## ESTIMATE OF QUANTITIES

### Non-Section Method

<table>
<thead>
<tr>
<th>Bid Item Number</th>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>009E0010</td>
<td>Mobilization</td>
<td>Lump Sum</td>
<td>LS</td>
</tr>
<tr>
<td>110E7802</td>
<td>Remove Fence for Reset</td>
<td>2,000</td>
<td>Ft</td>
</tr>
<tr>
<td>120E4100</td>
<td>Reprofiling Ditch</td>
<td>20.0</td>
<td>Sta</td>
</tr>
<tr>
<td>450E8900</td>
<td>Cleanout Pipe Culvert</td>
<td>21</td>
<td>Each</td>
</tr>
<tr>
<td>620E0510</td>
<td>Type 1 Temporary Fence</td>
<td>1,000</td>
<td>Ft</td>
</tr>
<tr>
<td>620E4100</td>
<td>Reset Fence</td>
<td>2,000</td>
<td>Ft</td>
</tr>
<tr>
<td>634E0010</td>
<td>Flagging</td>
<td>20</td>
<td>Hour</td>
</tr>
<tr>
<td>634E0100</td>
<td>Traffic Control</td>
<td>238</td>
<td>Unit</td>
</tr>
<tr>
<td>634E0120</td>
<td>Traffic Control, Miscellaneous</td>
<td>Lump Sum</td>
<td>LS</td>
</tr>
<tr>
<td>730E0210</td>
<td>Type F Permanent Seed Mixture</td>
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<td>Lb</td>
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<tr>
<td>734E0154</td>
<td>12&quot; Diameter Erosion Control Wattle</td>
<td>200</td>
<td>Ft</td>
</tr>
<tr>
<td>734E0165</td>
<td>Remove and Reset Erosion Control Wattle</td>
<td>50</td>
<td>Ft</td>
</tr>
<tr>
<td>734E0450</td>
<td>Temporary Water Barrier</td>
<td>30</td>
<td>Ft</td>
</tr>
<tr>
<td>734E0602</td>
<td>Low Flow Slit Fence</td>
<td>1,360</td>
<td>Ft</td>
</tr>
<tr>
<td>734E4990</td>
<td>Dewatering</td>
<td>2.0</td>
<td>Day</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

SCOPE OF WORK
The work required within this project includes, but is not limited to, the following items, not listed in order of execution.
1. Pipe Cleanout
2. Erosion Repair
3. Ditch Shaping

The Contractor is encouraged to inspect the project site prior to bidding to evaluate the extent of work that will be required for construction.

SEQUENCE OF OPERATIONS
The Contractor may perform work on the erosion areas during daylight hours only, unless additional hours are approved by the Engineer. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

Once work that inconveniences traffic has commenced on a cleanout site, it shall be pursued in a near continuous, expeditious manner to its completion. All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation.

Traffic shall be maintained through the project at ALL Times.

All costs associated with clearing and reshaping of the existing ditch, including topsoil removal/replacement, labor, excavation, placing material, equipment, and incidental shall be paid for at the contract unit price per station for "Re-profiling Ditch".

RIGHT-OF-WAY (ROW) FENCE ALIGNMENT
Where fence is being removed and reset at mainline pipe sites, fence shall be re-installed on the same alignment as prior to removal. It shall be the Contractor’s responsibility to preserve the fence alignment.

TEMPORARY FENCE
When Right-Of-Way fence is to be removed and reset, temporary fence shall be installed when livestock is present. Once ditch re-profiling is complete, temporary fence shall be removed and Right-Of-Way fence shall be reset.

CULVERT CLEANOUT
Material in existing mainline culverts as listed in the Table for Mainline Culvert Work shall be cleaned out by water flushing or other approved methods. Each culvert shall be cleaned such that the bottom of the pipe is visible throughout its length so as to re-establish the flow line.

It is the responsibility of the Contractor to visit the site to determine the extent of culvert cleaning work required.

