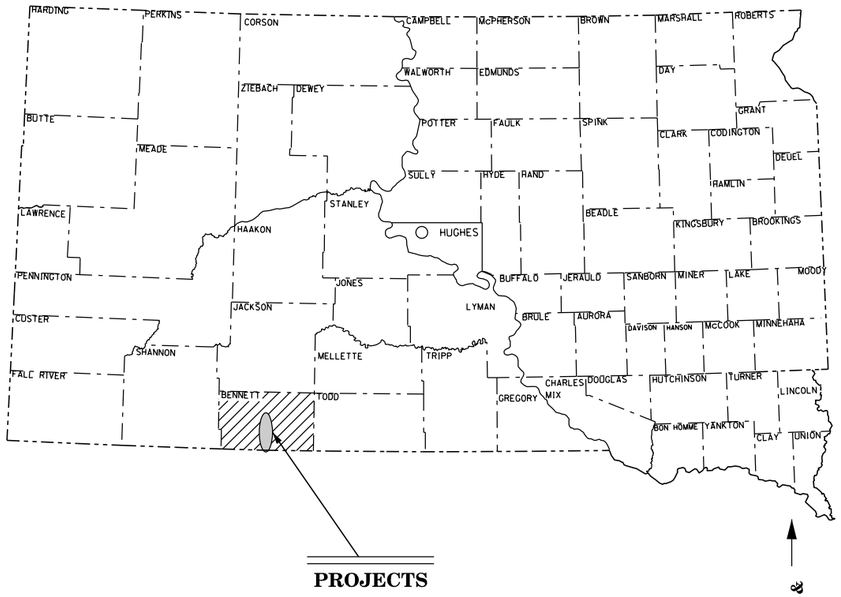


PROJECTS

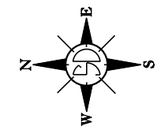
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 073–392
SD HIGHWAY 73
BENNETT COUNTY

PIPE AND EROSION REPAIR
PCN I3MR

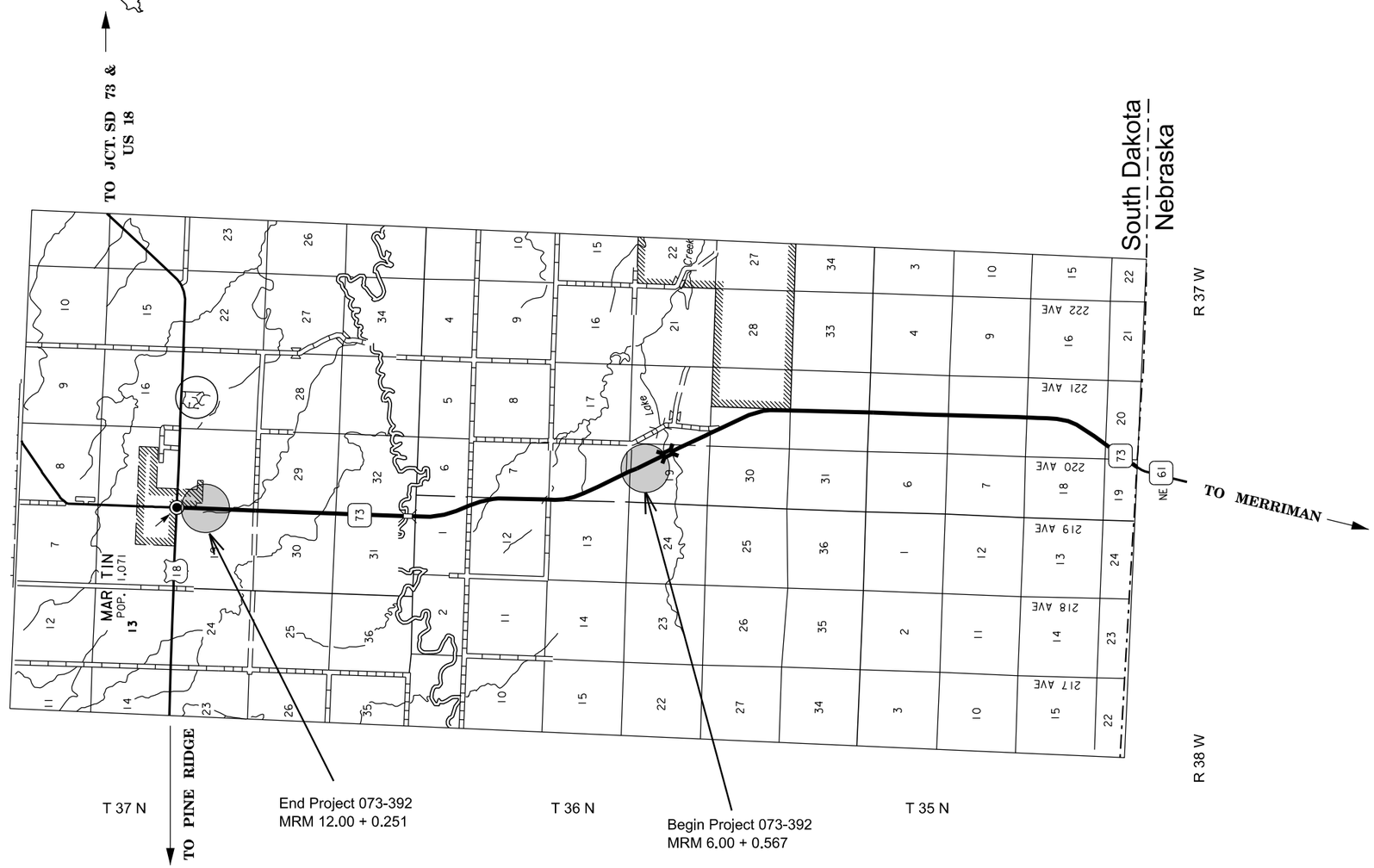
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	073-392	1	12

