area of Constructed Wetlan

Scenario Unit: Acre

Scenario Typical Size: 0.3

Scenario Total Cost: $4,374.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17,499.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 656 - Constructed Wetland

Scenario: #3 - Large, More Than 0.5 ac

Scenario Description:

This practice scenario includes the basic earthwork and native and/or organic wetland vegetation needed to create a constructed wetland to treat contaminated agricultural runoff for a large site (i.e. >0.5 ac). All other components, such as water control structures, dikes or upstream sediment basins, must be paid for under facilitating practices. Soil sampling is required. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrient and pathogens. Associated practices: Structure for Water Control (587); Sediment Basin (350); Dike (356); Pond Sealing or Lining, Compacted Clay Treatment (521D); Pond Sealing or Lining, Flexible Membrane (521A); Fence (382); Grade Stabilization Structure (410); Pumping Plant (533); Waste Transfer (634)

Before Situation:

Contaminated agricultural runoff causes excess ponding and/or water quality degradation.

After Situation:

A 1 acre constructed wetland (i.e. 95' x 460') will be constructed with an average 18" depth. Only the earthwork and wetland vegetation are considered in this scenario. Any structures or sediment basins will be designed under a separate practice. The constructed wetland is sited near the property boundary, but still takes cropland out of production (1/2 wetland acreage). The constructed wetland treats the effluent by reducing excess nutrients and adding oxygen through wetland plants and functions before the effluent is transported to a waste storage facility or discharged off site, if permitted by regulation.

Feature Measure: Area of Constructed Wetlan

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $13,093.33

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13,093.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 657 - Wetland Restoration

Scenario: #1 - Mineral or Organic Flat

Scenario Description:

A Mineral Flat wetland is to be restored. The tract size is 160 Acres consists of surface saturated soils interspersed with shallow depressions that are not depressional class HGM wetlands. The wetland size is also 160 acres. Resource Concerns are: 4-SOIL QUALITY DEGRADATION - Organic matter depletion, 11- WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters, 12 - WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters, 16 - WATER QUALITY DEGRADATION - Excessive sediment in surface waters, 18 - DEGRADED PLANT CONDITION - Undesirable plant productivity and health, 19 - DEGRADED PLANT CONDITION, Inadequate structure and composition, 22- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation.

Before Situation:

The site has been drained with a tile drain system. A suitable seed bank exists for natural regeneration to re-establish hydrophytic vegetation. The site is in agricultural production.

After Situation:

The drain tiles have been rendered non-functional by excavating 50 foot lengths of tile mains and laterals in 24 separate locations, and backfilling with excavated earth, which is compacted with the excavator bucket. There are no facilitating practices. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

Feature Measure: Acres of Tract

Scenario Unit: Acre

Scenario Typical Size: 160.0

Scenario Total Cost: $4,059.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 657 - Wetland Restoration

Scenario: #2 - Riverine Levee Removal and Floodplain Features

Scenario Description:

A Riverine HGM tract on a large floodplain is to be restored. It has been converted to agricultural production by surface ditching and clearing of woody vegetation. The size of the tract is 100 acres. The wetland extent is 60 acres, and 40 acres are adjacent non-wetland. Resource Concerns are: 4-SOIL QUALITY DEGRADATION - Organic matter depletion, 11- WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters, 12 - WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters, 16 - WATER QUALITY DEGRADATION - Excessive sediment in surface waters, 18 - DEGRADED PLANT CONDITION - Undesirable plant productivity and health, 19 - DEGRADED PLANT CONDITION, Inadequate structure and composition, 22- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation.

Before Situation:

A levee prevents floodwater from entering the tract. The original cover was forest. The site is drained by surface ditches which collect surface water and direct it to the river through a flap gate structure. The site has been completely cleared, and no s

After Situation:

The hydrology of the site is restored with the installation of ditch plugs, and the excavation of macrotopographic features with an average depth of 6" over 30% of the wetland area. Excavated spoil is placed adjacent to the features on the wetland and adjacent non-wetland area with a maximum depth of 24 inches. The levee has been breached at the upstream and downstream ends of the tract reach, restoring dynamic stream flooding. The breach length is 150 feet long at both locations. Both the wetland and non-wetland areas are planted with a Bottomland Hardwood species mix. The levee breaches are armored with rock riprap. Facilitating practices include Grade Stabilization Structure and Tree and Shrub Planting. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

Feature Measure: Acres of Tract

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $46,482.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $464.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 657 - Wetland Restoration

Scenario: #3 - Depression Sediment Removal and Ditch Plug

Scenario Description:

A Depressional HGM class wetland is to be restored. The tract size is 15 acres, and the actual wetland size is 10 acres. The site is a recharge depression, fed only from surface runoff. Resource Concerns are: 4-SOIL QUALITY DEGRADATION - Organic matter depletion, 11- WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters, 12 - WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters, 16 - WATER QUALITY DEGRADATION - Excessive sediment in surface waters, 18 - DEGRADED PLANT CONDITION - Undesirable plant productivity and health, 19 - DEGRADED PLANT CONDITION, Inadequate structure and composition, 22- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation.

Before Situation:

The wetland has been converted to agricultural production, and the tract drained with a surface ditch. The ditch is 4' average depth, and 12 feet average width. The wetland receives surface runoff from an adjacent upland watershed, and ponds water on a sh

After Situation:

The ditch has been plugged by the installation of a 50' long section of compacted clay fill, and the deposition has been removed down to the original topsoil layer. A herbaceous plant community has been seeded. Facilitative practices include Conservation Cover. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

Feature Measure: Acres of Tract

Scenario Unit: Acre

Scenario Typical Size: 15.0

Scenario Total Cost: $24,007.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,600.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 657 - Wetland Restoration

Scenario: #5 - Riverine Channel and Floodplain Restoration

Scenario Description:

A Riverine HGM landscape on a small stream on a low stream order riparian landscape has been converted to agricultural production. The stream channel has degraded. The reach is 1500 feet in length, and the tract size is 15 acres. The wetland area is 10 acres. Resource Concerns are: 4-SOIL QUALITY DEGRADATION - Organic matter depletion, 11- WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters, 12 - WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters, 16 - WATER QUALITY DEGRADATION - Excessive sediment in surface waters, 18 - DEGRADED PLANT CONDITION - Undesirable plant productivity and health, 19 - DEGRADED PLANT CONDITION, Inadequate structure and composition, 22- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation.

Before Situation:

Channel incision has broken the lateral connectivity between the stream and floodplain. The conversion to cropland was accompanied by filling and leveling of backswamp, side channel, and oxbow features which formerly ponded water or exposed the floodplain

After Situation:

The hydrology of the site is restored by the installation of a series of rock check structures to raise the stream water surface profile. Floodplain macrotopographic features replicating the original side channels, oxbows, and backswamps are constructed by excavation. Spoil is placed adjacent to the excavations to replicate natural depositional features. The average depth of the excavated features is 2 feet, and the surface area of the excavations is 25% of the tract size. The eroding stream bank is stabilized with soil bio-engineering features, and fish habitat improvement measures are installed in the channel. The tract is seeded to appropriate hydrophytic and upland vegetation, both woody and herbaceous. Facilitating practices are Streambank and Shoreline protection, Structure for Water Control, Conservation Cover, Tree/Shrub Establishment, and Stream Habitat Improvement and Management. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

Feature Measure: Acres of Tract

Scenario Unit: Acre

Scenario Typical Size: 15.0

Scenario Total Cost: $9,967.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $664.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 657 - Wetland Restoration

Scenario: #6 - Tidal Marsh Phragmites Removal

Scenario Description:

In coastal and estuarine wetland areas where tidal flow has been restored and invasive plants such as Phragmites has been eliminated there is a need to remove accumulated invasive plant rhizomes to facilitate natural restoration of native plant communities such as Spartina alternaflora, Spartina patens, and Iva frutescens and Distichilis spicatta. Normally excavating 0.5 to 1.0 foot of the material will remove the accumulated rhizomes. The resulting mud flats are then able to be naturally revegetated. There may be situations when planting is required. Coastal wetland range in size from 1 acre to 500 acres. The marsh surface is excavated using low pressure excavation equipment. Coastal permitting agencies require the excavated materials to be removed from the wetland. Many projects requires installation of new culverts to allow flow through dikes and roads. Resource concerns include: Inadequate Habitat for Fish and Wildlife, Degrade plant condition. Facilitating practices include: 587 Structure for Water control, 657 Wetland Restoration, 390 Riparian Herbaceous Cover.

Before Situation:

Coastal and estuarine wetlands are degraded due to growth of invasive plants such as Phragmites. The Phragmites has been eliminated using a variety of techniques including restoration of tidal flow, invasive plant removal, and tidal channel restoration. L

After Situation:

The area with dense mats of rhizomes are removed. Mud flats can be colonizes by native plants such as: Spartina alternaflora, Spartina patens, and Iva frutescens and Distichilis spicatta. The restored area provides habitat for coastal wildlife.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $30,925.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30,925.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 657 - Wetland Restoration

Scenario: #7 - Wetland Restoration Sediment Removal

Scenario Description:

A wetland complex has been altered due accumulation of sediments from adjacent landuse changes. The sediment accumulation has altered the plant composition, structure and hydrology of the wetland. Accumulated sediments will be removed to recreate the prior topography of the wetland so that native plants can become re-established. Removing the sediments will restore the wetland hydrology. Wetland range in size from 0.5 acres to 50 acres. Resource concerns include: Habitat Fragmentation, Inadequate Cover/Shelter, Inadequate Food, Inadequate Space. Associated practice include: 390 Riparian Herbaceous Cover, 659 Wetland Enhancement, 342 Critical Area Planting.

Before Situation:

In wetland areas associated with forestland, and cropland. Portions of the wetland has been altered due to deposition and accumulation of sediments

After Situation:

Define the size and extent of the practice that will be installed. Describe how the practice is typically installed to solve the resource problem.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $33,686.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $33,686.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 657 - Wetland Restoration

Scenario: #8 - Wetland Hydrologic Barrier Removal

Scenario Description:

A wetland complex has been altered due road or trail crossings impairs hydrologic connectivity, function, and can result in altered plant communities. Water typically higher on one side of the road and lower due to the road berm. The crossing alters the wetland hydrology which in turn can alter historic plant communities. Roads will be retired and road/trial berms removed or berms breached with low water crossings in several locations to restore hydrology. Wetland range in size from 0.5 acres to 50 acres. Resource concerns are: 18 - DEGRADED PLANT CONDITION - Undesirable plant productivity and health, 19 - DEGRADED PLANT CONDITION, Inadequate structure and composition, 22- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation.

Before Situation:

A road or trail system used to access or manage land is bisecting and altering any wetland type. The road/trail berm and associated borrow ditch has altered hydrologic connectivity, water flow and altered the historic plant community. Alteration of wetlan

After Situation:

Road/trail fill material and culverts are removed by heavy equipment and fill placed back in the borrow ditch from which it was taken. Excess fill will be trucked offsite. Where complete road/trail removal is not a viable alternative, the road or trail will be breached in as many locations as feasible and the bottom stabilized with gravel and compacted to allow infrequent crossing by equipment.

Feature Measure: footprint of trail removed

Scenario Unit: Acre

Scenario Typical Size: 0.4

Scenario Total Cost: $7,088.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20,252.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 658 - Wetland Creation

Scenario: #1 - Wetland Creation, Wildlife Pond

Scenario Description:

A wetland is created on a flat mineral upland at a location where surface runoff may be intercepted and ponded by excavation. Work involved includes excavation and removing material to a nearby area. Dozer shapes wetland and disposal areas. Resource concerns are 22 - INDEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation.

Before Situation:

The site is in cropland on an upland, non floodplain site (interfluve).

After Situation:

An excavation with an average depth of 12" has created a shallow depression in a broad swale which intercepts surface runoff. The excavated material has been hauled to and spread on adjacent areas. The INADEQUATE HABITAT FOR FISH AND WILDLIFE resource concern has been addressed with the provision of seasonal open water for terrestrial, aquatic, and waterfowl species.

Feature Measure: Acres of Wetland

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $26,932.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13,466.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 659 - Wetland Enhancement

Scenario: #1 - Tidal Channel Restoration/Establishment

Scenario Description:

In coastal and estuarine wetland areas existing tidal channels are restored or new tidal cannels are installed to improve tidal flow and increase salinity levels in these wetlands The facilitated drainage increases in salinity and improves the overall health of the coastal wetland system. The increased salinity is capable of reducing or eliminating the invasive plant Phragmites. Coastal wetland range in size from 1 acre to 500 acres. The channels are installed using low pressure excavation equipment. Coastal permitting agencies usually require the excavated materials to be removed from the wetland. Many projected requires installation of new culverts to allow flow through dikes and roads. Resource concerns include: Inadequate Habitat for Fish and Wildlife, Degrade plant condition. Facilitating practices include: 587 Structure for Watercontrol, 657 Wetland Restoration, 390 Riparian Herbaceous Cover.

Before Situation:

Coastal and estuarine wetlands are degraded due to inadequate flow of salt water. The marsh vegetation is dying off and being replaced by invasive plants such as Phragmites. Areas of the marsh are devoid of vegetation.

After Situation:

Tidal flow is restored and salinity is increased by restoring existing channels or installing new channels. The increased salinity allows native coastal plants such as Spartina alternaflora, Spartina patens, and Iva frutescens and Distichilis spicatta to flourish and repopulate the marsh. The increased salinity

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 0.3

Scenario Total Cost: $32,393.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $129,573.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 659 - Wetland Enhancement

Scenario: #2 - Tidal Marsh Excavation

Scenario Description:

In coastal and estuarine wetland areas where tidal flow has been restored and invasive plants such as Phragmites has been eliminated there is a need to remove accumulated invasive plant rhizomes to facilitate natural restoration of native plant communities such as Spartina alternaflora, Spartina patens, Iva frutescens and Distichilis spicatta. Normally excavating 0.5 to 1.0 foot of the material will remove the accumulated rhizomes and associated organing material. The resulting mud flats are then able to be naturally revegetated. There may be situations when planting is required. Coastal wetland range in size from 1 acre to 500 acres. The marsh surface is excavated using low pressure excavation equipment. Coastal permitting agencies require the excavated materials to be removed from the wetland. Many projects require installation of new culverts to allow flow through dikes and roads. Resource concerns include: Inadequate Habitat for Fish and Wildlife, Degrade plant condition. Facilitating practices include: 587 Structure for Watercontrol, 657 Wetland Restoration, 390 Riparian Herbaceous Cover, 396 Aquatic Organism Passage..

Before Situation:

Coastal and estuarine wetlands are degraded due to growth of invasive plants such as Phragmites. The Phragmites has been eliminated using a variety of techniques including restoration of tidal flow, invasive plant removal, and tidal channel restoration. L

After Situation:

The areas with dense mats of rhizomes are removes. Mud flats can be colonizes by native plants such as: Spartina alternaflora, Spartina patens, and Iva frutescens and Distichilis spicatta. The restored area provides habitat for coastal wildlife.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $30,925.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $30,925.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 659 - Wetland Enhancement

Scenario: #3 - Tidal Barrier Removal

Scenario Description:

Removal of a barrier to tidal flow in a coastal wetland complex. Typically undersized culverts that had been previously installed do not provide adequate flow into a coastal marsh system. The limited tidal flow has significant impacts on the salinity levels, native vegetation, and native species. The typical scenario included removal of a 24 inch culvert that is approximately 20 feet long. Material will be hauled away from the site and disposed of outside of the wetland/marsh area. This scenario only includes removal of the culvert and fill material that has been placed in the channel. Facilitating practices include: 342 Critical Area Planting, 580 Streambank and Shoreline Protection, 584 Channel Stabilization, 315 Herbaceous Weed Control, 657 Wetland Restoration, 644 Wetland Wildlife Habitat Management.

Before Situation:

The practice will be completed typically in a coastal marsh that has been impacted by reduced tidal flow. Culverts have been installed across walking paths or small roads. The installed culverts have caused a reduction in the normal tidal flow. The decrea

After Situation:

The culvert has been removed and the natural tidal flow has been restored. The invasive plant Pharagmites is eventually eradicated. Native coastal marsh plants become re-established. Native wildlife using the marsh become more abundant. Wildlife food and cover is increased. Water quality has improved because of improved tidal flow.

Feature Measure: <Unknown>

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $10,138.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $10,138.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 659 - Wetland Enhancement

Scenario: #4 - Macro-Micro Topography Creation-On Site Disposal

Scenario Description:

The restoration of micro/macrotopography in a palustrine wetland area that was historically a forested wetland, wet meadow, or abandoned crop field. Alteration of the historic wetland has change the topography so that wetland values have been diminished. The wetland will be rehabilitated to enhance conditions primarily for waterfowl, amphibians and reptiles. The nearly level topography does not support a wide variety of native wetland plants. The hydrology has been significantly altered so that ponded water is not available for the establishment of wetland plants or for having adequate water for wildlife. Resource concerns include: Inadequate food and Cover, Inadequate water and Inadequate space. The micro/macro topography will be created using an excavator. Spoils materials will used or disposed of onsite. Micro/macro topography may range in depth from less than 1 to more than 3 feet. Facilitating practices include: 327 Conservation Cover, 342 Critical Area Planting, 644 Wetland Wildlife Habitat Management.

Before Situation:

A palustrine wetland complex has been altered due to changes in landuse or farming operations. There has been a significant change in the micro/macrotopography of the site. Typical native wetland plants are not present and there is a lack wetland hydrolog

After Situation:

The micro/macrotopography has been restored. A variety of native wetland plants have colonized the wetland area providing both food and cover for native wildlife. Island nesting, breeding and foraging habitats have been enhances for resident wildlife. Wetland hydrology and communities have been restored. Water is available for native and migratory wildlife.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $14,971.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14,971.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 659 - Wetland Enhancement

Scenario: #5 - Creation of Micro/Macrotopography Haul Away Spoils

Scenario Description:

The restoration of micro/macrotopography in a palustrine wetland area that was historically a forested wetland, wet meadow, or abandoned crop field. Alteration of the historic wetland has change the topography so that wetland values have been diminished. The wetland will be rehabilitated to enhance conditions primarily for waterfowl, amphibians and reptiles. The nearly level topography does not support a wide variety of native wetland plants. The hydrology has been significantly altered so that ponded water is not available for the establishment of wetland plants or for having adequate water for wildlife. Resource concerns include: Inadequate food and Cover, Inadequate water and Inadequate space. The micro/macro topography will be created using an excavator. Spoils materials will be hauled off site. Micro/macro topography may range in depth from less than 1 to more than 3 feet. Facilitating practices include: 327 Conservation Cover, 342 Critical Area Planting, 644 Wetland Wildlife Habitat Management.

Before Situation:

A palustrine wetland complex has been altered due to changes in landuse or farming operations. There has been a significant change in the micro/macrotopography of the site. Typical native wetland plants are not present and there is a lack wetland hydrolog

After Situation:

The micro/macrotopography has been restored. A variety of native wetland plants have colonized the wetland area providing both food and cover for native wildlife. Nesting, breeding and foraging habitats have been enhances for resident wildlife. Wetland hydrology and communities have been restored. Water is available for native and migratory wildlife.

Feature Measure: <Unknown>

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $26,069.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26,069.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 660 - Tree-Shrub Pruning

Scenario: #1 - Pruning-Fire Hazard

Scenario Description:

Pruning trees of branches in a forest stand where wildfires are considered a high and very high hazard. Hand tools and power tools are used to cut branches from trees. Resource concerns include Degraded plant condition-wildfire hazard and Undesirable plant productivity and health.

Before Situation:

The forest stand is well to over-stocked, generally with 200 to 300+ trees per acre. Branches are touching understory vegetation or are in close proximity to forest floor where a ground fire can ignite the lower branches and move into the upper canopy. Wi

After Situation:

The typical forest pruning treatment is 20 acres. Trees are pruned to the desirable height (generally 8-10') based on desired separation space between ground vegetation and tree crown. Pruned branches are treated if they are a hazard, see Woody Residue Treatment standard.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $6,350.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $317.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 660 - Tree-Shrub Pruning

Scenario: #2 - Pruning-Low Height

Scenario Description:

Pruning is done by hand with chain saws, tree loppers, hand shears, or hand saws. Trees are identified for pruning. To improve the quality of the stem wood, branches are pruned from the trees. Trees are growing at a fast pace, with leader growth on trees anywhere from 1.5 feet to 4 feet in length.

Before Situation:

Trees are retaining lower limbs along the entire tree bole, reducing wood quality. Pruning height will be based on overall stand diameter and height. Stand has been thinned and crop trees are identified for pruning. Degrade plant condition- undesirable pl

After Situation:

The typical forest pruning treatment is 20 acres. Trees are pruned to the desirable height of 8-10 feet. Pruned branches are treated if they are a hazard, see Woody Residue Treatment standard.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $5,053.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $252.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 660 - Tree-Shrub Pruning

Scenario: #3 - Pruning- High Height

Scenario Description:

Pruning is done by hand with pole saws or with gas pole saw. Crop trees are identified for pruning. The forest is on highly productive soils. Trees are growing at a fast pace, with leader growth on trees anywhere from 1.5 feet to 4 feet in length. To improve the quality of the stem wood, branches are pruned from the trees.

Before Situation:

Trees are retaining limbs mostly along the mid to upper section of the tree bole, reducing quality. Lower branches (0-8 feet) may have already been pruned, have naturally self pruned to differing heights. Pruning height is at least to eighteen (18) feet a

After Situation:

The typical forest pruning treatment is 20 acres. Trees are pruned to the height of 18 feet or more. Pruned branches are treated so they do not become a fire or health hazard.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $7,354.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $367.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 660 - Tree-Shrub Pruning

Scenario: #4 - Pruning-Wildlife

Scenario Description:

Pruning of hard/soft mast trees and shrubs to stimulate increased fruit/nut production for wildlife food. Primarily done around old agricultural fields, in old orchards, in forested areas. Is usually done with a chainsaw or handsaw to open the canopy and remove dead branches to increase airflow and sunlight penetration. Resource concerns are inadequate habitat for fish and wildlife - habitat degradation and plant condition- undesirable plant productivity and health

Before Situation:

Trees have reduced mast production due to tree reaching maturity or heavy shade. Pruning is needed to remove older branches, dead material and increase sunlight into the canopy. New branching will be stimulated, increasing mast production.

After Situation:

Selected trees (10 per acre) are re-invigorated with new branching and an increase in mast production.

Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $726.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $363.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 660 - Tree-Shrub Pruning

Scenario: #8 - Sanitation

Scenario Description:

Pruning trees where Insects, and/or diseases create the potential for reducing growth, causing tree deformities and/or death. Hand tools and power tools are used to cut branches from trees. Resource concerns include degraded plant vigor, growth, and condition causing undesirable plant productivity and health.

Before Situation:

The forest stand has been identified as infested and/or infected with insects and/or disease. Typical setting is forestland or wildlife lands where the infestations and infections are established and are negatively affecting wildlife food and cover and tr

After Situation:

The typical forest pruning treatment is 5 acres. Trees are pruned to the remove the infested and or infected branches. Pruned branches are treated as prescribed by the consultant Forester. After treatment, infestations and infections have been controlled to a level that meets client objectives to improve wildlife habitat, tree productivity, health, and vigor. Pruned branches are treated if they are considered a hazard, see Woody Residue Treatment standard.

