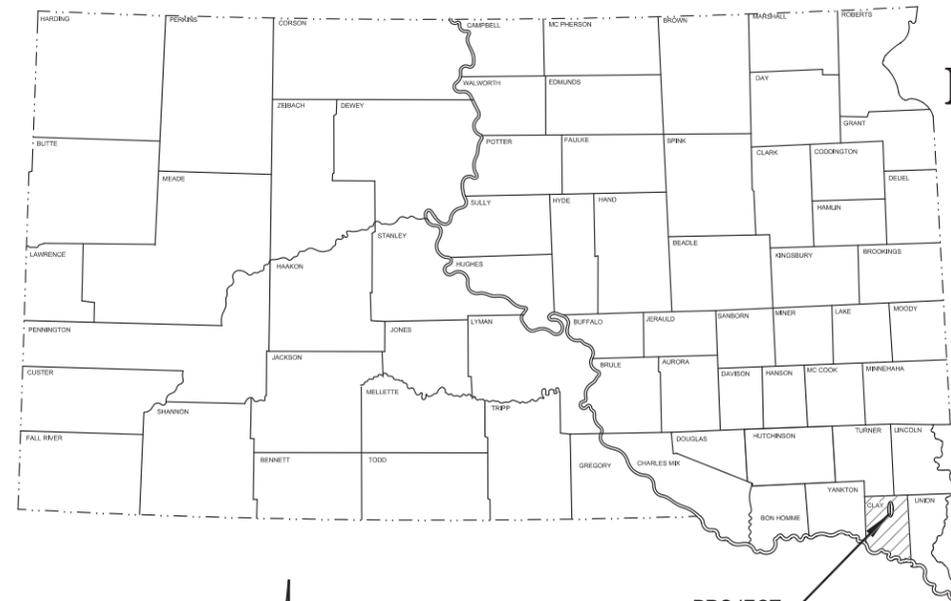


STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	1	39

# STATE OF SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

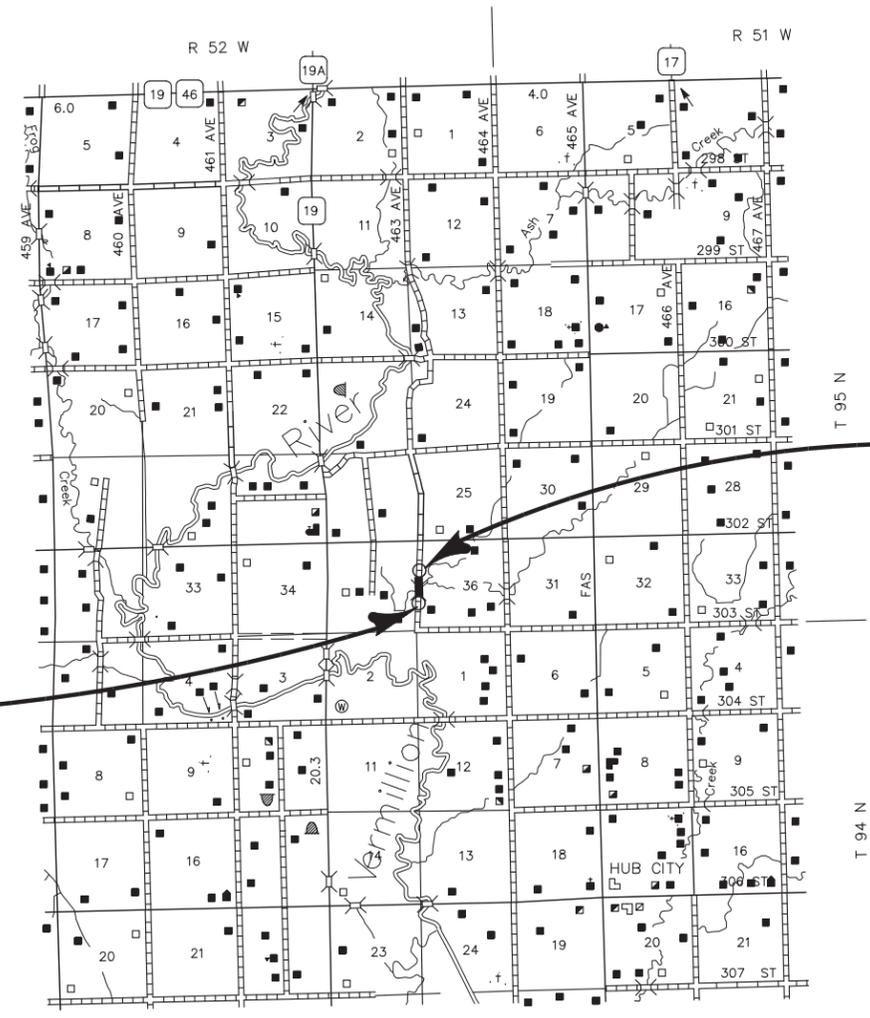
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## PLANS FOR PROPOSED PROJECT BRO 8014(26) CLAY COUNTY STRUCTURE AND APPROACH GRADING STR. 14-110-056 PCN 6867



### INDEX OF SHEETS

Sheet	1	TITLE SHEET AND LAYOUT MAP
Sheets	2-7	ESTIMATE OF QUANTITIES & GENERAL NOTES
Sheets	8-10	STORM WATER POLLUTION PREVENTION PLAN
Sheet	11	TYPICAL GRADING SECTIONS
Sheet	12	TRAFFIC CONTROL PLAN
Sheet	13	EROSION AND SEDIMENT CONTROL PLAN
Sheet	14	HORIZONTAL & VERTICAL CONTROL DATA
Sheets	15-16	PLAN & PROFILE SHEETS - MAINLINE
Sheets	17-18	PLAN & PROFILE SHEETS - TRAFFIC DIVERSION
Sheet	19	STANDARD PLATE FOR ROAD CLOSED WITH TRAFFIC DIVERTED
Sheet	20	STANDARD PLATE FOR BREAKAWAY SIGN SUPPORTS AND BREAKAWAY SUPPORT STUB CLEARANCE
Sheet	21	STANDARD PLATE FOR EROSION CONTROL BLANKET
Sheet	22	STANDARD PLATE FOR LOW FLOW SILT FENCE
Sheet	23	STANDARD PLATE FOR EROSION CONTROL WATTLE
Sheet	24	STANDARD PLATE FOR TEMPORARY DIVERSION CHANNEL
Sheets	25-33	DETAILS FOR 2 - 10' X 10' X 95'-0 5/8" RC BOX CULVERT
Sheets	34-37	CROSS SECTION SHEETS - MAINLINE
Sheets	38-39	CROSS SECTION SHEETS - TRAFFIC DIVERSION



**BEGIN PROJECT BRO 8014(26)**  
463rd AVENUE, CLAY COUNTY  
STA. 20+75.00 ON BRO 8014(26) =  
2074.83' NORTH AND 9.55' WEST OF THE  
SOUTHEAST CORNER OF SEC. 35-T95N-R52W  
N. 22074.83      E. 19990.52

**END PROJECT BRO 8014(26)**  
463rd AVENUE, CLAY COUNTY  
STA. 25+50.00 ON BRO 8014(26) =  
2548.58' NORTH AND 5.29' WEST OF THE  
SOUTHEAST CORNER OF SEC. 35-T95N-R52W  
N. 22548.60      E. 19994.40



**DESIGN DESIGNATION**

ADT (2006)	15
ADT (2026)	19
DHV	3
D	50%
T DHV	3.8%
T*ADT	8%
DESIGN SPEED	20 MPH

**STORM WATER PERMIT DATA**  
LATITUDE: 43°00'11" N  
LONGITUDE: 96°56'36" W  
PROJECT AREA ----- 2.95 ACRES  
ACRES DISTURBED ----- 1.39 ACRES  
MAJOR STREAM OR LAKE --- TRIBUTARY TO VERMILLION RIVER

**JOHNSON ENGINEERING COMPANY**  
CIVIL ENGINEERS | LAND SURVEYORS  
Est. 1956

**ESTIMATE OF QUANTITIES****-GRADING-**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0030	Maintenance of Traffic Diversion	Lump Sum	LS
004E0050	Remove Traffic Diversion	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1700	Remove Silt Fence	645	Ft
120E0010	Unclassified Excavation	4,641	CuYd
120E0600	Contractor Furnished Borrow Excavation	3,976	CuYd
230E0010	Placing Topsoil	421	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E3010	Gravel Surfacing	122.9	Ton
634E0110	Traffic Control Signs	259	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0260	Type 3 Barricade, 6' Single Sided	6	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	1,041	SqYd
734E0154	12" Diameter Erosion Control Wattle	180	Ft
734E0510	Shaping for Erosion Control Blanket	250	Ft
734E0602	Low Flow Silt Fence	645	Ft
734E0610	Mucking Silt Fence	30	CuYd
734E0620	Repair Silt Fence	160	Ft
734E0900	Temporary Diversion Channel and/or Pipe	1	Each

**-STRUCTURE-**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	79	CuYd
421E0200	Box Culvert Undercut	212	CuYd
460E0120	Class A45 Concrete, Box Culvert	192.4	CuYd
480E0100	Reinforcing Steel	28,937	Lb
700E0210	Class B Riprap	312.0	Ton
831E0110	Type B Drainage Fabric	425	SqYd

**SPECIFICATIONS**

Standard Specifications for Roads and Bridges 2015 Edition and Required Provisions, Supplemental Specifications, and/or Special Provisions as included in the Proposal.

**SEQUENCE OF OPERATIONS**

The following sequence of operations will be followed unless an alternate sequence is submitted in writing to, and approved by, the Engineer at least two weeks prior to the requested change.

1. Install construction signing as shown on plans.
2. Install temporary diversion channel, temporary detour structures, traffic diversion, and diversion traffic control.
3. Install initial erosion control measures.
4. Take out and dispose of in place structure.
5. Install box culvert and grade roadway.
6. Remove traffic diversion and restore original ground surface.
7. Place topsoil and final erosion control.
8. County shall install permanent signing and final surfacing.
9. Remove construction signing and open roadway.

**UTILITIES**

All Utilities within the limits of the proposed construction are to be adjusted by the owners unless otherwise indicated in the plans.

Clay County will make arrangements with the Utility Companies and be responsible for the relocation or adjustment of utilities without Federal Participation.

19+00 to 29+00 - Underground Telephone Line  
Fort Randall Telephone Company  
605-326-5493

**GRADING OPERATIONS**

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water for Embankment is 46 MGal. No separate payment will be made for the Water for Embankment and all costs associated shall be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance note on the profile sheet.

Special ditch grades and other sections of the roadway different than the typical section shall be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer shall contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets shall be cut with a 10-foot wide bottom with 4:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence shall be placed ahead of the grading operation unless otherwise directed by the Engineer. Installation and removal of temporary and/or permanent fence shall be the responsibility of the County.

The inslopes shall be warped for a distance of 50 ft. adjacent to the Box Culvert to conform to the wing walls of the structure.

**CLEARING**

Before clearing activities begin, the Contractor shall contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are supposed to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor shall replace them with the same size and type at the Contractor's expense.

**FOR BIDDING PURPOSES ONLY**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8014(26)	2	39

Rev. 4/25/2016 LAJ

**GENERAL MAINTENANCE OF TRAFFIC**

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. The Contractor shall coordinate with the County to determine which signs will be reset and to verify reset locations. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State or County.

Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

The 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.

**CLAY COUNTY RESPONSIBILITIES**

Clay County Highway Superintendent – Rod Polley (605-677-7149)

Clay County will be responsible for the following items without Federal Participation.

1. Obtain all Right-of-Way, temporary and permanent easements.
2. Arrange for utility relocation and adjustments, if any exist.
3. Remove existing fence, provide temporary fence as necessary, and replace fence upon completion of the project.
4. Furnish and install final surfacing.
5. Furnish and install permanent signing in accordance with the Manual on Uniform Traffic Control Devices after completion of the project.
6. Remove silt fence when vegetation has been established in areas where permanent seeding is required.



**ENVIRONMENTAL COMMITMENTS**

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

**COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES**

**COMMITMENT B1: CONSTRUCTION PRACTICES FOR STREAMS INHABITED BY THE TOPEKA SHINER**

The US Fish and Wildlife Service (USFWS) have designated the following as Topeka Shiner streams associated with this project.

**Table of Topeka Shiner Streams**

Station	Stream Name	Ordinary High Water Elevation
23+11	Unnamed Creek	1171.3

**Action Taken/Required:**

The Contractor shall adhere to the "Special Provision for Construction Practices in Streams Inhabited by the Topeka Shiner".

Stream turbidity will be monitored during all stages of the project. Turbidity measurements should be taken in conjunction with normal storm water inspections.

The Contractor shall produce a comprehensive Construction Plan that includes all products, materials, and methods of construction and removal for temporary water barriers, cofferdams, and diversion channels including de-watering, handling, storage, and disposal of excavated material and pumped effluent throughout all phases of construction, including post-construction stabilization. This plan shall be approved by the SDDOT Environmental office prior to any work occurring in the above streams. Upon plan approval the Construction Plan shall be amended to the SWPPP document.



**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.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

**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 D1: SURFACE WATER QUALITY**

The Unnamed 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 Environment 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**

The Unnamed 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.

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8014(26)	3	39

**COMMITMENT E: STORM WATER**

Construction activities constitute 1 acre or more of earth disturbance.

**Action Taken/Required:**

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

- SDDOT: <http://sddot.com/transportation/highways/environmental/stormwater/Default.aspx>
- DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>
- EPA: [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=6](http://cfpub.epa.gov/npdes/home.cfm?program_id=6)

**Contractor Certification Form:**

The "Department of Environment and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at: <http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf>

**COMMITMENT H: WASTE DISPOSAL SITE**

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

**Action Taken/Required:**

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

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

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

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

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

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

**COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES FOR BIDDING PURPOSES ONLY**

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

**Action Taken/Required:**

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

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

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

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

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

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8014(26)	4	39

**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.



**TRAFFIC DIVERSION**

The traffic diversion shall be constructed according to Section 4.4.A. of the Specifications. Installation and removal of the traffic diversion shall meet all requirements as set forth in the South Dakota Surface Water Quality Standards.

The traffic diversion shall be constructed according to the geometric layouts shown in the plans with the temporary drainage structure(s) provided in the following table. The temporary structure sizes are designed to pass the design flood frequency flows without overtopping the traffic diversion grade, to minimize potential upstream flooding, and are sized to meet FEMA (Federal Emergency Management Agency) requirements where applicable. The structure(s) shall be placed at the flowline elevation and location as stated in the "Table of Temporary Drainage Structures in Traffic Diversions". If the Contractor proposes to use a different size drainage structure and/or a different geometric layout for the temporary diversion, the proposal must be submitted to the Engineer during the project preconstruction meeting. This information shall be forwarded to the DOT Hydraulics Office for review. Construction of the traffic diversion(s) will not be allowed until approval of the proposal is obtained from the Hydraulics Office.

**Table of Temporary Drainage Structures in Traffic Diversions**

Traffic Diversion Location	Design Flood Frequency	* Flowline Elevation	Temporary Structure Option 1	Temporary Structure Option 2	Temporary Structure Option 3
23+11	2 year	1169.8	1-60" CMP	2-48" CMP	3-36" CMP

\* The flowline elevation is at the centerline of the traffic diversion.

Costs to provide temporary drainage structures shall be incidental to the contract lump sum price for "Maintenance of Traffic Diversion(s)".

Traffic diversions in waterways shall be constructed such that any material placed below the ordinary high water elevation (estimated as elevation 1171.3 in the 404 application) shall conform to the requirements of class B riprap. The quantity of riprap used in the traffic diversion is included in the quantity for "Class B Riprap" in the estimate of quantities. The quantity of riprap used for the traffic diversion shall be reused as riprap for the structure and all costs incurred to place and remove the riprap at the traffic diversion and subsequently place the riprap at the structure shall be incidental to the contract unit price per ton for "Class B Riprap". The traffic diversions shall be built in close conformity to the plan gradeline. Unless otherwise shown in the plans, the traffic diversions shall be removed such that the original ground surface is restored and the hydraulic capacity of the waterway is maintained. The removal shall be done in such a manner that there is minimal disturbance to the riverbed.

The removed traffic diversion embankment may be used in the mainline embankment if approved by the Engineer. Traffic diversion embankment not used in the embankment shall be disposed of by the Contractor at the Waste Disposal site.

Traffic Diversion Excavation as shown on the plans profile sheets is the excavation required to construct the traffic diversion portion that is located inside the mainline cross section work limits. The Traffic Diversion Excavation quantity is included in the mainline excavation quantity in the Table of Excavation Quantities.

**TRAFFIC DIVERSION (CONTINUED)**

Traffic Diversion Borrow as shown on the plans profile sheets is obtained from the mainline excavation from outside of the traffic diversion cross section work limits and a Contractor supplied source approved by the Engineer.

Added Traffic Diversion Excavation as shown on the plans profile sheets is the excavation required to construct the traffic diversion portion that is located outside the mainline cross section work limits. The Added Traffic Diversion Excavation quantity is added to the unclassified excavation quantity in the Table of Excavation Quantities.

**GRAVEL SURFACING ON TRAFFIC DIVERSION**

Gravel surfacing on the traffic diversion shall be contractor furnished and installed.

All requirements for Gravel Surfacing shall apply except that compaction to a specified density shall not be required. Compaction shall be to the satisfaction of the Engineer.

**CLASS B RIPRAP AROUND RCBC AND DIVERSION**

It is estimated that 36.7 tons of Class B Riprap will be needed to construct the traffic diversion up to the OHWE estimated at 1171.3. This riprap material shall be reused to line the inlet and outlet side of the RCBC. This amount is included in the estimate of quantities for Class B Riprap.

All costs for furnishing the Class B Riprap, placement for the diversion and removal and resetting of the Class B Riprap to its permanent location shall be incidental to the contract unit price per ton for "Class B Riprap".

**TABLE OF TEMPORARY DIVERSION CHANNEL**

The Contractor shall construct a temporary diversion channel in accordance with Standard Plate 734.30 at the locations listed in the following table.

Station	Quantity (Each)
22+60	1
Total:	1

**SHRINKAGE FACTOR:** Embankment +35%

**TABLE OF EXCAVATION QUANTITIES**

	CuYd
Total Excavation - Mainline	2,119
Total Excavation - Traffic Diversion	30
Excavation for Installation of RC Box Culvert	1,771
Channel Cleanout	300
Topsoil	421
Total Unclassified Excavation	4,641

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STATE OF SOUTH DAKOTA	PROJECT BRO 8014(26)	SHEET 5	TOTAL SHEETS 39
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Rev. 4/25/2016 LAJ

**UNCLASSIFIED EXCAVATION**

The total "Unclassified Excavation" quantity is 4,641 cubic yards. Payment will be made on a plans quantity basis in accordance with Section 120.4 of the Specifications. No separate measurement or payment will be made unless additional excavation is ordered by the Engineer.

**CONTRACTOR FURNISHED BORROW**

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.