Plotting Date: 02/23/2015



INDEX OF SHEETS

Sheet No. 1	Title Sheet
Sheet Nos. 2-9	Estimate of Quantities Environmental Commitments Plan Notes
Sheet Nos. 10-12	Standard Plates



DESIGN DESIGNATION
(SD HIGHWAY 73)

ADT (2013)	**377**
ADT (2033)	**427**
DHV	**51.7**
D	**51%**
T DHV	**14.8%**
T ADT	**32.6%**
V	**65 MPH**

STORM WATER PERMIT
NONE REQUIRED

SD HIGHWAY 73
GROSS PROJECT LENGTH 29,970 FEET 5.676 MILES

Estimate of Quantities

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1690	Remove Sediment	5.0	CuYd
110E1693	Remove Erosion Control Wattle	100	Ft
110E7500	Remove Pipe for Reset	8	Ft
110E7510	Remove Pipe End Section for Reset	15	Each
120E0600	Contractor Furnished Borrow	80	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
450E8900	Cleanout Pipe Culvert	4	Each
450E9000	Reset Pipe	8	Ft
450E9001	Reset Pipe End Section	15	Each
634E0010	Flagging	40	Hour
634E0100	Traffic Control	478	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0210	Class B Riprap	117.0	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	460	Ft
734E0165	Remove and Reset Erosion Control Wattle	100	Ft
831E0110	Type B Drainage Fabric	136	SqYd

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

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 B3: AMERICAN BURYING BEETLE

This project is located in an area that contains habitat associated with the American Burying Beetle. Project clearance with the SD-USFWS office has been achieved for all work included within the project limits and all designated option borrow sites provided in the plans.

Action Taken/Required:

Earth disturbing activities shall not occur outside the plans designated work limits unless specifically addressed in the plans. The Contractor is responsible for obtaining USFWS review for any borrow sites, staging areas, waste sites, additional easement, and other ground disturbing activities outside the project limits as shown in the plans. The Contractor shall provide the Project Engineer a copy of the USFWS review prior to commencing any work outside the project limits as shown in the plans.

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 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.

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.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES - CONTINUED

Action Taken/Required:

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.

SEQUENCE OF OPERATIONS

The Department has an asphalt concrete resurfacing project, P 0073(68)0, PCN 04EI on the same section of roadway as this project. This contract has been awarded to Border States Paving, Inc. of Fargo, ND (PH#(701)237-4860). This work may overlap into the pipe and erosion repair work on this project. The contractor will coordinate with the Department and Border States Paving for the installation of traffic control and scheduling of work to facilitate and minimize impacts to the traveling public and work requirements of each contract's specified work.

The Contractor shall coordinate the schedule of work to ensure that SD Highway 73 is fully open to traffic prior to nightfall.

