

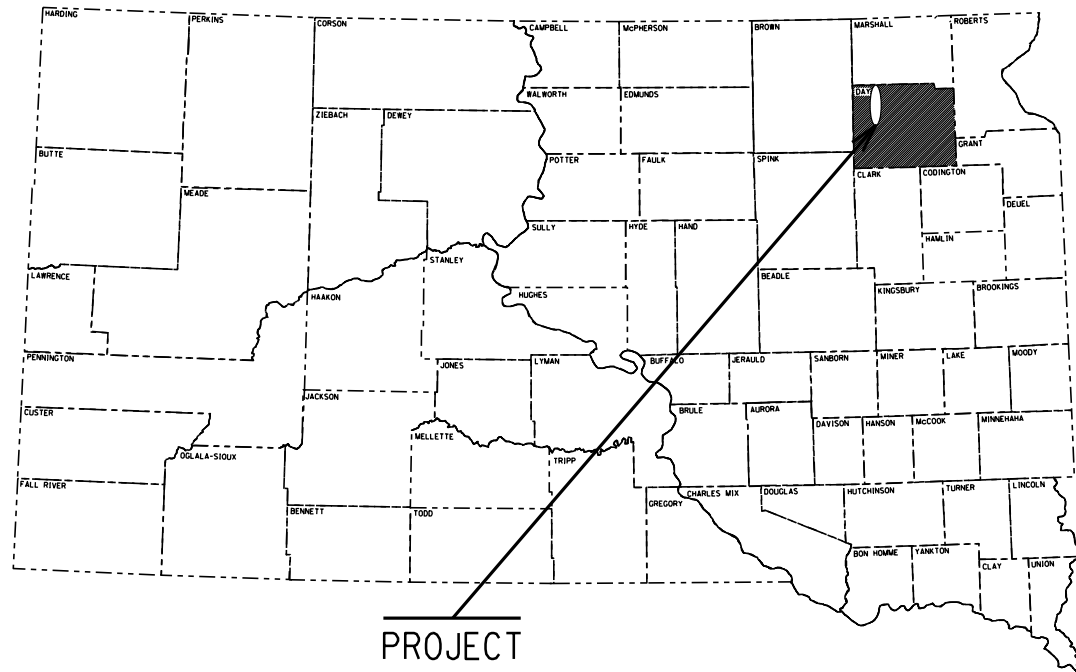
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	027-151	1	11

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 027-151
SD HIGHWAY 27
DAY COUNTY
CULVERT CLEANING, DITCH CLEANING,
& CHANNEL PROTECTION
PCN 140X

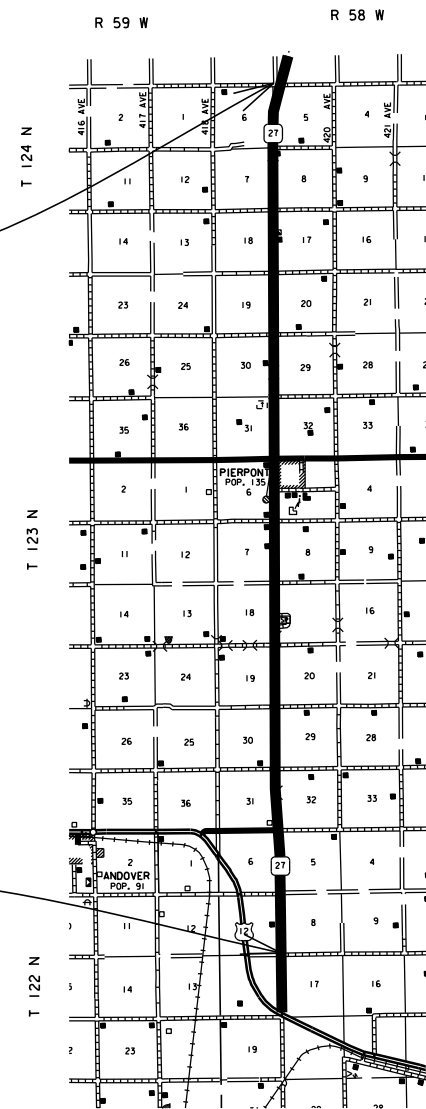
INDEX OF SHEETS

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- Sheet 2-3 Estimate of Quantities and Environmental Commitments
- Sheet 4 Breakdown of Work Table
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End Project
MRM 213.00+0.00

Begin Project
MRM 200.00+0.80



DESIGN DESIGNATION

ADT (2015)	558
ADT (2035)	760
DHV	90
D	50%
T DHV	8.2
T ADT	18.1%
V	65 MPH

STORM WATER PERMIT

None Required

GROSS LENGTH	64363.2 FEET	12.190 MILES
LENGTH OF EXCEPTIONS	0 FEET	0 MILES
NET LENGTH	64363.2 FEET	12.190 MILES

PLOT SCALE - 1:11931.6

PLOTTED FROM - TRABINT01

PLOT NAME - 1

FILE - ... \140X-TITLE-SHEET.DGN

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ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1693	Remove Erosion Control Wattle	1,600	Ft
110E7500	Remove Pipe for Reset	24	Ft
110E7510	Remove Pipe End Section for Reset	2	Each
120E0010	Unclassified Excavation	290	CuYd
120E0600	Contractor Furnished Borrow Excavation	115	CuYd
450E8900	Cleanout Pipe Culvert	4	Each
450E9000	Reset Pipe	24	Ft
450E9001	Reset Pipe End Section	2	Each
634E0110	Traffic Control Signs	222.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
720E1015	Bank and Channel Protection Gabion	310.0	CuYd
730E0100	Cover Crop Seeding	6.8	Bu
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	1,350	Ft

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and 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 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 D: WATER QUALITY STANDARDS

COMMITMENT D2: SURFACE WATER DISCHARGE

Action Taken/Required:

If construction dewatering is required, the Contractor shall obtain a Temporary Discharge Permit from the DENR and provide a copy to the Project Engineer. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

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 be disposed of within the Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for 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 Public 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 Public 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 department designated sources and designated option material sources, stockpile sites, storage areas, and waste 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: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas 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

This commitment is required for all projects with a 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.