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

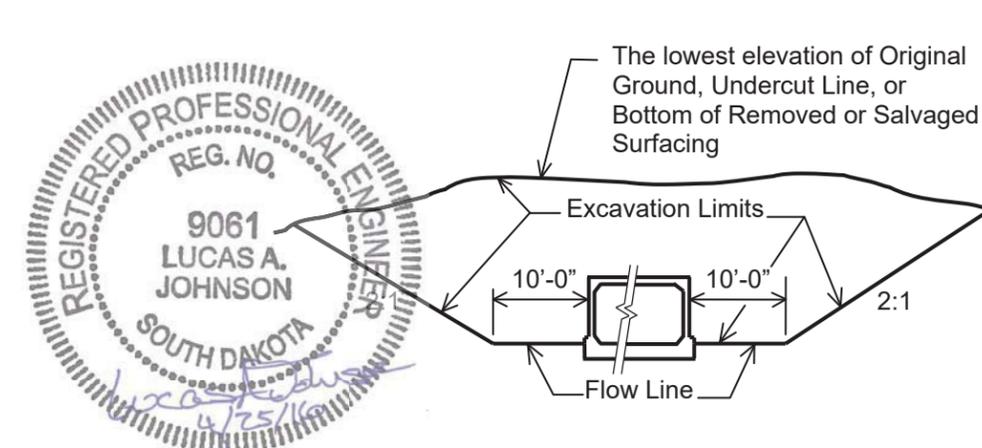
Material excavated from the channel as Channel Cleanout may be suitable for use in the road embankment. The Channel Cleanout material shall be used for embankment instead of Contractor Furnished Borrow at the discretion of the Engineer. Material excavated from the channel that is deemed unsuitable for road embankment shall be wasted.

**EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION**

Included in the quantity of "Unclassified Excavation" are 1,771 cubic yards of excavation for installation of reinforced concrete box culverts. An additional 620 cubic yards has been included in the quantity of Contractor Furnished Borrow Excavation to account for the 35% shrinkage of the excavation quantity above.

All work necessary to excavate a trench for installation of reinforced concrete box culverts including labor, equipment, and incidentals shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation". Payment for excavation of reinforced concrete box culverts shall be based only on plans quantity and measurement of these excavation quantities during construction shall not be performed.

The excavation quantities for installation of reinforced concrete box culverts are not included with the earthwork balance quantities on the plans profile sheets. The quantities computed for excavation of the reinforced concrete box culverts are based on the limits shown in the drawing below.



**SALVAGED ITEMS**

All salvable materials indicated for salvage in the Incidental Work, Grading table shall be taken out intact and stockpiled within the right-of-way to the satisfaction of the Engineer. The Contractor shall perform salvage operations in a manner that will prevent damage to the salvable materials. Salvable materials will be picked up by the County for future highway maintenance. All signs in the Table of Incidental Work, Grading shall be salvaged. Contractor shall contact Clay County for pick up of salvable materials.

**INCIDENTAL WORK, GRADING**

Station	Remarks
22+96 - 7' Rt.	Take Out and Salvage Weight Limit Sign
23+08 - 9' Rt.	Take Out Rock Pile (Depth Unknown)
23+45 - 13' Rt.	Take Out Rock Pile (Depth Unknown)
23+60 - 15' Lt.	Take Out and Salvage Weight Limit Sign

All costs associated with the foregoing work shall be incidental to the contract lump sum price for "Incidental Work, Grading".

**PLACING TOPSOIL**

The thickness will be approximately 3 inches on all newly graded areas except top of roadway and along riprap.

The estimated amount of topsoil to be placed is as follows:

Station	to	Station	Topsoil (CuYd)
20+75		25+50	421
Total:			421

No separate measurement or payment will be made and plan quantities will be the method of payment.

**EROSION CONTROL**

The contract lump sum price for "Erosion Control" includes all materials, equipment, and labor necessary to seed and mulch all areas within the right-of-way, except top of subgrade and riprap area, and temporary and permanent easement areas disturbed by construction of this project.

The seed mixture shall consist of 10 Pure Live Seed Pounds of Intermediate Wheatgrass (Oahe), 8 Pure Live Seed Pounds of Green Needle Grass, and 10 Pounds of Oats or Wheat per acre.

Mulch shall consist of grass hay or straw and shall be blown on and punched in at the rate of 2 tons per acre on all newly seeded areas.

Application of fertilizer will not be required on this project.

The area to be seeded and mulched is estimated at 2.61 acres.

Limits of erosion control work shall be determined by the Engineer on construction.

**LOW FLOW SILT FENCE**

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

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

Low flow silt fence shall be placed at the 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 734.04 for details.

An additional 200 feet of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

**TABLE OF LOW FLOW SILT FENCE**

Location		Quantity (Ft)
22+30 to 22+45 Rt.	Along Inslope Low Point	35
23+50 to 24+75 Lt.	Along Toe of Inslope	125
22+67 to 25+25 Rt.	Along Toe of Inslope	285
	Additional Quantity	200
Total:		645

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8014(26)	6	39

Rev. 4/25/2016 LAJ

**EROSION CONTROL WATTLE**

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations noted in the table and 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.

An additional quantity of 100 feet of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high silt fence at wetland areas adjacent to the highway.

The erosion control wattle provided shall be from the list shown below:

Product	Manufacturer
Curlex Sediment Log AEC Premier Straw Wattles	American Excelsior Company Arlington, TX Phone: 1-800-777-7645 <a href="http://www.amerexcel.com">www.amerexcel.com</a>
Aspen Excelsior Logs and Excel Straw Logs	Western Excelsior Corporation Mancos, CO Phone: 1-800-833-8573 <a href="http://www.westernexcelsior.com">www.westernexcelsior.com</a>
Earth Saver Rice Straw Wattles	R.H. Dyck Inc. Winters, CA Phone: 1-866-928-8537 <a href="http://www.earth-savers.com">www.earth-savers.com</a>
Amber Waves Straw Wattles	GroNatural Winsted, MN Phone: 1-320-485-2800 <a href="http://www.gronatural.com">www.gronatural.com</a>
EarthTec Erosion Control Wattles	EarthTec/the Dukes, Inc. Devils Lake, ND Phone: 1-701-662-6666
Bio Logs	Flaxtech, LLC Rock Lake, ND Phone: 1-866-444-3529
Stenlog	Erosion Control Blanket Riverton, MB Phone: 1-866-280-7327 <a href="http://www.erosioncontrolblanket.com">www.erosioncontrolblanket.com</a>
Winters Wattles	Winters Excelsior Company Birmingham, AL Phone: 1-800-248-7237 <a href="http://www.wintersexelsior.com">www.wintersexelsior.com</a>
Patriot Wood Fiber Logs and Patriot Straw Wattles	Patriot Environmental Products, Inc. Mesa, AZ Phone: 1-480-345-7293 <a href="http://www.digitaldesigncore.com/patriot/WattleSpecs.pdf">www.digitaldesigncore.com/patriot/WattleSpecs.pdf</a>



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRO 8014(26)	SHEET 7	TOTAL SHEETS 39
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**TABLE OF EROSION CONTROL WATTLE**

Location		Quantity (Ft)
21+50 Lt.	Across Ditch Bottom	20
22+30 Rt.	Across Ditch Bottom	20
22+50 Lt.	Across Ditch Bottom	20
23+50 Rt.	Across Ditch Bottom	20
	Additional Quantity	100
Total:		180

**EROSION CONTROL BLANKET**

Erosion control blanket shall be installed at a width and location determined by the Engineer during construction and at the locations noted in the table.

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

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

The Contractor shall install erosion control blanket according to the manufacturer's installation instructions.

An additional quantity of 200 square yards of Type 2 Erosion Control Blanket has been added to the Estimate of Quantities for temporary erosion control.

**TABLE OF EROSION CONTROL BLANKET**

Location		Type	Quantity (SqYd)
21+00 to 23+07 Lt.	Along Ditch Bottom	2	529
22+53 Rt.	Along Inlet Channel Bank	2	87
23+05 Rt.	Along Inlet Channel Bank	2	63
23+17 Lt.	Along Outlet Channel Bank	2	78
23+48 Lt.	Along Outlet Channel Bank	2	84
	Additional Quantity	2	200
Total Type 2 Erosion Control Blanket:			1,041

**SHAPING FOR EROSION CONTROL BLANKET**

If any Additional Quantity of Erosion Control Blanket is ordered to be used along ditches during construction, the ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01.

All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".



**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): Minor channel cleanout and shaping
- **Total Project Area 2.95 Acres (4.2 1.b.)**
- **Total Area To Be Disturbed 1.39 Acres (4.2 1.b.)**
- **Existing Vegetative Cover 85%**
- **Soil Properties: AASHTO Classification A-4, A-6, A-7 (4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Tributary to Vermillion River (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.)

- **Special sequencing requirements (see sheet 2).**
- **Install pipes for traffic diversion and construct traffic diversion.**
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install Reinforced Concrete Box Culvert.**
- **Install Riprap.**
- **Complete final grading.**
- **Remove traffic diversion.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities.**
- **Install final erosion control.**

❖ **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
  - 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 Area
- Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Other:

➤ **Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes  No  If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the 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 site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

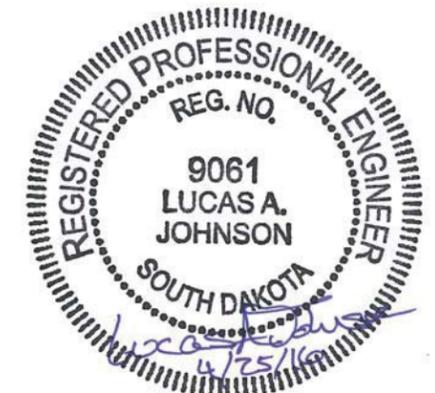
The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- 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 areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

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

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

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up 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 clean up 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.
- 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**

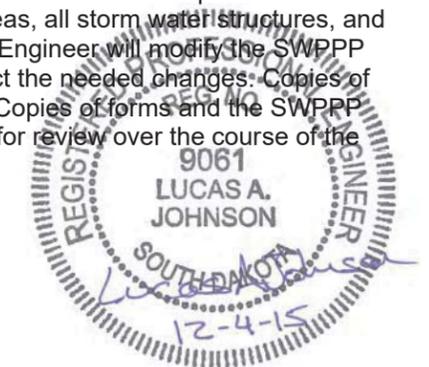
In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- 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.



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8014(26)	10	39

❖ **CERTIFICATIONS**

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

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

➤ **South Dakota Department of Transportation**

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



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

➤ **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:
- Address:
- City:                      State:                      Zip:
- Office Phone:                      Field:
- Cell Phone:                      Fax:

➤ **Erosion Control Supervisor**

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

➤ **SDDOT Project Engineer**

- Name:
- Business Address:
- Job Office Location:
- 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

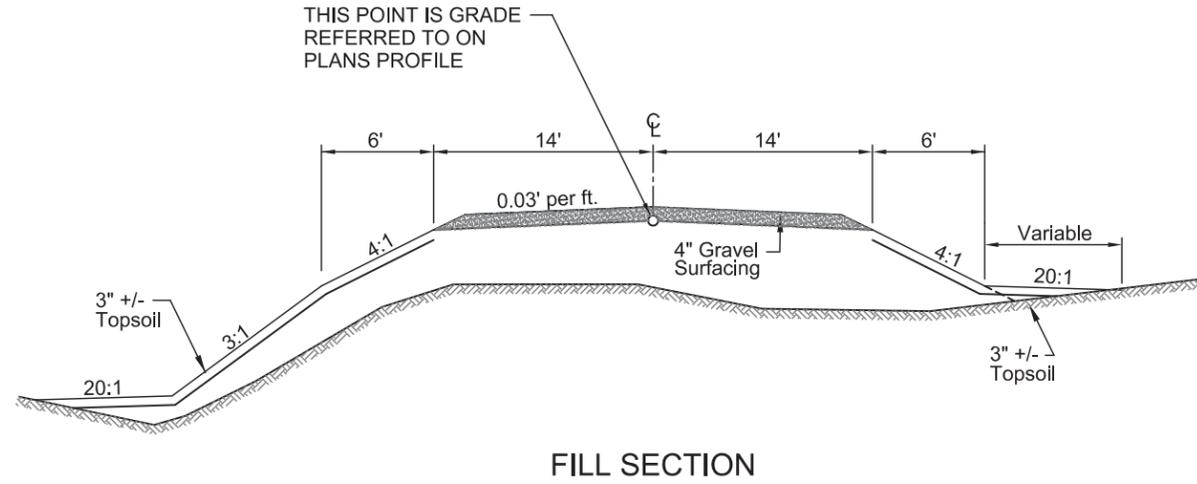
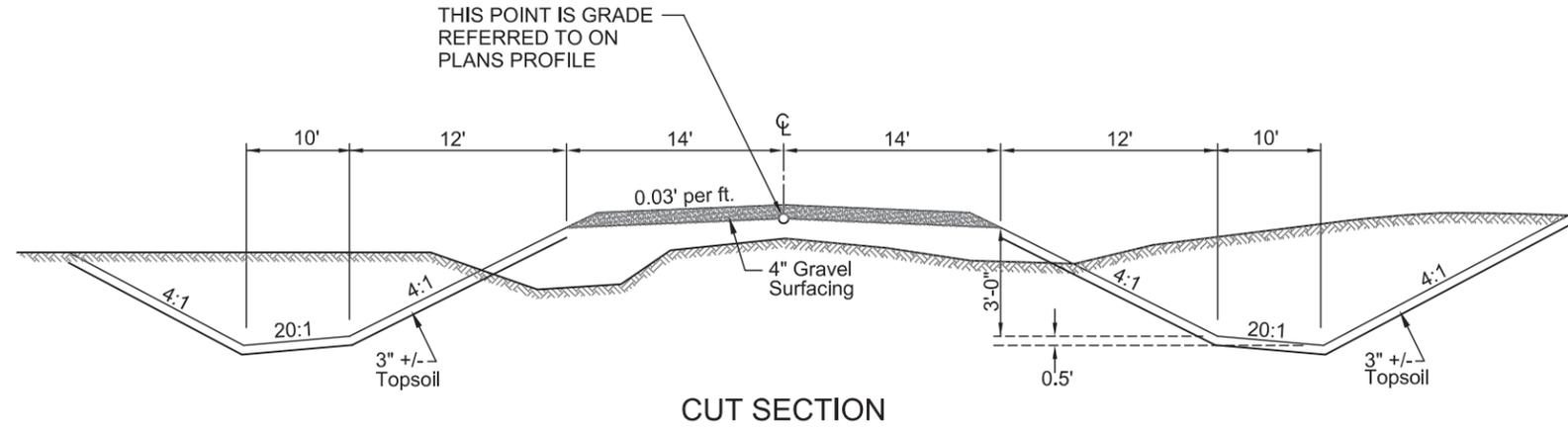
➤ **National Response Center Hotline**

- (800) 424-8802.



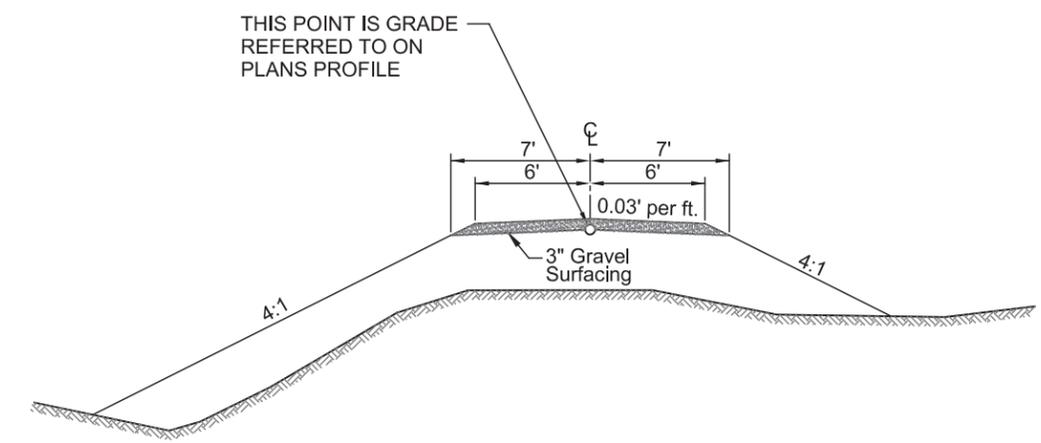
# TYPICAL GRADING SECTIONS FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	11	39



NOTES:  
 CLAY COUNTY WILL FURNISH AND INSTALL GRAVEL SURFACING WITHOUT FEDERAL PARTICIPATION.  
 SEE CROSS SECTIONS FOR LOCATIONS WHERE BERM OR TOE SLOPES ARE TO BE USED.

## TYPICAL SECTION FOR TRAFFIC DIVERSION



NOTE:  
 GRAVEL SURFACING FOR THE TRAFFIC DIVERSION SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

# TRAFFIC CONTROL TRAFFIC DIVERSION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	12	39

Rev. 4/25/2016 LAJ

## ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-2	YIELD	1	36" x 36"	9	9
R1-2aP	TO ONCOMING TRAFFIC (plaque)	1	36" x 30"	8	8
W1-3	REVERSE TURN (L or R)	4	48" x 48"	16	64
W1-6	LARGE ARROW (one direction)	6	48" x 24"	8	48
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6	24
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
G20-2	END ROAD WORK	2	36" x 18"	5	10
				<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 259</b>	

## TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 6' Single Sided	6 Each

### NOTES:

ALL FIXED LOCATION SIGNS SHALL REMAIN IN PLACE UNTIL PROJECT IS COMPLETED.

TYPE 3 BARRICADES ARE MEASURED FOR PAYMENT ON ONE SIDE ONLY

\*\* - MOUNT ON FIXED LOCATION (GROUND MOUNTED) SUPPORTS.

SEE SDDOT STANDARD PLATE 634.28 FOR TRAFFIC DIVERSION SIGNING.

ADVISORY SPEED PLATES SHALL BE FOR 15 MPH.