GENERAL MAINTENANCE OF TRAFFIC

The sign tabulation units were calculated assuming one work zone would be used. Traffic control signs furnished will be paid for only once. The cost of moving signs within project limits or from project to project shall be incidental to the contract unit price per unit for "Traffic Control".

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 should mobilize at a location off the right-of-way and arrive at the work sites 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.

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.

Highway equipment working within traffic or adjacent to traffic shall, at all times, display a flashing or revolving amber light to warn the traveling public.

Channelizing devices in a series shall be of the same type. All traffic control devices shall be in "like new" condition.

All construction operations shall be conducted in the general direction of traffic movement. All signs shall be mounted on portable supports. 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 three (3) days. If the duration is more than three (3) days, the signs shall be on fixed location, breakaway supports.

Additional standard signs, as ordered by the Engineer, shall be available within two (2) working days. Failure to provide signs within this time limit will result in liquidated damages being assessed in the amount of $100.00 per calendar day. Payment for additional signs will be paid for using the contract unit price per unit for "Traffic Control".

The Contractor shall furnish, install and maintain Truck Crossing signs. The exact number and location will be determined on construction. Payment shall be incidental to the contract unit price per unit for "Traffic Control" and will be paid for once on the project.

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility company to avoid damage to existing facilities.

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 Project Engineer to determine modifications that will be necessary to avoid utility impacts.

PIPE NOTES

The excavation required to expose existing pipe and ends will be incidental to the contract unit prices for Remove Pipe for Reset, Remove Pipe End Section for Reset, and corresponding pipe install bid items.

TIE BOLTS FOR RCP

All RCP reset will be tied together. This includes connection from existing culvert sections to reset sections.

For informational purposes: Field drilling will be required to install the tie bolts on reset culvert, reset culvert ends and on existing culvert sections.

Cost for removing tie bolts, drilling tie bolt holes and furnishing and installing tie bolts shall be incidental to the contract unit prices for resetting RCP Culverts and End Sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer.

GRADING OPERATIONS

Generally, all inlet and outlet ditches excavated shall be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

All costs associated with the excavation required to establish drainage to and from the existing pipe culverts shall be incidental to the contract lump sum price for “Incidental Work”.

Scour holes and erosion encountered at the work sites shall be filled in with Contractor Furnished Borrow.

REMOVING, STOCKPILING, AND REPLACING TOPSOIL

Prior to excavation or placement of fill material, the Contractor will be required to remove and salvage 4 inches of the existing topsoil.

The Contractor shall stockpile the material at a site approved by the Engineer, and/or windrow 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.

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

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”.

CONTRACTOR FURNISHED BORROW

Contractor Furnished Borrow shall be required to fill in scour holes and other erosion as noted in the scope of work for the individual repair sites. All fill material shall meet with the approval of the Engineer. Borrow Areas within the right-of-way may be available with prior approval of the Engineer.

The plans quantity for “Contractor Furnished Borrow” as shown in the Estimate of Quantities will be the basis of payment for this item unless the Engineer orders changes. The Contractor is responsible for obtaining all required permits and clearances for the borrow site.

Excess dirt removed at each site may be used as Contractor Furnished Borrow throughout the project with approval of the Engineer. It is anticipated that the project work will generate enough usable borrow material to complete the work. Excess material shall be disposed of by the contractor.

All work shall be accomplished within the right-of-way.

Once a work site is opened up at a given location, work shall proceed in a continuous manner to minimize the potential for erosion.

It is anticipated that water for compaction will not be required. When, in the opinion of the Engineer, the fill material is dry, water may be ordered and placed to the satisfaction of the Engineer. The cost of water shall be incidental to the contract unit price per cubic yard for “Contractor Furnished Borrow”.

Compaction of the fill material shall be to the satisfaction of the Engineer.

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 mulched.

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

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Little Bluestem or Buffalograss or Blue Grama	Badlands, Itasca, Bowie, Cody, Tatanka, Bad River, Willis	2
Regreen or QuickGuard: all year; Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	26

It is estimated that 0.75 acres of disturbed area will require seeding and mulching. Limits of the work shall be determined by the Engineer at the time of Construction.

Mulch shall be applied at a rate of 2 ton/acre. Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

An additional 1.5 ton of mulch shall be available for rapid stabilization of the disturbed areas at the discretion of the Engineer. The intent of the additional mulch is too stabilize completed areas during which time permanent seeding cannot be completed due to seasonal limitations.

Application of fertilizer will not be required on this project.

