

GUIDELINES FOR COST SHARE ON ENGINEERING PRACTICE COMPONENTS – FY 2007

Introduction: The following guidelines are provided to assist planners in determining eligible components for cost share consideration in the implementation of engineering practices for conservation programs administered by the Natural Resources Conservation Service (NRCS) in North Dakota. Individual program criteria may establish additional requirements, establish limits on the number of units that may be cost shared, or prohibit cost sharing on some conservation practice components. See applicable program guidelines for more information.

The Engineering Practice Component Guidelines are arranged alphabetically by conservation practice (including practice code) for the most common engineering practices installed. Included is a basic listing of the components typically considered necessary for the proper installation of the engineering practices. The guidelines may not be all inclusive but are developed from common site examples.

In determining cost share for earthwork construction, compensation will be provided for conservation measures completed by providing cost share payments for either excavation or earthfill quantities, not both. Exceptions to this rule are made where a required excavation is designated; the earthen materials are removed and then replaced with suitable materials meeting specified material and compaction requirements. An example would be in the construction of a pond requiring excavation of the core trench and topsoil stripping of the embankment foundation. The excavated materials (core trench and topsoil) must be completely removed and stockpiled prior to the placement of suitable fill for the embankment. In these situations, cost share payments are allowed for both the excavation quantity and the required earthfill quantity (including overfill for settlement).

Access Road 560

- Components of an access road may include but are not limited to excavation; earth fill; water for earth fill moisture control; borrow (hauling from offsite) ; topsoil (salvage and re-spreading); gravel, sand, or scoria (pit run); geotextile fabric (compute and include the overlap quantity); concrete, and components in Table B – Pipe and Related Costs of the cost tables.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, overfill for settlement, placement of topsoil on the finished surface, and placement of compacted gravel, sand, or scoria..
- **Borrow Development** – Items eligible to be included in this component may include a cost for hauling earth fill materials in from offsite sources to meet construction material requirements established in the specifications.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. As an alternative method, compensation for topsoil on the finished surface may be included in the earth fill component quantity.
- **Gravel, Sand, or Scoria (pit run)** – Items eligible to be included in this component may include but are not limited to hauling and placement of the material. If the gravel, sand, or scoria placement has a specified compaction requirement, the quantity may also be included in the earth fill component.

- **Geotextile Fabric** - Items eligible to be included in this component may include but are not limited to materials, labor, delivery, equipment hours, and installation.
- **Concrete Slab With Steel Reinforcing, In Place** - Items eligible to be included in this component are concrete slabs associated with the stabilization of equipment crossings.

Closure of Waste Impoundments 657

- Components of closure of waste impoundments may include but are not limited to excavation, earth fill, borrow (hauling from offsite), top soil (salvage and re-spreading), water for earth fill moisture control, and site clearing or structure removal.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation, and excavations to allow equipment access to the waste impoundment.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, water for earth fill moisture control, overfill for settlement, and placement of topsoil on the finished surface.
- **Borrow Development** – Items eligible to be included in this component may include a cost for hauling earth fill materials in from offsite sources to meet construction material requirements established in the specifications.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.

Critical Area Planting 342

- It is recommended that the field office develop the seed mix and the cost estimate for the seeding. If needed, the engineering staff will help to determine the acres to be seeded for the practice and disturbed areas.
- Components for critical area planting are from Table D of the cost tables.

Dike 356

- Components of a dike may include but are not limited to excavation, earth fill, borrow development, top soil (salvage and re-spreading), water for earth fill moisture control, and site clearing or structure removal.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, overfill for settlement, and placement of topsoil on the finished surface.
- **Borrow Development** – Items eligible to be included in this component may include a cost for hauling earth fill materials in from offsite sources to meet construction material requirements established in the specifications.

- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- If the dike is being constructed in conjunction with a practice with excavation that provides suitable fill material, the greater quantity either excavation or earth fill of the combined practices is cost shared (i.e. dike in conjunction with an earthen waste storage facility).
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.