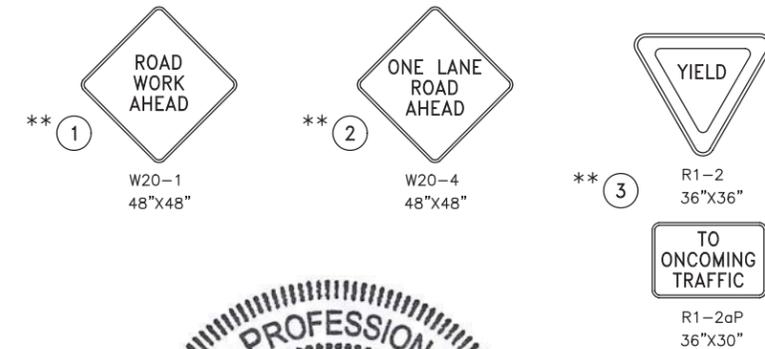
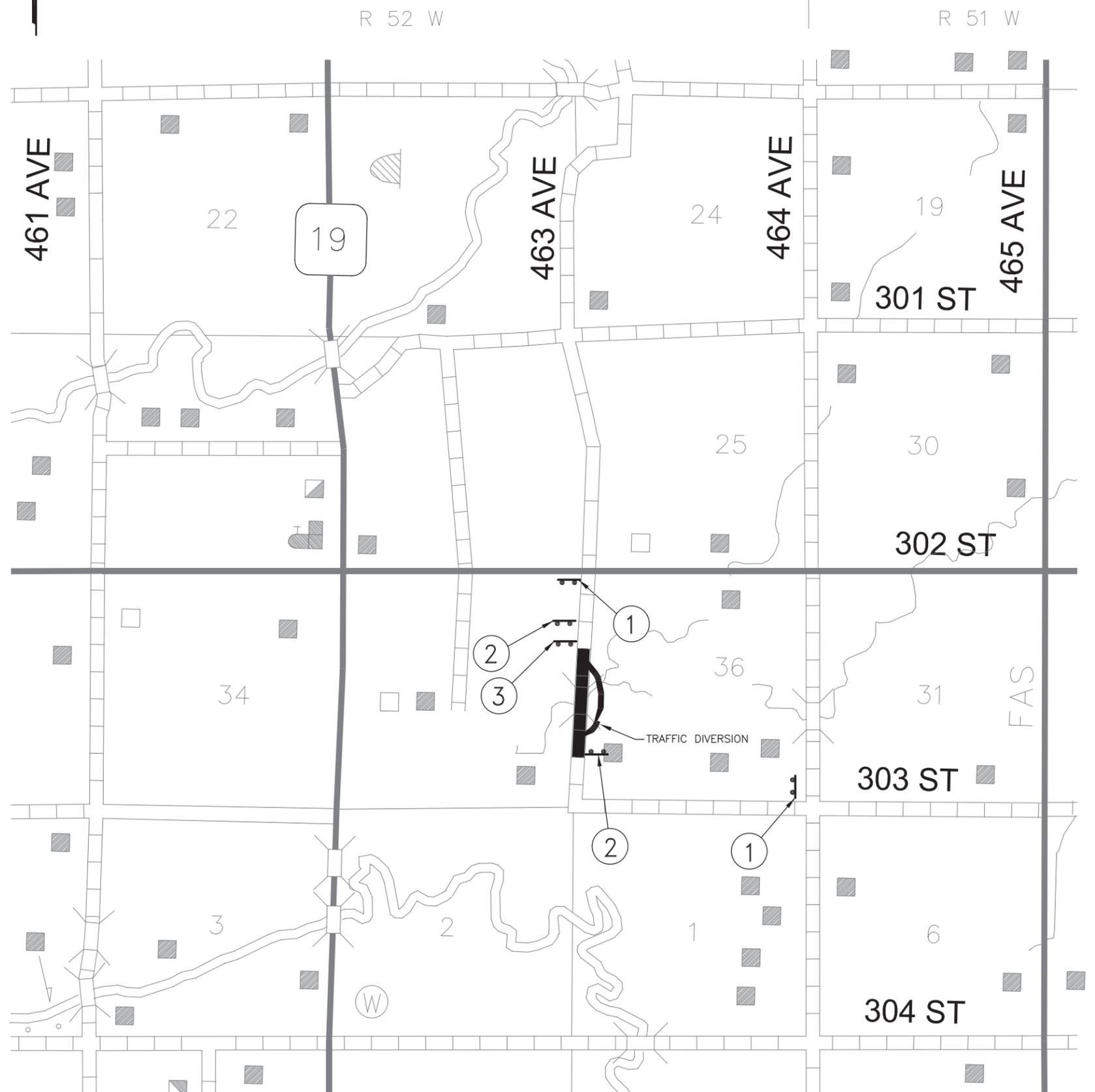


Table 6C-1 in part 6 of the MUTCD PAGE 554, 2009 edition

Road Type	Distance between signs (feet)		
	A	B	C
Urban (low speed*)	100	100	100
Urban (high speed*)	350	350	350
Rural	500	500	500
Expressway/Freeway	1000	1500	2640

\* Speed category to be determined by the highway agency.





SCALE:  
1" = 100'

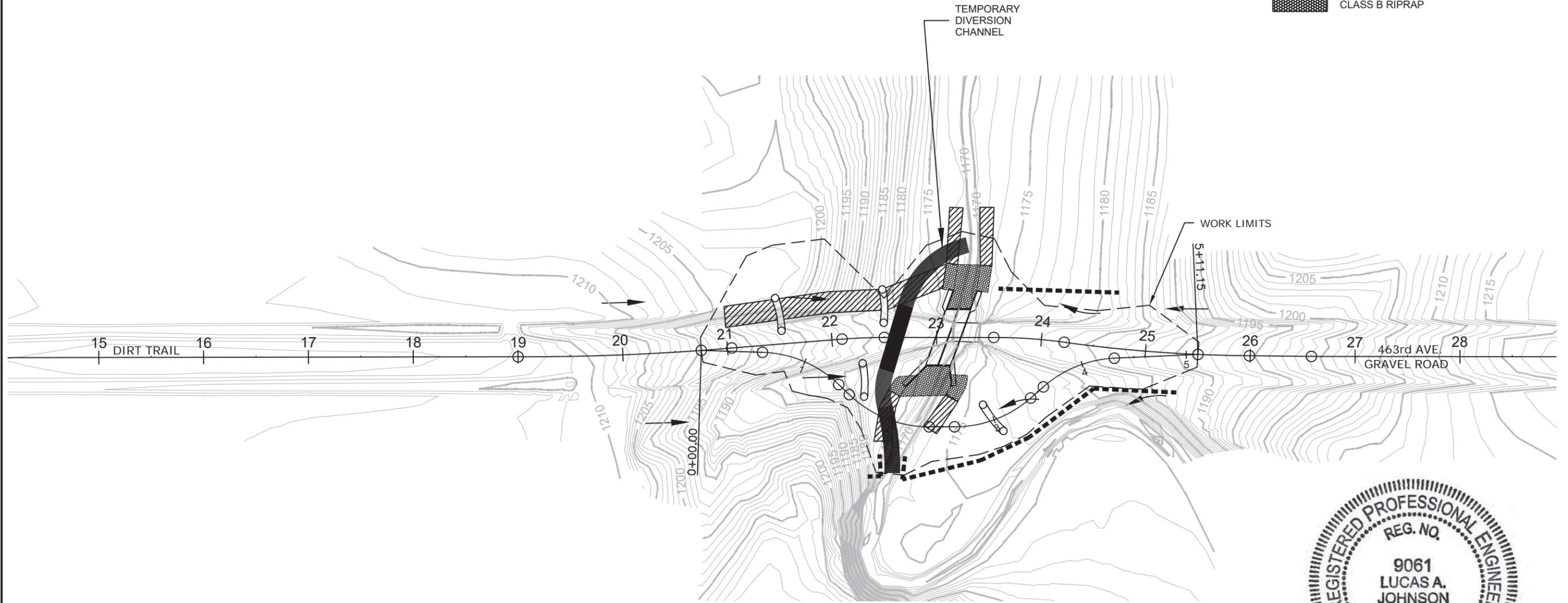
# EROSION AND SEDIMENT CONTROL PLAN

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	13	39

## LEGEND

-  LOW FLOW SILT FENCE
-  EROSION CONTROL WATTLE
-  TYPE 2 EROSION CONTROL BLANKET
-  CLASS B RIPRAP



LOW FLOW SILT FENCE LOCATIONS		
LOCATION		QUANTITY (Ft)
22+30 TO 22+45 RT.	ALONG INSLOPE LOW POINT	35
23+50 TO 24+75 LT.	ALONG TOE OF INSLOPE	125
22+67 TO 25+25 RT.	ALONG TOE OF INSLOPE	285
ADDITIONAL QUANTITY		200
Total:		645

12" DIAMETER EROSION CONTROL WATTLE		
LOCATION		QUANTITY (Ft)
21+50 LT.	ACROSS DITCH BOTTOM	20
22+30 RT.	ACROSS DITCH BOTTOM	20
22+50 LT.	ACROSS DITCH BOTTOM	20
23+50 RT.	ACROSS DITCH BOTTOM	20
ADDITIONAL QUANTITY		100
Total:		180

TYPE 2 EROSION CONTROL BLANKET		
LOCATION		QUANTITY (SqYd)
21+00 TO 23+07 LT.	ALONG DITCH BOTTOM	529
22+53 RT.	ALONG INLET CHANNEL BANK	87
23+05 RT.	ALONG INLET CHANNEL BANK	63
23+17 LT.	ALONG OUTLET CHANNEL BANK	78
23+48 LT.	ALONG OUTLET CHANNEL BANK	84
ADDITIONAL QUANTITY		200
Total:		1,041

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	14	39

## CONTROL DATA

CONTROL POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP 1	0+00.02	℄	Rebar w/ Cap	20000.00	20000.00	1161.40
CP 2	13+59.18	150.71' Rt.	5/8" Rebar & Guards	21359.42	20148.36	1214.17
CP 3	18+79.53	37.88' Rt.	5/8" Rebar & Guards	21879.57	20034.62	1212.83
CP 4	22+52.28	70.41' Lt.	5/8" Rebar & Guards	22251.69	19907.88	1181.78
CP 5	24+34.06	91.32' Rt.	5/8" Rebar & Guards	22421.43	20075.07	1175.06
CP 6	26+58.33	℄	3/8" x 16" Rebar	22656.91	19996.36	1199.08
CP 7	29+79.15	116.51' Lt.	5/8" Rebar & Guards	22977.89	19880.29	1220.28
CP 8	51+58.99	36.75' Rt.	5/8" Rebar & Guards	25157.52	20036.64	1230.29
CP 9	52+36.98	℄	3/8" x 16" Rebar	25235.58	20000.00	1233.79



## HORIZONTAL ALIGNMENT DATA

### MAINLINE

TYPE	STATION			NORTHING	EASTING
POB	0+00.00			19999.98	20000.00
		TL=1900.08'	N 0°05'57" W		
PC	19+00.08			21900.05	19996.71
PI	20+02.14	R = 2599.61'	Delta = 4°29'47" Lt.	22002.11	19996.53
PT	21+04.09			22103.84	19988.36
		TL=105.62'	N 4°35'44" W		
PC	22+09.71			22209.13	19979.89
PI	22+29.89	R = 500.00'	Delta = 4°37'20" Rt.	22229.24	19978.28
PT	22+50.05			22249.42	19978.28
		TL=104.48'	N 0°01'36" E		
PC	23+54.53			22353.90	19978.33
PI	23+88.25	R = 500.00'	Delta = 7°42'60" Rt.	22387.62	19978.35
PT	24+21.87			22421.04	19982.89
		TL=0.00'	N 7°44'35" E		
PC	24+21.87			22421.04	19982.89
PI	25+10.63	R = 1418.92'	Delta = 7°09'31" Lt.	22508.98	19994.85
PT	25+99.15			22597.74	19995.75
		TL=59.18'	N 0°35'05" E		
PI	26+58.33			22656.91	19996.36
		TL=2578.65'	N 0°04'51" E		
EOP	52+36.98			25235.58	20000.00

### TRAFFIC DIVERSION

TYPE	STATION			NORTHING	EASTING
POB	0+00.00			22074.82	19990.65
		TL=58.36'	N 01°47'30" E		
PC	0+58.36			22133.15	19992.48
PI	1+00.64	R = 110.00'	Delta = 42°03'17" Rt.	22175.41	19993.80
PT	1+39.10			22205.91	20023.09
		TL=13.93'	N 43°50'48" E		
PC	1+53.03			22215.96	20032.75
PI	1+97.30	R = 110.00'	Delta = 43°50'32" Lt.	22247.88	20063.41
PT	2+37.20			22292.15	20063.41
		TL=24.25'	N 0°00'15" E		
PC	2+61.45			22316.39	20063.42
PI	3+02.95	R = 110.00'	Delta = 41°20'31" Lt.	22357.89	20063.42
PT	3+40.82			22389.05	20036.01
		TL=16.08'	N 41°20'16" W		
PC	3+56.90			22401.13	20025.38
PI	3+95.59	R = 110.00'	Delta = 38°45'29" Rt.	22430.18	19999.83
PT	4+31.31			22468.83	19998.09
		TL=79.84'	N 02°34'47" W		
EOP	5+11.15			22548.59	19994.49

**NOTE:**

The coordinate values shown on this sheet are assumed datum.

The elevations show in these plans are based on the National Geodetic Vertical Datum of 1929 (NGVD29).

FOR BIDDING PURPOSES ONLY



THE NE 1/4 OF THE SE 1/4 OF SECTION 35-T95N-R52W

OWNER: SHARON JOHNSON  
6005 W. 61st STREET  
SIOUX FALLS, SD

THE SE 1/4 OF THE NE 1/4  
OF SECTION 35-T95N-R52W

OWNER: SHARON JOHNSON  
6005 W. 61st STREET  
SIOUX FALLS, SD

SCALE:  
1" = 100'

16+00 RT. CLAY COUNTY TO INSTALL  
(1) R2-1 SPEED LIMIT SIGN 20 MPH  
(24" X 30") WITHOUT FEDERAL PARTICIPATION

32+00 LT. CLAY COUNTY TO INSTALL  
(1) R2-1 SPEED LIMIT SIGN 20 MPH  
(24" X 30") WITHOUT FEDERAL PARTICIPATION

23+15.2 TO 23+40.8 - 14.3' LT. TO 4.5' RT.  
TAKE OUT 25.6' TWO-SPAN TIMBER BRIDGE  
WITH TIMBER ABUMENTS, BENT, WINGWALLS AND DECK  
22.0' OVERALL WIDTH WITH 17.1' ROADWAY WIDTH.  
INCIDENTAL WORK, STRUCTURE

22+96 - 7' RT. & 23+60 - 15' LT.  
SALVAGE (2) WEIGHT LIMIT SIGNS  
INCIDENTAL WORK, GRADING

23+08 - 9' RT. & 23+45 - 13' RT.  
TAKE OUT ROCK PILES (DEPTH UNKNOWN)  
INCIDENTAL WORK, GRADING

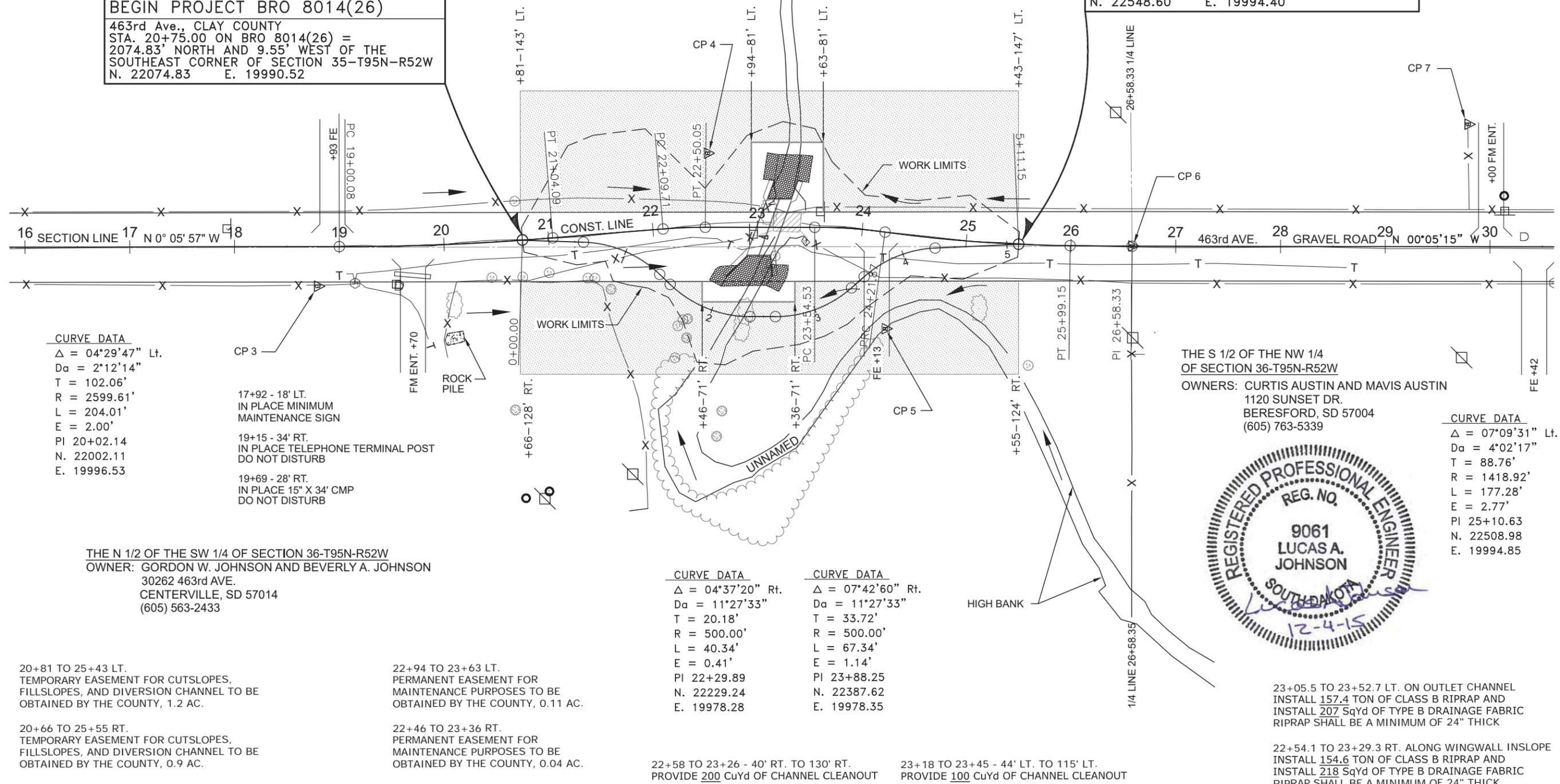
23+11.00 @ 20° LHF (DA = 12.4 SqMi)  
INSTALL 2 - 10' X 10' X 95'-0 5/8" RC BOX CULVERT  
WITH 25° FLARED WINGWALLS AT INLET AND  
0° FLARED WINGWALLS AT OUTLET

BEGIN PROJECT BRO 8014(26)

463rd Ave., CLAY COUNTY  
STA. 20+75.00 ON BRO 8014(26) =  
2074.83' NORTH AND 9.55' WEST OF THE  
SOUTHEAST CORNER OF SECTION 35-T95N-R52W  
N. 22074.83 E. 19990.52

END PROJECT BRO 8014(26)

463rd Ave., CLAY COUNTY  
STA. 25+50.00 ON BRO 8014(26) =  
2548.58' NORTH OF AND 5.29' WEST OF THE  
SOUTHEAST CORNER OF SECTION 35-T95N-R52W  
N. 22548.60 E. 19994.40



**CURVE DATA**  
 $\Delta = 04^{\circ}29'47''$  Lt.  
 $D\alpha = 2^{\circ}12'14''$   
 $T = 102.06'$   
 $R = 2599.61'$   
 $L = 204.01'$   
 $E = 2.00'$   
 $PI = 20+02.14$   
 $N. 22002.11$   
 $E. 19996.53$

17+92 - 18' LT.  
IN PLACE MINIMUM  
MAINTENANCE SIGN

19+15 - 34' RT.  
IN PLACE TELEPHONE TERMINAL POST  
DO NOT DISTURB

19+69 - 28' RT.  
IN PLACE 15" X 34' CMP  
DO NOT DISTURB

THE N 1/2 OF THE SW 1/4 OF SECTION 36-T95N-R52W  
OWNER: GORDON W. JOHNSON AND BEVERLY A. JOHNSON  
30262 463rd AVE.  
CENTERVILLE, SD 57014  
(605) 563-2433

20+81 TO 25+43 LT.  
TEMPORARY EASEMENT FOR CUTSLOPES,  
FILLSLOPES, AND DIVERSION CHANNEL TO BE  
OBTAINED BY THE COUNTY, 1.2 AC.

20+66 TO 25+55 RT.  
TEMPORARY EASEMENT FOR CUTSLOPES,  
FILLSLOPES, AND DIVERSION CHANNEL TO BE  
OBTAINED BY THE COUNTY, 0.9 AC.

22+94 TO 23+63 LT.  
PERMANENT EASEMENT FOR  
MAINTENANCE PURPOSES TO BE  
OBTAINED BY THE COUNTY, 0.11 AC.

22+46 TO 23+36 RT.  
PERMANENT EASEMENT FOR  
MAINTENANCE PURPOSES TO BE  
OBTAINED BY THE COUNTY, 0.04 AC.