All costs associated with furnishing/placing the seed, mulch, and inoculum, along with all labor, equipment and incidental 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 by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract lump sum price for Erosion Control.

EROSION CONTROL WATTLES

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.

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

A quantity of 460 feet of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control around excavation and/or borrow piles and the pipe ends during and after construction.

TABLE OF CLASS B RIPRAP

Hwy	MRM	Rt/Lt	Ton
SD73	10.777	Rt	117

TABLE OF TYPE B DRAINAGE FABRIC

Hwy	MRM	Rt/Lt	Sq.Yds.
SD73	10.777	Rt	136

TABLE OF INCIDENTAL WORK

MRM	Rt/Lt	Description
6.567	Rt & Lt	Excavate Inlet and Outlet for Drainage
6.744	Rt & Lt	Excavate Inlet and Outlet for Drainage
6.876	Rt & Lt	Excavate Inlet and Outlet for Drainage
7.436	Lt	Excavate Inlet for Drainage
7.677	Rt & Lt	Excavate Inlet and Outlet for Drainage
9.356	Lt	Excavate Inlet for Drainage
9.964	Lt	Remove & Reset Existing Fence
10.401	Rt	Excavate Outlet for Drainage
10.777	Rt	Excavate Outlet for Drainage
10.973	Lt	Excavate Inlet for Drainage
11.114	Rt	Excavate Inlet for Drainage
11.218	Rt & Lt	Excavate Inlet and Outlet for Drainage
11.349	Rt & Lt	Excavate Inlet and Outlet for Drainage
12.251	Rt & Lt	Excavate Inlet and Outlet for Drainage

SCOPE OF WORK

MRM 6.567 The site work on the right consists of removing and resetting the end section of the existing 24” RCP. The outlet shall be cleaned out to an approximate depth of 1.0’ to the Right of Way to allow drainage away from the pipe. The site work on the left consists of removing and resetting the end section of the existing 24” RCP. The inlet shall be cleaned out to an approximate depth of 2.0’ both North and South for approximately 30’ to allow drainage to the pipe. The Contractor shall clean the existing pipe culvert of all debris, silt and obstructions. Cleaning shall be accomplished by the use of jet rodding equipment or other approved methods. Payment for cleaning the pipe culvert shall be incidental to the contract unit bid price per each for “Cleanout Pipe Culvert”. Sediment control measures shall be in place prior to cleaning the pipe culvert to ensure containment of the removed material. All disturbed areas will be seeded and mulched.

MRM 6.744 The site work on the right consists of removing and resetting the end section of the existing 24” RCP. The outlet shall be cleaned out to allow drainage away from the pipe. The site work on the left consists of removing and resetting the end section of the existing 24” RCP. The inlet shall be cleaned out to allow drainage to the pipe. The Contractor shall clean the existing pipe culvert of all debris, silt and obstructions. Cleaning shall be accomplished by the use of jet rodding equipment or other approved methods. Payment for cleaning the pipe culvert shall be incidental to the contract unit bid price per each for “Cleanout Pipe Culvert”. Sediment control measures shall be in place prior to cleaning the pipe culvert to ensure containment of the removed material. All disturbed areas will be seeded and mulched.

MRM 6.876 The site work on the right consists of removing and resetting the end section of the existing 24” RCP. The outlet shall be cleaned out to allow drainage away from the pipe. The site work on the left consists of removing and resetting the end section of the existing 24” RCP. The inlet shall be cleaned out to an approximate depth of 1’ and length of 20’ to allow drainage to the pipe. The Contractor shall clean the existing pipe culvert of all debris, silt and obstructions. Cleaning shall be accomplished by the use of jet rodding equipment or other approved methods. Payment for cleaning the pipe culvert shall be incidental to the contract unit bid price per each for “Cleanout Pipe Culvert”. Sediment control measures shall be in place prior to cleaning the pipe culvert to ensure containment of the removed material. All disturbed areas will be seeded and mulched.

MRM 7.436 The site work on the left consists of removing excess dirt to an approximate depth of 1’ from the inlet of the existing 48” RCP to the Right of Way. Excess dirt shall also be removed to an approximate depth of 1’ in both the North and South ditch leading to the inlet. The cleanout shall be 10’ wide and extend for an approximate length of 30’ each direction. All disturbed areas will be seeded and mulched.