Feature Measure: individual tree pruned

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $1,872.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $374.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 660 - Tree-Shrub Pruning

Scenario: #25 - Pruning - New England Fire Hazard

Scenario Description:

Pruning trees of branches in a forest stand where wildfires are considered a high and very high hazard. Hand tools and power tools are used to cut branches from trees. Resource concerns include Degraded plant condition-wildfire hazard and Undesirable plant productivity and health. Associated Practices: Brush Management (314), Woody Residue Treatment (384), Fuel Break (383), Fire Break (394), Forest Stand Improvement (666)

Before Situation:

The forest stand is well to over-stocked, generally with 200 to 300+ trees per acre. Branches are touching understory vegetation or are in close proximity to forest floor where a ground fire can ignite the lower branches and move into the upper canopy. Wi

After Situation:

The typical forest pruning treatment is 20 acres. Trees are pruned to the desirable height (generally 8-10') based on desired separation space between ground vegetation and tree crown. Pruned branches are treated if they are a hazard, see Woody Residue Treatment standard.

Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $13,801.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $690.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 660 - Tree-Shrub Pruning

Scenario: #28 - Pruning Individual Agroforestry tree - small acreage

Scenario Description:

In agroforestry settings (crop or forest lands) overstory tree crowns are pruned to increase sunlight to understory shrubs, low growing trees, and crop plants that have been purposely established to grow on the same ground. Thirty trees or less per acre require pruning. Associated Conservation Practice Standard (CPS) 384 - Woody Residue Treatment. Resource concern is degraded plant condition - undesirable plant productivity and health.

Before Situation:

Overstory trees are expanding their crowns, providing too much shade on the understory plants. The shade is affecting the growth and production of the understory plants. Pruning branches, leaves, frawns, etc. are needed to maintain the desired about of su

After Situation:

Pruning of the overstory tree crowns is completed, allowing the proper amount of sunlight to reach the understory vegetation, maintaining their grown, health and vigor, and wildlife benefits. Typical treatment area is less than 1 acre; typical scenario based on 1 ac, 30 TPA.

Feature Measure: Tree Pruned

Scenario Unit: Each

Scenario Typical Size: 30.0

Scenario Total Cost: $445.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #1 - Pre-commercial Thinning Pole- Hand tools

Scenario Description:

Adjusting the stocking of a young, non-merchantable stand of trees. The operation is supervised by a consultant forester and is carried out using hand tools such as chainsaws. Resource concerns include Undesirable plant productivity and health; Wildlife habitat degradation; Wildfire hazard; and Inadequate structure and composition.

Before Situation:

The stocking of a stand of trees that are too small to make a commercial thinning exceeds the recommended fully stocked level for the species and site. The effect is much slower growth than is reasonable or expected for the site, increased susceptibility

After Situation:

After adjusting the stocking to an acceptable level, stand growth, condition, and overall quality is improved. In addition, wildlife habitat is improved with the resulting increase of sunlight reaching the forest floor.

Feature Measure: Area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $6,357.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $635.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #2 - Pre-commercial Thinning Hardwood- Hand tools

Scenario Description:

Adjusting the stocking of a "Young Over Stocked Hardwood Stands." The operation is supervised by a consultant forester and is carried out using hand tools such as chainsaws, loppers and/or machetes. Resource concerns include undesirable plant productivity and health; inadequate tree structure, composition, and spacing; and wildlife habitat degradation (i.e., ESH lifespan has passed).

Before Situation:

The stocking and size class of a stand of trees such that the conditions exceed the recommended fully stocked level for the species and site. The effect is slower growth than is reasonable or expected for the site, increased susceptibility to insects and

After Situation:

After adjusting the stocking to an acceptable level of spacing or trees/ac. --stand growth, condition, and overall quality are improved and desirable wildlife habitat is achieved. The resulting stand condition will have sufficient growing space to increase diameter growth and expand live tree crowns.

Feature Measure: Area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $9,401.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $940.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #5 - Timber Stand Improvement - Chemical, Ground

Scenario Description:
Using ground applied chemicals to release young desirable trees from competing and/or overtopping vegetation. Resource concerns include: Undesirable plant productivity and health, and Wildlife habitat degradation.

Before Situation:
An adequately stocked stand of desirable species and trees is not growing to its potential for the site due to severe competition from undesirable trees and brush. Releasing the desirable trees from the competition will be achieved through the application

After Situation:
The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $12,120.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $303.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #6 - Competition Control - Mechanical, Light Equipment

Scenario Description:

Using light equipment such as a tractor with brush hog to control vegetation that is competing with desirable trees and species or to reduce the stocking level of a stand of desirable trees. Trees to be removed will be marked by a Forester. Resource concerns include Undesirable plant productivity and health; Wildlife habitat degradation; Wildfire hazard; and Inadequate structure and composition.

Before Situation:

A stand of young, desirable trees is adversely affected by competition either from undesirable species or because the stand is overstocked. The vegetation to be controlled is small enough that it can be mowed or shredded. The work can be done by mowing or

After Situation:

After adjusting the stocking to an acceptable level and/or controlling the competing vegetation, stand growth, condition, and overall quality is improved. In addition, wildlife habitat is improved with the resulting increase of sunlight reaching the forest floor.

Feature Measure: Area Treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $8,773.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $877.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #7 - Thinning for Wildlife and Forest Health

Scenario Description:

A certified forester will mark a stand for area-wide thinning. Non-commercial area-wide thinning is used to adjust the stocking of an overstocked stand to a recommended level -- generally equivalent to a "B-Line" stocking -- by lowing the overall basal area of the stand. Treatments are used to improve residual tree spacing that enhances the forest's ability to increase diameter growth and live crown expansion. The size of the material cut and/or the density of cut material is such that moving of forest products is not required. All cut material is left on the forest floor for nutrient recycling. Larger equipment is not necessary, additional time is spent lopping slash. Resource concerns include: Inadequate structure and composition, Undesirable plant productivity and health, and Habitat degradation.

Before Situation:

The stand of pole-sized to overly mature trees is overstocked resulting in over competition, thus inhibiting growth potential and forest health. This condition is causing a lack of tree structure and composition as well as species diversity that is needed

After Situation:

The stand will have adequate stocking that improves the overall residual tree growth and vigor. This is accomplished by removing defected and malformed, undesirable trees leaving only the best-formed and highest quality trees in the stand. The result will be a more resilient and fully stocked stand to mature into a healthy and viable forest.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $8,048.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $804.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #8 - Creating Small Patch Clearcuts

Scenario Description:

A certified forester will mark a stand for a small patch cut. The creation of a small patch cut, typically less than 3 acres in size, in an over-mature and/or degraded stand. The boundary of the patch cut will me marked as well as any reserve trees to remain with the cut. One or two reserve trees (greater than 10" dbh) per acre may be retained within the cut boundary. Cutting is to be done with chainsaws, cut material is to be lopped to within 4' of the ground. Material may be used for the creation of brush piles under conservation practice standard 649. Resource concerns include: Undesirable plant productivity and health, inadequate structure and composition, and habitat degradation.

Before Situation:

The existing stand is overly mature and/or has been degraded in value by past harvesting practices. The level of acceptable growing stock is too low to justify managing this stand in its present condition. The present form, species composition and structu

After Situation:

A small patch cut or series of patch cuts have been created. A new, young stand of desirable species is established and stand age-class diversity is created. In addition, early successional wildlife habitat as well as forest type diversity are created.

Feature Measure: Area treated

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $2,328.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,164.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #9 - Creating Large Patch Openings

Scenario Description:

A certified forester will mark a stand for a large patch cut. The creation of a large patch cut, typically greater than 4 acres in size, in a larger, over-mature and/or degraded stand. Approximately 10 acres in one or more openings will be created. The boundary of the patch cut will be marked as well as any reserve trees to remain with the cut. Two to five reserve trees (greater than 10" dbh) per acre may be retained within the cut boundary. The cutting is to be done with mechanized forestry equipment (feller buncher, log skidder, forwarder). Slash is to remain on site for nutrient recycling and is to be lopped to within 4' of the ground. Tree boles are removed from patches so as not to impede regeneration and future access. Tree boles and tops may be used for the creation of brush piles under conservation practice standard 649. Felled trees may be moved within the site for habitat needs and re-entry needs for future practices. Resource concerns include: Undesirable plant productivity and health, inadequate structure and composition, and habitat degradation..

Before Situation:

The existing stand is overly mature and/or has been degraded in value by past harvesting practices. The level of acceptable growing stock is too low to justify managing this stand in its present condition. The present form, species composition and structu

After Situation:

A large patch cut or series of patch cuts have been created in a larger stand. A new, young stand of desirable species is established. About 20 acres have been improved by this activity. In addition, early successional wildlife habitat as well as forest type diversity are created.

Feature Measure: Area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $10,187.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,018.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #11 - Crop/Mast Tree Release

Scenario Description:

A professional/certified forester will mark a stand for crop tree release. The crop trees as well as the trees to be cut will be differentiated and marked. Through a crown release, growth will be focused on high quality dominant and co-dominant trees that have already gained a good competitive position within the stand. Crop tree crowns will be released from other competing crowns, typically releasing 3-4 sides of the tree crown. The difference between the Area-Wide Thinning and Crop Tree Release is the focus and release of the best trees which often means removing trees that would otherwise be retained during an area-wide thinning practice. Area-wide thinning does not focus on the release of crowns and is spatially distributed more evenly than crop tree release.

Before Situation:

High quality crop trees are competing for crown space that is limiting tree productivity, health, vigor, and wildlife habitat. Overstocked stands are limiting tree growth, increasing potential for disease, limiting flowering/fruiting potential and amount

After Situation:

Desirable crop trees have been released from competition by cutting trees with competing crowns. The result is an increase in growth rates, improvement in forest health, and wildlife habitat through the expansion of the crown and increased rates of photosynthesis. Desirable timber trees and valuable trees for wildlife now have free growing space. Wildlife habitat is improved through increased food/mast production and understory development with potential for large wildlife tree development (nest, den, cavity trees).

Feature Measure: Acres served

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $6,979.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $697.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #12 - Girdling

Scenario Description:

A certified forester will mark a stand for girdling select trees. The removal of less desirable trees of any species in a stand of saplings or larger trees primarily to improve composition, quality and wildlife. The stand lacks acceptable snag trees in either size or quantity. Trees are marked and girdled to thin the stand and create standing dead snags. Resource concerns include Undesirable plant productivity and health; Wildlife habitat degradation; and Inadequate structure and composition.

Before Situation:

The stand of pole-sized to overly mature trees is overstocked resulting in over competition, thus inhibiting growth potential and forest health. Or there is insufficient standing dead snags or cavity nesting trees within the stand. This condition is causi

After Situation:

The stand will have adequate stocking that improves the overall residual tree growth and vigor. This is accomplished by removing defected and malformed, undesirable trees leaving only the best-formed and highest quality trees in the stand. Standing dead snags are created for wildlife. The result will be a more resilient and fully stocked stand to mature into a healthy and viable forest.

Feature Measure: Area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $3,289.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $328.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #55 - Pre-commercial Thinning -Softwood - Hand tools

Scenario Description:

Adjusting the stocking of a young, non-merchantable softwood trees. The operation is supervised by a consultant forester and is carried out using hand tools such as chainsaws, loppers and/or machetes. Resource concerns include undesirable plant productivity and health; inadequate structure and composition; and wildlife habitat degradation.

Before Situation:

The stocking and size class of a stand of trees such that the conditions exceed the recommended fully stocked level for the species and site. The effect is slower growth than is reasonable or expected for the site, increased susceptibility to insects and

After Situation:

After adjusting the stocking to an acceptable level of spacing or trees/ac. --stand growth, condition, and overall quality are improved and desirable wildlife habitat is achieved. The resulting stand condition will have sufficient growing space to increase diameter growth and expand live tree crowns.

Feature Measure: Area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $13,275.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,327.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #57 - Tree Marking Updated

Scenario Description:

Trees within a forest stand are marked for removal by a professional forester, in accordance with recommendations in an approved Forest Management Plan, to improve the health, productivity, composition and/or structure of the stand, to improve wildlife habitat, reduce wildfire hazard, and/or address concerns for soil erosion and water quality. The cost for this scenario is based on the labor for a professional forester to provide timber marking to ensure that the treatment is silviculturally sound, damage to the residual stand is minimized, and implementation accomplishes the desired improvements for resource concerns. Costs for removing undesirable trees are not included, as this will be accomplished through a commercial operation. NOTE: payment for this tree marking scenario cannot be made until the conservation activity (tree removal) has been properly installed and certified. Resource concerns include: Degraded Plant Condition - Undesirable plant productivity and health, Inadequate structure and composition, and Wildfire Hazard, Excessive Biomass Accumulation; Soil Erosion - Concentrated flow erosion, Ephemeral gully erosion, and Classic gully erosion; Fish and Wildlife - Inadequate Habitat - Cover/Shelter, and Food; and, Water Quality - Excessive sediment in surface waters.

Before Situation:

A forest stand is excessively dense (overstocked) and/or lacks desired attributes of species composition, structure, and/or health, and may have additional soil and water resource concerns. Wildlife habitat may lack desired tree species composition, struc

After Situation:

Trees within the stand have been appropriately marked by a professional forester for a treatment recommended in an approved Forest Management Plan. The treatment will be implemented through a commercial operation without excessive damage to the residual trees and site.

Feature Measure: Area treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $1,574.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $157.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #58 - Basal Stem Treatment

Scenario Description:

Altering the composition and stocking of a stand of trees by treating individual stems. The trees to be retained are marked by a consultant forester. The undesirable trees are killed using single-stem treatments such as injection or basal bark spraying. This scenario is used when the species and/or condition of trees makes it infeasible to use a commercial operation to remove them from the site. Resource concerns include: Degraded Plant Condition - Undesirable plant productivity and health, Inadequate structure and composition, and Wildfire Hazard, Excessive Biomass Accumulation; Soil Erosion - Concentrated flow erosion, Ephemeral gully erosion, and Classic gully erosion; Fish and Wildlife - Inadequate Habitat - Cover/Shelter, and Food; and, Water Quality - Excessive sediment in surface waters. "

Before Situation:

The existing stand is composed of undesirable woody species and stocking exceeds the recommended levels for healthy growth. Stand and canopy density shades out understory shrubs and herbaceous plants, reducing food and cover for wildlife, and allowing soi

After Situation:

After management, stand density, structure and composition are at an acceptable level. Canopy gaps allow increased sunlight and air movement; understory plant growth, condition and quality are improved. Habitat for wildlife is improved, and soil erosion is limited. Stand density enhances eco-site diversity, and landscape hydrologic functions are improved. Trees are healthy and less susceptible to damaging levels of insect pests and diseases. The risk from catastrophic wild-land fire is reduced.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $4,652.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $465.20

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #60 - Weeding Saplings - Mechanical

Scenario Description:

Adjusting the stocking of a young, non-merchantable stand of trees. The operation is supervised by a consultant forester and is carried out using a brontosaurus or other mechanical means. Resource concerns include: Degraded Plant Condition - Undesirable plant productivity and health, Inadequate structure and composition, and Wildfire Hazard, Excessive Biomass Accumulation; Soil Erosion - Concentrated flow erosion, Ephemeral gully erosion, and Classic gully erosion; Fish and Wildlife - Inadequate Habitat - Cover/Shelter, and Food; and, Water Quality - Excessive sediment in surface waters.

Before Situation:

The tree stocking exceeds 2000 stems per acres, average diameters are too small, exceeding recommended stocking level for the species and site. The effect is much slower growth than is reasonable or expected for the site, increased susceptibility to insec

After Situation:

After adjusting the stocking to an acceptable level, stand growth, condition, and overall quality is improved. In addition, wildlife habitat is improved with the resulting increase of sunlight reaching the forest floor.

Feature Measure: Area Treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $13,103.50

Total Cost per Unit: $1,310.35

Based on Maine average costs. Individual county costs may vary.

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 666 - Forest Stand Improvement

Scenario: #79 - Ground, Chemical Treatment

Scenario Description:

Herbicides are applied with a sprayer mounted on a tractor or other mechanized ground-based equipment, or applied with a backpack sprayer. The treatment releases young desirable trees from competing and/or overtopping vegetation. Releasing the desirable trees is accomplished by the application of appropriate herbicides according to label directions. The scenario as written is designed primarily for the release of planted pines, but with different herbicides can be used to release other tree species. Size of the treatment area can be less than or equal to 40 acres. Resource concerns include: Degraded Plant Condition - Undesirable plant productivity and health, Inadequate structure and composition, and Wildfire Hazard, Excessive Biomass Accumulation; Soil Erosion - Concentrated flow erosion, Ephemeral gully erosion, and Classic gully erosion; Fish and Wildlife - Inadequate Habitat - Cover/Shelter, and Food; and, Water Quality - Excessive sediment in surface waters.

Before Situation:

An adequately stocked stand of desirable tree species is threatened by severe competition from undesirable trees and brush. Without treatment the desirable trees may not survive, and impacts on forest health and wildlife habitat may occur. Soil erosion ma

After Situation:

After management, the released stand of trees has the desired species composition and structure to support forest health and meet landowner objectives. A layer of desirable understory vegetation reduces runoff and limits erosion and sedimentation. The eco-site provides habitat for desirable wildlife species. Trees are healthy and less susceptible to damaging levels of insect pests and diseases. The risk from catastrophic wild-land fire is reduced and other resource concerns are addressed.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost:	$2,318.04	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$57.95	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #45 - LED (using existing fixture) < 20 watts

Scenario Description:

The application of this practice consists of the replacement of an incandescent or compact fluorescent light or tube with a new light emitting diode (LED) lamp or tube on a one-for-one basis where the existing fixture and wiring is functioning. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamp is properly disposed according to its contents and applicable environmental laws and regulations. The typical bulb installed is a 9-watt LED.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, or similar lamps. Inefficient energy use and a recommendation to implement an improvement has been id

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of lamps replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $13.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #61 - LED (using existing fixture) >= 20 watts and < 100 watts

Scenario Description:

The application of this practice consists of the replacement of an incandescent, compact fluorescent, high-pressure sodium (HPS), or similar lamp or tube with new light emitting diode (LED) flood lamp on a one-for-one basis where the existing fixture and wiring is functioning. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamp is properly disposed according to its contents and applicable environmental laws and regulations. The typical flood lamp installed is a 50-watt LED.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, or similar lamps. Inefficient energy use and a recommendation to implement an improvement has been id

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of lamps replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $49.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $49.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #77 - LED (using existing fixture) >= 100 watts

Scenario Description:

The application of this practice consists of the replacement of an incandescent, compact fluorescent, mercury vapor, or similar lamp or tube with new light emitting diode (LED) flood lamp or tube on a one-for-one basis where the existing fixture and wiring is functioning. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamp is properly disposed according to its contents and applicable environmental laws and regulations. The typical flood lamp installed is a 150-watt high bay.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of lamps replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $117.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $117.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #93 - Fixture (including LED) < 20 watts

Scenario Description:

The application of this practice consists of the replacement of an existing lamp and fixture with a new light emitting diode (LED) fixture on a one-for-one basis where the existing fixture and wiring is functioning. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamp, fixture, and ballast are properly disposed according to their contents and applicable environmental laws and regulations. The fixture is for indoor or exterior locations and generally known as general, flood, linear, canopy, pendant, wall pack, low intensity flood, ceiling mounted, or low bay. Low bay lighting is used when ceilings are 20 feet or less in height. Low bay fixtures usually have a diffuser mounted to the bottom of the fixture that serves to spread light over a large area. The typical fixture installed is a 9-watt fixture with diodes or lamp.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of fixtures replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $26.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $26.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #109 - Fixture (including LED) >= 20 watts and < 40 watts

Scenario Description:

The application of this practice consists of the replacement of an existing lamp and fixture with a new light emitting diode (LED) fixture on a one-for-one basis where the existing fixture and wiring is functioning. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamp, fixture, and ballast are properly disposed according to their contents and applicable environmental laws and regulations. The fixture is for indoor or exterior locations and generally known as general, flood, linear, canopy, pendant, wall pack, low intensity flood, ceiling mounted, or low bay. Low bay lighting is used when ceilings are 20 feet or less in height. Low bay fixtures usually have a diffuser mounted to the bottom of the fixture that serves to spread light over a large area. The typical fixture installed is a 25-watt fixture with diodes or lamp.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of fixtures replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $74.43

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $74.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #125 - Fixture (including LED) >= 40 watts and < 80 watts

Scenario Description:

The application of this practice consists of the replacement of an existing lamp and fixture with a new light emitting diode (LED) fixture on a one-for-one basis where the existing fixture and wiring is functioning. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamp, fixture, and ballast are properly disposed according to their contents and applicable environmental laws and regulations. The fixture is for indoor or exterior locations and generally known as general, flood, linear, canopy, pendant, wall pack, low intensity flood, ceiling mounted, or low bay. Low bay lighting is used when ceilings are 20 feet or less in height. Low bay fixtures usually have a diffuser mounted to the bottom of the fixture that serves to spread light over a large area. The typical fixture installed is a 50-watt fixture with diodes or lamp.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of fixtures replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $148.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $148.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #141 - Fixture (including LED) >= 80 watts

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixture with a new light emitting diode (LED) fixture on a one-for-one basis where the existing fixture and wiring is functioning. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamp, fixture, and ballast is properly disposed according to its contents and applicable environmental laws and regulations. The fixture is for indoor or exterior locations and generally known as high bay or high intensity flood light or linear. High bay lighting is used when ceilings are 20 - 45 feet in height and where fixtures are mounted at the ceiling height instead of being suspended down to a lower level. High bay fixtures usually have an aluminum or mirror-like reflector which directs light downwards to the floor area or a prismatic reflector to spread light over larger areas. The typical fixture installed is a 200-watt round high bay or 160-watt linear fixture.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of fixtures replaced

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $269.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $269.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #157 - Poultry house, Lamp replacement

Scenario Description:

The application of this practice consists of the replacement of incandescent or compact fluorescent lights with new light emitting diode (LED) lamps on a one-for-one basis where the existing fixtures and wiring are functioning. The retrofitted lighting system with a new dimmer will provide similar light level as the existing system. Existing lamps are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the poultry house. The typical system installed is in a 40x500-foot poultry house with 99 existing incandescent light bulbs that are removed and replaced with 99 9-watt LED grow out bulbs, and the typical size is 20,000 square feet.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, or similar lamps. Inefficient energy use and a recommendation to implement an improvement has been id

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal area of building

Scenario Unit: Square Foot

Scenario Typical Size: 20,000.0

Scenario Total Cost: $1,729.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #173 - Poultry house, Fixture (including LED) replacement

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixtures with new light emitting diode (LED) fixtures on a one-for-one basis where the existing fixtures and wiring are functioning. The retrofitted lighting system with a new dimmer will provide similar light levels as the existing system. Existing lamps, fixtures, and ballasts are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the poultry house. The typical system installed is in a 40x500 foot poultry house with 99 existing incandescent light fixture and bulbs that are removed and replaced with 99 9-watt LED fixtures with diodes or new fixtures with LED grow out bulbs, and the typical size is 20,000 square feet.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, or similar lamps. Inefficient energy use and a recommendation to implement an improvement has been id

