Part III: Current NRCS Practice Standards

ACCESS ROAD

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 560

ACCESS ROAD

An access road is a travelway included in a conservation plan to provide a safe, fixed route of travel for moving livestock, equipment, products and supplies. The practice applies to roads that provide access for proper management of the enterprise, including operation and maintenance of conservation practices. The roads also provide access to farms, ranches, specific fields, woodlands, recreation areas and various kinds of structures.

PRACTICE INFORMATION

This practice is planned when access is needed from a private or public road to and within a conservation enterprise. Access roads are designed to serve a specific purpose(s) and accommodate a specific type(s) of vehicle, or equipment. Visual resources and environmental values shall be considered in planning and designing the road or system of roads. Access roads range from seldom used trails constructed for fire protection to all-weather roads used by the public and built to very high standards. Where general public use is anticipated, roads are designed to meet applicable criteria established by appropriate national, state or local agencies.

Roads are planned and designed to assure maintenance requirements are in line with operating budgets of the enterprise. In addition to planning for the intended use, the following criteria is considered:

1. Control and disposal of water
2. Erosion control
3. Include scenic vistas when possible
4. Follow natural contours when possible
5. Consider pollution hazards
6. Road surface treatment in line with use
7. Safe entry on public roads

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 560 Access Road	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Tab key to move around. "N/A" is the default entry.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	slight reduction in ephemeral gully erosion
CLASSIC GULLY	slight reduction in classic gully erosion
STREAMBANK	slight reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight reduction /onsite deposition damage
• OFFSITE	slight decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	slightly improve onsite safety/deposition
• OFFSITE	slightly improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	slight improvement in irrigation efficiency
• SPRINKLER	slight improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	insignificant
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	insignficant
• LOW DESOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	slight improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	slight improvement in plant pest management
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate decrease in labor requirement
AVAILABLE EQUIPMENT	mod. decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	insignificant
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

Channel Vegetation

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 322

DEFINITION
Channel Vegetation is establishing and maintaining adequate plants on channel banks, berms, spoil, and associated areas.

PRACTICE INFORMATION
The purpose of the practice is to stabilize channel banks and adjacent areas to reduce erosion and sedimentation , and to enhance the environment through aesthetics and fish and wildlife habitat improvements.

Channel vegetation applies to channels streams and ditches where construction activities destroyed existing vegetative cover.

In addition to reestablishing a protective cover, this practice also involves identification and preservation of desirable trees and other species of plants already on the site. It may also involve special techniques for establishing and maintaining vegetation near inlets, outlets, or other appurtenances.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 322 Channel Vegetation	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	situational regarding onsite drainage
• OFFSITE	situational concerning drainage/offsite
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	sign. benefit to threat./endangered animals
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate decrease in labor requirement
AVAILABLE EQUIPMENT	moderate decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Chiseling and Subsoiling

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 324

DEFINITION

Chiseling and subsoiling is the practice of loosening the soil, without inversion, and shattering restrictive layers below the normal plow depth that inhibit water movement or root development

PRACTICE INFORMATION

The purpose of chiseling and subsoiling is to improve water infiltration, root penetration, and aeration. The soil must be suitable for this practice and plowing depths are specific to soil types or depths of restrictive soil layers.

Chiseling is applicable when the restrictive soil layers are less than 16 inches below the surface. When the restrictive layers are more than 16 inches, the practice is referred to as subsoiling and larger, more powerful equipment is necessary.

Cropland sites may only need to be chiseled a few inches deep using conventional farm equipment. Fields planned for orchards or vineyards may need to be subsoiled several feet deep.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 324 Chiseling and Subsoiling	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	situational concerning classic gullies
STREAMBANK	N/A
IRRIGATION INDUCED	moderate reduction in irrigation induced erosion
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	moderate improvement in tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	moderate reduction in soil salinity
• ORGANICS	moderate decrease in organic contaminates
• FERTILIZERS	moderate reduction in contaminates from fertilizer
• PESTICIDES	moderate reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	moderate improvement in irrigation efficiency
• SPRINKLER	moderate improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	moderate reduction in sedimentation of H20 stroage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	slight poten. increase/GWater contam./salinity
• HEAVY METALS	slight poten. increase/GWater contam./heavy metal
• PATHOGENS	slight poten. increase/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	N/A
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	slight improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	slight improvement in plant pest managemer
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	significant increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Clearing and Snagging

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 326

DEFINITION
Clearing and snagging is removing logs, boulders, drifts, and other obstructions from a channel.

PRACTICE INFORMATION
The flow area of a channel may become clogged by various kinds of obstructions. When that happens, the stream flow is reduced and some or all of the obstructions may need to be removed. Clearing and snagging is a conservation practice used for that purpose.

Special attention is given to restoring, maintaining, or improving the natural resources associated with the channel. If after careful study it is determined that the work is likely to result in channel erosion, impairment to fish and wildlife, or other adverse impacts, the clearing and snagging will either not be done or practices to minimize such damages will be applied concurrently with the clearing and snagging.
In addition to onsite considerations, the downstream effects are also considered.

Proper planning will result in measures and construction methods that enhance fish and wildlife values, aesthetics, shade trees, and other natural resources in the channel area.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 326 Clearing and Snagging	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	situational concerning classic gullies
STREAMBANK	situational concerning streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	situational concerning onsite deposition damage
• OFFSITE	situational concerning offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	slight reduction in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight reduction in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	situational concerning drainage/offsite
RESTRICTED STORAGE	situational concerning sedimentation of H2O stor.

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DESOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	situational concerning SWater contam./H2O temp.
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	situational concerning animal habitat suitibility
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	moder. improvement in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	slight benefit to threat./endangered animals
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Composting Facility

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 317

DEFINITION

A composting facility is installed for biological stabilization of waste organic material.

PRACTICE INFORMATION

The purpose of this practice is to biologically treat waste organic material and produce humus-like material that can be recycled as a soil amendment or organic fertilizer. The material may also be used by other acceptable methods of recycling that comply with laws, rules and regulations.

Composting is accomplished by mixing an energy source (carbonaceous) with a nutrient source (nitrogenous) in a prescribed manner to meet aerobic bacteria requirements. Correct proportions of ingredients are essential to minimize odors and avoid pest problems. Waste material for composting may include livestock and poultry manure, dead animal carcasses, and food processing material when it is considered part of a normal farm operation.

This practice applies where: (1) waste organic material is generated by agriculture production or processing, (2) composting is needed to manage the waste organic material properly, (3) an overall waste management system has been planned that accounts for the end use of the composted material. The three types of composting facilities covered in the NRCS Composting Facility standard are**:**

- **Aerated windrows** - Suited for large volumes of organic material managed by power equipment used to periodically turn the composting material.
- **Static piles** - The material is initially mixed into a homogeneous mixture that has the proper moisture content and bulk density to facilitate air movement throughout the pile without periodically turning the material. Forced air might be necessary to facilitate the composting process.
- **In-vessel** - An enclosed structure is used to contain a blended mixture of organic waste that is strictly controlled for optimum air and temperature. In-vessel composting also includes naturally aerated systems where organic materials are layered in a container and turned once during the composting process.

Additional information including design criteria and specifications is available in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 317 Composting Facility	NOTES: The effects of applying composted material to the land is covered in Waste Utilization (633).
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H_20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	moderate poten. decrease/GWater contam./nutr,organ
• SALINITY	N/A
• HEAVY METALS	insignificant
• PATHOGENS	moderate poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	sign. reduction in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	N/A
• LOW DESOLVED OXYGEN	moderate reduction in SWater contam./low oxygen
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	N/A
• PATHOGENS	moderate decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	sign. improvement in plant nutrient management
PESTS	insignificant
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	situational concerning markets for products
AVAILABLE LABOR	moderate increase in labor requirement
AVAILABLE EQUIPMENT	moderate increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	N/A
SIGNIFICANCE OF CULTURAL RESOURCES	N/A
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	N/A
OTHER	

CONSERVATION COVER

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 327

CONSERVATION COVER

This practice involves establishing and maintaining a protective cover of perennial vegetation on land retired from agriculture production.

PRACTICE INFORMATION

This practice reduces soil erosion, associated sedimentation, improves water quality, and creates or enhances wildlife habitat.

Conservation cover applies to land retired from agriculture production. Generally, this
.

involves land under contract in a land retirement program but does not exclude land retired for other reasons. The practice does not apply to planting vegetation for forage production or on critical eroding sites being protected with vegetative cover.

In selecting plant species for this practice, it is important to consider long tern land use objectives. If wildlife is a consideration, adapted species are usually available that can serve more than one objective

The following pages contain the effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 327 Conservation Cover	NOTES: This practice is used when establishing vegetative cover on land retired from agri. production.
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default entry.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	significant reduction in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY	
• ONSITE	moderate retardance of surface drainage
• OFFSITE	moderate retardance of surface drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

The following pages contain the effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	sign. reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	sign poten. decrease/GWater contam./nutr,organ.
• SALINITY	significant poten. decrease/GWater/pesticides
• HEAVY METALS	N/A
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	sign. reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	sign. reduction in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	sign. reduction in SWater contam./low oxygen
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	N/A
• WATER TEMPERATURE	slight reduction in SWater contam./H20 temp.
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	sign. decrease in airborn chem. drift
AIRBORNE ODORS	sign. decrease in airborn odors
FUNGI, MOLDS, AND POLLEN	sign. decrease in airborn fungi,molds,pollen
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	slight improvement in air condition/temperature
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	sign. improvement in plant nutrient management
PESTS	sign. improvement in plant pest management
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	significant decrease in labor requirement
AVAILABLE EQUIPMENT	sign. decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	insignificant
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	sign. improved protection of culture resources
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

CONSTRUCTED WETLAND

(acre)

CODE 656

DEFINITION

A wetland that has been constructed for the primary purpose of water quality improvement.

PURPOSE

This practice is applied to treat waste waters from confined animal operations, sewage, surface runoff, milkhouse wastewater, silage leachate, mine drainage by the biological, chemical and physical activities of a constructed wetland.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where runoff is contaminated by metals, pesticides, nutrients, fertilizers, or animal wastes to levels unacceptable for downstream receiving waters.

This practice applies to the treatment of a wastewater discharge stream (confined animal facilities, food processing, mine drainage, and other constant inputs) or nonpoint source runoff discharges (agricultural, urban stormwater).

This practice is applicable only if the constructed wetland can provide the intended water quality treatment.

This practice does not apply to: wetland restoration (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; wetland enhancement (659) intended to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond original conditions; or wetland creation (658) for creating a wetland on a site location which historically was not a wetland, or was a wetland with a different hydrology, vegetation type, or functions that occurred naturally on site.

CRITERIA

General Criteria

- The landowner shall obtain necessary local, state, and federal permits that apply before wetland construction, including water rights if required.
- The design will comply with local, state, and federal permit requirements.
- The soil, hydrology and vegetative characteristics of the site and its contributing watershed before construction shall be documented.

Criteria for Wetland Hydrology

- The constructed wetland area must have sufficient detention volume to store the design wastewater stream and/or storm runoff volume of the “first flush” of runoff which contains the majority of pollutants. When less than the full runoff is stored, bypass of the excess storm flow must be provided.
- Release of the treated water must be provided in preparation for receiving the next storm runoff and/or wastewater

stream. The storage volume, detention time, and release rate must be compatible with the space available for the constructed wetland and bypass waterway.

- Where significant sediment and organic debris are expected in the waste water to be treated, provisions for its entrapment before entry into the wetland must be provided.

- A soil or synthetic liner and subsurface drainage shall be installed where there is a potential for exchange or mixing of waste water and ground water.

- The standards and specifications for Dike (356) and Structure for Water Control (587) will be used as appropriate. Refer to the Engineering Field Handbook, Chapters 13, "Wetland Restoration, Enhancement, and Creation," and 6, "Structures," for additional design information. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

- Design Storm: The constructed wetland system shall be designed to contain a 2-year storm runoff. Limited area sites handling only the "first flush" volume shall have a minimum capacity to store 0.5 inch of runoff volume from the entire drainage area.

- Wetland Cells: Shape - length to width ratios are to be 4:1 to 10:1. Other dimensions and shapes that provide a more natural landscape appearance that meet treatment requirements can be used.

- Depth- maximum water depth shall be 24 inches.

- Outlet - a water control structure to automatically regulate storage release in accordance with the design detention time shall be installed.

- Detention time and surface area- the detention time and surface area shall be calculated on the time required to achieve the required level of treatment based on the limiting contaminant present.

Criteria for Hydrophytic Vegetation

- Vegetation selected for the constructed wetland shall be hydrophytic plants suitable for local climatic conditions and tolerant of the concentrations of nutrients, pesticides, and other constituents in the stormwater or wastewater stream and selected for their treatment potential.

- Preference shall be given to native wetland plants with localized genetic material. Plant materials collected or grown from material collected within a 200 mile radius from the site is considered local.

- Adequate substrate material and site preparation necessary for proper establishment of the selected plant species shall be included in the design.

Criteria for Wetland Functions

- A functional assessment (Hydrogeomorphic or similar method) shall be performed on the site prior to construction.

CONSIDERATIONS

Consider effect of volumes and rates of runoff, infiltration, evaporation, and transpiration on the water budget.

Consider the potential for a change in rates of plant growth and transpiration because of changes in the volume of available soil water.

Consider effects on downstream flows or aquifers that would affect other water uses or users.

Consider effects on movement of sediment and soluble and sediment-attached substance carried by runoff.

Consider effects on temperature of water resources to prevent undesired effects on aquatic and wildlife communities.

Consider the effects of the constructed wetland on potential human or wildlife use and/or wildlife use of the constructed wetland (e.g. additional nutrient inputs from waterfowl use, toxic effects on wildlife); de-emphasize the incorporation of additional functions beyond the treatment function where necessary.

Consider the effects on wetlands or water-related resources and fish and wildlife habitats that would be affected by the practice.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other documentation.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

The use of fertilizers, mechanical treatments, prescribed burning, pesticides and other chemicals to assure the constructed wetland function shall not compromise the intended purpose. Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible;

Timing and level setting of water control structures required for the establishment of desired hydrologic conditions or for management of vegetation shall be outlined in the operation and maintenance plan.

Inspection schedule for embankments and structures for damage assessment.

Depth of sediment accumulation to be allowed before removal is required.

Management needed to maintain vegetation, including control of unwanted vegetation.

CONTOUR BUFFER STRIPS

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 332

CONTOUR BUFFER STRIPS

Contour buffer strips are strips of perenneal grass alternated with wider cultivated strips that are farmed on the contour

PRACTICE INFORMATION

The benefits of farming on the contour with the added protection from the grass strips make contour buffer strips an effective and cost efficient conservation practice.

Contour buffer strips slow runoffwater and trap sediment. Consequently, soil erosion is generall reduced significantly by this practice. Sediments, nutrients, pesticides, and other potential pollutants are filtered out as water flows through the grass strips. The grass strips also provide food and cover for wildlife.

The practice is not well suited for undulating terrain with steep irregular slopes where contouring is impractical.

The effectiveness of contour buffer strips is dependent on several variables such as steepness, soil type, crops grown, strip widths, management, and climatic factors

Standards and specifications containing minimum requiremenmts, including maintenance, are included in the USDA/NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 332 Contour Buffer Strips	NOTES: These effects assum strips will be rotated every few years for soil improvemnt and maintenance
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	slight reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	insignificant
STREAMBANK	insignificant
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	moderate improvement in tilth
SOIL COMPACTION	moderate reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	moderate reduction in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate increase in excess subsurface water
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	moderate improvement in moisture use
RESTRICTED FLOW CAPACITY	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	slight reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	slight reduction in SWater contam./low oxygen
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	slight improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	slight decrease in airborn sed.&smoke/safety
• OFFSITE SAFETY	slight decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	insignificant
• OFFSITE STRUCT. PROBLEMS	insignificant
• ONSITE HEALTH	insignificant
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	slight decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	slight decrease in airborn chem. drift
AIRBORNE ODORS	slight decrease in airbornodors
FUNGI, MOLDS, AND POLLEN	slight decrease in airborn fungi,molds,pollen
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	slight improvement in air condition/ air movement
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	insignificant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	insignificant
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

Controlled Drainage

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 335

DEFINITION
Controlled Drainage is using drainage facilities and water control structures to control surface and subsurface water.

PRACTICE INFORMATION
This practice applies to management of surface or subsurface outflow from drainage facilities. It does not apply to managing water for subirrigation which is covered by the practice Water Table Control.

The purposes of controlled drainage include:

- Storage and management of rainfall for more efficient crop production.
- Improvement of surface water quality by reducing runoff and associated pollutants
- Reduce nitrates in drainage water by enhancing denitrofication.
- Holding water in channels to act as fire breaks.
- Providing water for wildlife purposes.

Controlled drainage is used primarily on flat to gently sloping cropland. The soil should be able to store subsurface water without excessive seepage and saline and sodic soil conditions must be manageable for the practice to perform properly.

A plan of operations is developed during planning to address these objectives:

- If water rises significantly from rainfall, the outlet controls should be lowered to provide necessary drainage.
- The water table should be maintained at the proper depths to accommodate tillage and harvesting of crops, yet provide access to capillary water for crop production.
- Manage the water table to prevent damage to crops during wet periods.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 335 Controlled Drainage	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	slight reduction in sheet and rill erosion
WIND	slight reduction in wind erosion
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	insignificant
STREAMBANK	insignificant
IRRIGATION INDUCED	insignificant
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	slight improvement in soil tilth
SOIL COMPACTION	slight reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	slight decrease in organic contaminates
• FERTILIZERS	slight reduction in contamination from fertilizer
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	significant in crease in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	slight improvement in irrigation efficiency
• SPRINKLER	slight improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	slight improvement in offsite drainage
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	slight poten. increase/GWater contam./salinity
• HEAVY METALS	slight poten. increase/GWater contam./heavy metal
• PATHOGENS	slight poten. increase/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	slight reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	slight decrease in airborn sed.&smoke/safety
• OFFSITE SAFETY	slight decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	slight decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	slight decrease in struc. problems/dust&smoke
• ONSITE HEALTH	slight decrease in onsite health/dust and smoke
• OFFSITE HEALTH	slight improvement in offsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	slight decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	insignificant
PLANT USE	insignificant
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

CRITICAL AREA PLANTING

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 342

CRITICAL AREA PLANTING
Planting vegetation on critically eroding areas that require extraordinary treatment

PRACTICE INFORMATION
This practice is used on highly erodible areas that cannot be stabilized by ordinary planting techniques and if left untreated may cause severe erosion or sediment damage. Examples of critical areas include the following:

1. Dams, dikes, levees, and other construction sites with very steep slopes.
2. Mine spoil and surface mined land with poor quality soil and possibly chemical problems.
3. Agriculture land with severe gullies requiring specialized planting techniques and management.

Erosion control is the primary consideration for plant material selection. However, a broad choice of grass, trees, shrubs, and vines are usually available and adapted for most sites. Wildlife and beautification are additional considerations that influence planning decisions on a site needing this practice.

The following decisions must be made when planning this practice:

1. Function or use of the site following establishment.
2. Species of plants to establish
3. Methods and rates of planting
4. Fertilizer, lime, and soil amendments necessary for establishment and growth of the plants.
5. Mulching requirements
6. Planting site preparation
7. Irrigation requirement
8. Site management following establishment of the vegetation.