The Contractor shall implement appropriate sediment control measures prior to water flushing in order to prevent discharges beyond the project boundaries.

All costs for this work shall be included in the contract unit price per each for “Culvert Pipe Cleanout".

REPROFILING DITCH
The Contractor shall re-profile the ditch to restore drainage profile into/out of the mainline pipe. This work will require removing sedimentation along with placing the removed material where areas need borrow material. The quantities and locations of re-profiling may change depending on the degree of erosion/sedimentation that has taken place from the survey to the time of construction. The re-profiling width has been estimated at 50 feet in any direction. All work shall be within the Right-of-Way/Temporary Easement limits. Easement limits shall be provided to the Contractor, and is available upon request if needed for bidding purposes. Pipe cleanout material may be used as borrow material for filling in erosion. Placement and location of the cleanout material shall be approved by the Engineer.

The Contractor shall also remove 4’ of topsoil within the areas to be re-profiled. The Contractor shall stockpile the material at a site approved by the Engineer, and/or window the material near the disturbed areas to control potential sediment runoff as determined by the Engineer. The replacement of topsoil shall be spread evenly throughout all disturbed areas upon completion of the work. Any clumps larger than 3 inches shall be broken up prior to seeding the areas.

Access to businesses and residences along the project shall be maintained on a temporary basis until work activities pass these areas.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall meet the minimum mounting heights of 5 foot for rural areas and 7 foot for urban areas.

The Contractor shall also remove 4”的 topsoil within the areas to be re-profiled. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Traffic Control units, as shown in the Estimate of Quantities, shall be used. The Contractor’s operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

GENERAL MAINTENANCE OF TRAFFIC
Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor’s employees shall mobilize at a location off the right-of-way and arrive at the work site in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Traffic approaching the project from intersecting roadways and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

Traffic shall be maintained through the project at ALL Times.

Where fence is being removed and reset at mainline pipe sites, fence shall be re-installed on the same alignment as prior to removal. It shall be the Contractor’s responsibility to preserve the fence alignment.

TEMPORARY FENCE
When Right-Of-Way fence is to be removed and reset, temporary fence shall be installed when livestock is present. Once ditch re-profiling is complete, temporary fence shall be removed and Right-Of-Way fence shall be reset.

REPROFILING DITCH
The Contractor shall re-profile the ditch to restore drainage profile into/out of the mainline pipe. This work will require removing sedimentation along with placing the removed material where areas need borrow material. The quantities and locations of re-profiling may change depending on the degree of erosion/sedimentation that has taken place from the survey to the time of construction. The re-profiling width has been estimated at 50 feet in any direction. All work shall be within the Right-of-Way/Temporary Easement limits. Easement limits shall be provided to the Contractor, and is available upon request if needed for bidding purposes. Pipe cleanout material may be used as borrow material for filling in erosion. Placement and location of the cleanout material shall be approved by the Engineer.

The Contractor shall also remove 4” of topsoil within the areas to be re-profiled. The Contractor shall stockpile the material at a site approved by the Engineer, and/or window the material near the disturbed areas to control potential sediment runoff as determined by the Engineer. The replacement of topsoil shall be spread evenly throughout all disturbed areas upon completion of the work. Any clumps larger than 3 inches shall be broken up prior to seeding the areas.

Access to businesses and residences along the project shall be maintained on a temporary basis until work activities pass these areas.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall meet the minimum mounting heights of 5 foot for rural areas and 7 foot for urban areas.

The Contractor shall also remove 4” of topsoil within the areas to be re-profiled. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Traffic Control units, as shown in the Estimate of Quantities, shall be used. The Contractor’s operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

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The Contractor shall also remove 4” of topsoil within the areas to be re-profiled. The Contractor shall stockpile the material at a site approved by the Engineer, and/or window the material near the disturbed areas to control potential sediment runoff as determined by the Engineer. The replacement of topsoil shall be spread evenly throughout all disturbed areas upon completion of the work. Any clumps larger than 3 inches shall be broken up prior to seeding the areas.