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal area of building

Scenario Unit: Square Foot

Scenario Typical Size: 20,000.0

Scenario Total Cost: $3,097.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #189 - Poultry house, Fixture (including LED) replacement with new layout

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixtures with new light emitting diode (LED) fixtures and wiring in a new layout. The replacement lighting system with a new dimmer will provide similar light levels as the existing system. Existing lamps, fixtures, and ballasts are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the poultry house. The typical system installed is in a 40x500 ft. poultry house with 21 150W sodium or halide fixtures and bulbs that are removed and replaced with 100 9-watt LED fixtures with diodes or new fixtures with LED grow out bulbs in a new layout, and the typical size is 20,000 square feet.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, or similar lamps. Inefficient energy use and a recommendation to implement an improvement has been id

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal area of building

Scenario Unit: Square Foot

Scenario Typical Size: 20,000.0

Scenario Total Cost: $4,280.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #205 - Swine facility, Fixture (including LED) replacement

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixtures with new light emitting diode (LED) fixtures on a one-for-one basis where the existing fixtures and wiring are functioning. The areas of installation may include any combination of gestation, nursery, farrowing and finishing facilities. The retrofitted lighting system with a new dimmer will provide similar light levels as the existing system. Existing lamps, fixtures, and ballasts are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the lighted area. The typical system installed is in a 60x500 ft. swine facility with 115 existing incandescent light fixture and bulbs that are removed and replaced with 115 25-watt LED fixtures with diodes and the typical size is 30,000 square feet.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal lighted area

Scenario Unit: Square Foot

Scenario Typical Size: 30,000.0

Scenario Total Cost: $7,864.55

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #221 - Dairy housing, Fixture (including LED) replacement

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixtures with new light emitting diode (LED) fixtures on a one-for-one basis where the existing fixtures and wiring are functioning. The areas of installation may include any combination of free stalls and dairy housing, and other areas where high bay fixtures are appropriate such as milking parlors, washrooms, and other interior spaces. The retrofitted lighting system will provide similar light levels as the existing system. Existing lamps, fixtures, and ballasts are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the lighted area. The typical system installed is in a 105x230 ft. free stall barn with 30 existing mercury vapor lights that are removed and replaced with 30 180-watt high bay fixtures with diodes and the typical size is 24,150 square feet.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal lighted area

Scenario Unit: Square Foot

Scenario Typical Size: 24,150.0

Scenario Total Cost: $9,616.33

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #237 - General agricultural area, Fixture (including LED) replacement

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixtures with multiple, new light emitting diode (LED) fixtures and wiring in a new layout. The replacement lighting system will provide similar light levels as the existing system. Existing lamps, fixtures, and ballasts are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the lighted area. The typical system installed is in a 25x65 ft. agricultural building with 20 high pressure sodium light fixtures that are removed and replaced with 25 12-watt LED fixtures with diodes, and the typical size of 1,625 square feet.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal lighted area

Scenario Unit: Square Foot

Scenario Typical Size: 1,625.0

Scenario Total Cost: $1,225.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #253 - Specialty agricultural area, waterproof, Fixture (including LED) replacement

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixtures with new vapor-tight and waterproof light emitting diode (LED) fixtures where the existing fixtures and wiring are functioning. The replaced lighting system will provide similar light levels as the existing system. Existing lamps, fixtures, and ballasts are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the lighted area. The typical system installed is in a 43x43 ft. dairy parlor where existing fixtures are removed and replaced with 4 linear, waterproof, LED T8 fixtures with four tubes and the typical size of 1,849 square feet.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, high pressure sodium, mercury vapor, metal halide, halogen, T12 fluorescent tubes driven by magnetic

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal lighted area

Scenario Unit: Square Foot

Scenario Typical Size: 1,849.0

Scenario Total Cost: $2,041.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #269 - LED Dimmer or Controller

Scenario Description:

The typical application of this practice consists of the replacement of an existing dimmer or controller where the existing or retrofitted lighting system and wiring is functioning. The dimmer or controller shall be rated to operate with the retrofitted lighting system and includes all wiring, switches and controls. The existing dimmers and controls are properly disposed according to its contents and applicable environmental laws and regulations.

Before Situation:

A replaced or retrofitted lighting system within an agricultural operation has none or an obsolete dimmer or controller. Inefficient energy use and a recommendation to implement an improvement has been identified by an ASABE S612 compliant on-farm energy

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Number of dimmers installe

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $520.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $520.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 670 - Energy Efficient Lighting System

Scenario: #285 - Poultry breeding, Fixture (including LED) replacement with new layout

Scenario Description:

The application of this practice consists of the replacement of existing lamps and fixtures with new light emitting diode (LED) fixtures and wiring in a new layout. The replacement lighting system with a new dimmer will provide similar light levels as the existing system. Existing lamps, fixtures, and ballasts are properly disposed according to their contents and applicable environmental laws and regulations. The quantity for the scenario is based upon the nominal floor area, in square feet, of the poultry house. The typical system installed is in a 40’ x 500’ poultry breeder house with 21 150W sodium or halide fixtures and bulbs that are removed and replaced with 135 10-watt LED fixtures with diodes or new fixtures with LED grow out bulbs in a new layout, and the contract item number quantity is 20,000.

Before Situation:

A lighting system uses energy inefficiently within an agricultural operation. The existing lighting system consists of incandescent, compact fluorescent, or similar lamps. Inefficient energy use and a recommendation to implement an improvement has been id

After Situation:

A replaced or retrofitted lighting system is installed in an agricultural operation that has a minimum rated efficacy of 90 lumens per watt, can withstand the environmental conditions, is designed for light levels suitable for the area and is expressed as lumens. An analysis of the estimated annual energy savings is completed. The replaced or retrofitted lighting system will reduce overall power requirements (kW) compared to the existing lighting system. Associated activities: CEMA 228 Agricultural Energy Assessment , DIA 120 Agricultural Energy Design.

Feature Measure: Nominal area of building

Scenario Unit: Square Foot

Scenario Typical Size: 20,000.0

Scenario Total Cost: $6,362.33

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #1 - Wall Insulation

Scenario Description:

Enclose both sidewalls and endwalls from ceiling to floor in one of two manners: 1) metal exterior, 3.5" fiberglass batts (R-11), vapor barrier, & interior plywood or OSB sheathing, or 2) closed-cell polyurethane foam application (minimum 1" thickness (R-7) of 2.5 lbs./cu.ft. or higher density, (3.0 or higher density preferred) with a form of physical protective barrier on lower 2' (may be 6 lbs./cu.ft. or higher density 1/8" thick foam, or treated lumber). Based on a 40' x 400' agricultural structure. NOTE: NOT USED FOR GREENHOUSES.

Before Situation:

An agricultural facility with an inefficient building envelope with limited wall insulation.

After Situation:

A more effective and efficient building envelope can be created through addition of, or increased, insulation. Associated practices/activities: may include 122-AgEMP - HQ, 374-Farmstead Energy Improvement, and other activities within 672-Building Envelope Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Square Feet of Wall Insulate

Scenario Unit: Square Foot

Scenario Typical Size: 12,000.0

Scenario Total Cost: $32,682.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #2 - Sealant

Scenario Description:

A typical scenario is sealing the gaps between walls, gables, ceiling, etc. in a poultry house or greenhouse. Sealing is performed by a professional contractor, not merely use of spray foam from a can. The unit basis of payment in this scenario is each house based on 60' x 500' poultry house with an assumed need of sealant to seal 2400 linear feet of gap.

Before Situation:

An agricultural facility with an inefficient building envelope with gaps between walls, ceiling, etc. for a total of 2400 linear feet.

After Situation:

A more effective and efficient building envelope can be created through interior sealing of the exterior walls at the footer plate, eaves, ridge cap, and gable ends. The sealant reduces seasonal heat loss and heat gain due to infiltration which reduces the respective need for heating and cooling equipment to operate. Associated practices/activities: may include 122-AgEMP - HQ, 374-Farmstead Energy Improvement, and other activities within 672-Building Envelope Improvement . The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Perimeter of heated structu

Scenario Unit: Foot

Scenario Typical Size: 2,400.0

Scenario Total Cost: $4,673.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.95

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #4 - Greenhouse Bubble Insulation

Scenario Description:

Place aluminum foil faced double bubble insulation on greenhouse sidewalls to bench height (3') and/or cover the endwalls of a greenhouse with insulation from ceiling to floor. NOTE: FOR GREENHOUSES ONLY.

Before Situation:

A greenhouse with standard glazing, plastic or polycarbonate walls has an inefficient building envelope constructed with limited wall insulation. Heating of existing greenhouse is inefficient due to excessive heat loss.

After Situation:

Aluminum foil faced double bubble insulation is placed between the inner layer of plastic and the frame of greenhouse sidewalls to bench height (3') and/or covers the endwalls of a greenhouse with insulation from ceiling to floor. A more effective and efficient building envelope created through addition of insulation. The increased insulation reduces seasonal heat loss which reduces the respective need for heating equipment to operate. Associated practices/activities: may include 122-AgEMP - HQ, 374-Farmstead Energy Improvement, and other activities within 672-Building Envelope Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Square Feet of Wall Insulate

Scenario Unit: Square Foot

Scenario Typical Size: 600.0

Scenario Total Cost: $394.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #5 - Greenhouse Solid Insulation

Scenario Description:
Cover the endwalls 3ft to floor and/or the foundation (24 inches below ground) of a greenhouse with 1 inch of solid polystyrene or polyurethane insulation. NOTE: FOR GREENHOUSES ONLY.

Before Situation:
A greenhouse with an inefficient building envelope covered with limited end wall or foundation insulation.

After Situation:
Endwalls of greenhouse are covered 3ft to floor and/or the foundation is covered to 24 inches below ground with 1 inch of solid polystyrene or polyurethane insulation. A more effective and efficient building envelope created through addition of insulation. Associated practices/activities: may include 122-AgEMP - HQ, 374-Farmstead Energy Improvement, and other activities within 672-Building Envelope Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Square Feet Insulated

Scenario Unit: Square Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $666.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #6 - Greenhouse Screens <= 10,000 sq. ft.

Scenario Description:

The mechanical energy screen system consists of a drive motor, support cables, controls, and shade material, which may be woven, knitted, or non-woven strips of aluminum fiber, polyethylene, nylon or other synthetic material. The screen provides a means to better control solar heat gain and heat transfer during night or cold weather conditions to reduce energy use. Screens and similar devices may also be used to divide internal areas and allow for differentiated heating, ventilation, or cooling system operation to reduce energy use. This scenario includes screens that are <= 10,000 square foot.

Before Situation:

Heating and cooling of an existing greenhouse, or similar structure with conditioned spaces, is inefficient due to poorly regulated heat transfer. A need to regulate an entire space for uniform conditions when some portions have differing, intermittent re

After Situation:

The greenhouse is fitted with a mechanically controlled energy screen installed truss-to-truss or gutter-to-gutter, with side screens as necessary, reducing heat loss in the greenhouse. Associated practices/activities: may include 122-AgEMP - HQ, 374-Farmstead Energy Improvement, and other activities within 672-Building Envelope Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Area of Screen

Scenario Unit: Square Foot

Scenario Typical Size: 8,000.0

Scenario Total Cost: $37,940.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #7 - Greenhouse Screens > 10,000 sq.ft.

Scenario Description:

The mechanical energy screen system consists of a drive motor, support cables, controls, and shade material, which may be woven, knitted, or non-woven strips of aluminum fiber, polyethylene, nylon or other synthetic material. The screen provides a means to better control solar heat gain and heat transfer during night or cold weather conditions to reduce energy use. Screens and similar devices may also be used to divide internal areas and allow for differentiated heating, ventilation, or cooling system operation to reduce energy use. This scenario includes screens that are > 10,000 square foot

Before Situation:

Heating and cooling of an existing greenhouse, or similar structure with conditioned spaces, is inefficient due to poorly regulated heat transfer. A need to regulate an entire space for uniform conditions when some portions have differing, intermittent re

After Situation:

The greenhouse is fitted with a mechanically controlled energy screen installed truss-to-truss or gutter-to-gutter, with side screens as necessary, reducing heat loss in the greenhouse. Associated practices/activities: may include 122-AgEMP - HQ, 374-Farmstead Energy Improvement, and other activities within 672-Building Envelope Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Area of Screen

Scenario Unit: Square Foot

Scenario Typical Size: 15,000.0

Scenario Total Cost: $47,496.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #71 - Building Envelope - Attic Insulation

Scenario Description:
Install a minimum R-7 insulation in addition to existing attic or ceiling to reduce heat transfer. Increased insulation reduces seasonal heat loss and heat gain which reduces the respective need for heating and cooling equipment to operate.

Before Situation:
A poultry house with an inefficient building envelope with limited attic insulation.

After Situation:
A more effective and efficient building envelope can be created through addition of, or increased, attic insulation. Associated practices/activities: 122-AgEMP - HQ and 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Feature Measure: Area of Attic Insulated

Scenario Unit: Square Foot

Scenario Typical Size: 20,000.0

Scenario Total Cost: $20,053.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 672 - Energy Efficient Building Envelope

Scenario: #97 - Energy Efficient Glazing

Scenario Description:

The application of this practice consists of the installation of new energy efficient glazing to replace the existing glazing on a structure to reduce heat loss and provide better heat transfer during cold weather conditions while reducing energy use where high-value crops are grown seasonally or year-round. The typical structure is a 30x100 ft. quonset or gothic style structure where the top and sides require 102 ft. length by 42 ft. wide glazing and each end wall requires 32 ft. length and 28 ft. width to replace the existing glazing. In addition, approximately 400 ft. of new spring wire is required for securing the glazing in the existing tracks.

Before Situation:

The existing heated or ventilated greenhouse uses energy inefficiently due to low quality or damaged coverings. Inefficient energy use and a recommendation to implement the improvement has been identified by an ASABE S612 compliant on-farm energy audit or

After Situation:

New greenhouse glazing is installed on an existing greenhouse. The glazing material consists of a multi-layer, minimum 6 mil, greenhouse grade, UV resistant copolymer with infrared retention and anti-condensate properties. The owner must replace the energy efficient glazing with similar qualities at least once during the lifespan of this practice at their expense. An analysis of the estimated annual energy savings is completed. Associated activities: CEMA 228 Agricultural Energy Assessment, DIA 120 Agricultural Energy Design.

Feature Measure: Nominal floor area of green

Scenario Unit: Square Foot

Scenario Typical Size: 3,000.0

Scenario Total Cost: $1,351.77

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 805 - Amending Soil Properties with Lime

Scenario: #10 - Low Rate Lime <= 2.0 Ton

Scenario Description:
Crop production is impacted by Soil pH. Lime will be applied based on cropping system and according to soil test recommendations to improve the soil physical, chemical, and biological properties.

Before Situation:
Producer has not used lime and as a result the soil pH is acidic and resulting in decrease in plant available nutrients, poor soil structure, soil health is reduced and poor crop production.

After Situation:
Plant productivity and heath is improved due to a increase in availability for applied nutrient and less nutrients being lost. Soil structure & Health will improve resulting improved water infiltration and less runoff.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $807.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 805 - Amending Soil Properties with Lime

Scenario: #11 - Market/Gardens

Scenario Description:
Market/Garden production is impacted by Soil pH. Lime will be applied according to soil test recommendations to improve the soil physical, chemical, and biological properties.

Before Situation:
Producer has not used lime and as a result the soil pH is acidic and resulting in decrease in plant available nutrients, poor soil structure, soil health is reduced and poor crop production.

After Situation:
Plant productivity and heath is improved due to a increase in availability for applied nutrient and less nutrients being lost. Soil structure & Health will improve resulting improved water infiltration and less runoff.

Feature Measure: 1,000 square foot

Scenario Unit: 1,000 Square Feet

Scenario Typical Size: 15.0

Scenario Total Cost: $219.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 805 - Amending Soil Properties with Lime

Scenario: #12 - Lime Rate > 2.0 Ton

Scenario Description:
Biogeochemical function of the soil is impacted by Soil pH. Lime will be applied based on cropping system and according to soil test recommendations to improve the soil physical, chemical, and biological properties.

Before Situation:
Producer has not used lime and as a result the soil pH is acidic and resulting in decrease in plant available nutrients, poor soil structure, soil health is reduced and poor crop production.

After Situation:
Implementation according to the plans and specification has occurred. Plant productivity and heath is improved due to a increase in availability for applied nutrient and less nutrients being lost. Soil structure and health will improve resulting improved water infiltration and less runoff.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,371.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $34.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 812 - Raised Beds

Scenario: #18 - Unframed Raised Bed field size < 0.10 acres Contamination or Debris Sites only

Scenario Description:

The soil at this site has characteristics that restrict the ability to grow food and fiber crops directly in the soil. The soil has heavy metal contaminants and/or buried debris from past activities on the site. The owner/operator desires to bring the site into agricultural production. Typical size of raised bed is 4ft x 16 ft and minimum 16 inches deep and less than 100 sq ft. Field size 0.10 Acres (4356 sq ft) or less.

Before Situation:

Soils on site are unsuitable for agricultural production. Soil cannot be remediated or debris cannot be removed practically.

After Situation:

Raised beds or mounds are created above the existing soil. Geomembrane may be used to separate plant roots from contacting soil contaminants. Raised beds are designed to meet the owner/operator objectives for overall size. Associated practices may include Trails and Walkways (575), Critical Area Planting (342).

Feature Measure: square feet of bed

Scenario Unit: Square Foot

Scenario Typical Size: 85.0

Scenario Total Cost: $452.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.32

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 812 - Raised Beds

Scenario: #19 - Unframed Raised Bedfield size < 0.5 acres Contamination or Debris Sites only

Scenario Description:

The soil at this site has characteristics that restrict the ability to grow food and fiber crops directly in the soil. The soil has heavy metal contaminants and/or buried debris from past activities on the site. The owner/operator desires to bring the site into agricultural production. Bed area is 100 to 500 square feet. Raised bed size and shape varies. Field size up to 0.5 acres. NOT TO BE USED FOR RIDGE TILLAGE.

Before Situation:

Soils on site are unsuitable for agricultural production. Soil cannot be remediated or debris cannot be removed practically.

After Situation:

Raised beds or mounds are created above the existing soil. Geomembrane may be used to separate plant roots from contacting soil contaminants. Raised beds are designed to meet the owner/operator objectives for overall size. Associated practices may include Trails and Walkways (575), Critical Area Planting (342).

Feature Measure: square feet per bed

Scenario Unit: Square Foot

Scenario Typical Size: 300.0

Scenario Total Cost: $1,068.89

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 812 - Raised Beds

Scenario: #20 - Framed Raised Bed Small Lot Contamination or Debris Sites only

Scenario Description:

The soil at this site has characteristics that restrict the ability to grow food and fiber crops directly in the soil. The soil has heavy metal contaminants and/or buried debris from past activities on the site. The owner/operator desires to bring the site into agricultural production. Typical size of raised bed 4ft x 16 ft less than or equal to 100 sq ft. Field size 0.10 Acres or less.

Before Situation:

Soils on site are unsuitable for agricultural production. Soil cannot be remediated or debris cannot be removed practically.

After Situation:

Raised beds or mounds are created above the existing soil. Geomembrane may be used to separate plant roots from contacting soil contaminants. Raised beds are designed to meet the owner/operator objectives for overall size. Associated practices may include Trails and Walkways (575), Critical Area Planting (342).

Feature Measure: sq ft

Scenario Unit: Square Foot

Scenario Typical Size: 64.0

Scenario Total Cost: $963.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 812 - Raised Beds

Scenario: #21 - Framed Raised Bed < 500 sq ft Contamination or Debris Sites only

Scenario Description:

The soil at this site has characteristics that restrict the ability to grow food and fiber crops directly in the soil. The soil has heavy metal contaminants and/or buried debris from past activities on the site. The owner/operator desires to bring the site into agricultural production. Typical size of raised bed ranges from100 square feet to 500 square feet. Field size 0.10 Acres or less.

Before Situation:

Soils on site are unsuitable for agricultural production. Soil cannot be remediated or debris cannot be removed practically.

After Situation:

Raised beds or mounds are created above the existing soil. Geomembrane may be used to separate plant roots from contacting soil contaminants. Raised beds are designed to meet the owner/operator objectives for overall size. Associated practices may include Trails and Walkways (575), Critical Area Planting (342).

Feature Measure: sq ft

Scenario Unit: Square Foot

Scenario Typical Size: 200.0

Scenario Total Cost: $1,559.45

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.80

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 812 - Raised Beds

Scenario: #22 - Framed Raised Bed greater than or equal to 500 sq ft Contamination or Debris Sites only

Scenario Description:

The soil at this site has characteristics that restrict the ability to grow food and fiber crops directly in the soil. The soil has heavy metal contaminants and/or buried debris from past activities on the site. The owner/operator desires to bring the site into agricultural production. Typical size of raised bed ranges from 500 square feet to 2000 square feet. Scenario assumes 16*50 ft bed size.

Before Situation:

Soils on site are unsuitable for agricultural production. Soil cannot be remediated or debris cannot be removed practically.

After Situation:

Raised beds or mounds are created above the existing soil. Geomembrane may be used to separate plant roots from contacting soil contaminants. Raised beds are designed to meet the owner/operator objectives for overall size. Associated practices may include Trails and Walkways (575), Critical Area Planting (342).

Feature Measure: sq ft

Scenario Unit: Square Foot

Scenario Typical Size: 800.0

Scenario Total Cost: $3,523.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 821 - Low Tunnel Systems

Scenario: #16 - Low tunnel < 1000 square feet- Year 1

Scenario Description:

Garden or small farm grows annual crops including vegetables and other truck crops. Rows require a tunnel or floating cover to extend the growing season (early and late) or to protect from other environmental damage. Typical tunnel floats over crop or is supported by hoop or frame above crop. Tunnel cover is less than 48 inches above the soil. Typical row ranges in size from 30 inches by 200 feet up to 400 feet in length. Producer manages seasonal conditions such as soil temperature, exposure to early or late frost, and insects of food crops. Year 1 of implementation only.

Before Situation:

Crop production occurs within the zone growing season. Plant productivity and health is negatively impacted due to weather/environmental conditions delaying planting.

After Situation:

Row covers are applied and managed to improve plant health and productivity by controlling the micro-climate under the tunnel.

Feature Measure: area covered by tunnel

Scenario Unit: Square Foot

Scenario Typical Size: 500.0

Scenario Total Cost: $3,120.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 821 - Low Tunnel Systems

Scenario: #17 - Low tunnel management- Year 2-3

Scenario Description:

Garden or small farm grows annual crops including vegetables and other truck crops. Rows require a tunnel or floating cover to extend the growing season (early and late) or to protect from other environmental damage. Typical tunnel floats over crop or is supported by hoop or frame above crop. Tunnel cover is less than 48 inches above the soil. Producer manages seasonal conditions such as soil temperature, exposure to early or late frost, and insects of food crops. Year 2-3 of implementation.

Before Situation:

Crop production occurs within the zone growing season. Low tunnel system Year 1 was implemented. Producer is building skill to manage the tunnel coverings as needed during the growing season to improve plant productivity and health.

After Situation:

Row covers are applied and managed to improve plant health and productivity by controlling the micro-climate under the tunnel.