Additional information including standards and specifications are available in the NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE:	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	significant reduction in mass movement of soil
ROADBANK/CONSTRUCTION	significant decrease in roadbank/const. erosion
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth on site
SOIL COMPACTION	significant reduction in soil compaction on site
SOIL CONTAMINATION	
• SALTS	moderate reduction in salinity due to leaching
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	slightly increase offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (drainage)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	situational
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational
CLIENT FINANCIAL CONDITION	situational
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	situational
PRIVATE/PUBLIC VALUES	situational regarding private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

CROSS WIND RIDGES

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 589A

CROSS WIND RIDGES

Cross wind ridges are formed by tillage and/or planting operations aligned perpendicular to the prevailing wind direction.

PRACTICE INFORMATION

Ridging is an effective wind erosion control practice that combines the effects of soil clods with the effects of a ridged surface. The clods formed by the operation are non-erodible and the ridging effect relates to reducing wind velocity and turbulence near the soil surface.

The practice is best adapted to soils with sufficient amounts of clay to provide stability to the clods and ridges. Unstable soils such as sands, loamy sands and certain organic soils are not well adapted to cross wind ridges.

In addition to the above limitation, establishment of cross wind ridges may be detrimental to the more effective practice of leaving crop residue on the soil surface.

Ridges are established and reestablished by normal tillage and planting equipment such as chisel plows, drills with hoe openers, and other similar implements which form effective ridges. The ridges must be maintained through the major wind erosion season or until growing crops provide enough cover to protect the soil from wind erosion.

Specifications for establishment and maintenance of this practice need to be site specific based on soil, climate, crops and other criteria contained in the practice standard filed in the NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 589A Cross Wind Ridges	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	slight damage to soil tilth
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	insignificant
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	insignificant
• OFFSITE	insignificant
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	insignificant
RESTRICTED FLOW CAPACITY	
• ONSITE	slight improvement in surface drainage
• OFFSITE	slight improvement in surface drainage
RESTRICTED STORAGE	insignificant
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	slight reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	moder. decrease in airborn sed.&smoke part./safe
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	slight decrease in struc. problems/dust&smoke
• ONSITE HEALTH	insignificant
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	slight improvement in public health & safety
PRIVATE/PUBLIC VALUES	slight improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	N/A
SIGNIFICANCE OF CULTURAL RESOURCES	N/A
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	N/A
OTHER	

CROSS WIND STRIPCROPPING

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 589B

CROSS WIND STRIPCROPPING

Cross wind stripcropping is growing crops in strips laid out perpendicular to the prevailing wind direction. The strips are arranged so that strips susceptible to wind erosion are alternated with strips having a protective cover during the wind erosion season.

PRACTICE INFORMATION

This practice reduces soil erosion from wind and protects growing crops from damage by wind blown soil particles.

Strips having protective cover are alternated with erosion-susceptible strips and generally the strip widths are equal across the field. For added protection, the erosion-susceptible strips may be narrower but not less than 25 feet.

Acceptable protective cover includes growing crops, grass, standing stubble, tilled residue, or other types of vegetative cover that provides adequate protection from wind erosion during the wind erosion season or periods of the year when wind erosion is expected to occur.

Specifications for establishing and maintaining this practice need to be site specific and based on soil, climate, crops, predicted crop residue production, and other criteria contained in the practice standard and specifications filed in the NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 589B Cross Wind Stripcropping	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	slight reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	insignificant
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	insignificant
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	N/A
• FERTILIZERS	insignificant
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	slight decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	insignificant
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	slight reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	slight improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	moder. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	mod. improvement in offsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	moder. improvement in air condition/ air movement
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	insignificant
PLANT USE	slight improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	N/A
SIGNIFICANCE OF CULTURAL RESOURCES	N/A
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	N/A
OTHER	

CROSS WIND TRAP STRIPS

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 589C

CROSS WIND TRAP STRIPS

Cross wind trap strips are strips of grass or other herbaceous cover established to trap wind-borne sediment and provide protection down wind from the strip (s).

PRACTICE INFORMATION

Trap strips require frequent and expensive maintenance. Generally, they are used to provide protection from the effects of wind erosion rather than prevent or reduce erosion.

This practice applies to cropland but may be used on wildlife, recreation, or other lands where crops are grown and this form of protection is needed.

This practice may be applied as part of a conservation management system to accomplish one or more of the following:

1. Reduce erosion by providing a stable area on the upwind side of a field.
2. Induce deposition and reduce transport of wind-borne sediment including associated contaminates.
3. Protect crops, equipment, and various structures from damage associated with wind-borne sediment.
4. Enhance the habitat for wildlife.

Additional information including standards and specifications are contained in the NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 589C Cross Wind Trap Strips	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	slight reduction in wind erosion
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	slight reduction in pesticide pollution
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	slightly improve onsite safety/deposition
• OFFSITE	insignificant
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY	
• ONSITE	slight improvement in onsite surface drainage
• OFFSITE	slight improvement in offsite surface drainage
RESTRICTED STORAGE	insignificant
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	moder. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	slight decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	moder. decrease in struct.problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	insignificant
• ONSITE HEALTH	slight decrease in onsite health/dust and smoke
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	moder. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	slight decrease in airborn chem. drift
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	slight improvement in air condition/ air movement
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	insignificant
PLANT USE	insignificant
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	slight improvement in public health & safety
PRIVATE/PUBLIC VALUES	slight improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	insignificant
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

Dam, Diversion

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 348

DEFINITION
A diversion dam is a structure built to divert all or part of the water from a watercourse into another watercourse for conservation purposes.

PRACTICE INFORMATION
A diversion dam is designed to divert water from a watercourse such as a waterway or stream into another watercourse, irrigation canal, stream, water-spreading system, or another waterway.

The purpose of the practice is to improve the beneficial use of water, or divert damaging flows to another watercourse that is more stable or otherwise more capable of reducing damage. One of the more common uses of this practice is diverting water from a stream or river into a canal used for irrigation purposes.

The impacts of a proposed diversion dam are evaluated to assure water quality, fish and wildlife, aesthetics, and other environmental concerns are considered in the design and layout of the structure (s). The practice is also carefully evaluated to assure compliance with state and local laws concerning natural watercourses.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 348 Diversion Dam	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	N/A
EPHEMERAL GULLY	situational concerning ephemeral gullies
CLASSIC GULLY	situational concerning classic gullies
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Dam, Floodwater Retarding

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 402

DEFINITION
A floodwater retarding structure is a single purpose dam designed for temporary storage and controlled released of floodwater.

PRACTICE INFORMATION
The purpose of a floodwater retarding structure is to reduce flood damage downstream by controlling the release rate of flood flows. These structures may also permit the use of more economical channel modifications and other downstream works of improvement.

This practice requires a very thorough site investigation to assure the following:

- Topographic, geologic, and soil conditions are satisfactory for the construction, operation, and maintenance of the structure (s).
- Conservation treatment above the proposed structure is satisfactory so that sediments in the runoff will not be excessive.
- Environmental impacts are accounted for in the overall plan.

Dams constructed as floodwater retarding structures are normally part of a watershed plan sponsored by an organized group of local people with a vested interest in the natural resources of a specific watershed.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 402 Dam, Floodwater Retarding	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	significant increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	situational concerning excess subsurface H2O
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	slight improvement in onsite drainage
• OFFSITE	slight improvement in offsite drainage
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	insignificant
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	slight benefit to threat./endangered animals
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Dam, Multiple-Purpose

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 349

DEFINITION
A multiple-purpose dam is constructed across a stream or watercourse to store water for two or more conservation purposes.

PRACTICE INFORMATION
Almost any body of water will have the potential for multiple use. However, this practice is applicable only when the design requires a joint-use allocation and is designed for two or more specific uses. This type dam may be designed for two specific purposes such as floodwater retardation and municipal water supply, or the designed storage may be to accommodate irrigation water supply and recreation.

A multi-purpose dam provides distinct and specific storage allocations for two or more of the following purposes:

- Floodwater Retardation
- Irrigation
- Recreation Uses
- Fish And Wildlife Benefits
- Industrial Uses
- Municipal Uses

This practice requires a very thorough site investigation to assure the following:

- Topographic, geologic, and soil conditions are satisfactory for the construction, operation, and maintenance of the structure (s).
- Conservation treatment above the proposed structure (s) is satisfactory so that sediments in the runoff will not be excessive.
- Environmental impacts are accounted for in the overall plan.

Multiple purpose dams are generally planned and applied by a sponsoring organization made up of concerned citizens.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 349 Dam, Multiple-Purpose	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	situational concerning excess subsurface H2O
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	mod. benefit to threat./endangered animals
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

DIKE

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 356

DIKE
A dike is an embankment constructed of earth or other suitable material to protect land against overflow or to regulate water.

PRACTICE INFORMATION
This practice is used to prevent or reduce flood damage to land and property. They are also used in conjunction with floodways for flow control or to impound or regulate water for fish and wildlife management. Dikes can also be used to protect natural areas, scenic features and archeological sites from damage.

Dikes are divided into classes determined by the value of the land, crops, and other improvements and the hazard to life within the area to be protected. The classes are described as follows:

1. Class I - These dikes are constructed on sites where failure may cause loss of life or serious damage to homes, commercial buildings, public utilities, high value crops, and other similar improvements. Protection is needed to withstand more than 12 feet of water above normal ground level.
2. Class II - These dikes are constructed in highly developed and productive agriculture areas where failure may damage a few isolated homes, highways, minor railroads, or cause interruption in service of relatively important public utilities. The maximum design water stage against the dike is 12 feet.
3. Class III - These dikes are constructed in rural or agriculture areas where damage from failure of the dike would be minimal. The maximum design water stage against the dike is 4 feet to 6 feet depending on construction material.

In designing and locating dikes, careful consideration is given to preserving natural areas, wildlife habitat, woodland, and other environmental resources. In addition, the plans always require establishing a protective cover of grass on all exposed areas of the dike and other disturbed areas.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

Additional information including design criteria for dikes is available in the local NRCS Field Office Technical Guide.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 356 Dikes	NOTES: This practice is often used in conjunction with a floodway
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	moderate reduction in classic gully erosion
STREAMBANK	situational concerning streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate increase in excess subsurface water
INADEQUATE OUTLETS	significant increase in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H_2O convey.)	
• ONSITE	moderate improvement in onsite drainage
• OFFSITE	moderate improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	slight poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	slight reduction in SWater contam./low oxygen
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	slight reduction in SWater contam./H20 temp.
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	situational
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	situational
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	situational concerning client financial cond.
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	situational regarding risk
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

DIVERSION

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 362

DIVERSION
A channel constructed across the slope with a supporting ridge on the lower side.

PRACTICE INFORMATION
This practice applies to all types of diversions except floodwater diversions (400) and diversion dams (348). The general purpose of this type of diversion is to divert excess water from one area for use or safe disposal in other areas.
This practice applies to sites where:

1. Runoff damages cropland, grazing land, farmsteads, feedlots, or conservation practices such as terraces or stripcropping.
2. Surface flow and/or shallow subsurface flow caused by seepage is causing damage on sloping cropland.
3. Runoff is excessive and available for use on nearby sites.
4. A diversion is required as part of a pollution abatement system.
5. A diversion is required to control erosion and runoff on urban or developing areas and construction or mining sites.

The channel may be parabolic, V-shaped, or trapezoidal. The channel grades may be uniform or variable as long as the velocity is nonerosive considering the soil and planned vegetation or lining. The location of the diversion shall be determined by outlet conditions, topography, land use, farming operations, and soil type. Diversion layout in a cultivated field should be as compatible as practical with modern farm equipment.

Diversions must have a safe and stable outlet with adequate capacity. The outlet may be a grassed waterway, paved area, vegetated area, a grade stabilization structure, a stable watercourse, underground outlet, or a combination of these structures. The outlet must be able to convey the runoff to a point where outflow will not cause damage.

If the outlet is a vegetated area, the vegetation must be established before constructing the diversion.

Additional information including design criteria and specifications are on file in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE:	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	slight reduction in sheet and rill erosion
WIND	insignificant
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	moderate reduction in classic gully erosion
STREAMBANK	slight reduction in streambank erosion
IRRIGATION INDUCED	situational concerning irrigation induced erosion
SOIL MASS MOVEMENT	moderate reduction in mass movement of soil
ROADBANK/CONSTRUCTION	moderate decrease in roadbank construction erosion
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	slight decrease in organic contaminates
• FERTILIZERS	slight reduction in contamination from fertilizer
• PESTICIDES	slight reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	moderate reduction in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	slight increase in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	situational concerning IWM, surface
• SPRINKLER	slight improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	slight improvement in moisture use
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	moderate improvement in onsite drainage
• OFFSITE	moderate improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	sign. poten. increase/GWater contam./salinity
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	slight reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	moderate reduction in SWater contam./low oxygen
• SALINITY	insignificant
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	insignificant
• OFFSITE SAFETY	insignificant
• ONSITE STRUCT. PROBLEMS	insignificant
• OFFSITE STRUCT. PROBLEMS	insignificant
• ONSITE HEALTH	insignificant
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	insignficant
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	insignificant
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	insignificant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

EARLY SUCCESSIONAL HABITAT DEVELOPMENT/MANAGEMENT

(acre)

CODE 647

DEFINITION

Manage early plant succession to benefit desired wildlife or natural communities.

PURPOSE

- Increase plant community diversity.
- Provide wildlife or aquatic habitat for early successional species.
- Provide habitat for declining species.

CONDITIONS WHERE PRACTICE APPLIES

On all lands that are suitable for the kinds of wildlife and plant species that are desired.

CRITERIA

- Early successional management will be designed to achieve the desired plant community in density, vertical and horizontal structure, and plant species diversity.
- Methods used will be designed to maintain soil erosion quality criteria.
- Vegetative manipulation to maximize plant and animal diversity can be accomplished by disturbance practices including; prescribed burning, light disking, mowing, grazing, or a combination of the above.
- This practice should be applied periodically to maintain the desired early successional plant community.
- Native adapted plant materials will be used whenever possible, but introduced species may be appropriate depending upon objectives.
- Management practices and activities are not to disturb cover during the primary nesting period for grassland species. Exceptions will be allowed for periodic burning or mowing when necessary to maintain the health of the plant community. Mowing may be needed during the plant establishment period to control weeds.
- Measures must be provided to control sever outbreaks of noxious weeds and other invasive species in order to comply with state noxious weed laws.
- To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds will be done on a “spot” basis to protect forbs and legumes that benefit native pollinators and other wildlife.

CONSIDERATIONS

All habitat manipulations will be planned and managed according to soil capabilities and recommendations for management will avoid excessive soil loss.

Early successional treatments should be rotated throughout the managed area.

Treatment shall be accomplished whenever succession has gone past the desired stages.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Managing for early successional plant communities is beneficial if not essential for less mobile animal species. The less mobile the species, the more important to provide all the habitat requirements in a small area.

Design and install the treatment layout to best facilitate operation of all machinery used on the strips or to make easily controlled burning boundaries. Whenever possible, lay out strips to have some multiple or full width passes by all farm implements.

Grazing may be used as a management tool to achieve the intended purpose of this practice. A grazing plan is required.

This practice may be used to promote the conservation of declining species, including threatened and endangered (plant, wildlife or aquatic) species.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).

Any use of fertilizers, pesticides and other chemicals to assure early successional management shall not compromise the intended purpose.

FENCE

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 382

FENCE
A fence is a constructed barrier to livestock, wildlife, or people.

PRACTICE INFORMATION
This practice may be applied to any area where livestock and /or wildlife control is needed, or where access to people is to be regulated.

A wide variety of types of fencing has developed. However, fencing material and construction quality is always designed and installed to assure the fence will meet the intended purpose and longevity requirements of the project.

The standard fence is constructed of either barbed or smooth wire suspended by posts with support structures. Other types include woven wire for small animals, electric fence as a cost efficient alternative, and suspension fences which are designed with heavy but widely spaced posts and support structures. Designs for most types of fences are available at the local NRCS field office.

Things to consider when planning a fence include the following:

1. For ease of maintenance purposes avoid as much irregular terrain as possible.
2. Wildlife movement needs should be considered.
3. State and local laws may apply to boundary fences.
4. Consider livestock handling, watering and feeding requirements when locating fences
5. Consider soil erosion potential and feasibility of fence construction when planning fences on steep or irregular terrain.

Additional information including designs and construction specifications are available in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 382 Fence	NOTES: Effects are based on improved grazing management and forage production responses
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	moderate reduction in classic gully erosion
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	moderate improvement in tilth
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	insignificant
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	insignificant
• OFFSITE	insignificant
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate reduction in excess subsurface water
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	moderate improvement in moisture use
RESTRICTED FLOW CAPACITY (drainage)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	moderate reduction in sedimentation of H20 stroage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	insignificant
• OFFSITE SAFETY	insignificant
• ONSITE STRUCT. PROBLEMS	insignificant
• OFFSITE STRUCT. PROBLEMS	insignificant
• ONSITE HEALTH	insignificant
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	insignficant
AIRBORNE CHEMICAL DRIFT	insignificant
AIRBORNE ODORS	insignificant
FUNGI, MOLDS, AND POLLEN	insignificant
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	insignificant
PLANT USE	moder. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	insignificant
THREAT/ENDANGERED PLANTS	insignificant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

FILTER STRIP

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 393

FILTER STRIP

A filter strip is an area of vegetation established for the purpose of removing sediment, organic material, and other pollutants from runoff and waste water.

PRACTICE INFORMATION

Filter strips are generally located at the lower edge (s) of a field. This will vary somewhat with land use, topography and objectives.

A filter strip removes pollutants from runoff before the material enters a body of water. It also serves as a buffer between water and the fields above the water so that pesticides and other chemicals are not applied directly adjacent or into the water body.

Filter strips also reduce sedimentation of streams, lakes and other bodies of water.

Plant species selected for planting in a filter strip requires careful planning. There may be multiple objectives that can be accomplished by proper plant selection.

In addition to the above functions, filter strips can be designed to provide one or more of the following secondary benefits:

1. Improved fish and wildlife habitat.
2. Improved aesthetics
3. Improved equipment operations such as field access and turn rows or head lands.
4. Improved recreation opportunities.
5. Improved livestock forage source.

Specifications for design and installation of this practice are contained in the USDA/NRCS Field Office Technical Guide

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 393 - Filter Strip	NOTES: The following effects apply to the field where the filter strip is located and offsite effects.
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	insignificant
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	insignificant
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	insignificant
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	moderate poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	moderate reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	moderate reduction in SWater contam./nutri.,organ.
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	slight reduction in SWater contam./low oxygen
• SALINITY	insignificant
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	insignificant
• OFFSITE SAFETY	insignificant
• ONSITE STRUCT. PROBLEMS	insignificant
• OFFSITE STRUCT. PROBLEMS	insignificant
• ONSITE HEALTH	insignificant
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	insignficant
AIRBORNE CHEMICAL DRIFT	insignificant
AIRBORNE ODORS	insignificant
FUNGI, MOLDS, AND POLLEN	insignificant
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	slight improvement in public health & safety
PRIVATE/PUBLIC VALUES	slight improvement in private/public values
CLIENT CHARACTERISTICS	insignificant
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	insignificant
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

FIREBREAK

(Feet)
CODE 394

DEFINITION

A strip of bare land or vegetation that retards fire.

PURPOSES

To protect soil, water, air, plant, animal and human resources by preventing spread of wildfire or to control prescribed burns.

CONDITIONS WHERE PRACTICE APPLIES

All land uses where protection from wildfire is needed or prescribed burning is applied.

