



Department of Transportation

Office of Project Development

700 E Broadway Avenue

Pierre, South Dakota 57501-2586 605/773-3268

FAX: 605/773-2614

November 15, 2016

ADDENDUM NO. 1

RE: Item #1, December 7, 2016 Letting - BRO 8046(00)16-3, PCN 05R6, Marshall County - Structure Replacement (2-12'x9' Precast BC)

TO WHOM IT MAY CONCERN:

The following addenda to the plans shall be inserted and made a part of your proposal for the referenced project.

SPECIAL PROVISIONS: NO CHANGE

BID ITEM FILE: NO CHANGE

PLANS: Complete set was replaced due to an error in processing the printing.

Sincerely,

Sam Weisgram
Engineering Supervisor

SW/cj

CC: Jeff Senst, Aberdeen Region Engineer
Phil Dwight, Aberdeen Area Engineer

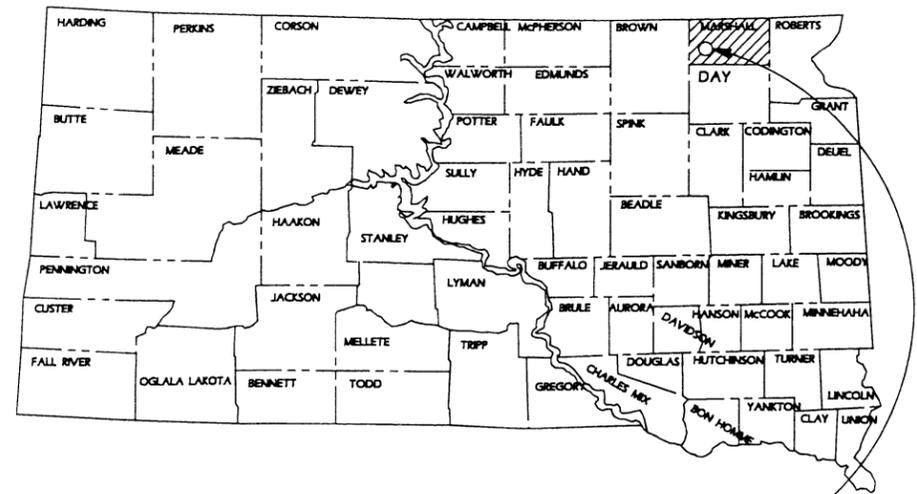
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8046(00)16-3	1	22

Revised 11-8-2016

**STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED**

**PROJECT
BRO 8046 (00)16-3
Marshall County**

**Structure Replacement and Approach Grading
Structure Number 46-060-200
PCN 05R6**



Project

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Sheet No's. 21 thru 22	Cross-Section Sheets

BEGIN PROJECT BRO 8046 (00)16-3:

Sta. 2+00.00. A point approximately 325 feet West of the NE Corner of Section 13-T125N-R59W.

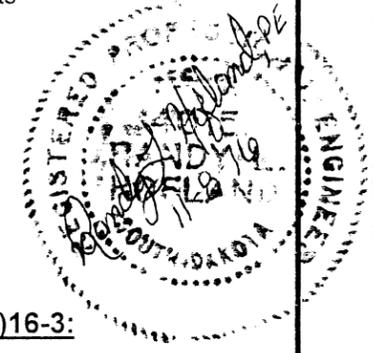
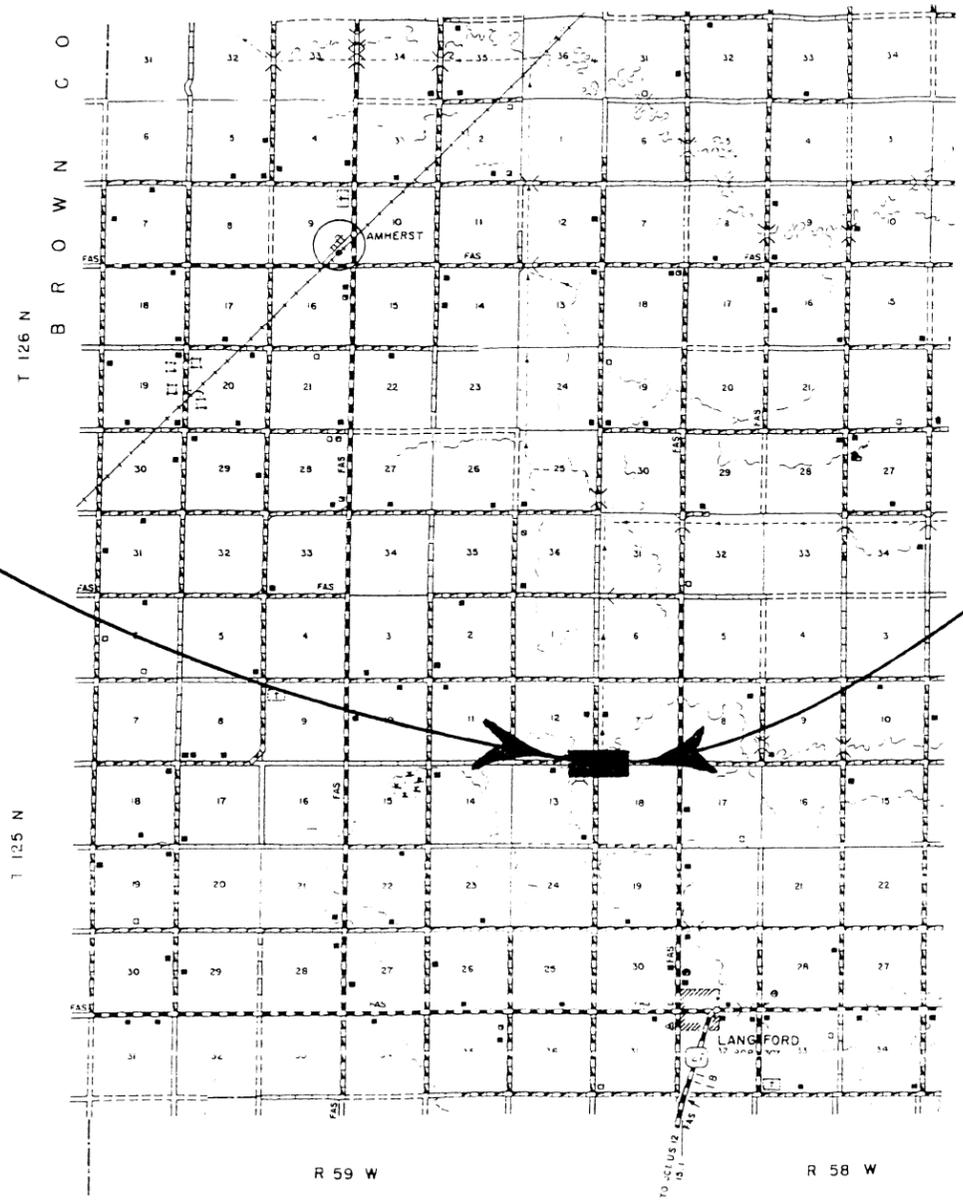
END PROJECT BRO 8046 (00)16-3:

Sta. 8+50.00. A point approximately 325 feet East of the NE Corner of Section 13-T125N-R59W.

Storm Water Permit:

Major receiving Body of Water: James River
Disturbed Area = 0.37 Acres
Project Area = 0.85 Acres
Latitude: 45.646141
Longitude: -97.855441

DESIGN DESIGNATION	Structure No. 46-060-200
ADT (2009)	30
ADT (2020)	40
DHV	8
D	50%
T DHV	3.9%
T ADT	8.6%
V	30 MPH



Survey by: HOFLAND ENGINEERING
P.O. Box 1006
Aberdeen, South Dakota 57401

Plans by: HOFLAND ENGINEERING
P.O. Box 1006
Aberdeen, South Dakota 57401

ESTIMATE OF QUANTITIES AND PLAN NOTES

ESTIMATE OF QUANTITIES

Grading Quantities:

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1700	Remove Silt Fence	125	Ft
120E0010	Unclassified Excavation	625	CuYd
120E0600	Contractor Furnished Borrow Excavation	335	CuYd
230E0010	Placing Topsoil	240	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
634E0110	Traffic Control Signs	218.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0260	Type 3 Barricade, 6' Single Sided	4	Each
634E0265	Type 3 Barricade, 6' Double Sided	4	Each
634E0280	Type 3 Barricade, 8' Single Sided	8	Each
734E0010	Erosion Control	Lump Sum	LS
734E0604	High Flow Silt Fence	540	Ft
734E0610	Mucking Silt Fence	25	CuYd
734E0620	Repair Silt Fence	125	Ft
734E0900	Temporary Diversion Channel and/or Pipe	1	Each

Structure Quantities (46-060-200):

Bid Item Number	Item	Quantity	Unit
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	65	CuYd
421E0200	Box Culvert Undercut	178	CuYd
560E2172	2-12'x9' Precast Concrete Box Culvert, Furnish	40	Ft
560E2173	2-12'x9' Precast Concrete Box Culvert, Install	40	Ft
560E3172	2-12'x9' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E3173	2-12'x9' Precast Concrete Box Culvert End Section, Install	2	Each
700E0210	Class B Riprap	127.0	Ton
831E0110	Type B Drainage Fabric	151.1	SqYd

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 necks are kept straight and their long dark legs trail behind. Adult Whooping Crane's 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 the USFWS.

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 Environmental and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT D1: SURFACE WATER QUALITY

Hines Creek is classified as fish and wildlife propagation, recreation, irrigation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken / Required:

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environmental and Natural Resources (DENR), apply to this project. Special construction measures shall be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

Hines Creek is classified as fish and wildlife propagation, recreation, irrigation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

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.

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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 County ROW.

The Waste Disposal Site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railroad Construction/Demolition Debris Disposal Under South Dakota Waste Management Program issued by the Department of Environmental 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/Demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the County 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 the waste disposal sites not within the County 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 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 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 J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

The Contractor is advised that special construction measures have to be taken to ensure that the waterways of the U.S. are not impacted.

Action Taken / Required:

No excavation shall be made below the ordinary high water elevation in Protected Waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting; and the natural streambed shall not be disturbed without permission from the Engineer. The Ordinary High Water Elevation is 1313.7 for Structure Number 46-060-200.

All dredged or excavated materials shall be placed at a site above the Ordinary High Water Elevation in a confined area (not classified as a wetland) to prevent return of such materials to the waterway.

The construction of temporary work platforms, crossings, or berms below the Ordinary High Water Elevation will be allowed provided that all material placed below the Ordinary High Water Elevation consists of Class B or larger riprap.

All temporary caissons, cribs, cofferdams, steel piling, sheeting, work platforms, crossings, and berms shall be removed with minimal disturbance to the streambed. Proper construction practices shall be used to minimize increases in suspended solids and turbidity in the waterway.

Bridge berms, wing dams, traffic diversions, channel reconstruction, grading, etc. shall be constructed in close conformity with the plans to ensure that the hydraulic capacity of the waterway is not changed.

Temporary waterway crossings required for the Contractors construction operations shall be constructed with an adequate drainage structure size and minimum fill height to reduce the potential for upstream flooding. The Contractor will be responsible for sizing the temporary drainage structure for these crossings.

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.

WORK TO BE PERFORMED BY THE COUNTY:

Marshall County will perform the following items of work at no cost to the Contractor:

1. Arrange for Utility adjustments as necessary.
2. Obtain Permanent and Temporary Easements as necessary.
3. Remove existing fence and install temporary and permanent fence as necessary.
4. Furnish and install gravel surfacing.
5. Furnish and install Permanent Traffic Control Signing.
6. Remove Silt Fence when vegetation has been established in areas where permanent seeding is required.
7. Removal of salvaged structure members stockpiled at the project site.

SALVAGING, STOCKPILING, AND PLACING TOPSOIL:

Prior to removal of Unclassified Excavation, the Contractor shall remove and stockpile the in-place topsoil from the construction areas. The areas to be covered with topsoil to a depth of 3 inches comprise all newly graded areas, within the right-of-way, exclusive of the top of subgrade. Areas to be covered to a depth of 6 inches include all newly graded easement areas outside of the right-of-way. Vegetation shall be incorporated and placed with the topsoil as far a practical. The plan shown quantity for placing topsoil will be the basis of payment without further field measurements. If changes are necessary on construction, the altered quantity will be measured for payment.

The estimated amount of topsoil required to cover the designated areas to the specified depth including 30% allowance for shrinkage is 240 Cu. Yds.

UNCLASSIFIED EXCAVATION:

“Unclassified Excavation” will be measured for payment on a plans quantity basis in accordance with Section 120.4 of the Specifications.

TABLE OF EXCAVATION QUANTITIES:

Unclassified Excavation	385 Cu. Yds.
Topsoil	<u>240 Cu. Yds.</u>
 Total Unclassified Excavation	 625 Cu. Yds.

INCIDENTAL WORK, GRADING:

Channel cleanout approximately 25 feet upstream to approximately 25 feet downstream is to be performed by the Contractor. The existing channel shall be altered only as necessary with as little channel disturbance as needed. For informational purposes only, it is estimated that 50 Cu. Yds. of excavation will be required for channel cleanout. The excavated material generated by the channel work is to be disposed of by the Contractor as approved by the Engineer.

The foregoing is a general description of the channel shaping and cleanout and shall not be construed to be complete in all details. Before preparing a bid, it shall be the responsibility of the Contractor to make a visual inspection of the site to verify the extent of the work and material involved.