Feature Measure: area of tunnel

Scenario Unit: Square Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $586.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 821 - Low Tunnel Systems

Scenario: #18 - Low tunnel 1000-5000 square feet, Year 1

Scenario Description:

Garden or small farm grows annual crops including vegetables and other truck crops. Rows require a tunnel or floating cover to extend the growing season (early and late) or to protect from other environmental damage. Typical tunnel floats over crop or is supported by hoop or frame above crop. Tunnel cover is less than 48 inches above the soil. Typical row ranges in size from 30 inches by 500 feet up to 2000 feet in length. Producer manages seasonal conditions such as soil temperature, exposure to early or late frost, and insects of food crops. Year 1 of implementation only.

Before Situation:

Crop production occurs within the zone growing season. Plant productivity and health is negatively impacted due to weather/environmental conditions delaying planting.

After Situation:

Row covers are applied and managed to improve plant health and productivity by controlling the micro-climate under the tunnel.

Feature Measure: area covered by tunnel

Scenario Unit: Square Foot

Scenario Typical Size: 3,000.0

Scenario Total Cost: $5,078.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #7 - Small Scale

Scenario Description:

The typical operation is Transitioning to Organic. The typical farm size is 5 acres or less and fields may be in various stages of organic transition. Organic system include cash row crops, hay or pasture, perennial crops, cover crops and possibly livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $11,561.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,312.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #23 - Simple Crops Only

Scenario Description:

The typical operation is Transitioning to Organic. The typical field size is 40 acres and fields may be in various stages of organic transition. Crop system include cash row crops, hay or pasture, perennial crops and cover crops. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $11,751.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $293.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #39 - Simple Crops and Livestock

Scenario Description:

The typical operation is Transitioning to Organic. The typical farm size is 40 acres or less and fields may be in various stages of organic transition. Organic system include cash row crops, hay or pasture, perennial crops, cover crops and possibly livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $15,716.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $392.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #55 - Certified Organic

Scenario Description:

The typical operation is Certified Organic. The typical farm size is 40 acres or less and fields may be in various stages of organic transition. Organic system include cash row crops, hay or pasture, perennial crops, cover crops and possibly livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is using some organic management activities, to the client is using many organic management activities to address resource concerns. The client will improve or maintain at least

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $4,618.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $115.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #71 - Irrigated Pasture for Livestock

Scenario Description:

The typical operation is Transitioning to Organic. The typical pasture system size is 100 acres supporting 100 to 150 cattle or cow-calf pairs, and fields may be in various stages of organic transition. Organic system includes irrigated forage/grass. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $17,563.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $175.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #87 - Complex Crops Only

Scenario Description:

The typical operation is Transitioning to Organic. The typical field size is 40 acres and fields may be in various stages of organic transition. Crop system include cash row crops, hay or pasture, perennial crops and cover crops. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $13,503.22

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $337.58

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #103 - Complex Crops and Livestock

Scenario Description:

The typical operation is Transitioning to Organic. The typical field size is 40 acres and fields may be in various stages of organic transition. Organic system includes cash row crops, hay or pasture, perennial crops, cover crops and livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $18,585.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $464.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #119 - Small Scale FI

Scenario Description:

The typical operation is Transitioning to Organic. The typical farm size is 5 acres or less and fields may be in various stages of organic transition. Organic system include cash row crops, hay or pasture, perennial crops, cover crops and possibly livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $12,762.74

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,552.55

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #135 - Simple Crops Only FI

Scenario Description:

The typical operation is Transitioning to Organic. The typical farm size is 5 acres or less and fields may be in various stages of organic transition. Organic system include cash row crops, hay or pasture, perennial crops, cover crops and possibly livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $13,793.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $344.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #151 - Simple Crops and Livestock FI

Scenario Description:

The typical operation is Transitioning to Organic. The typical field size is 40 acres and fields may be in various stages of organic transition. Organic system include cash row crops, hay or pasture, perennial crops, cover crops and livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $17,758.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $443.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #167 - Complex Crops FI

Scenario Description:

The typical operation is Transitioning to Organic. The typical field size is 40 acres and fields may be in various stages of organic transition. Crop system include cash row crops, hay or pasture, perennial crops and cover crops. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $22,108.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $552.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #183 - Complex Crops and Livestock FI

Scenario Description:

The typical operation is Transitioning to Organic. The typical field size is 40 acres and fields may be in various stages of organic transition. Organic system includes cash row crops, hay or pasture, perennial crops, cover crops and livestock. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $27,191.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $679.78

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #199 - Simple Crops Large Acreage

Scenario Description:

The typical operation is Transitioning to Organic. The typical operation size is 1280 acres and fields may be in various stages of organic transition. Crop system include cash row crops, hay or pasture, perennial crops and cover crops. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 1,280.0

Scenario Total Cost: $126,007.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $98.44

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 823 - Organic Management

Scenario: #215 - Simple Crops Large Acreage FI

Scenario Description:

The typical operation is Transitioning to Organic. The typical operation size is 1280 acres and fields may be in various stages of organic transition. Crop system include cash row crops, hay or pasture, perennial crops and cover crops. This practice may be part of a conservation management system to: 1) Improve soil health, 2) Reduce soil erosion, 3) Reduce emissions of greenhouse gases, 4) Reduce transport of pesticides and nutrients transported to surface water, groundwater and air, 5) Improve moisture management, 6) Improve plant productivity and health 7) Reduce plant pest pressure, 8) Enhance habitat for wildlife, pollinators, and other beneficial invertebrates, 9) Improve livestock feed and forage imbalance and 10) Improve or maintain quantity and/or quality of forage for grazing, browsing and productivity. Organic Management Activities with low labor costs will be implemented on a medium to large scale crop production area. In all cases at least one planned organic management activity has risk to an identified resource concern.

Before Situation:

Before practice conditions will vary widely. Conditions range from the client is not using any organic management activities, transitioning to organic on some or all acres, no or limited compliance with National Organic Program requirements; to the client

After Situation:

Planned organic management activities have been implemented to address the identified resource concern(s) and complies with the National Organic Program Requirements. Conservation and organic system actions or operations have been developed or updated with the producer and they have implemented conservation practices with organic management design to address resource concerns. Records are reviewed and evaluated. Improvements planned for the next season are determined.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 1,280.0

Scenario Total Cost: $191,358.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $149.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 828 - Wildlife Habitat Site Preparation

Scenario: #1 - Chemical Site Preparation - Low Intensity

Scenario Description:

The practice controls undesirable herbaceous vegetation by treating it twice during the treatment period before creating wildlife habitat. Treatment takes place in areas of light to moderate grass and forb cover that can easily be controlled. The target species can be treated with the same method twice, or by combining mowing and tillage to increase herbicide effectiveness and deplete the seed bank. Undesirable vegetation needs to be treated at least twice before seeding or planting occurs, typically beginning in late summer by mowing and disking before applying the first herbicide spraying. About 4 to 6 weeks later any resulting weed regrowth is mowed and sprayed prior to dormant seeding. This process can also be applied to facilitate late spring plantings in the same manner.

Before Situation:

Area is currently lacking in undesirable wildlife habitat. The area may be dominated by weeds or undesirable vegetation that will prevent successful establishment of target planting.

After Situation:

Weeds and undesirable vegetation have been removed, weed seed pressure has been significantly reduced, and ground is ready for planting of targeted seeds, bulbs, rhizomes, or live plants to create wildlife habitat.

Feature Measure: Treated Acres

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $1,272.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $254.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 828 - Wildlife Habitat Site Preparation

Scenario: #2 - Chemical Site Preparation - Medium Intensity

Scenario Description:

The practice controls undesirable herbaceous vegetation by treating it three times during the treatment period before creating wildlife habitat. Treatment takes place in areas of moderate to heavy grass and forb cover that can be controlled . The target species is treated with chemicals a total of three times, and by combining mowing and tillage to increase herbicide effectiveness and deplete the seed bank. Undesirable vegetation needs to be treated at least three times before seeding or planting occurs. A typical sequence would start in mid summer to address difficult and persistent weed pressure by mowing the area, lightly disking to incorporate thatch, and spraying the remaining weeds. After about 4 to 6 weeks the site would be mowed and sprayed again and 8 to 12 weeks after the first spraying a third set of mowing and spraying would occur prior to a dormant seeding. This sequence is also applicable for preparing for a spring seeding, where the first two spraying treatments occur in the fall and the final spraying is delayed until after the spring green up to control weeds that germinate in the spring.

Before Situation:

Area is currently lacking in undesirable wildlife habitat. The area may be dominated by weeds or undesirable vegetation that will prevent successful establishment of target planting.

After Situation:

Weeds and undesirable vegetation have been removed, weed seed pressure has been significantly reduced, and ground is ready for planting of targeted seeds, bulbs, rhizomes, or live plants to create wildlife habitat.

Feature Measure: Acres Treated

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $1,815.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $363.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 828 - Wildlife Habitat Site Preparation

Scenario: #3 - Chemical Site Preparation - High Intensity

Scenario Description:

The practice controls undesirable herbaceous vegetation by treating it four times during the treatment period before creating wildlife habitat. Treatment takes place in areas of heavy grass and forb cover that requires extensive treatment. Some invasive woody vegetation that requires additional specialized treatment may be present. The target area is treated with chemicals a total of four times, and by combining mowing and tillage to increase herbicide effectiveness and deplete the seed bank. Undesirable vegetation needs to be treated at least four times before seeding or planting occurs. A typical application of the scenario makes use of an entire growing season to eliminate persistent weeds and reduce the seed bank beginning in spring with mowing, disking to incorporate residual material, and then spraying. Follow up mowings and sprayings occur three more times throughout the growing season every 4 to 6 weeks to control all weeds prior to a dormant season planting. Alternatively, control may begin in late summer with the last treatments occurring in the spring of the following year to control weeds that germinate over winter allowing for a spring seeding.

Before Situation:

Area is currently lacking in undesirable wildlife habitat. The area may be dominated by weeds or undesirable vegetation that will prevent successful establishment of target planting.

After Situation:

Weeds and undesirable vegetation have been removed, weed seed pressure has been significantly reduced, and ground is ready for planting of targeted seeds, bulbs, rhizomes, or live plants to create wildlife habitat.

Feature Measure: Treated Acres

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $2,201.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $440.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: 828 - Wildlife Habitat Site Preparation

Scenario: #4 - Mechanical - Stale Seed Bed

Scenario Description:

The practice entails the control of undesirable herbaceous vegetation by using mechanical methods before creating wildlife habitat to reduce plant competition. This method of treatment is used for organic operations. Treatment takes place in areas of light to medium grass and forb cover.

Before Situation:

Area is currently lacking in desirable wildlife habitat. The area may be dominated by weeds or undesirable vegetation that will prevent successful establishment of target planting.

After Situation:

Weeds and undesirable vegetation have been removed, weed seed pressure has been reduced, and ground is ready for planting of targeted seeds, bulbs, rhizomes, or live plants.

Feature Measure: Treated Acres

Scenario Unit: Acre

Scenario Typical Size: 0.3

Scenario Total Cost: $913.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,652.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000BFF1 - Buffer Bundle#1

Scenario: #1 - Bundle, Wildlife Habitat Buffer

Scenario Description:
Addresses water quality degradation, degraded plant condition, fish/wildlife inadequate habitat, and/or air quality impacts.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 3.0

Scenario Total Cost: $11,267.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,755.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL10 - YEAR 1 Irrigated Cropland (MRBI/Ogallala)

Scenario: #15 - Bundle, Year One Irrigated Cropland

Scenario Description:
Addresses water quality degradation, insufficient water, soil erosion, and inefficient energy.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $14,695.83

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $146.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL11 - YEAR 2+ Irrigated Cropland (MRBI/Ogallala)

Scenario: #7 - Bundle, Year Two Irrigated Cropland

Scenario Description:
Addresses water quality degradation, insufficient water, and soil erosion.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $5,121.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $51.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL12 - Non-Irrigated Precision Ag (MRBI)

Scenario: #7 - Bundle, Non-Irrigated Precision Agriculture Cropland

Scenario Description:
Addresses water quality degradation, soil quality, and soil erosion.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,876.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $48.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL13 - Non-Irrigated Cropland (MRBI)

Scenario: #7 - Bundle, Non-Irrigated Cropland

Scenario Description:
Addresses water quality degradation, soil quality, and soil erosion.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $3,648.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $36.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL14 - YEAR 1 Irrigated Precision Ag Cropland (MRBI)

Scenario: #7 - Bundle, Year One Irrigated Precision Agriculture Cropland

Scenario Description:
Addresses water quality degradation, insufficient water, soil erosion, and inefficient energy.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $15,501.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $155.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL15 - YEAR 2+ Irrigated Precision Ag Cropland (MRBI)

Scenario: #7 - Bundle, Year Two Irrigated Precision Agriculture Cropland

Scenario Description:
Addresses water quality degradation, insufficient water, and soil erosion.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $5,926.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $59.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL16 - Non-Irrigated Cropland with Water Bodies (MRBI)

Scenario: #7 - Bundle, Non-Irrigated Cropland near Water

Scenario Description:
Addresses water quality degradation, soil erosion, and soil quality

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,736.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $47.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL17 - Non-Irrigated Cropland with Water Bodies Riparian Forest Buffer (MRBI)

Scenario: #7 - Bundle, Non-Irrigated Cropland with Riparian Buffer

Scenario Description:
Addresses water quality degradation, soil erosion, and soil quality

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $9,127.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $91.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL18 - Crop Bundle #18 - Precision Ag

Scenario: #7 - Bundle, Precision Agriculture

Scenario Description:
Addresses water quality degradation, fish and wildlife inadequate habitat, air quality impairment, and either soil erosion or soil quality degradation resource concerns.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,991.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $49.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL19 - Crop Bundle #19 - Soil Health Precision Ag

Scenario: #7 - Bundle, Precision Agriculture for Soil Health

Scenario Description:
Addresses water quality degradation, soil quality degradation, fish and wildlife inadequate habitat, and insufficient water resource concerns.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,801.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $48.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL20 - Crop Bundle #20 - Soil Health Assessment

Scenario: #7 - Bundle, Soil Health Suite

Scenario Description:
Addresses water quality degradation, soil quality degradation, fish and wildlife inadequate habitat, and insufficient water resource concerns.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,190.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $41.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL21 - Crop Bundle #21 - Crop Bundle (Organic)

Scenario: #7 - Bundle, Organic Management

Scenario Description:
Addresses soil quality degradation, water quality degradation, and degraded plant condition resource concerns.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $7,015.60

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $70.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL22 - Crop Bundle #22 - Erosion Bundle (Organic)

Scenario: #7 - Bundle, Organic Erosion Management

Scenario Description:
Addresses soil quality degradation, water quality degradation, soil erosion, and fish and wildlife inadequate habitat resource concerns.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: acres of cropland where en

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,523.11

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $45.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL23 - Crop Bundle #23 - Pheasant and quail habitat

Scenario: #10 - Bundle, Pheasant and Quail Habitat

Scenario Description:
Addresses wildlife inadequate habitat, water quality degradation and/or air quality impacts, and soil health and/or degraded plant condition.

Before Situation:
Resources are protected at the minimum level of the conservation practice standards applied as part of the bundle.

After Situation:
The adoption of these enhancements will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: Acres where the bundle is i

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $2,753.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $68.85

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL24 - Crop Bundle #24 - Cropland Soil Health Management System

Scenario: #7 - Bundle, Soil Health on Cropland

Scenario Description:
Addresses soil health, water quality (or water quality and air quality), and either soil erosion, soil compaction, or plant pest pressure.

Before Situation:
Resources are protected at the minimum level of the conservation practice standards applied as part of the bundle.

After Situation:
The adoption of these enhancements will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $3,100.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $31.01

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000CPL25 - Climate Smart Advanced Soil Health

Scenario: #7 - Bundle, Climate Smart

Scenario Description:
Improve crop land soil health by minimizing soil disturbance, PAMS pest management, building soil organic matter, providing habitat and reducing nutrient and pesticide loss to water.

Before Situation:
Resources are protected at the minimum level of the conservation practice standards applied as part of the bundle.

After Situation:
The adoption of these enhancements will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acres applied

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $15,615.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $156.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000FST1 - Forest Bundle#1

Scenario: #1 - Bundle, Enhance Understory for Wildlife and Mast Production

Scenario Description:
?Addresses forest management on sites that are not adapted to natural fire disturbances. Addresses resource concerns air quality impacts, degraded plant condition and fish/wildlife inadequate habitat.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $31,307.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,565.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000FST2 - Forest Bundle #2 - Post-fire Management

Scenario: #6 - Bundle, Post-Fire Management

Scenario Description:
Forest stand improvement that improves forest health to reduce the risk of wildfire and wildlife habitat. Addresses air quality impacts, degraded plant condition, and fish/wildlife inadequate habitat.

Before Situation:
Resources are protected at the minimum level of conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of these enhancements will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $11,229.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,122.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000FST3 - Forest Bundle #3

Scenario: #7 - Bundle, Forest Stand Improvement and Brush Management

Scenario Description:
Forest stand improvement that improves forest health due to poor logging practices. Addresses soil organic matter depletion, degraded plant condition, and inadequate fish/wildlife habitat.

Before Situation:
Resources are protected at the minimum level of conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of these enhancements will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $11,408.21

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $570.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000FST4 - Forest Bundle #4

Scenario: #7 - Bundle, Sugar Maple

Scenario Description:
Forest management to improve sugar maple stands. Addresses soil organic matter depletion, degraded plant condition, and inadequate fish/wildlife habitat.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $28,038.07

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,401.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000FST5 - Forest Bundle #5 Climate Smart Increase Carbon Storage

Scenario: #7 - Bundle, Carbon Sequestration and Storage

Scenario Description:
Improve forest and tree health, enhance wildlife, and reduce soil erosion to support climate change mitigation. Build carbon stocks by increasing sequestration and storage.

Before Situation:
Resources are enhanced above the minimum level of the conservation practice standard(s) applied as part of the bundle.

After Situation:
The adoption of this bundle will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $27,180.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,718.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000GRZ1 - Grazing Bundle 1 - Range and Pasture

Scenario: #7 - Bundle, Improve Ecological Site

Scenario Description:
This bundle addresses soil erosion, degraded plant condition, and fish and wildlife inadequate habitat resource concerns through adoption of enhancements E528L, E315A, and E645A.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $4,396.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $109.91

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000GRZ2 - Grazing Bundle 2 - Range and Pasture

Scenario: #7 - Bundle, Streambank Protection

Scenario Description:
This bundle addresses water quality degradation, fish and wildlife inadequate habitat, and soil erosion resource concerns through adoption of enhancements E472A, E382A, and E580A.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 3.5

Scenario Total Cost: $9,873.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,821.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000GRZ3 - Grazing Bundle 3 - Range and Pasture

Scenario: #7 - Bundle, Manage Riparian Herbaceous Cover

Scenario Description:
This bundle addresses water quality degradation, fish and wildlife inadequate habitat, and soil erosion resource concerns through adoption of enhancements E472A, E390B, and E580A.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 6.0

Scenario Total Cost: $11,267.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,877.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000GRZ4 - Grazing Bundle 4 - Range and Pasture

Scenario: #7 - Bundle, Manage Riparian Forest Cover

Scenario Description:
This bundle addresses water quality degradation, fish and wildlife inadequate habitat, and soil erosion resource concerns through adoption of enhancements E472A, E391C, and E580A.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 4.0

Scenario Total Cost: $14,725.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,681.43

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000GRZ5 - Grazing Bundle 5 - Range and Pasture

Scenario: #7 - Bundle, Enhance Forage Community

Scenario Description:
This bundle addresses livestock production limitation, degraded plant condition, and fish and wildlife inadequate habitat resource concerns through adoption of enhancements E528A, E315A, and E645A.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1,050.0

Scenario Total Cost: $7,266.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000LLP1 - Longleaf Pine Bundle#1

Scenario: #1 - Bundle, Longleaf Pine One

Scenario Description:
?Improves conifer forest health through prescribed burning and grazing management. Addresses water quality degradation, degraded plant condition, and fish/wildlife inadequate habitat.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 110.0

Scenario Total Cost: $14,793.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $134.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000LLP2 - Longleaf Pine Bundle#2

Scenario: #1 - Bundle, Longleaf Pine Two

Scenario Description:
Improves conifer forest health through prescribed burning and forest stand management. Addresses air quality impacts, degraded plant condition, and fish/wildlife inadequate habitat.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standard(s) applied

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $20,477.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $409.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000LLP4 - Longleaf Pine Bundle #4

Scenario: #7 - Bundle, Longleaf Pine Four

Scenario Description:
Improves forest health and wildlife habitat through conversion of forest stands that are not predominantly longleaf pine. Addresses degraded plant condition, fish/wildlife inadequate food and habitat, and water quality.

Before Situation:
Resources are protected at the minimum level of the conservation practice standards applied as part of the enhancement.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level of the conservation practice standards applied.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $22,932.10

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $458.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000PST5 - Pasture Bundle 5

Scenario: #7 - Bundle, Manage Riparian Areas

Scenario Description:
Implementation of site specific strategies applied to range or pasture land uses through adoption of the following CSP enhancements: E528J, E315A, and E645A.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
Adoption of these bundled enhancements provides a combined benefit for resource protection that exceeds the minimum level for the associated practice standards in order to address the resource concerns Soil Erosion or Water Quality Degradation, Degraded Plant Condition, and Fish and Wildlife Inadequate Habitat.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 60.0

Scenario Total Cost: $4,521.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $75.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000PSTX - Pasture Bundle #6 - Pasture

Scenario: #7 - Bundle, Manage Soil Organic Matter

Scenario Description:

Managing the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining desired pasture composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity following the recommendations of a qualifying professional, as detailed in the documentation and implementation requirements. Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing. Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting. Resources are prote

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing. The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting. The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 315-Herbaceous Weed Treatment.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $10,323.52

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $103.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: B000RNG4 - Range Bundle 4

Scenario: #7 - Bundle, Range Monitoring

Scenario Description:
Implementation of site specific strategies applied to range through adoption of the following CSP enhancements: E528N, E315A, and E645A.

Before Situation:
Resources are protected at the minimum level of the conservation practice standard(s) applied as part of the enhancement.

After Situation:
Adoption of these bundled enhancements provides a combined benefit for resource protection that exceeds the minimum level for the associated practice standards in order to address the resource concerns Soil Erosion, Degraded Plant Condition, and Fish and Wildlife Inadequate Habitat.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $5,023.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $100.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E199A - Comprehensive Conservation Plan

Scenario: #7 - Single Enterprise, Low

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a contract through the Conservation Stewardship Program (CSP). NRCS will use the Conservation Assessment and Ranking Tool (CART) to identify all State priority resource concern categories (PRCCs) that the TSP must include in the CSP CCP. TSP develops a minimum of one conservation system alternative for one land use by each land management system included in the producer's operation. This typical scenario involves one agricultural enterprise and a.) 1 Land use with less than or equal to 4 priority resource concerns, OR b.) 2-3 Land Uses with less than or equal to two priority resource concern categories per land use.

Before Situation:

NRCS has identified priority resource concern categories that have not met stewardship thresholds. State priority resource concern categories need to be evaluated for one land use and each land management system.