CRITERIA

Firebreaks may be temporary or permanent and shall consist of fire-resistant vegetation, non-flammable materials, bare ground, or a combination.

Firebreaks will be of sufficient width and length to contain the fire.

Firebreaks shall be located to minimize risk to the resources being protected.

Species selection will be based on their attributes in retarding fire and ease of maintenance.

Erosion control measures shall prevent sediment from leaving the site.

Comply with applicable laws and regulations, including the state's Best Management Practices (BMPs).

CONSIDERATIONS

Use existing barriers such as streams, lakes, ponds, rock cliffs, roads, drainage canals, railroads, utility right-of-way, and cultivated land as natural firebreaks.

Locate firebreaks on the contour where possible to minimize risk of soil erosion.

Attempt to locate firebreaks near ridge crests and valley bottoms. If winds are predictable, firebreaks should be located perpendicular to the wind and on the windward side of the area to be protected.

Select plant species that provide wildlife habitat if compatible with purpose.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

Mow or graze vegetative firebreaks to avoid a build-up of dead litter and to control weeds.

Inspect for and remove woody materials such as dead limbs and blown down trees from firebreak.

Inspect annually and rework bare ground firebreaks as necessary to keep them void of flammable vegetation.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

NRCS, NHCP
June, 1994

Inspect annually and rework erosion control measures as necessary to ensure proper function.

Access by vehicles or people will be controlled to prevent damage to the firebreak.

Bare ground firebreaks which are no longer needed will be stabilized.

Fish Stream Improvement

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 395

DEFINITION
Fish Stream Improvement is improving a stream channel to make or enhance fish habitat.

PRACTICE INFORMATION
The purpose of the practice is to increase production of desired species of fish. The practice involves improving food supplies, shelter, spawning areas, water quality, and other elements of fish habitat.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 395 Fish Stream Improvement	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	situational concerning SWater contam./H2O temp.
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

FLOODWATER DIVERSION

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 400

FLOODWATER DIVERSION
A floodwater diversion is a graded channel with a supporting embankment or dike on the lower side.

PRACTICE INFORMATION
This practice is used to divert floodwater originating outside the lowland area to an adequate outlet in order to protect land, crops, and improvements. The outlet may be a constructed floodway, or a natural channel, river, lake, bay or tidal estuary.

The floodwater diversion is designed and located to protect the maximum area of lowland, consistent with economic limitations, topographic requirements, and the desired slope of the hydraulic gradeline.

In selecting the location for floodwater diversions, consideration is always given to the preservation of wildlife habitat, trees of significant value for wildlife food, dens or shelter, visual resources, and other environmental considerations.

Additional information including design criteria and specifications are on file in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 400 Floodwater Diversion	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	moderate reduction in classic gully erosion
STREAMBANK	situational concerning streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate increase in excess subsurface water
INADEQUATE OUTLETS	significant increase in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	moderate improvement in onsite drainage
• OFFSITE	moderate improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	slight poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	slight reduction in SWater contam./low oxygen
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	slight reduction in SWater contam./H20 temp.
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	situational
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	situational
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	situational concerning client financial cond.
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	situational regarding risk
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

FLOODWAY

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 404

FLOODWAY

A floodway is a channel usually bounded by dikes, used to carry floodwater.

PRACTICE INFORMATION

Floodways may be designed to carry water from a side drainage across a flood plain into the channel of a main stream or they may be constructed parallel to the main stream where dikes use part of the floodplain to carry flood water and protect the rest from flooding.
A classification system has been developed for floodways. Since Dikes (practice code 356) are commonly used as a companion practice to floodways, the same classification system applies to both practices. The classes are defined as follows:

1. Class I - These floodways are constructed on sites where failure may cause loss of life or serious damage to homes, commercial buildings, public utilities, high value crops, and other similar improvements.
2. Class II - These floodways are constructed in highly developed and productive agriculture areas where failure may damage a few isolated homes, highways, minor railroads, or cause interruption of relatively important public utilities.
3. Class III - These floodways are constructed in rural or agriculture areas where damage from failure of the floodway or dike would be minimal.

The design and installation of a floodway is based on detailed engineering surveys and other investigations that must be made under the direction of trained engineers and guidance provided in the NRCS National Engineering Handbook and other reference documents. Floodway designs should include the effects of future upstream construction that will increase peak rate flows. Provisions for future enlargements should therefore be considered. In addition, careful consideration should be given to preservation of fish and wildlife habitat, significant value trees, visual effects of the planned structures, and other environmental considerations.

Additional information including design criteria and specifications are contained in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 404 Floodway	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	moderate reduction in classic gully erosion
STREAMBANK	situational concerning streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	situational concerning excess subsurface H2O
INADEQUATE OUTLETS	situational concerning inadequate outlets
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	slight poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	slight reduction in SWater contam./low oxygen
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	slight reduction in SWater contam./H20 temp.
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	situational
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	situational
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	situational concerning client financial cond.
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	situational regarding risk
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Grade Stabilization Structure

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 410

DEFINITION
A grade stabilization structure is used to control the grade and head cutting in natural or artificial channels.

PRACTICE INFORMATION
Grade stabilization structures are installed to stabilize the channel grade and control erosion to prevent the formation or advance of gullies and headcuts. The practice is used in areas where structures are necessary to stabilize the site. Grade stabilization structures are not designed to regulate flow or water levels in a channel area.

Special attention is given to enhancing fish and wildlife habitat where enhancement is practical. The practice is also helpful in reducing pollution from sedimentation.

Grade stabilization structures are located so that the elevation of the inlet of the spillway is set at an elevation that will control upstream headcutting.

A wide range of alternative types of structures are available for this practice and an intensive site investigation is required to plan and design an appropriate grade stabilization structure for a specific site.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 410 Grade Stabilization Structure	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	N/A
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	slight improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

GRASSED WATERWAY

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 412

GRASSED WATERWAY
A grassed waterway is a natural or constructed channel established in suitable vegetation for safe water disposal

PRACTICE INFORMATION
Waterways are constructed to convey runoff from terraces, diversions, or other concentrated flow areas where erosion control is needed.
The most critical time for successful installation of a grassed waterway is immediately following construction when the channel is bare and unprotected from runoff. Waterways are generally planted to perennial grass. It is critical during the vegetative establishment period to restrict outside water from flowing through the channel. Therefore, it may be necessary delay construction of terraces and/or diversions until the waterway is well established. Another critical consideration is the outlet at the lower end. If water quality or protection of riparian vegetation (streambank) is an issue, the outlet end may need to widen significantly or another buffer or filtering type practice may be necessary. In addition, the waterway installation must assure that the runoff from the waterway does not cause gullies and/or overfalls to develop.
Grassed waterways are multipurpose and provide one or more of the following benefits:

1. Safe disposal of runoff water
2. Erosion control is concentrated flow areas of a field
3. Improved water quality
4. Improved wildlife habitat
5. Reduced sediment damage
6. Improved landscape aesthetics

Additional information including standards and specifications are on file in the local NRCS Field Office Technical Guides

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 412 Grassed Waterway	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	slight reduction in classic gully erosion
STREAMBANK	insignificant
IRRIGATION INDUCED	insignificant
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	slight improvement in soil tilth
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight reduction /onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	insignificant
• SPRINKLER	insignificant
WATER MGT. NON-IRRIGATED	insignificant
RESTRICTED FLOW CAPACITY	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	moderate reduction in sedimentation of H20 stroage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	slight poten.decrease/GWater contam./salinity
• HEAVY METALS	slight poten. decrease/GWater contam./heavy metal
• PATHOGENS	slight poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	moderate reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	moderate reduction in SWater contam./nutri.,organ.
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	N/A
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	insignificant
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

Heavy Use Area Protection

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 561

DEFINITION

Heavy use area protection is protecting heavily used areas by establishing vegetative cover, by surfacing with suitable materials, or by installing needed structures.

PRACTICE INFORMATION

Heavy use area protection is a practice used primarily in urban areas and land used for recreation purposes. However, the practice may be used on any land area frequently and intensely used by people, animals, or vehicles. Treatment provided by this practice is primarily for erosion control but also addresses other types of natural resource degradation including aesthetics.

The prescribed surface treatment is designed to accommodate the specific type of traffic expected to occur. Surface treatment may involve pavement for vehicle traffic or vegetation may provide sufficient protection for people and animal traffic.

Impermeable surfaces such as pavement increase runoff. Therefore, provisions for drainage is always considered when planning this practice.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 561 Heavy Use Area Protection	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	insignificant
STREAMBANK	insignificant
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	significant decrease in roadbank/const. erosion
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	moder. increase in runoff/flooding
EXCESS SUBSURFACE WATER	moderate reduction in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	moderate improvement in onsite drainage
• OFFSITE	moderate improvement in offsite drainage
RESTRICTED STORAGE	moderate reduction in sedimentation of H20 stroage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	situational concerning client financial cond.
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

HERBACEOUS WIND BARRIERS

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 422A

HERBACEOUS WIND BARRIERS

Herbaceous wind barriers are narrow strips of grass or other non-woody species established at designed intervals across the field and perpendicular to the prevailing wind direction.

PRACTICE INFORMATION

This practice is used primarily on cropland but may be applicable on wildlife, recreation, or other landuses where crops are grown.

Herbaceous wind barriers are multi-purpose and provide one or more of the following:

1. Reduce soil erosion from wind.
2. Protect growing crops from damage by wind and wind blown soil.
3. Manage snow to increase plant available moisture.
4. Provide food and cover for wildlife.

The barriers may consist of perennial or annual plants. Specie selection are based on the following characteristics:

1. Adaptation to the site.
2. Erect non-spreading growth habit.
3. Resistance to lodging.
4. Good leaf retention characteristics.
5. Compatibility and minimum competition with adjacent crops.

The barriers may consist of a single row providing no significant gaps are present after establishment. Generally, two or more narrow spaced rows are planted to provide extra support. Barrier height and spacing is based on the specie to be planted and the purpose of installing the practice. For this practice to be fully effective, a site specific plan, design, and set of specifications are needed.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 422A Herbaceous Wind Barrier	NOTES: Grasses and /or broadleafs can be used depending on site and objectives.
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight reduction /onsite deposition damage
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	slightly improve onsite safety/deposition
• OFFSITE	insignificant
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	moderate improvement in moisture use
RESTRICTED FLOW CAPACITY	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	moder. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	slight decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	insignificant
• OFFSITE STRUCT. PROBLEMS	insignificant
• ONSITE HEALTH	moder. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	moder. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	moder decrease in airborn chem. drift
AIRBORNE ODORS	insignificant
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	moder. improvement in air condition/ air movement
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	slight improvement in plant suitability/site adapt
PLANT USE	slight improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	insignificant
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	slight improvement in public health & safety
PRIVATE/PUBLIC VALUES	slight improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	N/A
SIGNIFICANCE OF CULTURAL RESOURCES	N/A
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	N/A
OTHER	

HILLSIDE DITCH

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 423

HILLSIDE DITCH
A hillside ditch is a channel constructed across the slope with a supporting ridge on the lower side.

PRACTICE INFORMATION
This practice is used to help control erosion on steep cropland by diverting runoff to a protected outlet. The hillside ditches are installed at designed vertical intervals down the slope and at non erosive grades within the channels. Adequate outlets for runoff water are required before installing the hillside ditches. The outlets may be constructed waterway or natural waterways that have a protective cover of grass. Other disposal areas such as well established pasture would be acceptable.

Additional information including design criteria and specifications are on file in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 423 Hillside Ditch	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	N/A
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	insignificant
STREAMBANK	insignificant
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	situational concerning soil mass movement
ROADBANK/CONSTRUCTION	insignificant
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	slight reduction in soil salinity
• ORGANICS	slight decrease in organic contaminates
• FERTILIZERS	moderate reduction in contaminates from fertilizer
• PESTICIDES	slight reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	insignificant
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate increase in labor requirement
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	situational concerning public health and safety
PRIVATE/PUBLIC VALUES	situational regarding private/public values
CLIENT CHARACTERISTICS	situational regarding client characteristics
RISK TOLERANCE	situational regarding risk
TENURE	situational regarding tenure
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Irrigation Field Ditch

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 388

DEFINITION
An irrigation field ditch is a permanent ditch that conveys water from the source of supply to a field (s) in a farm distribution system.

PRACTICE INFORMATION
This practice applies to open channels and elevated ditches with a capacity of 25 cubic feet per second or less. It does not apply to canals and laterals that delivers irrigation water to a farm, nor does it apply to ditches constructed for temporary use and removed during the growing season.

Irrigation field ditches are permanent installations that require design and layout to achieve acceptable stability, capacity, velocity, and water surface elevations to provide efficient application of irrigation water to the field surface. The ditch banks may be closed and reopened to accommodate harvest, tillage and other cultural requirements of the crops produced.

Field ditches are constructed in earth material that contains enough clay or other fine soil material to prevent excessive seepage. The sealing effect of sediment carried in the irrigation water may be considered in determining site suitability for a field ditch.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 388 Irrigation Field Ditch	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	slight reduction in ephemeral gully erosion
CLASSIC GULLY	slight reduction in classic gully erosion
STREAMBANK	insignificant
IRRIGATION INDUCED	moderate reduction in irrigation induced erosion
SOIL MASS MOVEMENT	slight reduction in mass movement of soil
ROADBANK/CONSTRUCTION	insignificant
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight reduction /onsite deposition damage
• OFFSITE	slight decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	slightly improve onsite safety/deposition
• OFFSITE	slightly improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	situational concerning inadequate outlets
WATER MGT. IRRIGATION	
• SURFACE	significant improvement in irrigation efficiency
• SPRINKLER	significant improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	slight improvement in onsite drainage
• OFFSITE	slight improvement in offsite drainage
RESTRICTED STORAGE	moderate reduction in sedimentation of H20 stroage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	slight improvement in plant suitability/site adapt
PLANT USE	slight improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	slight improvement in plant pest managemer
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	situational
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate decrease in labor requirement
AVAILABLE EQUIPMENT	moderate decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Irrigation System / Sprinkler

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 442

DEFINITION

A sprinkler irrigation system is a planned system in which all necessary components have been installed for efficient application of irrigation water by means of nozzles operated under pressure.

PRACTICE INFORMATION

Sprinkler irrigation designs are based on an evaluation of the site considering soil, topography, water supply, energy supply, crops to be grown, labor requirements, and expected operating conditions.

The purpose of a sprinkler system is to efficiently and uniformly apply irrigation water to the crops or soil without causing erosion, excessive water loss, or reduction in water quality.

An irrigation system must be designed as an integral part of a conservation plan based on the capabilities of the natural resources and the needs of the farm enterprise.

The most efficient type of system should be planned. For example, surface or flood type irrigation systems may not be adapted to the site if the soils are sandy. Sprinkler irrigation systems are a better choice for sandy soils. Conversely, if the soils are very slowly permeable (clayey), the site may not be well adapted to sprinkler irrigation due to excessive runoff and erosion.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 442 Irrigation System - sprinkler	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	moderate reduction in irrigation induced erosion
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	significant improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	slight improvement in plant suitability/site adapt
PLANT USE	moder. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate decrease in labor requirement
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Irrigation System / Surface and Subsurface

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 443

DEFINITION
An irrigation system (surface/subsurface) is a planned system in which all necessary components have been installed for efficient application of irrigation water.

PRACTICE INFORMATION
Surface and subsurface irrigation refers to irrigation water being applied by means other than trickle or sprinkler nozzles.
The purpose of the practice is to efficiently convey and distribute irrigation water to the point of application without causing erosion, water loss, or reduction in water quality.

An irrigation system must be designed as an integral part of a conservation plan based on the capabilities of the natural resources and the needs of the farm enterprise. The planned irrigation system must be suited to the site conditions and the crops to be grown.

Surface irrigation systems may not be adapted to the site if the soils are sandy. Sprinkler irrigation systems are a better choice for sandy soils. Conversely, if the soils are very slowly permeable (clayey), the site may not be well adapted to sprinkler irrigation due to excessive runoff and erosion.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 443 Irrigation System - surface and subsurface	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	moderate reduction in irrigation induced erosion
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	significant improvement in irrigation efficiency
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	slight improvement in plant suitability/site adapt
PLANT USE	moder. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate decrease in labor requirement
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Land Clearing

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 460

DEFINITION
Land Clearing is removing trees, stumps, and other vegetation from wooded areas.

PRACTICE INFORMATION
The purpose of the practice is to achieve needed land use adjustments and improvements in the interest of natural resource conservation. The practice applies to wooded areas where the removal of woody vegetation and debris is necessary as part of a conservation plan that involves a change in land use. The proposed land use change will be in accordance with the NRCS capability classification system. This means that the land being cleared is suited for the proposed land use considering the needs of the natural resources for sustainability.

The specifications for this practice specify the kinds of timber to be salvaged, lengths of logs, and place of stacking. Methods of disposing of debris and unsalvaged timber is also specified in the plan, and the disposal methods are planned in accordance with applicable laws and regulations. The plan also provides for measures necessary to protect the cleared area from erosion and minimize adverse effects on fish and wildlife.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 460 Land Clearing	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	situational concerning sheet and rill erosion
WIND	situational concerning wind erosion
EPHEMERAL GULLY	situational concerning ephemeral gullies
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	situational concerning soil mass movement
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	situational concerning soil tilth
SOIL COMPACTION	situational concerning soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	situational concerning onsite deposition damage
• OFFSITE	situational concerning offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	situational concerning onsite safety/deposition
• OFFSITE	situational concerning offsite safety/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	situational regarding seep development
RUNOFF/FLOODING	situational concerning runoff and floods
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	situational regarding onsite drainage
• OFFSITE	situational concerning drainage/offsite
RESTRICTED STORAGE	situational concerning sedimentation of H2O stor.

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. degredation in animal habitat/food supply
COVER/SHELTER	moder. degredation in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	situational
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	situational
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	situational
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	N/A
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

LAND RECLAMATION

FIRE CONTROL

(No.)
CODE 451

DEFINITION

Controlling or extinguishing fires in coal refuse.

SCOPE

This standard applies to the coal fires in spoil and refuse from surface or underground coal mining activities, generally associated with abandoned mine lands.

PURPOSE

To control or extinguish coal spoil or refuse fires to eliminate harmful fumes and gases, improve public safety, conserve coal resources, prevent ignition of additional coal or refuse, protect surface lands and vegetation, remove the threat of forest fires, improve water quality, and restore areas to a beneficial use.

CONDITIONS WHERE PRACTICE APPLIES

Locations where coal refuse is burning and degrading the environment. Land reconstructing will normally be associated with this practice.

PLANNING CONSIDERATIONS

1. Area of burning material.
2. Geologic sections of the strata where coal is burning.
3. Hazardous fumes and gases being released.
4. Ignition potential for other combustible materials.
5. Materials available for extinguishing the fire and stabilizing the area.

DESIGN CRITERIA

SCS fire control will normally be limited to small fires that are a part of a larger land reconstruction project. Major fires should be controlled by other agencies. Many mine reclamation jobs have the potential to burn and the principles in this standard should be used for fire prevention on all abandoned mine reclamation work. Coal refuse must never be left on the surface.

There are four primary methods for controlling mine fires, depending on the condition. They are (1) loading out, (2) fire barriers (trench and plug), (3) flushing (grouting), and (4) surface sealing.