Diversion 362

- Components of a diversion may include but are not limited to excavation, earth fill, borrow development, top soil (salvage and re-spreading), water for earth fill moisture control, components in Table B – Pipe and Related Costs of the cost tables, and site clearing or structure removal.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, overfill for settlement, and placement of topsoil on the finished surface.
- **Borrow Development** – Items eligible to be included in this component may include a cost for hauling earth fill materials in from offsite sources to meet construction material requirements established in the specifications.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- The greater quantity either excavation or earth fill is cost shared.
- If the diversion is being constructed in conjunction with a practice with excavation that provides suitable fill material, the greater quantity either excavation or earth fill of the combined practices is cost shared (i.e. diversion in conjunction with an earthen waste storage facility).
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.

Grassed Waterway 412

- Components of a grassed waterway may include but are not limited to excavation, earth fill, top soil (salvage and re-spreading), water for earth fill moisture control, and site clearing or structure removal.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation.

- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, overfill for settlement, and placement of topsoil on the finished surface.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- The greater quantity either excavation or earth fill is cost shared.
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.

Heavy Use Area Protection 561

- Components of a heavy use area protection may include but are not limited to excavation; earth fill; water for earth fill moisture control, concrete slabs with steel reinforcing or fiber mesh, in place; concrete and steel reinforcing, formed in place; gravel, sand, or scoria (pit run); gravel (washed and graded); animal waste storage and treatment facilities engineers estimate, corrugated plastic tubing/culverts; corrugated plastic tubing/culverts, with sock; geotextile fabric (compute and include the overlap quantity).
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, and placement of compacted gravel, sand, or scoria.
- **Concrete Slab With Steel Reinforcing or Fiber Mesh, In Place** - Items eligible to be included in this component are concrete watering pads and concrete feeding aprons associated with agricultural waste management systems.
- **Concrete and Steel Reinforcing, Formed In Place** - Items eligible to be included in this component are concrete curbs associated with agricultural waste management systems.
- **Gravel, Sand, or Scoria (pit run)** – Items eligible to be included in this component may include but are not limited to hauling and placement of the material. If the gravel, sand, or scoria placement has a specified compaction method, the quantity may also be included in the earth fill component.
- **Gravel (washed and graded)** – Items eligible to be included in this component may include but are not limited to hauling and placement of material. If the gravel, sand, or scoria placement has a specified compaction method, the quantity may also be included in the earth fill component.
- **Animal Waste Storage and Treatment Facilities Engineers Estimate** - Items eligible to be included in this component may include but are not limited to all items necessary for complete installation of a structure such as utilizing curb materials other than concrete for the Heavy Use Area and solid separators associated with agricultural waste management systems.
- **Geotextile Fabric** - Items eligible to be included in this component may include but are not limited to materials, labor, delivery, equipment hours, and installation.
- **Concrete Quality Control** – Items eligible to be included in this component may include but are not limited to concrete testing provided by independent testing firms secured by the

contractor for certification that the concrete components of the waste management system meets plans and specifications.

Irrigation System Sprinkler 442

- **Irrigation System Reorganization (sprinkler system as current application method) -** Items eligible to be included in this component may include but are not limited to nozzles, hose drops, regulators, weights, fittings, pumps, pump conversions or retrofits (pulling the pump, inspecting the well with a remote camera, re-installation of the modified pump, etc.) starters, screens, booster pumps necessary to make the low pressure system operate, and control panels.
- **Irrigation System Reorganization (sprinkler system to be installed as the new application method) –** Items eligible to be included in this component may include but are not limited to complete center pivot installations (parts and labor), center pivot foundations, pumps, pump conversions or retrofits (pulling the pump, inspecting the well with a remote camera, re-installation of the modified pump, etc.), pump screens, and intake structures.
- Items considered **not** eligible to be included in the cost of irrigation system reorganization include electrical wiring, the power source, end guns, and general maintenance items.
- If the cooperater is replacing an existing center pivot with a new center pivot, only those items related to the conversion to lower pressure are eligible.
- The end gun acres of the irrigation reorganization are **not** eligible for cost share.
- Utilize practice 533 Pumping Plant for pumping plants and intake structures associated with irrigation reorganization.