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Traffic Control units, as shown in the Estimate of Quantities, shall be used. The Contractor’s operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.
LOW FLOW SILT FENCE

For all pipe cleaned on any given day, low flow silt fence shall be installed as inlet protection by the end of that same day.

The low flow silt fence fabric provided shall be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

http://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp

Low flow silt fence shall be placed at the inlets of the pipes being cleaned. The silt fence shall be installed at the top of the 3:1 taper (described in the DITCH RESTORATION) in the existing ground. For estimating purposes, it is assumed that 60 feet of silt fence will be installed at each inlet. Refer to Standard Plate 734.04 for details.

An additional 100 feet of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF LOW FLOW SILT FENCE

<table>
<thead>
<tr>
<th># of Pipe Inlets</th>
<th>Quantity</th>
<th>Length at each Pipe (Ft)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>60</td>
<td>1260</td>
<td></td>
</tr>
<tr>
<td>Additional</td>
<td>100</td>
<td></td>
<td>1360</td>
</tr>
</tbody>
</table>

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles shall remain on the project to be removed by SDDOT not contain noxious weed seeds.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

All costs associated with furnishing and placing the seed and mulch, including labor, equipment and incidentals shall incidental to the contract price per pound for “Type F Permanent Seed Mixture”.

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas at the pipe ends within the project limits and where excavated material is wasted within the ROW.

All permanent seed shall be planted in the topsoil at a depth of ¼” to ½”.

All seed broadcast must be raked or dragged in (incorporated) within the top ¼” to ½” of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type F Permanent Seed Mixture shall consist of the following:

<table>
<thead>
<tr>
<th>Grass Species</th>
<th>Variety</th>
<th>Pure Live Seed (PLS) (Pounds/Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Wheatgrass</td>
<td>Flintlock, Rodan, Rosana</td>
<td>7</td>
</tr>
<tr>
<td>Green Needlegrass</td>
<td>Lodorn</td>
<td>4</td>
</tr>
<tr>
<td>Sideoats Grama</td>
<td>Butte, Killdeer, Pierre, Trailway</td>
<td>3</td>
</tr>
<tr>
<td>Little Bluestem or Buffalo grass</td>
<td>Badlands, Itasca, Bowie, Cody, Tatanka, Bad River, Willis</td>
<td>2</td>
</tr>
<tr>
<td>Regrow or Quick Guard all year; Oats or Spring Wheat: April through May; Winter Wheat: August through November</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

The areas to be seeded and mulched are estimated at 3.56 acres.

Application of fertilizer will not be required on this project.

MULching (GRASS HAY OR STRAW)

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC).

Provide SARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction/demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control.
WASTE DISPOSAL SITE (Continued)

the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating “No Dumping Allowed”.

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above. The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

TEMPORARY WATER BARRIER

The temporary water barrier shall be placed in a manner that creates the least amount of disturbance. The temporary water barrier shall be placed to keep the work area dry and separate from the water body. The temporary water barrier shall be placed at STA. 543+95. Contaminated water within the work area collected by the water barriers shall be removed and treated in conformance with the Dewatering notes.

All costs for furnishing, installing, maintaining, and removal of the temporary water barrier including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per foot for "Temporary Water Barrier".

The temporary water barrier shall be from the list below or an approved equal:

<table>
<thead>
<tr>
<th>Product</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Barricades</td>
<td>Environmental Barricades Inc. Eagle Creek, OR Phone: 1-800-656-1296</td>
</tr>
<tr>
<td>Portadam</td>
<td>Portadam, Inc. Williamstown, NJ Phone: 1-800-346-4793 <a href="http://www.portadam.com">www.portadam.com</a></td>
</tr>
<tr>
<td>Aquadam</td>
<td>Water Structures Unlimited Carlotta, CA Phone: 1-800-882-9283 <a href="http://www.aquadam.com">www.aquadam.com</a></td>
</tr>
</tbody>
</table>

DEWATERING AND SEDIMENT COLLECTING

The Contractor has the option to treat sediment laden water trapped within the project limits with the DEWATERING AND SEDIMENT COLLECTION SYSTEM or the Contractor may elect to transport sediment laden water off the project. If the Contractor elects not to transport the sediment laden water, the Contractor shall ensure that when water is pumped across the road that no erosion shall occur on the outlet end of the pipe.