Breakdown of Work

MRM	Side of the Road	Type of Pipe	Size (In.)	Surface Area of Gabion Depth is 3'	Volume of Gabions (CuYd)	Unclassified Excavation (CuYd)	Contractor Furnished Borrow, Excavation (CuYd)	Pipe Cleanout (Each)	Remove & Reset Pipe (Ft)	Remove & Reset Flared End (Each)
200.753	East	RCP	54	21'x24'	56					
200.753	West			12' x12'	16	15				
201.500	East	Twin RCP	24	-		20				
201.500	West			-		10				
201.644	East	RCP	24	-						
201.644	West			-		5		12		1
201.934	East	RCP	30	-		15				
201.934	West			12' x15'	20	20		12		1
202.300	East	Tripple RCPA	30	-		40		3		
202.300	West			-						
203.000	East	Twin RCP	30	-		20				
203.000	West			-		10				
203.284	East	RCP	60	-		20				
203.284	West			24'x 36'	96	40				
207.228	East	RCPA	24	-		20				
207.228	West			15' x 30'	50	20				
207.387	East	RCP	24	-						
207.387	West			-		10				
209.220	East	RCP	48	-		10				
209.220	West			15' x 24'	40	20				
210.145	East	Twin RCPA	24	-						
210.145	West			-		10				
210.548	East	RCPA	24	-						
210.548	West			12' x12'	16	10				
210.949	East	RCPA	24	-		10				
210.949	West			-		10				
211.922	East	Twin RCPA	24	-			10			
211.922	West			-						
212.633	East	CMPA	36	12' x12'	16	20				
212.633	West			-		40		1		
212.900	East	Twin RCPA	36	2- 12' x 12'	32		10			
212.900	West			2-12'x12'	32					
213.400	East	Twin	36	-						
213.400	West			-		30				
				Total	310	290	115	4	24	2

PLOT SCALE - 1:11931.6

PLOTTED FROM - TRABINT01

PLOT NAME - 2

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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SEQUENCE OF OPERATIONS

Once work starts at a site, work shall be pursued in a continuous manner until complete. The Contractor may work on 3 sites simultaneously.

1. Install traffic control devices.
2. Install erosion control measures.
3. Excavate/fill for gabion baskets/clean out ditches
4. install gabion baskets
5. Backfill around gabion baskets
6. Replace topsoil
7. Cover crop
8. Seed and mulch

SCOPE OF WORK

The Contractor shall complete ditch clean out and fill placement, install gabion baskets, reset pipe/ ends and clean out pipe. Placing Contractor furnished borrow, or performing excavation at each site will be done as outlined in the Breakdown of Work table, dewatering may be required depending on seasonal conditions.

The Contractor shall salvage enough topsoil to place a minimum of 4" over all areas that are to be seeded. Payment for this work shall be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

The Contractor is encouraged to visit the sites prior to bidding to verify the extent of work needed at each site.

TRAFFIC CONTROL

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

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.

Work activities during non-daylight hours are subject to prior approval.

All lane closures shall be removed during non-working hours.

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 be on fixed location, ground mounted, breakaway supports.

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.

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

UNCLASSIFIED EXCAVATION

The Contractor shall clean/fill the ditches in the area shown in the Breakdown of Work table. The Contractor shall shape the excavated areas to match the existing ground.

The plans quantity for UNCLASSIFIED EXCAVATION as shown in the Estimate of Quantities will be the basis of payment for this item.

The Contractor shall clean the ditch bottom for a minimum of 20ft each way from the pipe.

If deemed suitable by the Engineer the excavated material may be used as Contractor Furnished Borrow Excavation.

The Contractor may spread excess material on in slopes as directed by the Engineer.

INSTALLATION OF GABION BASKETS

Gabions Baskets shall be installed according to the standard plates. Gabions installed under the flow line of the pipe shall match the slope of the flow line of the pipe. The gabion baskets shall be backfilled in a manner to match the existing ground level. Payment for the stone material used to fill the gabions shall be incidental to the contract unit price per cubic yard for BANK AND CHANNEL PROTECTION GABION.

Payment for excavation shall be incidental to the contract unit price per cubic yard for BANK AND CHANNEL PROTECTION GABION. Payment for filling with borrow material shall be incidental to the contract unit price per cubic yard for CONTRACTOR FURNISHED BORROW EXCAVATION. Compaction of the Contractor Furnished Borrow shall be to the satisfaction of the Engineer. The basis of payment shall be plans quantity. There will be no additional payment for dewatering if it is needed.