Payment for all the above described work shall be made at the contract lump sum price for “Incidental Work, Grading”.

EXISTING UTILITIES:

Utilities within the limits of the proposed construction are to be adjusted by the Owner unless otherwise indicated on these plans.

It shall be the Contractors responsibility to notify SD One-Call (800-781-7474) for locating utilities throughout the work area before any earthwork or excavation begins.

Utilities in the project area are as follows:

- Lake Region Electric Phone Number (605) 345-3379
- BDM Rural Water Systems Phone Number (605) 448-5417
- Venture Communications Phone Number (800) 824-7282

EROSION CONTROL:

The contract lump sum price for “Erosion Control” includes all material, equipment, and labor necessary to seed and mulch all areas within the right-of-way and easement areas, exclusive of the top of subgrade, disturbed by construction of this project.

The seed mixture shall consist of the following:

	Pure Live Seed (PLS) Pounds per Acre
Intermediate Wheat Grass (Oahe)	10
Green Needle Grass	<u>8</u>
Total	18

Area to be seeded and mulched is estimated at 0.5 acre.

Limits of Erosion Control work shall be determined by the Engineer on construction.

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	BRO 8046(00)16-3	5	22

HIGH FLOW SILT FENCE:

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://www.state.sd.us/Applications/HC54ApprovedProducts/main.asp>

High flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

REMOVE SILT FENCE:

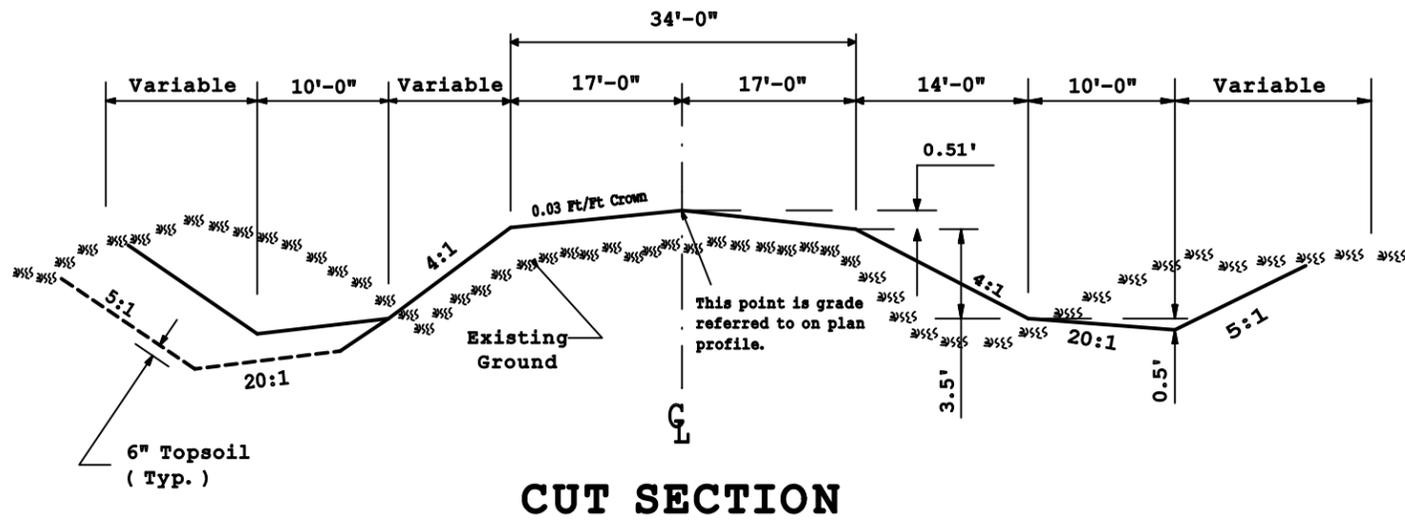
Silt Fence shall be removed when vegetation is established. Some or all of the silt fence may be left on the project until vegetation is established. Quantities for all silt fence left in place will be deducted from the quantity for the Bid Item "Remove Site Fence". It is the responsibility of the County for removal of the silt fence after vegetation is established.

TEMPORARY DIVERSION OF THE STREAM OR DRAINAGE AREA:

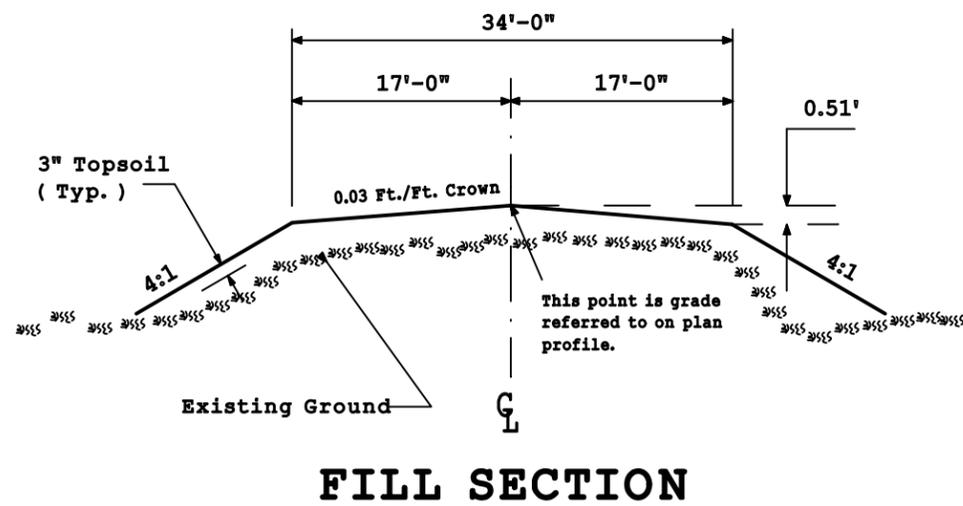
Any Temporary Diversion of the stream or drainage area during construction shall be constructed in accordance with the details on Standard Plate 734.30.

It will be at the discretion of the Contractor to decide which end of the structure (East or West) is best suited to locate the temporary stream diversion.

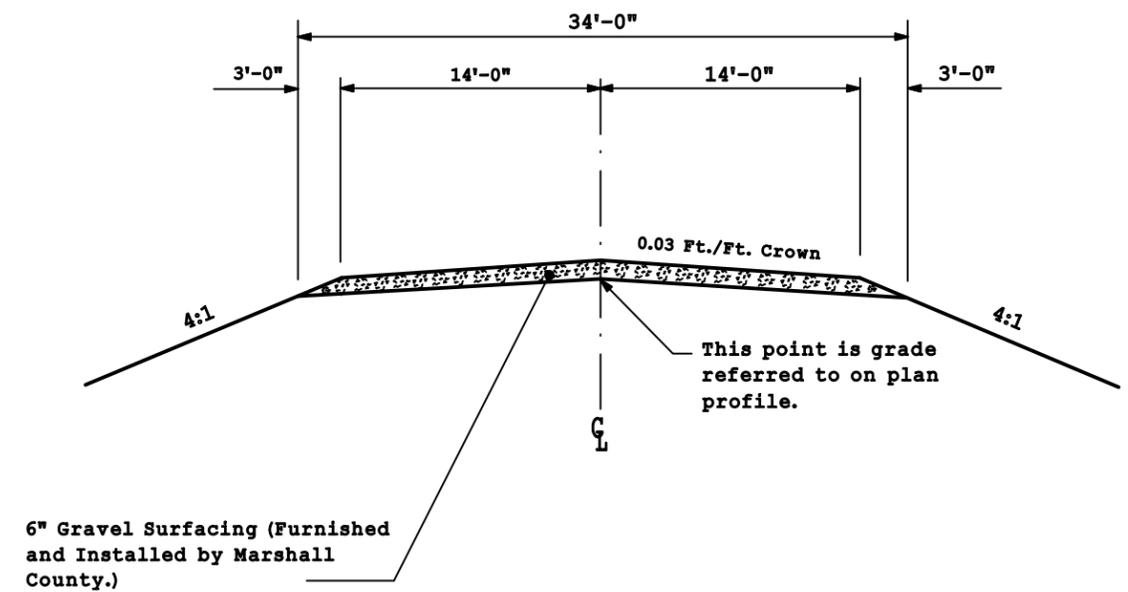
All temporary stream diversion operations shall be confined to the project easements.



The roadway fill slopes transitions into an existing drainage ditch from Sta. 2+00 to Sta. 5+00 on the right. The fill slopes are to daylight into the drainage ditch as detailed on the plan x-sections sheets.

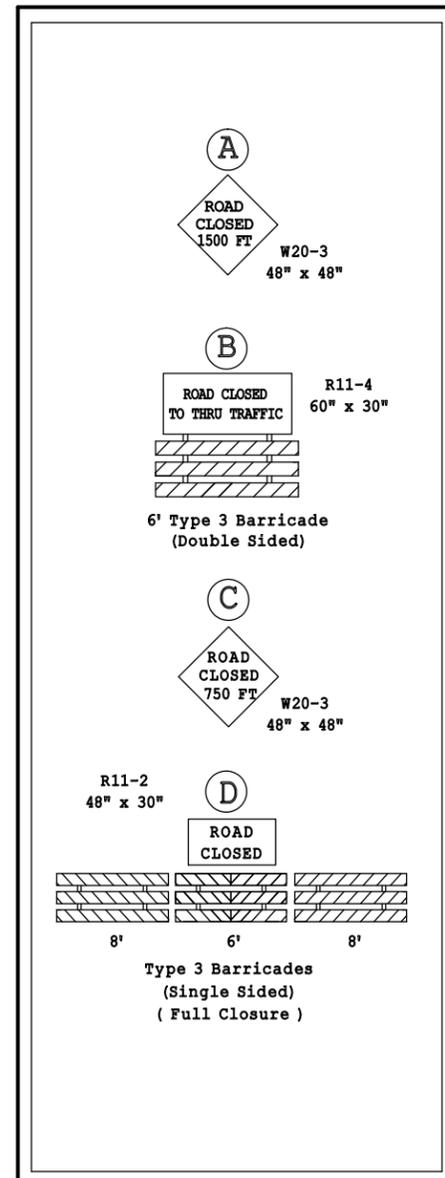
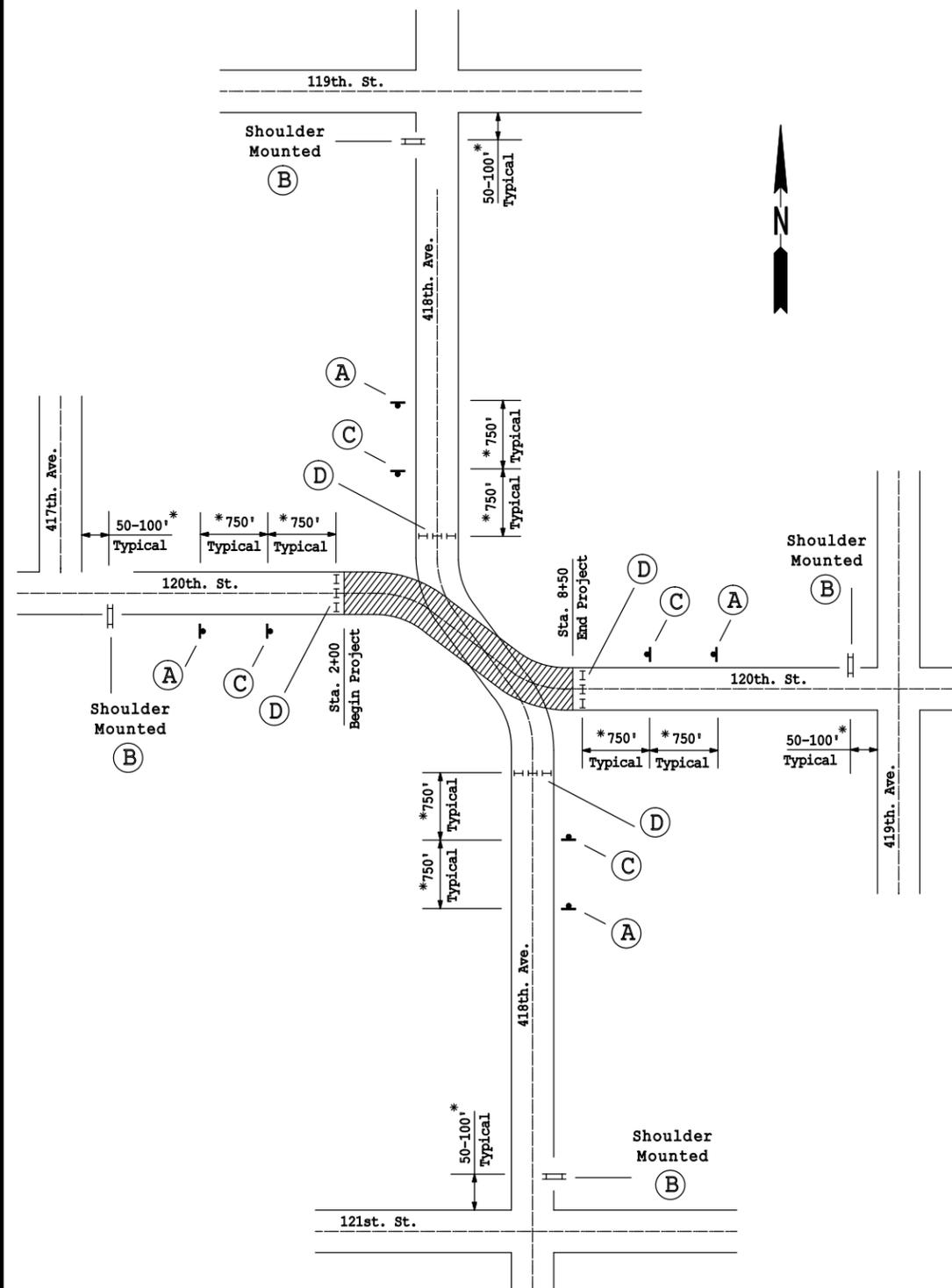


TYPICAL GRADING SECTIONS



TRAFFIC CONTROL FIXED LOCATION SIGNS

Ground Mounted Supports (Typical)
Project No. BRO 8046(00)16-3; Structure No. 46-060-200



SIGNING LEGEND

NOTES:

* Sign spacing and sign legend distance may be adjusted to compensate for sight or project conditions.

