

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

# PROJECT 034E-351

## SD HIGHWAY 34

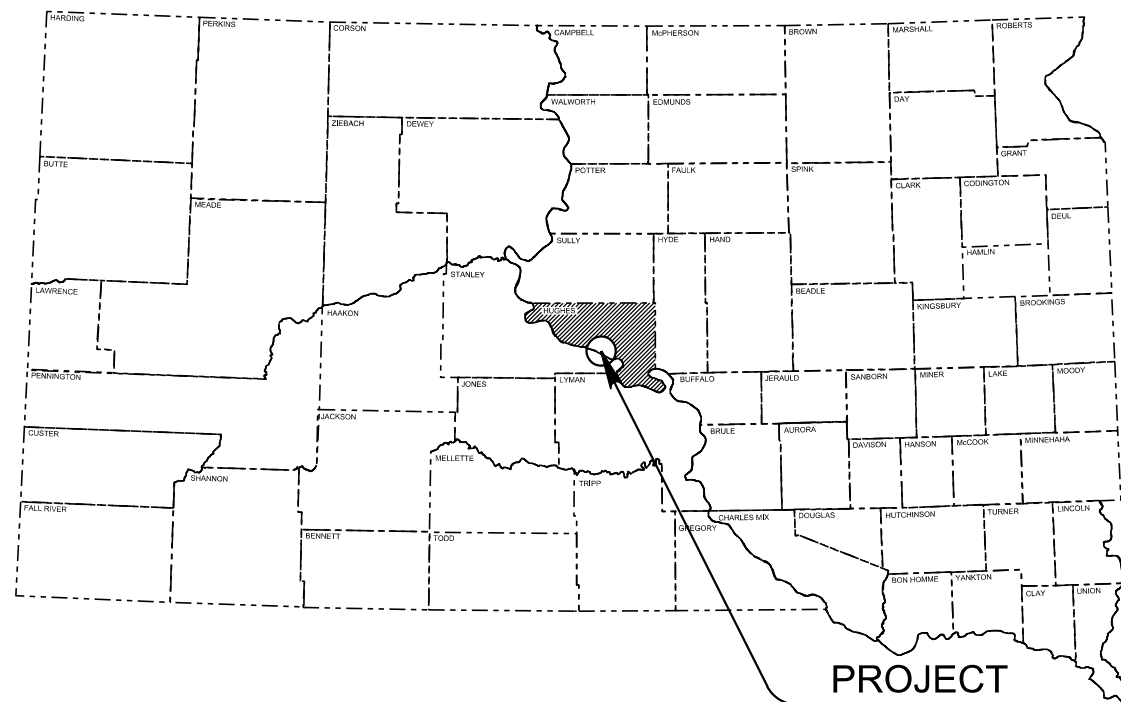
## HUGHES COUNTY

Box Culvert Cleanout & Drainage Channel Reprofiling

PCN i3k4

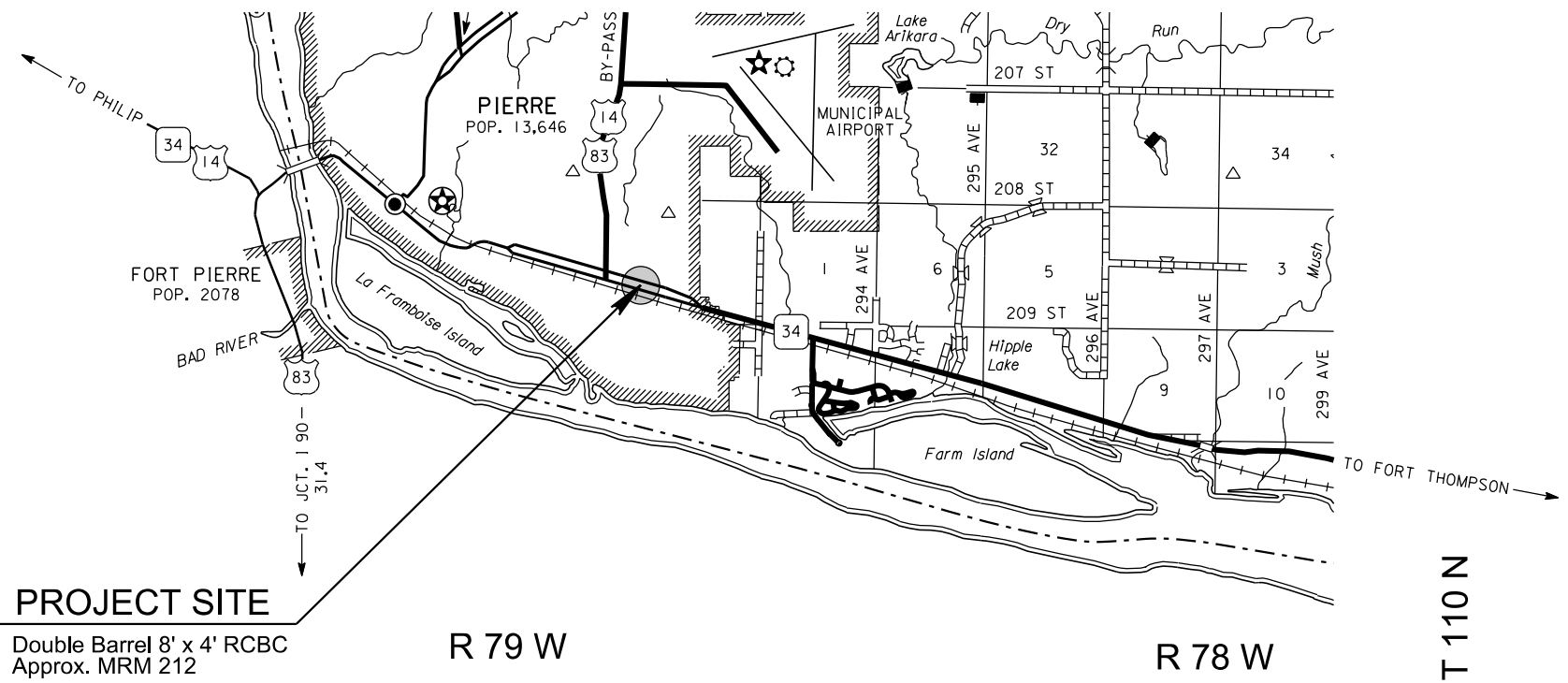
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#### DESIGN DESIGNATION

ADT (2014)	3685
ADT (2034)	5144
DHV	566
D	50%
T DHV	6.1%
T ADT	13.3%
V	45 MPH



#### PROJECT SITE

Double Barrel 8' x 4' RCBC  
Approx. MRM 212

R 79 W

R 78 W

T 110 N



STORM WATER PERMIT  
(None Required)

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor’s primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or 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 Debris 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 Project 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 and/or 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 and/or 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 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.