Irrigation Water Conveyance, High Pressure, Underground, Plastic Pipeline 430DD

- Components of irrigation water conveyance may include but are not limited to large diameter pipe, trenching, bedding material, hand compacted earth fill, hand opening slide gate, wheel opening slide gate, reverse flow check valve, gate valve or combination gate/check valve, coated steel grade transition section or transition section fabricated of other materials, air relief valve, pressure relief valve, alfalfa valve, butterfly valve, flow meter, and surge valve.
- **Large Diameter Pipe** - Items eligible to be included in this component may include but are not limited to tees, elbows, reducers, couplers, fittings, glue, and primer/cleaner.
- **Trenching for Irrigation** - Items eligible to be included in this component may include but are not limited to trenching for the pipe to the on field irrigation system.

Lined Waterway 468

- Components of a lined waterway may include but are not limited to excavation, earth fill, topsoil (salvage and re-spreading), turf reinforcing materials, water for earth fill moisture control, and site clearing or structure removal.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundations.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, water for earth fill moisture control, overfill for settlement, and placement of topsoil on the finished surface.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of

topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.

- **Turf Reinforcing Materials** - Items eligible to be included in this component may include but are not limited to materials, labor, delivery, equipment hours, and installation.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- The greater quantity either excavation or earth fill is cost shared.
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.

Pipeline 516

- Components of a pipeline may include but are not limited to small diameter pipe; trenching for pipelines; rural water system hookups; pitless unit; pump; alternative pumping plant power source (windmills and solar panels); vault; and pressure tank, switches, and controls.
- **Small Diameter Pipe** - Items eligible to be included in this component may include but are not limited to buried or in-line pressure tanks without a vault, hydrants, adaptors, tees, clamps, elbows, reducers, couplers, fittings, valves, glue, primer/cleaner, labor, installation, and delivery.
- **Trenching For Pipelines** - Items eligible to be included in this component may include but are not limited to trenching, backfill, and waterbars.
- **Rural Water System Hookups** - Items eligible to be included in this component may include but are not limited to hookup fees, meter pits, and curb stops. Membership fees or sign-up fees and the meter are **not** eligible.
- **Pitless Unit** - Items eligible to be included in this component may include but are not limited to vent cap, fittings, electrical wiring, and adaptors. All pitless units must be installed by a certified water well contractor or certified pump and pitless unit installer.
- **Pump** - Items eligible to be included in this component may include but are not limited to pump, pipe to the pump, support cable or rope, brass nipples, stainless steel couplings, electrical wiring, and check valves. **Windmill Pumps and Solar Pumps** - Items eligible to be included in this component may include but are not limited to hand pump, pump cylinder, pump piston rod, pipe to pump, flange, foot valve, tees, elbows, check valves, nipples, strainer, support cable or rope, leather cups, and submersible pump. Pumps to be used in a water well must be installed by a certified water well contractor or certified pump and pitless unit installer.
- **Alternative Pumping Plant Power Source (windmills and solar panels)** – Items eligible to be included in this component may include but are not limited to: **Windmills** - the tower parts, the wheel parts, sails, gear box, the brake, the tail bone and vane, turntable base, mill mast post, oiling platform, ladder and cement. **Solar Panels** – solar power cells and battery unit.
- **Vault** - Items eligible to be included in this component may include but are not limited to housing, excavation, drain, and base materials. All vaults must be installed by a certified water well contractor.
- **Pressure tank, switches, controls** - Items eligible to be included in this component may include but are not limited to pressure tank (in well, stand alone, etc. that are protected in an enclosed structure), excavation, electrical wiring, adaptors, clamps, and fittings. All pressure

tanks, switches, and controls must be installed by a certified water well contractor or certified pump and pitless unit installer.

- Rocky conditions, high water table conditions or bank stability problems when trenching should be field determined and documented by the individual completing construction inspection or as-built information.