If the Contractor elects to transport sediment laden water off the project, no additional payment for loading, transporting, and labor costs will be made. Water transported off the project limits shall not be disposed of in an area where it can enter a waterway. The disposal site must be approved by the Engineer.

SIGN TABULATION

<table>
<thead>
<tr>
<th>SIGN CODE</th>
<th>SIGN SIZE</th>
<th>DESCRIPTION</th>
<th>NUMBER REQUIRED</th>
<th>UNITS PER SIGN</th>
<th>UNITS</th>
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</thead>
<tbody>
<tr>
<td>G20-2</td>
<td>36' x 18&quot;</td>
<td>END ROAD WORK ROAD WORK 880 FT. OR AHEAD</td>
<td>2</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>W20-1</td>
<td>48' x 48&quot;</td>
<td>FLAGGER</td>
<td>2</td>
<td>34</td>
<td>68</td>
</tr>
<tr>
<td>W20-7a</td>
<td>48' x 48&quot;</td>
<td>SHOULDER WORK</td>
<td>2</td>
<td>34</td>
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TOTAL UNITS 238

MAINLINE CULVERT WORK

<table>
<thead>
<tr>
<th>MRM</th>
<th>Station</th>
<th>Diameter of Pipe (in)</th>
<th>Length of Pipe (Ft)</th>
<th>Description of Work</th>
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</thead>
<tbody>
<tr>
<td>141.00</td>
<td>1260+50.00</td>
<td>126</td>
<td>Pipe Cleanout &amp; Ditch Shaping</td>
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</tr>
<tr>
<td>143.00</td>
<td>1098+92.00</td>
<td>122</td>
<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>146.00</td>
<td>976+66.00</td>
<td>76</td>
<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>146.00</td>
<td>971+88.00</td>
<td>104</td>
<td>Pipe Cleanout &amp; Ditch Shaping</td>
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</tr>
<tr>
<td>152.00</td>
<td>685+06.00</td>
<td>68</td>
<td>Pipe Cleanout &amp; Ditch Shaping</td>
<td></td>
</tr>
<tr>
<td>152.00</td>
<td>673+24.00</td>
<td>154</td>
<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>153.00</td>
<td>597+57.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>153.00</td>
<td>590+00.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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</tr>
<tr>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
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<td>562+83.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<td>154.00</td>
<td>551+23.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>154.00</td>
<td>543+95.00</td>
<td>76</td>
<td>Arch Pipe, Pipe Cleanout</td>
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<tr>
<td>154.00</td>
<td>520+20.00</td>
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<tr>
<td>156.00</td>
<td>456+65.00</td>
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<td>157.00</td>
<td>403+85.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>157.00</td>
<td>391+00.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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</tr>
<tr>
<td>159.00</td>
<td>295+40.00</td>
<td>118</td>
<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>160.00</td>
<td>241+56.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
<td>161.00</td>
<td>218+93.00</td>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<tr>
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<td>Pipe Cleanout &amp; Ditch Shaping</td>
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<td>96</td>
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Δ Refer to project notes.
STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

(The numbers right of the title headings are reference numbers to the GENERAL PERMIT FOR STORM WATER DISCHARGES.