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COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC 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 artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

The Contractor shall comply with all requirements contained in the Section 404 permit.

The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1700	Remove Silt Fence	25	Ft
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
634E0010	Flagging	20.0	Hour
634E0100	Traffic Control	525	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
734E0010	Erosion Control	Lump Sum	LS
734E0131	Type 1 Turf Reinforcement Mat	35.1	SqYd
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0165	Remove and Reset Erosion Control Wattle	25	Ft
734E0180	Sediment Filter Bag	60	Ft
734E0400	Rock Check Dam	9.2	CuYd
734E0604	High Flow Silt Fence	100	Ft

SPECIFICATIONS

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

SCOPE OF WORK

The work required for this project includes, but is not limited to, the following items, not listed in order of execution.

1. Remove/Stockpile/Replace Topsoil
2. Box Culvert Cleanout
  - a. Remove/Dispose Sediment within Box Culvert
3. Reestablish Channel Drainage at Inlet/Outlet
  - a. Remove/Dispose Sediment to Flowline Elevation
  - b. Cut Backslopes to Construct Channel Profile
4. Sediment Control Installation Measures
  - a. High Flow Silt Fence
  - b. Erosion Control Wattles
5. Erosion Control Installation Measures
  - a. Turf Reinforcement Mat
  - b. Rock Check Dam w/4” High Density Polyethylene Pipe
  - c. Restore, Seed, & Mulch Disturbed Areas

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

GENERAL NOTES

The existing box culvert is a Double Barrel – 8’ x 4’ that is 155’ long from the inlet to outlet. At the time of survey it was estimated that 253 cubic yards of sediment material/sediment-laden water was inside the box culvert limits. The Contractor shall remove all sediment/sediment-laden water contained within the box culvert along with the material contained within the inlet and outlet channels. The Contractor shall re-profile the inlet and outlet channel as described and shown elsewhere in the plans. The aforementioned work shall be completed to the satisfaction of the Engineer.

**All sediment-laden water along with water determined by the Engineer to be unacceptable to flow downstream as a result of the Contractors’ operations shall be captured/contained by the Contractor for their disposal as per Environmental Commitment Notes.**

The Contractor may elect to close the bike path/sidewalk throughout the project as approved by the Engineer.

The Contractor shall be careful to not damage the existing box culvert or bike path/sidewalk as any damage caused due to the Contractors activities shall be repaired to the satisfaction of the Engineer at no cost to the Department.

The trees and irrigation drip line along the bike path shall not be disturbed or damaged. The Contractor shall attempt to retain the shrubs/plum bushes within the channel. The Contractor shall receive Engineer approval prior to removing any trees/shrubs. Any damage shall be repaired or replaced in-kind to the satisfaction of the Engineer at no cost to the Department.

SEQUENCE OF OPERATIONS

The Contractor shall submit a proposed sequence of operations for the Engineer's review and approval at least two weeks prior to the preconstruction meeting.

The Contractor may perform work on the project 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 has commenced it shall be pursued in a near continuous, expeditious manner to its completion.

**All work shall occur within the State of South Dakota right-of-way and temporary easement as shown on the “Plan Layout” sheet.**

The Contractor will not be allowed to store items, park vehicles or equipment in the median, or mobilize from one end of the box culvert to the other through the median.

The Contractor shall not track mud, dirt, debris, or any other material onto the city street(s)/SD Hwy 34. The city street(s)/highway shall remain clean at all times, and if needed, shall be cleaned by the Contractor as directed by the Engineer at no cost to the Department.

The driving lanes for westbound and eastbound traffic may have a lane closure to accommodate the work at the inlet/outlet ends. Refer to “Plan Layout” sheet for details.

If the Contractor elects to utilize the hydrant near the site for a water source they shall contact the owner of the utility for appropriate agreements prior to utilizing on this project. The Department of Transportation will have no involvement, oversight, or responsibility with the utilization of the water utility.

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REMOVING, STOCKPILING, AND REPLACING TOPSOIL

The Contractor will be required to remove and salvage 4 inches of the existing topsoil throughout the anticipated areas of channel backslope reshaping and at applicable areas throughout the channel cleanout areas beyond the box culvert opening as determined by the Engineer. The Contractor shall stockpile the material at a site approved by the Engineer and replace the topsoil prior to seeding/mulching the disturbed area.

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.

All topsoil removal, stockpiling, salvaging, and replacement shall be done as according to the plans and/or as directed by the Engineer.

Measurement of topsoil quantities will not be made; however for informational purposes only, an amount of 53 cubic yards of topsoil removal and replacement has been estimated. All cost associated with removing, salvaging, stockpiling, windrowing, and replacing topsoil shall be incidental to the contract lump sum price for “Remove and Replace Topsoil”.

SEDIMENT FILTER BAG

The Contractor may elect to utilize a geotextile tube (Sediment Filter Bag) to capture/contain all, or some of the removed sediment/sediment-laden water from the project. The geotextile tube shall be placed within State right-of-way or the temporary easement at a location approved by the Engineer.

**The Sediment Filter Bag and all material contained within shall be removed from the project prior to the project completion date in order to allow time for reestablishing disturbed areas.**

The Contractor is encouraged to visit the site and size the geotextile tube accordingly to accommodate the sediment and water they anticipate to collect. No additional payment will be made if additional tubes are needed.

The geotextile tube shall be from the list below or an approved equal:

Product	Manufacturer
GEOSTRUX Geotextile Tube	GSI Solutions At Ground Level 2401 Pewaukee Road Waukesha, WI 53188 Phone: 1-800-444-5523 <a href="http://www.geo-synthetics.com/">http://www.geo-synthetics.com/</a>

All cost associated for furnishing the geotextile tube shall be incidental to the contract unit price per linear foot for “Sediment Filter Bag”.