Ponds 378

Embankment ponds

- Components of an embankment pond may include but are not limited to excavation, earth fill, borrow development, topsoil (salvage and re-spreading), excavation for small conservation structures, water for earth fill moisture control, components in Table B – Pipe and Related Costs of the cost tables, concrete, riprap, geotextile fabric (compute and include the overlap quantity), and site clearing or structure removal.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, overfill for settlement, and placement of topsoil on the finished surface.
- **Borrow Development** – Items eligible to be included in this component may include a cost for hauling earth fill materials in from offsite sources to meet construction material requirements established in the specifications.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.
- **Pipe** - Items eligible to be included in this component for the principal spillway of an embankment pond may include but are not limited to most items within Table B – Pipe and Related Costs in the cost tables.
- **Small Diameter Pipe** – Items eligible to be included in this component may include but are not limited to adaptors, tees, clamps, elbows, reducers, couplers, fittings, valves, glue, and primer/cleaner.
- **Geotextile Fabric** - Items eligible to be included in this component may include but are not limited to materials, labor, delivery, equipment hours, and installation.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- The greater quantity either excavation or earth fill is cost shared.
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.
- The excavation of the core trench is cost shared as an excavation quantity. The backfill of the core trench is also cost shared as an earth fill quantity if the excavated materials are not suitable for use as earth fill in the core trench.

Excavated ponds

- Components of an excavated pond may include but are not limited to excavation, pit run gravel on access slopes, and seeding. (Utilize practice 382 Fence if fencing the excavated pond)
- Excavation quantity is determined by ND-ENG-17, ND-ENG-17a, or cross sections if needed.

Spring Development 574

- Components of a spring development may include but are not limited to Table B – Pipe and Related Costs of the cost tables for the spring box, perforated PVC pipe for collection system, small diameter pipe, excavation for spring boxes and spring collection systems, excavation for small conservation structures, trenching for spring developments, gravel (washed and graded), and site clearing or structure removal.
- **PVC Pipe** - Items eligible to be included in this component may include but are not limited to adaptors, tees, clamps, elbows, reducers, couplers, fittings, valves, glue, and primer/cleaner.
- **Small Diameter Pipe** - Items eligible to be included in this component may include but are not limited to adaptors, tees, clamps, elbows, reducers, couplers, fittings, valves, glue, and primer/cleaner.
- **Excavation for Spring Boxes and Spring Collection Systems** - Items eligible to be included in this component may include but are not limited to excavation of materials to install the spring box and spring collection system.
- **Excavation for Small Conservation Structures** - Items eligible to be included in this component may include but are not limited to constructing benches on steep or unstable slopes and excavations to level the site
- **Trenching for Spring Developments** - Items eligible to be included in this component may include but are not limited to trenching for the pipe from the spring box to the watering facility and trenching for the watering facility overflow.
- **Gravel (washed and graded)** – Items eligible to be included in this component may include but are not limited to hauling and placement of material. If gravel placement has a specified compaction method, the quantity may be an earth fill component also.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.

Waste Storage Facility 313

- Components of a waste storage facility include but are not limited to excavation; earth fill; borrow development, top soil (salvage and re-spreading); site clearing and structure removal; water for earth fill moisture control; compaction quality control (includes moisture, density, and permeability tests); concrete quality control (includes air, slump, and compressive strength testing); subsurface investigation – soil boring, testing, and report; trenching for agricultural waste pipelines; Table B – Pipe and Related Costs of the cost tables; concrete; lumber and structural steel; reservoir sealing (compute and include overlap quantity if applicable); feedlot fence; geotextile fabric (compute and include the overlap quantity); fence removal; fence removal, salvage, and reinstallation; and animal waste storage and treatment facilities engineers estimate. (Utilize Practice Code 558 for Roof Runoff Structure)