ASSOCIATED WITH CONSTRUCTION ACTIVITIES

◆ SITE DESCRIPTION (4.2.1)
  Project Name: (4.2.1.b)
  Project Description: See Title Sheet (4.2.1.a.)
  Site Map(s): See Title Sheet and Plans (4.2.1.f. (1)-(6))
  Major Soil Disturbing Activities (check all that apply)
   Clearing and grubbing
   Excavation/borrow
   Grading and shaping
   Filling
   Cutting and filling
   Other (describe):
  Total Project Area: 5.56 ACRES (4.2.1.b.)
  Total Area To Be Disturbed: 0.92 ACRES (4.2.1.b.)
  Existing Vegetative Cover (%): 70
  Soil Properties: AASHTO Soil or USDA-NRCS Soil Series
  Classification: Wendte Clay (4.2.1.c)
  Name of Receiving Water Body/Bodies: Missouri River (4.2.1.e)

◆ ORDER OF CONSTRUCTION ACTIVITIES (4.2.1.c)
  Stabilization measures shall be initiated as soon as possible, but no case later than 14 days after the construction activity in that portion of the site is temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.
◆ Special sequencing requirements (see sheet).
◆ Install stabilized construction entrance(s).
◆ Install perimeter protection where runoff sheets from the site.
◆ Install channel and ditch bottom protection.
◆ Clearing and grubbing.
◆ Remove and store topsoil.
◆ Stabilize disturbed areas.
◆ Install utilities, storm sewers, curb and gutter.
◆ Install inlet and culvert protection after completing storm drainage and other utility installations.
◆ Complete final grading.
◆ Complete final paving and sealing of concrete.
◆ Complete traffic control installation and protection devices.
◆ Reseed areas disturbed by removal activities.

◆ EROSION AND SEDIMENT CONTROLS (4.2.2.a (1)(a)-(f))
  Stabilization Practices (See Detail Plan Sheets)
   Silt Fence
   Floating Silt Curtain
   Straw Bale Check
   Temporary Berm
   Temporary Slope Drain
   Straw Waffles or Rolls
   Turf Reinforcement Mat
   Rip Rap
   Gabions
   Rock Check Dams
   Sediment Traps/Basins
   Inlet Protection
   Outlet Protection
   Surface Inlet Protection (Area Drain)
   Curb Inlet Protection
   Stabilized Construction Entrances
   Entrance/Exit Equipment Tire Wash
   Interceptor Ditch
   Concrete Washout Area
   Temporary Diversion Channel
   Work Platform
   Temporary Water Barrier
   Temporary Water Crossing
   Other:

◆ Structural Temporary Erosion and Sediment Controls
 ◆ Sediment Traps/Basins
 ◆ Inlet Protection
 ◆ Outlet Protection
 ◆ Stabilized Construction Entrances
 ◆ Entrance/Exit Equipment Tire Wash
 ◆ Interceptor Ditch
 ◆ Concrete Washout Area
 ◆ Temporary Diversion Channel
 ◆ Work Platform
 ◆ Temporary Water Barrier
 ◆ Temporary Water Crossing
 ◆ Other:

◆ Wetland Avoidance
  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes No If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USEA

◆ Storm Water Management (4.2.2.b, (1) and (2))
  Storm water management will be handled by temporary controls outlined in “EROSION AND SEDIMENT CONTROLS” above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

◆ Other Storm Water Controls (4.2.2.c, (1) and (2))
 ◆ Waste Disposal
    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper procedures will be posted in the field office. The general contractor’s representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

◆ Maintenance and Inspection (4.2.3. and 4.2.4.)
 ◆ Maintenance and Inspection Practices
    Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
    All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
    Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches ½ of the height of the silt fence.
    Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
    Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
    All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
    Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
    The SDDOT Project Engineer and contractor’s site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

◆ Non-Storm Water Discharges (3.9)
  The following non-storm water discharges are anticipated during the course of this project (check all that apply).
   Discharges from water line flushing
   Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
   Uncontaminated ground water associated with dewatering activities.
The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings “EROSION AND SEDIMENT CONTROLS” and “SPILL PREVENTION” (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Sludgy Materials
- Petroleum Based Products
- Staining Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other:

Spill Prevention (4.2.2.c.(2))