If the Contractor elects not to use the “Sediment Filter Bag” the item shall be removed from the Contract by Construction Change Order.



**INCIDENTAL WORK**

The Contractor shall remove all sediment/sediment-laden water contained within the box culvert and also reestablish the channel profile at the inlet and outlet.

The inlet channel shall be reprofiled upstream for approximately 55’ from the box culvert opening/parapet. The Contractor shall shape the channel in such a manner that the channel will tie into the wing walls and transition to the width of the existing upstream channel (to approx. 5’ wide) approximately where the mature trees exist. The flowline of the channel shall be uniform and maintain positive drainage throughout the reconstruction limits. The backslopes on the channel shall be a 2:1 or flatter. At the time of survey it was estimated that 102 cubic yards of sediment material (based on 29” of removal throughout limits) will need to be removed to reestablish the channel profile to the inlet of the box culvert along with constructing the backslopes throughout the area.

The outlet channel shall be reprofiled from the outlet opening to the temporary easement/railroad property line, which will be staked by the Department. A 2.5’ thick x 24’ long x 25.75’ wide riprap pad exists at the outlet flowline elevation that shall remain in-place and undisturbed. The Contractor shall shape the channel throughout the reprofiling limits in such a manner that the channel will maintain the same width as the riprap pad. The Contractor shall ensure positive drainage from the flowline elevation at the existing riprap pad throughout the channel reprofiling limits. The backslopes on the reprofiled channel shall be a 2:1 or flatter. At the time of survey it was estimated that 267 cubic yards of sediment material (based on 37” depth of removal throughout limits) will need to be removed to reestablish the channel profile along with constructing the backslopes throughout the area.

All excavated material shall either be placed in the “Sediment Filter Bag” if used, or removed from the project upon excavation. There shall be no stockpiles of erodible material on the project.

All cost associated with removing and disposing sedimentation and sediment-laden water, channel reprofiling, the placing/removing of material into the Sediment Filter Bag (if used), equipment, along with all incidentals needed to complete the aforementioned work shall be incidental to the contract lump sum price for “Incidental Work”.

**It is the responsibility of the Contractor to assess the existing conditions prior to submitting a bid, as no adjustments to this contract item will be made in the field.**

**ROCK CHECK DAM**

The Contractor shall construct a rock check dam perpendicular to the drainage channel at the box culvert inlet at approximately 25’ upstream from the parapet measured from the middle of the box culvert.

Three separate 4” High Density Polyethylene Pipe, with rodent screens on each end, shall be installed 2” above the channel flowline spaced at equal distances apart through the rock check dam.

The rock for the rock check dam shall be Class B Riprap with Type B Drainage Fabric placed underneath the riprap. The rock check dam shall be constructed to the limits shown on the “Special Detail for Rock Check Dam” sheet.

All costs for constructing the rock check dam including labor, equipment, excavation, polyethylene pipe, rock, and drainage fabric shall be incidental to the contract unit price per cubic yard for “Rock Check Dam”.

**EROSION CONTROL WATTLE**

Erosion control wattles for restraining the flow of runoff and sediment at the inlet of the box culvert along with locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The erosion control wattle provided shall be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds. Erosion control wattles shall remain on the project until vegetation has been established.

The Contractor shall remove sedimentation build-up adjacent to the wattles and re-shape the area as directed by the Engineer. The removed material shall become the property of the Contractor for their disposal. Contrary to the standard plate, payment for the aforementioned work shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

**REMOVE AND RESET EROSION CONTROL WATTLE**

Erosion control wattles may be removed and reset as necessary as work progresses. The erosion control wattles removed and reset shall be in useable condition. All costs for removing and resetting the erosion control wattles shall be incidental to the contract unit price per foot for “Remove and Reset Erosion Control Wattle”.

**HIGH FLOW SILT FENCE**

Silt fence shall be placed throughout the limits of the inlet and outlet channel during construction and after construction at locations determined by the Engineer.

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

<http://sddot.com/business/certification/products/Default.aspx>

High flow silt fence shall be placed at the locations around the disturbed areas that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

Mucking silt fence shall consist of removing muck trapped by the silt fence and spreading the material evenly over the adjacent area to conform to the existing grade. Repairing of damaged silt fence may also be required by the Contractor and shall be repaired to the satisfaction of the Engineer. Payment for the aforementioned work shall be incidental to the contract unit price per foot for the corresponding high flow silt fence bid item.

**REMOVE SILT FENCE**

Silt fence shall be removed when vegetation is established or as directed by the Engineer. Some or all of the silt fence may be left on the project until vegetation is established.

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**TYPE 1 TURF REINFORCEMENT MAT**

Turf Reinforcement Mat shall be installed throughout the channel bottom from the rock check dam to the inlet apron. The Contractor shall use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

Installation of the Turf Reinforcement Mat shall be according to the manufacturer's installation instructions.

**EROSION CONTROL**

The areas disturbed as a result of work on this project shall be restored and/or reshaped to the satisfaction of the Engineer. All disturbed areas shall be seeded and fiber mulched. Disturbed areas anticipated on the project are areas within the State right-of-way and temporary easement as determined by the Engineer.

All permanent seed shall be planted in the topsoil at a depth of ¼” to ½”. Hand seeding devices approved by the Engineer will be allowed. 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.

The Contractor shall disc and drill the seedbed according to the Specifications.

The varieties listed for the seed mixture are preferred varieties. Native harvest seed will be allowed.

Special Seed Mixture shall consist of the following:

Grass Species	Pure Live Seed (PLS) (Pounds/Acre)
Smooth Bromegrass	19
Tall Fescue	3
Perennial Ryegrass	3
Regreen/Quickguard	2
Total:	27

It is estimated that 0.603 acres of disturbed area will require seeding and fiber mulching on work sites. Limits of the work shall be as determined by the Engineer at the time of construction.

Application of fertilizer will not be required on this project.