- **Excavation** - Items eligible to be included in this component may include but are not limited to over excavation for waste storage pond clay liner, excavation of materials including stripping the earth fill foundation, and shaping of the feedlots for drainage purposes.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, overfill for settlement, placement of topsoil on the finished surface, and placement of compacted gravel, sand, or scoria.
- **Borrow Development** – Items eligible to be included in this component may include a cost for hauling earth fill materials in from offsite sources to meet construction material requirements established in the specifications.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- **Pipe and Related Costs** - Items eligible to be included in this component may include but are not limited to most items within Table B – Pipe and Related Costs in the cost tables plus the cost of adaptors, tees, clamps, elbows, reducers, couplers, fittings, valves, glue, and primer/cleaner.
- **Concrete Slab With Steel Reinforcing or Fiber Mesh, In Place** - Items eligible to be included in this component are building features or concrete pads associated with agricultural waste management systems.
- **Concrete and Steel Reinforcing, Formed In Place** - Items eligible to be included in this component are concrete curbs, building features for proper management of wastes, and concrete outlets at waste storage facilities associated with agricultural waste management systems.
- **Reservoir Sealing** - Items eligible to be included in this component may include but are not limited to materials, labor, delivery, equipment hours, and installation.
- **Geotextile Fabric** - Items eligible to be included in this component may include but are not limited to materials, labor, delivery, equipment hours, and installation.
- **Animal Waste Storage and Treatment Facilities Engineers Estimate** - Items eligible to be included in this component may include but are not limited to all items necessary for complete installation of a structure.
- **Compaction Quality Control (includes moisture, density, and permeability tests)** - Items eligible to be included in this component may include but are not limited to testing of earth fill components, generally earthen waste storage pond liners, provided by independent testing firms secured by the contractor for certification that the earth fill components of the waste management system meets plans and specifications.
- **Subsurface Investigation – soil boring, testing, and report** - Items eligible to be included in this component may include but are not limited to soils investigations provided by independent drilling firms hired by the EQIP contract holder to complete the subsurface investigations, testing, and reports, required to certify that the waste storage pond site meets design criteria.
- **Concrete Quality Control** – Items eligible to be included in this component may include but are not limited to concrete testing provided by independent testing firms secured by the

contractor for certification that the concrete components of the waste management system meets plans and specifications.

- The greater quantity either excavation or earth fill is cost shared.
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.

Watering Facility 614

- Components of a watering facility may include but are not limited to concrete slab with steel reinforcing, in place; nose pumps, and rural water system hookups.
- Storage of the watering facility is determined by supplier certifications or field measurements with the exception of rubber tire watering facilities which are always field measured using the worksheet supplied in North Dakota Bulletin No. 210-0-3, dated July 26, 2000. Always check for most current bulletin or information available.
- Items eligible to be included in the installed unit cost of the watering facility may include but are not limited to bedding material; apron material; protective, anchoring and animal exclusion posts, planks and similar materials; overflow pipes; hydrants; floats; delivery; labor; equipment hours; and installation.
- **Concrete Slab With Steel Reinforcing, In Place** – Items eligible to be included in this component may include but are not limited to a concrete apron on the watering facility. It does not include the 2' concrete slab required around the perimeter of the steel rim concrete bottom watering facility as that is considered to be part of the installed unit cost of the watering facility.
- **Rural Water System Hookups** - Items eligible to be included in this component may include but are not limited to hookup fees, meter pits, curb stops, labor, and equipment hours. Membership fees or sign-up fees and the meter are **not** eligible.
- **Nose Pumps** - Items eligible to be included in the installed unit cost of the nose pump may include but are not limited to protective, anchoring and animal exclusion posts, planks and similar materials; labor; equipment hours; and installation. Review manufacturer's recommendations for uses prior to planning nose pumps and install per manufacturer's recommendations.