**CURVE DATA**  
 $\Delta = 04^{\circ}37'20''$  Rt.  
 $D\alpha = 11^{\circ}27'33''$   
 $T = 20.18'$   
 $R = 500.00'$   
 $L = 40.34'$   
 $E = 0.41'$   
 $PI = 22+29.89$   
 $N. 22229.24$   
 $E. 19978.28$

**CURVE DATA**  
 $\Delta = 07^{\circ}42'60''$  Rt.  
 $D\alpha = 11^{\circ}27'33''$   
 $T = 33.72'$   
 $R = 500.00'$   
 $L = 67.34'$   
 $E = 1.14'$   
 $PI = 23+88.25$   
 $N. 22387.62$   
 $E. 19978.35$

22+58 TO 23+26 - 40' RT. TO 130' RT.  
PROVIDE 200 CuYd OF CHANNEL CLEANOUT

23+18 TO 23+45 - 44' LT. TO 115' LT.  
PROVIDE 100 CuYd OF CHANNEL CLEANOUT

THE S 1/2 OF THE NW 1/4  
OF SECTION 36-T95N-R52W  
OWNERS: CURTIS AUSTIN AND MAVIS AUSTIN  
1120 SUNSET DR.  
BERESFORD, SD 57004  
(605) 763-5339

**CURVE DATA**  
 $\Delta = 07^{\circ}09'31''$  Lt.  
 $D\alpha = 4^{\circ}02'17''$   
 $T = 88.76'$   
 $R = 1418.92'$   
 $L = 177.28'$   
 $E = 2.77'$   
 $PI = 25+10.63$   
 $N. 22508.98$   
 $E. 19994.85$



23+05.5 TO 23+52.7 LT. ON OUTLET CHANNEL  
INSTALL 157.4 TON OF CLASS B RIPRAP AND  
INSTALL 207 SqYd OF TYPE B DRAINAGE FABRIC  
RIPRAP SHALL BE A MINIMUM OF 24" THICK

22+54.1 TO 23+29.3 RT. ALONG WINGWALL INSLOPE  
INSTALL 154.6 TON OF CLASS B RIPRAP AND  
INSTALL 218 SqYd OF TYPE B DRAINAGE FABRIC  
RIPRAP SHALL BE A MINIMUM OF 24" THICK

FOR BIDDING PURPOSES ONLY

20+75  
BEGIN WORK

25+30  
END WORK

EXC	2119	EMB	1798
CONT. FURN. BORROW	+308	+35%	629
	2427		2427

NOTE:  
BORROW SHALL BE OBTAINED FROM A CONTRACTOR SUPPLIED SOURCE APPROVED BY THE ENGINEER.

PVI 21+25.00  
Elev 1194.65

PVI 23+00.00  
Elev 1177.50  
L 325.00'  
G1 = -9.8000%  
G2 = +5.2150%  
K = 21.65  
(20 MPH)

PVI 25+00.00  
Elev 1187.93

EXISTING C PROFILE

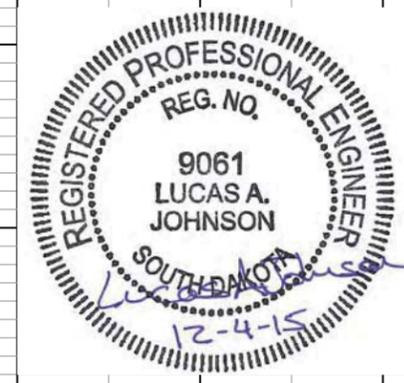
-9.8000%

PROPOSED SUBGRADE

+5.2150%

FLL: 1167.97  
FLR: 1167.84

Q<sub>d25</sub> = 737 cfs  
Elev. 1175.9  
Q<sub>100</sub> = 1521 cfs  
Elev. 1178.5  
Q<sub>07</sub>=Q<sub>490</sub> = 2900 cfs  
Elev. 1183.3



SCALE:  
1" = 100' HORIZ.  
1" = 10' VERT.

1192.24  
1188.20  
1185.32  
1183.60  
1183.03  
1183.62  
1185.36  
1187.93

19 20 21 22 23 24 25 26 27 28

1220

1220

1210

1210

1200

1200

1190

1190

1180

1180

1170

1170

1160

1160

1150

1150

1140

1140

# TRAFFIC DIVERSION

FOR BIDDING PURPOSES ONLY

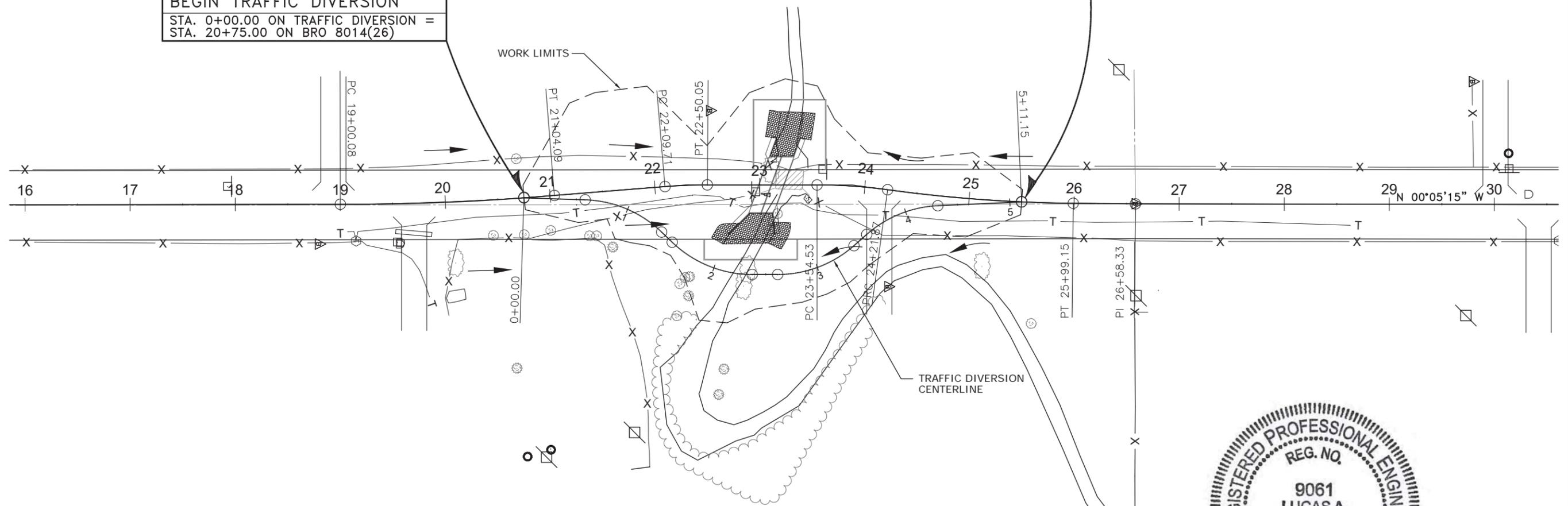
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)		



SCALE:  
1" = 100'

**BEGIN TRAFFIC DIVERSION**  
STA. 0+00.00 ON TRAFFIC DIVERSION =  
STA. 20+75.00 ON BRO 8014(26)

**END TRAFFIC DIVERSION**  
STA. 5+11.15 ON TRAFFIC DIVERSION =  
STA. 25+50.00 ON BRO 8014(26)

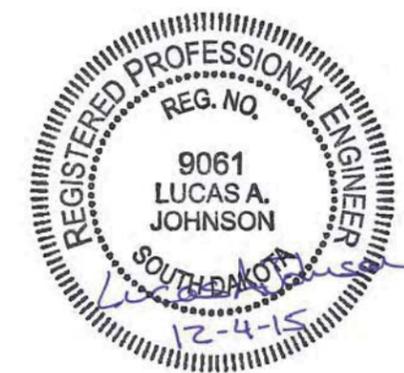


CURVE DATA  
 $\Delta = 42^{\circ}03'17''$  Rt.  
 $D_a = 52^{\circ}05'13''$   
 $T = 42.29'$   
 $R = 110.00'$   
 $L = 80.74'$   
 $E = 7.85'$   
 $PI\ 1+00.64$   
 $N.\ 22175.41$   
 $E.\ 19993.80$

CURVE DATA  
 $\Delta = 43^{\circ}50'32''$  Lt.  
 $D_a = 52^{\circ}05'13''$   
 $T = 44.27'$   
 $R = 110.00'$   
 $L = 84.17'$   
 $E = 8.57'$   
 $PI\ 1+97.30$   
 $N.\ 22247.88$   
 $E.\ 20063.41$

CURVE DATA  
 $\Delta = 41^{\circ}20'31''$  Lt.  
 $D_a = 52^{\circ}05'13''$   
 $T = 41.50'$   
 $R = 110.00'$   
 $L = 79.37'$   
 $E = 7.57'$   
 $PI\ 3+02.95$   
 $N.\ 22357.89$   
 $E.\ 20063.42$

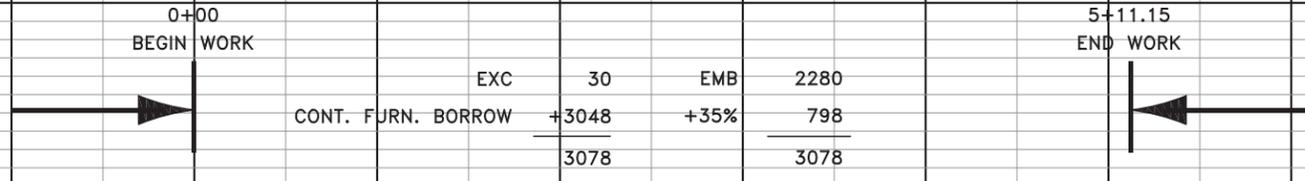
CURVE DATA  
 $\Delta = 38^{\circ}45'29''$  Rt.  
 $D_a = 52^{\circ}05'13''$   
 $T = 38.69'$   
 $R = 110.00'$   
 $L = 74.41'$   
 $E = 6.61'$   
 $PI\ 3+95.59$   
 $N.\ 22430.18$   
 $E.\ 19999.83$



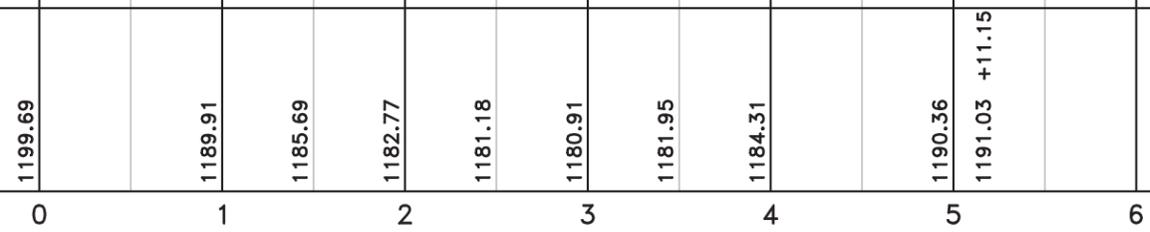
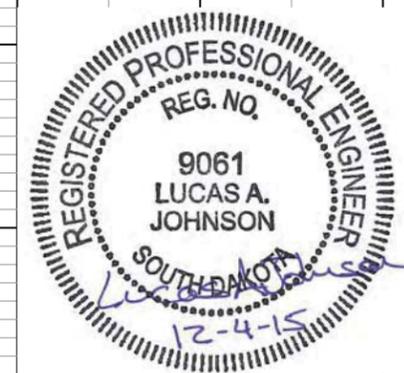
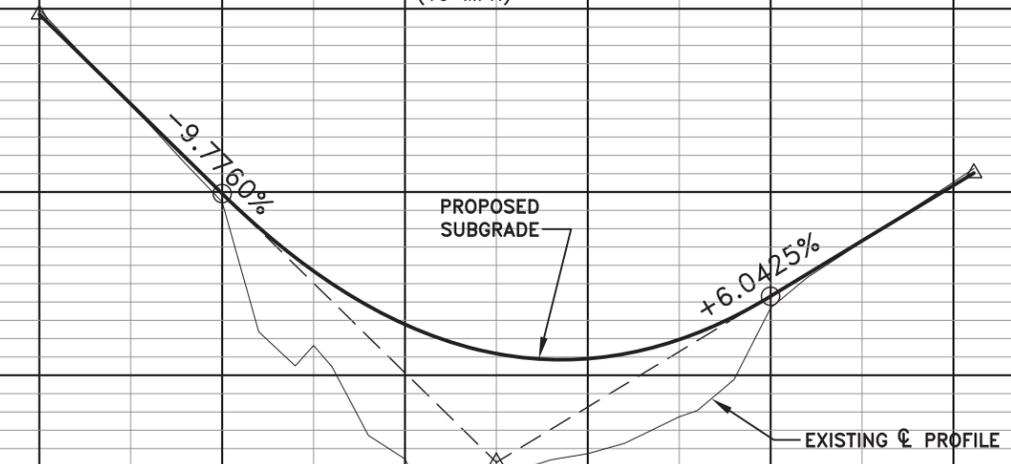
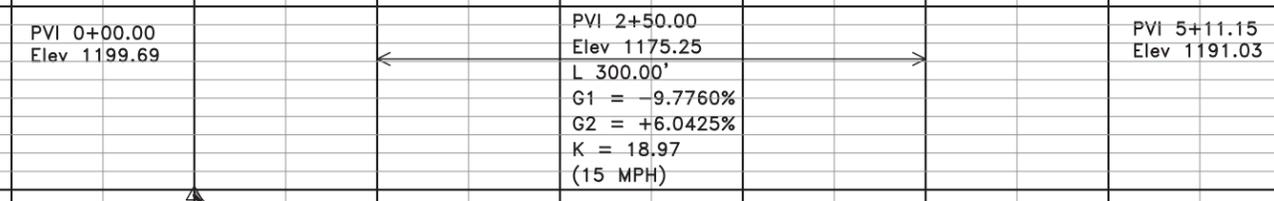
# TRAFFIC DIVERSION

FOR BIDDING PURPOSES ONLY

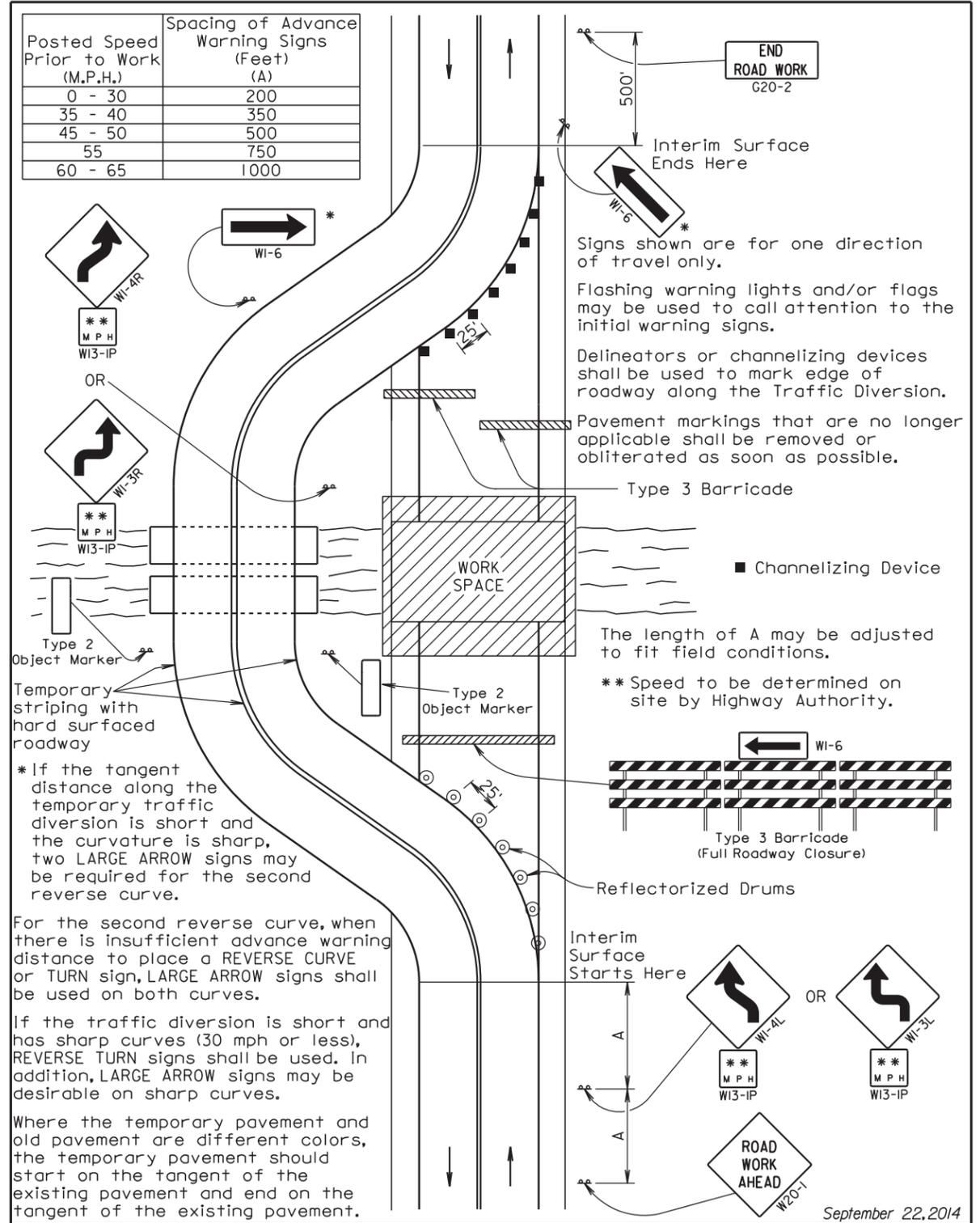
STATE OF SOUTH DAKOTA	PROJECT BRO 8014(26)	SHEET NO. 18	TOTAL SHEETS 39
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NOTE:  
BORROW SHALL BE OBTAINED FROM A CONTRACTOR SUPPLIED SOURCE APPROVED BY THE ENGINEER.



SCALE:  
1" = 100' HORIZ.  
1" = 10' VERT.



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 - 65	1000

Signs shown are for one direction of travel only.

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

Delineators or channelizing devices shall be used to mark edge of roadway along the Traffic Diversion.

Pavement markings that are no longer applicable shall be removed or obliterated as soon as possible.

Type 3 Barricade

Channelizing Device

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

\*\* Speed to be determined on site by Highway Authority.

\* If the tangent distance along the temporary traffic diversion is short and the curvature is sharp, two LARGE ARROW signs may be required for the second reverse curve.

For the second reverse curve, when there is insufficient advance warning distance to place a REVERSE CURVE or TURN sign, LARGE ARROW signs shall be used on both curves.

If the traffic diversion is short and has sharp curves (30 mph or less), REVERSE TURN signs shall be used. In addition, LARGE ARROW signs may be desirable on sharp curves.

Where the temporary pavement and old pavement are different colors, the temporary pavement should start on the tangent of the existing pavement and end on the tangent of the existing pavement.