Loading out. This involves digging out the burning and heated material, and cooling it with water or by spreading it on the ground. The excavation should start between the fire and the unburned coal material. The burning materials must be cooled by water to allay dust and reduce the probability of explosions and to prevent damage to machinery. The cooled material can then be disposed of in a safe manner either on the site or at a disposal area. The area containing all the combustible material must then be protected from ignition by surface sealing with soil material or a method that provides equivalent results.

Fire barriers. A trench barrier is made by excavating a trench, usually from an outcrop on one side of the fire to an outcrop on the

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

other side, between the burning material and the unburned material. The trench is backfilled with incombustible materials such as earth, fly ash, or granulated slag. The sides of the trench excavation must be stable. The minimum thickness of the incombustible backfill barrier is 4.6 m (15 ft)

A plug barrier is used where excessive overburden prevents use of a trench barrier. The plug is installed similar to a trench barrier except that the trenches are started at an outcrop and stopped when the overburden exceeds 18 m (60 ft). Two plugs will normally be required, one on each side of the fire. The surface over the fire between the two plugs must be sealed where the overburden exceeds 18 m(60 ft).

Flushing. This method is designed to fill the voids around an underground fire area with finely divided incombustible solids to prevent airflow to the burning materiel. This method is applicable where excessive overburden or improvements preclude the use of other methods.

To construct the barrier, 15-cm (6-in) holes are bored in the mine void on 3-m (10-ft) centers. Holes on adjacent lines are to be staggered. Sand, water-cooled slag, crushed limestone, and crushed and screened earth or shale can be slurried into the mine through the holes. Another alternative is to use air flushing injection of dry fly ash material. Barriers constructed by this method may consist of one row of 15-cm (6-in) boreholes on 7.6-m (25-ft) centers. In each case the installation must be monitored to ensure that enough fine incombustible material is installed to make the barrier effective. Angle drilling around improvements and other obstructions may be necessary.

Surface sealing. Surface sealing is used on fires that have extended for a great distance, or it is used in conjunction with other control measures. Sealing is obtained by covering the affected area with not less than 1.2 m (4 ft) of incombustible fine-grained earth material or other suitable material. Materials that will not crack upon drying out should be used. The seal should extend from 3 m (10 ft) below the burning material to 18 m (60 ft) above. All openings and drains must be sealed to cut off the flow of oxygen. Drainage pipes with traps to prevent air and gas passage may be used if continuous water drainage is necessary. Erosion must be controlled to prevent braking the seal. Intensive water disposal systems are required to ensure an effective seal.

MONITORING

Treated mine fire areas are to be monitored to ensure that the fire is out. Fires extinguished by loading out may be monitored by surface inspection. Other fire areas shall have monitoring holes installed into the burning zone. The monitoring holes shall not exceed a 61-m (200-ft) spacing in any direction. The monitoring holes shall be sealed and the temperature monitors. A weighted thermocouple is lowered into the hole and the temperature read on the surface with a potentiometer. Thermometers may be used for shallow holes. Temperatures should be read at least every 60 days. Monitoring may be stopped when the maximum temperature in all wells reaches 48.8 °C (120 °F) or less and the trend is down.

MAINTENANCE

A maintenance plan will be developed, including mandatory temperature monitoring. Regular periodic inspections must be carried out until the fire is extinguished and the area is stabilized. Needed maintenance must be carried out promptly to ensure a successful operation.

PROTECTION

All disturbed areas shall be reshaped and regraded to blend with surrounding features. Visual resources must be considered in the planning, design, and installation. Exposed toxic material and rock shall be covered with soil material and established with vegetation or protected by other means. Access roads must be maintained and foot and vehicular traffic controlled to protect the work.

PLANS AND SPECIFICATIONS

Plans and specifications for controlling mine and refuse fires shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

LAND RECLAMATION, FIRE CONTROL SPECIFICATIONS

FOUNDATION PREPARATION

The foundation area shall be cleared of trees, brush, debris, and rubbish to conduct fire control operations. Waste materials shall be disposed of at designated locations by burning or burying as specified on the plans.

EXCAVATION OF BURNING MATERIALS

Hot materials shall be excavated and cooled by quenching with water or mixing with incombustible soil materials as specified on the plans. Cooled material shall be stockpiled for use as backfill area is ready. Cooled material shall be placed and compacted in layers. The surface shall be placed to the approximate final grade in readiness for the seal, top-soil, and vegetation.

BARRIERS

Barriers of earth or fly ash shall be placed to line and grade as shown on the plans, or as specified during installation, to provide a positive barrier to the fire.

INSPECTION HOLES

Holes for inspection will be drilled at the locations and to the depths specified on the plans. Casings and caps of the size, thickness, and materials specified shall be installed to line and grade. Marker posts shall be installed as necessary. All holes not cased and capped shall be sealed with nonflammable material.

SEALS

Seals of incombustible soil materials shall be installed to the thickness specified. The seal shall be placed in layers not exceeding 300 mm (1 ft) thick and compacted by normal traffic or by a compacting roller as necessary to achieve the required density. Topsoil shall be added to the specified thickness after the seal is compacted.

PROTECTION

A protective cover of vegetation shall be established on all exposed surfaces if soil and climatic conditions permit. Nonvegetative protective measures may be used if soil and climatic conditions preclude the use of vegetation.

Appropriate safety measures, warning signs, rescue facilities, fencing, and other measures shall be provided.

PLANNING CONSIDERATIONS FOR WATER QUANTITY AND QUALITY

QUANTITY

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation and ground water recharge..

2. Effects of vegetation on soil moisture.

QUALITY

1. Effects on erosion and the movement of sediment and soluble and sediment-attached substances carried by runoff.

2. Effects of nutrients and pesticides and their effect on surface and ground water quality.

3. Effect on the visual quality of downstream and local water resources.

4. Short-term and construction-related effects of this practice on the quality of the surface and ground water.

5. Long-term effects of the management and maintenance of this practice on surface and ground water quality.

6. The potential for uncovering toxic materials and spreading them in areas that might cause undesirable effects.

7. The effects on wetlands and water-related wildlife habitats.

Land Reclamation, Highwall Treatment

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 456

DEFINITION

Highwall Treatment is reducing the harmful effects of highwalls that result from surface mining.

PRACTICE INFORMATION

This practice is used to treat highwalls resulting from past mining activities and is associated with reclamation and reconstruction on abandoned mined areas. Highwall treatment applies to areas where highwalls resulting from past mining are:

- A hazard to health and safety
- Unstable and contributing to excessive erosion
- Degrading water quality, landscape aesthetics, and other natural resources

The purpose of highwall treatment is to reduce highwall heights or slopes to satisfactory levels to eliminate safety hazards, control erosion, establish vegetation, improve landscape aesthetics, and basically help return the topography of the area to something similar to the pre-mine condition.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 456 Land Reclamation, Highwall Treatment	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	situational concerning classic gullies
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	significant reduction in mass movement of soil
ROADBANK/CONSTRUCTION	situational concerning const./roadbank erosion
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	moderate reduction in soil salinity
• ORGANICS	moderate decrease in organic contaminates
• FERTILIZERS	moderate reduction in contaminates from fertilizer
• PESTICIDES	moderate reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	situational regarding onsite drainage
• OFFSITE	situational concerning drainage/offsite
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	insignficant
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	insignificant
AIRBORNE ODORS	insignificant
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	sign. improvement in plant nutrient management
PESTS	insignificant
THREAT/ENDANGERED PLANTS	situational concerning threat/endanged plant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	slight improvement in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational concerning threat./endangered animals
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	sign. increase in labor requirement
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	moderate risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

LAND RECLAMATION

LANDSLIDE TREATMENT

(No. and ha, acre)
CODE 453

DEFINITION

Treating inplace materials, mine spoil (excavated over-burden), mine waste or overburden to reduce downslope movement.

SCOPE

This practice applies to landslides or potential landslides.

PURPOSE

To prevent or stabilize landslides to: protect life and property; prevent excessive erosion and sedimentation; improve water quality and landscape resource quality; and to create a condition conducive to establishing surface protection and beneficial land use.

CONDITIONS WHERE PRACTICE APPLIES

To areas where inplace material, mine spoil, waste, or overburden is unstable, moving, or judged to have potential of moving downslope in a manner that will cause damage to life, property, or the environment and produce excessive sediment and debris. Land reconstruction is normally associated with this practice.

PLANNING CONSIDERATIONS

1. Geology of the area and associated subsurface conditions.
2. Type and amount of spoil or waste.
3. Topography of the slide and adjacent areas, including known or estimated pre-mine, preconstruction, or pre-slide conditions.
4. Surface drainage and runoff patterns.
5. Groundwater profiles, seepage patterns, and sources of subsurface water.
6. Land use, dwellings, roads, structures, and water disposal system.
7. Procedures used during mining operations or construction.
8. Slide potential during investigation and construction.
9. Rainfall and runoff.

Landslides result from a combination of several factors, the most important being static load, slope of the surface and slip zone, the soil characteristics in the slip zone, and the presence of water. The key to control is to bring about a favorable balance between the load that created the tendency to move and the resisting forces that restrain movement. This can be done by reducing the load, reducing the slope, increasing internal strength, and providing external restraining forces. A good reference on landslides is the publication “Landslides: Analysis and Control,” 1978. Transportation Research Board , National Academy of Sciences, Special Report 176, 234 p.

Investigations. Investigations are to be made to determine:

1. Surface profiles, cross sections, and topographic features.
2. Geologic profiles and cross sections showing attitude and conditions of strata and details of the slip zone.
3. Soil properties, including gradation,

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

density, strength, and physical and chemical characteristics.
4. Ground-water conditions
5. Depth and volume of material involved.
6. Extent of problem or potential problem area.
7. Estimated pre-slide profile and subsurface conditions.
8. Conditions where slopes are stable in similar materials.

Extreme caution must be exercised and careful planning is required before permitting any drilling equipment, construction machinery, or personnel in the slide area. A slide is often active only during wet periods and may be comparatively stable during dry periods. With this in mind, heavy drilling and machinery work should be scheduled during dry periods.

DESIGN CONSIDERATIONS AND CRITERIA

In most cases the unstable or potentially unstable conditions cannot be attributed to one cause. Therefore, the solution is usually a combination of treatment measures, each either increasing the internal strength or decreasing the external load to the point where required stability is obtained.

Slope stability. Measures developed to prevent or stabilize slides shall be based on engineering analysis and judgment made by an engineer trained and experienced in soil mechanics. Slides are the most complex of geotechnical problems requiring analysis. The best available expertise in soil engineering is needed and expert consultants should be hired, if necessary.

Slope stability analysis shall account for all critical soil and loading conditions. The strength parameters of natural soil and rock or of waste materials shall be based on the appropriate conditions for each slide. Long-term strength parameters (c=0 and internal friction based on residual shear) are often required. The methods of slope stability analysis are to be appropriate for the loading conditions and for the location and shape of sliding or potential failure surfaces. Appropriate safety factors shall be provided based on the degree of uncertainty in the soil strength values used, the soil and water conditions assumed, and the detail of the analysis used.

When there is a potential for loss of life or damage to farmsteads, residential areas, frequently traveled roads, and occupied facilities, or important public utilities, the measures shall include removal of the material subject to sliding or any other control to ensure safety.

Earthquake or seismic forces are to be considered on major high hazard sites. The criteria as contained in Technical Release No. 60 for earth dams shall apply for geologic investigations, seismic assessments, and minimum seismic coefficients associated with earthquakes.

Water control. Water creates problems in two ways. The addition of water to the material above the slope zone increases the load. It also acts as a lubricant, or increases pore pressure within the slide material and in the slope area, thereby reducing internal strength, In both cases water increases the potential for sliding.

There are three major sources of water within the slide area—surface runoff that finds its way onto the slide area, precipitation directly on the surface, and subsurface water from known or unknown sources. A combination of these sources usually contributes to the excessive water problem.

Surface runoff water. Runoff water from outside areas is to be controlled by using diversions, associated structures, and conveyance systems.

Water from direct precipitation. Infiltration can be limited and controlled by providing positive surface drainage, sealing the surface cracks and breaks on the slide and adjacent areas, and establishing vegetation. Grading and shaping may be required to provide positive surface drainage. Terraces structures, and waterways are to be installed as needed to provide safe water disposal without erosion and with positive grade to reduce seepage. Cut and fill to a depth of 0.9

to 1.2 m (3 to 4 ft) may be required to reduce surface infiltration and seal cracks and breaks. Compaction of the material will further reduce infiltration, but care must be taken to prevent excessive compaction which would restrict vegetative establishment. Establishing a vigorous vegetative cover will increase evapotranspiration and control erosion.

Ground water. Ground water that contribute to instability is to be controlled. Many slides remain active during reconstruction periods and further movement can be expected. Therefore, drainage systems are to be designed to remain operative after limited movement. Pipes must be used with caution because of the potential of breaking and/or misalignment with further movement. Flat or nearly flat gradients should not be used for the same reasons. A properly designed filter shall be used to prevent clogging of the drains.

Earth material control. Earth material in internal water are the load factors that contribute to the unstable conditions that cause slides. Treatment consists of removing earth material to reduce the load and slope, increasing the internal strength of the earth material and providing external restraints to movement.

Loading control. In most cases loading control consists of removing excess material to a safe location. However, in some instances the solution may be adding material to the toe of the slide area to increase the load, resisting further movement. Removal of slide debris from the toe (downhill side) of the slide usually will increase the instability and cause further slide movement.

Slope reduction. Slopes can sometimes be reduced by grading and shaping to eliminate critical slopes within the slide area. It can also be reduced as a result of loading control measures.

Increasing internal strength. Reducing the internal water of the slide material, removing or replacing the slide material, incorporating any admixture needed into it, and compacting it can increase the internal strength to resist a tendency to slide.

External restraints. In some cases, buttresses, bulkheads retaining walls, pilings, tieback anchors, and gabions can be used to restrain further slide movement. These structures may provide the only practicable solution where high-valued improvements are involved and movement must be contained in a short distance. The structures are normally very expensive and are usually not practicable otherwise. They also require complex design analyses, using the expertise of geologists, soil mechanics engineers, and structural engineers.

Component practices. All individual practices installed as a component of landslide treatment are to be designed and installed in accordance with applicable SCS standards and specifications. If SCS standards are not available, the practice is to be designed and installed using current engineering technology.

Environmental. All disturbed areas are to be provided with adequate water disposal systems and established to vegetative cover, or otherwise protected, to control erosion and sediment as soon as practicable. Temporary protective measures will be necessary if a long delay is anticipated in establishing permanent cover. Foot and vehicular traffic is to be controlled to protect the area.

Visual resources are to be given the same consideration as other design features during planning, design, and installation. All disturbed areas shall be reshaped and regraded to blend in with the surrounding land features.

MAINTENANCE

The maintenance plan is to include periodic inspections because of the potential for additional movement, failure of water disposal systems, failure of vegetation, and other problems. The water disposal system, subsurface drainage system, access roads, and vegetative cover are to be maintained to accomplish their intended purposes. Necessary maintenance and repair activities are to be initiated promptly.

PLANS AND SPECIFICATIONS

Plans and specifications for slide treatment shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

PLANNING CONSIDERATIONS FOR WATER QUANTITY AND QUALITY

Quantity

1. Effect on and discharge capacity of water courses affected by the landslide.

2. Water budget effect on volumes and rates of runoff, evaporation, deep percolation, and ground water recharge.

3. Potential for a change in plant growth and transpiration because of changes in the amount of soil moisture in the vicinity of the structure.

Quality

1. Potential to reduce erosion and related movement of sediment or sediment-attached substances.

2. Short-term and construction-related effects on downstream water courses.

3. Potential to alter the discharge of toxic materials to ground or surface waters.

4. Effects on the visual quality of water resources.

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

LAND RECLAMATION

SUBSIDENCE TREATMENT

(ha, acre)
CODE 454

DEFINITION

Treating subsidence areas to reduce the harmful effects and provide for beneficial use.

SCOPE

This standard applies to surface subsidence associated with abandoned underground mines in rural areas that are being treated as part of surface reclamation. Open sinkholes caused by mine collapse are covered by the shaft and adit closing standard (452).

PURPOSE

Subsidence is treated to minimize damages where high-valued improvements are involved or where there is high hazard to human life. It is also treated to reduce pollution of surface and ground water, prevent soil degradation, improve landscape resource quality, and restore or maintain a beneficial use.

CONDITIONS WHERE PRACTICE APPLIES

This standard applies to locations where surface subsidence from the collapse of underground mining is threatening rural buildings and structures, roads, dams, and ponds; decreasing land values; interfering with surface drainage or water supplies; creating a hazard to human life; damaging landscape values; and creating a nuisance or preventing beneficial use.

PLANNING CONSIDERATIONS

1. Geologic environment of the immediate area, including characteristics of overburden such as lithology, faults, joints, and attitude.
2. Surface and subsurface hydrologic conditions.
3. Mining history.
4. Postmining history and conditions.
5. Land use.
6. Vertical and horizontal dimension of voids.
7. Depth of voids below land surface.
8. Size, type, and distribution of pillars.
9. Surface topography and drainage pattern.
10. Availability and quality of backfill material.
11. Availability of slurry water.

General

If high-valued improvements or danger to human life are involved, the hazard can be reduced by backfilling the mined-out areas under and adjacent to the improvements with hydraulic or blind backfilling. If the mined-out voids are not too deep, a stripping operation can be used to eliminate present and further subsidence problems. Surface treatment may be used to reduce the harmful effects, recognizing that future subsidence may occur and additional treatment will be necessary.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resource Conservation Service.

NRCS, NHCP
June, 1984

DESIGN CRITERIA

Controlled backfilling. Controlled backfilling methods can be used where the mine is accessible and can be traversed to key areas for the filling operation. Bulkheads are built in mine passage around the periphery of the work area for containment of the fill. Drains may be incorporated in the bulkheads to facilitate rapid water removal. Bulkheads are built of wood or other suitable material. Vertical injection boreholes should be minimum of 30 cm (12 in) in diameter. At the base of each hole, a 90° long radius pipe elbow is placed whereby the slurry can be diverted to horizontal pipes and distributed into the mine workings. Boreholes through bulkheads may also be utilized.

Blind backfilling-gravity method. If abandoned mine openings are inaccessible because of flooding or caving, blind backfilling must be used. Pipes are installed from the surface into the mine openings through drill holes and granular material is flushed in with water under the force of gravity. In the gravity feed method, the injected granular material builds a cone under the injection pipe. When the cone builds up to the mine roof, no more fill will enter the mine and a new hole must be drilled.

Blind flushing pumped-slurry injection. In the pumped-slurry method, durable granular material is blended with water, and the suspension (slurry) is pumped to the point of injection. Energy provided by the pump and the static head in the borehole give the velocity required to keep the solid particles in suspension and to transport them. As the slurry firsts enters the open space, its velocity drops rapidly, and the sold particles settle out in a mound. As the mound approaches the mine roof, the velocity of the slurry increases through the narrowing channels, and the solid particles are transported to the outer limits of the mound. Here the velocity again decreases abruptly, the solids are deposited, and the mound is built outwards until resistance to flow reduces the velocity below that required to transport the solids. This may be several hundred feet, depending on particle size and concentration and other factors. Exploratory drill hoes may be needed to determine the extent and effectiveness of backfilling.

Daylighting. Stripping, replacement of the overburden and complete reclamation are the most effective methods of subsidence treatments. The hazard to personnel and equipment caused by the subsurface voids is a major consideration in planning equipment movement and mining operations; therefore, the plan must include procedures to establish firm support. It may be necessary to excavate and backfill the anticipated travel paths ahead of the complete stripping operation. If the remaining coal is not to be removed, care must be taken to open all rooms and travelways and ascertain that they are completely backfilled with overburden material before initiating other backfill operations.