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CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer. The plans quantity for CONTRACTOR FURNISHED BORROW EXCAVATION as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

The Contractor shall clean/fill the ditches in the area shown in the Breakdown of Work table. The Contractor shall shape the excavated areas to match the existing ground.

FERTILIZING

Application of fertilizer will not be required on this project.

PERMANENT SEEDING

The areas to be seeded and mulched comprise of all newly graded areas within the project limits except for the top of roadways, gabion baskets.

All seed broadcast must be raked or dragged in (incorporated) within the top 1/4" to 1/2" 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.

An estimated 1/4 acre per site will need to be seeded. Payment for seeding and mulching shall be incidental to the contract lump sum price for EROSION CONTROL.

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
Total:		18

COVER CROP SEEDING

All disturbed areas shall be seeded with cover crop as soon as the topsoil is replaced. Broadcasting will be an approved method for seeding cover crop.

Cover crop seeding may be used on this project as a temporary erosion control measure. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

Payment for this work shall be incidental to the contract unit price per bushel for COVER CROP SEEDING.

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.

50 feet of 12" Diameter Erosion Control Wattles per site have been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels.

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>

Wattles may be left in place once the project is completed.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	6	48" x 48"	16	96
W21-5	SHOULDER WORK	6	48" x 48"	16	96
G20-2	END ROAD WORK	6	36" x 18"	5	30
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					222

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.

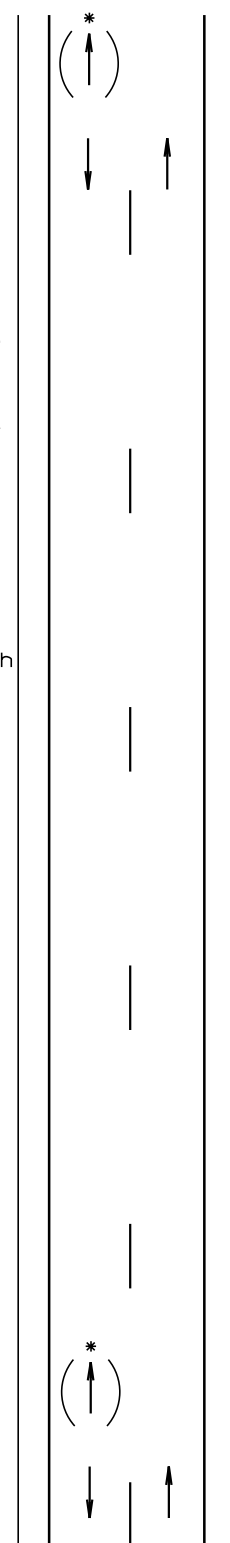
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

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.

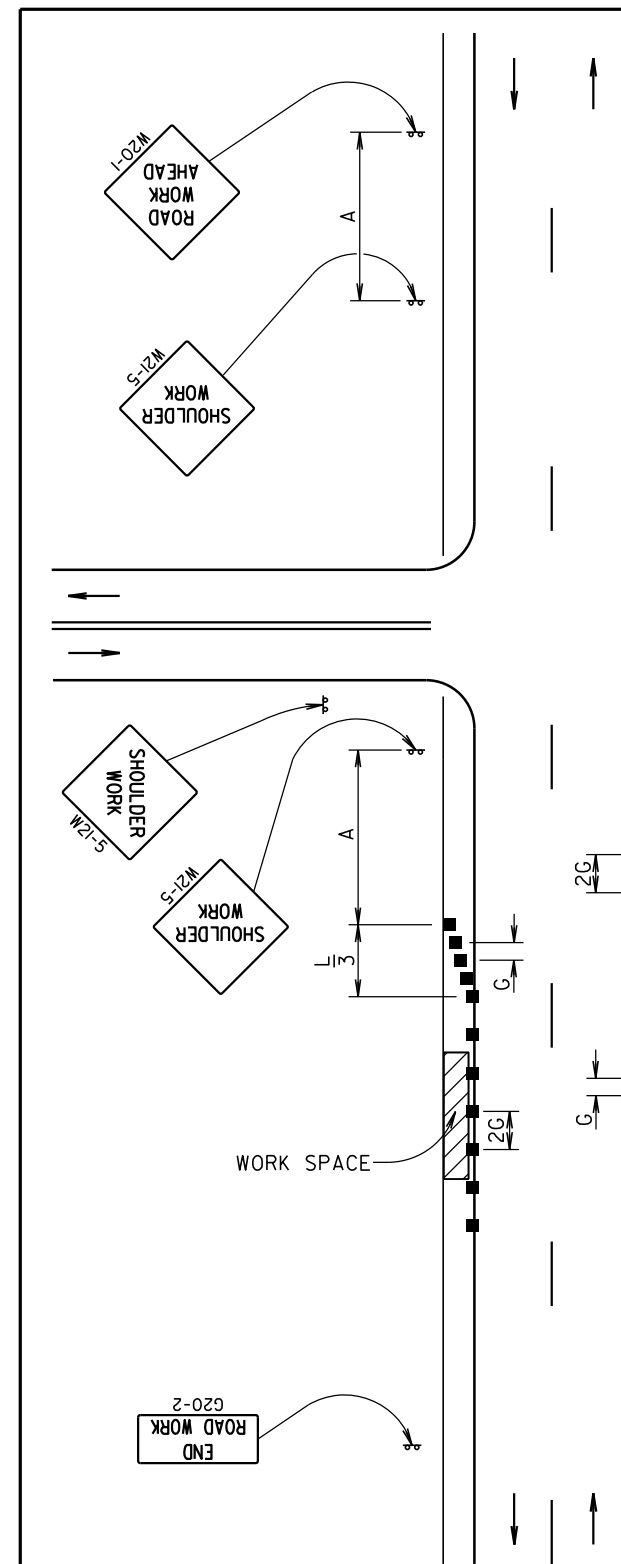
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

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 - 80	1000



April 15, 2015

Published Date: 2nd Qtr. 2016	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)	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



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

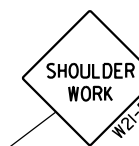
For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

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.