After Situation:

TSP conducts an on-site inventory of all land uses and land management systems in the producer's operation. Assessment for each priority resource concern is completed by land use. Conservation practices, enhancements or bundles are identified. Develops a minimum of one conservation system alternative for each land use that meet the producer's objectives. Plan document follows the requirements ofE199A Guide sheet and meets Conservation Plan CPA 199 or applicable conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,122.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,122.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E199A - Comprehensive Conservation Plan

Scenario: #23 - Single Enterprise, Medium

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a contract through the Conservation Stewardship Program (CSP). NRCS will use the Conservation Assessment and Ranking Tool (CART) to identify all State priority resource concern categories (PRCCs) that the TSP must include in the CSP CCP. TSP develops a minimum of one conservation system alternative for one land use by each land management system included in the producer's operation. This typical scenario involves one agricultural enterprise and a.) 1 Land Use with greater than 4 priority resource concerns, OR b.) 2-3 Land Use with 3 to 4 priority resource concern categories per land use, OR c.) 4 or more Land Use with less than or equal to 2 priority resource concerns.

Before Situation:

NRCS has identified priority resource concern categories that have not met stewardship thresholds. State priority resource concern categories need to be evaluated for one land use and each land management system.

After Situation:

TSP conducts an on-site inventory of all land uses and land management systems in the producer's operation. Assessment for each priority resource concern is completed by land use. Conservation practices, enhancements or bundles are identified. Develops a minimum of one conservation system alternative for each land use that meet the producer's objectives. Plan document follows the requirements ofE199A Guide sheet and meets Conservation Plan CPA 199 or applicable conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $9,269.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9,269.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E199A - Comprehensive Conservation Plan

Scenario: #39 - Single Enterprise, High

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a contract through the Conservation Stewardship Program (CSP). NRCS will use the Conservation Assessment and Ranking Tool (CART) to identify all State priority resource concern categories (PRCCs) that the TSP must include in the CSP CCP. TSP develops a minimum of one conservation system alternative for one land use by each land management system included in the producer's operation. This typical scenario involves one agricultural enterprise and a.) 2-3 Land Use with 4 or more priority resource concern categories per land use, OR b.) 4 or more Land Use with 3 to 4 priority resource concerns.

Before Situation:

NRCS has identified priority resource concern categories that have not met stewardship thresholds. State priority resource concern categories need to be evaluated for one land use and each land management system.

After Situation:

TSP conducts an on-site inventory of all land uses and land management systems in the producer's operation. Assessment for each priority resource concern is completed by land use. Conservation practices, enhancements or bundles are identified. Develops a minimum of one conservation system alternative for each land use that meet the producer's objectives. Plan document follows the requirements ofE199A Guide sheet and meets Conservation Plan CPA 199 or applicable conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $11,486.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,486.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E199A - Comprehensive Conservation Plan

Scenario: #55 - Multiple Enterprise, Medium

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a contract through the Conservation Stewardship Program (CSP). NRCS will use the Conservation Assessment and Ranking Tool (CART) to identify all State priority resource concern categories (PRCCs) that the TSP must include in the CSP CCP. TSP develops a minimum of one conservation system alternative for one land use by each land management system included in the producer's operation. This typical scenario involves two or more agricultural enterprises and a.) 1 Land Use with up to 4 priority resource concerns, OR b.) 2-3 Land Use with 1 to 2 priority resource concern categories per land use.

Before Situation:

NRCS has identified priority resource concern categories that have not met stewardship thresholds. State priority resource concern categories need to be evaluated for one land use and each land management system.

After Situation:

TSP conducts an on-site inventory of all land uses and land management systems in the producer's operation. Assessment for each priority resource concern is completed by land use. Conservation practices, enhancements or bundles are identified. Develops a minimum of one conservation system alternative for each land use that meet the producer's objectives. Plan document follows the requirements ofE199A Guide sheet and meets Conservation Plan CPA 199 or applicable conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $12,773.41

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12,773.41

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E199A - Comprehensive Conservation Plan

Scenario: #71 - Multiple Enterprise, High

Scenario Description:

Conservation plan developed by a Technical Service Provider (TSP) for a participant enrolled in a contract through the Conservation Stewardship Program (CSP). NRCS will use the Conservation Assessment and Ranking Tool (CART) to identify all State priority resource concern categories (PRCCs) that the TSP must include in the CSP CCP. TSP develops a minimum of one conservation system alternative for one land use by each land management system included in the producer's operation. This typical scenario involves two or more agricultural enterprises and a.) 2-3 Land Use with 3 to 4 priority resource concern categories per land use, OR b.) 2-3 Land Use with 4 or more priority resource concerns, OR c.) 4 or more Land Use with any amount of priority resource concerns

Before Situation:

NRCS has identified priority resource concern categories that have not met stewardship thresholds. State priority resource concern categories need to be evaluated for one land use and each land management system.

After Situation:

TSP conducts an on-site inventory of all land uses and land management systems in the producer's operation. Assessment for each priority resource concern is completed by land use. Conservation practices, enhancements or bundles are identified. Develops a minimum of one conservation system alternative for each land use that meet the producer's objectives. Plan document follows the requirements ofE199A Guide sheet and meets Conservation Plan CPA 199 or applicable conservation activities CPA 102 CNMP or CPA 106 Forestry Plan.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $14,741.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $14,741.64

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #87 - EAP Cropland, Level 1

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers cropland.

Before Situation:
Producer implements conservation activities on cropland that address two to three resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treaded

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $6.62 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $6.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #103 - EAP Cropland, Level 2

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers cropland.

Before Situation:
Producer implements conservation activities on cropland that address four to six resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $8.49 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $8.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #119 - EAP Cropland, Level 3

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers cropland.

Before Situation:
Producer implements conservation activities on cropland that address seven or more resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost:	$11.82	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$11.82	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #135 - EAP Pasture, Level 1

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers pasture.

Before Situation:
Producer implements conservation activities on pasture that address two to three resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $5.17 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $5.17

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #151 - EAP Pasture, Level 2

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers pasture.

Before Situation:
Producer implements conservation activities on pasture that address four to six resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $6.89 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $6.89

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #167 - EAP Pasture, Level 3

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers pasture.

Before Situation:
Producer implements conservation activities on pasture that address seven or more resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost:	$10.61	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$10.61	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #183 - EAP Range, Level 1

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers rangeland.

Before Situation:
Producer implements conservation activities on rangeland that address two to three resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3.71 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $3.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #199 - EAP Range, Level 2

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers rangeland.

Before Situation:
Producer implements conservation activities on rangeland that address four to six resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $4.67 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $4.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #215 - EAP Range, Level 3

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers rangeland.

Before Situation:
Producer implements conservation activities on rangeland that address seven or more resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $5.96 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $5.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #231 - EAP Forest, Level 1

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers non-industrialized private forest.

Before Situation:
Producer implements conservation activities on forest that address two to three resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $3.93 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $3.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #247 - EAP Forest, Level 2

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers non-industrialized private forest.

Before Situation:
Producer implements conservation activities on forest that address four to six resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $5.72 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $5.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #263 - EAP Forest, Level 3

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers non-industrialized private forest.

Before Situation:
Producer implements conservation activities on forest that address seven or more resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $8.47 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $8.47

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #279 - EAP AAL, Level 1

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers associated ag land.

Before Situation:
Producer implements conservation activities on associated ag land that address two to three resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $8.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #295 - EAP AAL, Level 2

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers associated ag land.

Before Situation:
Producer implements conservation activities on associated ag land that address four to six resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $16.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #311 - EAP Farmstead, Level 1

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers farmsteads.

Before Situation:
Producer implements conservation activities on farmsteads that address two to three resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $10.99 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $10.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP1 - Existing Activity Payment-Land Use

Scenario: #327 - EAP Farmstead, Level 2

Scenario Description:
This existing activity payment (EAP1) provides a participant with a payment for existing stewardship specific to the land uses included in the operation. This scenario covers farmsteads.

Before Situation:
Producer implements conservation activities on farmsteads that address four or more resource concerns at the time of enrollment.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $15.90 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $15.90

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP2 - Existing Activity Payment-Resource Concern

Scenario: #23 - EAP2, General Contracts

Scenario Description:
This existing activity payment component (EAP2) provides a participant with a payment for existing stewardship specific to the number of resource concerns met at the time of enrollment.

Before Situation:
Producer implements conservation activities across all land uses included in the operation.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Per contract

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $1,800.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,800.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E300EAP2 - Existing Activity Payment-Resource Concern

Scenario: #39 - EAP2, Renewal Contracts

Scenario Description:
This existing activity payment component (EAP2) provides a participant with a payment for existing stewardship specific to the number of resource concerns met at the time of enrollment.

Before Situation:
Producer implements conservation activities across all land uses included in the operation.

After Situation:
Through participation in the program, the producer continues to maintain or improve the base level of stewardship assessed at the time of enrollment.

Feature Measure: Per contract

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $3,000.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3,000.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E314A - Brush management to improve wildlife habitat

Scenario: #1 - Wildlife Habitat

Scenario Description:

Brush management is employed to create a desired plant community, consistent with the related ecological site steady state, which will maintain or enhance the wildlife habitat desired for the identified wildlife species. It will be designed to provide plant structure, density and diversity needed to meet those habitat objectives. This enhancement does not apply to removal of woody vegetation by prescribed fire or removal of woody vegetation to facilitate a land use change.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 314 - Brush Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 314 - Brush Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $2,077.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20.77

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E315A - Herbaceous weed treatment to create plant communities consistent with the ecological site

Scenario: #1 - Enhance Plant Community within an Ecological Site

Scenario Description:
Mechanical, chemical, or biological, herbaceous weed treatment will be employed to control targeted, herbaceous weeds so as to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 315 - Herbaceous Weed Control

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 315 - Herbaceous Weed Control

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $159.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E327B - Establish Monarch butterfly habitat

Scenario: #1 - Nectar Plants for Monarchs

Scenario Description:
Seed or plug milkweed (Asclepias spp.), and high-value monarch butterfly nectar plants on marginal cropland, field borders, contour buffer strips, and similar areas.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 327 - Conservation Cover

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 327 - Conservation Cover

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $994.87

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $994.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328A - Resource conserving crop rotation

Scenario: #1 - Resource Conserving Crop Rotation

Scenario Description:

Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,613.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.13

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328B - Improved resource conserving crop rotation

Scenario: #1 - Improved Resource Conserving Crop Rotation

Scenario Description:

Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost:	$576.20	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$5.76	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328C - Conservation crop rotation on recently converted CRP grass/legume cover

Scenario: #1 - Water and Wind Erosion Protection

Scenario Description:

Implement a crop rotation management system on crop land acres that have recently converted from CRP grass/legume conservation cover to annual planted crops. Crop rotation minimizes disturbance resulting in a Soil Tillage Intensity Rating (STIR) less than 10 and reduces soil erosion from water or wind to below soil tolerance (T) level. The current NRCS wind and water erosion prediction technologies must be used to document the rotation, soil erosion estimate, and STIR calculations. *This enhancement is limited to acres where the conversion event took place not more than 2 years prior. Enhancement not applicable on hayland.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328D - Leave standing grain crops unharvested to benefit wildlife

Scenario: #1 - Unharvested Grain Crops

Scenario Description:
Implement a crop rotation which allows a portion of grain crops to be left in fields un-harvested to provide food and cover for wildlife during winter months.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $230.08

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328E - Soil health crop rotation

Scenario: #1 - Increase Diversity for Soil Health

Scenario Description:

Implement a crop rotation which addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. The rotation will include at least 4 different crop and/or cover crop types (crop types include cool season grass, warm season grass, cool season broadleaf, warm season broadleaf) grown in a sequence that will produce a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $576.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328F - Modifications to improve soil health and increase soil organic matter

Scenario: #1 - Soil Health Adaptive Management

Scenario Description:

Use of soil health assessment to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion (primary assessment made in Year 1). Modifications to the crop rotation and/or crop management will be made as a result of the assessment results (adding a new crop and/or cover crop to the rotation; making changes to planting and/or tillage system, harvest timing of crops, or termination timing of cover crops). During Year 3 a follow up assessment will be completed to allow time for the modifications to show increased soil organic matter. Modified system must produce a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $251.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328G - Crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement

Scenario: #1 - Manage Soil Organic Matter

Scenario Description:
Crop rotation on acres converted, no more than 2 years prior, from CRP grass/legume cover to annual crops. Diverse rotation with living roots and residue cover throughout year and minimal disturbance. Enhancement not applicable on hayland.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $576.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328H - Conservation crop rotation to reduce the concentration of salts

Scenario: #1 - Reduction of Salts, Saline Seeps

Scenario Description:

Implement a crop rotation to reduce the concentration of salts and other chemicals from saline seeps. The rotation should include at least 3 crops and/or cover crops grown in a sequence in the recharge areas of saline seeps that have rooting depths and water requirements adequate to fully utilize all available soil water. Do not use summer fallow. Use an approved water balance procedure to determine crop selection and sequence. Select crops with a tolerance to salinity levels that match the salinity of the discharge area. (See state lists)

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328J - Improved crop rotation to provide benefits to pollinators

Scenario: #1 - Pollinator Friendly Crops

Scenario Description:

Improve the existing crop rotation by adding pollinator friendly crops into the rotation. The crop rotation shall include a minimum of three different crops in a minimum five year crop rotation. Each year, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Use of insecticides is limited for the pollinator friendly crop.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

Feature Measure: Acres planted to pollinator r

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $92.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328K - Multiple crop types to benefit wildlife

Scenario: #7 - Multiple Crop Types

Scenario Description:
Alternating crops in a systematic arrangement of strips across a field to provide diverse rotations of crops that provide wildlife food. At least two crops will be planted in adjacent strips a minimum of 0.5 acres in size.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 328 - Conservation Crop Rotation.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 328 - Conservation Crop Rotation.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $115.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.76

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328L - Leaving tall crop residue for wildlife

Scenario: #7 - Crop Residue for Habitat

Scenario Description:
Fields may be harvested but must leave crop residue standing a minimum of 14 inches. Residue will be left through winter and into spring, providing valuable winter cover and forage for wildlife spanning late summer and through the following winter.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation.

Feature Measure: acres with small grain stubbl

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328M - Diversify crop rotation with canola or sunflower to provide benefits to pollinators

Scenario: #23 - Add Canola or Sunflower for Pollinators

Scenario Description:
Diversify the existing crop rotation by adding canola or sunflower into the rotation. Canola or sunflower must be planted on a minimum of 5% of cropland acres. Pesticide use is limited to pre-bloom or bloom and in accordance with IPM and industry best management practices.

Before Situation:
Resources are protected at the minimum level for the Conservation Practice Standard (CPS) 328- Conservation Crop Rotation.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328-Conservation Crop Rotation

Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328O - Perennial Grain Conservation Crop Rotation

Scenario: #7 - Perennial Grain

Scenario Description:

This practice payment is provided to the producer for the time needed to plan and implement the logistics of changing the rotation to effectively implement a conservation crop rotation on a cropland farm by adding a perennial grain as the third crop to their cropping system. The crop is intended to be a harvested and must be grown for at least 2 years after planting. No foregone income. Cost represents typical situations for conventional and organic producers. In this region this practice may be part of a conservation management system on both organic and non-organic operations that: (1) Reduces erosion; (2) Improves soil fertility and tilth; (3) Interrupts pest cycles; and (4) Builds soil organic matter. In applicable areas, reduces depletion of soil moisture or otherwise reduces the need for irrigation.

Before Situation:

Resources are protected at the minimum level for the Conservation Practice Standard (CPS) 328- Conservation Crop Rotation.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328-Conservation Crop Rotation.

Feature Measure: Area Planted

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $6,809.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $170.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E328P - Low Nitrogen Requirement Annual Crop Rotation

Scenario: #7 - Low Nitrogen Substitute

Scenario Description:
Design an annual crop rotation which less than the average annual nitrogen fertilizer requirement compared to the current (benchmark) crop rotation.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $2,978.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $29.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E329A - No till to reduce soil erosion

Scenario: #1 - No-Till, Soil Erosion

Scenario Description:

Establish no till system to reduce sheet and rill erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water and wind erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E329B - No till to reduce tillage induced particulate matter

Scenario: #1 - No-Till, Particulate Matter

Scenario Description:

Establish no till system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E329C - No till to increase plant-available moisture

Scenario: #1 - No-Till, Moisture

Scenario Description:

Establish a no till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E329D - No till system to increase soil health and soil organic matter content

Scenario: #1 - No-Till, Soil Health and Organic Matter

Scenario Description:

Establish a no till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E329E - No till to reduce energy

Scenario: #1 - No-Till, Energy

Scenario Description:

Establish a no till system which reduces total energy consumption associated with field operations by at least 25% compared to current tillage system (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 329 - Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E329F - No-till into green cover crop to improve soil organic matter quantity and quality

Scenario: #7 - Planting Green

Scenario Description:

This scenario applies to cropland where residue and tillage management prepares the field for “planting green” techniques where cash crops are planted into living cover crop residues. This practice is based on economic and social data obtained from the North Jersey RC&D On-Farm Trials Soil Health Demo CIG Project results. This scenario involves the site preparation and management of live cover crop residues during no-till planting events. The practice will be used to drastically reduce soil erosion, reduce CO2 losses from the field, maximize the four principles of soil health and related resource concerns, mitigate pesticide usage and amplify the benefits of supporting practices. The typical scenario size is 100 acres.

Before Situation:

Row crops or small grains are grown and harvested. Cover crop and/or crop residues that are present are too fragile or not in a quantity to adequately address soil, water, and air resource concerns. Residues are dead at the time of planting, leaving soils

After Situation:

Live residues are maintained for extended periods of time in the spring, providing soil coverage that is adequate to control erosion and runoff and sedimentation. Soils are no-tilled and cover crop residues accumulate carbon providing carbon sequestration benefits as well as increasing soil microbial activity which further increase the function of the soil. Chemical inputs are generally reduced due to increased soil function and protection from live residues. Producers gain knowledge through workshops and working with crop consultants to maintain the success and long-term adoption of the practice. All cover crop residues are to be maintained on the surface until planting. The cover crop must be terminated before crop emergence. See complete “NRCS Cover Crop Termination Guidelines” for more information.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $6,507.98

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $65.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E334A - Controlled traffic farming to reduce compaction

Scenario: #1 - Compaction Reduction

Scenario Description:

Establish a controlled traffic system where no more than 25% of the surface is tracked with heavy axel loads to minimize soil compaction. For row crops (e.g. corn in 30-inch rows) no tire should run on a row except for flotation tires on combines and/or fertilizer and lime spreading trucks. If wide flotation tires are used, they must be big enough that the inflation pressure will be below 18 psi to minimize compaction on trafficked rows.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 334 - Controlled Traffic Farming

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 334 - Controlled Traffic Farming

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $891.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E338A - Strategically planned, patch burning for grazing distribution and wildlife habitat

Scenario: #1 - Patch Burning

Scenario Description:

Patch burn grazing is the application of prescribed fires on portions of an identified grazing unit at different times of the year. Patch burn grazing allows grazing animals to select where they want to graze creating a mosaic of vegetation structures and diversity that will maintain or enhance the wildlife habitat desired for the identified wildlife species and maintain livestock production.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 338 - Prescribed Burning

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 338 - Prescribed Burning

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $838.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $8.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E338B - Short-interval burns to promote a healthy herbaceous plant community

Scenario: #1 - Short-Interval Burns

Scenario Description:

The controlled use of fire is applied in a forest to restore fire-adapted plants while improving wildlife habitat, wildlife food supply, and reducing the risk of damage from intense, severe wildfires. The ideal interval between prescribed burns is not often achieved. To improve the effectiveness of prescribed burning, the frequency of prescribed burning is increased appropriately, for a specified time period, to help restore ecological conditions in forests and woodlands. Short return interval prescribed burning is used to regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, improve wildlife food supply, create wildlife habitat (snags and den/cavity trees), limit encroachment of competing vegetation including non-native species, and reduce the future risk of damage from intense, severe wildfires.

Before Situation:

The site has a mixture of woody sprouts and some herbaceous vegetation in the forest understory.

After Situation:

The site has a mixture of warm season perennial vegetation and cool-season annual forages. Grazing is occurring to manage the herbaceous vegetation and keep undesirable woody vegetation from occupying the forest understory.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $5,172.44

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $129.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E338C - Sequential patch burning

Scenario: #1 - Patch Burning, Sequential

Scenario Description:

Conduct prescribed under burning beneath a forest canopy (ground fire), burning a portion of the area each year to create a mosaic of vegetation in several stages of development, to provide a more diverse understory and contribute to wildlife habitat. The health of conifer and oak-conifer forests, particularly longleaf pine with a characteristic herbaceous understory, is dependent on fire or another means of controlling encroaching woody vegetation. A healthy longleaf or shortleaf pine, or pine-oak forest, can support a wide array of wildlife including pollinators and several endangered or threatened species.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 338 - Prescribed Burning

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 338 - Prescribed Burning

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $3,007.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $300.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340A - Cover crop to reduce soil erosion

Scenario: #1 - Soil Erosion Reduction

Scenario Description:

Cover crop added to current crop rotation to reduce soil erosion from water and wind to below soil tolerance (T) level. Cover crops grown during critical erosion period(s). Species are selected that will have physical characteristics to provide adequate erosion protection.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $949.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.50

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340B - Intensive cover cropping to increase soil health and soil organic matter content

Scenario: #1 - Cover Crop, Intensive

Scenario Description:

Implementation of cover crop mix to provide soil coverage during ALL non-crop production periods in an annual crop rotation. Cover crop shall not be harvested or burned. Planned crop rotation including cover crops and associated management activities must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,533.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.34

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340C - Use of multi-species cover crops to improve soil health and increase soil organic matter

Scenario: #1 - Diversify Multi-Species

Scenario Description:

Implement a multi-species cover crop to add diversity and increase biomass production to improve soil health and increase soil organic matter. Cover crop mix must include a minimum of 4 different species. The cover crop mix will increase diversity of the crop rotation by including crop types currently missing, e.g. Cool Season Grass (CSG), Cool Season Broadleaves (CSB), Warm Season Grasses (WSG), Warm Season Broadleaves (WSB).

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,386.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340D - Intensive orchard/vineyard floor cover cropping to increase soil health

Scenario: #1 - Orchard and Vineyard, Soil Health

Scenario Description:
Implement orchard or vineyard floor cover crops. Cover crop shall not be harvested, grazed, or burned. Must achieve a soil conditioning index of zero or higher and produce a positive trend in the Organic Matter subfactor over the life of the rotation.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,386.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340E - Use of soil health assessment to assist with development of cover crop mix to improve soil health

Scenario: #1 - Soil Health Assessment

Scenario Description:
Soil health assessment (year 1) to evaluate current crop rotation in addressing soil organic matter depletion. Results are utilized to select a multi-species cover crop mix to add to the current crop rotation. Follow up assessment completed (year 3).