Surface treatment. Surface filling of subsidence areas is usually applicable when drainage cannot be obtained or other important factors make filling a practical alternative. Some areas of subsidence may be considered low hazard and sufficiently stable to permit land use operations after surface filling. Drainage systems can be used to eliminate excess water. Diversions can be used to keep runoff water from entering the treatment areas, and land smoothing and grading can be used to ensure positive drainage. Pumped drainage may be necessary if a gravity outlet is not available.

Borrow areas. Any areas used for borrow for backfill operations should be reestablished to their proper uses in accordance with appropriate SCS standards.

Environmental. All disturbed areas shall be reshaped and regraded to blend with surrounding land features. Visual resources must be given the same consideration as other design features in planning, design, and installation. Exposed areas of earth shall be covered with soil materials and established with vegetation or protected by other means as soon as practicable. Access roads must be maintained and foot and vehicular traffic controlled to protect the work.

MAINTENANCE

Sites must be monitored to determine the effectiveness of the backfilling. Surface treatment may be required to reduce the harmful effects of subsidence.

PLANS AND SPECIFICATIONS

Plans and specifications for subsidence treatment shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

LAND RECLAMATION, SUBSIDENCE TREATMENT SPECIFICATIONS

FOUNDATION PREPARATION

Access shall be carefully controlled to preclude accidents to machinery, equipment, and personnel. Mechanical impact devices shall be used to locate safe routes for machinery and hauling equipment if shown on the plans or if required in the contract documents.

The foundation shall be cleared of trees, brush, and other debris as necessary for construction operations. Wastes shall be disposed of at designated locations. All subsidence holes or other subsided areas shall be shaped to sizes and grades as specified.

EXCAVATION (DAYLIGHTING)

This operation consists of removing the overburden to the mine tunnels and shafts and filling the mine voids with overburden excavation. The approximate extent of the mine voids area is shown in the plants. The actual extent will be determined during the excavation. All abandoned mining equipment found in the mine shall be disposed of as specified. The backfill shall be placed in lifts and compacted as specified. The surface area shall be left in a smooth condition suitable for placement of topsoil.

FILLING UNDERGROUND VOIDS

Fill material shall be mine tailings, soil, fly ash, or other approved material. Materials shall be placed by pneumatic stowing. The system must be capable of placing materials 75 mm (3 in.) or smaller. The materials shall be placed to 80 percent of standard Proctor density. Water shall be added to control dust. If a soil cement seal is required, enough water shall be added to provide for proper soil cement sealing.

SURFACE TREATMENT

Diversions, precision land forming, surface drains, and subsurface drains shall be installed according to the requirements shown in the plans.

PROTECTION

Bare soil areas not to be farmed are to be protected by vegetation. Other materials may be used if soil and climatic conditions preclude the use of vegetation.

Appropriate safety measures shall be taken during and after construction. Such measures include warning signs, rescue facilities, gas-warning meters, fences, and mechanical impact testing.

Planning considerations for water quantity and quality

Quantity

1. Effects on the water budget, especially on volumes and rates of runoff and ground water recharge.

Quality

1. Effects on erosion and the movement of sediment and soluble and sediment-attached substances carried by runoff to surface and ground water.

2. Effects on the movement of dissolved substances to ground water.

3. Potential for uncovering or redistributing toxic materials that might cause undesirable effects on water or plants.

4. Short-term, construction, and maintenance effects on the quality of water resources.

5. Effects on wetlands or water-related wildlife habitats.

6. Effects on the visual quality of water resources.

Land Smoothing

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 466

DEFINITION
Land Smoothing is removing irregularities on the land surface with earth moving equipment.

PRACTICE INFORMATION
Land Smoothing is classified as "rough grading" and does not require a complete grid survey. Irregularities are smoothed to the degree required for installation of other conservation practices and farming activities.

The purpose of the practice is to improve surface drainage, provide for more effective use of precipitation, obtain more uniform planting depths, improve equipment operation, improve terrace alignment, and facilitate contour cultivation.

This practice is used on areas where depressions, mounds, old terraces, turn rows, and other surface irregularities interfere with the application of needed conservation practices. However, it is limited to areas that have adequate soil depth or where, topsoil can be removed, stockpiled and replaced after shaping is complete.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 466 Land Smoothing	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	moderate improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	insignificant

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	moder. improvement in plant suitability/site adapt
PLANT USE	moder. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Lined Waterway or Outlet

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 468

DEFINITION

A Lined Waterway or Outlet is a waterway or outlet structure having an erosion resistant lining of concrete, stone, or other permanent material.

PRACTICE INFORMATION

The purpose of the practice is to provide protection to the structure when grass cover would not be sufficient or sustainable. Properly designed linings also control seepage, piping, and sloughing or slides.

This practice applies to waterways or outlets that need a lining of nonreinforced, cast in place concrete, rock riprap, or similar permanent linings. This practice often becomes necessary when the location is such that people or animals make vegetative protection impractical, or when high value property or adjacent facilities warrant the extra cost of this relatively expensive method of protecting a waterway that is ordinarily protected with grass.

The lining material will cover the entire wetted perimeter of the structure. Extra freeboard will be designed into the lining if a protective grass cover cannot be established and maintained immediately above the design high water line.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 468 Lined Waterway or Outlet	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	significant reduction in mass movement of soil
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	significant reduction in seepage hazard
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	significant decrease in labor requirement
AVAILABLE EQUIPMENT	significant decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

MULCHING

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 484

MULCHING
Mulching is applying a protective cover of plant residue or other suitable material not produced on the site to the soil surface.

PRACTICE INFORMATION
This practice is used to help control erosion, protect crops, conserve moisture, prevent compaction/crusting, reduce runoff, and help control weeds. The practice is utilized on sites subject to erosion and high runoff that need the additional protection from material brought in from off the site. The material may be manufactured and commercially available or it may be hay or crop residue hauled to the site and applied.

This is a high input practice used primarily on construction sites. However, the practice is often used in production of specialty crops including grapes, fruit, and vegetables.

Additional information including standards and specifications are on file in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 484 Mulching	NOTES: Produced off site
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	moderate reduction in irrigation induced erosion
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	significant decrease in roadbank/const. erosion
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	slight reduction in soil salinity
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	insignificant
WATER MGT. IRRIGATION	
• SURFACE	significant improvement in irrigation efficiency
• SPRINKLER	significant improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	insignficant
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	N/A
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	insignificant
AIRBORNE ODORS	insignificant
FUNGI, MOLDS, AND POLLEN	insignificant
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	moder. improvement in plant suitability/site adapt
PLANT USE	moder. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	sign. improvement in plant nutrient management
PESTS	moder. improvement in plant pest managemen
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	sign. increase in labor requirement
AVAILABLE EQUIPMENT	sign. increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	insignificant
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	insignificant
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

Obstruction Removal

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 500

DEFINITION
Obstruction Removal is removal and disposal of unwanted, unsightly or hazardous building, structures, vegetation, landscape features, trash and other material.

PRACTICE INFORMATION
This practice applies to disposal of all types of material that prevent or hinder installation of conservation practices or present a hazard to their use and enjoyment. The purpose of the practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 500 Obstruction Removal	NOTES: Facilitating practice - effects relate to other practices made possible by this practice.
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	N/A
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	N/A
SIGNIFICANCE OF CULTURAL RESOURCES	N/A
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	N/A
OTHER	

Open Channel

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 582

DEFINITION
Open Channel is constructing or improving a channel, either natural or artificial, in which water flows with a free surface.

PRACTICE INFORMATION
The purpose of the practice is to provide discharge capacity required for flood prevention, drainage, other authorized water management purposes, or any combination of these purposes.

This practice does not apply to waterways, irrigation field ditches, diversions, surface drainage, field ditches, and other small onfarm structures. It also does not apply to irrigation canals and laterals.

Installation of this practice requires that stability requirements are met, and that all natural resources evaluated for environmental impacts. Mitigating measures may be necessary when unavoidable natural resource damage is required to install the practice.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 582 Open Channel	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	insignificant
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

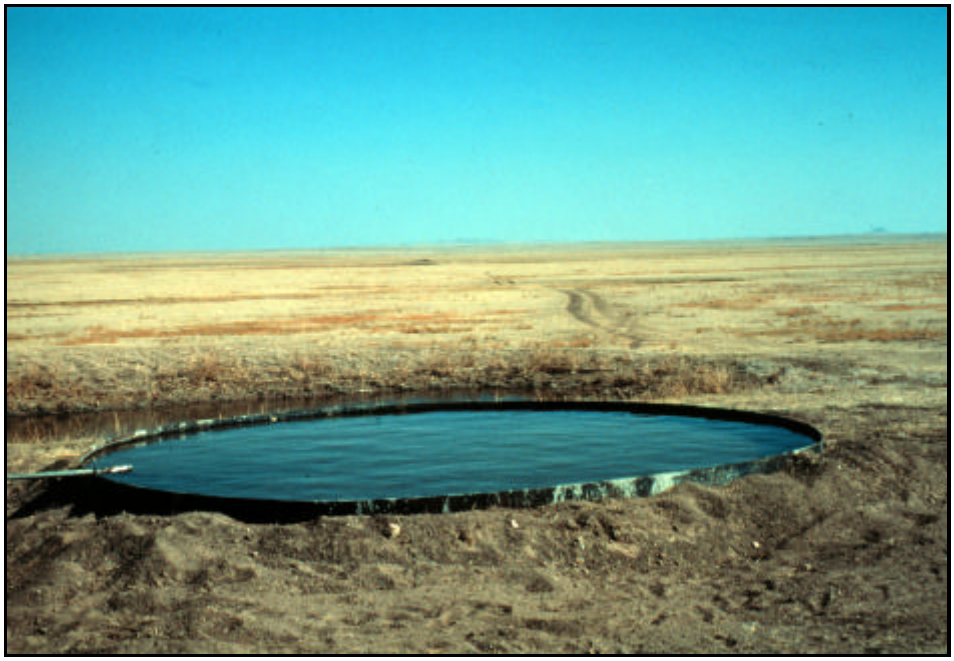
RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational
HEALTH	moder. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	moderate risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Pipeline

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 516



DEFINITION
The NRCS pipeline practice is used when a pipeline is needed to convey water for livestock, recreation or wildlife.

PRACTICE INFORMATION
The purpose of this practice is simply to convey water from the source of supply to the point (s) of use. The objective is usually to decentralize the location of drinking or water storage facilities. The practice is applicable where water needs to be piped to another location (s) for management purposes, to conserve the supply, or for reasons of sanitation.

Pipelines installed under this practice are generally for livestock management purposes. A single water source can provide livestock water to several locations and be very effective in improving management of a grazing unit.

Pipelines are also used on recreation and wildlife lands to provide or distribute drinking water facilities for humans as well as wildlife.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 516 Pipeline	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	moderate reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	insignificant
STREAMBANK	situational concerning streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	moderate reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	insignificant
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	insignificant
• OFFSITE	insignificant
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	situational
PLANT USE	situational
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	situational
COVER/SHELTER	situational
WATER (QUANTITY & QUALITY)	situational
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

POND

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 378

DEFINITION

A pond is a water impoundment made by constructing a dam or by excavating a pit or dugout.

PRACTICE INFORMATION

If a dam is constructed, the pond is referred to as an embankment pond; if the pond storage is achieved solely by excavating material, the pond is referred to as an excavated pond.

The purpose of this type of pond is to provide water for livestock, recreation, and fish and wildlife. Other uses include providing a water supply for things such as fire control and crop or orchard spraying.

The NRCS POND standard applies under the following conditions:

1. If a dam is constructed, failure will not result in loss of life, damage to homes, commercial buildings, main highways, railroads, or interruption of public utilities.
2. The product of the storage (acre feet) times the effective height of the dam is less than 3000.
3. The effective height of the dam is 35 ft. or less.

Design and installation of a pond requires the following conditions:

1. The site must be such that runoff from the design storm can pass safely through a natural or constructed spillway. The spillway (s) may be the principal spillway, emergency spillway, or combination of both.
2. The drainage area must be protected from erosion that would significantly reduce the expected life of the structure.
3. The drainage area must be large enough so that surface runoff and groundwater flow will normally maintain an adequate supply of water in the pond.
4. The water quality must be suitable for the intended use of the water.
5. The topography and soil must be suitable for the structure.

Additional information including design criteria and specifications are filed in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 378 POND	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	N/A
EPHEMERAL GULLY	slight reduction in ephemeral gully erosion
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	slight reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight reduction /onsite deposition damage
• OFFSITE	slight decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	slightly improve onsite safety/deposition
• OFFSITE	slightly improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	slight improvement in onsite drainage
• OFFSITE	slight improvement in offsite drainage
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	insignificant
• HEAVY METALS	N/A
• PATHOGENS	slight poten. increase/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	slight increase in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	insignficant
• LOW DISSOLVED OXYGEN	slight increase in SWater contam./low oxygen
• SALINITY	N/A
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight increase in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	slight improvement in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Precision Land Forming

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 462

DEFINITION
Precision Land Forming is reshaping the surface of land to planned grades.

PRACTICE INFORMATION
The purpose of the practice is to improve surface drainage, provide more effective use of rainfall, facilitate installation of more workable drainage systems, reduce mosquito infestations, control erosion, improve water quality, and prevent damage to land from water logging.

Precision land forming is used on any land suitable for the planned use, and where the practice is feasible. Soils must be sufficiently deep and of suitable textures that an adequate root zone remains following construction activities.

Precision land forming should be planned as an integral part of a conservation plan that provides for the wise use of the natural resources.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 462 Precision Land Forming	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	insignificant
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	insignificant
STREAMBANK	N/A
IRRIGATION INDUCED	significant reduction in irrigation induced erosio
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	insignificant
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	moderate improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	insignificant

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	insignificant
PLANT USE	insignificant
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Prescribed Burning

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 338

DEFINITION
Prescribed Burning is applying controlled fire to a predetermined area of land.

PRACTICE INFORMATION
This practice applies to all land uses for the following purposes:

- To control undesirable vegetation.
- Prepare sites for planting or seeding.
- Control plant diseases.
- Reduce wildfire hazards.
- Improve wildlife habitat.
- Improve forage quantity and quality.
- Slash and debris removal following forest management activities.
- Enhance seed / seedling production.
- To facilitate distribution of grazing and browsing animals.

Safety precautions are carefully planned before the burn and monitored during the burn. Existing barriers such as streams, lakes, roads, wetlands, and constructed firebreaks, are important considerations in planning the practice.

This is a highly specialized practice that requires intensive training and sufficient support personnel and equipment.

A safe successful burn must be timed for proper humidity, wind conditions, air temperature, and fuel conditions (ignitable vegetation).

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 338 Prescribed Burning	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	situational concerning classic gullies
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	situational
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	situational
COVER/SHELTER	situational
WATER (QUANTITY & QUALITY)	facilitating
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	facilitating
THREAT/ENDANGERED ANIMALS	situational
HEALTH	facilitating
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	situational concerning public health and safety
PRIVATE/PUBLIC VALUES	situational regarding private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	significant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

RANGE PLANTING

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 550

RANGE PLANTING
Range planting is establishment of adapted perennial vegetation.

PRACTICE INFORMATION
This practice applies to rangeland, native or naturalized pasture, grazed forest or other suitable land areas where the principle method of vegetation management is grazing.

Vegetation types might be grasses, legumes, shrubs, forbs, shrubs and trees.

The practice applies where desirable vegetation is below the acceptable level for natural reseeding to occur, or where the potential for enhancement of the vegetation by grazing management is unsatisfactory.

Species, cultivars or varieties selected must be compatible with management objectives and adapted to climatic conditions, soil, landscape position, and range site. In addition, the selected species for planting must provide adequate cover for erosion control. Plants selected for establishment should also contribute to wildlife and aesthetics when opportunities exist and are in line with planning objectives.

Plant establishment requires the following:
1. Proper seedbed preparation
2. Observe recommended planting dates
3. Plant at the recommended rate or spacing
4. Use quality seed and plant material
5. Apply recommended soil amendments and fertilizer
6. Control weeds and grazing during establishment period

Other conservation practices such as Brush Management, and Grazing Land Mechanical Treatment may be needed to promote establishment and management of a successful range planting.

Additional information including practice specifications can be obtained from your local NRCS field office or USDA service center

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 550 Range Planting	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	slight reduction in classic gully erosion
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	moderate reduction in mass movement of soil
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	slight reduction in soil salinity
• ORGANICS	moderate decrease in organic contaminates
• FERTILIZERS	moderate reduction in contaminates from fertilizer
• PESTICIDES	moderate reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight reduction in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY (drainage)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	slight poten.decrease/GWater contam./salinity
• HEAVY METALS	slight poten. decrease/GWater contam./heavy metal
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	slight reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	insignificant
AIRBORNE ODORS	insignificant
FUNGI, MOLDS, AND POLLEN	insignificant
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	insignficant
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	sign. improvement in plant pest managemer
THREAT/ENDANGERED PLANTS	situational
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	slight benefit to threat./endangered animals
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	situational concerning public health and safety
PRIVATE/PUBLIC VALUES	situational regarding private/public values
CLIENT CHARACTERISTICS	situational regarding client characteristics
RISK TOLERANCE	situational regarding risk
TENURE	situational regarding tenure
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

RESTORATION AND MANAGEMENT OF DECLINING HABITATS

(acre)

CODE 643

DEFINITION

Restoring and conserving rare or declining native vegetated communities and associated wildlife species.

PURPOSE

- Restore land or aquatic habitats degraded by human activity
- Provide habitat for rare and declining wildlife species by restoring and conserving native plant communities.
- Increase native plant community diversity.
- Management of unique or declining native habitats.

Note: NRCS uses the term "wildlife" to include all animals, terrestrial and aquatic.

CONDITIONS WHERE PRACTICE APPLIES

On any landscape which once supported or currently supports the habitat to be restored or managed.

CRITERIA

General Criteria Applicable to All Purposes

- Methods used will be designed to protect the soil resource from erosion.
- Vegetative manipulations to restore plant and/or animal diversity can be accomplished by prescribed burning or mechanical, biological or chemical methods, or a combination of the four.
- Management measures must be provided to control invasive species and noxious weeds in order to comply with state noxious weed laws.
- To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds will be done on a "spot" basis to protect forbs and legumes that benefit native pollinators and other wildlife.
- Management practices and activities are not to disturb cover during the primary nesting period in each state. Exceptions could be granted for periodic burning or mowing when necessary to maintain the health of the plant community. Mowing may be needed during the establishment period to control weeds.
- Rotate periodic planned management or other treatments throughout the restored/managed area.
- Where feasible prescribed burning will be utilized instead of mowing.
- Species will be adapted to soil-site conditions.
- Species will be suitable for the planned purpose.
- Seeding rates will be adequate to accomplish the planned purpose.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

- Only certified, high quality, and ecologically adapted native seed and plant material will be used.

- Planting dates, and care in handling and planting of the seed or plant material will ensure that established vegetation will have an acceptable rate of survival.

- Site preparation shall be sufficient for establishment and growth of selected species.

- Timing and use of equipment will be appropriate for the site and soil conditions.

CONSIDERATIONS

Confer with other agencies and organizations to develop guidelines and specifications for conserving declining habitats.

In many cases threatened and endangered species or species of concern will benefit from conservation of declining habitats. Follow-up habitat assessments shall be performed on a regular basis.