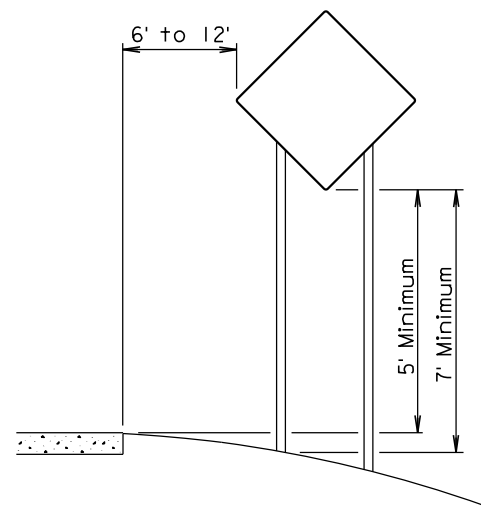
The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

WORK SPACE

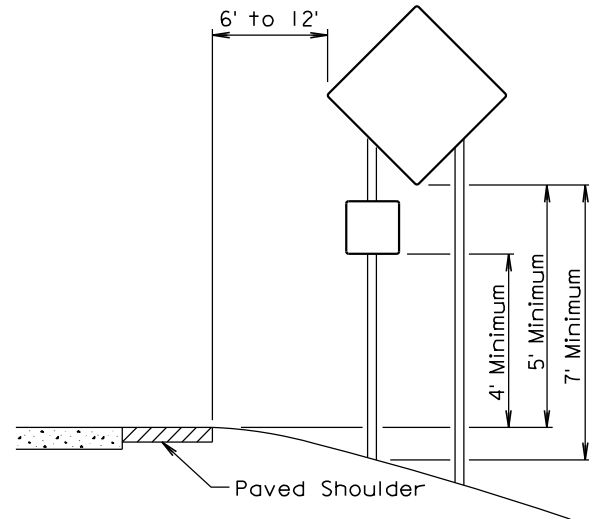


September 22, 2014

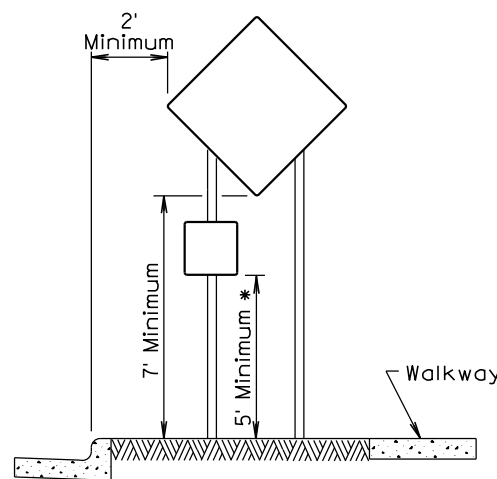
Published Date: 2nd Qtr. 2016	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1



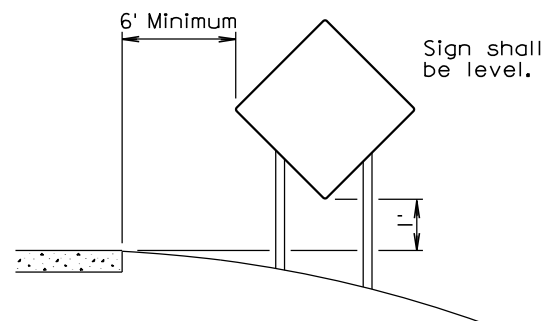
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

