Approved Land Uses, Resource Concerns, and Conservation Practices to Support the National Water Quality Initiative (NWQI)

Approved Land Use

Crop, Forest, Range, Pasture, Farmstead

Approved Resource Concerns

Water Quality Degradation (Primary)
Nutrients in Surface Waters
Excessive Sediment in Surface Water
Excess Pathogens and Chemical from Manure, Bio-solids, or Compost Applications in Surface Water
Water Quality Degradation (Secondary)
Nutrients in Groundwater
Salts in Groundwater
Salts in Surface Water
Excess Pathogens and Chemical from Manure, Bio-solids, or Compost Applications in Ground Water
Pesticides in Groundwater
Pesticides in Surface Water
Elevated Water Temperature
Fish and Wildlife (Secondary)
Inadequate Habitat–Water

Approved Conservation Practices

Conservation Activity Plans	Code
Comprehensive Nutrient Management Plan	102
Nutrient Management Plan	104
Irrigation Water Management Plan	118
Drainage Water Management Plan	130

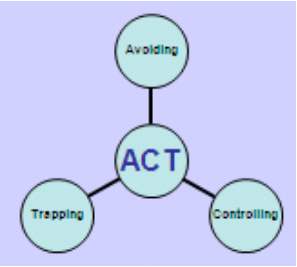
Core Conservation Practices	Code	Avoiding	Controlling	Trapping
Waste Storage Facility	313	X	X	
Animal Mortality Facility	316		X	
Composting Facility	317	X	X	
Conservation Crop Rotation	328	X		
Residue and Tillage Management, No Till/Strip Till/Direct Seed	329		X	X
Contour Buffer Strips	332			X
Cover Crop	340	X		X
Critical Area Planting	342		X	X
Residue and Tillage Management, Mulch Till	345		X	X
Residue and Tillage Management, Ridge Till	346		X	

Core Conservation Practices	Code	Avoiding	Controlling	Trapping
Waste Treatment Lagoon	359		X	
Waste Facility Closure	360	X		
Anaerobic Digester	366		X	
Field Border	386		X	X
Riparian Forest Buffer	391			X
Filter Strip	393		X	X
Grade Stabilization Structure	410		X	X
Grassed Waterway	412		X	
Irrigation Water Management	449		X	
Access Control	472	X		
Prescribed Grazing	528	X		
Heavy Use Area Protection	561	X		
Streambank and Shoreline Protection	580	X		
Nutrient Management	590	X		
Terrace	600		X	
Tree/Shrub Establishment	612	X		X
Waste Treatment	629		X	
Waste Transfer	634	X		
Vegetated Treatment Area	635			X
Water and Sediment Control Basin	638		X	X
Constructed Wetland	656			X

Supporting Conservation Practices	Code	Avoiding	Controlling	Trapping
Brush Management	314	X	X	
Herbaceous Weed Control	315	X		
Prescribed Burning	338	X		
Sediment Basin	350		X	
Water Well Decommissioning	351	X		
Dike	356		X	X
Diversion	362		X	
Roofs and Covers	367	X	X	
Pond	378			X
Windbreak/Shelterbelt Establishment	380		X	X
Fence	382	X		
Hedgerow Planting	422	X		X
Irrigation Pipeline	430		X	
Irrigation System, Microirrigation	441	X		
Irrigation System, Sprinkler	442	X		
Land Smoothing	466		X	

Supporting Conservation Practices	Code	Avoiding	Controlling	Trapping
Lined Waterway or Outlet	468		X	
Mulching	484		X	X
Forage Harvest Management	511	X	X	
Forage and Biomass Planting	512	X		X
Livestock Pipeline	516	X	X	
Range Planting	550			X
Roof Runoff Structure	558	X		
Access Road	560	X		
Spring Development	574	X		
Stream Crossing	578	X		
Stripcropping	585		X	
Structure for Water Control	587		X	X
Integrated Pest Management	595	X		
Herbaceous Wind Barriers	603		X	
Watering Facility	614	X		
Underground Outlet	620		X	
Waste Separation Facility	632		X	
Water Well	642	X		
Restoration and Management of Declining Habitats	643	X		
Wetland Wildlife Habitat Management	644		X	
Windbreak/Shelterbelt Renovation	650		X	X
Wetland Restoration	657		X	
Wetland Creation	658		X	
Wetland Enhancement	659		X	