Material Management
- Housekeeping
  - Only needed products will be stored on-site by the contractor.
  - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.
  - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not re-sealable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Whee wash water will not be discharged directly into any storm water system or storm water treatment system.
  - Potential pH-modifying materials such as: bulk cement, cementitious fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

Product Specific Practices (6.8)

- Petroleum Products
  - All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
  - Fertilizers
    - Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
  - Paints
    - All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
  - Concrete Trucks
    - Contractors will provide designated truck washout areas on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

Spill Control Practices (4.2.2.c.(2))

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommendations for spills will be clearly posted. The site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate equipment and the use of spill response materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of appropriately.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous material.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

Spill Notification

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s) consistent with the following:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately if any of the following conditions exist:
  - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
  - The discharge causes an immediate danger to human health or safety.
  - The discharge exceeds 25 gallons.
  - The discharge causes a sheen on surface water.
  - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74-51.01.
  - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74-51.01.
  - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
  - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to
other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

- **Construction Changes (4.4)**
  When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

- **CERTIFICATIONS**
  - Certification of Compliance with Federal, State, and Local Regulations
    The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.
  - South Dakota Department of Transportation
    I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature (See the General Permit, Section 6.7.1.C.)

- **CONTACT INFORMATION**
  - Contractor Information
    - Prime Contractor Name:
    - Contractor Contact Name:
    - Address:
    - Address:
    - City: State: Zip:
    - Office Phone: Field:
    - Cell Phone: Fax:
  - Erosion Control Supervisor
    - Name:
    - Address:
    - Address:
    - City: State: Zip:
    - Office Phone: Field:
    - Cell Phone: Fax:
  - SDDOT Project Engineer
    - Name:
    - Business Address:
    - Job Office Location:

Authorized Signature

- **CERTIFICATIONS**
  - Certification of Compliance with Federal, State, and Local Regulations
  - South Dakota Department of Transportation
    I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature (See the General Permit, Section 6.7.1.C.)

- **CONTACT INFORMATION**
  - Contractor Information
    - Prime Contractor Name:
    - Contractor Contact Name:
    - Address:
    - Address:
    - City: State: Zip:
    - Office Phone: Field:
    - Cell Phone: Fax:
  - Erosion Control Supervisor
    - Name:
    - Address:
    - Address:
    - City: State: Zip:
    - Office Phone: Field:
    - Cell Phone: Fax:
  - SDDOT Project Engineer
    - Name:
    - Business Address:
    - Job Office Location:
For Information Only
PROJECT SHEET

NO.

TOTAL SHEETS

STATE

S.D.

1806-351

11

26

50'

50'

50'

50'

more or less

Containing 0.06 acres (2500 sqft)

Temporary Easement
Parcels A7

more or less

Containing 0.06 acres (2500 sqft)

Temporary Easement
Parcels A8

75' R.O.W.

75' R.O.W.

Centerline of 30" CMP Pipe

Landowner: Tribal T4076

E 1/2 SE 1/4 of Section 1 T109N R77W

MRM 161.10

Station 218+93

For Information Only

For Information Only
PROJECT SHEET

NO. 1806-351

TOTAL SHEETS

STATE OF S.D.

12

26

50'

100'

100'

100'

more or less

Containing 0.23 acres (10000 sqft)
Temporary Easement
Parcel A9

more or less

Containing 0.11 acres (5000 sqft)
Temporary Easement
Parcel A10

Station 285+04
NRM 433.22
NE 45 of Section 2 THEN SSW
Landowner Tribal TIGS
Constraint of 48" CMP Pipe

For Information Only
Temporary Easement
Containing 2.56 acres (1000 sqft)
more or less

Parcel A11

Temporary Easement
Containing 2.56 acres (1000 sqft)
more or less

Parcel A12

Landowner: Tribal T4100
NE 1/4 of Section 8 T109N R76W
Centerline of 18" CMP Pipe

Station 295+40
75' R.O.W.