Haying and grazing will be planned and managed as necessary to achieve and maintain the intended purpose.

All habitat manipulations will be planned and managed according to soil capabilities and recommendations for management will avoid excessive soil loss.

Plant materials centers and commercial growers should be encouraged to develop plant materials for habitat restorations.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each habitat type. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).

Any use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose of this practice.

RIPARIAN FOREST BUFFER

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 391

RIPARIAN FOREST BUFFER

A riparian forest buffer is an area of trees and/or shrubs located adjacent to a body of water. The vegetation extends outward from the water body for a specified distance necessary to provide a minimum level of protection and/or enhancement.

PRACTICE INFORMATION

This practice applies to areas adjacent to permanent or intermittent streams, lakes, ponds, wetlands and areas associated with ground water recharge.

The riparian forest buffer is a multi-purpose practice design to accomplish one or more of the following:

1. Create shade to lower water temperatures and improve habitat for aquatic animals.
2. Provide a source of debris necessary for healthy robust populations of aquatic organisms and wildlife.
3. Act as a buffer to filter out sediment, organic material, fertilizer, pesticides and other pollutants that may adversely impact the water body, including shallow ground water.

Dominant vegetation consists of existing or planted trees and shrubs suited to the site and purpose (s) of the practice. Grasses and forbs that come in naturally further enhance the wildlife habitat and filtering effect of the practice.

Headcuts and streambank erosion should be assessed and treated appropriately before establishing the riparian forest buffer.

Specifications for each installation are based on a thorough field investigation of each site.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 391 Raparian Forrest Buffer	NOTES: The following effects are for the fields associated with the riparian area.
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	slight reduction in wind erosion
EPHEMERAL GULLY	moderate reduction in ephemeral gully erosion
CLASSIC GULLY	moderate reduction in classic gully erosion
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	insignificant
SOIL MASS MOVEMENT	insignificant
ROADBANK/CONSTRUCTION	insignificant
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	insignificant
• SPRINKLER	insignificant
WATER MGT. NON-IRRIGATED	insignificant
RESTRICTED FLOW CAPACITY	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	slight poten.decrease/GWater contam./salinity
• HEAVY METALS	slight poten. decrease/GWater contam./heavy metal
• PATHOGENS	slight poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	sign. reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	sign. reduction in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	sign. reduction in SWater contam./low oxygen
• SALINITY	insignificant
• HEAVY METALS	sign. reduction in SWater contam./heavy metals
• WATER TEMPERATURE	sign. reduction in SWater contam./H20 temp
• PATHOGENS	sign. decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	slight decrease in airborn sed.&smoke/safety
• OFFSITE SAFETY	slight decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	slight decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	slight decrease in struc. problems/dust&smoke
• ONSITE HEALTH	slight decrease in onsite health/dust and smoke
• OFFSITE HEALTH	slight improvement in offsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	slight decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	slight decrease in airborn chem. drift
AIRBORNE ODORS	slight decrease in airbornodors
FUNGI, MOLDS, AND POLLEN	slight decrease in airborn fungi,molds,pollen
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	slight improvement in air condition/temperature
AIR MOVEMENT (windbreak effect)	slight improvement in air condition/ air movement
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	slight improvement in plant nutrient management
PESTS	slight improvement in plant pest management
THREAT/ENDANGERED PLANTS	slight benefit to threat/endangered plants
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	sign. benefit to threat./endangered animals
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	insignificant
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	insignificant
SIGNIFICANCE OF CULTURAL RESOURCES	insignificant
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	insignificant
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

RIPARIAN HERBACEOUS COVER

(acre)

CODE 390

DEFINITION

Riparian areas are ecosystems that occur along water courses or at the fringe of water bodies. Riparian herbaceous cover consist of grasses, grasslike plants, and forbs.

PURPOSE

Riparian areas serve the following functions:

Riparian areas provide habitat (food, shelter, and water) for aquatic and terrestrial organisms.

Intercept direct solar radiation, create shade, and increase the depth to width ratio to help maintain or restore suitable water temperatures for fish and other aquatic organisms while providing a milder microclimate for wildlife.

Improve and protect water quality by reducing the amount of sediment and other pollutants, such as pesticides, organic, and nutrients in surface runoff as well as nutrients and chemicals in shallow ground water flow.

Provide food, in the form of plant detritus, for aquatic insects which are important food items for fish.

Help stabilize the channel bed and streambank.

To serve as corridors to provide landscape linkages between existing habitats.

Provide room for water courses to establish geomorphic stability.

To manage existing riparian herbaceous habitat to improve or maintain desired plant communities.

CONDITION WHERE PRACTICE APPLIES

Along water courses or on the fringe of water bodies where the natural plant community is dominated by herbaceous vegetation.

Where the ecosystem has been altered and the potential natural plant community has changed or has been converted to cropland, pastureland, grazing land, etc.

CRITERIA

General Criteria Applicable to All Purposes

Select native species that are adapted to site conditions and provide diversity, cover and food for wildlife. Species selected should also provide a deep, binding root mass to strengthen streambanks and improve soil health.

Protect and enhance riparian vegetation and water quality by reducing the use of that vegetation for haying and grazing until the desired plant community is well established. A plan for limited livestock grazing or haying will be designed to protect and enhance established and emerging vegetation, stream bank stability, wildlife habitat, and out of the

stream during critical periods for aquatic species.

Harmful pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose.

Management systems applied will be designed to maintain the vigor and reproduction of the desired plant community. Timing of haying or grazing periods will avoid periods when streambanks are saturated and vulnerable to livestock or mechanical damage.

The plant communities established and target successional stage will depend on wildlife needs, existing resources in the watershed, and local management objectives.

Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species. Only viable, high quality, and adapted planting stock will be used. Site preparation shall be sufficient for establishment and growth of selected species and be done in a manner that does not compromise the intended purpose.

The management plan shall consider habitat and wildlife objectives such as: habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities.

Riparian widths will vary depending on the requirements of wildlife species and associated environmental concerns.

Other applicable practices include, but are not limited to:

Streambank and Shoreline Protection - 580

Stream Channel Stabilization - 584

Vegetative Bioengineering - NCS

Fence - 382

Riparian Forest Buffer - 391

Pasture and Hayland Planting - 512

Range Planting - 550

Additional Criteria to Protect or Improve Water Quality

Concentrated flow erosion or mass soil movement shall be controlled in the up gradient area prior to establishment of the riparian herbaceous cover.

The native or natural plant community should be managed and maintained to optimize functions of the riparian zone which control erosion and maintain water quality.

CONSIDERATIONS

Site hydrology must be considered. Plant species selected must be adapted to the duration of saturation and inundation of the site.

Channel and streambank stability must be considered in selecting this practice or determining that this practice may need to be combined with other practices that better address stability issues.

This practice can be combined with filter strips to improve water quality.

Considerations should be given to how this practice will provide riparian habitat and linkage to other habitats.

Target riparian buffer restoration on a watershed basis to address habitat fragmentation, connectivity, and provide corridors for wildlife by maintaining continuous streamside vegetation.

Establish alternative water sources or controlled access stream crossings to manage livestock access to the stream and riparian area.

Select plant species that are native and have multiple values such as those suited for biomass, nesting, aesthetics, and tolerance to locally used herbicides.

Avoid plant species which may be alternate hosts to undesirable pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

The location, layout and density of the buffer should compliment natural features.

Corridor configuration, species planted, and management should enhance habitats for threatened, endangered, and other species of concern, where applicable.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specification shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

The purpose of operation, maintenance, and management is to insure that the practice functions as intended over time.

The riparian area will be inspected periodically and protected to maintain the intended purpose from adverse impacts such as excessive vehicular and pedestrian traffic, pest infestations, pesticide use on adjacent lands, livestock damage and fire.

As applicable, control of concentrated flow As applicable, control of concentrated flow erosion or mass soil movement shall be continued in the up-gradient area to maintain riparian function.

Any use of fertilizers, pesticides and other chemicals to assure riparian area function shall not compromise the intended purpose.

Rock Barrier

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 555

DEFINITION
A Rock Barrier is a retaining wall constructed of rock across the slope to form and support a bench terrace on sloping land.

PRACTICE INFORMATION
Rock barriers are applicable to sloping land suitable for cultivation where the soil depth is adequate for benching. The slopes can be as much as 50 percent which means each l00 feet across the of slope would have an elevation difference of approximately 50 feet. Therefore, this practice can provide acceptable stability on very steep cultivated soils.

The purpose of a rock barrier is to stabilize steeply sloping land to allow cultivation with an acceptable level of erosion. In addition to erosion control, the practice provides improved water use efficiency, and other favorable hydrologic effects.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 555 Rock Barrier	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	situational concerning wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	situational concerning classic gullies
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	significant reduction in mass movement of soil
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	significant reduction in soil salinity
• ORGANICS	significant decrease in organic contaminates
• FERTILIZERS	significant reduction in contaminates from fertil.
• PESTICIDES	significant reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate increase in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	slight poten. increase/GWater contam./salinity
• HEAVY METALS	slight poten. increase/GWater contam./heavy metal
• PATHOGENS	slight poten. increase/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	moderate reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	moderate reduction in SWater contam./nutri.,organ.
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	moderate reduction in SWater contam./salinity
• HEAVY METALS	moderate reduction in SWater contam./heavy metals
• WATER TEMPERATURE	situational concerning SWater contam./H2O temp.
• PATHOGENS	moderate decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	situational concerning air movement
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	sign. improvement in plant nutrient management
PESTS	sign. improvement in plant pest managemer
THREAT/ENDANGERED PLANTS	situational concerning threat/endanged plant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	situational concerning water for livestock
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational concerning threat./endangered animals
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	slight improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Sediment Basin

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 350

DEFINITION
A Sediment Basin is a constructed basin designed to collect and store waterborne debris or sediment.

PRACTICE INFORMATION
This practice is used where physical conditions, ownership, management, or economics preclude treatment of a sediment source by use of conservation practices. Sediment basins are often installed on construction, or mining sites to protect the natural resources until vegetation or structures are installed to control the source of sediment.

The purposes of a sediment basin are to:

- Preserve the capacity of reservoirs, ditches, canals, diversion, waterways, and streams.
- Prevent excessive deposition on bottom lands
- Trap sediment originating from construction sites
- Reduce or abate damage to the natural resources from pollution or deposition of sediment

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 350 Sediment Basin	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	slight reduction in ephemeral gully erosion
CLASSIC GULLY	slight reduction in classic gully erosion
STREAMBANK	slight reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	slight increase in mass movement of soil
ROADBANK/CONSTRUCTION	slight decrease in roadbank/construction erosion
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	slight reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	slight reduction in SWater contam./low oxygen
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	situational concerning plant productivity
HEALTH, VIGOR, SURVIVAL	situational concerning plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	situational concerning plant health,vigor,survival
NUTRIENT MANAGEMENT	situational concerning mgt. of plant nutrients
PESTS	situational concerning plant pest mgt
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	situational concerning food / wildlife
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	slight improvement in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	situational concerning threat./endangered animals
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	moderate risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

SHALLOW WATER MANAGEMENT FOR WILDLIFE

(acre)

CODE 646

DEFINITION

Managing shallow water on agricultural lands and moist soil areas for wildlife habitat.

PURPOSE

- To provide open water areas on agricultural fields and moist soil areas to facilitate waterfowl resting and feeding.
- To provide habitat for reptiles and amphibians and other aquatic species which serve as important prey species for waterfowl, raptors, herons, and other wildlife.

CONDITIONS WHERE PRACTICE APPLIES

On agricultural and moist soil areas where water can be impounded or regulated by diking, ditching, or flooding.

This practice can be used to facilitate the conservation of declining wetland dependent and threatened and endangered species.

This practice does not apply to: Wetland Restoration (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; Wetland Enhancement (659) intended to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond original conditions; or Wetland Creation (658) for creating a wetland on a site location which historically was not a wetland or on a site which was formerly a wetland but will be replaced with a wetland type not naturally occurring on the site.

CRITERIA

- Soils should have low permeability to inhibit subsurface drainage and allow for maintenance of proper water levels.
- Shallow water impoundments require an adequate water supply for reflooding and a water control structure for removing water when necessary.
- Landowner shall obtain all local, state, and federal permits necessary.
- If pumping, water rights must be assured.
- The Standards and Specifications for Dike (356), Pumping Plant for Water Control (533), and Structure for Water Control (587) will be used as appropriate. Refer to Chapter 6, “Structures,” for additional design information. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

CONSIDERATIONS

To insure that foods are available to dabbling ducks, impoundments should be gradually flooded to a depth of 6 - 18 inches.

Consider the effects of the timing of the flooding and drawdown, as well as the type of drawdown, on plant species composition (moist soil areas).

Consider the species flooding tolerances and the composition of seed in the soil at the site (moist soil areas).

Consider effects on wetlands or wildlife habitats that would be associated with the practice.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

NRCS, NHCP
August, 1998

Consider the effects of residual herbicides (moist soil areas).

Consider the targeted plant species' tolerances with respect to timing and type of drawdown.

Consider effects on movement of dissolved substances to groundwater and to downstream surface waters.

Consider effects on downstream flows that would affect other water uses or users.

PLANS AND SPECIFICATIONS

Plans and Specifications for installing structures for water control shall be in keeping with this standard and shall prescribe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

The impoundment should be dewatered and disked or burned at 2 to 3 year intervals to control the invasion by undesirable plants.

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).

Any use of fertilizers, mechanical treatments, prescribed burning, pesticides and other chemicals to assure the shallow water or moist soil area function shall not compromise the intended purpose.

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.

Operation and maintenance shall include monitoring and management of the site as well as structural components.

Spoil Spreading

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 572

DEFINITION
Spoil Spreading is disposing of surplus excavated materials.

PRACTICE INFORMATION
This practice applies to sites where spoil material is available from excavation of channels, drainage ditches, irrigation ditches, or other construction sites where spoil can be placed in surface depressions, or spread over the landscape to improve site conditions.

The purpose of spoil spreading is to improve the construction site and permit better use of land occupied by spoil material. The land may be used for agricultural purposes or to provide travelways along a structure. The objective is to utilize the spoil for beneficial purposes and make better use of the land occupied by spoil material.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 572 Spoil Spreading	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	situational concerning wind erosion
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	insignificant
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	situational concerning soil tilth
SOIL COMPACTION	situational concerning soil compaction
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	situational concerning improved moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	moderate reduction in SWater contam./salinity
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	sign. improvement in plant nutrient management
PESTS	sign. improvement in plant pest managemer
THREAT/ENDANGERED PLANTS	situational concerning threat/endanged plant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	slight improvement in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	moder. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational concerning threat./endangered animals
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight decrease in labor requirement
AVAILABLE EQUIPMENT	slight decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

STREAM CHANNEL STABILIZATION

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 584

STREAM CHANNEL STABILIZATION
Stream channel stabilization is using conservation structures to stabilize the channel of a stream.

PRACTICE INFORMATION
This practice applies to structural work done to control aggradation or degradation in a stream channel that cannot feasibly be controlled by clearing obstructions, establishing vegetation, or installing upstream water control structures.

Stream channels may aggrade or degrade during a given storm. This is natural and does not necessarily indicate the stream should be considered unstable. A channel is considered unstable when changes in the channel bottom are on a long term trend toward aggradation or degradation.

In the design of channel stabilization, the following should be considered as a minimum:

1. The objective of the planned modification to the channel.
2. Temporary and long-term effects on erosion and sedimentation.
3. Effects on wildlife associated with changes that may occur in the water temperature, turbidity, bottom geologic material, etc.
4. Effects on the visual quality of the stream.
5. The overall effects that may occur if the stream volume and/or velocity is changed by the planned structures.

Additional information including design criteria and specification are on file in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 584 Stream Channel Stabilization	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	situational concerning classic gullies
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	significant reduction in mass movement of soil
ROADBANK/CONSTRUCTION	situational concerning const./roadbank erosion
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	situational concerning runoff and floods
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H_2O convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	situational concerning SWater contam./H2O temp.
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	situational concerning animal habitat suitibility
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	situational concerning client financial cond.
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

STREAMBANK & SHORELINE PROTECTION

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 580

STREAMBANK & SHORELINE PROTECTION

Streambank & shoreline protection is using vegetation or structural techniques to stabilize and protect banks of streams, lakes, estuaries, or excavated channels against scour and erosion.

PRACTICE INFORMATION

This practice applies to natural or excavated channels where the streambanks are susceptible to erosion from the action of water, ice, debris, or to damage from livestock or vehicular traffic. It also applies to controlling erosion on shorelines where the problem can be solved with relatively simple structural measures, or vegetation.

The purpose (s) of this practice include the following:

1. Prevent loss of land mass
2. Prevent damage to utilities, roads, buildings, other facilities including conservation practices adjacent to the banks
3. Maintain the capacity of the channel
4. control channel meandering
5. Reduce sediment loads causing downstream damage and pollution
6. Improve the stream for recreation
7. Improve the stream for fish and wildlife

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 580 Streambank & shoreline protection	NOTES: Effects vary widely depending on methodology
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	N/A
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	significant reduction in mass movement of soil
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	moderate reduction/onsite deposition damage
• OFFSITE	moderate decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	moderately improve onsite safety/deposition
• OFFSITE	moderately improve offsite safety hazard/depos.
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	N/A
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	slight reduction in SWater contam./H20 temp.
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	N/A
SIGNIFICANCE OF CULTURAL RESOURCES	N/A
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	N/A
OTHER	

Structure For Water Control

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 587

DEFINITION
A structure for water control is a structure in a water management system that conveys water, controls the direction or rate of flow, or maintains a desired water surface elevation.

PRACTICE INFORMATION
These structures are normally installed in a well planned irrigation or drainage system. However, the structures may be part of a wildlife project or some type of recreation plan that involves water conveyance, flow control, or water level regulation. This practice covers the planning and functional design of the needed water control structures, but not the detailed design or construction specifications for specific structures.

These structures are used in water management to control the stage, discharge, distribution, delivery, or direction of flow in open channels or water use areas. The structures installed under this practice may also be used to improve water quality by reducing sedimentation or to regulate water temperatures for fish production.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 587 Structure for Water Control	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	situational concerning contam. from salts
• ORGANICS	situational concerning organic contaminates/soil
• FERTILIZERS	situational concerning soil contam./fertilizer
• PESTICIDES	situational concerning soil contam./pesticides
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight reduction /onsite deposition damage
• OFFSITE	slight decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	slightly improve onsite safety/deposition
• OFFSITE	slightly improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	situational regarding seep development
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	moderate improvement in irrigation efficiency
• SPRINKLER	moderate improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	moderate improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	slight improvement in onsite drainage
• OFFSITE	slight improvement in offsite drainage
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	insignficant
• LOW DESOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	situational concerning SWater contam./H2O temp.
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight improvement in animal habitat/food supply
COVER/SHELTER	slight improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	slight improvement in animal mgt./health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	situational concerning client financial cond.
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	situational concerning public health and safety
PRIVATE/PUBLIC VALUES	situational regarding private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Surface Drainage - Field Ditch

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 607

DEFINITION
A field ditch installed for surface drainage is a graded ditch for collecting excess water in a field.