MRM 7.677 The site work on the right consists of removing and resetting the end section of the existing 24” RCP. The outlet shall be cleaned out to an approximate depth of 1’ to the North for an approximate length of 20’ to allow drainage away from the pipe. The site work on the left consists of removing and resetting the end section of the existing 24” RCP. The inlet shall be cleaned out to allow drainage to the pipe. All disturbed areas will be seeded and mulched.

MRM 9.356 There is no work required on the right side. The site work on the left consists of removing and resetting the end section of the existing 42” RCP. The inlet shall be cleaned out to an approximate depth of 1’ to the Right of Way to allow drainage to the pipe. All disturbed areas will be seeded and mulched.

MRM 9.964 There is no work required on the right side. The site work on the left consists of removing and resetting the end section and two four foot sections of the existing 30” RCP. Approximately fifty feet of the existing right of way fence shall be removed and reset at this location in order to perform the above work. The fence removed shall be reset back out on the Right of Way line. Payment for removing and resetting existing fence shall be incidental to the contract lump sum price for Incidental Work. All disturbed areas will be seeded and mulched.

MRM 10.401 The site work on the right consists of removing excess dirt from the outlet of the existing 60” RCBC to the North and East approximately 30’ to the Right of Way. The approximate depth of removal is 2’. All disturbed areas will be seeded and mulched. There is no work required on the left side.

MRM 10.777 The site work on the right consists of removing excess dirt and concrete chunks from the outlet of the existing twin 6’x6’ RCBC approximately 40’ to the Right of Way. The approximate depth of removal is 2’ and width of removal is 30’. Type B Drainage Fabric and Class B Riprap shall be placed to a volume of 30’ wide x 30’ long x 2.5’ deep at the outlet. All disturbed areas will be seeded and mulched. There is no work required on the left side.

SCOPE OF WORK (CONTINUED)

MRM 10.973 There is no site work required on the right side. The site work on the left consists of removing excess dirt from the inlet of the existing 24" CMP. The inlet shall be cleaned out to the South to an approximate depth of 1.5' and length of 40' to allow drainage to the pipe. All disturbed areas will be seeded and mulched.

MRM 11.114 The site work on the right consists of removing and resetting the end section of the existing 24" RCP. The inlet shall be cleaned out to allow drainage to the pipe. All disturbed areas will be seeded and mulched. There is no work required on the left side.

MRM 11.218 The site work on the right consists of removing excess dirt from the inlet of the existing 36" RCP. The inlet ditch shall be cleaned out to the South to an approximate depth of 2' and length of 200' to allow drainage to the pipe. The site work on the left consists of removing excess dirt from the outlet of the existing 36" RCP to the Right of Way to allow drainage away from the pipe. All disturbed areas will be seeded and mulched.

MRM 11.349 The site work on the right consists of removing and resetting the end section of the existing 24" RCP. The inlet shall be cleaned out to allow drainage to the pipe. The site work on the left consists of removing and resetting the end section of the existing 24" RCP. The outlet shall be cleaned out to allow drainage away from the pipe. All disturbed areas will be seeded and mulched.

MRM 12.251 The site work on the right consists of removing and resetting the end section of the existing 36" RCP. The inlet shall be cleaned out to allow drainage to the pipe. The site work on the left consists of removing and resetting the end section of the existing 36" RCP. The outlet shall be cleaned out to allow drainage away from the pipe. The Contractor shall clean the existing pipe culvert of all debris, silt and obstructions. Cleaning shall be accomplished by the use of jet rodding equipment or other approved methods. Payment for cleaning the pipe culvert shall be incidental to the contract unit bid price per each for "Cleanout Pipe Culvert". Sediment control measures shall be in place prior to cleaning the pipe culvert to ensure containment of the removed material. All disturbed areas will be seeded and mulched.

SIGN TABULATION

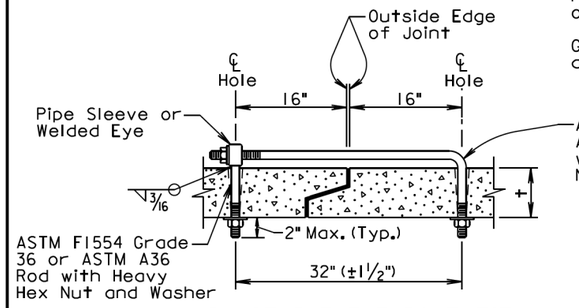
SIGN CODE	DESCRIPTION	NUMBER	SIGN SIZE	UNITS PER SIGN	UNITS
W8-6	TRUCK CROSSING	2	48" x 48"	34	68
W16-2P	___ FEET (supplemental distance plaque)	2	30" x 24"	18	36
W20-1	ROAD WORK AHEAD	2	48" x 48"	34	68
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	34	68
W20-7	FLAGGER (symbol)	2	48" x 48"	34	68
W21-5	SHOULDER WORK	4	48" x 48"	34	136
G20-2	END ROAD WORK	2	36" x 18"	17	34
				TOTAL UNITS	**478**