Water Well 642

- Components of a well may include but are not limited to drilling and casing, drilling in consolidated material not requiring casing; well screen; water pump; alternative pumping plant power source (windmills and solar panels, does not include pump); pitless unit; vault; pressure tank, switches, controls; and additional items listed under Wells in the cost tables.
- **Drilling and Casing** – This length is determined by the well drillers log or ND-ENG-38. Items eligible to be included in this component may include but are not limited to well cement, cement basket, pipe, curbing, fittings, lead packing, gravel, sand, and bentonite chips.
- **Drilling In Consolidated Material Not Requiring Casing** - This length is determined by the well drillers log or ND-ENG-38 and is generally the length of well below screen depth that did not require casing or screening.
- **Well Screen** – This length is determined by the well drillers log or ND-ENG-38 and is **not** part of the drilling and casing length. The screen length is eligible under the Well Screen components. The drilling length of the screen is included in the cost of the screen. Items

eligible to be included in this component may include but are not limited to fittings and gravel. Perforated pipe and slotted pipe utilized as well screens are considered to be part of the drilling and casing length and are not considered to be manufactured well screens.

- **Pump** - Items eligible to be included in this component may include but are not limited to the pump, pipe to the pump, support cable or rope, brass nipples, stainless steel couplings, electrical wiring, and check valves. **Windmill Pumps and Solar Pumps** - Items eligible to be included in this component may include but are not limited to hand pump, pump cylinder, pump piston rod, pipe to pump, flange, foot valve, tees, elbows, check valves, nipples, strainer, support cable or rope, leather cups, and submersible pump. Pumps to be used in a water well must be installed by a certified water well contractor or certified pump and pitless unit installer.
- **Alternative Pumping Plant Power Source (windmills and solar panels, does not include the pump)** – Items eligible to be included in this component may include but are not limited to: **Windmills** - the tower parts, the wheel parts, sails, gear box, the brake, the tail bone and vane, turntable base, mill mast post, oiling platform, ladder and cement. **Solar Panels** – solar power cells and battery unit.
- **Pitless Unit** - Items eligible to be included in this component may include but are not limited to vent cap, fittings, electrical wiring, and adaptors. The pitless unit diameter is determined by the well drillers log or ND-ENG-38. The pitless unit length is **not** part of the drilling and casing length. All pitless units must be installed by a certified water well contractor or certified pump and pitless unit installer.
- **Vault** - Items eligible to be included in this component may include but are not limited to housing, excavation, drain, and base materials. All vaults must be installed by a certified water well contractor.
- **Pressure tank, switches, controls** - Items eligible to be included in this component may include but are not limited to pressure tank (in well, stand alone, etc. that are protected in an enclosed structure), excavation, electrical wiring, adaptors, clamps, and fittings. All pressure tanks, switches, and controls must be installed by a certified water well contractor or certified pump and pitless unit installer.

Well Decommissioning 351

- Items eligible to be included in the well decommissioning may include but are not limited to sanitizing chemicals, bentonite, cement, sand, native clay, topsoil, additional water, excavation, delivery, labor, equipment hours, installation, and permanently installed items necessary for sanitizing and sealing the abandoned well.

Wetland Restoration 657

- Components of a wetland restoration may include but are not limited to excavation, earth fill, borrow development, topsoil (salvage and re-spreading), water for earth fill moisture control, and site clearing or structure removal.
- **Excavation** - Items eligible to be included in this component may include but are not limited to excavation of materials including stripping the earth fill foundation.
- **Earth Fill** – Items eligible to be included in this component may include but are not limited to placement of earth fill, water for earth fill moisture control, overfill for settlement, and placement of topsoil on the finished surface.

- **Borrow Development** – Items eligible to be included in this component may include a cost for hauling earth fill materials in from offsite sources to meet construction material requirements established in the specifications.
- **Topsoil (salvage and re-spreading)** – Items eligible to be included in this component may include but are not limited to the salvage (stockpiling) of topsoil material and the placement of topsoil on the finished surface. Or compensation for topsoil on the finished surface may be an earth fill component.
- **Site Clearing or Structure Removal** – Items eligible to be included in this component may include but are not limited to removal of rock piles, boulders, abandoned buildings and structures, vegetation, and trash.
- The greater quantity either excavation or earth fill is cost shared.
- If the excavated material is not suitable for use as fill material, then the excavated quantity is cost shared and the earth fill quantity is cost shared.