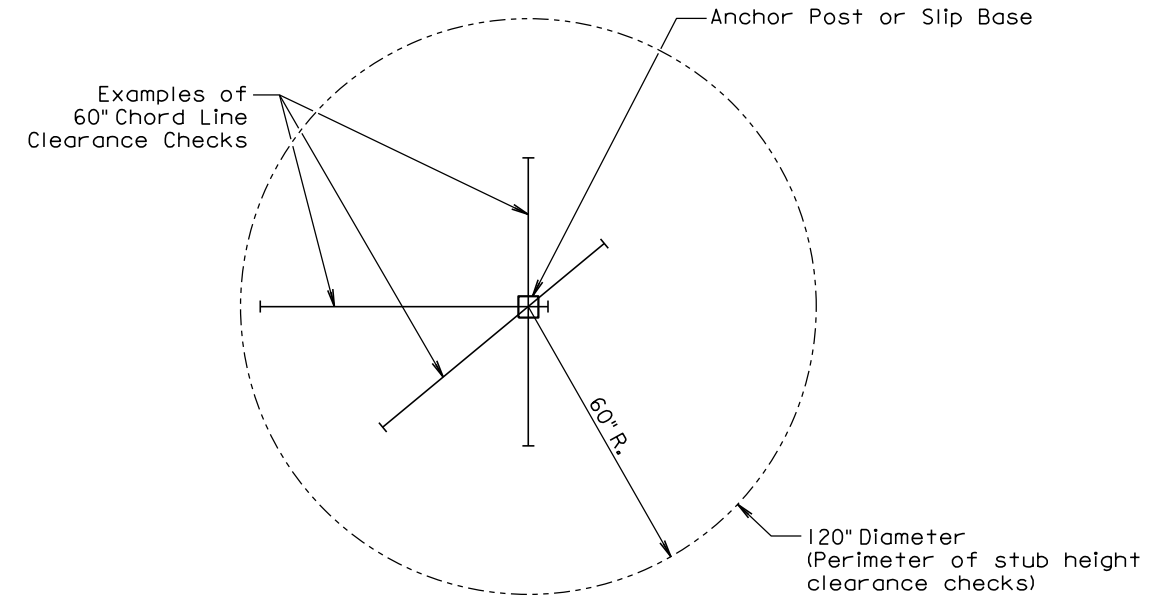


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

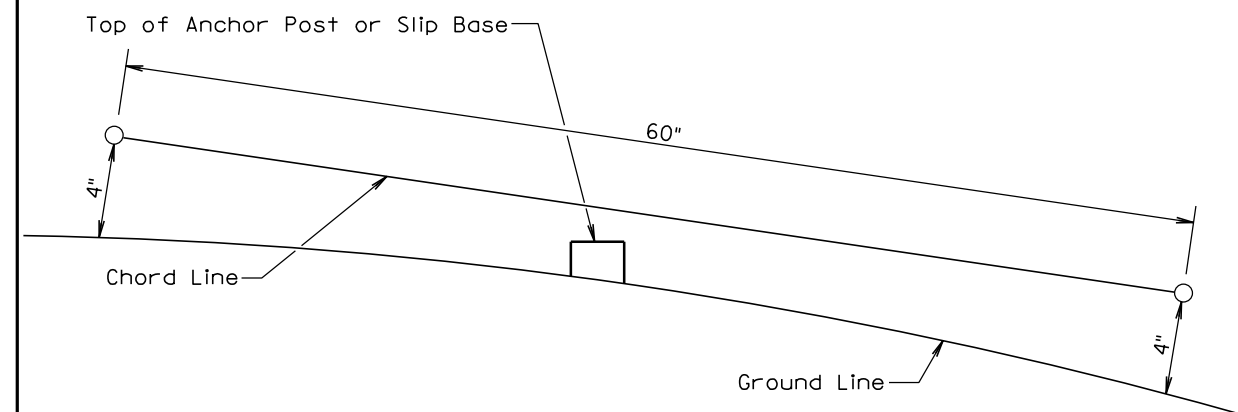
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

Published Date: 2nd Qtr. 2016	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



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.

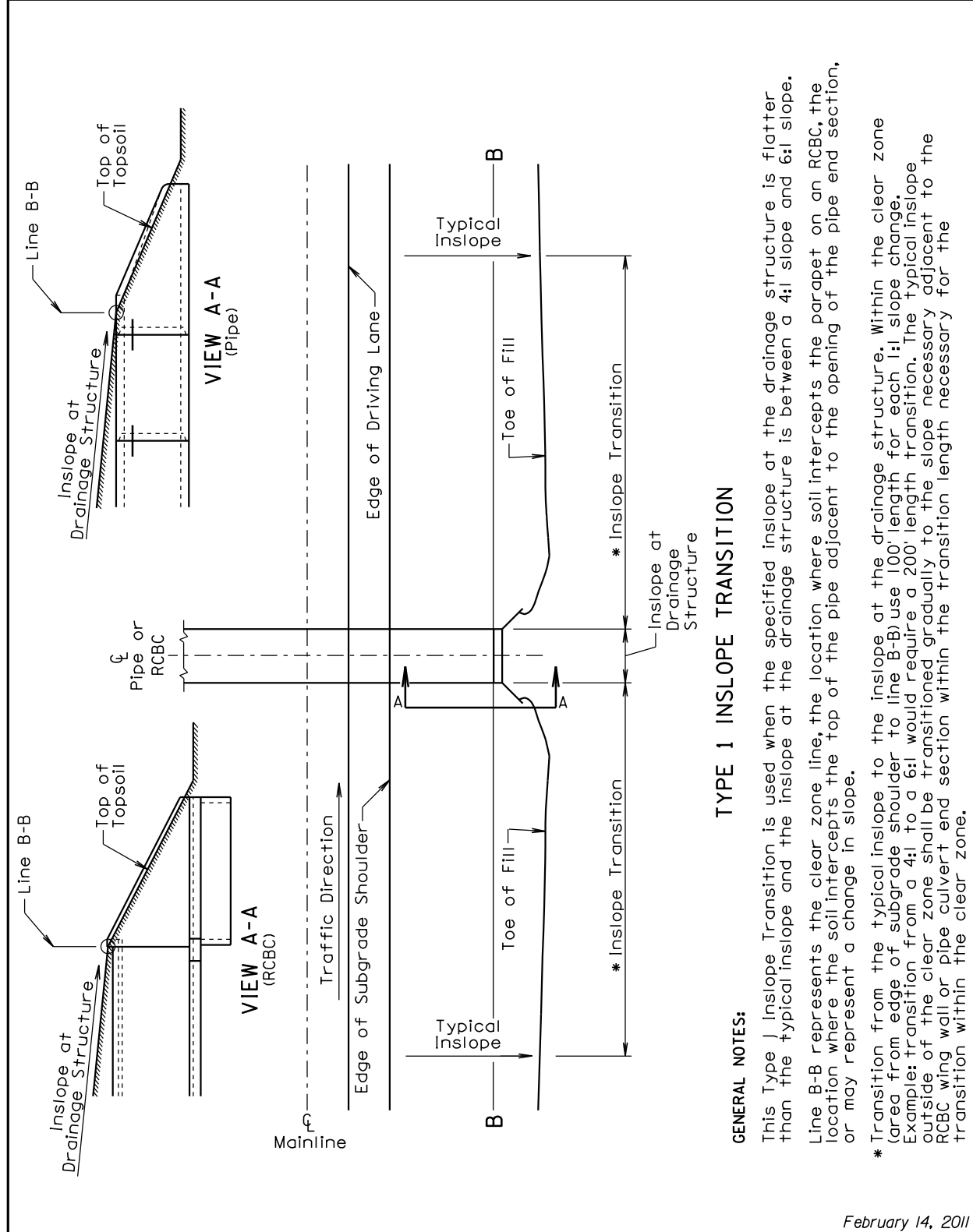
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