PRACTICE INFORMATION
The purpose (s) of a drainage ditch is to:

- Drain Surface depressions
- Collect or intercept excess surface water and carry it to an outlet
- Collect or intercept excess subsurface water and carry it to an outlet

Sites for this practice are flat or nearly flat and have the following additional features:

- Soils are slowly permeable or shallow with substrata that prevents percolation
- Surface depressions that trap rainfall
- Receive outside runoff or seepage
- Require removal of excess irrigation water
- Require control of the water table
- Have adequate outlets for disposal of the drainage water

This practice applies to small drainage ditches within a field. It does not apply to Main or Lateral ditches installed under practice 608, nor does it apply to grassed waterways or outlets, practice 412.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 607 Surface Drainage - field ditch	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	slight reduction in sheet and rill erosion
WIND	insignificant
EPHEMERAL GULLY	slight reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	moderate reduction in irrigation induced erosion
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	slight improvement in soil tilth
SOIL COMPACTION	slight reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight reduction /onsite deposition damage
• OFFSITE	slight decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	slightly improve onsite safety/deposition
• OFFSITE	slightly improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	moderate reduction in seepage hazard
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate reduction in excess subsurface water
INADEQUATE OUTLETS	moderate improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	moderate improvement in irrigation efficiency
• SPRINKLER	moderate improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	slight improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	insignificant
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight poten reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	moderate poten. decrease/GWater contam./salinity
• HEAVY METALS	slight poten. decrease/GWater contam./heavy metal
• PATHOGENS	slight poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight increase in SWcontam./pesticides
• NUTRIENTS AND ORGANICS	slight increase in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	slight increase in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	slight increase in SWater contam./salinity
• HEAVY METALS	slight increase in SWater contam./heavy metals
• WATER TEMPERATURE	N/A
• PATHOGENS	slight increase in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	moder. improvement in plant pest managemen
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight degredation in animal habitat/food supply
COVER/SHELTER	slight degredation in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	slight degredation in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight degredation in plant mgt./ pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	slight degredation in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate decrease in labor requirement
AVAILABLE EQUIPMENT	moderate decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Surface Drainage - Main or Lateral

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 608

DEFINITION
A Main or Lateral drainage ditch is an open drainage ditch constructed to a designed size and grade.

PRACTICE INFORMATION
The purpose (s) of a main or lateral drainage ditch is to:

- Dispose of excess surface and subsurface water
- Intercept and control ground water levels
- Provide leaching of saline or alkali soils
- Provide a combination of these functions

Sites for this practice are suitable for agriculture and have an outlet for the drainage water by either gravity or pumping.

This practice applies to ditches for disposal of surface and subsurface drainage water collected primarily by field ditches and subsurface drains.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 608 Surface Drainage - Main or Lateral	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	insignificant
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	insignificant
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	slight improvement in soil tilth
SOIL COMPACTION	slight reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	insignificant
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	insignificant
• OFFSITE	insignificant
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	moderate reduction in seepage hazard
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate reduction in excess subsurface water
INADEQUATE OUTLETS	moderate improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	moderate improvement in irrigation efficiency
• SPRINKLER	moderate improvement in irrigation efficiency
WATER MGT. NON-IRRIGATED	slight improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	insignificant
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight poten reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	slight poten.decrease/GWater contam./salinity
• HEAVY METALS	slight poten. decrease/GWater contam./heavy metal
• PATHOGENS	slight poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight increase in SWcontam./pesticides
• NUTRIENTS AND ORGANICS	slight increase in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	slight increase in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	slight increase in SWater contam./salinity
• HEAVY METALS	slight increase in SWater contam./heavy metals
• WATER TEMPERATURE	N/A
• PATHOGENS	slight increase in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	moder. improvement in plant pest managemen
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	slight degredation in animal habitat/food supply
COVER/SHELTER	slight degredation in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	slight degredation in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	slight degredation in plant mgt./ pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	slight degredation in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	moderate decrease in labor requirement
AVAILABLE EQUIPMENT	moderate decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Surface Roughening

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 609

DEFINITION
Surface Roughening is roughening the soil surface by ridging or clod forming tillage.

PRACTICE INFORMATION
The purpose of the practice is to reduce wind erosion on cultivated land during periods of high probability for receiving erosive winds.

Surface roughening is a temporary, yet very effective practice under the proper conditions. When sufficient amounts of clay are present in the soil and moisture conditions are favorable, clods and/or ridges can be very effective in controlling wind erosion.

Surface roughening is generally used when wind erosion is a major hazard and insufficient amounts of crop residue are available to prevent the soil from blowing. This practice is often referred to as "emergency tillage."

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 609 Surface Roughening	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	insignificant
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	situational concerning soil tilth
SOIL COMPACTION	situational concerning soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	situational concerning improved moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	situational regarding onsite drainage
• OFFSITE	situational concerning drainage/offsite
RESTRICTED STORAGE	N/A

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	moder. improvement in plant suitability/site adapt
PLANT USE	moder. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Terrace

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 600

TERRACES

A terrace is an earth embankment, channel, or a combination ridge and channel constructed across the slope to intercept runoff water.

PRACTICE INFORMATION

This practice generally applies to cropland but may also be used on other areas where field crops are grown such as wildlife or recreation lands.

Terraces are installed for one or more of the following purposes: 1) Reduce slope length for erosion control, 2) Reduce sediment content in runoff water, 3) Improve water quality, 4) Intercept and conduct runoff to a safe outlet, 5) Retain runoff for moisture conservation, 6) Prevent gully development, 7) Reform the land surface for better farmability, and 8) Reduce flooding.

A variety of terrace configurations has developed as a result of research and field experience. Four common types of terraces include **broad-based** which are farmed on both sides and used on more uniform gently sloping fields; **flat channel** which are used to conserve moisture; **steep backslope** which result in a benching effect; and **narrow based** which have permanent cover planted on both sides of the ridge.

Terraces may be parallel on fairly uniform terrain or vary from parallel when the terrain is undulating. Since parallel terraces are more acceptable, designs often provide for cuts and fills to improve terrace alignment and farm-ability. Channel grades may be uniform or variable as long as the water velocity is nonerosive and meet other design criteria. The runoff from terraces may be handled by grassed waterways or underground pipe outlets depending on site conditions and economics. Soil infiltration may also be utilized for disposal of runoff when level terraces are installed and the soil is sufficiently permeable to remove the water stored in the channel before crop damage occurs.

Terraces require careful design, layout and construction. Additional information including standards and specifications are on file in the local NRCS Field office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 600 - Terraces	NOTES: These effects do not consider short term soil damage from construction activities
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	moderate reduction in sheet and rill erosion
WIND	insignificant
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	insignificant
SOIL MASS MOVEMENT	slight increase in mass movement of soil
ROADBANK/CONSTRUCTION	insignificant
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	slight reduction in soil salinity
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate increase in excess subsurface water
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	insignificant
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY (drainage)	
• ONSITE	moderate improvement in surface drainage
• OFFSITE	moderate improvement in surface drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	moderate reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	moderate reduction in SWater contam./nutri.,organ.
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	insignificant
PLANT USE	insignificant
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Tree/Shrub Establishment

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 612

DEFINITION
Tree and Shrub Establishment is establishing woody plants by planting or seeding.

PRACTICE INFORMATION
The purposes of the practice include:

- Forest products
- Beautification
- Erosion control
- Energy conservation
- Chemical/Nutrient sink for water quality improvements
- Wildlife habitat improvement
- Air quality improvements
- Wetland improvements

This practice is applicable on any area of land where woody plants are suited. Site adaptation is a major consideration for success in establishing trees and shrubs. Careful consideration should also be given to the suitability of the selected species for the planned purpose and available space for growth.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 612 Tree/Shrub Establishment	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	significant reduction in mass movement of soil
ROADBANK/CONSTRUCTION	significant decrease in roadbank/const. erosion
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	significant decrease in organic contaminates
• FERTILIZERS	significant reduction in contaminates from fertil.
• PESTICIDES	significant reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	moderate reduction in seepage hazard
RUNOFF/FLOODING	sign. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate reduction in excess subsurface water
INADEQUATE OUTLETS	insignificant
WATER MGT. IRRIGATION	
• SURFACE	insignificant
• SPRINKLER	insignificant
WATER MGT. NON-IRRIGATED	insignificant
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	moderate reduction GWater contaminants/pesticides
• NUTRIENTS AND ORGANICS	moderate poten. decrease/GWater contam./nutr,organ
• SALINITY	moderate poten. decrease/GWater contam./salinity
• HEAVY METALS	moderate poten.decrease/GWater contam./heavy metal
• PATHOGENS	moderate poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	sign. reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	sign. reduction in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	sign. reduction in SWater contam./low oxygen
• SALINITY	sign. reduction in SWater contam./salinity
• HEAVY METALS	sign. reduction in SWater contam./heavy metals
• WATER TEMPERATURE	sign. reduction in SWater contam./H20 temp
• PATHOGENS	sign. decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	insignificant
FUNGI, MOLDS, AND POLLEN	moder. increase in airborn fungi,molds,pollen
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	moder. improvement in air condition/ temperature
AIR MOVEMENT (windbreak effect)	sign. improvement in air condition/ air movement
HUMIDITY	sign. improvement in air condition/ humidity
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	moder. improvement in plant pest managemen
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	situational concerning public health and safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	moderate risk involved
TENURE	situational regarding tenure
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Wildlife Upland Habitat Management

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 645

DEFINITION
Wildlife Upland Habitat Management is creating, maintaining, or enhancing areas of food and cover for upland wildlife.

PRACTICE INFORMATION
The population dynamics of wildlife is highly dependent on food, water, and cover. The purpose of this practice is to enhance the wildlife habitat and maintain or increase populations of wildlife species. The practice applies to all areas where wildlife need improvements in food, c over, and management.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 645 Wildlife Upland Habitat Management	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	N/A
RUNOFF/FLOODING	N/A
EXCESS SUBSURFACE WATER	N/A
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	N/A
• OFFSITE	N/A
RESTRICTED STORAGE	situational concerning sedimentation of H2O stor.

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	N/A
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
AQUATIC HABITAT SUITABILITY	N/A
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	insignificant
HEALTH, VIGOR, SURVIVAL	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	sign. benefit to threat./endangered animals
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	situational concerning client financial cond.
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Use Exclusion

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 472

DEFINITION
Use Exclusion is excluding animals, people or vehicles from an area.

PRACTICE INFORMATION
The purpose of Use Exclusion is to protect, maintain, or improve the quantity and quality of the natural resources in an area. The purpose also includes aesthetic resources as well as human health and safety.

The practice is used in a conservation plan in areas where vegetation establishment or maintenance is a concern. Protecting the vegetation is often essential to conserving the other natural resources.

The barriers constructed for Use Exclusion must be adequate to prevent intrusion of the target animals, vehicles or people. The barriers are usually fences, but may also be natural and artificial structures such as logs, boulders, earth fill, gates, signs, etc.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.
Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 472 Use Exclusion	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	significant reduction in streambank erosion
IRRIGATION INDUCED	situational concerning irrigation induced erosion
SOIL MASS MOVEMENT	situational concerning soil mass movement
ROADBANK/CONSTRUCTION	significant decrease in roadbank/const. erosion
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	significant improvement in soil tilth
SOIL COMPACTION	significant reduction in soil compaction
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	situational regarding seep development
RUNOFF/FLOODING	situational concerning runoff and floods
EXCESS SUBSURFACE WATER	situational concerning excess subsurface H2O
INADEQUATE OUTLETS	significant improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	situational concerning SWater contam./nut.&organic
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	sign. reduction in SWater contam./H20 temp
• PATHOGENS	sign. decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	sign. decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	sign. decrease in struc. problems/dust and smoke
• ONSITE HEALTH	sign. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	sign. improvement in offlsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	sign. improvement in air condition/ temperature
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	N/A
AVAILABLE EQUIPMENT	N/A

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Vegetative Barriers [1/]

Conservation Practice Job Sheet (Interim)

Natural Resources Conservation Service (NRCS) ***April 1997***

Landowner_____

Definition

Vegetative barriers are narrow, permanent strips of stiff stemmed, erect, tall, dense perennial vegetation established in parallel rows and perpendicular to the dominant slope of the field.

Purpose

Vegetative barriers provide erosion control on cropland and offer an alternative to terraces where the soil might be degraded by terracing.

In addition, the following benefits are provided:

- Facilitate benching of sloping topography.
- Retard and reduce surface runoff by promoting detention and infiltration.
- Disperse concentrated flow and reduce ephemeral gully development.
- Divert runoff to a stable outlet.
- Entrap sediment-borne and soluble contaminants and facilitate their transformations.
- Provide wildlife habitat.

1/ Applicable where the states have developed an interim practice standard

Where used

- On cropland fields where water or wind erosion is a problem or where water needs to be conserved.
- Where a suitable outlet can be provided.
- Where adapted perennial vegetation can be expected to become established before the field is damaged from erosion.
- On slopes less than 10 percent.

Conservation management system

Vegetative barriers are normally established as part of a conservation management system to address the soil, water, air, plant, and animal needs and the owner's objectives. For this practice to be fully effective, it is important to plan the conservation crop rotation, nutrient and pest management, crop residue management, and other cropland practices.

Wildlife

Vegetative barriers provide excellent opportunities to improve wildlife habitat for some species by creating travel lanes that connect important habitat areas or in-field escape cover. For wildlife objectives, select native species or other adapted species that provide wildlife food and cover. Practices, such as wildlife upland habitat management, provide guidance for applying vegetative barriers that meet wildlife objectives.

Specifications

Site-specific requirements are listed on the specification sheet. Additional provisions are entered on the sketch sheet. The following general specifications apply to this practice:

- Minimum width of barrier strip is 12 inches
- Maximum vertical and horizontal spacing of barriers is determined using the terrace spacing equations.
- Barriers are aligned as near contour as practicable with minor adjustments to accommodate farming operations.

Operation and maintenance

Vegetative barriers must be inspected periodically to assure no voids develop in the protective strips of vegetation. Shape and replant washouts and rills as necessary to maintain plant density. Control spreading of barrier plants in to cropped areas. Control weeds and fertilize to maintain plant vigor. Control grazing and equipment traffic as necessary to protect barriers.

Vegetative Barriers – Specifications Sheet

Landowner_____ Field number_____

Purpose (check all that apply)	
☐ Reduce sheet and rill erosion	☐ Reduce runoff
☐ Reduce pollution from runoff	☐ Provide wildlife habitat
☐ Reduce ephemeral gullies	☐ Other (specify)

Location and Layout	Strip 1	Strip 2	Strip 3	Strip 4
Barrier width (in)				
Rows per barrier				
Barrier length (ft)				
Barrier area (acres)				
Field slope (%)				

Plant Materials Information				
Species/cultivar by row number *Strip #1*	Seeding rate (lb/acre)	Seeding date	Recommend lime (tons/acre)	Recommend fertilizer N-P_2O_5- K_2O (lb/acre)
1				
2				
3				
Strip #2				
1				
2				
3				
Strip #3				
1				
2				
3				
Strip #4				
1				
2				
3				

Site Preparation

Prepare firm seedbed. Apply lime and fertilizer according to recommendations.

Planting Method(s)

1. Drill seed _____ inches deep uniformly down the row. Establish stand of vegetation according to recommended seeding rate.
   If necessary, mulch newly seeded area with _____ ton per acre of mulch material.
   May seed small grain as a companion crop at the rate of _____ pounds per acre, but clip or harvest before it heads out.
2. If seedings are used, adjust heading accordingly in above table.

Operation and Maintenance

Vegetative barriers must be inspected periodically to assure no voids develop in the protective strips of vegetation. Shape and replant wash-outs and rills as necessary to maintain plant density. Control spreading of barrier plants in to cropped areas. Control weeds and fertilize t maintain plant vigor. Control grazing and equipment traffic as necessary to protect barriers.

Vegetative Barriers – Job Sketch

Field sketch showing field boundaries, barrier widths, runoff direction arrow, field layout. Other relevant information, such as adjacent field conditions including structures, crop types, and complementary practices, may also be included.

Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")

Additional Specifications and Notes:

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication program information (Braille, large print, audiotape, etc.) should contact the USDA Office of Communications (202) 720-2791.

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C., 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal opportunity employer.

WASTE MANAGEMENT SYSTEM

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 312

DEFINITION

A waste management system is a system in which all necessary components are installed for managing liquid and solid waste.

PRACTICE INFORMATION

The purpose of this system is to manage waste in a manner that does not cause degradation to the natural resources and protect public health and safety. The component practices that make up these systems preclude discharge of pollutants to surface or ground water and recycle waste through soil and plants to the fullest extent practicable.

Waste Management Systems apply where:

1. Waste is generated by agricultural production.
2. Waste from municipal and industrial sources is used in agriculture production.
3. All component practices to make a complete system are specified in the plan.
4. Natural resources (soil, water, air, plant, and animal) are adequate to utilize the waste.

A waste management system may consist of a single component practice, or may include several components. Single components are not installed until a complete plan is developed to assure the system is technically sound. Components of a waste management system may include any of the NRCS practices listed in the National Handbook of Conservation Practices. Necessary components not included in this handbook will be designed and installed consistent with sound engineering principles.

Additional information including planning considerations and system operation are on file in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 312 Waste Management System	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	situational concerning sheet and rill erosion
WIND	situational concerning wind erosion
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	situational concerning soil tilth
SOIL COMPACTION	situational concerning soil compaction
SOIL CONTAMINATION	
• SALTS	situational concerning contam. from salts
• ORGANICS	situational concerning organic contaminates/soil
• FERTILIZERS	situational concerning soil contam./fertilizer
• PESTICIDES	situational concerning soil contam./pesticides
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	situational concerning onsite deposition damage
• OFFSITE	situational concerning offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	situational concerning onsite safety/deposition
• OFFSITE	situational concerning offsite safety/deposition
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	slight improvement in onsite drainage
• OFFSITE	slight improvement in offsite drainage
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	insignificant
• HEAVY METALS	N/A
• PATHOGENS	slight poten. increase/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	slight increase in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	insignficant
• LOW DISSOLVED OXYGEN	slight increase in SWater contam./low oxygen
• SALINITY	N/A
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight increase in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	situational concerning labor requirements
AVAILABLE EQUIPMENT	situational regarding equipment concerns

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	N/A
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Waste Storage Facility

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 313

DEFINITION
A waste storage facility is a waste impoundment made by constructing an embankment, excavating a pit or dugout, or by fabricating a structure.

PRACTICE INFORMATION
A waste storage facility is a component of a complete agricultural waste management system. The purpose of the practice is to provide temporary storage of waste material generated by production and/or processing of agricultural products. The waste material may be animal manure, wastewater, or contaminated runoff.

An operation and maintenance plan is developed to specify requirements for emptying the storage facility. The plan specifies timing, rates, and volume of waste applications. For ponds, the plan also includes requirements for timely removal of waste material to accommodate subsequent storms.