All cost associated with furnishing/placing the seed along with all labor, equipment and incidentals to the contract lump sum price for “Erosion Control”.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

Glomus intraradices	25%
Glomus aggregatu	25%
Glomus mosseae	25%
Glomus etunicatum	25%

All seed shall be inoculated with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs for inoculating the seed shall be incidental to the contract lump sum price for “Erosion Control”.

The mycorrhizal inoculum shall be from the list below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 <a href="http://www.mycorrhizae.com/">http://www.mycorrhizae.com/</a>

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

Fiber mulch shall be applied at the rate of 2000 pounds per acre.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

All costs for furnishing and applying the fiber mulch shall be incidental to the contract lump sum price for “Erosion Control”.

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 (30 feet) and as near as possible to the right-of-way line. Contractor's employees should 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. Access to businesses and residences along the project shall be maintained at all times, unless arrangements are made between the Contractor and business or residence owners to provide an alternative entrance during construction.

All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation. 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.

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.

Traffic Control units, as shown in the Estimate of Quantities, are estimates. 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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TRAFFIC CONTROL

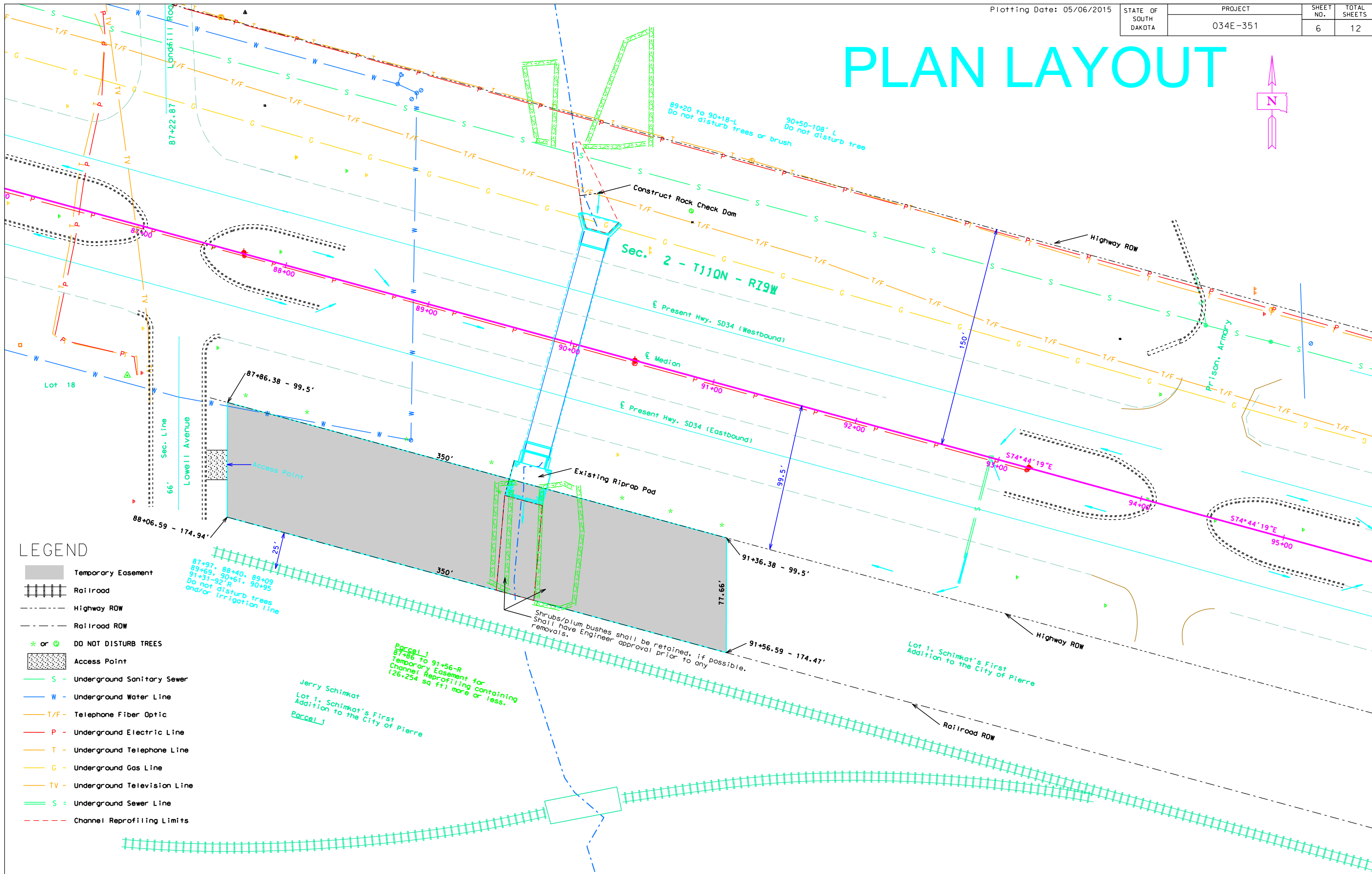
The name and phone number of person(s) responsible for the 24/7 maintenance of traffic throughout the project duration shall be provided to the SD Department of Transportation (605-773-5294), SD Highway Patrol (Pierre State Radio (605-773-3536)), and Hughes County Sheriff Department (605-773-7470).

Channelizing devices in a series shall be of the same type. Channelizing drums shall be of a two part construction with breakaway bases. All traffic control devices shall be in “like new” condition.