ITEMIZED LIST FOR TRAFFIC CONTROL BID ITEM

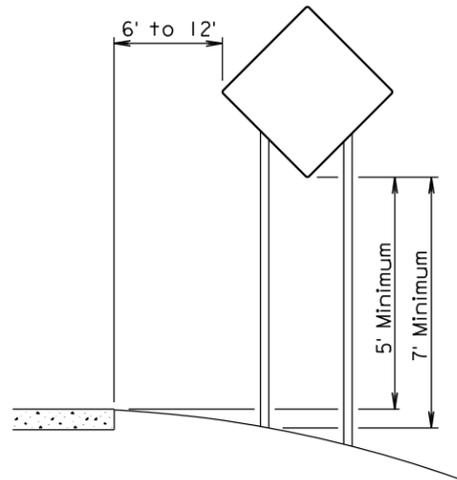
SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	SQFT PER SIGN	SQFT
R11-2	48 x 30	ROAD CLOSED	4	10.0	40.0
R11-4	60 x 30	ROAD CLOSED TO THRU TRAFFIC	4	12.5	50.0
W20-3	48 x 48	ROAD CLOSED #### DT. OR AHEAD	8	16.0	128.0
TOTAL					218.0

ITEM DESCRIPTION

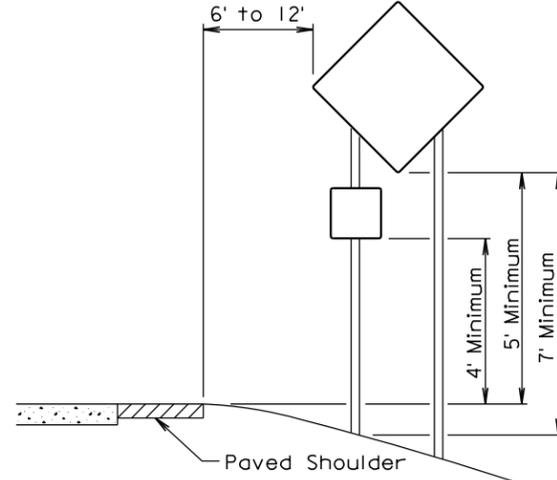
Type 3 Barricade, 6' Single sided
Type 3 Barricade, 6' Double sided
Type 3 Barricade, 8' Single sided

QUANTITIY

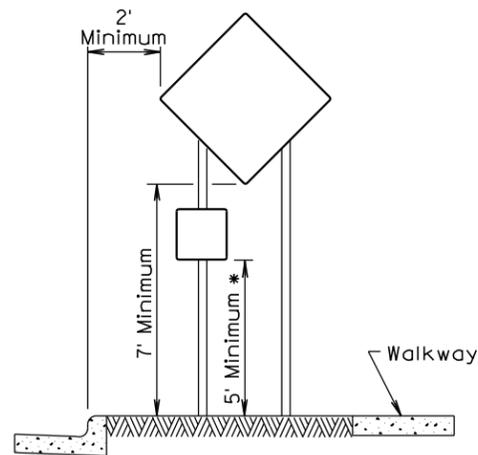
4 Each
4 Each
8 Each



RURAL DISTRICT

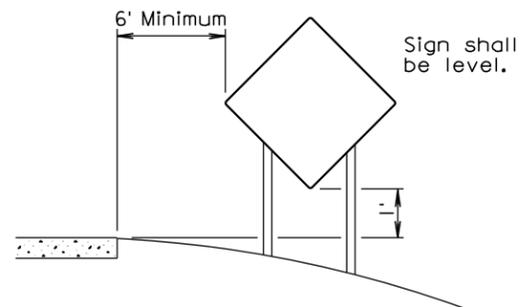


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

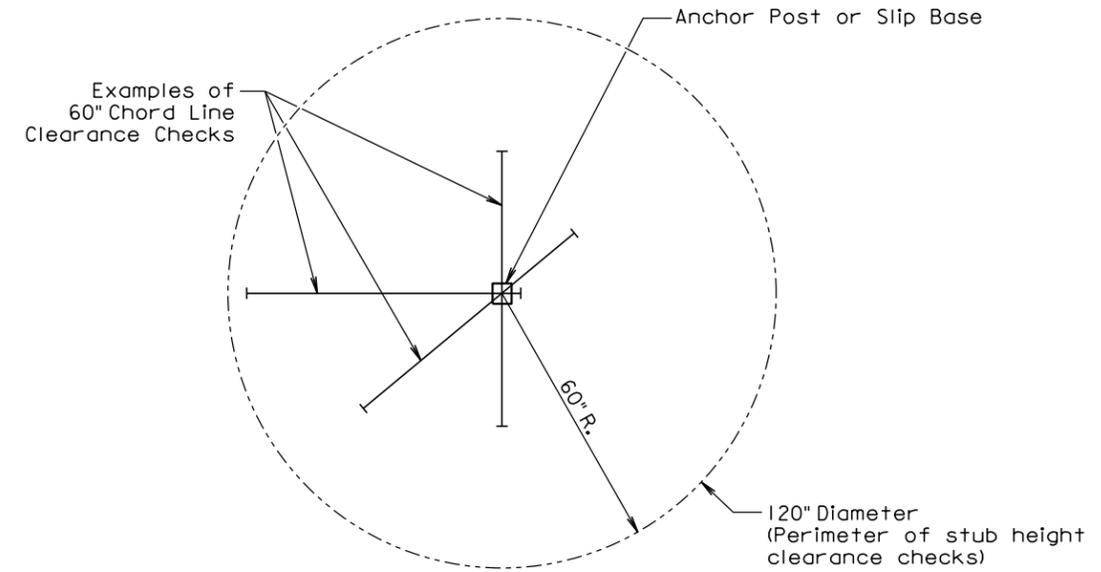
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



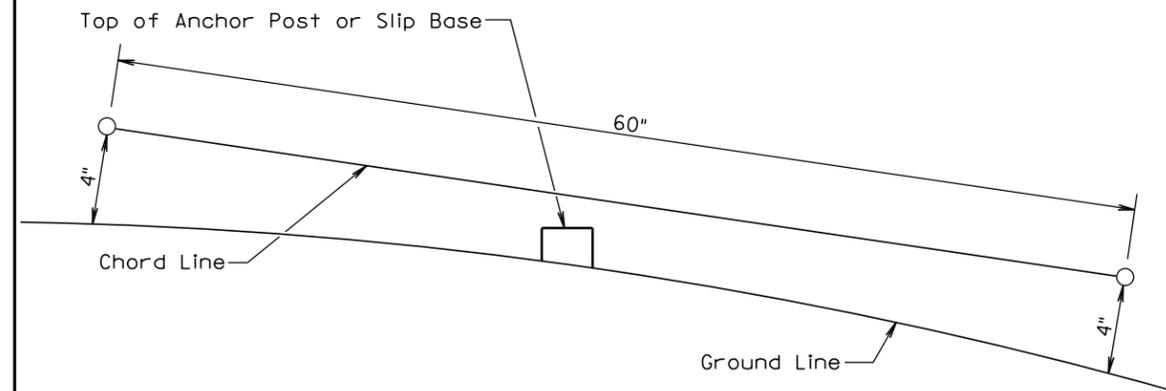
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

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.

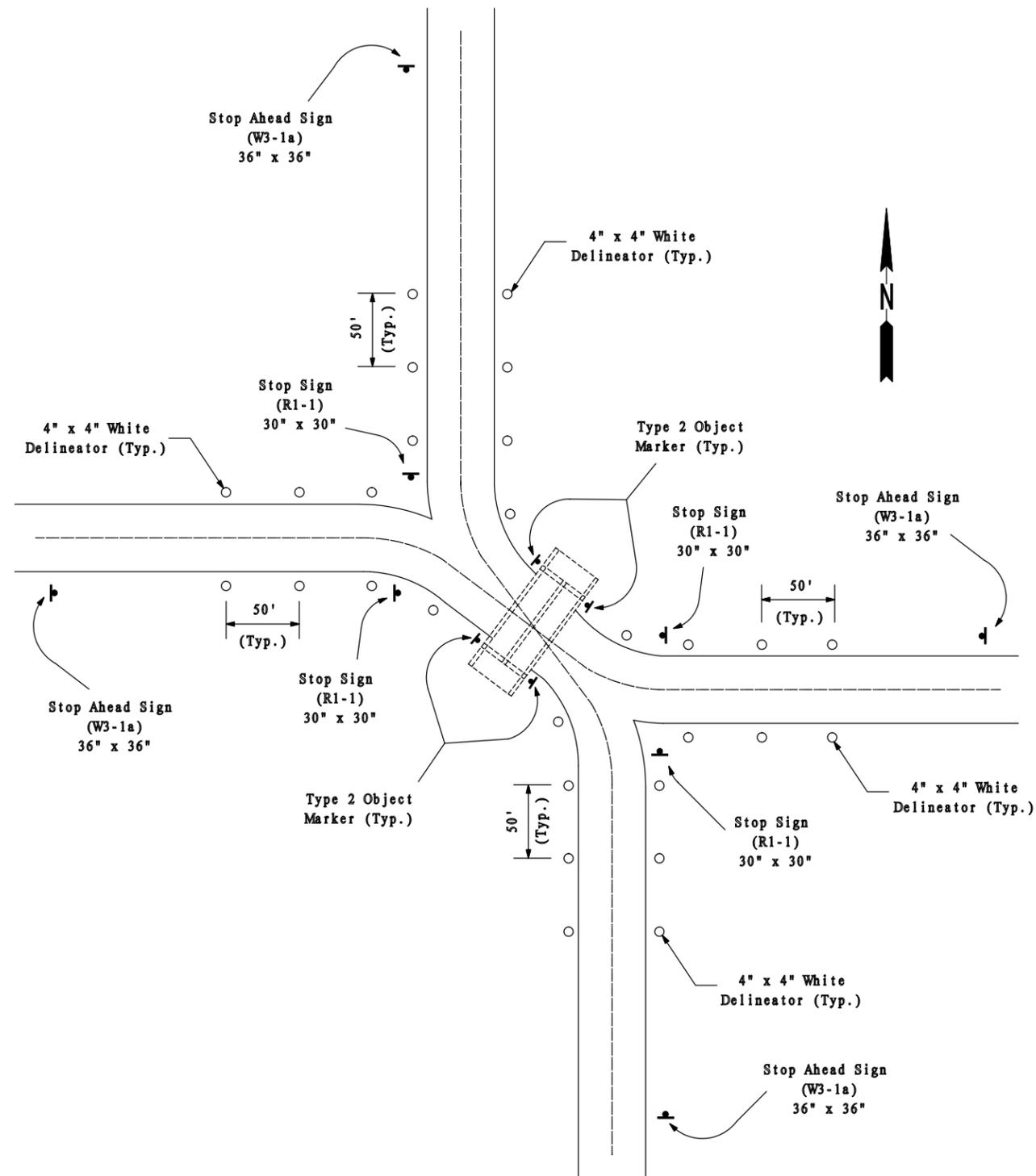
July 1, 2005

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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Note: Marshall County Maintenance Forces shall install new Signing, Type 2 Object Markers, and Permanent Delineators.

PERMANENT SIGNING AND DELINEATION LAYOUT (For Informational Purposes Only)



STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

(The numbers right of the title headings are reference numbers to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)

SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Cutting and filling
 - Other (describe):
- **Total Project Area 0.85 (4.2 1.b.)**
- **Total Area To Be Disturbed 0.37 (4.2 1.b.)**
- **Existing Vegetative Cover (%) 80%**
- **Soil Properties: AASHTO Soil or USDA-NRCS Soil**
Series Classification (4.2 1. d.)
- **Name of Receiving Water Body/Bodies (4.2 1.e.)**

ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Construct Box Culvert.**
- **Complete final grading.**
- **Complete final gravel surfacing.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities.**

EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
 - Temporary Seeding (Cover Crop Seeding)
 - Permanent Seeding
 - Sodding
 - Planting (Woody Vegetation for Soil Stabilization)
 - Mulching (Grass Hay or Straw)
 - Hydraulic Mulch (Wood Fiber Mulch)
 - Soil Stabilizer
 - Bonded Fiber Matrix
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Dust Control (See Section F – Surfacing Plans)
 - Other:

Structural Temporary Erosion and Sediment Controls

- Silt Fence
 - Floating Silt Curtain
 - Straw Bale Check
 - Temporary Berm
 - Temporary Slope Drain
 - Straw Wattles or Rolls
 - Turf Reinforcement Mat
 - Rip Rap
 - Gabions
 - Rock Check Dams
 - Sediment Traps/Basins
 - Inlet Protection
 - Outlet Protection
 - Surface Inlet Protection (Area Drain)
 - Curb Inlet Protection
 - Stabilized Construction Entrances
 - Entrance/Exit Equipment Tire Wash
 - Interceptor Ditch
 - Concrete Washout Facility
 - Temporary Diversion Channel
 - Work Platform
 - Temporary Water Barrier
 - Temporary Water Crossing
 - Other:
- **Wetland Avoidance**
Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes No If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.
- **Storm Water Management (4.2 2.b., (1) and (2))**
Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
- **Waste Disposal**
All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general Contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
 - **Hazardous Waste**
All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the Contractor's on-site representative will be responsible for seeing that these practices are followed.
 - **Sanitary Waste**
Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management Contractor or as required by any local regulations.