Conservation Practices (CPs) and Avoiding, Controlling and Trapping (ACT):



The initiative emphasizes a "systems approach" to address priority natural resource concerns. A cornerstone of this approach is to encourage producers to implement a system of CPs that has been determined to address specific high-priority resource concerns in selected watersheds as well as incorporate selection of CPs that address ACT. The concept of ACT is defined as:

- A (Avoiding): Avoidance helps manage nutrients and sediment source control from agricultural lands, including animal production facilities. CPs such as Nutrient Management (590), Cover Crop (340), and Conservation Crop Rotation (328) help producers avoid pollution by reducing the amount of nutrients available in runoff or leaching into priority water bodies and watersheds.

CPs such as cover crops and crop rotation help take up nutrients to avoid potential runoff and pollution. Crop rotations that include differing crops, such as legumes, can limit amounts of commercial nutrients applied.

- C (Controlling): Land treatment in fields or facilities that prevents the loss of pollutants includes CPs such as conservation tillage CPs and residue management, which improve infiltration, reduce runoff, and control erosion. Specific CPs such as No-till/Strip/Till/Direct Seed (329), Mulch Tillage (345), and Ridge Till (346) are foundation practices to recommend to producers in priority watersheds. CPs such as Cover Crop (340) will also do double duty by helping with "Avoiding" as well as "Controlling." If producers plan fall application of manure or fertilizers without application of a cover crop, consideration should be given as to the need for Drainage Water Management (554). Other facilitating CPs, such as Terraces (600) or Stripcropping (585), help control erosion and may manage runoff to reduce nutrients loading.

- T (Trapping): The last line of defense against potential pollutants at edge of field, or in facilities to trap or treat. CPs such as Contour Buffers (332), Filter Strips (393), and the suite of wetland practices to create, enhance, and/or restore wetlands (658, 659, and 657) all serve to trap and uptake nutrients before entering water bodies.

<u>Planning considerations to support "Avoiding"</u>:

- Apply fertilizer (chemical, manure, etc.) at the appropriate rate and time, with the appropriate placement and method. For example:
  - Rate: Use adaptive management techniques over time to track residual soil nutrient levels with soil testing.
  - Time: Apply fertilizer in the spring instead of fall, unless there is a winter cover crop in place.
  - Placement: Apply fertilizer to the root zone for enhanced uptake by plants.
  - Method: Properly calibrate fertilizer application equipment to ensure the correct amount of fertilizer is applied.
- Develop a nutrient management plan to identify nitrogen and phosphorus management actions that will reduce losses of nitrogen and phosphorus.
- When calculating optimal rate of application, make sure to credit other sources that contribute nitrogen and phosphorus to the soil, such as previous legume crops, irrigation water, and organic matter.
- Properly store fertilizer (e.g., in a storage building with impermeable floors).
- Compost manure to reduce the overall volume for disposal.

Planning considerations to support "Controlling":

- Plant cover crops to absorb and store nitrogen and phosphorus in the fall and winter and to prevent erosion.
- Use no-tillage, ridge-tillage, or other reduced-tillage practices in place of conventional tillage.
- Use irrigation systems (e.g., sprinklers, low-energy precisions applications, surges, and drips) to apply water uniformly and with greater efficiency; this reduces water loss and transport of nitrogen and phosphorus out of the field.
- When designing a drainage system, consider the factors that affect design size and layout to meet the water management needs of the land, which include the water-holding capacity of the soil, root depth, rain distribution, and how water flows through the land.
- Consider rotating crops to minimize use of fertilizer in some cases.
- Use stream crossings, fencing, and watering facilities to keep pastured animals out of water bodies.
- Divert roof runoff and other uncontaminated stormwater away from animal confinement and manure storage areas.