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

Published Date: 2nd Qtr. 2016	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

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TYPE 1 INSLOPE TRANSITION

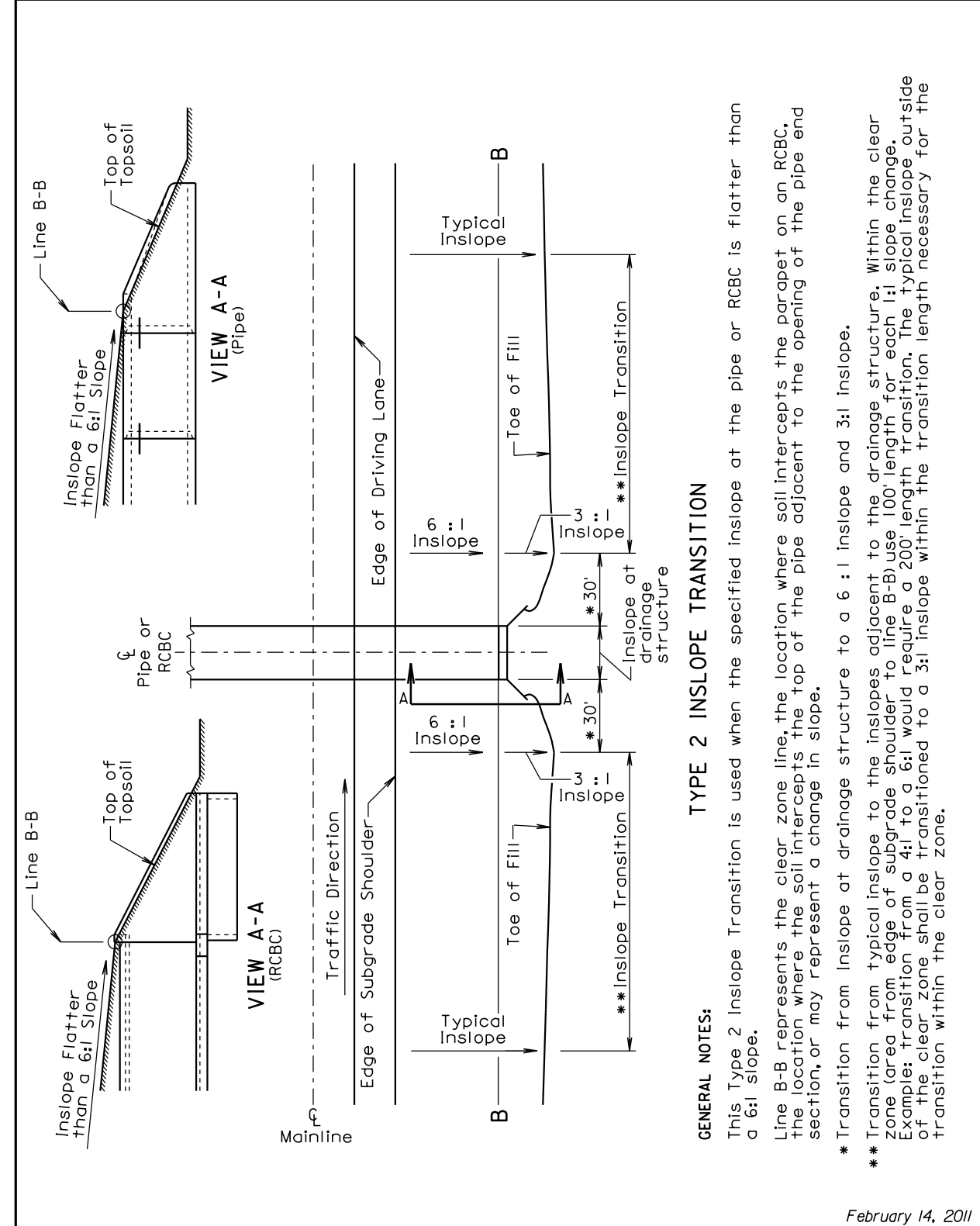
GENERAL NOTES:

This Type J Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

February 14, 2011

Published Date: 2nd Qtr. 2016	SDOT	INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS	PLATE NUMBER
			120.05
			Sheet 1 of 2