MAINTENANCE AND INSPECTION (4.2 3. and 4.2 4.)

- **Maintenance and Inspection Practices**
 - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
 - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
 - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
 - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
 - Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.
 - All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
 - Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
 - The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance, repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

NON-STORM WATER DISCHARGES(3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

MATERIALS INVENTORY (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other:

SPILL PREVENTION(4.2 2.c.(2))

➤ **Material Management**

▪ Housekeeping

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

▪ Hazardous Materials

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

➤ **Product Specific Practices (6.8)**

▪ Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

▪ Fertilizers

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

▪ Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

▪ Concrete Trucks

Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

➤ **Spill Control Practices (4.2 2 c.(2))**

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

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

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.

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If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

SPILL NOTIFICATION

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

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
 - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
 - The discharge causes an immediate danger to human health or safety.
 - The discharge exceeds 25 gallons.
 - The discharge causes a sheen on surface water.
 - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
 - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
 - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
 - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

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

CONSTRUCTION CHANGES(4.4)

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

CERTIFICATIONS

➤ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➤ **South Dakota Department of Transportation**

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



Authorized Signature (See the General Permit, Section 6.9.1.C.)

➤ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

CONTACT INFORMATION

➤ **Contractor Information:**

- Prime Contractor Name: _____
- Contractor Contact Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **Erosion Control Supervisor**

- Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **SDDOT Project Engineer**

- Name: _____
- Business Address: _____
- Job Office Location: _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **SD DENR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SD DENR Contact for Hazardous Materials.**

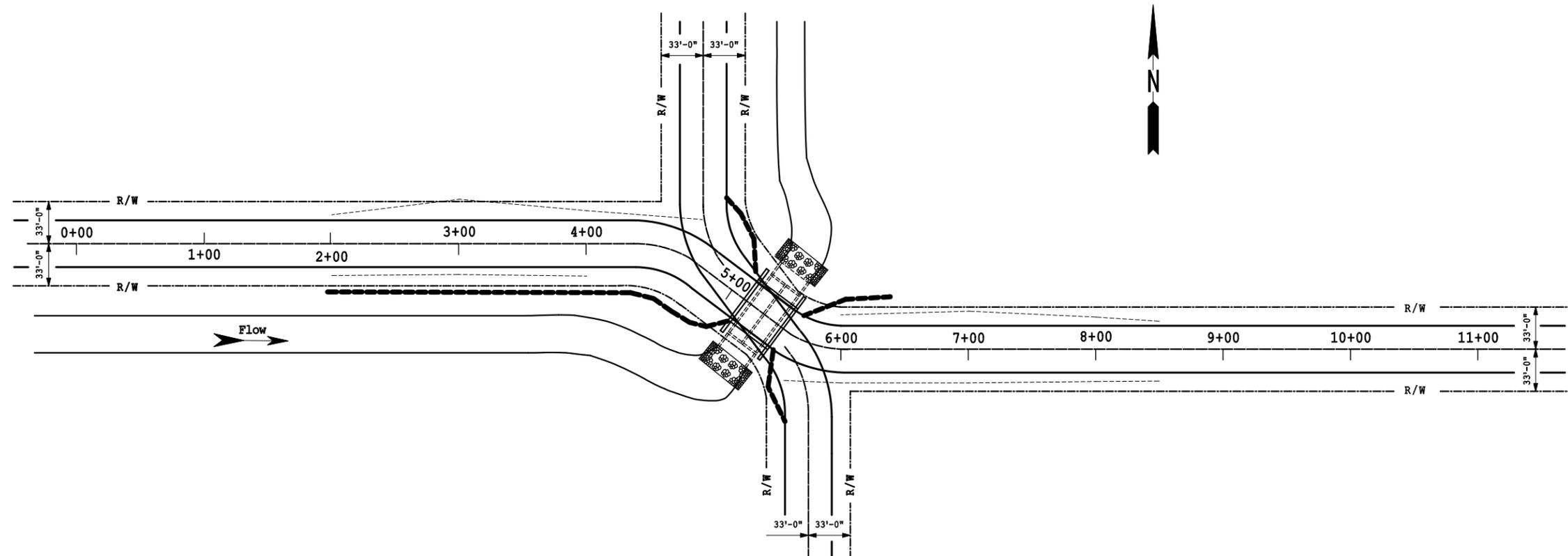
- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

TABLE OF HIGH FLOW SILT FENCE		
STATION	OFFSET	QUANTITY (FT)
2+00 to 5+10	22-20' Right	325
4+70 to 5+10	50-18' Left	70
5+60 to 5+80	18-70' Right	70
5+60 to 6+35	18-40' Left	75
Total		540

EROSION & SEDIMENT CONTROL



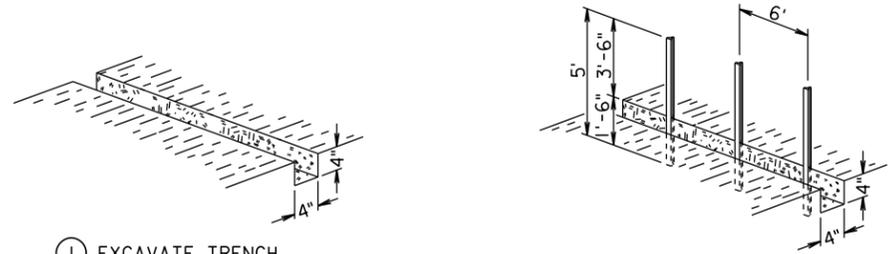
LEGEND	
	Silt Fence

NOTE:

All Silt Fence and Erosion Control Devices shall be installed within the Project Easement Limits.

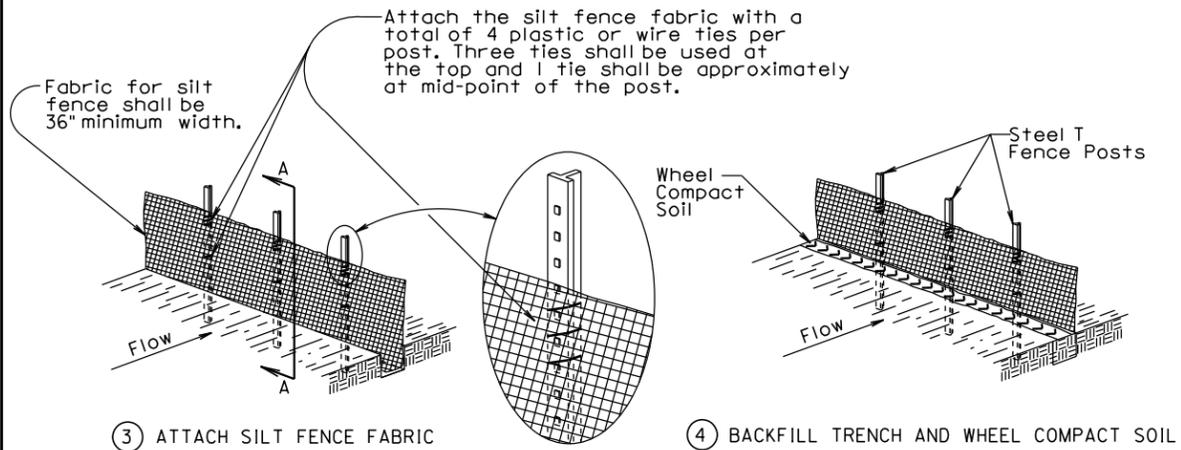
Following the completion of Box Culvert Construction and Final Grading Operations, the Engineer may direct the Contractor to install additional Silt Fence as necessary.

MANUAL HIGH FLOW SILT FENCE INSTALLATION



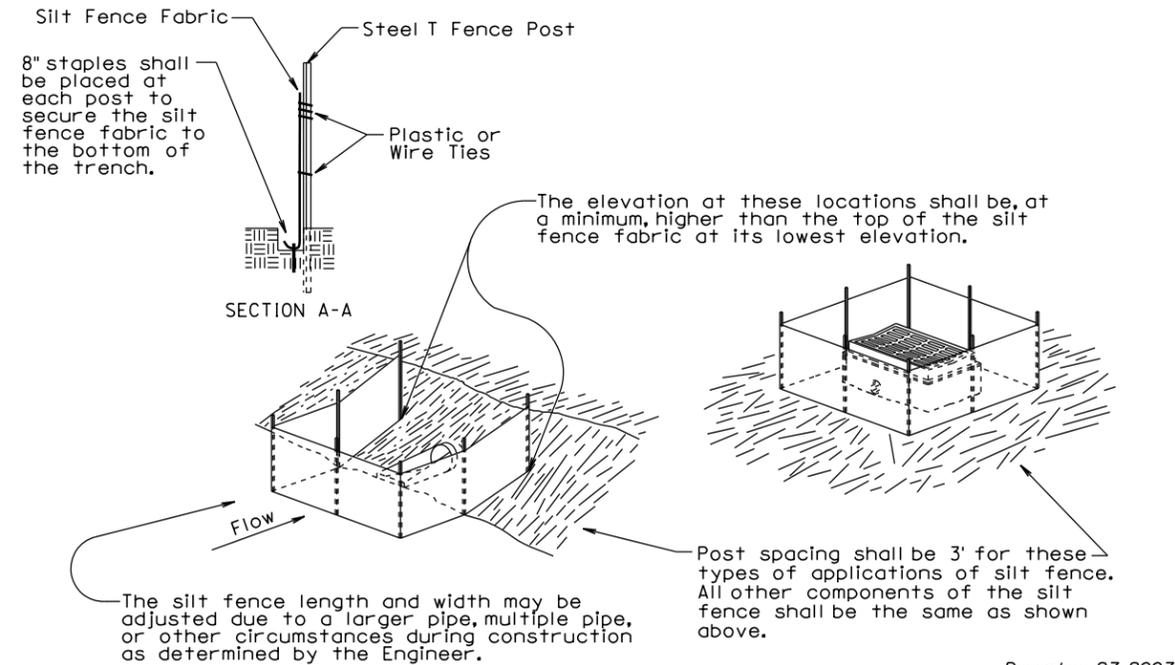
① EXCAVATE TRENCH

② DRIVE STEEL T FENCE POSTS



③ ATTACH SILT FENCE FABRIC

④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



SECTION A-A

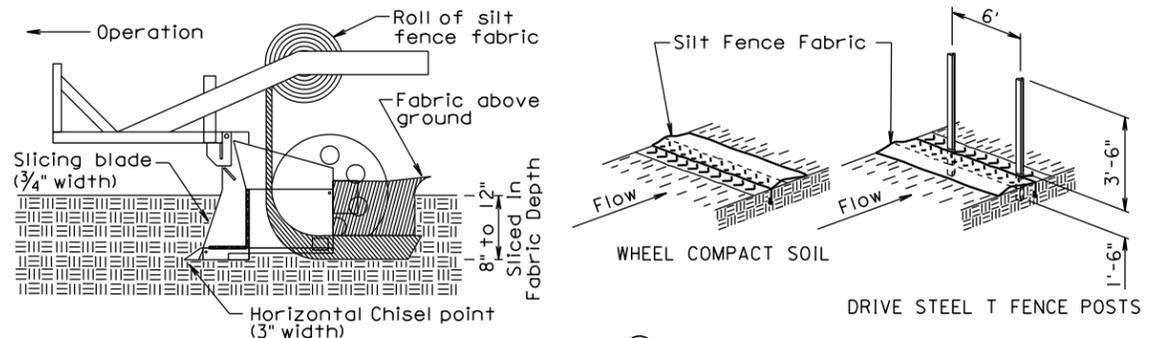
SECTION A-A

December 23, 2003

December 23, 2003

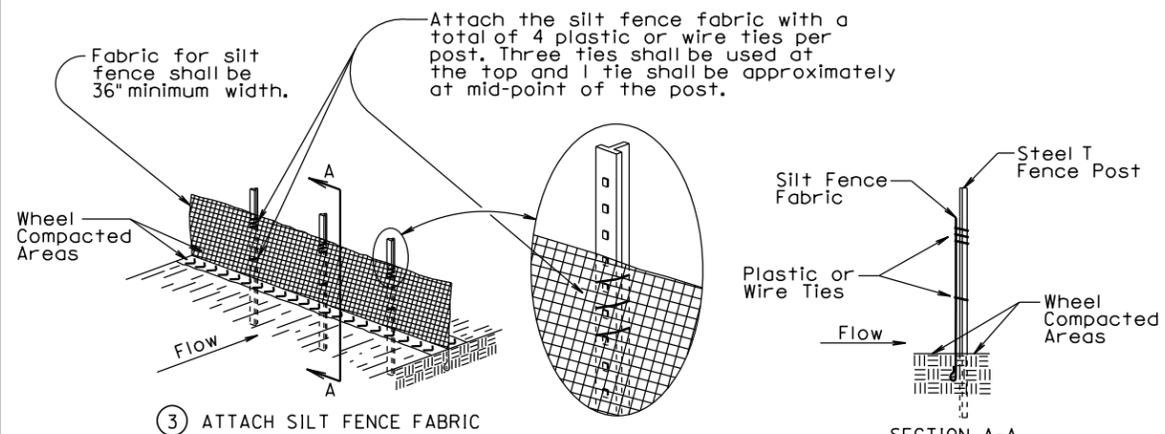
S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
	Published Date: 2nd Qtr. 2016	Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