Published Date: 4th Qtr. 2015

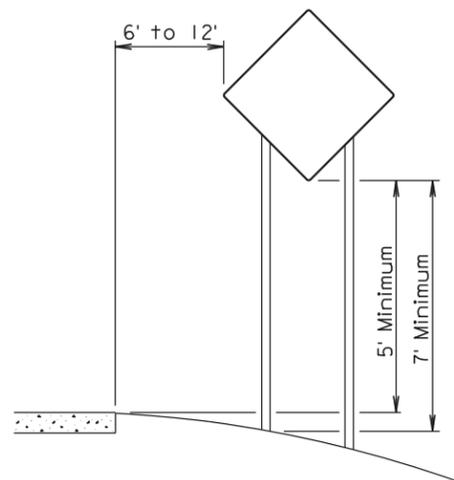
**SD DOT**

**GUIDES FOR TRAFFIC CONTROL DEVICES  
ROAD CLOSED WITH TRAFFIC DIVERTED**

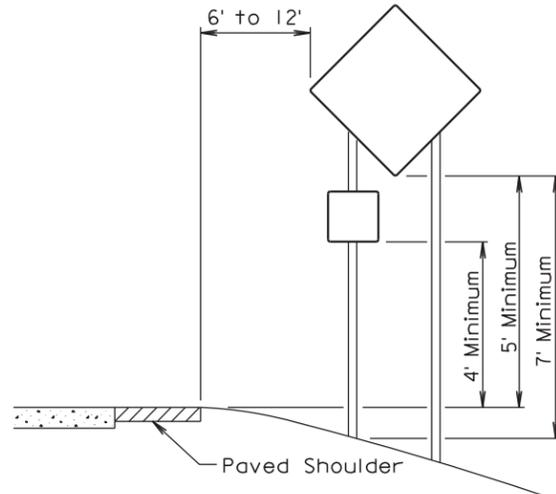
September 22, 2014

PLATE NUMBER  
634.28

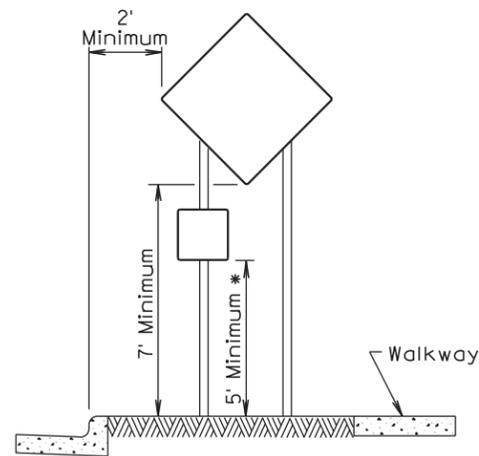
Sheet 1 of 1



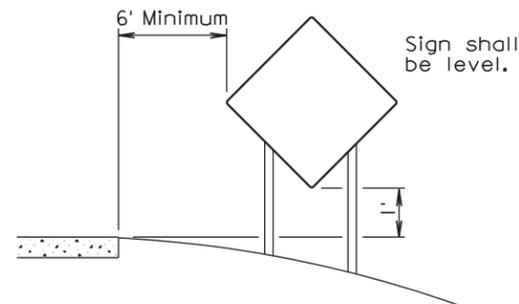
RURAL DISTRICT



RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



URBAN DISTRICT

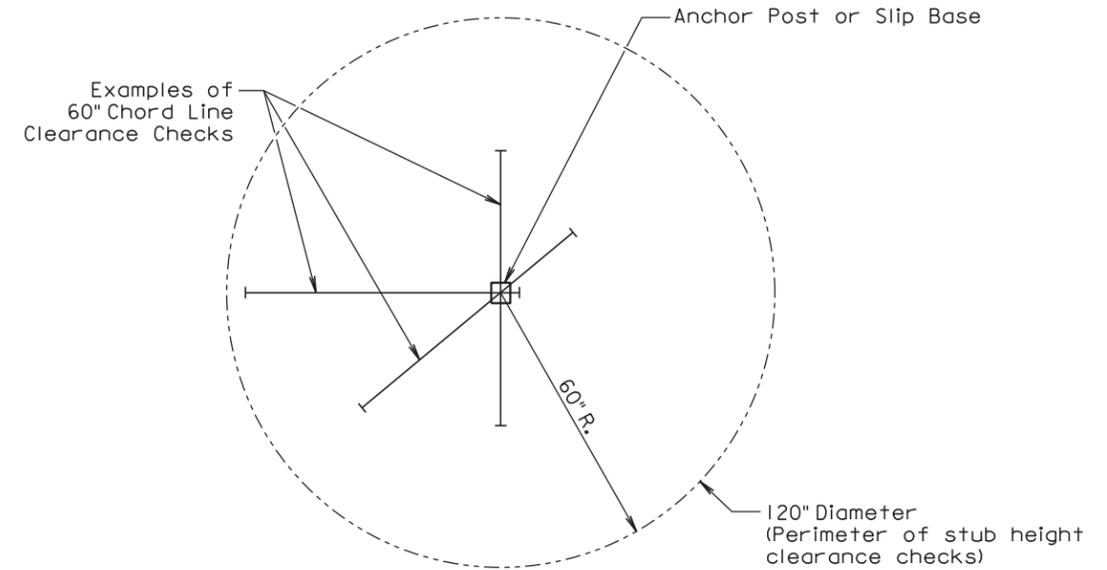


RURAL DISTRICT  
3 DAY MAXIMUM  
(Not applicable to regulatory signs)

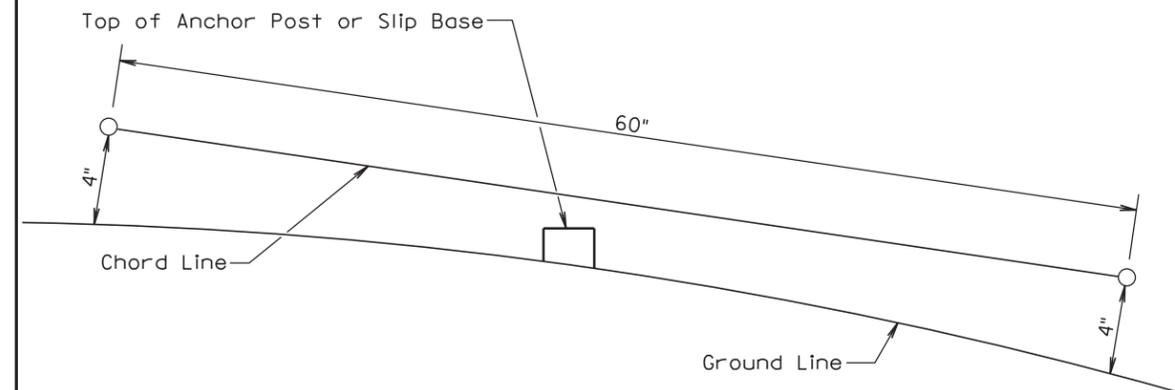
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

Published Date: 4th Qtr. 2015	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:

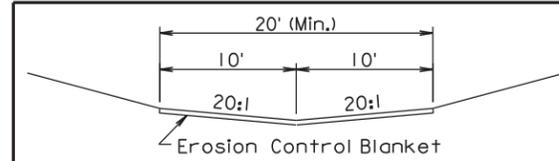
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

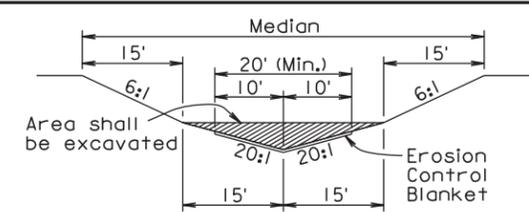
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 4th Qtr. 2015	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

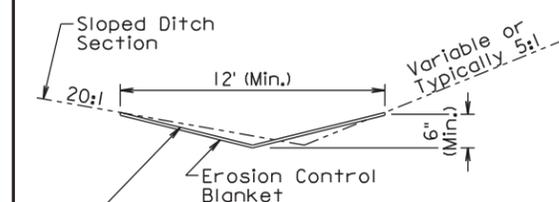


STANDARD DITCH SECTION



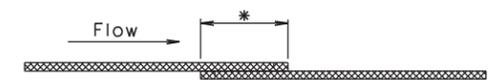
MEDIAN SECTION

The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.



SLOPED DITCH SECTION

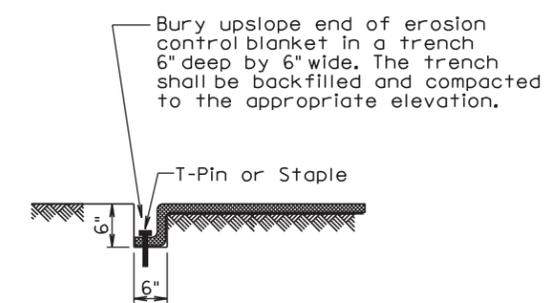
This ditch section shall be constructed when installing erosion control blanket.



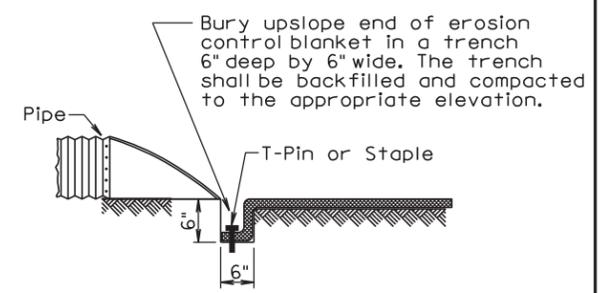
\* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

\* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

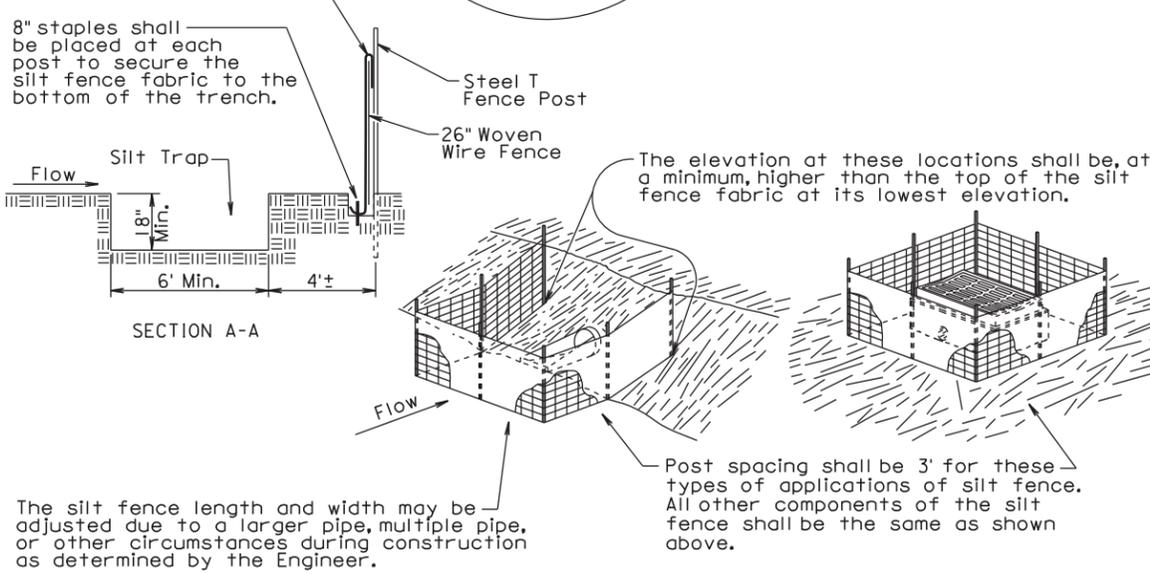
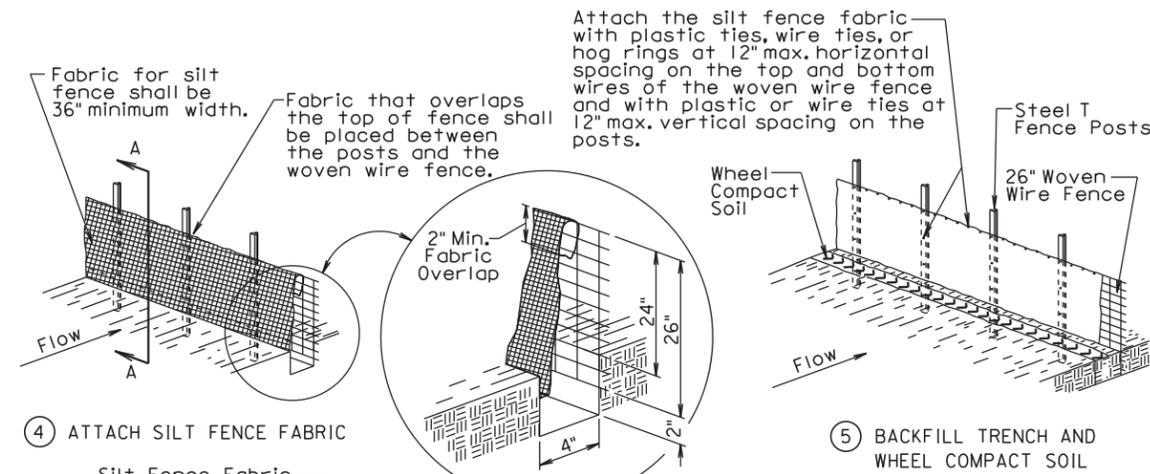
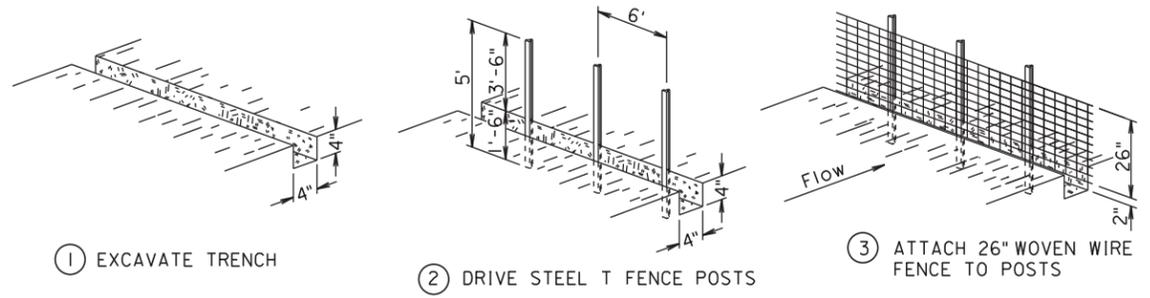
**GENERAL NOTES:**

- Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.
- Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.
- The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.
- After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.
- All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

December 23, 2004

Published Date: 4th Qtr. 2015	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

MANUAL LOW FLOW SILT FENCE INSTALLATION

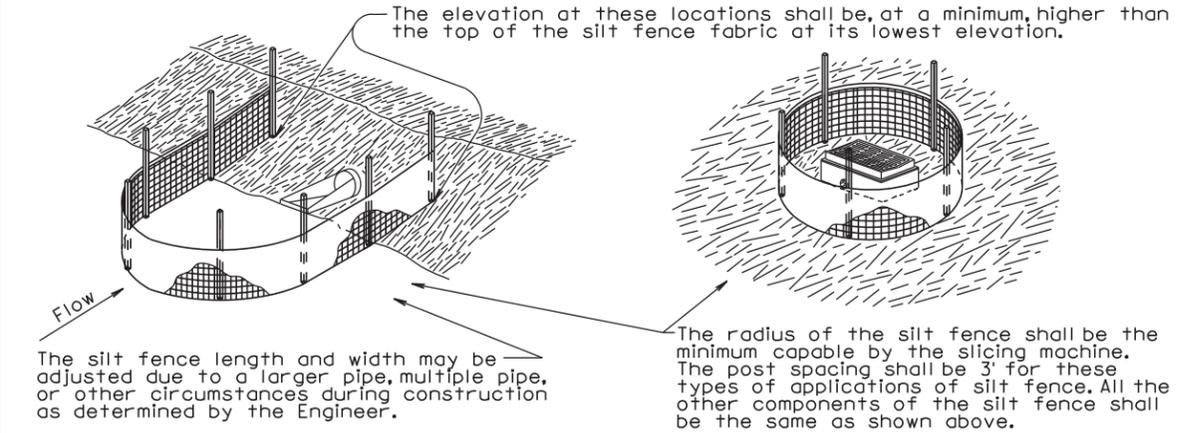
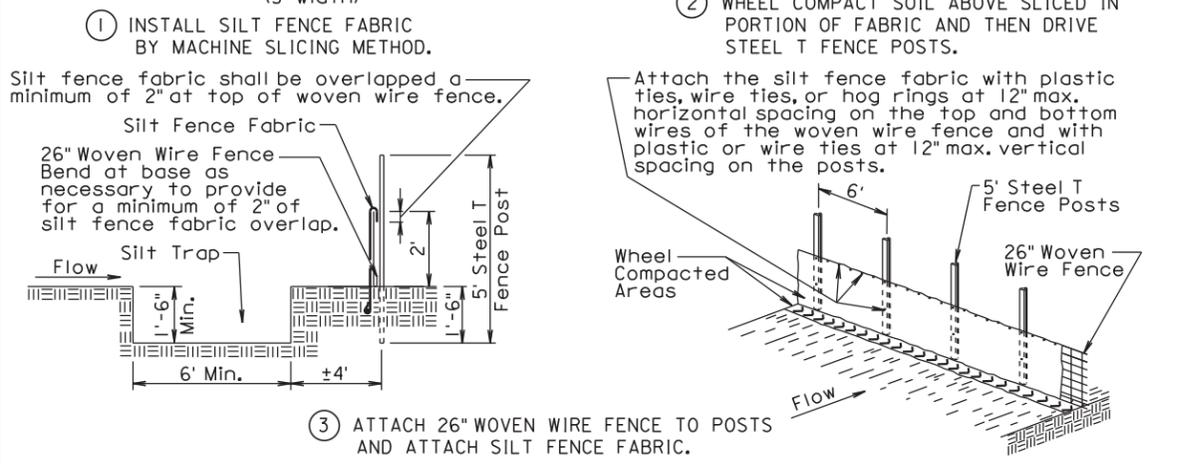
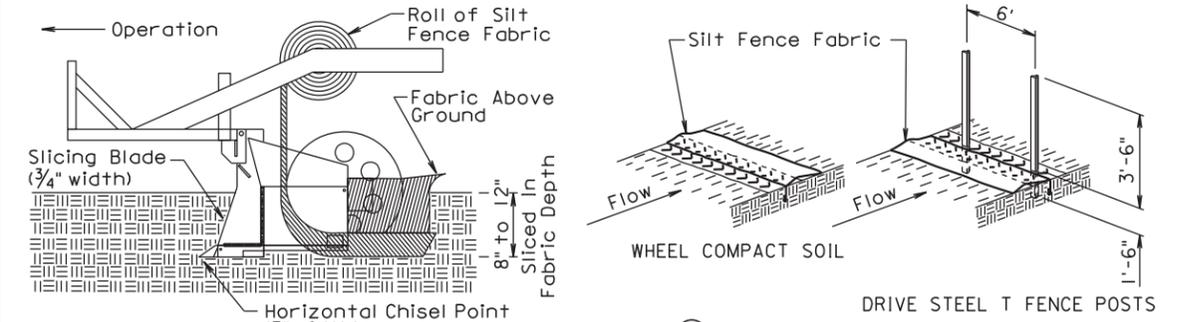


December 23, 2003

S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
		Sheet 1 of 2

Published Date: 4th Qtr. 2015

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



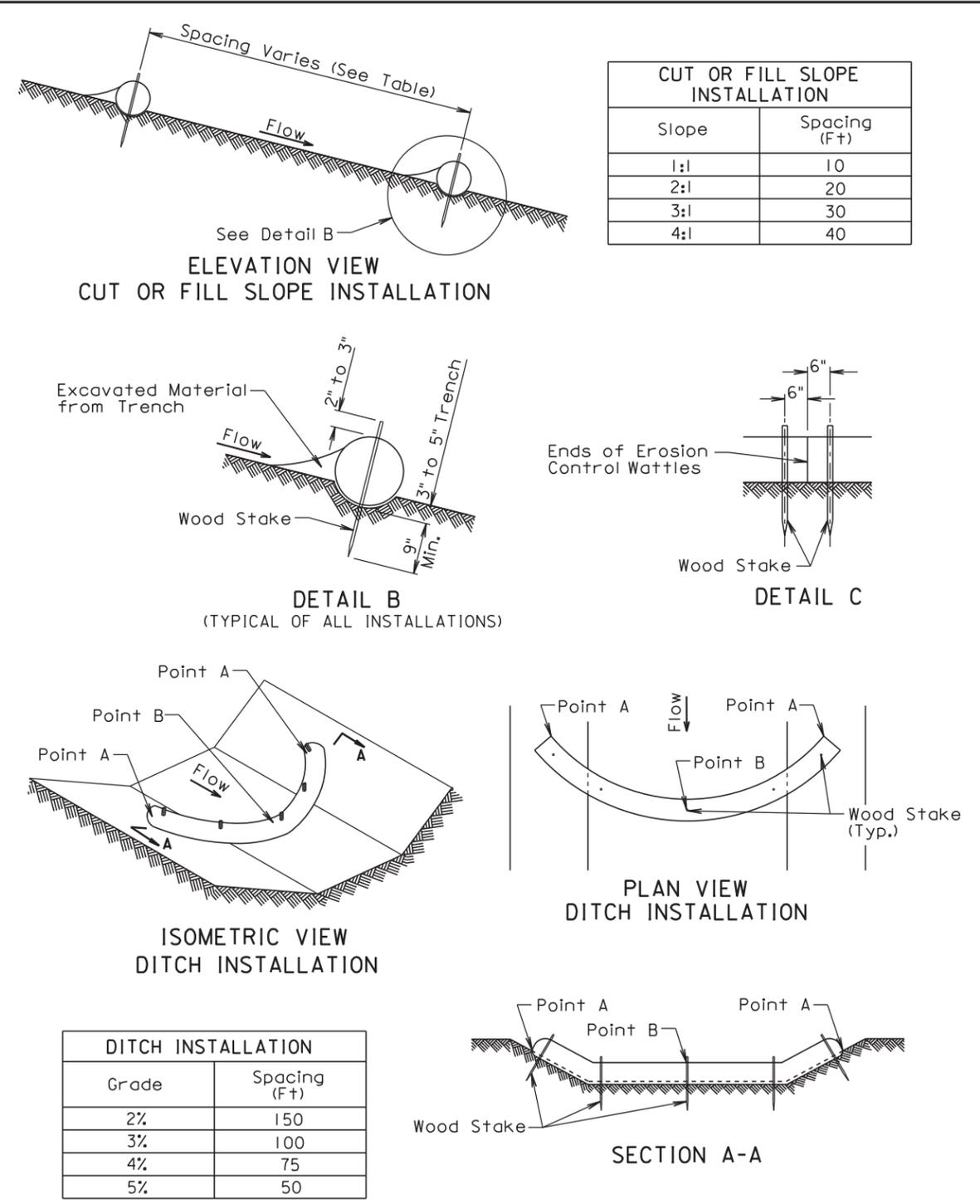
GENERAL NOTES:

A silt trap shall be provided when specified by a plan note. All costs for constructing the silt trap shall be incidental to the contract unit price per cubic yard for "Silt Trap".  
If a trench can not be dug or the silt fence fabric can not be sliced 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.