Planning considerations to support "Trapping":

- Create or restore wetlands and riparian forest buffers to trap nitrogen and phosphorus before they reach water bodies.
- Route soil drainage water, including tile drainage, through wetlands, riparian forests, or grass buffer strips to allow for nitrogen and phosphorus removal before flowing into rivers or streams.
- Install a controlled drainage system that will keep the water table high during the off-season, which increases the breakdown of nitrates into nitrogen gas (overall this reduces nitrogen in drainage water).
- Consider augmenting a drainage system with a bioreactor filled with wood chips that helps remove nitrates from water before being released to streams.
- Install a pump to reuse drainage water stored in a holding pond (along with the nitrogen and phosphorus in the water) during dry periods.
- Plant a vegetative buffer along drainage ditches to capture more nitrogen, phosphorus, and sediment from runoff before entering the waterway.
- Ensure that all runoff from animal confinement areas and areas used to store manure, feed, and bedding is captured and retained.
- Ensure waste storage facilities, such as stacking pads, lagoons, and holding ponds are designed to store the amount of waste produced at the operation, as well as account for larges storms that could result in overflow.

Conservation Practice–Resource Concern Matrix

EPA 303(d) Impairment		Sediment and Turbidity	Temperature	Salinity		Nutrients, Low Dissolved Oxygen, Ammonia, Algal Growth		Pesticides		Habitat Alteration and Cause Unknown–Impaired Biota	Pathogens and Associated Animal Waste Management	
NRCS Approved Resource Concerns		**Water Quality**								**Fish and Wildlife**	**Water Quality**	
NRCS Natural Resource Concern Categories for ProTracts Application, Evaluation, and Ranking Tool (AERT)		**Excessive Sediment in Surface Water Primary**	Elevated Water Temperature	Salts in Ground Water	Salts in Surface Water	Nutrients in Ground Water	**Nutrients in Surface Water Primary**	Pesticides in Surface Water	Pesticides in Ground Water	Inadequate Habitat - Water	Excess Pathogens and Chemicals from Manure, Bio-solids, or Compost Applications in Ground water	**Excess Pathogens and Chemicals from Manure, Bio-solids, or Compost Applications in Surface water Primary**
Conservation Practice	**Code**	"C" = Core practice required to be offered in each approved watershed; "X" = Supporting practices are optional to be offered if needed in State.										
Waste Storage Facility	313	X									C	C
Brush Management	314	X						X	X			X
Herbaceous Weed Control	315							X	X			
Animal Mortality Facility	316					X	X				C	C
Composting Facility	317					X	X				C	C
Conservation Crop Rotation	328	X		X	X	C	C	X	X		X	X
Residue and Tillage Management, No Till/Strip Till/Direct Seed	329	C		X	X	C	C					X
Contour Buffer Strips	332	C	X			X	C	X				X
Prescribed Burning	338							X	X			
Cover Crop	340	C		X	X	C	C	X	X		X	X
Critical Area Planting	342	X	C	C	C					C	X	C
Residue and Tillage Management, Mulch Till	345	C		X	X	C	C					X
Residue and Tillage Management, Ridge Till	346	C		X	X	C	C					
Sediment Basin	350	X					X					X
Water Well Decommissioning	351			X		X			X			

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Conservation Practice	**Code**	"C" = Core practice required to be offered in each approved watershed; "X" = Supporting practices are optional to be offered if needed in State.										
Dike	356	X										X
Waste Treatment Lagoon	359	X									X	C
Waste Facility Closure	360										C	C
Diversion	362	X						X	X			X
Anaerobic Digester	366										X	C
Roofs and Covers	367	X									X	X
Pond	378					X	X					
Windbreak/Shelterbelt Establishment	380		X					X				
Fence	382						X					X
Field Border	386	X					C	X	X		C	C
Riparian Forest Buffer	391	C	C			X	C			C	X	X
Filter Strip	393	C		C	C	C	C	C	C		C	C
Grade Stabilization Structure	410	C										
Grassed Waterway	412	C	X									
Hedgerow Planting	422	X										X
Irrigation Pipeline	430										X	X
Irrigation System, Microirrigation	441			X	X	X	X					
Irrigation System, Sprinkler	442			X	X	X	X					
Irrigation Water Management	449			C	C	X	X				C	C