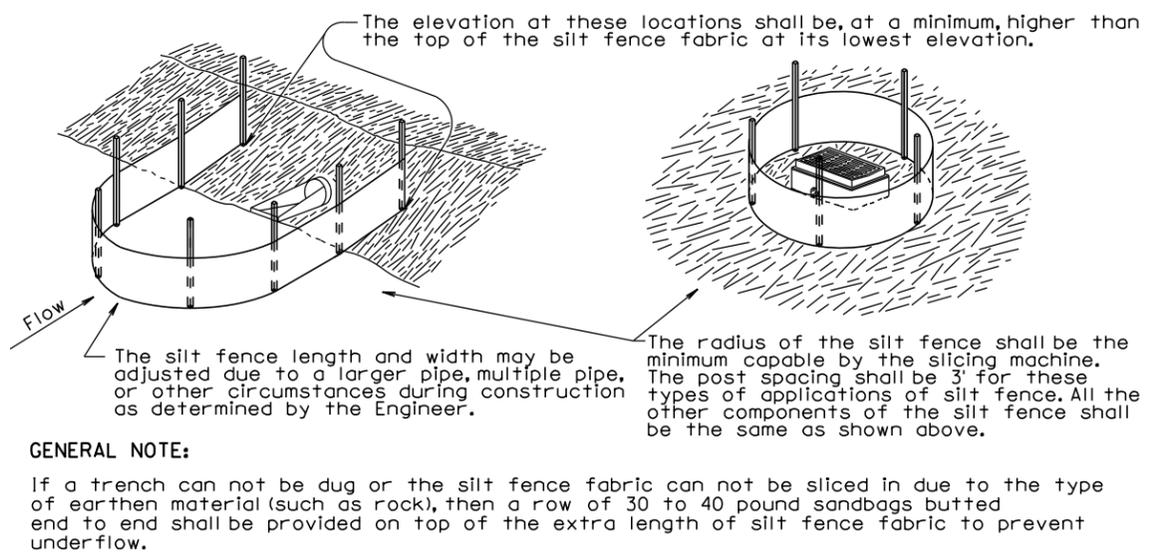


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

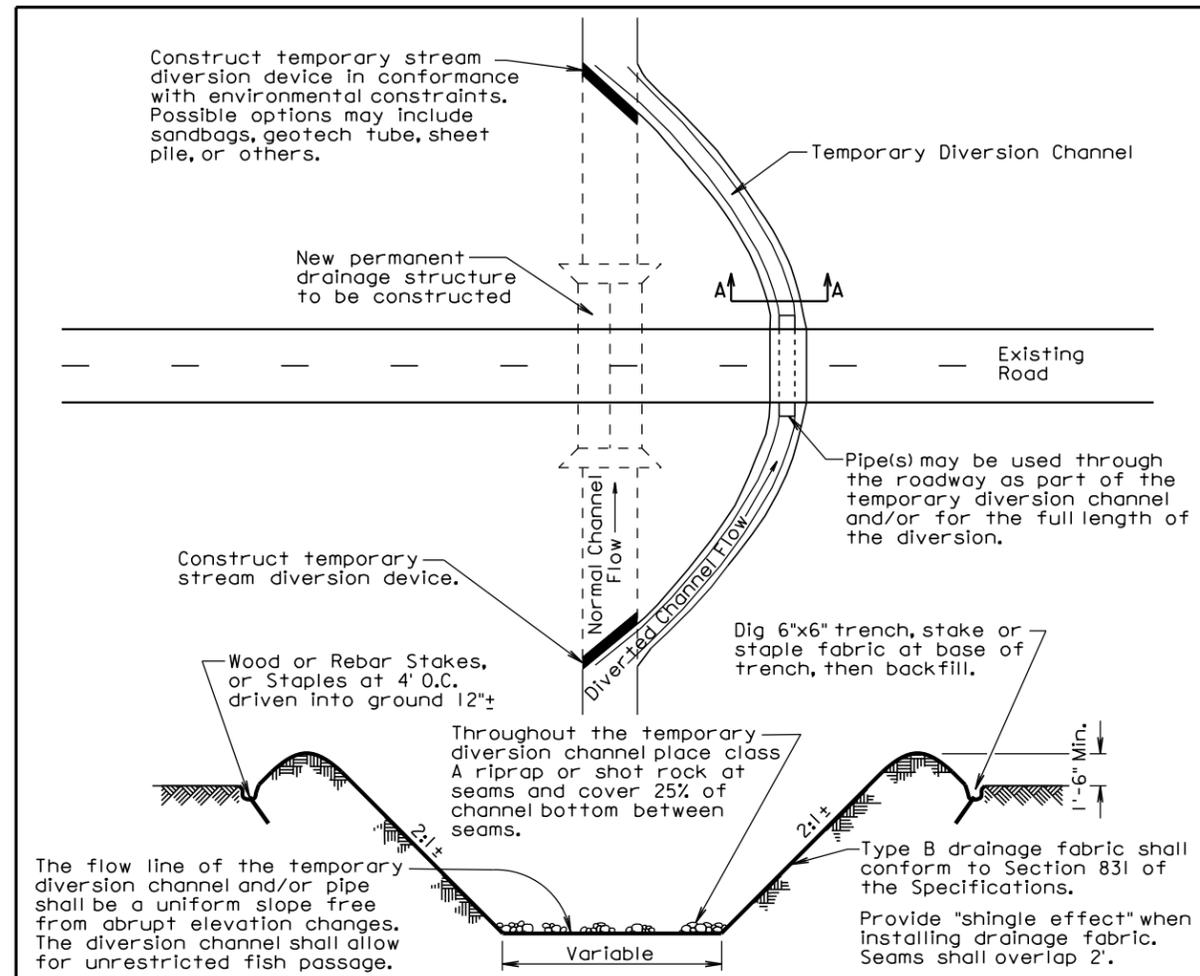


③ ATTACH SILT FENCE FABRIC



GENERAL NOTE:
If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
	Published Date: 2nd Qtr. 2016	Sheet 2 of 2



**SECTION A-A
TEMPORARY DIVERSION CHANNEL**

GENERAL NOTES:

A temporary diversion channel and/or pipe(s) shall be used to divert stream or drainage away from a construction area to provide a dry work area for construction. The diversion of streams and waterways is intended to protect the streams and waterways from various construction contaminants and sediment. Disturbing the existing stream channel and riparian zone should be minimized. Equipment shall not cross through the stream outside of the work area.

Sizing of the temporary diversion channel and/or pipe(s) shall be the Contractor's responsibility.

The method and materials used to construct the stream diversion device shall be the Contractor's responsibility, however, earthen berms are not acceptable since their removal causes siltation problems.

The Contractor shall restore the original channel bottom to its original condition prior to returning any flows. Upon completion of the new permanent drainage structure, the temporary stream diversion block or device shall be removed in a manner that will not cause violation of water quality standards. The temporary diversion channel shall then be backfilled and any pipe(s) (if used) shall be removed. The entire work area shall be cleaned and restored to smooth/even contours.

All costs for labor, equipment, materials and incidentals as indicated on this sheet to complete a satisfactory Temporary Diversion Channel and/or Pipe(s) shall be incidental to the contract unit price per each for "Temporary Diversion Channel and/or Pipe(s)". "Temporary Diversion Channel and/or Pipe(s)" will be paid for once per structure site regardless of the number of times water is diverted at the individual site.

June 26, 2015

S D D O T	TEMPORARY DIVERSION CHANNEL	PLATE NUMBER 734.30
		Sheet 1 of 1

Published Date: 2nd Qtr. 2016

SE 1/4 Section 12-T125N-R59W
Lanette Osbjornson
Langford, South Dakota 57454

Begin Project BRO 8046(00)16-3:
Sta. 2+00.00. A point approx.
325' West of the NE Corner of
Section 13-T125N-R59W.

Sta. 2+00 to 4+50 - Lt.
Temporary Easement required for
Cut / Fill Slopes. (Containing
approx. 0.098 Acres).

Sta. 2+00 to 4+50 - Rt.
Temporary Easement required for
Cut / Fill Slopes. (Containing
approx. 0.098 Acres).

Sta. 4+80 to 5+80 - Rt.
Permanent Easement required for
Construction of RCBC.
(Containing approx. 0.096 Acres).

Sta. 5+08.00 to 5+40.00 - Lt. and Rt.
Install Class B Riprap 3'-0" deep as
detailed on the General Drawing Sheet.

Sta. 5+38 - Centerline
Existing 23'-9" Long by 28'-0" Wide Steel Stringer
Structure. The existing structure is a single span steel
stringer with concrete deck on concrete abutments. To be
removed, salvaged, and disposed of by the Contractor.
(Incidental Work, Structure)

Sta. 5+24.00 Centerline
Construct a 2 - 12'x9' Precast Concrete
Box Culvert (See Structure Plan Sheets for
Twin 12' x 9' Precast Concrete Box Culvert).
(DA = 43.8 Sq. Miles)

Sta. 6+00 to 8+50 - Lt.
Temporary Easement required for
Cut / Fill Slopes. (Containing
approx. 0.098 Acres).

Sta. 4+80 to 5+80 - Lt.
Permanent Easement required for
Construction of RCBC.
(Containing approx. 0.096 Acres).

SW 1/4 Section 7-T125N-R58W
Kevin Swanson
Langford, South Dakota 57454

Sta. 6+00 to 8+50 - Rt.
Temporary Easement required for
Cut / Fill Slopes. (Containing
approx. 0.098 Acres).

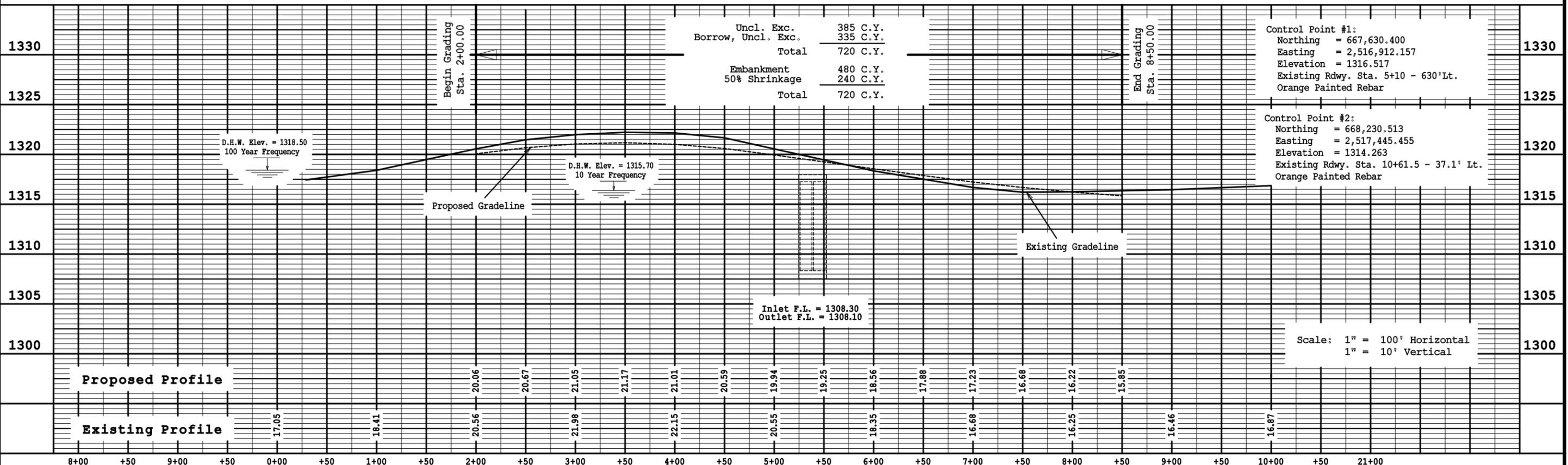
NW 1/4 Section 18-T125N-R58W
Kevin Swanson
Langford, South Dakota 57454

Scale: 1" = 100'

End Project BRO 8046(00)16-3:

Sta. 8+50.00. A point approx.
325' East of the NE Corner of
Section 13-T125N-R59W.