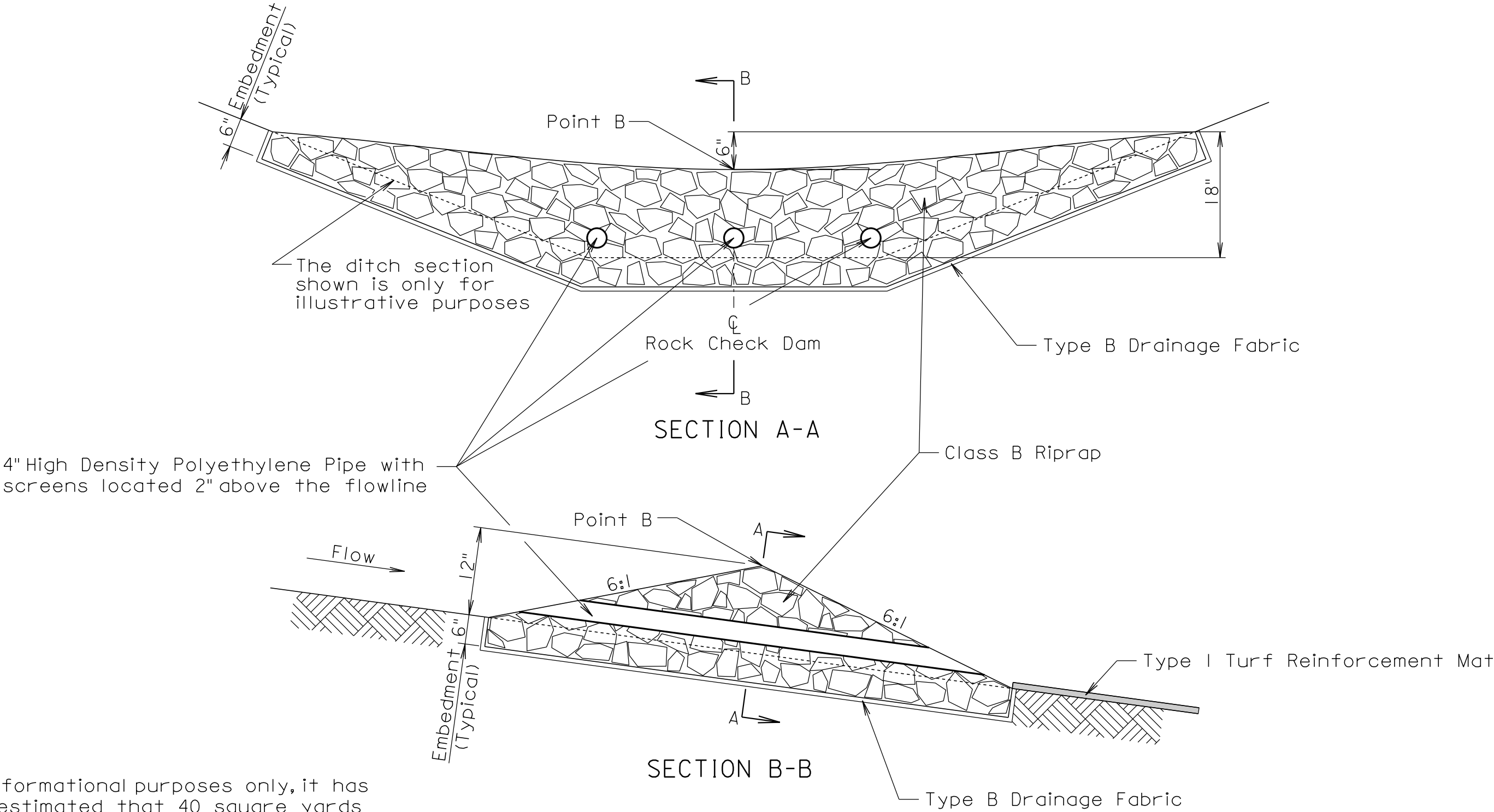
SIGN TABULATION

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
R9-9	24" x 12"	SIDEWALK CLOSED	2	4	8
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W16-2	24" x 18"	### FEET	1	7	7
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	4	34	136
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	1	34	34
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	4	34	136
W20-7	48" x 48"	FLAGGER	1	34	34
TOTAL UNITS					525

## PLAN LAYOUT



# SPECIAL DETAIL FOR ROCK CHECK DAM



For informational purposes only, it has been estimated that 40 square yards of drainage fabric and 40 feet of pipe will be needed.



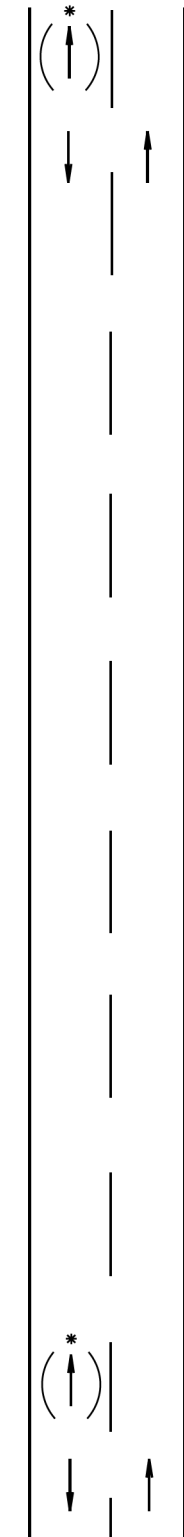
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000



A



July 1, 2005

Published Date: 2nd Qtr. 2015	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER
			634.01
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45 - 50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

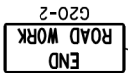
The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