December 23, 2003

S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
		Sheet 2 of 2

Published Date: 4th Qtr. 2015



December 23, 2004

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.

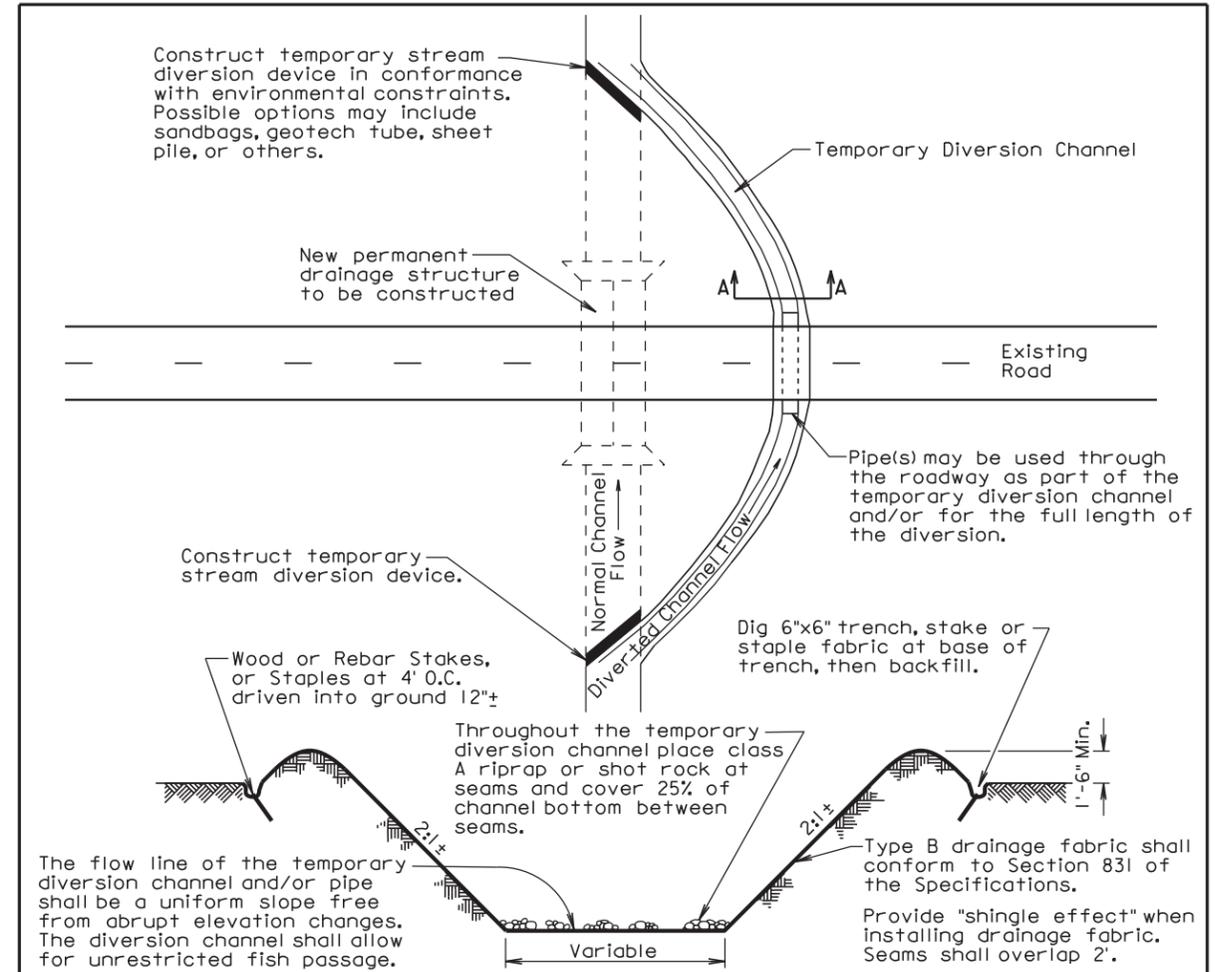
The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

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



**GENERAL NOTES:**

**TEMPORARY DIVERSION CHANNEL**

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

<b>S D D O T</b>	<b>TEMPORARY DIVERSION CHANNEL</b>	PLATE NUMBER <b>734.30</b>
		Sheet 1 of 1

Published Date: 4th Qtr. 2015

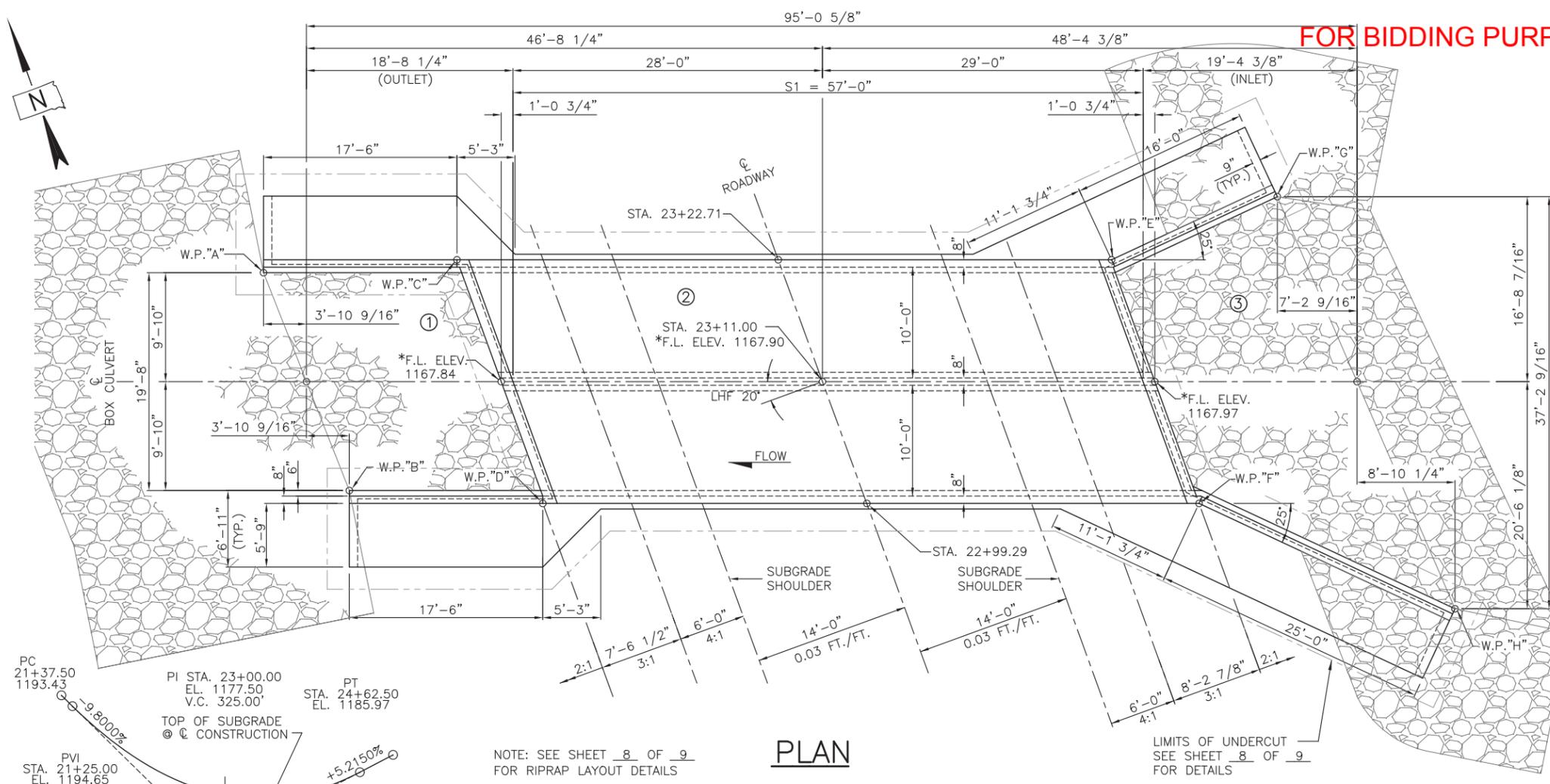
**FOR BIDDING PURPOSES ONLY**

**-X028-  
INDEX OF CULVERT SHEETS**

SHEET NO. 1	GENERAL DRAWING AND QUANTITIES
SHEET NO. 2 & 3	INLET DETAILS
SHEET NO. 4 & 5	OUTLET DETAILS
SHEET NO. 6 & 7	S1-BARREL SECTION DETAILS
SHEET NO. 8	RIPRAP AND UNDERCUT LAYOUT
SHEET NO. 9	STANDARD PLATES NO. 460.02 & 620.16

- SPECIFICATIONS**
- Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 with 2013 Interim Revisions.
  - Construction Specifications: 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**
- All exposed edges shall be chamfered 3/4".
  - Design Live Loading: HL93. No construction loading in excess of legal load was considered.
  - All reinforcing steel shall conform to ASTM - A615 Grade 60.
  - Design Material Strengths: Concrete  $f'c = 4500$  p.s.i. Reinforcing Steel  $f_y = 60000$  p.s.i.
  - The design of the barrel section is based on a minimum fill height of 1 ft. and includes all subsequent fill heights up to and including the maximum fill height of 6 ft. (S1).
  - The Contractor shall imprint on the structure the date of construction as specified and detailed on Standard Plate No. 460.02.
  - Care shall be taken to establish Working Points (W.P.) as shown on the Wings.
  - Use 1 inch clear cover on all reinforcing steel EXCEPT as shown.
  - Circled numbers in PLAN and ELEVATION view are section I.D. numbers (see SDDOT Materials Manual).
  - Compaction of earth embankment and box culvert material shall be governed by the ordinary compaction method.
  - All concrete shall be Class A45.



**PLAN**

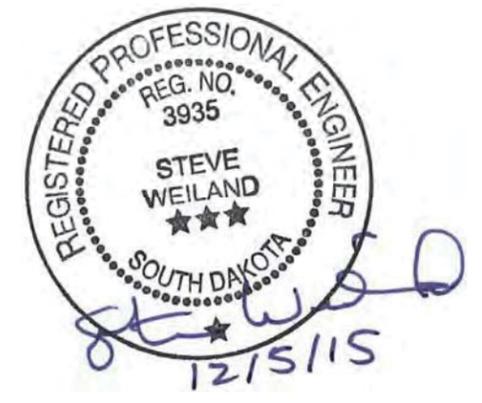
NOTE: SEE SHEET 8 OF 9 FOR RIPRAP LAYOUT DETAILS

NOTE: Box Culvert flowline has been depressed 1'-0" below channel flowline to accommodate aquatic organisms. The 1'-0" depression will be allowed to fill in naturally over time.

THE ELEVATIONS SHOWN IN THESE PLANS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

**TABLE OF WORKING POINTS**

WORKING POINT	STATION	OFFSET
"A"	23+37.54	44.16' Lt.
"B"	23+16.40	43.59' Lt.
"C"	23+32.65	27.31' Lt.
"D"	23+09.32	27.54' Lt.
"E"	23+12.39	28.34' Rt.
"F"	22+89.01	28.25' Rt.
"G"	23+12.62	44.38' Rt.
"H"	22+72.16	46.75' Rt.



\*TOPEKA SHINER STREAM

**GENERAL DRAWING AND QUANTITIES FOR 2 - 10' X 10' RC BOX CULVERT**

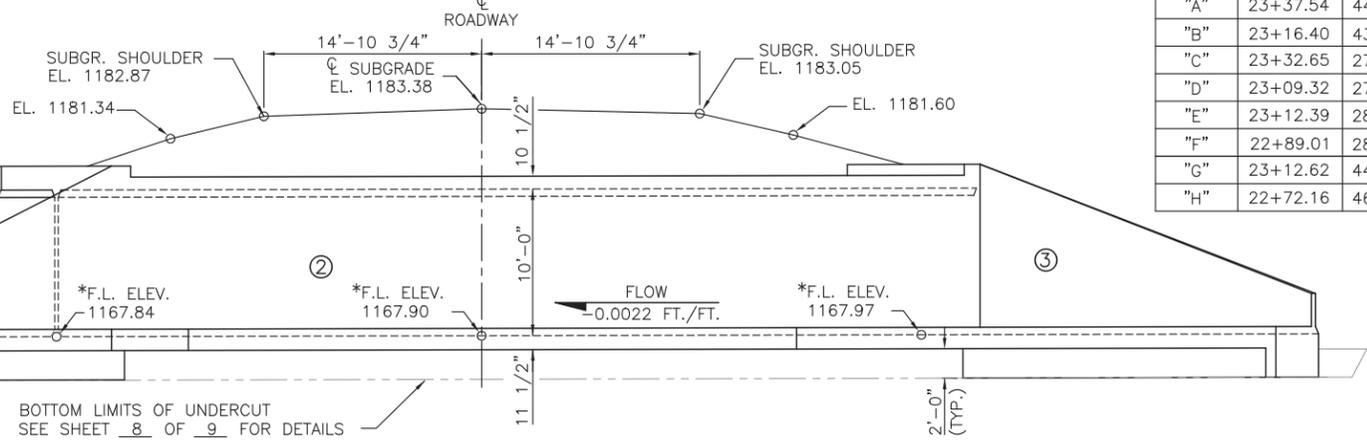
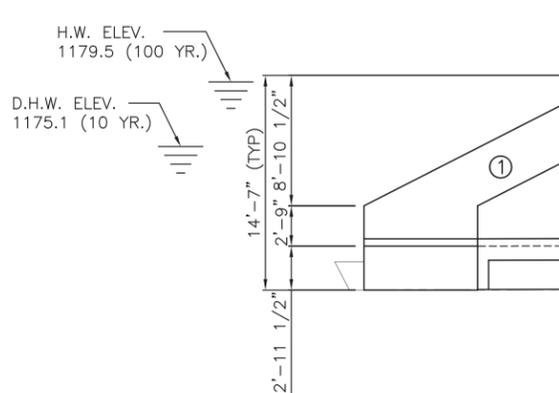
\*OVER UNNAMED CREEK STA. 23+11.00 PCN 6867 STRUCTURE 14-110-056  
20' SKEW LHF SEC. 35/36 T95N R52W BRO 8014(26)  
CLAY COUNTY SOUTH DAKOTA

PREPARED BY: JOHNSON ENGINEERING CO. YANKTON, SOUTH DAKOTA  
HL93

**X028**      DECEMBER, 2014      ① OF ⑨

DESIGNED BY SMW/GSS	DRAWN BY SMW	CHECKED BY GSS
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**VERTICAL CURVE DATA**



**ELEVATION**

**HYDRAULIC DATA**

Qd	519 cfs
Ad	118 SqFt
Vd	4.4 fps
QF	519 cfs
Q100	1720 cfs
QOTfr	2419 cfs
VMax	9.9 fps