NE 1/4 Section 13-T125N-R59W
Royal Jerde
Langford, South Dakota 57454



C:\Documents and Settings\Randy\Desktop\Holland\My Documents\2016 BRO 8046(00)16-3 - Marshall Co. Box DESIGN\DESIGN REVIEW #14600\PP01 Plan Profile.gxd -- 08:30 AM -- Scale 1" = 2.000

The Elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

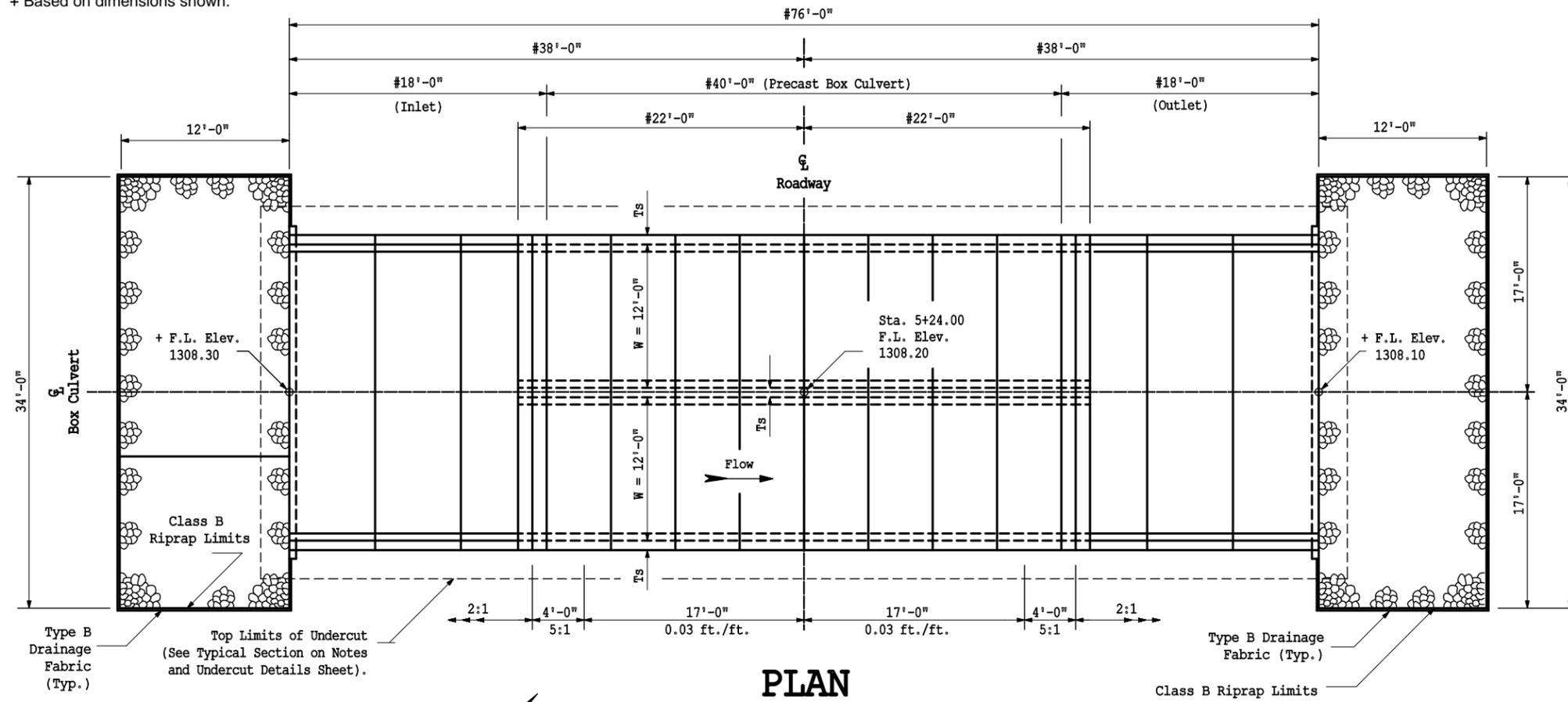
- * Dimension may vary with installation and/or fabrication. See Shop Plans for actual installation length.
- # Minimum distance to satisfy clear zone.
- + Based on dimensions shown.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8046 (00)16-3	17	22

- X028 - Revised 10-20-2016

- INDEX OF BOX CULVERT SHEETS -

- Sheet No. 1 - General Drawing and Quantities
- Sheet No. 2 - Notes and Undercut Details
- Sheet No. 3 - Details of Standard Plate No. 460.02
- Sheet No. 4 - Details of Standard Plate No's. 560.01 & 560.20



PLAN

HYDRAULIC SUMMARY

Qd = design discharge for the proposed culvert based on 10 year frequency. Elev. = 1215.7
 Qf = designated peak discharge for the basin approaching proposed project based on 10 year frequency.
 Q100 = computed discharge for the basin approaching proposed project based on 100 year frequency. Elev. = 1318.0+-.
 QOTfr = overtopping discharge and frequency 115 year recurrence interval. Elev. = 1318.3 Location South of Structure.
 Vmax = maximum computed outlet velocity for the proposed culvert or bridge based on a 100 year frequency.

Qd	386 cfs
Ad	154 sq. ft.
Vd	2.5 fps
Qf	386 cfs
Q100	1190 cfs
QOTfr	115 yr.
Vmax	6.2 fps

The hydraulic data contained in these plans is valid only if the overflow section is maintained. Alteration of the Overflow section will require re-analysis of the hydraulics at the site to determine its effect on public safety.

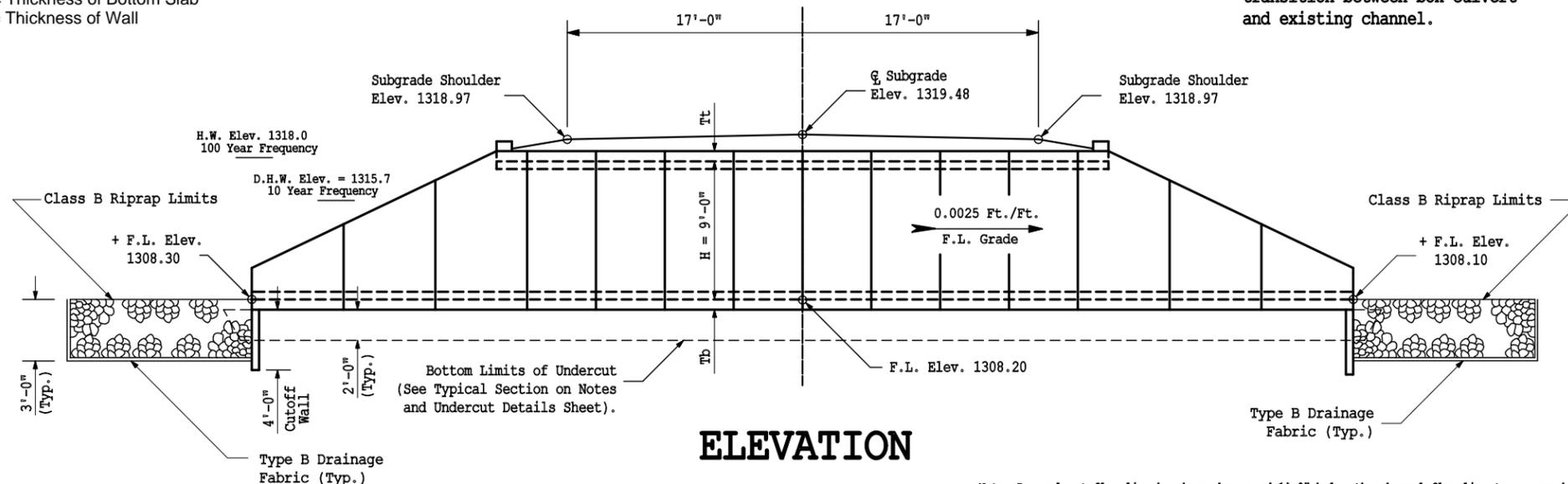
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Structure Excavation, Box Culvert	Cu. Yd.	64.8
Box Culvert Undercut	Cu. Yd.	177.8
2 - 12' x 9' Precast Concrete Culvert, Furnish	Ft.	40
2 - 12' x 9' Precast Concrete Culvert, Install	Ft	40
2 - 12' x 9' Precast Concrete Culvert End Section, Furnish	Each	2
2 - 12' x 9' Precast Concrete Culvert End Section, Install	Each	2
Class B Riprap	Ton	127.0
Type B Drainage Fabric	Sq. Yd.	151.1

LEGEND:

- W = Width of Opening
- H = Height of Opening
- Tt = Thickness of Top Slab
- Tb = Thickness of Bottom Slab
- Ts = Thickness of Wall

NOTE: Adjust riprap as necessary to transition between box culvert and existing channel.



ELEVATION

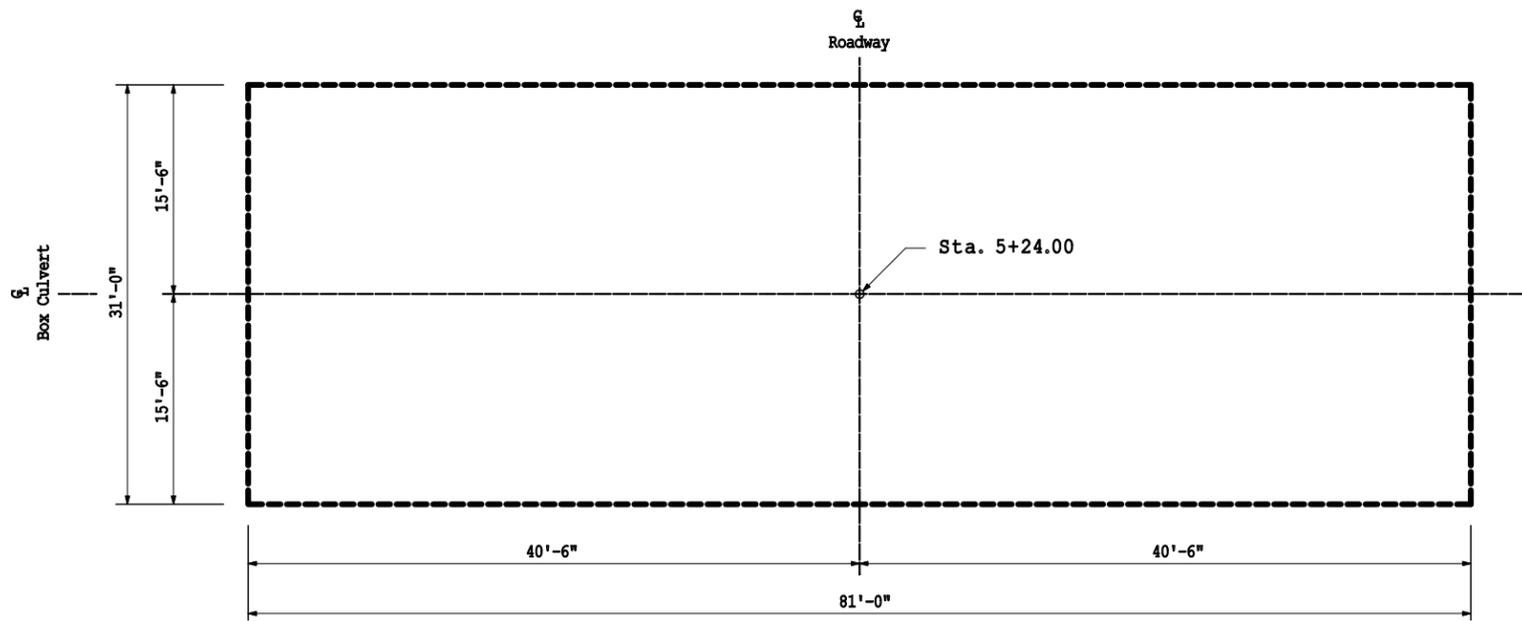
GENERAL DRAWING FOR TWIN 12' x 9' BOX CULVERT (PRECAST)

Marshall County Over Langford Ditch
 Station 5+24.00
 Structure No. 46-060-200
 PCN 05R6
 0 Degree Skew
 Section 7/18/12/13-T125N-R58/59W
 BRO 8046 (00)16-3
 HL-93
 - X028 -

HOFLAND ENGINEERING VEBLEN AND ABERDEEN, SOUTH DAKOTA

Designed by: RLH Date: 6/16 Drawing Designation: 4600GD01
 Drawn by: RLH Date: 6/16 Sheet 1 of 4
 Checked by: RDH Date: 6/16

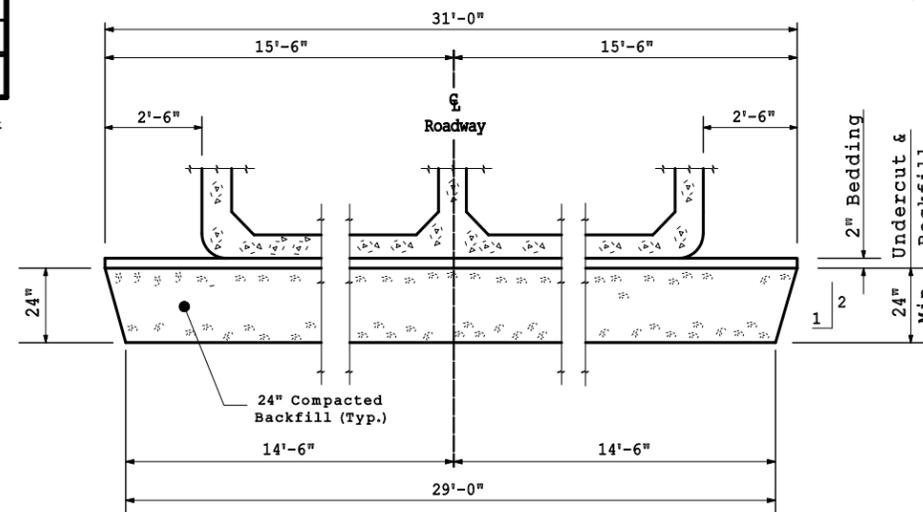
Note: Box culvert flow line has been depressed 1'-0" below the channel flow line to accommodate aquatic organisms. The 1'-0" depression will be allowed to fill in naturally over time.