SUMMARY OF QUANTITIES (FOR INFORMATION ONLY)

Installation Quantity by Location (MRM)	SD73										
Bid Item Description	**6.567**	**6.744**	**6.876**	**7.436**	**7.677**	**9.356**	**9.964**	**10.401**	**10.777**	**10.973**	**11.114**
Mobilization											
Remove Sediment											
Remove Erosion Control Wattle											
Remove Pipe for Reset							8				
Remove Pipe End Section for Reset	2	2	2		2	1	1				1
Contractor Furnished Borrow	10	10	10		10	5	10				5
Remove and Replace Topsoil											
Incidental Work											
Cleanout Pipe Culvert	1	1	1								
Reset Pipe							8				
Reset Pipe End Section	2	2	2		2	1	1				1
Flagging											
Traffic Control											
Traffic Control, Miscellaneous											
Class B Riprap									117		
Erosion Control											
12” Diameter Erosion Control Wattle	40	40	40	20	40	20	20	30	30	20	20
Remove and Reset Erosion Control Wattle											
Type B Drainage Fabric									136		

Installation Quantity by Location (MRM)	SD73				
Bid Item Description	**11.218**	**11.349**	**12.251**	**Quantity**	**Unit**
Mobilization				Lump Sum	LS
Remove Sediment				5	CuYd
Remove Erosion Control Wattle				100	Ft
Remove Pipe for Reset				8	Ft
Remove Pipe End Section for Reset		2	2	15	Each
Contractor Furnished Borrow		10	10	80	CuYd
Remove and Replace Topsoil				Lump Sum	LS
Incidental Work				Lump Sum	LS
Cleanout Pipe Culvert			1	4	Each
Reset Pipe				8	Ft
Reset Pipe End Section		2	2	15	Each
Flagging				40	Hour
Traffic Control				478	Unit
Traffic Control, Miscellaneous				Lump Sum	LS
Class B Riprap				117	Ton
Erosion Control				Lump Sum	LS
12” Diameter Erosion Control Wattle	60	40	40	460	Ft
Remove and Reset Erosion Control Wattle				100	Ft
Type B Drainage Fabric				136	SqYd

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2-6 1/2	3/4	1
≥ 7	1	1 1/4



ADJUSTABLE EYE BOLT TIE

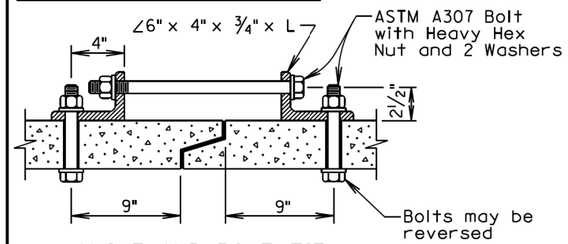
GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustible eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1



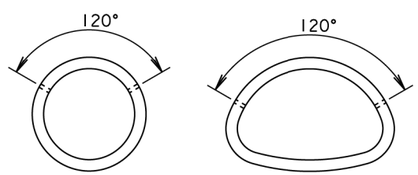
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW "CIRCULAR"

END VIEW "ARCH"

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

Published Date: 1st Qtr. 2015	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1