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $358.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340F - Cover crop to minimize soil compaction

Scenario: #1 - Soil Compaction Treatment

Scenario Description:

Establish a cover crop mix that includes plants with both fibrous root and deep rooted systems. Fibrous to treat and prevent both near surface (0-4”) and deep (>4”) soil compaction and deep rooted to break up deep compacted soils. Cover crop shall not be harvested, grazed, or burned.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,344.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340G - Cover crop to reduce water quality degradation by utilizing excess soil nutrients

Scenario: #1 - Scavenge Excess Soil Nutrients

Scenario Description:

Establish a cover crop mix to take up excess soil nutrients. Select cover crop species for their ability to effectively utilize nutrients. Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake. Cover crop shall not be harvested, grazed, or burned.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,344.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340H - Cover crop to suppress excessive weed pressures and break pest cycles

Scenario: #1 - Weed and Pest Suppression

Scenario Description:

Establish a cover crop mix to suppress excessive weed pressures and break pest cycles. Select cover crop species for their life cycles, growth habits, and other biological, chemical and/or physical characteristics. Select cover crop species that do not harbor pests or diseases of subsequent crops in the rotation. Cover crop shall not be harvested, grazed, or burned.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 340 - Cover Crop

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 340 - Cover Crop

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,386.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340I - Using cover crops for biological strip till

Scenario: #7 - Bio-Strip Tillage

Scenario Description:
Establish alternating strips of cover crops in which one strip acts as a biological strip-tiller and the adjacent strip promotes soil health with high residue cover crops. This will facilitate planting of the subsequent cash crop into the biologically strip-tilled row without the need for mechanical disturbance.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 340 - Cover Crop.

After Situation:
The adoption of this enhancement will provide protection above the minimum level as described in Conservation Practice Standard 340 - Cover Crop.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,510.99

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E340J - Cover crop to improve moisture use efficiency and reduce salts

Scenario: #7 - Manage Salt and Moisture Use Efficiency

Scenario Description:
Cover crop used in a crop rotation to reduce damaging levels of salt from parent materials and or ground water. A salt tolerant cover crop species will be planted in the salt affected zone and a buffer zone extending into the commodity crop base acres.

Before Situation:
Resources are protected at the minimum level of CPS 340 Cover Crop.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in CPS 340 Cover Crop.

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $5,222.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $52.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E345A - Reduced tillage to reduce soil erosion

Scenario: #1 - Reduced Tillage, Soil Erosion

Scenario Description:

Establish a reduced tillage system to reduce soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water and wind erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E345B - Reduced tillage to reduce tillage induced particulate matter

Scenario: #1 - Reduced Tillage, Particulate Matter

Scenario Description:

Establish a reduced tillage system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E345C - Reduced tillage to increase plant-available moisture

Scenario: #1 - Reduced Tillage, Moisture

Scenario Description:

Establish a reduced till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E345D - Reduced tillage to increase soil health and soil organic matter content

Scenario: #1 - Reduced Tillage, Soil Health and Organic Matter

Scenario Description:

Establish a reduced till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher and produce a positive trend in the Organic Matter (OM) subfactor over the life of the crop rotation. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $460.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E345E - Reduced tillage to reduce energy use

Scenario: #1 - Reduced Tillage, Energy

Scenario Description:

Establish a reduced tillage system which reduces total energy consumption associated with field operations by at least 25% compared to conventional tillage systems (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 345 - Residue and Tillage Management, Reduced Till

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E372A - Switch to Renewable Power Source

Scenario: #3 - Repower with Renewable Energy Source

Scenario Description:

Existing internal combustion system (5-30 HP) used for water pumping and or movement. The repower provides the pump and drive unit replacement and the conversion to renewable energy power source, typically solar. The repowered system will function at the same capacity as the original system. Addresses Air Quality Emissions of Particulate Matter, Ozone Precursors, and Nitrous oxides.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 372 Combustion System Improvement.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard 372 Combustion System Improvement.

Feature Measure: per unit switched to renewa

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $20,661.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $20,661.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E372B - Renewable Energy Source for Large Internal Combustion Engines

Scenario: #3 - Renewable Energy Source for Large Internal Combustion Engines

Scenario Description:

Replace an existing pump motor with a drive unit that is powered by a renewable source such as wind, solar, geothermal, etc. that can adequately maintain the existing operating conditions, flow rates and pressures. The replacement, repower, or retrofit combustion system and related components or devices must serve the same function and perform similar type of work as the original equipment. Applies to existing, in-use agricultural combustion systems, including stationary, portable, and self-propelled mobile units. Addresses Resource Concerns for Air Quality- Emissions of Particulate Matter, Ozone Precursors, Airborne Reactive Nitrogen, and Greenhouse Gases. Inefficient energy may be addressed when the IC engine is repowered with a more efficient drive unit.

Before Situation:

Resources are protected at the minimum level of Conservation Practice Standard 372 Combustion System Improvement.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level of Conservation Practice Standard 372 Combustion System Improvement.

Feature Measure: each IC system repowered

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $78,470.65

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $78,470.65

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E373A - Dust suppressant re-application for stabilization

Scenario: #23 - Dust Suppression, One Application

Scenario Description:
Limit dust emissions by maintaining the surfaces of unpaved roads and areas in a stabilized condition. The periodic re-application of dust suppressants to unpaved surface areas will limit dust generation from vehicle and machinery activities or wind action.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 373 - Dust Control on Unpaved Roads and Surfaces.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 373 - Dust Control on Unpaved Roads and Surfaces.

Feature Measure: Square Feet

Scenario Unit: Square Foot

Scenario Typical Size: 15,840.0

Scenario Total Cost: $4,402.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E376A - Modify field operations to reduce particulate matter

Scenario: #1 - Manage Soil Disturbance

Scenario Description:
Modify tillage and/or harvest operations to reduce particulates by at least 20 percent below the required levels.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 376 - Field Operations Emissions Reduction

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 376 - Field Operations Emissions Reduction

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $345.72

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.46

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E381A - Silvestre to improve wildlife habitat

Scenario: #1 - Silvestre for Wildlife

Scenario Description:
Establishing a combination of trees or shrubs and compatible forages on the same acreage, providing forage, shade, and/or shelter for livestock that include a purpose of enhancing wildlife cover and shelter.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 381 - Silvestre

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 381 - Silvestre

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $9,272.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $92.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E382A - Incorporating "wildlife friendly" fencing for connectivity of wildlife food resources

Scenario: #1 - Wildlife Friendly Fence

Scenario Description:
Retrofitting or constructing fences that provide a means to control movement of animals, people, and vehicles, but minimizes wildlife movement impacts.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 382 - Fence

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 382 - Fence

Feature Measure: Acre

Scenario Unit: Foot

Scenario Typical Size: 1,000.0

Scenario Total Cost: $241.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E382B - Installing electrical fence offsets and wire for cross-fencing to improve grazing management

Scenario: #7 - Cross-Fencing, Electric

Scenario Description:
Retrofitting conventional fences such as barb wire, with new electrical offsets and electrical wire to facilitate cross-fencing for improved grazing management.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 382 - Fence

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 382 - Fence

Feature Measure: Feet

Scenario Unit: Foot

Scenario Typical Size: 2,640.0

Scenario Total Cost: $1,605.51

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E383A - Grazing-maintained fuel break to reduce the risk of fire

Scenario: #1 - Fuel Break Management

Scenario Description:

The area has existing fuel break(s) of 30 to 60 feet in width, supporting a mixture of woody sprouts and some herbaceous vegetation. Warm-season perennial vegetation will be established on the fuel breaks, and will be over-seeded with cool-season annual forages in the fall. Grazing will be managed on the fuel breaks to remove or modify the fine fuel vegetation, thus reducing the risk of fire spread from ground fires. Ground cover will be maintained to control soil erosion and facilitate prescribed burning.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 383 - Fuel Break

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 383 - Fuel Break

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $3,321.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $332.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E384A - Biochar production from woody residue

Scenario: #8 - Biochar Production

Scenario Description:

The adoption of this enhancement will go above the minimum level of woody residue treatment by creating a product that improves air quality by storing carbon, decreases fuel loads and fire hazard, and can improves soil quality. It will utilize woody debris remaining after a silvicultural practice or natural disturbance to create biochar. Biochar stores carbon and is a useful soil amendment that improves SOM and water-holding capacity.

Before Situation:

Area has woody residue that is unmerchantable and available for creation of quality biochar. Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 384 - Woody Residue Treatment

After Situation:

Woody debris has been converted to biochar.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 2.5

Scenario Total Cost: $14,499.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5,799.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E386A - Enhanced field borders to reduce soil erosion along the edge(s) of a field

Scenario: #1 - Soil Erosion Reduction, Edges

Scenario Description:
Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover along the edge(s) of the field.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 386 - Field Border

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 386 - Field Border

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,339.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,339.62

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E386B - Enhanced field borders to increase carbon storage along the edge(s) of the field

Scenario: #1 - Carbon Storage

Scenario Description:
Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover and dense rooting system along the edge(s) of the field.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 386 - Field Border

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 386 - Field Border

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,449.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,449.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E386C - Enhanced field borders to decrease particulate emissions along the edge(s) of the field

Scenario: #1 - Particulate Emissions Reduction

Scenario Description:
Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that decrease the particulate emissions along the edge(s) of the field.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 386 - Field Border

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 386 - Field Border

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,362.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,362.28

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E386D - Enhanced field borders to increase food for pollinators along the edge(s) of a field

Scenario: #1 - Pollinators

Scenario Description:
Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide food for pollinators along the edge(s) of the field.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 386 - Field Border

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 386 - Field Border

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,449.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,449.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E386E - Enhanced field borders to increase wildlife food and habitat along the edge(s) of a field

Scenario: #1 - Wildlife Habitat

Scenario Description:
Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide wildlife food and habitat along the edge(s) of the field. The extended field border will also provide enhanced wildlife habitat continuity.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 386 - Field Border

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 386 - Field Border

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,449.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,449.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E390A - Increase riparian herbaceous cover width for sediment and nutrient reduction

Scenario: #1 - Riparian Herbaceous Cover Expansion

Scenario Description:
Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of sediment and nutrient removal from surface and subsurface flows.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 390 - Riparian Herbaceous Cover

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 390 - Riparian Herbaceous Cover

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $1,342.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $671.09

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E390B - Increase riparian herbaceous cover width to enhance wildlife habitat

Scenario: #1 - Riparian Herbaceous Cover Expansion, Wildlife

Scenario Description:

Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock, and increase the width of the buffer.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 390 - Riparian Herbaceous Cover

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 390 - Riparian Herbaceous Cover

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 4.0

Scenario Total Cost: $1,811.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $452.94

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E391A - Increase riparian forest buffer width for sediment and nutrient reduction

Scenario: #1 - Riparian Forest Buffer Expansion

Scenario Description:
Where an existing forested riparian area is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of sediment and nutrient removal from surface and subsurface flows.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 391 - Riparian Forest Buffer

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 391 - Riparian Forest Buffer

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $5,463.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,731.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E391B - Increase stream shading for stream temperature reduction

Scenario: #1 - Increase Tree Canopy Cover for Shading

Scenario Description:
Riparian area tree canopy cover density is increased and the extent of the forested riparian area is increased to provide greater stream shading.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 391 - Riparian Forest Buffer

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 391 - Riparian Forest Buffer

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $5,526.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,763.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E391C - Increase riparian forest buffer width to enhance wildlife habitat

Scenario: #1 - Riparian Forest Buffer Expansion, Wildlife

Scenario Description:

Where an existing riparian forest buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock to increase the functional width of the buffer.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 391 - Riparian Forest Buffer

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 391 - Riparian Forest Buffer

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $5,526.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,763.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E393A - Extend existing filter strip to reduce water quality impacts

Scenario: #1 - Filter Strip Expansion

Scenario Description:

Extend existing filter strips for water quality protection. Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 393 - Filter Strip

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 393 - Filter Strip

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,679.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,679.86

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E395A - Stream habitat improvement through placement of woody biomass

Scenario: #1 - Woody Biomass Placement

Scenario Description:
Flexible placement of wood (unanchored/unpinned) in small, 1st and 2nd order streams to improve stream habitat conditions for aquatic species and natural stream processes.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 395 - Stream Habitat Improvement and Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 395 - Stream Habitat Improvement and Management

Feature Measure: Bankfull width X Length

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $22,303.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22,303.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E399A - Fishpond management for native aquatic and terrestrial species

Scenario: #1 - Fishpond Management

Scenario Description:
Pond rehabilitation, buffer, and watershed management actions are taken to improve habitat for native species of fish, amphibians, and shorebirds.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 399 - Fishpond Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 399 - Fishpond Management

Feature Measure: Pond area + buffer area

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $3,397.40

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,698.70

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E412A - Enhance a grassed waterway

Scenario: #7 - Waterway Expansion

Scenario Description:

Typical practice is 1500 ' long, 12' bottom, 8:1 side slopes, 1.1' depth. A grass waterway that is a shaped or graded channel and is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. This practice addresses Concentrated Flow Erosion (Classic Gully & Ephemeral Erosion) and Excessive Sediment in surface waters. Waterway area measured from top of bank to top of bank. Seeding will be completed under the Critical Area Planting (342) Practice Standard with seeding area up to 20% greater than waterway area to account for buffer area along the waterway. Costs include excavation and associated work to construct the overall shape and grade of the waterway. This scenario would apply to Grassed Waterways without erosion control blanket or rock checks.

Before Situation:

The field has a grassed waterway, but a gully cutting upstream, downstream, or adjacent to the existing grassed waterway has formed as time goes on, so the new gully needs to be stopped or controlled. The new gully has formed in field as a result of a cha

After Situation:

An installed grassed waterway has been installed that is possibly wider or longer than the original grassed waterway that wasn't functioning properly anymore. The new installed grassed waterway is 1500 ' long, 12' bottom, 8:1 side slopes, 1.1' depth. The practice is installed using a dozer and/or scraper, with final grading with motor grader. Use Critical Area Planting (342) for establishment of waterway vegetation. If erosion control blankets or mulching for seedbed establishment/protection are needed, use conservation practice Mulching (484). Drainage tile, if needed, will be installed according to Subsurface Drain (606).

Feature Measure: Acres of Waterway reshape

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $4,341.56

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,341.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E420A - Establish pollinator habitat

Scenario: #7 - Establish Pollinator Habitat

Scenario Description:
Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 420 - Wildlife Habitat Planting

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 420 - Wildlife Habitat Planting

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $640.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $640.16

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E420B - Establish monarch butterfly habitat

Scenario: #7 - Enhanced Plantings for Monarch Habitat

Scenario Description:
Seed or plug milkweed (Asclepias spp.) and high-value monarch butterfly nectar plants on marginal cropland, field borders, contour buffer strips and similar areas.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 420 - Wildlife Habitat Planting.

After Situation:
Adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 420 - Wildlife Habitat Planting.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $994.87 *Based on Maine average costs. Individual county costs may vary.*

Total Cost per Unit: $994.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E447A - Advanced Tailwater Recovery

Scenario: #7 - Tailwater Recovery

Scenario Description:

This enhancement is for a recovery system that capture 100% of excess irrigation and drainage runoff water from the contiguous land where the activity is implemented. Runoff water is conveyed through properly designed recovery ditches to a storage structure. Each recovery ditch and storage structure have adequate capacity to store excess irrigation water and reasonable runoff water. The system is designed to incorporate the collected water back into the delivery system so that excess water is reused. The system is fully automated to operate the recovery pumps, valves, and collection system. Key elements in the system are sensors that can evaluate data and operate devices through the system in opening/closing or on /off based on scientifically determined parameters.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 447 - Irrigation System, Tailwater Recovery.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 447 - Irrigation System, Tailwater Recovery.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 200.0

Scenario Total Cost: $1,935.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.68

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449A - Complete pumping plant evaluation for water savings

Scenario: #1 - Pumping Plant Evaluation, Water Efficiency

Scenario Description:
The performance of pump tests and evaluations of all pumping plants to determine the potential to rehabilitate/replace/reconfigure pump performance to improve water delivery efficiency 10% or more. Develop and provide a written report with recordkeeping documents and list of adjustments and calculations of the reduction of water use based on before and after conditions.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 449 – Irrigation Water Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard, (CPS) 449 – Irrigation Water Management.

Feature Measure: Each pump evaluated

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,230.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,230.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449B - Alternated Wetting and Drying (AWD) of rice fields

Scenario: #1 - Alternate Wetting and Drying

Scenario Description:
Rice fields are drained and allowed to “dry down” to a saturated soil condition prior to re-flooding the field. System is installed in year 1 with Scenario E449144Z8 and this scenario used in years 2-5.

Before Situation:
Resources are protected at the minimum level of the conservation Practice Standard (CPS) 449 – Irrigation Water Management.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard (CPS) 449 – Irrigation Water Management.

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,548.96

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $38.72

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449C - Advanced Automated IWM - Year 2-5, soil moisture monitoring

Scenario: #1 - Years Two-Five, Soil Moisture Monitoring

Scenario Description:
Advanced automated irrigation water management using soil moisture or water level monitoring (installed as per IWM plan) with data loggers.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 449 – Irrigation Water Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 449 - Irrigation Water Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 125.0

Scenario Total Cost: $2,810.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $22.48

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449D - Advanced Automated IWM - Year 1, Equipment and soil moisture or water level monitoring

Scenario: #1 - Year One, Equipment, Advanced Soil Moisture or Water Monitoring

Scenario Description:
Installing and monitoring soil moisture or water leveling equipment for advanced automated irrigation water management

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 449 - Irrigation Water Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 449 - Irrigation Water Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 120.0

Scenario Total Cost: $7,726.13

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $64.38

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449E - Convert from Cascade to Furrow Irrigated Rice Production – reduce irrigation water consumption

Scenario: #7 - Cascade to Furrow Irrigation Conversion

Scenario Description:
Field currently flooded through a cascade levee system will be converted to furrow irrigation.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 449 - Irrigation Water Management.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 449 - Irrigation Water Management.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 80.0

Scenario Total Cost: $4,874.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $60.93

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449F - Intermediate IWM - Year 1, Equipment with Soil or Water Level monitoring

Scenario: #7 - Year One, Equipment, Intermediate Soil Moisture or Water Monitoring

Scenario Description:
This activity involves monitoring soil moisture or water levels within a irrigated field for intermediate irrigation water management include installation of equipment year 1.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 449 - Irrigation Water Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 449 - Irrigation Water Management.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 160.0

Scenario Total Cost: $8,022.90

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.14

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449G - Intermediate IWM - Years 2-5, Soil or Water Level monitoring

Scenario: #7 - Years Two-Five, Data Collection

Scenario Description:

Intermediate irrigation water management involves monitoring soil moisture or water levels within an irrigated field by utilizing technological equipment to gather field specific data concerning weather, soil moisture or water levels throughout the irrigation season. The equipment was bought in year one and is utilized to log data through the season to be retrieved periodically so irrigation decisions can be made based on scientific data. Maximum time between data retrieval is weekly.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 449 - Irrigation Water Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 449 - Irrigation Water Management.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 160.0

Scenario Total Cost: $1,580.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $9.88

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449H - Intermediate IWM - Years 2 -5, using soil moisture or water level monitoring

Scenario: #23 - Years Two-Five, Interpretation of Data Log

Scenario Description:
Intermediate irrigation water management using soil moisture or water level monitoring with data loggers; specifically, multi-depth soil moisture sensors, water well and relift permanent flow meters, twice-daily water stage imaging water level devices, and quarter hour climate data element recording weather stations at approved IWM plan locations.

Before Situation:
Resources are protected at the minimum level of the CPS 449 - Irrigation Water Management.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 449 - Irrigation Water Management.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,913.32

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $47.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449I - Sprinkler Irrigation Equipment Retrofit

Scenario: #23 - Year One, Retrofit Equipment with Speed Control

Scenario Description:
This activity involves installing speed control equipment to a sprinkler irrigated field for irrigation water management. The installation of the equipment is in year one. It is applicable to sprinkler irrigation systems that do not already have the functionality and are able to integrate the speed control technology.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 449 - Irrigation Water Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 449 - Irrigation Water Management.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $2,092.63

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,092.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E449J - Intermediate IWM – 20% Reducing Water Usage

Scenario: #7 - Irrigation Water Management, 20 Percent Reduction

Scenario Description:

Intermediate irrigation water management involves monitoring soil moisture or water levels within an irrigated field by utilizing technological equipment to gather field specific data concerning weather, soil moisture or water levels throughout the irrigation season. The equipment will be utilized to log data through the season to be retrieved periodically so irrigation decisions can be made based on scientific data. Maximum time between data retrieval is weekly. Monitoring will be for the entire irrigation season and data gathered will be used to make sound decisions on irrigation water use. Supplemental Water usage will be reduced by 20% from previous years use and remain at that level for the remainder of the contract.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 449 – Irrigation Water Management.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard (CPS) 449 – Irrigation Water Management.

Feature Measure: Irrigated Acres

Scenario Unit: Acre

Scenario Typical Size: 125.0

Scenario Total Cost: $4,884.90

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $39.08

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E472A - Manage livestock access to waterbodies to reduce nutrients or pathogens to surface water

Scenario: #1 - Manage Livestock Access

Scenario Description:
Installation of structures and implementation of grazing management actions that restrict livestock access to streams, ditches, and other waterbodies in order to reduce nutrient loading or reduce the introduction of pathogens from manure, bio-solids or compost to surface waters.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 472 - Access Control

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 472 - Access Control

Feature Measure: (Stream length protected *

Scenario Unit: Foot

Scenario Typical Size: 1,320.0

Scenario Total Cost: $4,478.78

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.39

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E484A - Mulching to improve soil health

Scenario: #1 - Improve Soil Health

Scenario Description:

Implement a crop rotation which utilizes mulch and addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. Plant-based mulching materials will be applied at least once during the rotation. The rotation will include at least 4 different crops and/or cover crops grown in a sequence that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 484 - Mulching

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 484 - Mulching

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $230.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.30

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E484B - Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch

Scenario: #1 - Woody Mulch, Orchard and Vineyard

Scenario Description:

Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch. At least 90% of all woody materials are to be used as mulch on the operation. An exception may be made when it is determined that infected material must be burned to preserve crop health.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 484 – Mulching

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 484 - Mulching

Feature Measure: Actual Acres of Crop produc

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $713.35

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17.83

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E484C - Mulching with natural materials in specialty crops for weed control

Scenario: #7 - Specialty Crop

Scenario Description:
Application of straw mulch or other state approved natural material (such as wood chips, compost, green chop, dry hay or sawdust) for weed control in specialty crops.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 484 - Mulching

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 484 - Mulching

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $639.61

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $63.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E484D - Lowbush Blueberry Field Mulching for Moisture Management

Scenario: #7 - Woody Mulch, Field

Scenario Description:
Full-field application of state-approved natural material such as wood chips for moisture retention to enhance resilience in low bush blueberries (aka wild blueberries).

Before Situation:
Resources are protected at the minimum level of CPS 484 Mulching. 484 Mulching is typically used to fill bare spots on wild blueberry fields, which encourages "blueberry sod" to migrate into de-vegetated areas, stabilizing the soil. Blueberry field (barre

After Situation:
Wood chips are applied to a depth of 2 inches field-wide using typical dry manure spreading equipment. Wood chips hold precipitation in the root zone, preventing moisture loss in excessively-drained soils, and add organic matter into the system, improving soil quality over time.