UNDERCUT LAYOUT
(Top of Undercut Limits)

ESTIMATED QUANTITIES		
Item	Unit	Quantity
Box Culvert Undercut	Cu. Yd.	178

For Payment, quantity is based on shown undercut dimensions and will not be measured unless the Engineer orders change.



TYPICAL UNDERCUT SECTION

SPECIFICATIONS:

Use South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, supplemental Specifications and Special Provisions as included in the Proposal.

GENERAL NOTES:

Design shall be in accordance with Section 560 of the Specifications with the following criteria:

- Box Culvert and box culvert end section design shall conform to the AASHTO LRFD Bridge Design Specifications, 2014 Edition with 2015 Interims.
- Design Live Load: HL-93: No construction loading in excess of legal loads is anticipated. If construction loading in excess of legal loads is anticipated by the Contractor, the Contractor shall submit a proposal including a design analysis for the anticipated construction loading, through the proper channels, to the Office of Bridge Design for approval. Upon approval, the construction load shall not be applied until the depth of fill over the box culvert as required by analysis has been placed. At a minimum, 4 ft. of fill shall be placed over the box culvert prior to applying the construction load. All costs associated with accomplishing any construction loads shall be borne by the Contractor.

- The box culvert shall be load rated in accordance with AASHTO Manual for Bridge Evaluation, 2010 Edition with the latest Interim Revisions using the LRFR method. The rating shall include evaluation at the Design Load rating for the HL- 93 truck at both Inventory and Operating levels and at the Legal Load rating for the three SD legal trucks (Type 3, 3S2, and 3-2) as well as the national rating load and four specialized hauling vehicles noted in the AASHTO Manual for Bridge Evaluation. All sections of the box culvert shall rate at HL-93 or better (Inventory Level). The three SD Legal Loads, the national rating load and the four specialized hauling vehicles shall rate greater than 1.0 at legal load rating level. Submit Load Rating calculations with the Design and Check Design calculations or shop plans, as appropriate.
- The design of the barrel sections shall be based on a minimum fill height of 1 foot and include all subsequent fill heights up to and including the maximum fill height of 5 feet over the box culvert.
- Minimum inside corner fillet shall be 6 inches.
- Minimum precast barrel section length shall be 4 feet.
- Lift holes shall be plugged with an approved nonshrinkable grout
- The Fabricator shall imprint on the structure the date of construction as specified and detailed on Standard Plate No. 460.02.

- Alternate end section details will be allowed, subject to the approval of the Bridge Construction Engineer. No additional payment will be made for any change in the barrel/end section configuration.
- Installation of the precast sections shall be in accordance with the final approved shop plans.
- Compaction of earth embankment and box culvert backfill material shall be governed by the ordinary compaction method.

DESIGN MIX OF CONCRETE:

Mix shall be as per Fabricator's design, however minimum compressive strength shall not be less than 4500 p.s.i. at 28 days.

High sulfate levels are likely to be encountered on this project. The type of cement shall be either Type V or a Type II with 20% to 25% Class F Modified Fly Ash substituted for cement in accordance with section 605 of the specifications. The Water/Cementitious material ratio shall not exceed 0.45 as defined in Section 460.3C of the specifications.

Dewatering will be required for construction of the RCBC.

Material for backfilling the undercut area shall conform to the gradation requirements of either Base Course or Gravel Cushion in Section 882. All other requirements of Section 421 shall apply.

SHOP PLANS:

The fabricator shall initially submit three (3) copies of the shop plans to HOFLAND ENGINEERING, P.O. Box 1006, Aberdeen, South Dakota 57401 for review.

After review by HOFLAND ENGINEERING, one (1) copy with any revisions noted will be sent to both the Office of Bridge Design and the fabricator. The Fabricator shall then send seven (7) corrected copies to HOFLAND ENGINEERING.

After review by HOFLAND ENGINEERING, six (6) copies will be sent back to the Bridge Construction Engineer, South Dakota Department of Transportation, who will review them, arrange for fabrication inspection, authorize fabrication, and distribute the shop drawings.

INCIDENTAL WORK, STRUCTURE

At centerline Station 5+38, the Contractor shall remove the existing 23'-9" foot long by 28'-0" foot wide Steel Stringer Structure. The structure consists of Concrete Deck on Steel Stringers on Concrete Abutments. All substructure members are to be removed to the bottom of the undercut and shall be disposed of by the Contractor as per Environmental Commitment Notes. All salvageable Steel Stringers as determined by the County Highway Superintendent shall be salvaged and stockpiled at a location on the project site approved by the Engineer and shall be picked up by the County for use on future highway projects. Any material that is not salvageable by the County shall become the property of the Contractor for his disposal.

The foregoing is a general description of the in place structure and shall not be construed to be complete in all details. Before preparing a bid, it shall be the responsibility of the Contractor to make a visual inspection of the existing structure to verify the extent of the work and material involved.

Payment for all the above described work shall be made at the contract lump sum price for "Incidental Work, Structure".

LEAD BASED PAINT:

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan operations accordingly, and inform his/her employees of the hazards of lead exposure.

RIPRAP:

Riprap and Drainage Fabric shall be installed for the concrete box culvert inlet and outlet as shown on the General Drawing Sheet and placed in a manner approved by the Engineer.

Riprap Conversion Factor: 1.0 Cu. Yd. = 1.40 Ton (For estimating purposes only).

NOTES AND UNDERCUT DETAILS

**FOR
TWIN 12' x 9' BOX CULVERT (PRECAST)**

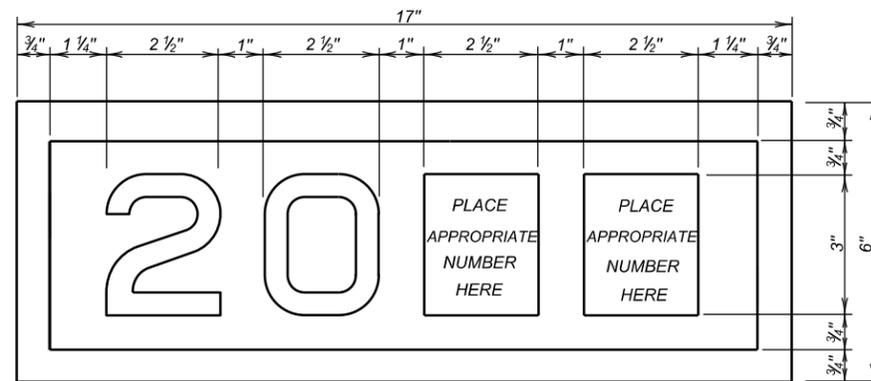
Marshall County
Over Langford Ditch
Station 5+24.00
Structure No. 46-060-200
PCN 05R6

0 Degree Skew
Section 7/18/12/13-T125N-R58/59W
BRO 8046 (00)16-3
HL-93 Loading
- X028 -

**HOFLAND ENGINEERING
VEBLEN AND ABERDEEN, SOUTH DAKOTA**

Designed by: RLH Date: 6/16
Drawn by: RLH Date: 6/16
Checked by: RDH Date: 6/16

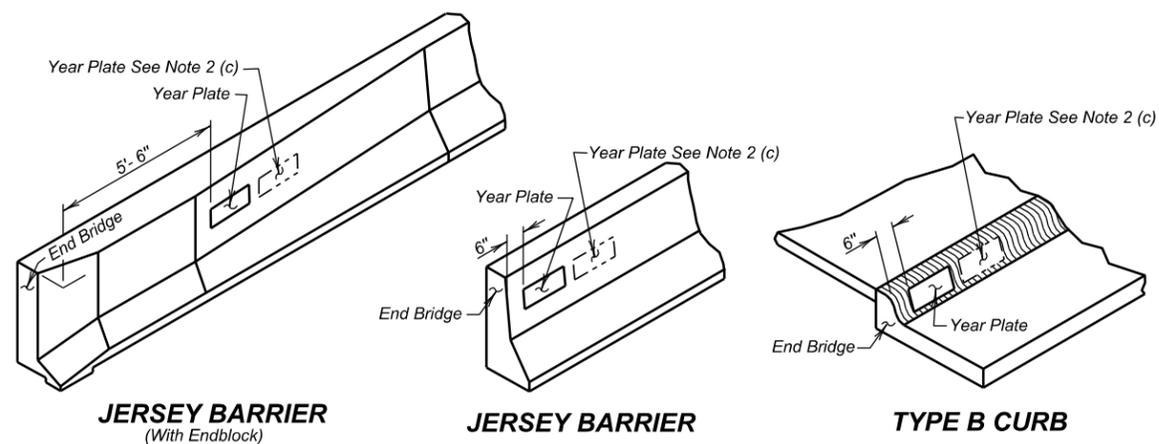
Drawing Designation Sheet 2 of 4
4600UC01



YEAR PLATE DETAILS

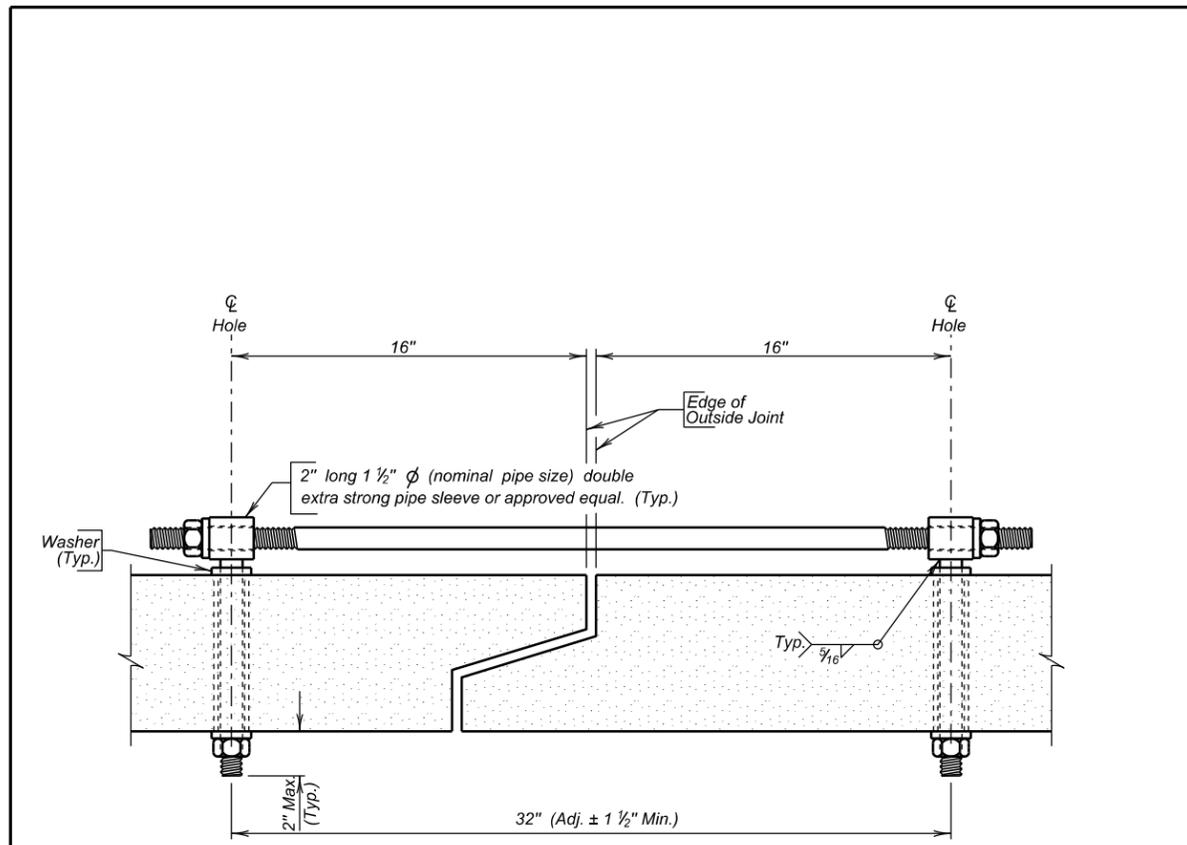
GENERAL NOTES:

1. Year plates of the general dimensions shown shall be constructed on all box culverts and bridges. The year plates shall be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.
2. Year plates shall be located on structure (s) as follows:
 - a. On cast-in-place box culverts the year plates shall be four and one - half (4 1/2) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate shall be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate shall be centered in an adjacent barrel.
 - b. On bridges with six (6) inch curbs or "Jersey" shaped barriers with no endblocks, the year plate shall be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with "Jersey" shaped barrier endblocks, the year plate shall be centered on the upper sloped portion of the barrier approximately 5'-6" from the end of the bridge, or as designated by the Engineer. There shall be one year plate at each end of the bridge on opposite sides.
 - c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date shall be placed as listed above and the other located adjacent to it. Both year plates shall be shown at each end of the bridge on opposite sides.
3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work shall be incidental to other contract items.