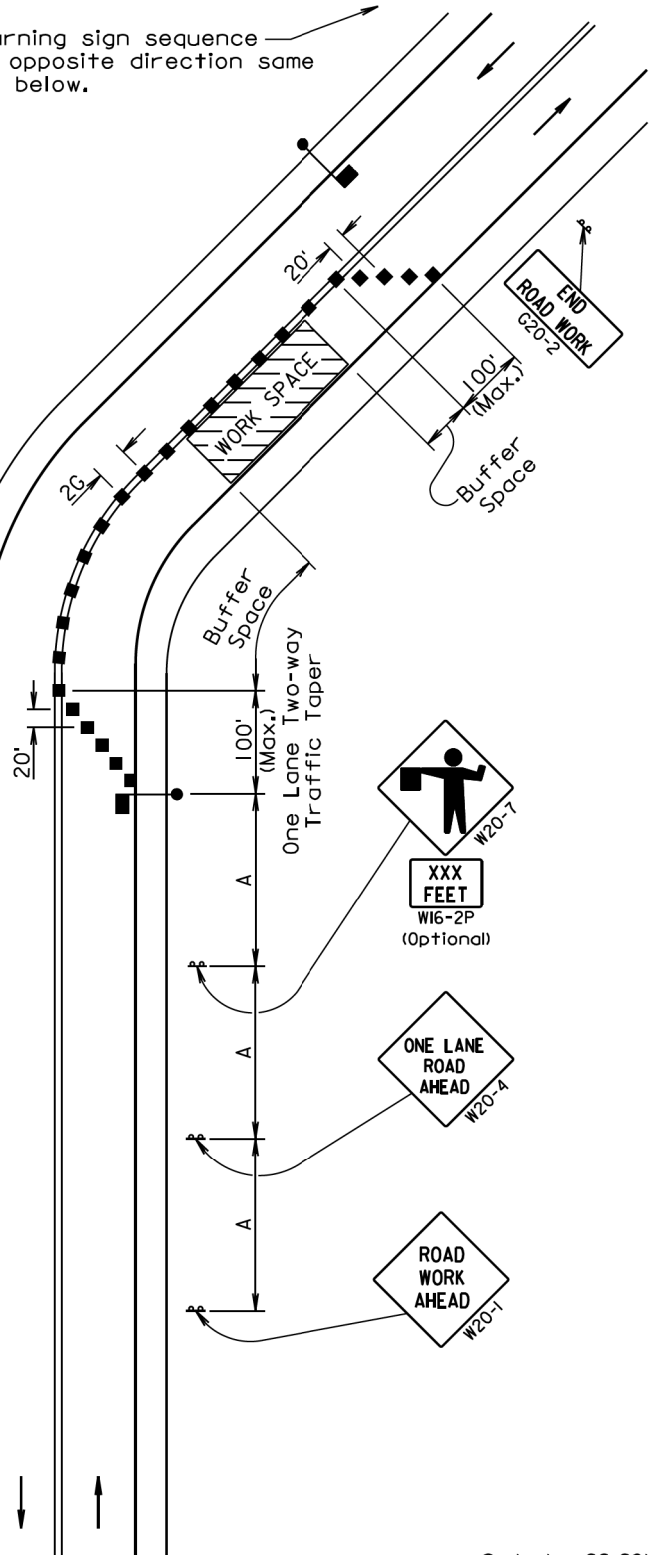
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



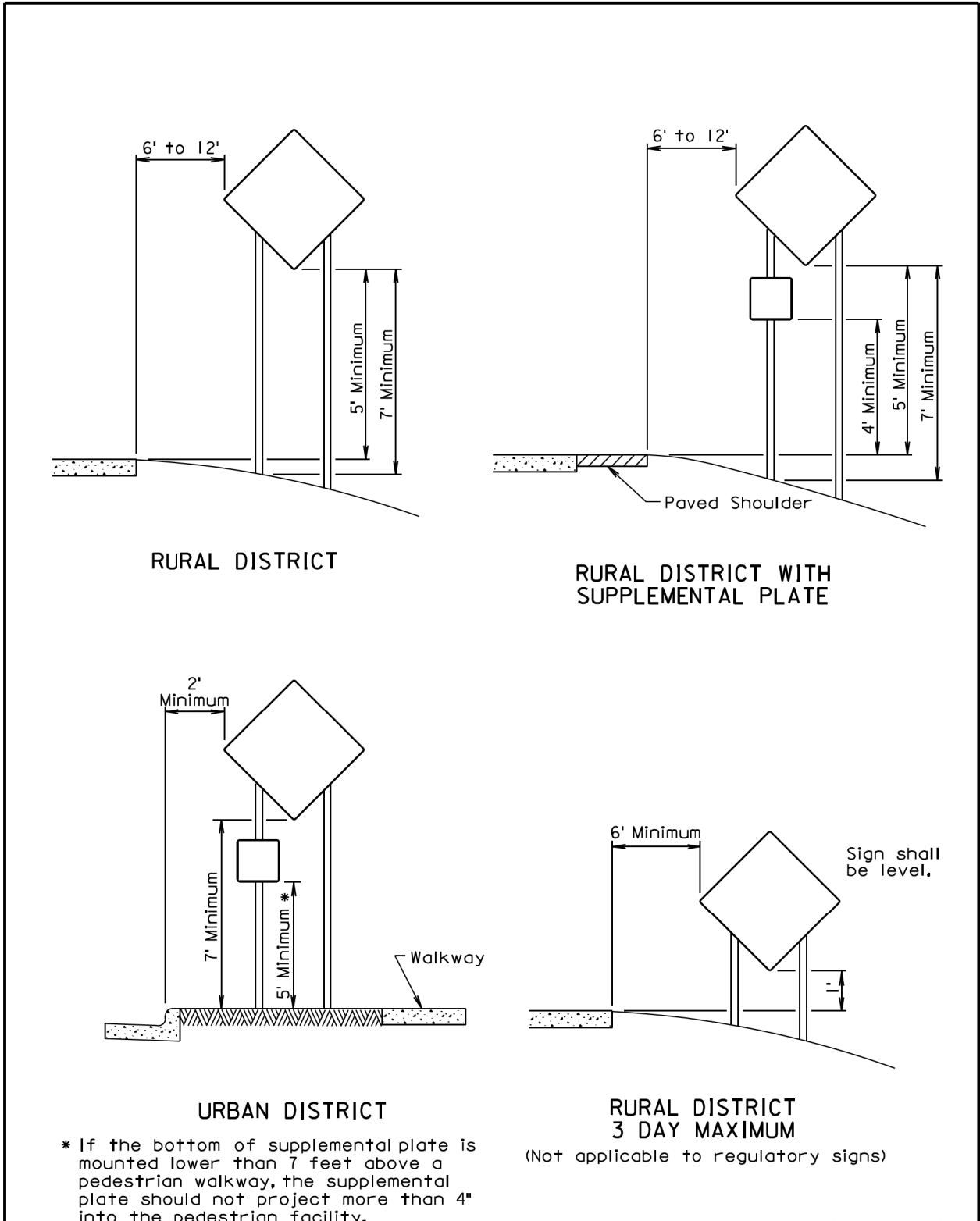
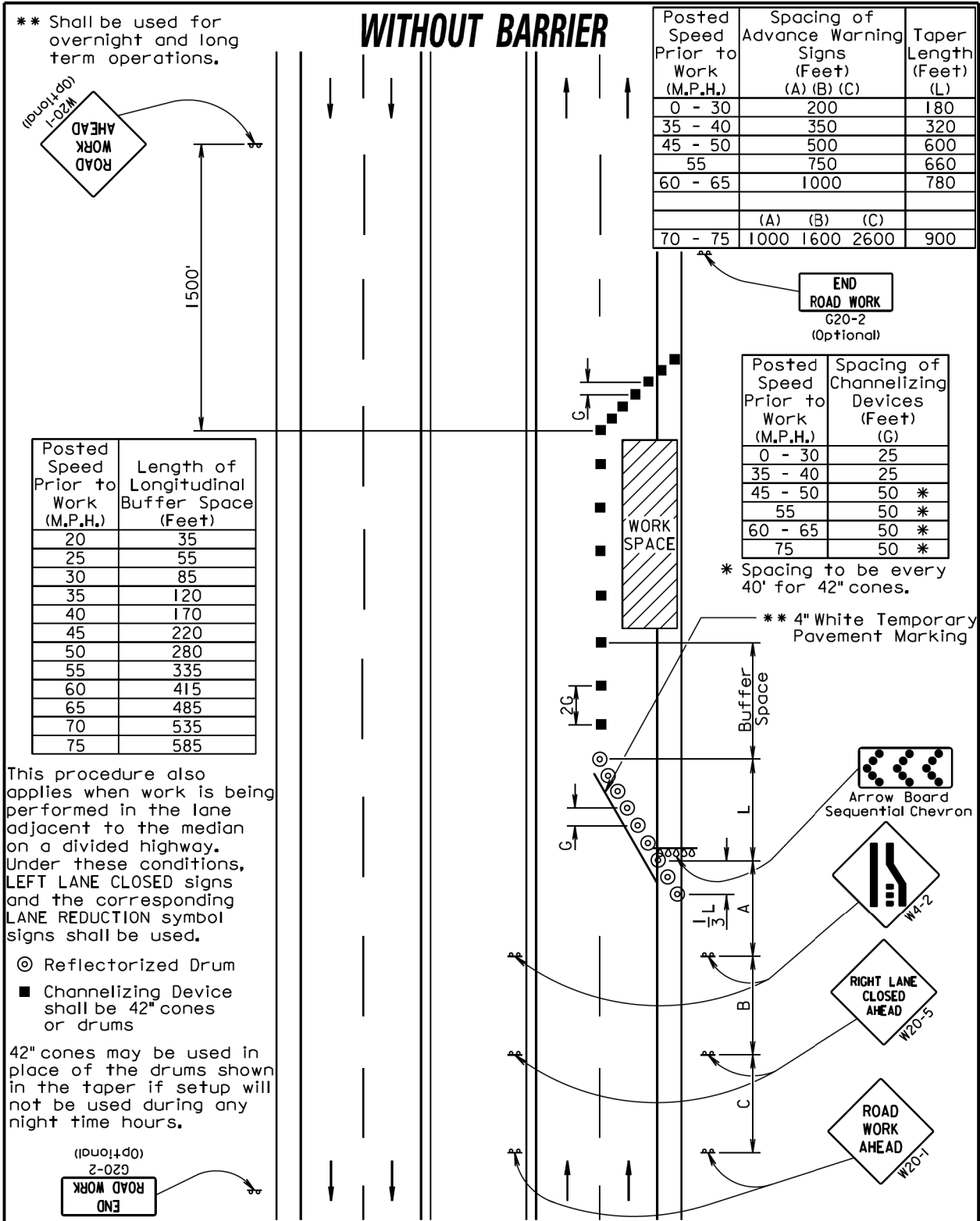
Warning sign sequence in opposite direction same as below.