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $151,335.97

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15,133.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape

Scenario: #1 - Wildlife Friendly Harvest

Scenario Description:

Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape. (For species list see State Wildlife Action Plan) Conservation measures include timing of harvest, idling land during the nesting or fawning period, and applying harvest techniques that reduce mortality to wildlife.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 511 - Forage Harvest Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 511 - Forage Harvest Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $239.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.79

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E511B - Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity

Scenario: #1 - Manage Harvest for Wildlife Habitat

Scenario Description:
The timely cutting and removal of forages from the field as hay, green-chop, or ensilage in such a way, and in time frames, to optimize both forage yield/quality and wildlife cover and shelter and/or continuity between otherwise disconnected habitats.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 511 - Forage Harvest Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 511 - Forage Harvest Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $558.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $5.59

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E511C - Forage testing for improved harvesting methods and hay quality

Scenario: #7 - Manage Harvest for Forage Quality

Scenario Description:

This enhancement results in participants obtaining hay samples and submitting them to a land grant university or other accredited lab for quality analysis. The participant will record data for multiple harvests and use the data to make future decisions. The participant will discuss the results with NRCS or with their cooperative extensions service. Technical recommendations are made to the participant based upon the test results.

Before Situation:

The participant has hay that doesn't have quality analysis or doesn't know the quality of previous hay harvests. The hay will be fed when needed.

After Situation:

The participant has hay with hay quality analysis. The participant records data based upon the results to reference and make future decisions. The participant has a better understanding on the quality of hay so that adjustments in feeding or supplementation can be made.

Feature Measure: Each

Scenario Unit: Number

Scenario Typical Size: 2.0

Scenario Total Cost: $295.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $147.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E511D - Forage Harvest Management to Improve Terrestrial Habitat for Wildlife during Over-Winter Periods

Scenario: #7 - Delay or Forgo Harvest

Scenario Description:

Eliminate or forgo the last fall cutting of hay or haylage to optimize wildlife cover and shelter during critical over-winter periods and lengthen late season bloom period for invertebrates. Allowing late season stand maturity increases stand life and reduces risks of frost and winter damage while providing valuable wildlife habitat and an extended bloom periods.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 511-Forage Harvest Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in CPS - 511

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $1,148.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $28.71

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E512B - Forage and biomass planting to reduce soil erosion or increase organic matter to build soil health

Scenario: #1 - Build Soil Health

Scenario Description:
Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide for reduced soil erosion, improving soil health.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $3,242.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $162.11

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E512D - Forage plantings that help increase organic matter in depleted soils

Scenario: #1 - Increase Organic Matter

Scenario Description:
Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can help improve soil quality of depleted sites through increase or conservation of the organic matter in the soil.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $1,663.57

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $83.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E512I - Establish pollinator and/or beneficial insect and/or monarch habitat

Scenario: #1 - Improve Habitat for Wildlife, Pollinators, Beneficial Insects and Monarchs

Scenario Description:

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for Monarch butterflies and/or pollinators and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $3,537.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $176.87

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E512J - Establish wildlife corridors to provide habitat continuity or access to water

Scenario: #1 - Wildlife Corridors

Scenario Description:
Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species of concern to move from food/cover/water sources to other food/cover/water sources as needed for their life cycles, and/or to enhance the utility of underused wildlife habitat areas.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 512 - Pasture and Hay Planting

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $2,227.47

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $111.37

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E512L - Diversifying Forage Base with Interseeding Forbs and Legumes to Increase Pasture Quality

Scenario: #7 - Interseed Forbs and Legumes

Scenario Description:
Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that increases the diversity to enhance livestock, forage supply and quality, not available in other pastures

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 512 Pasture and Hay Planting

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard (CPS) 512 Pasture and Hay Planting

Feature Measure: acres treated

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $2,212.26

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $110.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E512M - Forage Plantings that Improve Wildlife Habitat Cover and Shelter or Structure and Composition

Scenario: #7 - Manage Wildlife Habitat Cover

Scenario Description:
Establishing native adapted and/or compatible species, varieties, or cultivars of herbaceous species for pasture, hay, or biomass production that provide cover and shelter or structure and composition for wildlife.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 512 Pasture and Hay Planting

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard (CPS) 512 Pasture and Hay Planting

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $7,964.17

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $398.21

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528A - Maintaining quantity and quality of forage for animal health and productivity

Scenario: #1 - Manage Grazing

Scenario Description:

Managing the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining desired pasture composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity following the recommendations of a qualifying professional, as detailed in the documentation and implementation requirements.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1,000.0

Scenario Total Cost: $4,356.68

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528B - Grazing management that improves monarch butterfly habitat

Scenario: #1 - Improve Monarch Habitat

Scenario Description:
Implement a grazing management plan that will increase the abundance and diversity of monarch nectar-producing perennial forbs, including milkweed, while maintaining ecosystem benefits for other wildlife and livestock.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,144.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528C - Incorporating wildlife refuge areas in contingency plans for wildlife.

Scenario: #1 - Contingency Plans, Wildlife Refuge

Scenario Description:

A prescribed grazing plan that includes 12 month (or longer) rest (non-grazing period equal or greater than one year) of a grazing unit that consists of native grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat or wildlife access to water for a period of time.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,933.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $19.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528D - Grazing management for improving quantity and quality of food or cover and shelter for wildlife

Scenario: #1 - Improve Wildlife Habitat

Scenario Description:
Grazing management employed will provide the plant structure, density and diversity needed for improving the quantity and quality of cover, shelter and food for the desired wildlife species of concern.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1,000.0

Scenario Total Cost: $597.69

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528E - Improved grazing management for enhanced plant structure and composition for wildlife

Scenario: #1 - Improve Structure and Composition for Wildlife Habitat

Scenario Description:
Managing the harvest of vegetation with grazing and/or browsing animals for the purpose of improving the quantity and quality of the structure and composition of the plant community that is available for wildlife.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $354.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $3.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528F - Stockpiling cool season forage to improve structure and composition or plant productivity and health

Scenario: #1 - Stockpile Forage

Scenario Description:
Grazing management employed to stop grazing events of selected paddock(s) to allow pasture forages to grow to maximum vegetative biomass accumulation before the end of the growing season.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $3,172.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $31.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528G - Improved grazing management on pasture for plant productivity and health with monitoring activities

Scenario: #1 - Monitor Pastureland Health

Scenario Description:
Managing the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through pasture condition scoring (PCS).

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,099.58

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528H - Prescribed grazing to improve/maintain riparian and watershed function-elevated water temperature

Scenario: #1 - Riparian Management, Water Temperature

Scenario Description:
Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1,000.0

Scenario Total Cost: $1,959.19

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.96

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528I - Grazing management that protects sensitive areas -surface or ground water from nutrients

Scenario: #1 - Protect Sensitive Areas

Scenario Description:
Grazing management employed will provide cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations with plants that cannot tolerate defoliation.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1,000.0

Scenario Total Cost: $2,193.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.19

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528J - Prescribed grazing on pastureland that improves riparian and watershed function

Scenario: #1 - Riparian Management

Scenario Description:
Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,830.86

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $18.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528L - Prescribed grazing that improves or maintains riparian and watershed function-erosion

Scenario: #1 - Riparian Management, Erosion

Scenario Description:
Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,207.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.07

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528M - Grazing management that protects sensitive areas from gully erosion

Scenario: #1 - Gully Erosion Treatment

Scenario Description:
Grazing management employed will provide vegetative cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations that cannot tolerate plant defoliation.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1,000.0

Scenario Total Cost: $1,980.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528N - Improved grazing management through monitoring activities

Scenario: #1 - Monitor Rangeland Health

Scenario Description:

Three predominant key grazing areas are evaluated utilizing the Rangeland Health Assessment (where reference material is developed) or Describing Indicators of Rangeland Health protocols (where reference material is not developed) to determine how well the ecological processes of the site(s) are functioning. Utilizing knowledge learned from this as a part of the ranch resource assessment, a qualifying professional, as detailed in the enhancement criteria, will provide recommendations or follow-up evaluations toward mitigating some of the degradation risks that are initially identified.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 528 - Prescribed Grazing

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1,000.0

Scenario Total Cost: $2,183.34

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528O - Clipping mature forages to set back vegetative growth for improved forage quality

Scenario: #7 - Clipping, Mature Forages

Scenario Description:
Timely clipping of mature forages through mowing, swathing or some other mechanical cutting will occur to increase forage palatability by setting plants back to a vegetative state for improved grazing management and forage quality.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 528 - Prescribed Grazing

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 80.0

Scenario Total Cost: $4,367.70

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $54.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528P - Implementing Bale or Swath Grazing to increase organic matter and reduce nutrients in surface water

Scenario: #7 - Bale or Swath Grazing

Scenario Description:

Bale or swath grazing to improve organic matter, aggregate stability or soil organism habitat or to reduce nutrient risks to surface water by leaving field harvested forages on site or supplementing with off-field forages. Grazing forages in this manner, will help reduce nutrient concentrations from confined animal lots while incorporating organic matter, feeding and diversifying the microbiome, building better soil aggregation and increasing soil health.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 528 - Prescribed Grazing

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 528 - Prescribed Grazing

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $4,053.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $202.66

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528Q - Use of body condition scoring for livestock on a monthly basis to keep track of herd health

Scenario: #7 - Body Condition Scoring

Scenario Description:

Body condition scoring (BCS) serves as a useful management tool to monitor livestock performance with respect to current and recent feeding or grazing programs. Body condition scoring is a numeric scoring system, producers can use to consistently evaluate animals' estimated body energy reserves through degree of fatness. This information can be used to adjust nutritional strategies to reach optimal BCS. Since body condition is closely associated with reproductive performance as well as feed efficiency, monitoring body condition can help producers reach production goals and increase the operation's bottom line. Knowledge and understanding of BCS will assist producers to adjust a supplemental feeding program to maintain animal health and nutrition on a-monthly-basis.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 528 - Prescribed Grazing

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 528 - Prescribed Grazing

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $256.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528R - Management Intensive Rotational Grazing

Scenario: #7 - Management Intensive Rotational Grazing

Scenario Description:
Management intensive, multi-paddock grazing system where livestock are regularly and systematically moved to fresh forage to optimize quantity and quality of forage growth, improve manure distribution, improve wildlife cover, and improve soil health.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 528 - Prescribed Grazing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 528 - Prescribed Grazing

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $4,397.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $43.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528S - Soil Health Improvements on Pasture

Scenario: #7 - Improve Pasture Condition

Scenario Description:

Use of soil health assessment to evaluate impact of current grazing system in addressing soil organic matter depletion, soil aggregate instability and soil organism habitat loss or degradation (primary assessment made in Year 1). Modifications to the grazing system will be made after the laboratory analysis. Modifications can be improvements to the grazing plan or changes to the forage composition. During year 4, a follow-up assessment will be completed to allow time for the modifications to show improvements to the soil health resource concerns. The follow-up sample will be taken in the same soil type, closely matched to time of year and with similar amounts of regrowth since previous grazing.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 528 - Prescribed Grazing

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (PCS) 528 - Prescribed Grazing

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,241.50

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E528T - Grazing to Reduce Wildfire Risk on Forests

Scenario: #7 - Reduce Wildfire Risks, Western Forests

Scenario Description:
Managing the harvest of vegetation with grazing and/or browsing animals for the purpose of balancing forage with maintaining/improving ecological site condition and while reducing the risk of wildfire hazard on forested ecological sites.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level with the addition of CPS 528 - Prescribed Grazing

Feature Measure: acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $130.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.31

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E533A - Advanced Pumping Plant Automation

Scenario: #7 - Automation

Scenario Description:

This enhancement consists of installing a control device to a pump station that allows the user to remotely monitor and operate the pump station based on field measured data. Pumping stations may have either a combustible or electric power unit that are compatible with the control device or sensor. These devices/sensors collect field-measured data and provide this data in real time to the landowner to make irrigation decisions and adjustments to the pump operation.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 533 - Pumping Plant.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 533 - Pumping Plant.

Feature Measure: Number

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,373.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,373.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E533B - Complete pumping plant evaluation for energy savings

Scenario: #1 - Pumping Plant Evaluation, Energy

Scenario Description:

The performance of pump tests and evaluations of all pumping plants to determine the potential to rehabilitate/replace/reconfigure pump performance to reduce energy use. Evaluate to determine if a Variable Frequency Drive motor controller(s) will reduce energy use and is feasible. Develop and provide a written report with list of adjustments and calculations of the reduction of energy use based on before and after conditions.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 533 - Pumping Plant

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 533 - Pumping Plant

Feature Measure: Each pump evaluated

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $4,230.03

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $4,230.03

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E533C - Install VFDs on pumping plants

Scenario: #11 - Variable Frequency Drive

Scenario Description:
Install Variable Frequency Drive(s) (VFD) on Pumping Plant with the correct sensors, on all pumps as indicated in the evaluation.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 533 – Pumping Plant.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard, (CPS) 533 – Pumping Plant.

Feature Measure: Each pump modified

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $7,770.18

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7,770.18

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E533D - Switch fuel source for pumps

Scenario: #11 - Replacement of Fuel Source

Scenario Description:
Switch the fuel source for pump motor(s) to an on-farm renewable source (wind, solar, geothermal, etc.)

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 533 – Pumping Plant.

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in the Conservation Practice Standard, (CPS) 533 – Pumping Plant.

Feature Measure: Each pump modified

Scenario Unit: Number

Scenario Typical Size: 1.0

Scenario Total Cost: $17,843.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $17,843.84

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E550A - Range planting for increasing/maintaining organic matter

Scenario: #1 - Establish Vegetation to Improve Soil Organic Matter

Scenario Description:
Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees for the purpose of increasing or maintaining organic matter levels in the soil.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 550 - Range Planting

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 550 - Range Planting

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $5,362.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $53.63

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E550B - Range planting for improving forage, browse, or cover for wildlife

Scenario: #1 - Plantings for Wildlife

Scenario Description:

Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees for the purpose of improving forage, browse, or cover for wildlife on areas that have been degraded beyond recovery via ecological principles, or old crop fields and pastures devoid of desirable, native rangeland species that fit within an ecological site description steady state.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 550 - Range Planting

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 550 - Range Planting

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $2,545.38

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E570A - Enhanced rain garden for wildlife

Scenario: #7 - Rain Garden

Scenario Description:
Seed or plug nectar and pollen producing plants into rain gardens to provide wildlife habitat.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard 570 - Stormwater Runoff Control

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 570 - Stormwater Runoff Control

Feature Measure: Square Feet

Scenario Unit: Square Foot

Scenario Typical Size: 1,080.0

Scenario Total Cost: $267.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $0.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E578A - Stream crossing elimination

Scenario: #1 - Decommission Stream Crossing

Scenario Description:
Existing stream crossings on an operation are consolidated into fewer crossings in order to reduce impacts to stream habitat.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 578 - Stream Crossing

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 578 - Stream Crossing

Feature Measure: Typical feature is 0.09 acres

Scenario Unit: Each

Scenario Typical Size: 1.0

Scenario Total Cost: $11,538.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11,538.05

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E580A - Stream corridor bank stability improvement

Scenario: #1 - Vegetation for Bank Stability

Scenario Description:
Stream corridor bank vegetation components are established to provide additional streambank stability.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 580 - Streambank and Shoreline Protection

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 580 - Streambank and Shoreline Protection

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $5,153.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,576.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E580B - Stream corridor bank vegetation improvement

Scenario: #1 - Vegetation for Wildlife

Scenario Description:
Stream corridor bank vegetation components are established to improve ecosystem functioning and stability.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 580 - Streambank and Shoreline Protection

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 580 - Streambank and Shoreline Protection

Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 2.0

Scenario Total Cost: $5,153.37

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,576.69

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E590A - Improving nutrient uptake efficiency and reducing risk of nutrient losses

Scenario: #1 - Nutrient Uptake Strategies

Scenario Description:

Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses to surface and groundwater and reduce risks to air quality by reducing emissions of greenhouse gases (GHGs).

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 590 - Nutrient Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 590 - Nutrient Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,361.09

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $13.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E590B - Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies

Scenario: #1 - Precision Nutrient Application

Scenario Description:
Precision application technology and techniques are utilized to plan and apply nutrients to improve nutrient use efficiency and reduce risk of nutrient losses.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 590 - Nutrient Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 590 - Nutrient Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $2,166.73

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $21.67

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E590C - Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture

Scenario: #7 - Improve Nutrient Efficiency

Scenario Description:

Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses on pasture.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 590 - Nutrient Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 590 - Nutrient Management

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $2,526.14

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $25.26

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E590D - Reduce nutrient loss by increasing setback awareness via precision technology for water quality

Scenario: #7 - Precision Nutrient Application, Setbacks

Scenario Description:

Precision technology and techniques are used to increase Soil/Groundwater Setbacks & Associated Application Rate Restrictions (SGS&AARR) implementation during nutrient application by providing precise, real-time location information (geo-located) in the field to the equipment operator. While operating nutrient application equipment, the operator's location is continually updated and displayed on an add-on GPS-enabled device visible to the operator at all times to reduce the risk of nutrient application in setback and/or sensitive areas. Resource concerns addressed are Water Quality, Field sediment, nutrient and pathogen loss: Nutrients transported to groundwater and surface water and Pathogens and chemicals from manure, biosolids or compost applications transported to groundwater and surface water.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 590 - Nutrient Management.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 590 - Nutrient Management.

Feature Measure: Acres with setback for nutri

Scenario Unit: Acre

Scenario Typical Size: 300.0

Scenario Total Cost: $4,536.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.12

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E595A - Reduce risk of pesticides in surface water by utilizing precision pesticide application techniques

Scenario: #1 - Precision Pesticide Application

Scenario Description:
Utilize precision application techniques to reduce risk of pesticides in surface water by reducing total amount of chemical applied and reducing the potential for delivery of chemicals into water bodies.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 595 - Integrated Pest Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 595 - Integrated Pest Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,299.02

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.99

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E595B - Reduce risk of pesticides in water and air by utilizing IPM PAMS techniques

Scenario: #1 - IPM PAMS, Air and Water

Scenario Description:
Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce risk of pesticides in water and air. Reduce the potential for delivery of chemicals into water or ozone precursor emissions .

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 595 - Integrated Pest Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 595 - Integrated Pest Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $761.29

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $7.61

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E595D - Increase the size requirement of refuges planted to slow pest resistance to Bt crops

Scenario: #1 - Manage Refuge Size for Pest Resistance

Scenario Description:

Bacillus thuringiensis (Bt) plant incorporated protectants are plants that have been genetically altered to produce proteins that are harmful to certain insect pests. Widespread implementation of Bt crops has decreased insecticide use and increased crop yields, but it must be used as part of an integrated pest management (IPM) approach to protect the crop from pest species that are not susceptible to the Bt toxin and to manage pest resistance. Crop rotation, scouting and resistance management strategies, such as planting and creating refuges of non-Bt crops, are essential when farming Bt crops. Insects have developed resistance to Bt proteins. To mitigate the development of further resistance, growers are required to plant refuges of non-transgenic crops. These refuges produce numbers of susceptible insects that will help sustain populations of non-resistant insects. The size of Refuge requirement depends on the environment, pest and strain of the crop. Size of refuge is determined by resistance risk. Most Bt corn requires that 20% of the total Bt crop planted be non-Bt. Cotton can require 50% of the crop be planted to non-Bt. A recent study published in the Journal of Integrated Pest Management revealed, compliance has been a challenge. Nearly 40% of growers surveyed did not plant the required refuge (Reisig 2017). They credit non-compliance, in part, to lack of understanding by small-scale farmers about the need for refuges.

Before Situation:

Minimal or no refuges were planted as required for Bt crops.

After Situation:

Optimum sized and located refuges are planted for Bt crops.

Feature Measure: Ac

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $646.05

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E595E - Eliminate use of chemical treatments to control pests and to increase the presence of dung beetles

Scenario: #1 - Dung Beetles

Scenario Description:

Pests and parasites can have a significant impact on the economic viability of livestock operations, by affecting the performance and health of animals. The use of broad-spectrum insecticides, pour-ons and avermectins have been shown to have a detrimental effect on dung beetle populations. Having a healthy population of dung beetles facilitates the recycling of nutrients and promotes soil and grassland health. By eliminating the application of broad-spectrum insecticides, pour-ons, and avermectins, including injectable avermectins, for pest control in and on livestock along with rotational grazing and higher stock densities has shown to increase the dung beetle population. Use of natural or alternative methods of pest control over multiple years is encouraged.

Before Situation:

Pests and parasites can have a significant impact on the economic viability of livestock operations, by affecting the performance and health of animals. The use of broad-spectrum insecticides, pour-ons and avermectins have been shown to have a detrimental

After Situation:

Having a healthy population of dung beetles facilitates the recycling of nutrients and promotes soil and grassland health. By eliminating the application of broad-spectrum insecticides, pour-ons, and avermectins, including injectable avermectins, for pest

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 500.0

Scenario Total Cost: $3,489.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $6.98

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E595F - Improving Soil Organism Habitat on Agricultural Land

Scenario: #7 - Reduce Use of Seed Treatments

Scenario Description:

To reduce or eliminate the use of seed treatments in corn and soybean cropping systems to promote beneficial organism populations and pest control. Beneficial organisms such as the Carabidae beetle are very important in the population control of common agricultural pests like the grey garden slug. Slugs are a common pest in no-till and heavily cover cropped fields. Slugs are mollusks and can ingest some treatments with no adverse effects. Beneficial organism populations can be negatively impacted when they consume slugs exposed to seed treatments. The reduction or elimination of routine seed treatments in these cash crop systems may increase beneficial insect populations.

Before Situation:

Seed treatments are used on crops.

After Situation:

Producers effectively reduce or eliminate seed treatment use in their cropping rotations either by eliminating seed treatments on corn-soybean rotations or eliminating seed treatments on corn.

Feature Measure: Acres Planted

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $576.20

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.52

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E595G - Reduced resistance risk by utilizing PAMS techniques

Scenario: #7 - PAMS Management for Resistance

Scenario Description:

Design and implementation of an integrated pest management plan that will Utilize integrated pest management (IPM) prevention, avoidance, monitoring, and suppression (PAMS) techniques to reduce pesticide resistance and address plant pest pressure. Increased resistance leads to increased use of more toxic pesticides and increased risk of delivery of chemicals to water or ozone precursor emissions.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 595 – Pest Management Conservation Systems

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level described in Conservation practice Standard (CPS) 595 Pest Management Conservation System.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,635.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $16.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E595H - Improved crop management to control wheat stem sawfly

Scenario: #7 - Manage Wheat Stem Sawfly

Scenario Description:
Crop system management of rotations and other plantings with solid stem wheat varieties and oats reduce populations of wheat stem sawfly. Residue conservation and tall wheat cutting heights improve habitat for beneficial parasitoid wasps.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 328 - Conservation Crop Rotation. WSS pest pressure will decrease. Wheat yields will increase, and residue height will be taller across the landscape, reducing wind erosion.

Feature Measure: Acres managed for pest

Scenario Unit: Acre

Scenario Typical Size: 100.0

Scenario Total Cost: $1,273.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $12.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E612B - Planting for high carbon sequestration rate

Scenario: #8 - Increase Carbon Sequestration

Scenario Description:

Plant tree species and use stocking levels for higher growth to increase the rate of carbon sequestration (capture). Use species with a longer life span as well as relatively fast growth, and species suitable for durable manufactured products. Increase stocking levels in forests that are not fully stocked. Implement afforestation on appropriate open lands.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $9,517.12

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,903.42

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E612D - Adding food-producing trees and shrubs to existing plantings

Scenario: #1 - Food-Producing Trees and Shrubs

Scenario Description:
Plant food-producing trees and shrubs for wildlife within windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian forest buffers.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $2,830.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $283.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E612E - Cultural plantings

Scenario: #1 - Cultural Significant, Woody Species

Scenario Description:
Plant trees and shrubs that are of cultural significance, such as those species utilized by Tribes in traditional practices, medicinal plants, species used in basket-making, etc. (e.g., paper birch, slippery elm, witch hazel).