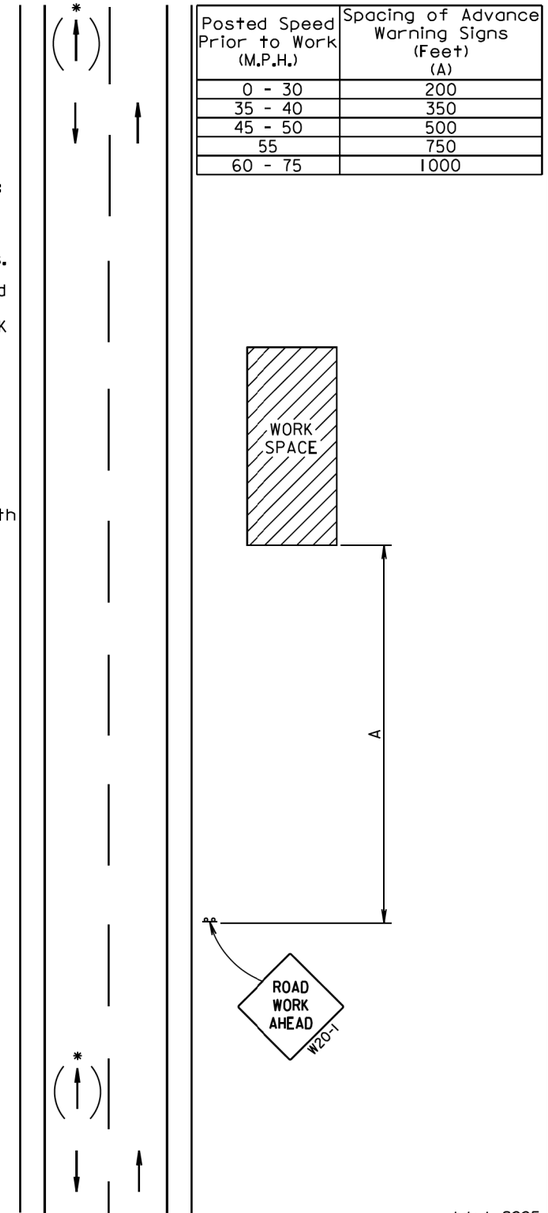
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

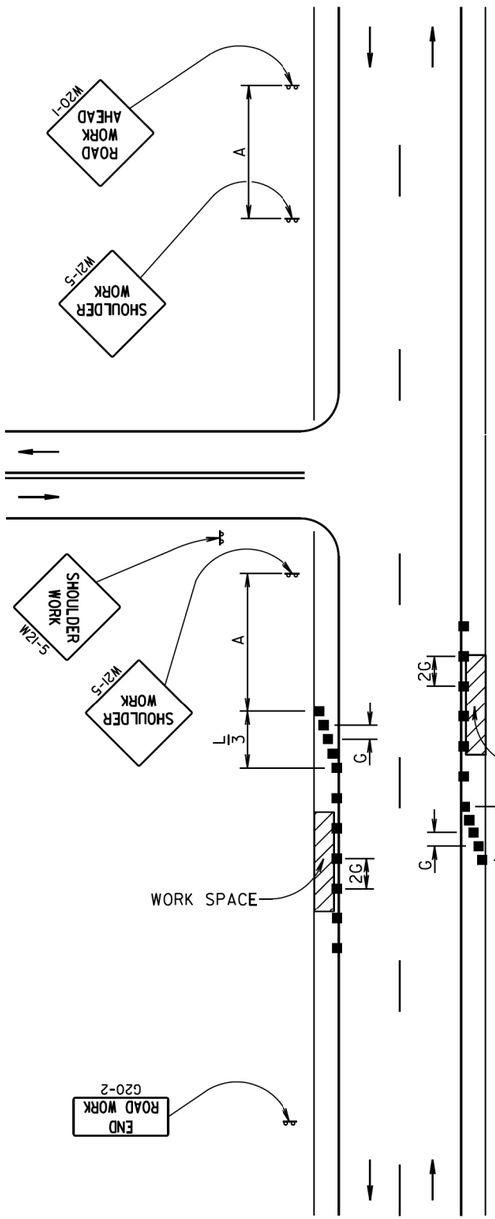
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



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

July 1, 2005

Published Date: 1st Qtr. 2015	SDDOT	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)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

END ROAD WORK G20-2

The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

September 22,2014

Published Date: 1st Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			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.