September 22, 2014

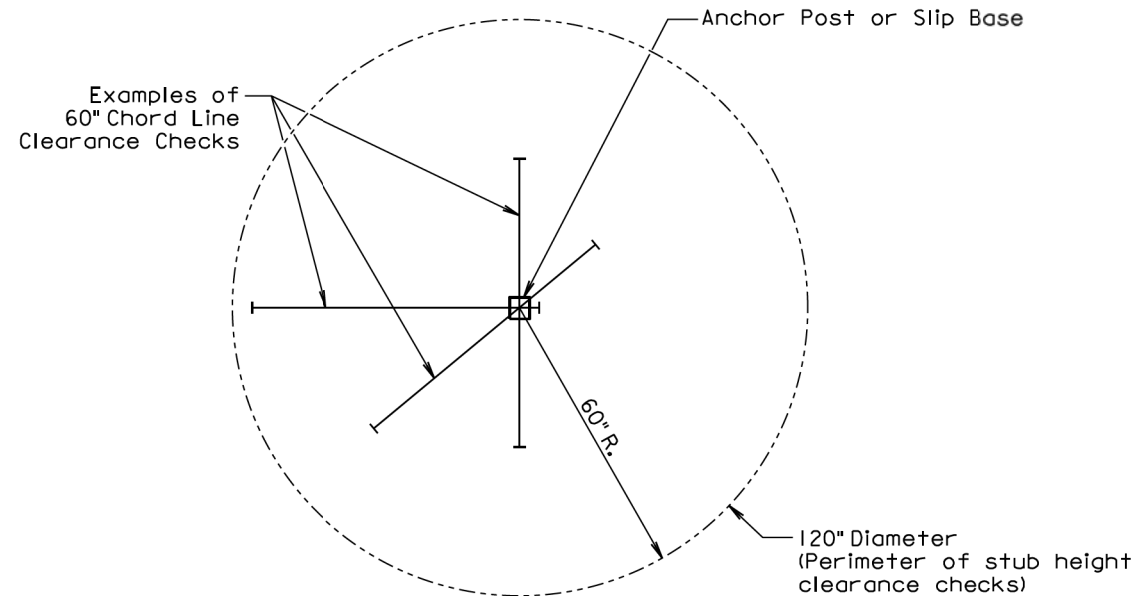
Published Date: 2nd Qtr. 2015	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER
			634.23
			Sheet 1 of 1