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

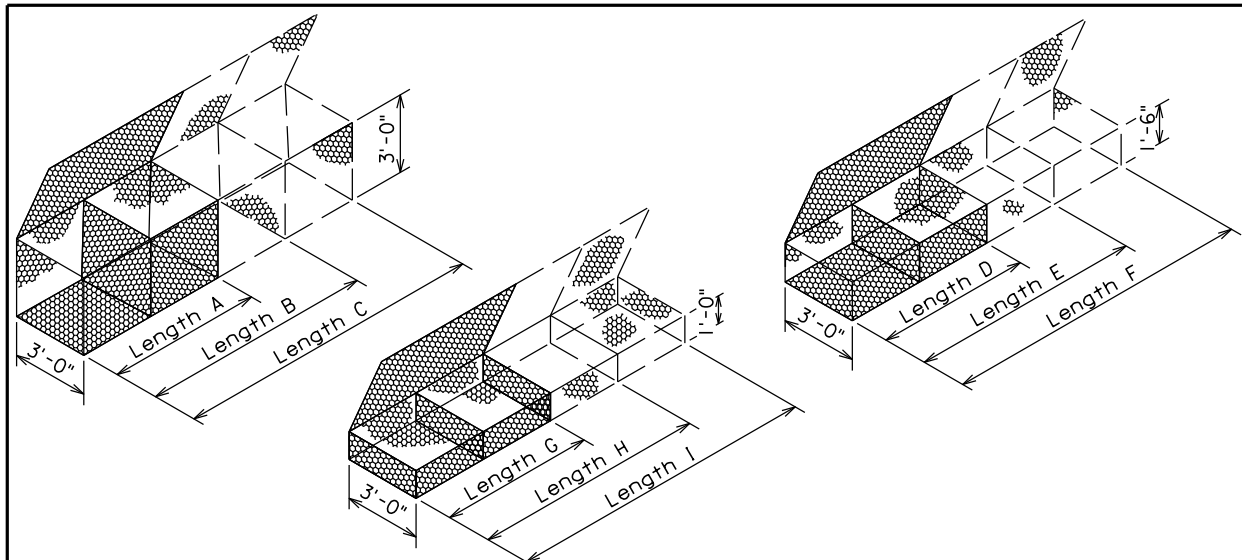
Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from inslope at drainage structure to a 6:1 inslope and 3:1 inslope.

** Transition from typical inslope to the inslope adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

February 14, 2011

Published Date: 2nd Qtr. 2016	SDOT	INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS	PLATE NUMBER
			120.05
			Sheet 2 of 2



**GABION DETAILS
STANDARD SIZES**

SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY, Cu. Yd.
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire shall be 0.0866 inch diameter steel wire ASTM A641 Class 3 soft temper measured after galvanizing and for PVC coated gabions shall be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1 1/2 times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

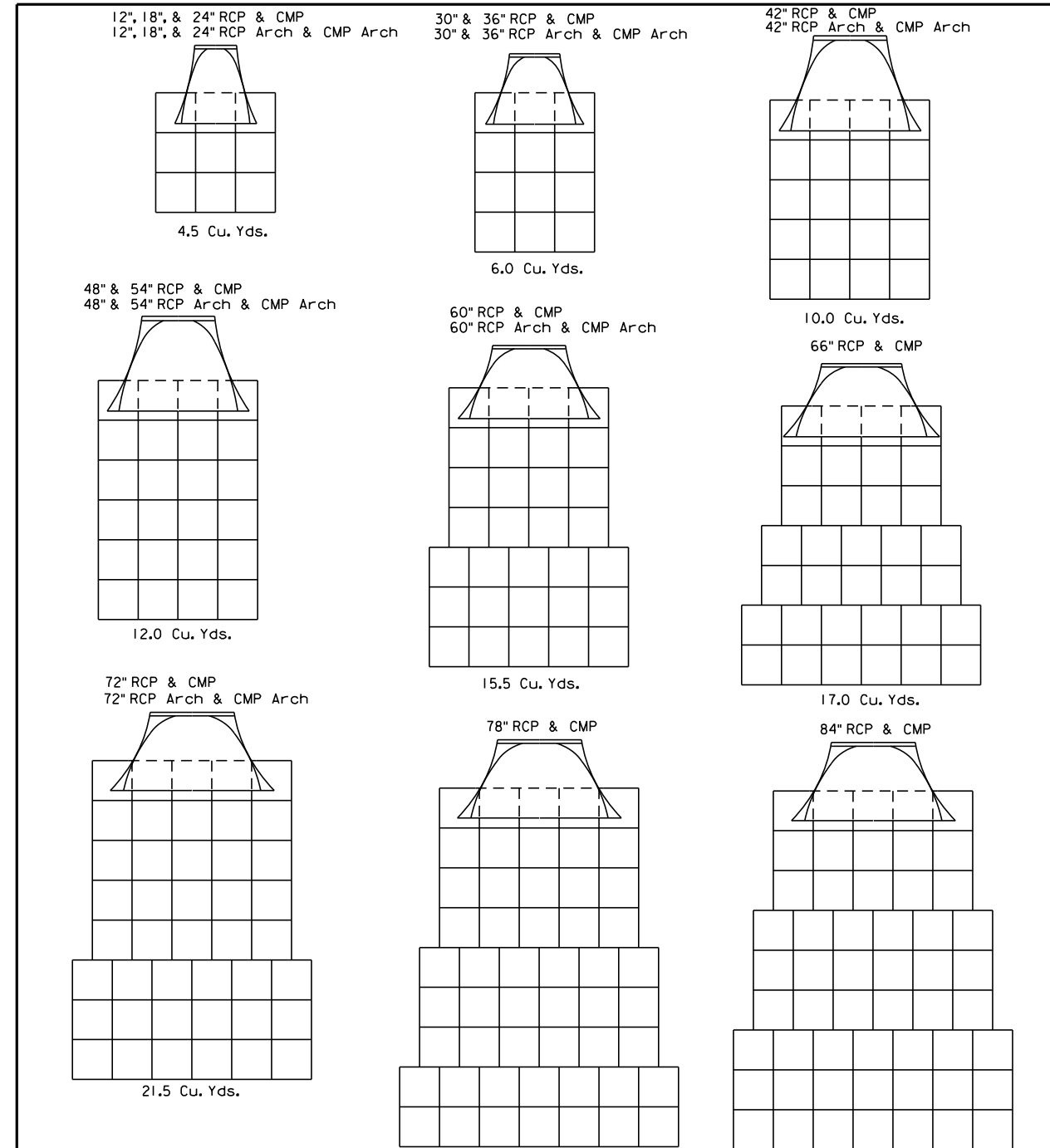
Wire lacing or interlocking type fasteners shall be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions shall be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing shall conform to ASTM A641-92 Class 3 coating. Fasteners shall also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class I. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches.