EPA 303(d) Impairment		Sediment and Turbidity	Temperature	Salinity		Nutrients, Low Dissolved Oxygen, Ammonia, Algal Growth		Pesticides		Habitat Alteration and Cause Unknown–Impaired Biota	Pathogens and Associated Animal Waste Management	
NRCS Approved Resource Concerns		**Water Quality**								**Fish and Wildlife**	**Water Quality**	
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Conservation Practice	**Code**	"C" = Core practice required to be offered in each approved watershed; "X" = Supporting practices are optional to be offered if needed in State.										
Land Smoothing	466	X				X	X				X	X
Lined Waterway or Outlet	468	X										
Access Control	472	C	X				C	X		X		X
Mulching	484	X					X					X
Forage Harvest Management	511		X					X				X
Forage and Biomass Planting	512	X	X			X	X					X
Livestock Pipeline	516	X					X			X		X
Prescribed Grazing	528	C	C			X	C	X	X	X		X
Range Planting	550	X	X					X	X	X		X
Roof Runoff Structure	558	X										
Access Road	560	X										
Heavy Use Area Protection	561	C				X	X					C
Spring Development	574					X	X					
Stream Crossing	578	X	X							X		X
Strip Cropping	585	X						X	X			
Structure for Water Control	587	X	X			X	X	X	X			X
Nutrient Management	590	X				C	C					
Integrated Pest Management	595					X	X	X	X			
Terrace	600	C				X	X				X	X

EPA 303(d) Impairment		**Sediment and Turbidity**	**Temperature**	**Salinity**		**Nutrients, Low Dissolved Oxygen, Ammonia, Algal Growth**		**Pesticides**		**Habitat Alteration and Cause Unknown–Impaired Biota**	**Pathogens and Associated Animal Waste Management**	
NRCS Approved Resource Concerns		**Water Quality**								**Fish and Wildlife**	**Water Quality**	
NRCS Natural Resource Concern Categories for ProTracts Application, Evaluation, and Ranking Tool (AERT)		**Excessive Sediment in Surface Water <u>Primary</u>**	Elevated Water Temperature	Salts in Ground Water	Salts in Surface Water	Nutrients in Ground Water	**Nutrients in Surface Water <u>Primary</u>**	Pesticides in Surface Water	Pesticides in Ground Water	Inadequate Habitat - Water	Excess Pathogens and Chemicals from Manure, Bio-solids, or Compost Applications in Ground water	**Excess Pathogens and Chemicals from Manure, Bio-solids, or Compost Applications in Surface water <u>Primary</u>**
Conservation Practice	**Code**	"C" = Core practice required to be offered in each approved watershed; "X" = Supporting practices are optional to be offered if needed in State.										
Herbaceous Wind Barriers	603	X				X	X	X				
Tree/Shrub Establishment	612	C	C				X	X	X	X	X	X
Watering Facility	614	X					X					X
Underground Outlet	620	X					X					X
Waste Treatment	629	X									C	C
Waste Separation Facility	632	X					X				X	X
Waste Transfer	634	X				X	X	X	X		X	C
Vegetated Treatment Area	635	X										C
Water and Sediment Control Basin	638	C		X	X							X
Water Well	642			X	X	X	X					
Restoration and Management of Declining Habitats	643	X	X							X		
Wetland Wildlife Habitat Management	644									X		X
Windbreak/Shelterbelt Renovation	650	X						X				
Constructed Wetland	656	X									C	C
Wetland Restoration	657									X		X
Wetland Creation	658									X		X
Wetland Enhancement	659									X		X