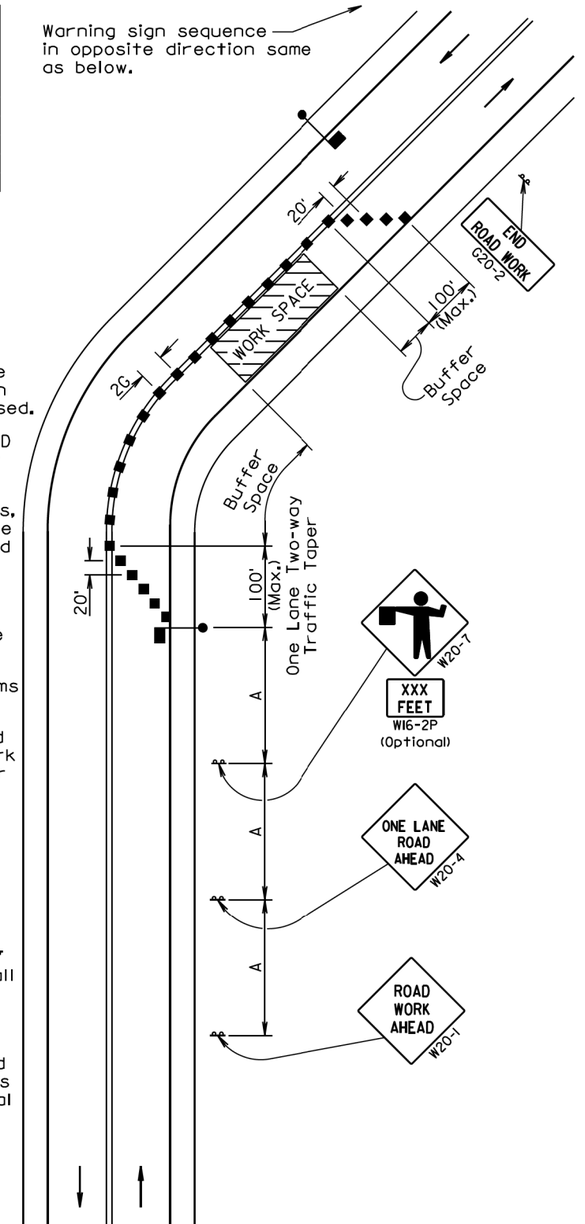
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

END ROAD WORK G20-2

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

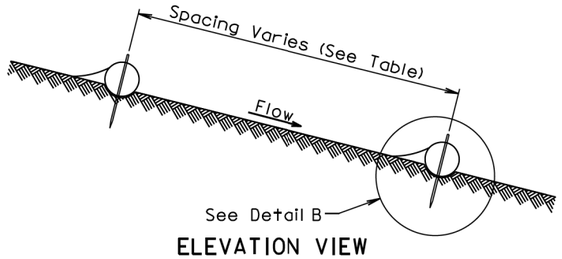
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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



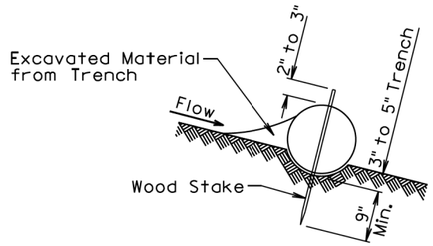
September 22,2014

Published Date: 1st Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

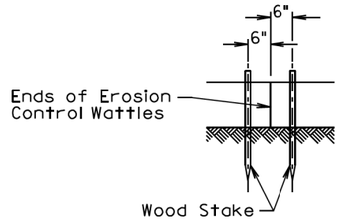


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

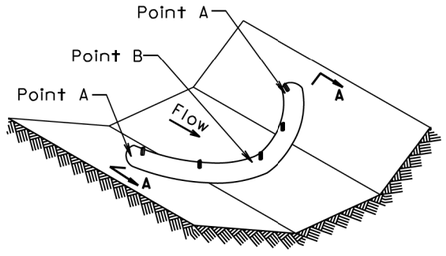
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



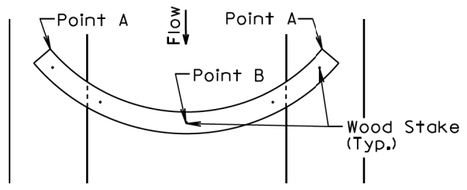
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

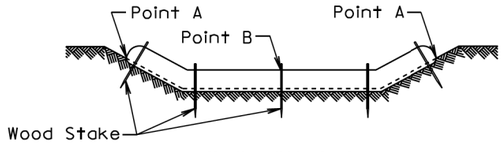


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

December 23, 2004

Published Date: 1st Qtr. 2015	SDDOT	***EROSION CONTROL WATTLE***	***PLATE NUMBER*** *734.06* *Sheet 1 of 2*

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 ½". 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: 1st Qtr. 2015	SDDOT	***EROSION CONTROL WATTLE***	***PLATE NUMBER*** *734.06* *Sheet 2 of 2*