Design criteria for this practice includes:

- Site location
- Design storage volume
- Storage period
- Inlet structures
- Safety features
- Pond criteria
- Emptying facilities
- Fabricated structure criteria

Additional information including detailed design criteria and specifications is in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 313 Waste Storage Facility	NOTES: The effects of applying the waste material to the land are shown in Waste Utilization (code 633)
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	moderate decrease in organic contaminates
• FERTILIZERS	moderate reduction in contaminates from fertilizer
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	N/A
• OFFSITE	N/A
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight reduction in excess subsurface water
INADEQUATE OUTLETS	insignificant
WATER MGT. IRRIGATION	
• SURFACE	insignificant
• SPRINKLER	insignificant
WATER MGT. NON-IRRIGATED	slight improvement in moisture use
RESTRICTED FLOW CAPACITY (H_20 convey.)	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	slight reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight reduction GWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight poten. decrease/GWater contam./nutr,organ.
• SALINITY	slight poten.decrease/GWater contam./salinity
• HEAVY METALS	slight poten. decrease/GWater contam./heavy metal
• PATHOGENS	moderate poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	moderate reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	sign. reduction in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	moderate reduction in SWater contam./low oxygen
• SALINITY	slight reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	insignificant
• PATHOGENS	moderate decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	insignificant
• OFFSITE SAFETY	insignificant
• ONSITE STRUCT. PROBLEMS	insignificant
• OFFSITE STRUCT. PROBLEMS	insignificant
• ONSITE HEALTH	slight decrease in onsite health/dust and smoke
• OFFSITE HEALTH	insignificant
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	insignficant
AIRBORNE CHEMICAL DRIFT	insignificant
AIRBORNE ODORS	slight increase in airborn odors
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	insignificant
THREAT/ENDANGERED PLANTS	insignificant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	moder. improvement in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

WASTE TREATMENT LAGOON

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 359

WASTE TREATMENT LAGOON

A waste treatment lagoon is an impoundment made by excavation or earth fill to provide storage for biological treatment of animal or other agriculture waste.

PRACTICE INFORMATION

The purpose of this practice is to store and biologically treat organic waste, reduce pollution, and protect water quality.

This practice applies under the following conditions:

1. Where a complete waste management system has been planned.
2. Waste generated by agriculture production and/or processing needs treatment.
3. A suitable location is available.
4. The soils are suitable for retaining the waste or can be sealed to prevent seepage.
5. A water supply is adequate maintain the design depth of water in the lagoon.

The three general types of waste treatment lagoons are the following:

1. Anaerobic - require less surface area than naturally aerobic lagoons but may give off offensive odors.
2. Naturally aerobic - require more surface area but are relatively odor free.
3. Mechanically aerated - comparable in size to anaerobic lagoons but require energy for aeration.

Waste treatment lagoons are located as near the source of waste as possible but as far from human dwellings as possible. The location should also be where prevailing winds will carry odors away from residences and public areas.

To improve efficiency and reduce sludge buildup, solids should be removed from the waste before it enters the lagoon. A solids trap or separator should be installed between the waste source and the lagoon.

Additional information including design criteria and specifications are filed in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 359 Waste Treatment Lagoon	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	N/A
WIND	N/A
EPHEMERAL GULLY	N/A
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN: **SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	insignificant
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	insignificant
• OFFSITE	insignificant
OTHER	
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	slight decrease in runoff/flooding
EXCESS SUBSURFACE WATER	insignificant
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	insignificant
• OFFSITE	insignificant
RESTRICTED STORAGE	N/A
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	sign. reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	sign. reduction in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	sign. reduction in SWater contam./low oxygen
• SALINITY	sign. reduction in SWater contam./salinity
• HEAVY METALS	sign. reduction in SWater contam./heavy metals
• WATER TEMPERATURE	moderate reduction in SWater contam./H20 temp.
• PATHOGENS	sign. decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	moder. increase in airborn odors
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	N/A
COVER/SHELTER	N/A
WATER (QUANTITY & QUALITY)	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	N/A
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	N/A
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Water & Sediment Control Basin

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 638

DEFINITION

A water and sediment control basin is an earth embankment or combination ridge and channel constructed across the slope and minor water courses to form a sediment trap and water detention basin.

PRACTICE INFORMATION

The purpose of this practice is to improve farmability of sloping land, reduce erosion, trap sediment, reduce and manage runoff, and improve water quality.

This practice applies to sites where:

1. The topography is generally irregular or undulating.
2. Water concentrates and causes gullies to form.
3. Sheet and rill erosion can be controlled by other conservation practices.
4. Runoff and sediment are causing damage to land, crops, water and farm facilities.
5. Soil and site conditions are suitable.
6. Adequate outlets can be provided for disposal of runoff water.

Water and sediment control basins are generally installed on land that is relatively steep and undulating and past erosion has caused channels to form that permanently alter the terrain. Therefore, contour farming, stripcropping, terraces and other practices based on contouring may not be acceptable on fields where this practice is used.

Sheet and rill erosion may continue to be a problem following installation of water and sediment control basins. For this reason, additional practices are needed to protect the sloping upland areas of the fields. Crop rotations and residue management that leave the crop residue on the soil surface are commonly used to reduce sheet and rill erosion. On fields where contouring is not practical, fields are often farmed across the slope to help reduce the velocity of runoff water.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	12/5/96

PRACTICE: 638 Water & Sediment Control Basin	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	insignificant
WIND	N/A
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	significant reduction in classic gully erosion
STREAMBANK	slight reduction in streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	N/A
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	slight increase in seepage hazard
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	moderate improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY (H20 convey.)	
• ONSITE	significant improvement in onsite drainage
• OFFSITE	significant improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	insignificant
• HEAVY METALS	N/A
• PATHOGENS	slight poten. increase/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	N/A
PLANT USE	N/A
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	slight improvement in plant cond./productivity
HEALTH, VIGOR, SURVIVAL	slight improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	slight improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	N/A
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Waterspreading

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 640

DEFINITION
Waterspreading is diverting or collecting runoff from natural channels, gullies, or streams with a system of dams, dikes, ditches, or other means, and spreading it over relatively flat areas.

PRACTICE INFORMATION
Waterspreading systems are suited to locations where the topography and climate are such that additional moisture can be expected to improve plant growth. Areas that receive 8 to 25 inches of precipitation are generally well suited for waterspreading if other site conditions are adequate.

The purpose of the practice is to supplement natural precipitation in areas where extra moisture is needed. Waterspreading systems apply to areas where:

- Soils have suitable permeability rates and waterholding capacity for the crops or forage to be grown on the site.
- The topography and soil are suitable for diversion, collection, and spreading of runoff water.
- Rainfall probabilities indicate runoff or streamflow is available during most years at the appropriate time and volume to significantly increase plant production.
- The system can be designed to operate without excessive erosion.
- Adverse affects on fish and wildlife will be minimal.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 640 Waterspreading	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	slight increase in sheet and rill erosion
WIND	insignificant
EPHEMERAL GULLY	situational concerning ephemeral gullies
CLASSIC GULLY	N/A
STREAMBANK	situational concerning streambank erosion
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	insignificant
SOIL COMPACTION	insignificant
SOIL CONTAMINATION	
• SALTS	insignificant
• ORGANICS	insignificant
• FERTILIZERS	insignificant
• PESTICIDES	insignificant
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	slight increase/onsite deposition damage
• OFFSITE	insignficant
DEPOSITION/SAFETY	
• ONSITE	N/A
• OFFSITE	N/A
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	insignificant
RUNOFF/FLOODING	situational concerning runoff and floods
EXCESS SUBSURFACE WATER	slight increase in excess subsurface water
INADEQUATE OUTLETS	situational concerning inadequate outlets
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	significant improvement in moisture use
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	slight improvement in onsite drainage
• OFFSITE	slight improvement in offsite drainage
RESTRICTED STORAGE	insignificant

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SUSPENDED SEDIMENTS	insignficant
• LOW DISSOLVED OXYGEN	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• WATER TEMPERATURE	insignificant
• PATHOGENS	insignificant
AQUATIC HABITAT SUITABILITY	situational concerning animal habitat suitibility
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	insignificant
PESTS	insignificant
THREAT/ENDANGERED PLANTS	situational concerning threat/endanged plant
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	moder. improvement in animal habitat/food supply
COVER/SHELTER	moder. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	moder. improvement in animal habitat/water
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	situational concerning threat./endangered animals
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	significantly cost effective
CLIENT FINANCIAL CONDITION	significantly cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	insignificant
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WETLAND ENHANCEMENT

(acre)

CODE 659

DEFINITION

The modification or rehabilitation of an existing or degraded wetland, where specific functions and/or values are modified for the purpose of meeting specific project objectives. Some functions may remain unchanged while others may be degraded.

PURPOSE

To modify the hydrologic condition, hydrophytic plant communities, and/or other biological habitat components of a wetland for the purpose of favoring specific wetland functions or values. For example; managing site hydrology for waterfowl or amphibian use, or managing plant community composition for native wetland hay production.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on any degraded or existing wetland where the objective is to specifically enhance a selected wetland function(s)and/or value(s).

Enhancement should not significantly change the primary wetland functions provided at the site.

Upon completion of the enhancement the site will meet the current NRCS soils, hydrology, and vegetation criteria of a Wetland.

This practice does not apply to: a constructed wetland (656) intended to treat point and non-point sources of water pollution; wetland restoration (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; or wetland creation (658) for creating a wetland on a site location which historically was not a wetland or on a site which was formerly a wetland but will be replaced with a wetland type not naturally occurring on the site.

CRITERIA

General Criteria

The landowner shall obtain necessary local, state, and federal permits that apply before wetland enhancement.

Water rights are assured prior to enhancement if required.

The design will not back water on neighboring land without an easement.

Document the soil, hydrology, and vegetative characteristics of the site and its contributing watershed before alteration .

The potential for occurrence of threatened or endangered species shall be evaluated for each site proposed for enhancement. Sites containing threatened or endangered species will not be enhanced under this standard unless it can be demonstrated that the impact will benefit the species at risk.

If the presence of hazardous waste materials in the sediment or fill is suspected, soil samples will be collected and analyzed for the

presence of hazardous waste as defined by local, state, or federal authorities. Sites containing hazardous waste will not be enhanced under this standard.

Criteria for Hydrology Enhancement

The hydrology of the site (defined as the rate and timing of inflow and outflow, source, duration, frequency, and depth of flooding, ponding or saturation) is modified to meet the project objectives. An adequate source of water must be available to meet designs for increased hydrology.

The standards and specifications for Dike (356) and Structure for Water Control (587) will be used as appropriate. Refer to the Engineering Field Handbook, Chapters 13, "Wetland Restoration, Enhancement, and Creation," and 6, "Structures," for additional design information. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

Criteria for Vegetation Enhancement

Where possible, native plant materials shall be used; however, introduced or cultivated plant species can be used to meet specific project objectives. Introduced species may become invasive or detrimental and caution must be exercised.

When using native species, preference shall be given to native wetland plants with localized genetic material. Plant materials collected or grown from material collected within a 200 mile radius from the site is considered local.

In soils where seed banks realistically exist, or where natural colonization of targeted species will dominate within 5 years, then natural regeneration can be allowed. Specific guidelines that consider soil, seed source, and species will be developed by the states.

Adequate substrate material and site preparation necessary for proper establishment of the selected plant species shall be included in the design.

Criteria for Wetland Functions

A functional assessment (Hydrogeomorphic approach or similar method) shall be performed on the site prior to enhancement.

Project goals and objectives shall minimize adverse impacts to wetland functions not specifically targeted for enhancement.

Where possible, wetland functions not targeted for enhancement should also be maximized.

CONSIDERATIONS

Consider existing wetland functions and/or values that may be adversely impacted.

Consider effect of volumes and rates of runoff, infiltration, evaporation, and transpiration on the water budget.

Consider the potential for a change in rates of plant growth and transpiration because of changes in the volume of available soil water.

Consider effects on downstream flows or aquifers that would affect other water uses or users.

Consider effects on wetlands or water-related resources wildlife habitats that would be associated with the practice.

Consider linking wetlands by corridors wherever appropriate to enhance the wetland's use and colonization by the flora and fauna.

Consider establishing vegetative buffers on surrounding uplands to reduce sediment and soluble and sediment-attached substance carried by runoff and/or wind.

The nutrient and pesticide tolerance of the species planned should be considered where known nutrient and pesticide contamination exists.

Consider effects on temperature of water resources to prevent undesired effects on aquatic and wildlife communities.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other documentation. Requirements for the operation and maintenance of the practice shall be incorporated into site specifications.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

Any use of fertilizers, mechanical treatments, prescribed burning, pesticides and other chemicals to assure the wetland enhancement function shall not compromise the intended purpose;

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible;

Timing and level setting of water control structures is required for the establishment of desired hydrologic conditions, for management of vegetation and for optimum wildlife use.

Inspection schedule for embankments and structures for damage assessment;

Depth of sediment accumulation to be allowed before removal is required;

Management needed to maintain vegetation, including control of unwanted vegetation;

Haying and livestock grazing will be managed to protect and enhance established and emerging vegetation.

Wetland Development or Restoration

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 657

DEFINITION
Wetland Development or Restoration is construction or restoration of wetland to provide the hydrological and biological benefits of a wetland site.

PRACTICE INFORMATION
This practice applies primarily to areas that were once wetland but were drained to accommodate another land use. It also applies to sites that were never wetland but are capable of storing water for wetland purposes. In most cases, dikes, or other water control structures are used to create or improve water storage on the site.

The purpose of this practice is to establish or reestablish wetlands for the benefit of wildlife, to reduce flooding, provide offsite water quality benefits, and increase groundwater recharge.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 657 Wetland Development or Restoration	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	N/A
IRRIGATION INDUCED	N/A
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	N/A
SOIL COMPACTION	N/A
SOIL CONTAMINATION	
• SALTS	significant reduction in soil salinity
• ORGANICS	N/A
• FERTILIZERS	N/A
• PESTICIDES	N/A
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	significant reduction/onsite deposition damage
• OFFSITE	significant decrease/offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	significantly improve onsite safety/deposition
• OFFSITE	sign. improve offsite safety hazard/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	moderate increase in seepage hazard
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	moderate increase in excess subsurface water
INADEQUATE OUTLETS	N/A
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	significant retardance of onsite drainage
• OFFSITE	N/A
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	slight potential increase/GWater contam./pesticide
• NUTRIENTS AND ORGANICS	slight poten. increase in GWater contam./nutr,org.
• SALINITY	slight poten. increase/GWater contam./salinity
• HEAVY METALS	slight poten. increase/GWater contam./heavy metal
• PATHOGENS	slight poten. increase/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	slight reduction in SWater contam./nutr.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	slight reduction in SWater contam./low oxygen
• SALINITY	sign. reduction in SWater contam./salinity
• HEAVY METALS	slight reduction in SWater contam./heavy metals
• WATER TEMPERATURE	situational concerning SWater contam./H2O temp.
• PATHOGENS	slight decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	sign. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	N/A
HEALTH, VIGOR, SURVIVAL	N/A
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	N/A
NUTRIENT MANAGEMENT	N/A
PESTS	N/A
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational concerning threat./endangered animals
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	situational concerning cost effectiveness
CLIENT FINANCIAL CONDITION	N/A
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	significant decrease in labor requirement
AVAILABLE EQUIPMENT	significant decrease in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	moderate risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	

Wildlife Wetland Habitat Management

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service practice code 644

DEFINITION
Wildlife wetland habitat management is retaining, creating, or managing wetland habitat for wildlife.

PRACTICE INFORMATION
This practice is used to create or improve habitat for waterfowl, furbearers, or other wildlife. It applies on wetland and other areas where water can be impounded or regulated by diking, ditching, or flooding.

The practice is planned for specific species of wildlife. Specifications for the practice include items such as:

- Practice components, including structures, necessary to meet the requirements of the desired species of wildlife.
- The required seasonal water depths necessary to provide adequate habitat during different seasons of the year
- Adapted plant species required for reproduction, food and cover by target species of wildlife
- Management of vegetation to assure sustainability

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	ANY	FIELD OFFICE	ANY	DATE	5/15/97

PRACTICE: 644 Wildlife Wetland Habitat Management	NOTES:
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**	**Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.**
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SHEET AND RILL	significant reduction in sheet and rill erosion
WIND	significant reduction in wind erosion
EPHEMERAL GULLY	significant reduction in ephemeral gully erosion
CLASSIC GULLY	N/A
STREAMBANK	moderate reduction in streambank erosion
IRRIGATION INDUCED	moderate reduction in irrigation induced erosion
SOIL MASS MOVEMENT	N/A
ROADBANK/CONSTRUCTION	N/A
OTHER	
RESOURCE CONCERN:**SOIL CONDITION**	
SOIL TILTH	situational concerning soil tilth
SOIL COMPACTION	situational concerning soil compaction
SOIL CONTAMINATION	
• SALTS	situational concerning contam. from salts
• ORGANICS	moderate decrease in organic contaminates
• FERTILIZERS	moderate reduction in contaminates from fertilizer
• PESTICIDES	moderate reduction in pesticide contam./soil
• OTHER	
DEPOSITION/DAMAGE	
• ONSITE	situational concerning onsite deposition damage
• OFFSITE	situational concerning offsite deposition damage
DEPOSITION/SAFETY	
• ONSITE	situational concerning onsite safety/deposition
• OFFSITE	situational concerning offsite safety/deposition
OTHER	
RESOURCE:**WATER** RESOURCE CONCERN:**WATER QUANTITY**	
SEEPS	situational regarding seep development
RUNOFF/FLOODING	moder. decrease in runoff/flooding
EXCESS SUBSURFACE WATER	situational concerning excess subsurface H2O
INADEQUATE OUTLETS	slight improvement in H20 outlet concern
WATER MGT. IRRIGATION	
• SURFACE	N/A
• SPRINKLER	N/A
WATER MGT. NON-IRRIGATED	N/A
RESTRICTED FLOW CAPACITY(H20 convey.)	
• ONSITE	moderate improvement in onsite drainage
• OFFSITE	moderate improvement in offsite drainage
RESTRICTED STORAGE	sign. reduction in sedimentation of H20 storage
OTHER	

RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	moderate reduction GWater contaminants/pesticides
• NUTRIENTS AND ORGANICS	moderate poten. decrease/GWater contam./nutr,organ
• SALINITY	moderate poten. decrease/GWater contam./salinity
• HEAVY METALS	moderate poten.decrease/GWater contam./heavy metal
• PATHOGENS	moderate poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	moderate reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	moderate reduction in SWater contam./nutri.,organ.
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DESOLVED OXYGEN	moderate reduction in SWater contam./low oxygen
• SALINITY	moderate reduction in SWater contam./salinity
• HEAVY METALS	moderate reduction in SWater contam./heavy metals
• WATER TEMPERATURE	moderate reduction in SWater contam./H20 temp.
• PATHOGENS	moderate decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	moder. decrease in airborn sed.&smoke part./safety
• OFFSITE SAFETY	moder. decrease in airborn sed.&smoke part./safe
• ONSITE STRUCT. PROBLEMS	moder. decrease in struct.problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	moder. decrease in structural problems/dust&smoke
• ONSITE HEALTH	moder. decrease in onsite health prob./dust&smoke
• OFFSITE HEALTH	mod. improvement in offsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	sign. decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	moder. improvement in air condition/ temperature
AIR MOVEMENT (windbreak effect)	insignificant
HUMIDITY	insignificant
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	moder. improvement in plant suitability/site adapt
PLANT USE	moder. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	moder. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	moder. improvement in plant health,vigor,survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	sign. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	N/A
PESTS	moder. improvement in plant pest managemen
THREAT/ENDANGERED PLANTS	N/A
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	sign. improvement in animal habitat/food supply
COVER/SHELTER	sign. improvement in animal habitat/cover,shelter
WATER (QUANTITY & QUALITY)	sign. improvement in animal habitat/water\
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	sign. improvement in animal mgt./pop. balance
THREAT/ENDANGERED ANIMALS	situational
HEALTH	sign. improvement in animal mgt./ health
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS: **ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	slight increase in labor requirement
AVAILABLE EQUIPMENT	slight increase in equip. needed

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	insignificant
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	