For Information Only
For Information Only
More or less

Containing 0.06 acres (2500 sqft)
Temporary Easement
Parcel A19

More or less

Containing 0.06 acres (2500 sqft)
Temporary Easement
Parcel A20

Station 486+10
NRM 154.77
N 1/2 SE 1/4 of Section 10 T39N R76W
Landowner: Tribal 4039
Centerline of 30" CMP Pipe

For Information Only
For Information Only
50'
50'
more or less
Containing 0.11 acres (5000 sqft)
Temporary Easement
Parcel A25

50'
more or less
Containing 0.11 acres (5000 sqft)
Temporary Easement
Parcel A26

50'
more or less
Containing 0.06 acres (2500 sqft)
Temporary Easement
Parcel A27

Centerline of 18" CMP Pipe
Landowner: Allot 772
NE 1/4 of Section 27 T109N R76W
MRM 153.60
Station 597+57

Centerline of 72" CMP Pipe
Landowner: Tribal T4114
NW 1/4 of Section 26 T109N R76W
MRM 153.74
Station 590+00

For Information Only
For Information Only
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated shall be used where there are distracting situations such as vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

### Guides for Traffic Control Devices

**Work Beyond the Shoulder**

Published Date: 2nd Qtr. 2013

Plate Number: 634.01

Published Date: 2nd Qtr. 2013

Plate Number: 634.23
GENERAL NOTES:
The top of anchor posts and slipp bases SHALL NOT extend above a 60° chord line within a 120° diameter circle around the post with ends 4' above the ground. At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4' above the ground line at the localized area adjacent to the breakaway sign support. The 4' stub height clearance is not necessary for U-channel top splices where the support is designed to yield (flex) at the base.
**MANUAL LOW FLOW SILT FENCE INSTALLATION**

1. **EXCAVATE TRENCH**
2. **DRIVE STEEL T FENCE POSTS**
3. **ATTACH 26' WOVEN WIRE FENCE TO POSTS**
4. **ATTACH SILT FENCE FABRIC**
5. **BACKFILL "FENCING AND WHEEL COMPACT SOIL"**

**SILT FENCE FABRIC**

Attach the silt fence fabric with plastic ties, wire, or hog rings at 12" max vertical spacing on the posts. The fabric must overlap the posts and the woven wire fence. The silt fence fabric shall be of a minimum width.

**INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD**

Attach the silt fence fabric with plastic ties, wire, or hog rings at 12" max vertical spacing on the posts and the woven wire fence. The silt fence fabric shall be of a minimum width of 20' of top of woven wire fence.

**ATTACH 26' WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC**

The elevation of these locations shall be at a minimum higher than the top of the silt fence fabric at its lowest elevation.

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

**MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION**

1. **INSTALL SILT FENCE FABRIC**
2. **WHEEL COMPACT SOIL & ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS**
3. **ATTACH 26' WOVEN WIRE FENCE TO POSTS**

**GENERAL NOTES**

A silt trap shall be provided when specified by the plan notes. All costs for constructing the silt trap shall be included in the contract unit price per cubic yard for "Silt Trap".

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earth or material, such as rock, then a row of 20 to 40 pound sandbags placed end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

Published Date: 2nd Qtr. 2013

Plate Number: 734.04

Sheet 1 of 2

December 23, 2013
GENERAL NOTES:
At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3’ to 5’ trench. Install the wattle tightly in the trench so that daylight cannot be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The wattles shall be 1’x2’ or 2’x2’ wood stakcs, however, other types of stakcs such as rebar may be used only if approved by the Engineer. The stakcs shall be placed 6” from the ends of the wattles and the spacing of the stakcs along the wattles shall be 5’ to 4’.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week, and within 24 hours after every rainfall event greater than 1/2”. The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disassembling gate, and necessary shaping shall be incidental to the contract unit price per cubic yard for “Remove Sediment”.

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for “Remove Erosion Control Wattle.”