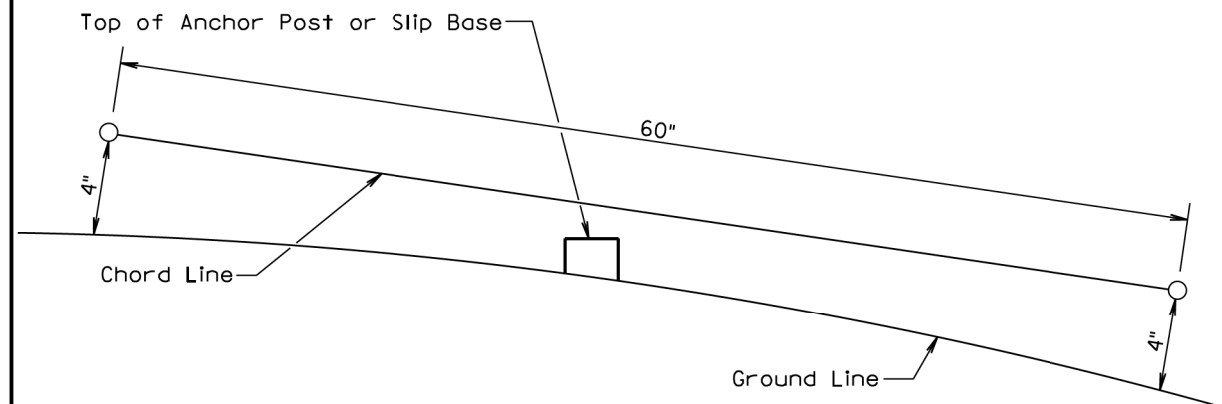


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	034E-351	10	12

Plotting Date: 04/23/2015



**PLAN VIEW**  
(Examples of stub height clearance checks)



**ELEVATION VIEW**

**GENERAL NOTES:**

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

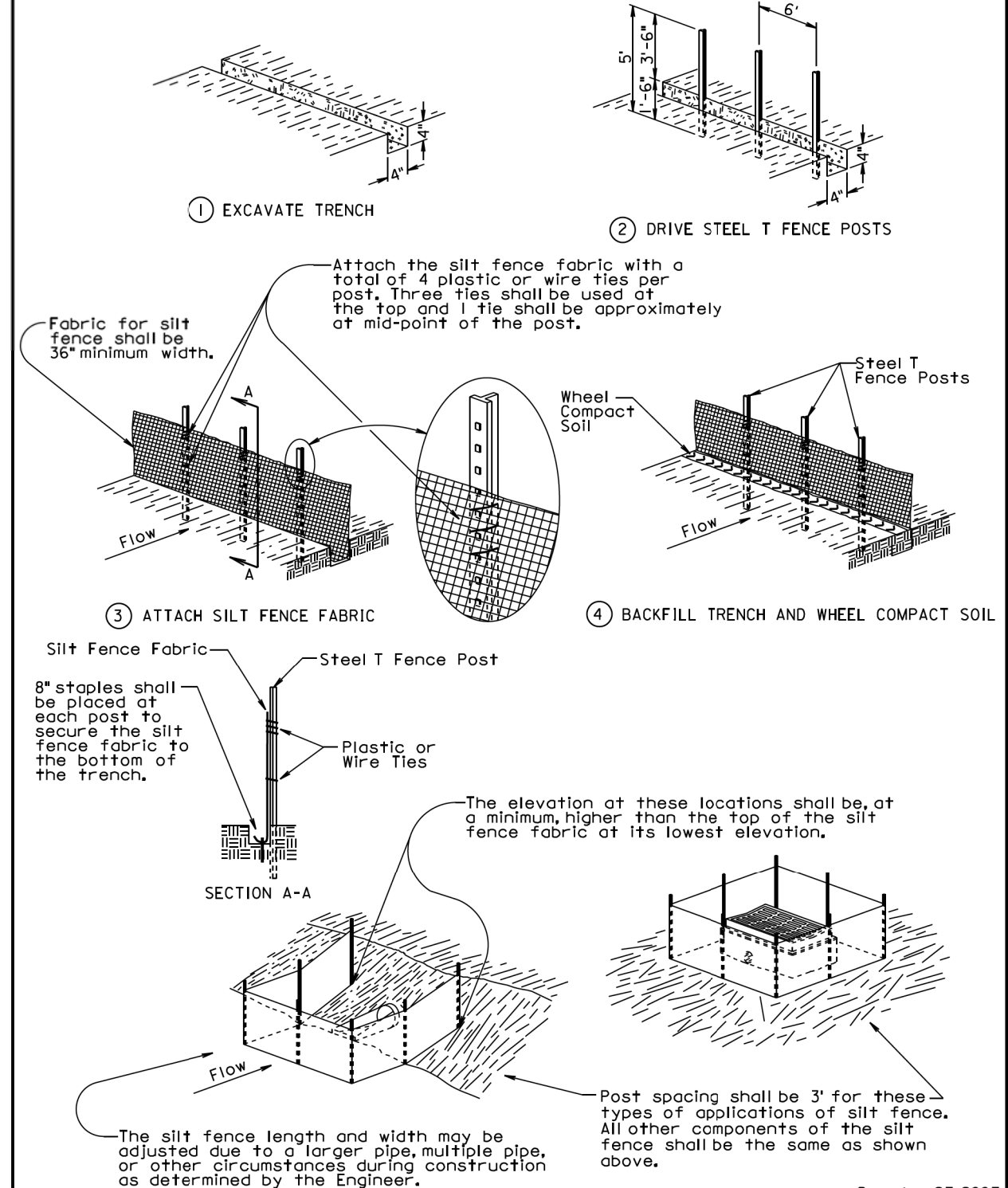
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

<b>S D D O T</b>	<b>BREAKAWAY SUPPORT STUB CLEARANCE</b>	PLATE NUMBER 634.99
		Sheet 1 of 1
		Published Date: 2nd Qtr. 2015

**MANUAL HIGH FLOW SILT FENCE INSTALLATION**



<b>S D D O T</b>	<b>HIGH FLOW SILT FENCE</b>	PLATE NUMBER 734.05
		Sheet 1 of 2
		Published Date: 2nd Qtr. 2015

December 23, 2003

12

**Published Date: 2nd Qtr. 2015**

PLOT SCALE - 1:200

•PLOTTED FROM - TRPR22410

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	034E-351	12	12

Plotting Date: 04/23/2015

PLOT NAME - 5

FILE - ... \73406(2).DGN

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 can not 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 stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' 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, disposal of sediment, 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".

December 23, 2004

Published Date: 2nd Qtr. 2015	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2