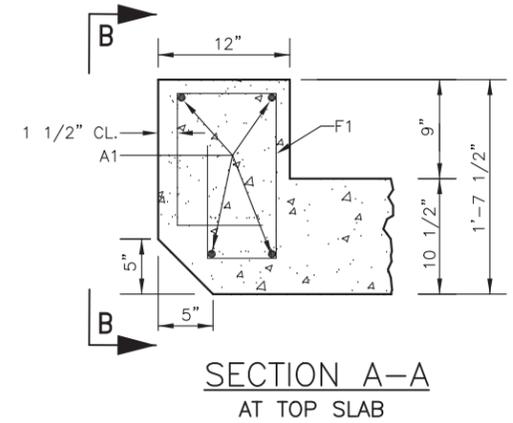
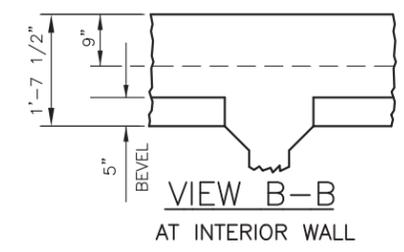
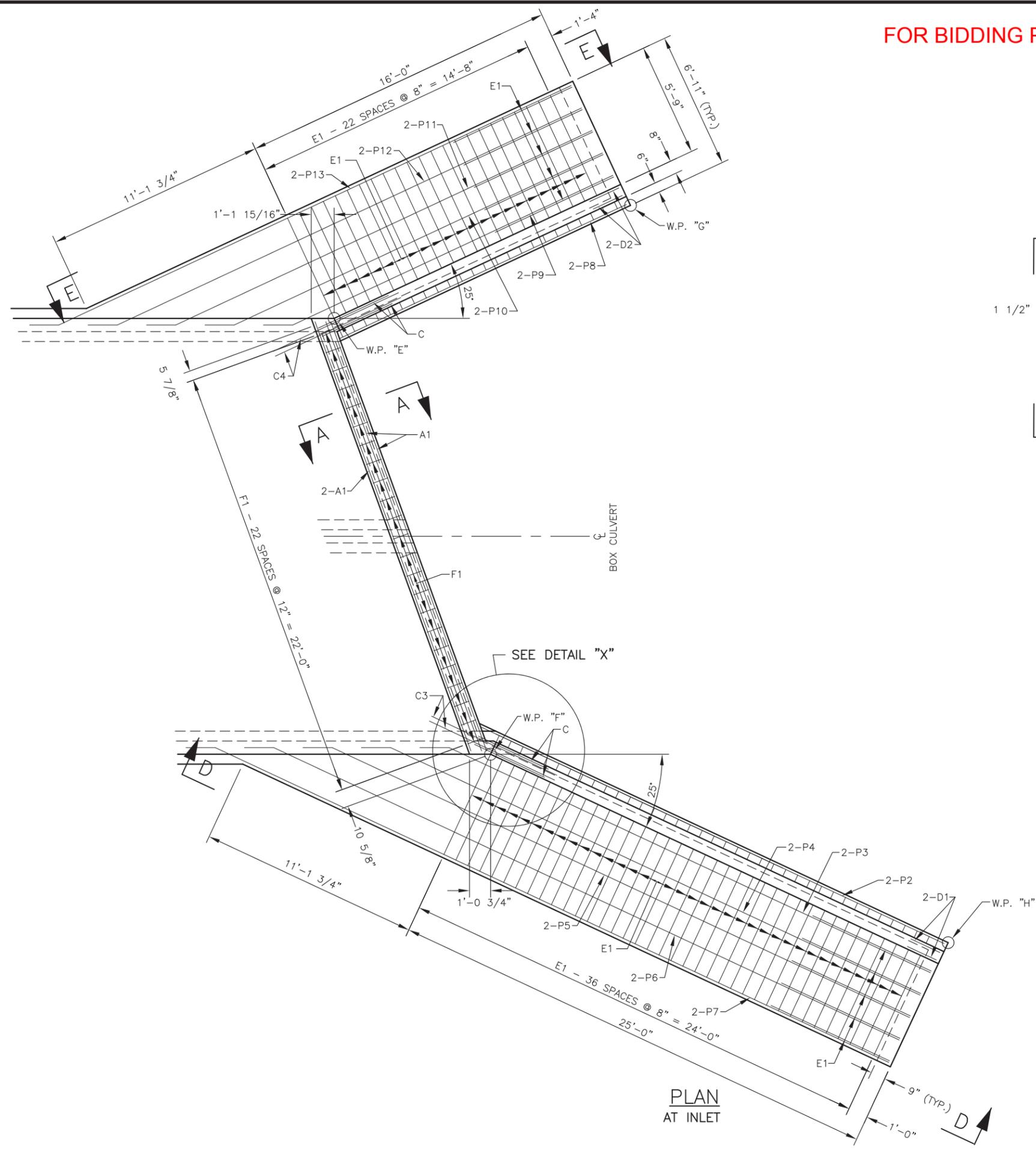
Qd = design discharge for the proposed culvert based on 10 year frequency. El. 1175.1.  
 QOTfr = overtopping discharge and frequency 317 yr. recurrence interval. El. 1183.4 Location Sta. 23+50.  
 QF = designated peak discharge for the basin approaching proposed project based on 10 year frequency.  
 Q100 = computed discharge for the basin approaching proposed project based on 100 year frequency, El. 1179.5.  
 VMax = maximum computed outlet velocity for the proposed culvert, based on a 100 year frequency.  
 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 this site to determine its effect on public safety.

**ESTIMATED QUANTITIES**

ITEM	UNIT	QUANTITY
Incidental Work, Structure	LS	LS
Class A45 Concrete, Box Culvert	CuYd	192.4
Reinforcing Steel	Lb	28,937
Structure Excavation, Box Culvert	CuYd	79
Box Culvert Undercut	CuYd	212
Type B Drainage Fabric	SqYd	425
Class B Riprap	Ton	312.0

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	26	39



NOTE:  
THIS SHEET TO BE USED IN CONJUNCTION WITH  
SHEET 3 OF 9

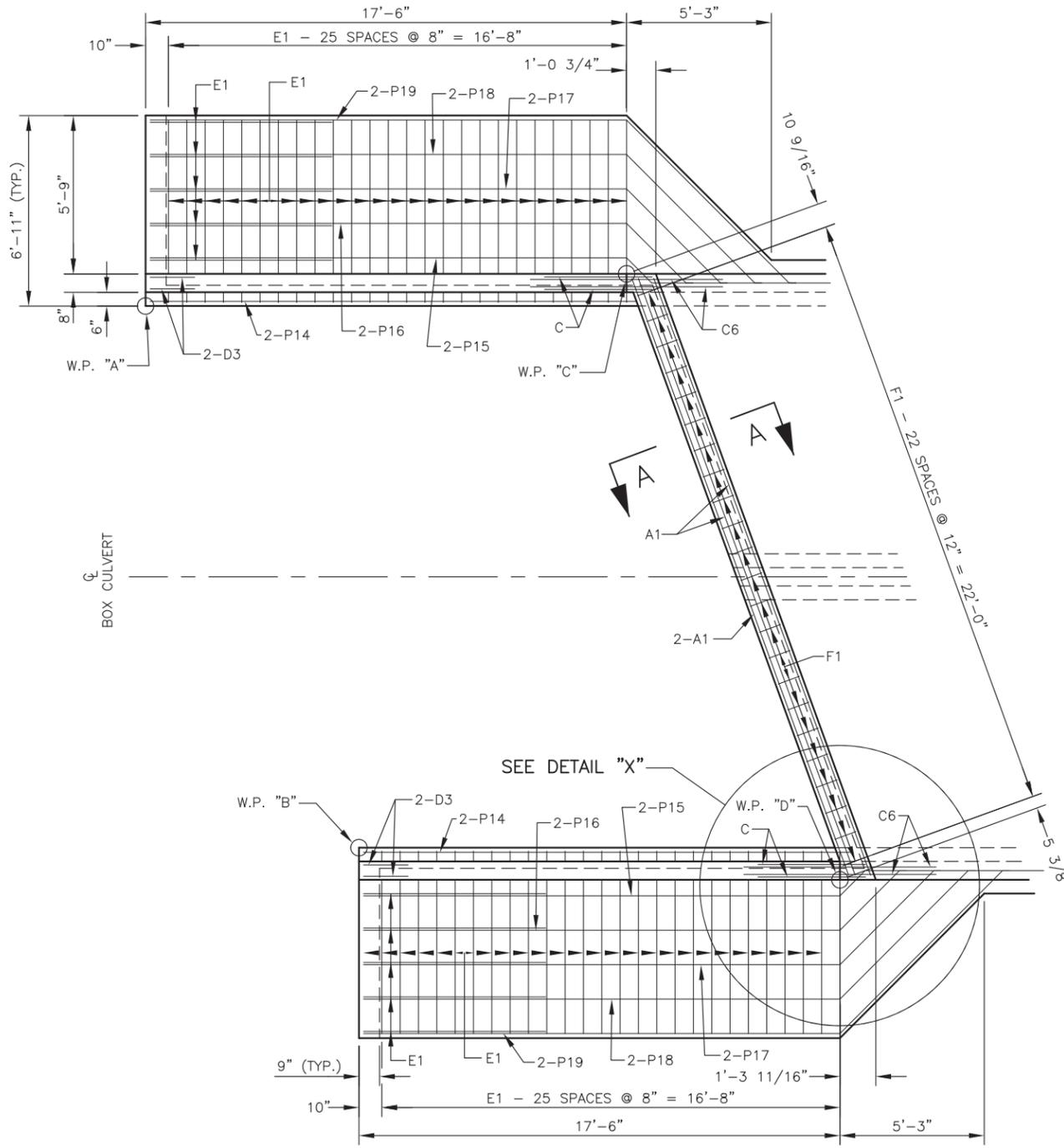
**INLET DETAILS  
FOR  
2 - 10' X 10' RC BOX CULVERT**

OVER UNNAMED CREEK STA. 23+11.00 PCN 6867 STRUCTURE 14-110-056	20° SKEW LHF SEC. 35/36 T95N R52W BRO 8014(26)
PREPARED BY: JOHNSON ENGINEERING CO. YANKTON, SOUTH DAKOTA	CLAY COUNTY SOUTH DAKOTA HL93
DESIGNED BY: SMW/GSS      DRAWN BY: SMW      CHECKED BY: GSS	
DECEMBER, 2014      ② OF ⑨	

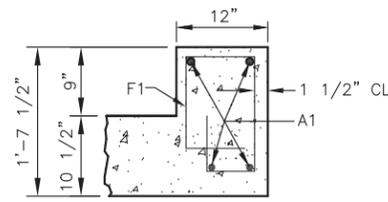


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	28	39



PLAN  
(AT OUTLET)



SECTION A-A  
AT TOP SLAB

NOTE:  
THIS SHEET TO BE USED IN CONJUNCTION WITH  
SHEET 5 OF 9



**OUTLET DETAILS  
FOR  
2 - 10' X 10' RC BOX CULVERT**

OVER UNNAMED CREEK STA. 23+11.00 PCN 6867 STRUCTURE 14-110-056	20' SKEW LHF SEC. 35/36 T95N R52W BRO 8014(26)
PREPARED BY: JOHNSON ENGINEERING CO. YANKTON, SOUTH DAKOTA	CLAY COUNTY SOUTH DAKOTA HL93
DESIGNED BY: SMW/GSS      DRAWN BY: SMW      CHECKED BY: GSS	

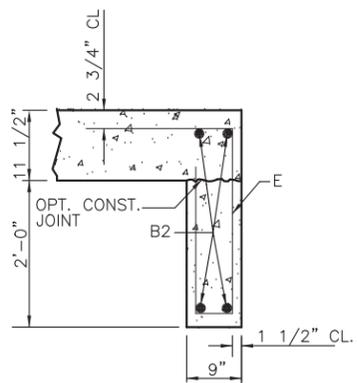
DECEMBER, 2014      (4) OF (9)

**FOR BIDDING PURPOSES ONLY**

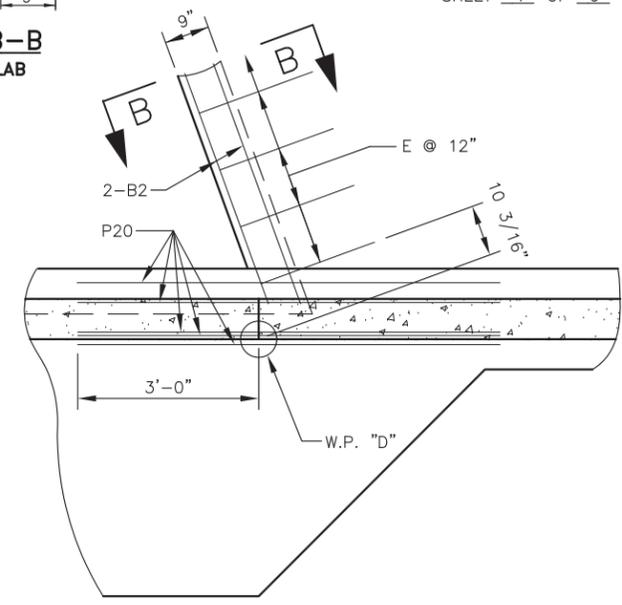
ESTIMATED QUANTITIES			
ITEM	CLASS A45 CONCRETE BOX CULVERT	REINFORCING STEEL	STRUCTURE EXCAVATION, BOX CULVERT
UNIT	CuYd	Lb.	CuYd
1 - OUTLET	27.3	3888	14.4

LEGEND FOR PLACING RE-STEEL	
I.F.W.W. -	INSIDE FACE OF WING WALL
O.F.W.W. -	OUTSIDE FACE OF WING WALL

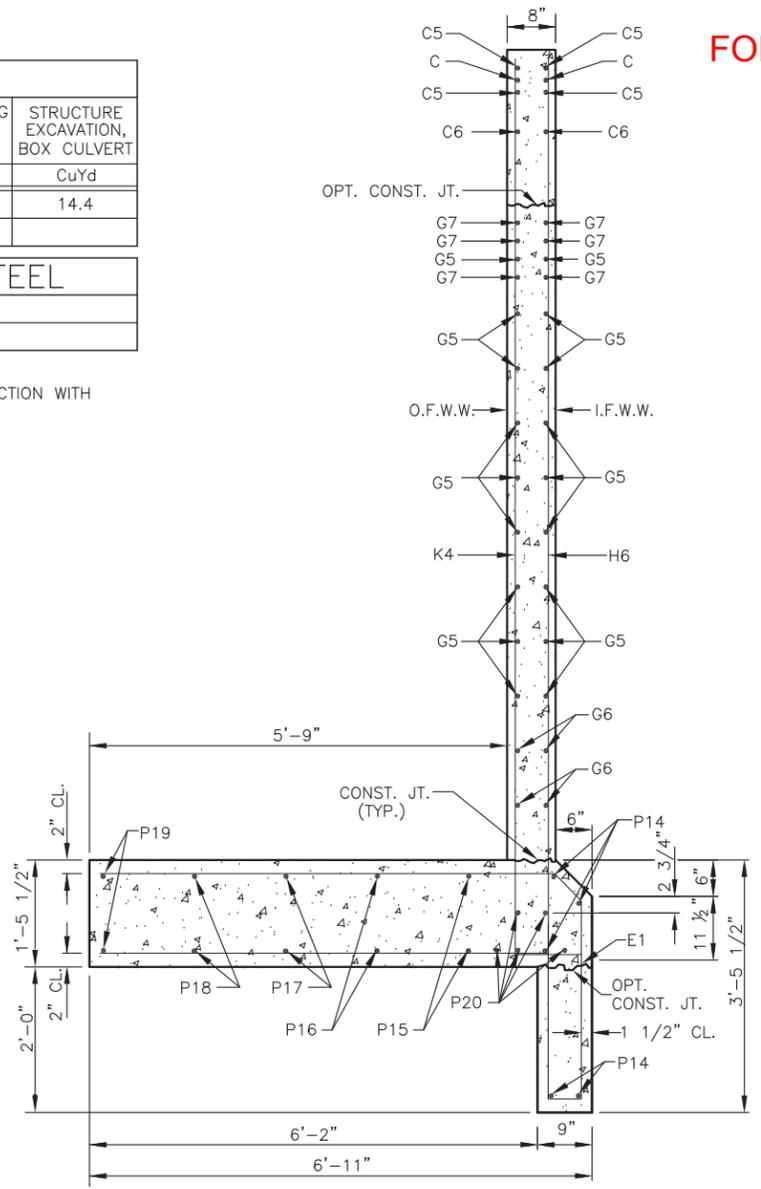
NOTE: THIS SHEET TO BE USED IN CONJUNCTION WITH SHEET 4 OF 9



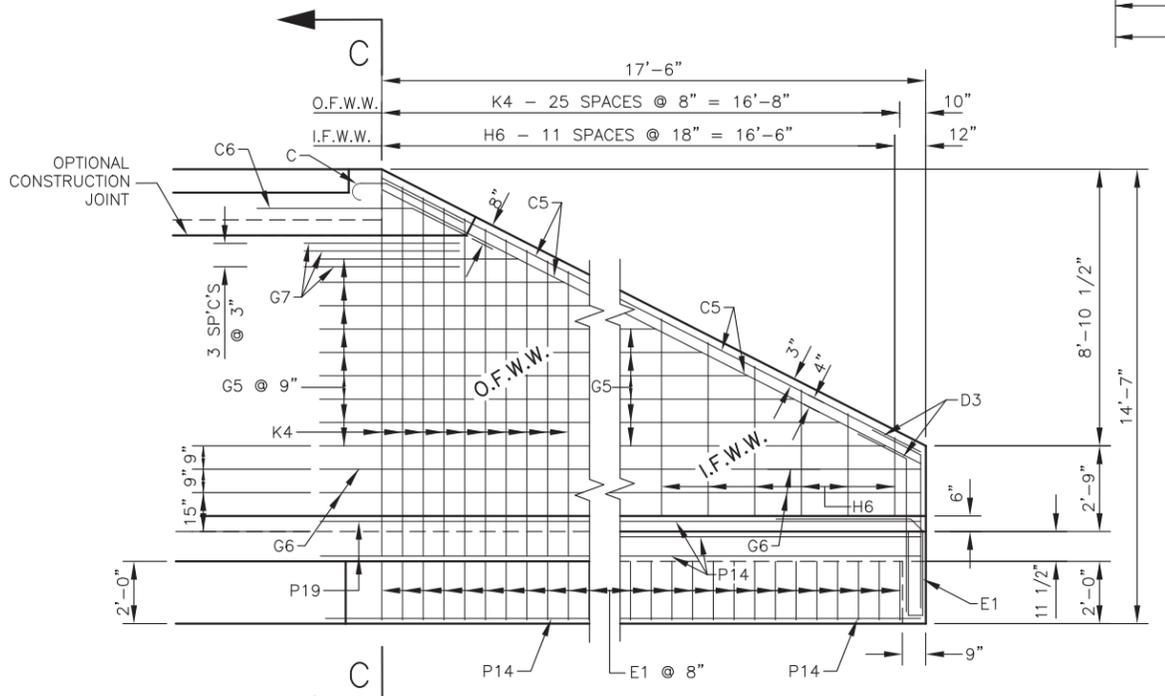
**SECTION B-B AT BOTTOM SLAB**



**DETAIL 'X' (AT BOTTOM SLAB)**

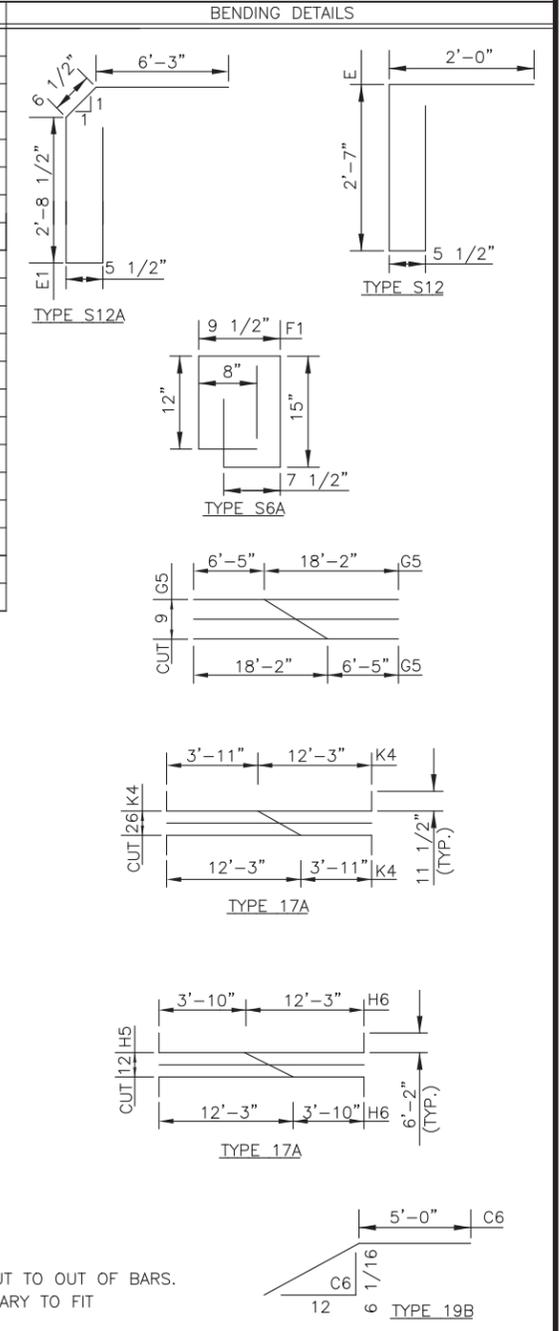


**SEC. C-C**



**ELEVATION**

REINFORCING SCHEDULE				
MK.	NO.	SIZE	LENGTH	TYPE
A1	4	6	23'-0"	STR.
B2	4	6	22'-2"	STR.
C	4	5	4'-6"	1A
C5	8	5	19'-5"	STR.
C6	4	5	7'-0"	19B
D3	8	5	6'-8"	19B
E	22	4	7'-6"	S12
E1	62	6	12'-6"	S12A
F1	23	4	5'-1"	S6A
G5	18	4	24'-7"	STR.
G6	8	4	19'-4"	STR.
G7	12	5	5'-0"	STR.
H6	12	5	28'-5"	17A
K4	26	6	18'-1"	17A
* P14	4	4	20'-0"	STR.
* P15	4	4	20'-2"	STR.
* P16	4	4	21'-11"	STR.
* P17	4	4	23'-8"	STR.
* P18	4	4	25'-5"	STR.
* P19	4	4	27'-3"	STR.
P20	10	6	7'-0"	STR.