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,655.04

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,655.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E612F - Sugarbush management

Scenario: #1 - Sugarbush, Pollinator and Wildlife

Scenario Description:

Establish or maintain species diversity in a sugarbush to enhance pollinator and wildlife needs. Maintain at least 20% of basal area in species other than sugar maple (Acer saccharum) to provide species diversity. Half of the trees that are not sugar maples (10%) will be mast producing species (hard or soft mass). Use maple tree tapping guidelines that minimize tree damage.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,016.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,016.06

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E612G - Tree/shrub planting for wildlife food

Scenario: #1 - Wildlife Plantings

Scenario Description:
Tree or shrub planting to enhance habitat for native wildlife. A minimum of five tree or shrub species will be used; they will be species that provide food and/or cover for identified wildlife species.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 612 - Tree/Shrub Establishment

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $2,567.25

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $2,567.25

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E643A - Restoration of sensitive coastal vegetative communities

Scenario: #1 - Restore Native Herbaceous and Woody Species

Scenario Description:

Enhance the level of restoration in unique and diminishing coastal ecosystems by establishing native herbaceous and woody plants. Protect established vegetation, and manage to maintain floristic quality and the provision of environmental services. This enhancement is applied on unique areas with rare and declining habitat conditions, where vegetation has been detrimentally altered by human or natural events. Targeted sites are those that formerly supported vegetative communities that are now declining and/or becoming rare. The sites will vary across the continent. The enhancement will expand and elevate the process of restoring these unique areas, increasing their ecological value and benefits to wildlife. It re-establishes a select group of trees and/or shrubs that are key components in this ecosystem.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 643 - Restoration and Management of Rare and Declining Habitats

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 643 - Restoration and Management of Rare and Declining Habitats

Feature Measure: Each

Scenario Unit: Each

Scenario Typical Size: 25.0

Scenario Total Cost: $3,927.62

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $157.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E643B - Restoration and management of rare or declining habitat

Scenario: #1 - Create Habitat Refugia

Scenario Description:
Provide protection from adverse environmental conditions to create refugia for documented occurrences of sensitive plant communities.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 643 - Restoration and Management of Rare and Declining Habitats

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 643 - Restoration and Management of Rare and Declining Habitats

Feature Measure: Feet of Fence

Scenario Unit: Foot

Scenario Typical Size: 440.0

Scenario Total Cost: $4,968.24

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $11.29

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E643C - Restore glade habitat to benefit threatened and endangered species and state species of concern

Scenario: #7 - Restore Glade Habitat

Scenario Description:

Restore Glade natural communities as shown by the Ecological Site Description to conserve biodiversity. Enhancement requires reducing woody canopy cover and applying at least one prescribed fire to treated acres. Restoration of glade communities provide habitat for rare and declining species. Sites that previously or currently support the rare and declining habitat will be targeted for restoration.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 643 - Restoration of Rare or Declining Habitat.

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 643 - Restoration of Rare or Declining Habitat.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 5.0

Scenario Total Cost: $8,009.84

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,601.97

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E643D - Low-tech process-based restoration to enhance floodplain connectivity

Scenario: #5 - Low-Tech Process-Based Floodplain Restoration

Scenario Description:

This enhancement is intended to kick-start natural ecological, geomorphic and hydrologic processes required for improvement and maintenance of healthy and functioning streams and associated floodplains in situations where planning criteria has already been met but restoration or enhancement is desired to improve floodplain connectivity, riparian condition and move towards Stage 0 stream conditions. Beaver Dam Analogues (BDAs) and/or Post-Assisted Log Structures (PALS) are low-tech structures used to facilitate process-based restoration of rare and declining 'Stage 0' stream conditions by mimicking, promoting, and sustaining the natural processes of beaver dam activity and wood accumulation that lead to more fully connected floodplains. BDAs and PALS are hand-built with a mixture of woody debris and on-site soils and vegetation.

Before Situation:

State approved evaluation tool identifies that stream reaches meet planning criteria.

After Situation:

Wetted area associated with stream reach has expanded due to increase in floodplain connectivity, improvement of riparian condition and movement towards State 0 stream conditions

Feature Measure: Linear feet

Scenario Unit: Linear Foot

Scenario Typical Size: 400.0

Scenario Total Cost: $19,567.49

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $48.92

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E644A - Managing Flood-Irrigated Landscapes for Wildlife

Scenario: #1 - Manage Flood-Irrigation Water Depth

Scenario Description:
Developing and implementing a conservation plan that supports maintenance of flood-irrigation in key landscapes to provide important foraging habitat for local breeding and migratory waterfowl and waterbirds.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 644 – Wetland Wildlife Habitat Management

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 644 – Wetland Wildlife Habitat Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $1,576.71

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $31.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E645A - Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat

Scenario: #1 - Reduce Non-Target Wildlife Attractants

Scenario Description:

Reduction of artificial perching sites, nest sites, food, and water available to subsidized predators in areas where human-subsidized predators are a threat to sensitive wildlife species. Human-subsidized predators may include ravens, crows, magpies, coyotes, foxes, skunks, raccoons, and other species. Activities under this enhancement may include removal of non- native or invasive trees; removal of unused power poles, corrals, windmills, buildings, and other vertical structures; and/or removal or management of watering facilities, dead livestock, road kill, garbage, animal feed, dumps, and other non-natural food sources.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 645 - Upland Wildlife Habitat Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 645 - Upland Wildlife Habitat Management

Feature Measure: Acre

Scenario Unit: Number

Scenario Typical Size: 40.0

Scenario Total Cost: $2,680.66

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $67.02

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E645B - Manage existing shrub thickets to provide adequate shelter for wildlife

Scenario: #7 - Management of Shrub Thickets

Scenario Description:

Existing shrub thickets provide an instant and important cover for wildlife. Various wildlife species may use shrubs as winter/thermal cover, summer shade, roosting, or as escape cover from predators. Proper management ensures that these shrubs will continue to provide the desired benefits for the local wildlife. A combination of herbicide treatments, cutting and trimming branches, and removal of other competing vegetation will occur. An eligible existing shrub thicket needs to have a canopy cover of 750 square feet, with an end goal of expanding to 1500 square feet. Any existing shrub thicket (not hand planted within the last 5 years) are eligible for this enhancement. Shrub thickets found within fence rows may now be very wide, but still meet the 750 square feet, are eligible.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 645 - Upland Wildlife Habitat Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 645 - Upland Wildlife Habitat Management

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $488.27

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $488.27

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E645C - Edge feathering for wildlife cover

Scenario: #7 - Edge Feathering

Scenario Description:

Selected trees are cut and brush clipped along the border between a wooded area and a grassland, cropland, or idle land, creating a dense woody cover of interlocking branches at ground level. The feathered edge will be an average of 30 feet wide and a minimum of 50 feet long, resulting in an area of 1500 square feet. The width of the strip will vary to follow topographic features and to create a wavy border; the design will also consider aesthetics. Vegetative composition and cover will vary within the edge, ranging from areas with no trees and shrubs to areas with scattered trees and extensive shrub cover. The variation in vegetation structure along with variable width of the edge will create feathering. The edge may include shrub plantings for wildlife food and aesthetics.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard 645 - Upland Wildlife Habitat Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard 645 - Upland Wildlife Habitat Management

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1,138.75

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1,138.75

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E645D - Wildlife Habitat Management Plan for Upland Landscapes

Scenario: #6 - Upland Landscapes

Scenario Description:

Develop and implement a wildlife habitat management plan that removes or significantly reduces the impact of existing land management activities occurring within agricultural landscapes (on any land use) causing chronic disturbance to wildlife during breeding, rearing, migration and over- wintering periods. Site monitoring may be necessary to identify and document sources of disturbance to wildlife. Examples of adjustments to existing management activities that can reduce disturbance to a tolerable level include: use of integrated pest management; capping of open vertical pipes; provision of wildlife-friendly water access and egress; and reduction of noise or movement within key migratory, nesting, rearing, loafing or hiding locations.

Before Situation:

The inadequate terrestrial wildlife habitat concern has been addressed under Conservation Practice Standard 645 and minimum planning criteria for the terrestrial wildlife habitat resource concern has been met. However, disturbance related impacts tied to

After Situation:

Land management activities occurring within the agricultural landscape (on any land use) have been adjusted to avoid causing chronic disturbance to wildlife during breeding, rearing, migration and over- wintering periods has been addressed. Planning criteria for the terrestrial wildlife habitat resource concern exceeds minimum planning criteria.

Feature Measure: Acres of Improved Habitat

Scenario Unit: Acre

Scenario Typical Size: 40.0

Scenario Total Cost: $629.48

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $15.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E646A - Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat

Scenario: #1 - Rainfall Retention for Wildlife Habitat

Scenario Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds . In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $1,667.42

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $33.35

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E646B - Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat

Scenario: #1 - Rainfall Retention for Wildlife Habitat, Expansion

Scenario Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward migration. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $1,976.95

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $39.54

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E646C - Manipulate vegetation and maintain closed structures for shorebirds mid-summer habitat

Scenario: #1 - Shorebirds Habitat, Mid-Summer

Scenario Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding and providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $3,626.64

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $72.53

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E646D - Manipulate vegetation and maintain closed structures for shorebird late summer habitat

Scenario: #1 - Shorebirds Habitat, Late-Summer

Scenario Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 646 - Shallow Water Development and Management

Feature Measure: acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $3,972.46

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $79.45

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E647A - Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat

Scenario: #1 - Waterfowl and Wading Bird Habitat, Winter

Scenario Description:

Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. When flooded to shallow depths during fall and winter, these agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. In many cases, light manipulation of dense vegetation is needed to improve the accessibility of food resources to waterfowl, wading birds, and shorebirds.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $2,611.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $52.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E647B - Provide early successional shorebird habitat between first crop and ratoon crop

Scenario: #1 - Shorebirds Habitat, First and Ratoon Crop

Scenario Description:

Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Rice farms support many migratory and resident water bird species. The first rice crop harvest often coincides with the arrival of early migrating shorebirds. This time of year is also the highest rainfall months. If standing rice stubble from the first crop is rolled to push above-ground stalks level with the soil surface, the first component of this type of habitat is met. When moisture is added to this situation, short-term habitat is available until the ratoon crop initiates growth to a height beyond that which would provide benefit to the early successional species.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $2,611.79

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $52.24

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E647C - Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat

Scenario: #1 - Cropland Edges

Scenario Description:

The wetter or more water saturated portions of cropland fields such as areas adjacent to field drains, have the potential to produce a significant amount of moist soil plants which are a tremendously valuable source of forage and cover for many waterfowl, shorebird and wading bird species, especially during a period of time when such plants may be limited. Under normal cropland production, the native vegetation is restricted on these sites through mechanical and/or chemical control. These maintained moist soil plants also will provide filtering and improve water quality.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $904.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $18.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E647D - Establish and maintain early successional habitat in ditches and bank borders

Scenario: #1 - Vegetation Establishment, Ditches and Banks

Scenario Description:

This enhancement is to encourage the establishment of early successional, naturally occurring vegetation in ditches, side slope and bank borders to provide cover, critical nesting and brood rearing habitat as well as filtering overland flow and improving water quality. Ditches perform the critical function of removing water from agricultural lands. Allowing naturally occurring vegetation to develop along ditches, including side slopes, banks and borders, will help provide food and cover for wildlife while enhancing aquatic habitat and improving water quality. Ditches and ditch borders provide a foundation that supports a diverse wildlife community including Northern Bobwhite (Colinus virginianus) and other birds preferring early successional cover. Rabbits, furbearers, amphibians and many other species that inhabit agriculture areas will use this vegetative cover. These areas can also provide critical nesting habitat for the Mottled Duck (Anas fulvigula).

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 647 - Early Successional Habitat Development and Management

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $904.91

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $18.10

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666A - Maintaining and improving forest soil quality

Scenario: #1 - Forest Management

Scenario Description:

Adopts guidelines for maintaining and improving soil quality on sites where forest management activities are practiced. These guidelines will increase soil organic matter content, improve nutrient cycling, and increase infiltration and retention of precipitation. Avoiding soil compaction will allow for greater root development and tree growth, limit windthrow, and reduce drought stress. Increasing carbon storage on site will maintain the soil microbial community and provide wildlife benefits.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 50.0

Scenario Total Cost: $2,501.80

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $50.04

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666D - Forest management to enhance understory vegetation

Scenario: #1 - Understory Enhancement

Scenario Description:

This enhancement provides for management of the understory vegetation in a forested area by mechanical, chemical, and/or manual methods to improve the plant species mix and the health of the residual vegetation. Managing the understory vegetation increases available water to the plants, minimizes runoff and erosion, and improves water quality. An adequately stocked forest provides inputs of leaves, needles, and woody twigs and stems to the forest floor, adding to soil organic matter and contributing to forest soil health. Desirable tree species and understory vegetation, with spacing that allows ground cover to develop, will allow moisture to infiltrate and be stored in the soil, releasing moisture over longer periods of time.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $6,367.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $318.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666E - Reduce height of the forest understory to limit wildfire risk

Scenario: #1 - Woody Understory Reduction

Scenario Description:

Forest stand improvement that manages forest structure to reduce the risk of wildfire, and creates conditions that facilitate prescribed burning. The fire risk reduction is accomplished by reducing the height of the woody understory and midstory, creating space between the ground cover and the tree canopy. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation, and reduce the risk of wildfire. In appropriate stands, the treatment creates conditions that favor prescribed burning. Forest stand improvement (FSI) activities are used to remove trees of undesirable species, form, quality, condition, or growth rate. The quantity and quality of forest for wildlife and/or timber production will be increased by manipulating stand density and structure. These treatments can also reduce wildfire hazards, improve forest health, restore natural plant communities, and achieve or maintain a desired native understory plant community for soil health, wildlife, grazing, and/or browsing.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $6,367.15

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $318.36

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666F - Reduce forest stand density to create open stand structure

Scenario: #1 - Open Structures

Scenario Description:

Reducing forest stand density creates open forest conditions with a low basal area which promotes the health and vigor of the residual trees. The open stand structure allows a significant amount of sunlight to reach the forest floor and stimulates the growth of understory vegetation. Understory vegetation management, along with the wide spacing between trees or clumps of trees, provides visual appeal, lowers the risk of wildfire, and provides habitat for many at-risk and listed wildlife species. The enhancement creates conditions that facilitate a follow-up treatment with prescribed burning.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 20.0

Scenario Total Cost: $7,352.06

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $367.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666G - Reduce forest density and manage understory along roads to limit wildfire risk and improve habitat

Scenario: #1 - Management of Understory

Scenario Description:

Opening the tree canopy along roads ("daylighting"), and providing space between ground vegetation and tree crowns minimizes the spread of wildfires that often start along roads, and improves wildlife habitat and food sources for many species. Some trees near a forest road are removed through harvesting, cutting, mulching, or another option available at the site, with the objective of creating a partially open forest canopy bordering the road. A semi-open canopy allows more sunlight to reach the forest floor to promote herbaceous understory plants, and reduces maintenance needs by allowing moisture to evaporate from roads. The reduced canopy and herbaceous understory limit woodland fuel buildup and reduce fire intensity.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $3,637.39

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $363.74

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666H - Increase on-site carbon storage

Scenario: #1 - Carbon Storage, Onsite

Scenario Description:
Use forest management techniques to maintain and increase on-site carbon storage. These include, but are not limited to, applying uneven-aged management, using longer rotations, retaining cavity/den trees, snags, and down woody debris, and protecting or increasing soil organic material.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $9,171.53

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $917.15

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666I - Crop tree management for mast production

Scenario: #1 - Mast Production

Scenario Description:
Forest stand improvement using crop tree management techniques to increase mast production

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $4,525.59

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $452.56

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666J - Facilitating oak forest regeneration

Scenario: #1 - Oak Revitalization

Scenario Description:

Facilitate oak regeneration following a forest stand improvement treatment for natural oak regeneration (i.e., a regeneration cut). After a regeneration cut, oaks in the seedling and sapling stages are often out-competed by invasive brush and undesirable tree and shrub species. This enhancement will release seedling and sapling oaks from competing invasive plants and other undesirable species, and thin stump sprouts. A forester will monitor site conditions, treat competition, protect seedlings, and recommend additional follow-up treatments as needed. The enhancement protects investments in oak regeneration by providing for follow-up activities that require the expertise of a professional forester.

Before Situation:

Naturally regenerated oak seedlings and/or saplings are threatened by competition from undesirable vegetation.

After Situation:

Oaks in the forest stand are free from competition and have adequate space and light to allow them to grow into the forest canopy.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 25.0

Scenario Total Cost: $16,980.76

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $679.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666K - Creating structural diversity with patch openings

Scenario: #1 - Patch Openings

Scenario Description:

Forest stand improvement that creates patch openings. Size, shape, and arrangement of patches will be based on natural features, and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically and by forest type, and by tree species desired from natural regeneration. The treatment will create diversity in stand composition and structure, increase pest resistance, and enhance wildlife food availability. Openings may provide regeneration sites and restore natural plant communities, and achieve or maintain a desired understory plant community for wildlife habitat.

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 15.0

Scenario Total Cost: $10,342.30

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $689.49

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666L - Forest Stand Improvement to rehabilitate degraded hardwood stands

Scenario: #1 - Rehabilitate Degraded Hardwood Stands

Scenario Description:

Hardwood forestland has been subject to poor logging practices ("high-grading") for decades. Without professional forestry assistance the best species and individual trees are removed, often before maturity ("diameter-limit cutting"), leaving the poorest species and individual trees to regenerate the stand. Reversing this process requires cutting or killing poor quality trees while retaining any desirable species that might still be present. A combination of 3 silvicultural methods are applied: crop tree release, group selection (all trees removed from an area 0.25 to 1.0 acre in size) and small clear-cuts (all trees removed from an area 1-3 acres in size).

Before Situation:

Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:

The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $6,443.31

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $644.33

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666O - Snags, den trees, and coarse woody debris for wildlife habitat

Scenario: #1 - Dead or Decaying Trees for Habitat

Scenario Description:
Improve wildlife habitat through creation and retention of snags, den trees, forest stand structural diversity, and coarse woody debris on the forest floor, to provide cover/shelter for native wildlife species.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $662.28

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $66.23

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666P - Summer roosting habitat for native forest-dwelling bat species

Scenario: #1 - Roosting Habitat for Bat Species

Scenario Description:
Create new potential roost trees within upland and riparian forests to achieve desired summer habitat for forest-dwelling bat species.

Before Situation:
Resources are protected at the minimum level of the Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

After Situation:
The adoption of this enhancement will provide resource protection above the minimum level as described in Conservation Practice Standard (CPS) 666 - Forest Stand Improvement

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 10.0

Scenario Total Cost: $2,596.01

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $259.60

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666R - Forest songbird habitat preservation

Scenario: #1 - Habitat Management, Songbird

Scenario Description:

Adopts guidelines and methods developed by the Forest Bird Initiative of the Vermont Audubon Society, to preserve habitat features following a forest stand improvement treatment designed to create habitat for a suite of forest-dwelling neotropical migratory songbirds. It includes developing or updating a forest management plan, inspecting and tending forest habitat, and monitoring bird populations. It protects investments in habitat creation by providing for follow-up activities that require the expertise of a professional forester or biologist. This enhancement is appropriate for states in the Atlantic Flyway and the Upper Midwest.

Before Situation:

The bird habitat of a forest stand is threatened by undesirable vegetation, including noxious and invasive plants, and tree regeneration of species not favorable to birds. Harmful insects and tree diseases may also be present, and storms may have damaged

After Situation:

The forest stand has retained its habitat features and is utilized by a diversity of neotropical migratory songbirds.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 25.0

Scenario Total Cost: $5,543.16

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $221.73

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: E666S - Facilitating longleaf pine establishment

Scenario: #8 - Longleaf Pine

Scenario Description:

This enhancement facilitates longleaf pine regeneration and establishment following a forest stand improvement treatment for natural regeneration (e.g., a regeneration cut), or where longleaf has been previously planted. After a regeneration cut or a planting, competition from invasive brush and undesirable tree and shrub species often suppresses successful establishment of longleaf pine. This enhancement will release seedling and sapling longleaf from competing invasive plants and other undesirable species. A forester inspects the stand periodically for resource concerns that clients do not have the skills to recognize and assess, conducts regeneration surveys, and makes recommendations for corrective actions (typically at one year following initial treatment, and then at intervals of 2-4 years). Undesirable plants competing with longleaf pine are mechanically cut and/or receive herbicide spot treatments and/or cut stem treatments, as needed. The herbicides listed in the component section of this scenario are for deriving a cost estimate only. Resource concerns include Plant Productivity and Health, and Plant Structure and Composition.

Before Situation:

Naturally regenerated or planted longleaf pine seedlings and/or saplings are threatened by competition from undesirable vegetation.

After Situation:

Longleaf pines in the forest stand are free from competition and have adequate space and light to allow them to grow into the forest canopy.

Feature Measure: Acres

Scenario Unit: Acre

Scenario Typical Size: 25.0

Scenario Total Cost: $6,534.94

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $261.40

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: RFRN - FA Rental Payment based on NRCS Defined Model

Scenario: #4 - Rental Payment, Irrigated Cropland

Scenario Description:
FA payment earned for rental activity to provide conservation benefit based on NRCS defined tasks or templates.

Before Situation:
Eligible Lands with Project Resource Concerns

After Situation:
Eligible Lands where Project Resource Concerns are managed via Rental Contract

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost:	$222.50	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$222.50	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: RFRN - FA Rental Payment based on NRCS Defined Model

Scenario: #5 - Rental Payment, Non-irrigated Cropland

Scenario Description:
FA payment earned for rental activity to provide conservation benefit based on NRCS defined tasks or templates.

Before Situation:
Eligible Lands with Project Resource Concerns

After Situation:
Eligible Lands where Project Resourced Concerns are managed via Rental Contract

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost:	$75.50	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$75.50	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: RFRN - FA Rental Payment based on NRCS Defined Model

Scenario: #6 - Rental Payment, Pastureland

Scenario Description:
FA payment earned for rental activity to provide conservation benefit based on NRCS defined tasks or templates.

Before Situation:
Eligible Lands with Project Resource Concerns

After Situation:
Eligible Lands where Project Resource Concerns are managed via Rental Contract

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost:	$28.50	*Based on Maine average costs. Individual county costs may vary.*
Total Cost per Unit:	$28.50	

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.

Practice: RFRP - FA Rental Payment based on Negotiated Project Specific Model

Scenario: #2 - Rental Payment, Negotiated Project

Scenario Description:
FA payment earned for agreed to rental activity to provide conservation benefits based on project specific negotiated rental activities.

Before Situation:
Eligible Lands with Project Resource Concerns

After Situation:
Eligible Lands where Project Resource Concerns are managed via Rental Contract

Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 1.0

Scenario Total Cost: $1.00

Based on Maine average costs. Individual county costs may vary.

Total Cost per Unit: $1.00

Disclaimer: Do not use this information for practice implementation. Use the site-specific Design or Implementation Requirements.