June 26, 2012

Published Date: 2nd Qtr. 2016	S D D O T	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



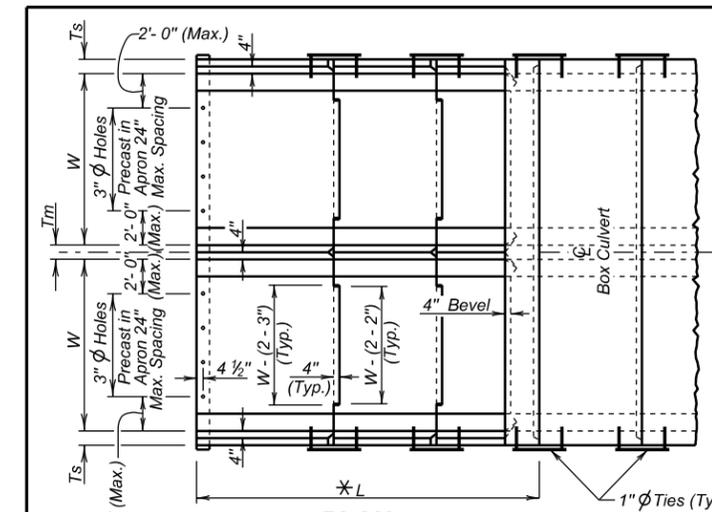
TIE BOLT ASSEMBLY

GENERAL NOTES:

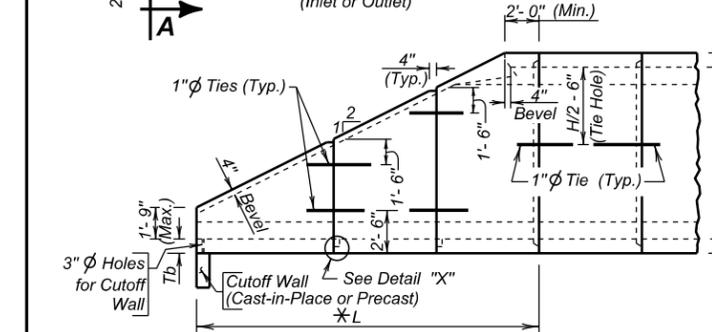
- All holes for tie bolts shall be cast-in-place, 16 inches from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.
- Ties shall be 1 inch ϕ and conform to the requirements of ASTM A36, ASTM A307, or ASTM F1554, Gr. 36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.
- Welding and weld inspection shall be in conformance with AWS/ANSI D1.1 - (Current Year) Structural Welding Code - Steel.
- Tie Bolt Assembly shall be galvanized in accordance with ASTM A153 or ASTM F2329 as applicable.
- Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.
- All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per Foot for "Precast Concrete Box Culvert, Furnish".

March 21, 2016

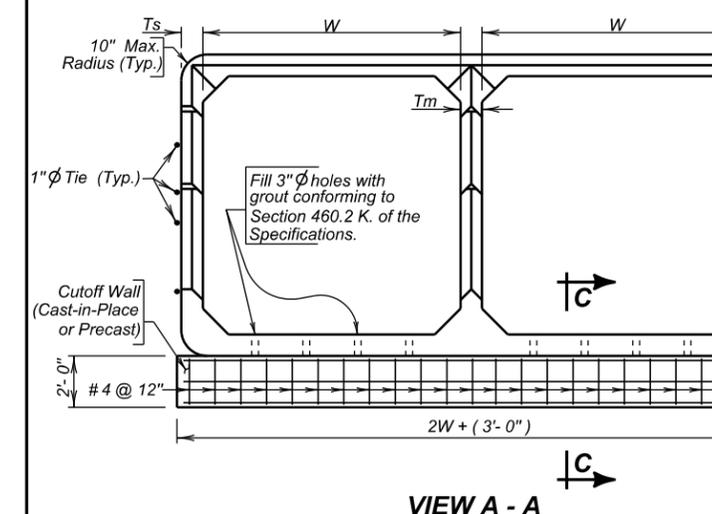
S D D O T	PRECAST BOX CULVERT TIE BOLT ASSEMBLY DETAILS	PLATE NUMBER 560.01
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1



PLAN
(Inlet or Outlet)



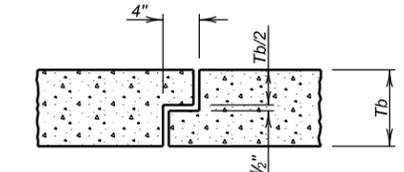
ELEVATION
(Inlet or Outlet)



VIEW A - A

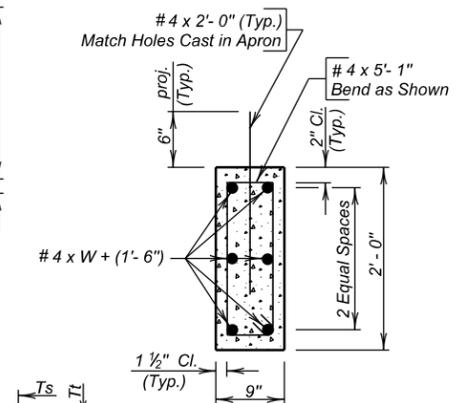
CUTOFF WALL

- All costs associated with furnishing and installing the Cutoff Wall, whether precast or cast-in-place, shall be incidental to the contract unit price per each for "Precast Box Culvert End Section, Furnish".
- Concrete for cast-in-place cutoff wall shall be Class M6 concrete in accordance with Section 462 of the Specifications.
- All reinforcing steel shall conform to ASTM A615 Grade 60.
- Alternate details will be allowed, subject to the approval of the Bridge Construction Engineer.



DETAIL "X"

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



SEC. C - C

LEGEND

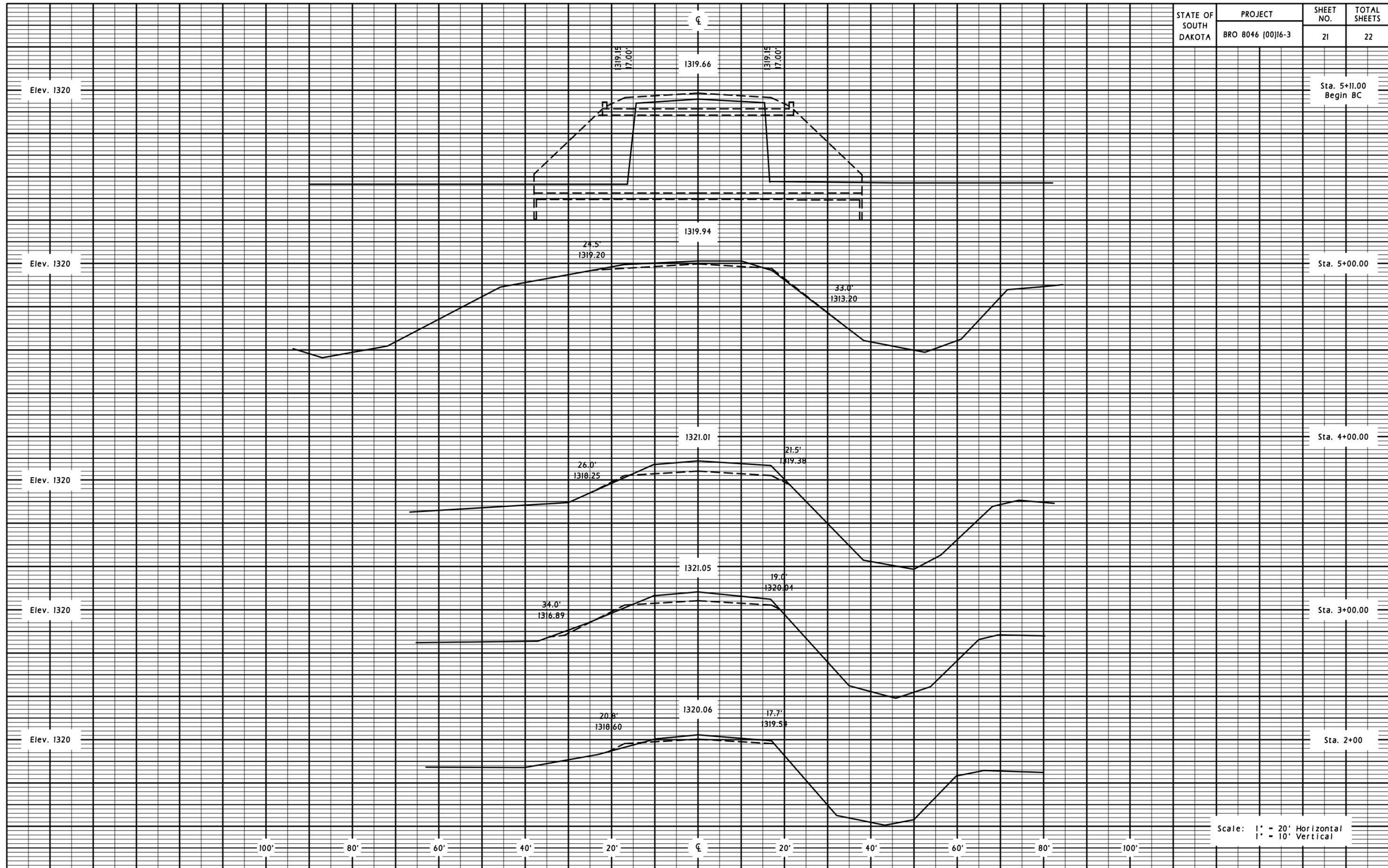
- W = Width of Opening
- H = Height of Opening
- Tt = Thickness of Top Slab
- Tb = Thickness of Bottom Slab
- Ts = Thickness of Side Wall
- Tm = Thickness of Middle Wall
- L = Length of End Section

NOTES:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, Tm, L, and Ts dimensions shall be furnished by the Contractor.
* Length and number of units may vary from that shown.

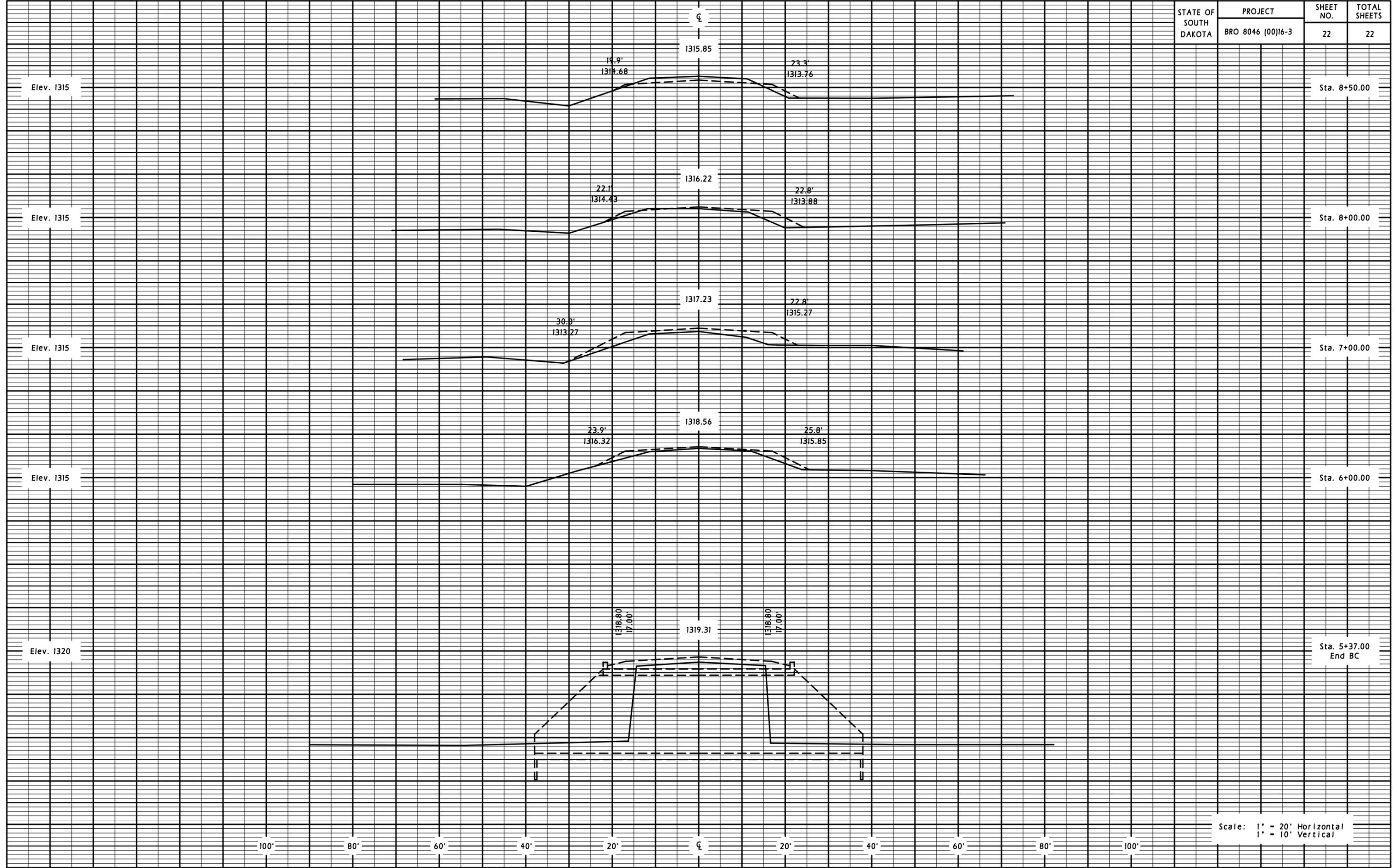
June 26, 2015

S D D O T	PRECAST DOUBLE BOX CULVERT SLOPED END SECTION DETAILS WITH 2'-0" CUTOFF WALL	PLATE NUMBER 560.20
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8046 (00)16-3	21	22



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8046 (00)16-3	22	22



Scale: 1" = 20' Horizontal
1" = 10' Vertical