All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

Published Date: 2nd Qtr. 2016	S D D O T	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



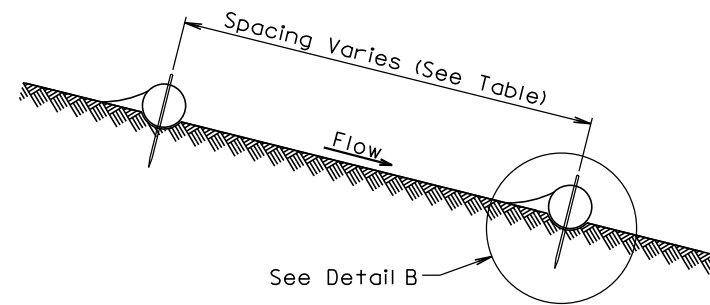
GENERAL NOTES:

Gabions at outlets of C.M. pipe and R.C. pipe shall be placed under the end section a distance of 2' from the outlet end of the section. For C.M. pipe end section installations, the upper fabric of the gabions shall be modified to accommodate the metal end section in a manner approved by the Engineer.

Quantities shown on this standard plate are based on standard gabion sizes D, E, and F (See Standard Plate 720.01).

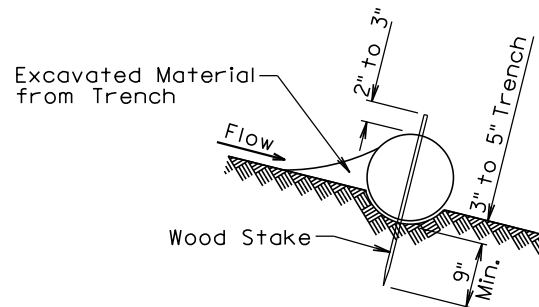
June 26, 2001

Published Date: 2nd Qtr. 2016	S D D O T	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 1

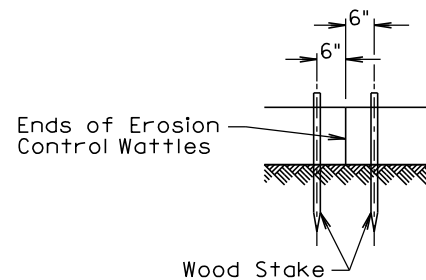


CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40

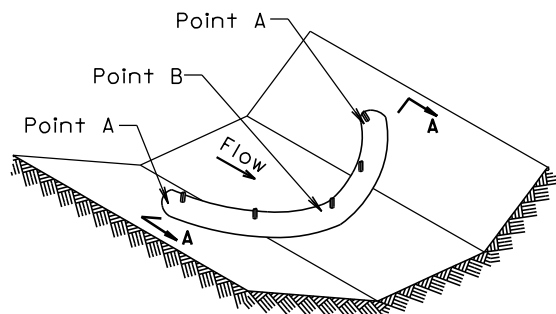
ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION



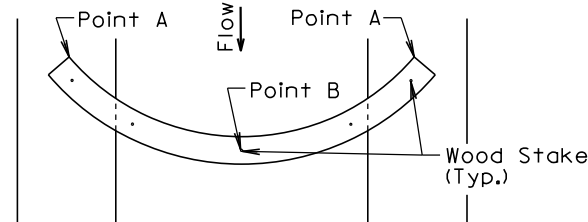
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



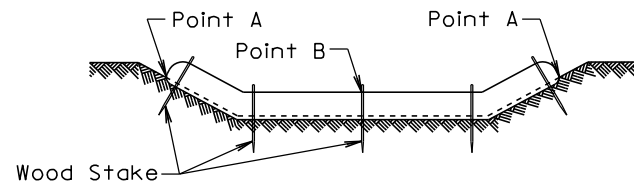
DETAIL C



ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION



SECTION A-A

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

December 23, 2004

Published Date: 2nd Qtr. 2016	S D D O T	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 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. 2016	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
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