NOTE: ALL DIMENSIONS ARE OUT TO OUT OF BARS.  
 \* BEND IN FIELD AS NECESSARY TO FIT  
 ☐ SEE CUTTING DIAGRAM



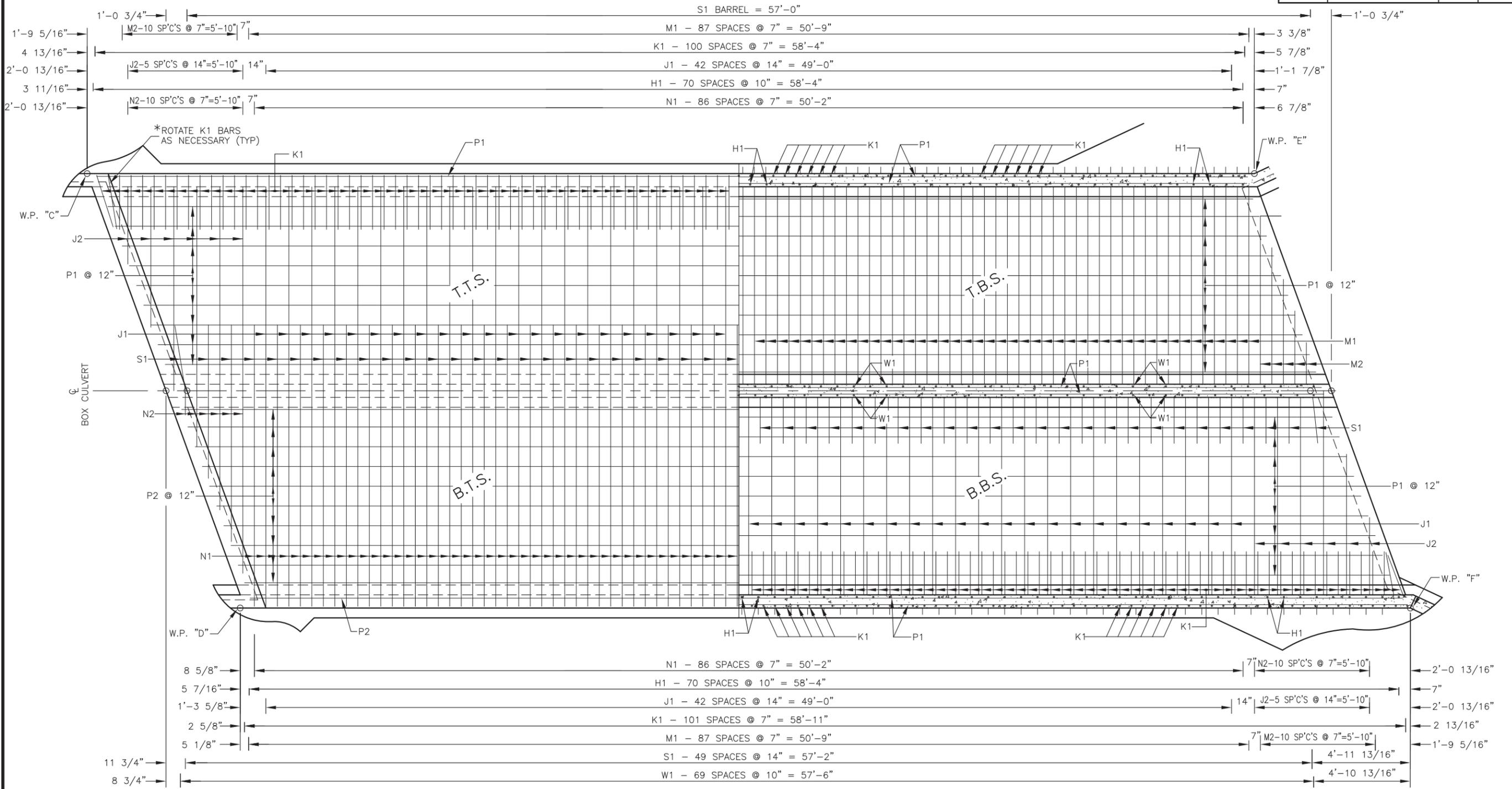
**OUTLET DETAILS FOR 2 - 10' X 10' RC BOX CULVERT**

OVER UNNAMED CREEK STA. 23+11.00 PCN 6867 STRUCTURE 14-110-056  
 20' SKEW LHF SEC. 35/36 T95N R52W BRO 8014(26)  
 CLAY COUNTY SOUTH DAKOTA  
 PREPARED BY: JOHNSON ENGINEERING CO. YANKTON, SOUTH DAKOTA  
 HL93  
 DECEMBER, 2014 (5) OF (9)

DESIGNED BY SMW/GSS	DRAWN BY SMW	CHECKED BY GSS
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	30	39



PLAN



NOTE:  
THIS SHEET TO BE USED IN CONJUNCTION WITH  
SHEET 7 OF 9

LEGEND FOR PLACING RE-STEEL	
T.T.S. =	TOP OF TOP SLAB
B.T.S. =	BOTTOM OF TOP SLAB
T.B.S. =	TOP OF BOTTOM SLAB
B.B.S. =	BOTTOM OF BOTTOM SLAB
O.F.O.W. =	OUTSIDE FACE OF OUTSIDE WALL
I.F.O.W. =	INSIDE FACE OF OUTSIDE WALL
M.W. =	MIDDLE WALL

S1 BARREL SECTION DETAILS  
FOR  
2 - 10' X 10' RC BOX CULVERT

OVER UNNAMED CREEK  
STA. 23+11.00  
PCN 6867  
STRUCTURE 14-110-056

20' SKEW LHF  
SEC. 35/36 T95N R52W  
BRO 8014(26)

CLAY COUNTY  
SOUTH DAKOTA

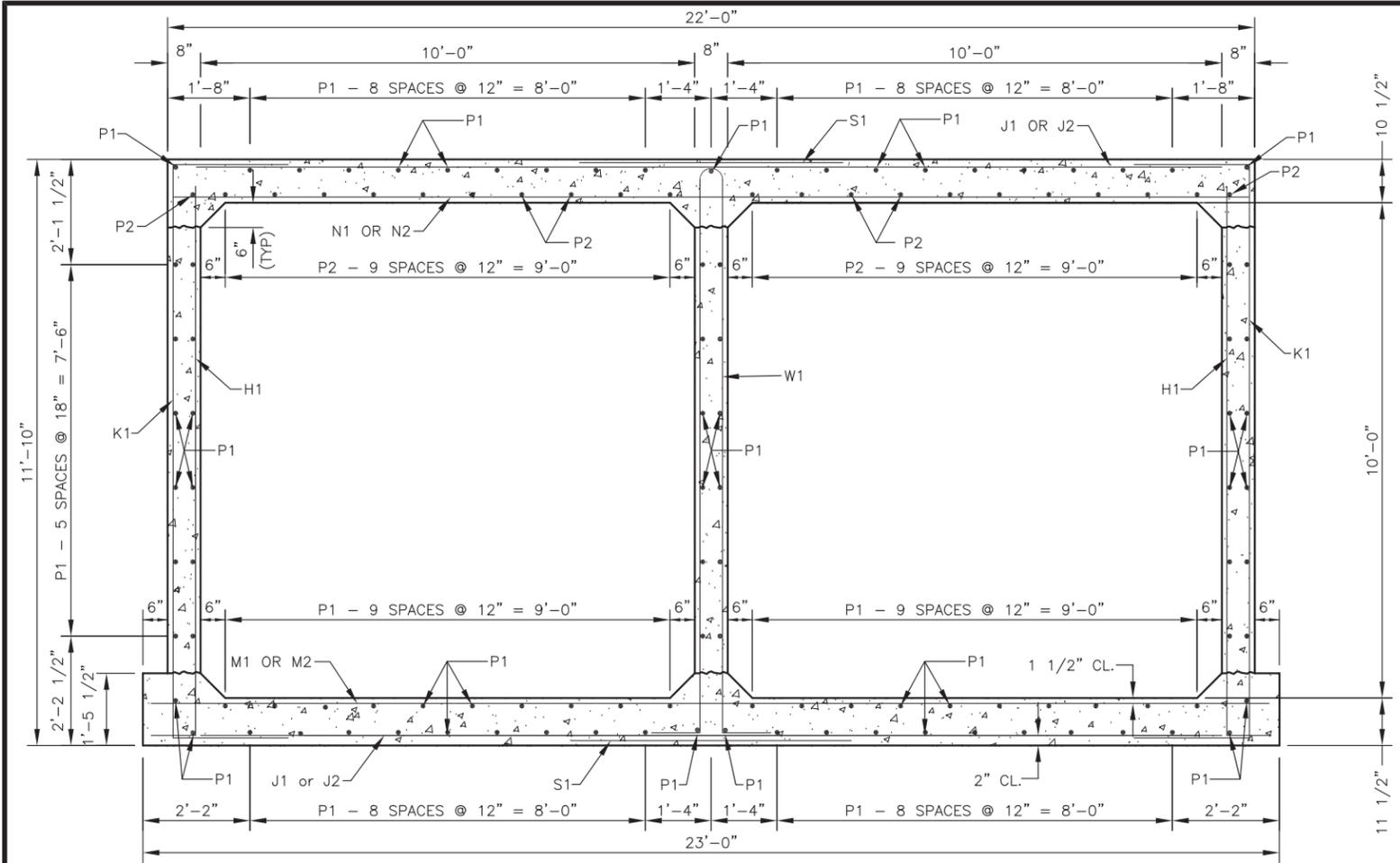
PREPARED BY:  
JOHNSON ENGINEERING CO.  
YANKTON, SOUTH DAKOTA

HL93

DESIGNED BY SMW/GSS	DRAWN BY SMW	CHECKED BY GSS
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FOR BIDDING PURPOSES ONLY

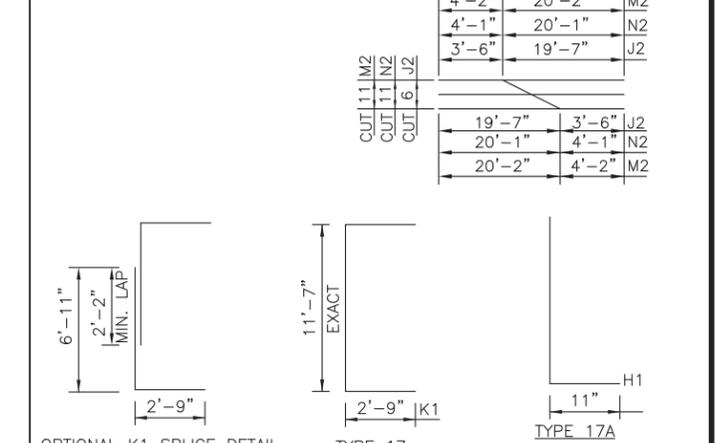
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	31	39



S1 BARREL SECTION  
(6'-0" MAXIMUM FILL)

REINFORCING SCHEDULE

MK.	NO.	SIZE	LENGTH	TYPE	BENDING DETAILS
H1	142	4	12'-3"	17A	
J1	86	5	20'-8"	STR.	
J2	12	5	23'-1"	STR.	
K1	203	5	17'-1"	17	
M1	88	6	22'-8"	STR.	
M2	11	6	24'-4"	STR.	
N1	87	6	21'-8"	STR.	
N2	11	6	24'-2"	STR.	
P1	101	4	58'-9"	STR.	
P2	22	5	58'-5"	STR.	
S1	100	5	5'-4"	STR.	
W1	70	4	25'-5"	S11A	



CONTRACTOR MAY USE OPTIONAL REINFORCING STEEL SPLICE, AS SHOWN. THE COST OF THE ADDITIONAL REINFORCING STEEL SHALL BE BORNE BY THE CONTRACTOR.

NOTE: ALL DIMENSIONS ARE OUT TO OUT OF BARS  
REQUESTS FOR ADDITIONAL REINFORCING STEEL SPLICES AT POINTS OTHER THAN THOSE SHOWN, MUST BE SUBMITTED TO THE ENGINEER FOR PRIOR APPROVAL. IF ADDITIONAL SPLICES ARE APPROVED, NO PAYMENT WILL BE ALLOWED FOR THE ADDED QUANTITY OF REINFORCING STEEL.



ESTIMATED QUANTITIES

ITEM	CLASS A45 CONCRETE BOX CULVERT	REINFORCING STEEL	STRUCTURE EXCAVATION, BOX CULVERT
UNIT	CuYd	Lb	CuYd
1-S1 BARREL SECTION @ 57'-0"	132.6	20,600	46.5

LEGEND FOR PLACING RE-STEEL

T.T.S. = TOP OF TOP SLAB
B.T.S. = BOTTOM OF TOP SLAB
T.B.S. = TOP OF BOTTOM SLAB
B.B.S. = BOTTOM OF BOTTOM SLAB
O.F.O.W. = OUTSIDE FACE OF OUTSIDE WALL
I.F.O.W. = INSIDE FACE OF OUTSIDE WALL
M.W. = MIDDLE WALL

S1 BARREL SECTION DETAILS FOR 2 - 10' X 10' RC BOX CULVERT

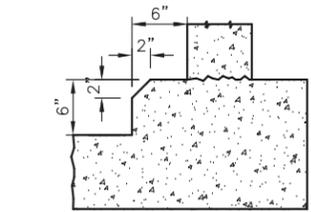
OVER UNNAMED CREEK  
STA. 23+11.00  
PCN 6867  
STRUCTURE 14-110-056

20° SKEW LHF  
SEC. 35/36 T95N R52W  
BRO 8014(26)

CLAY COUNTY SOUTH DAKOTA

PREPARED BY:  
JOHNSON ENGINEERING CO.  
YANKTON, SOUTH DAKOTA

HL93



OPTIONAL FILLET DETAIL  
(AT BOTTOM SLAB)

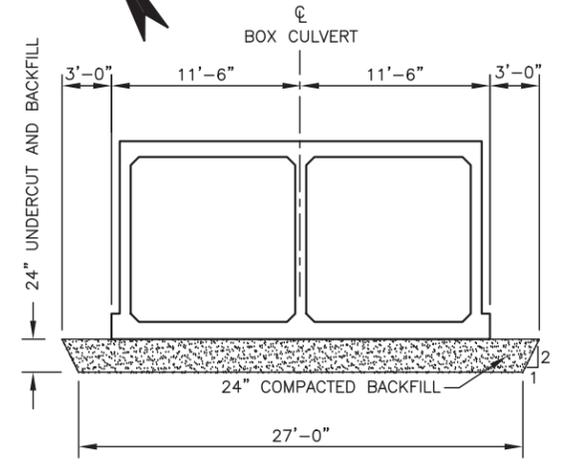
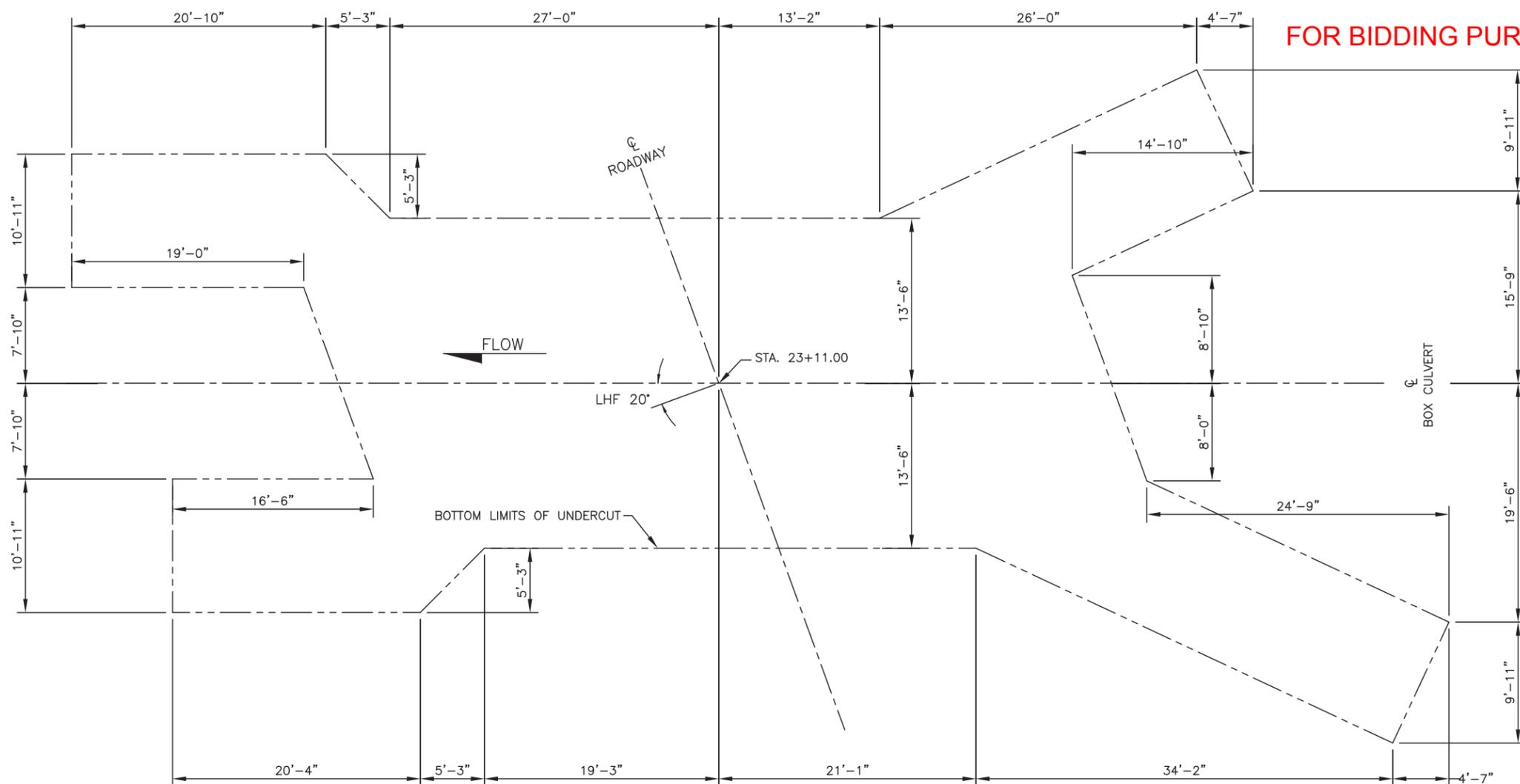
NOTE:  
CONTRACTOR MAY FORM THE OPTIONAL FULL FILLET WITH 2" CHAMFER, AS DETAILED. THE COST OF THE ADDITIONAL CONCRETE SHALL BE BORNE BY THE CONTRACTOR.

NOTE:  
THIS SHEET TO BE USED IN CONJUNCTION WITH SHEET 6 OF 9

DESIGNED BY SMW/GSS	DRAWN BY SMW	CHECKED BY GSS
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DECEMBER, 2014 (7) OF (9)

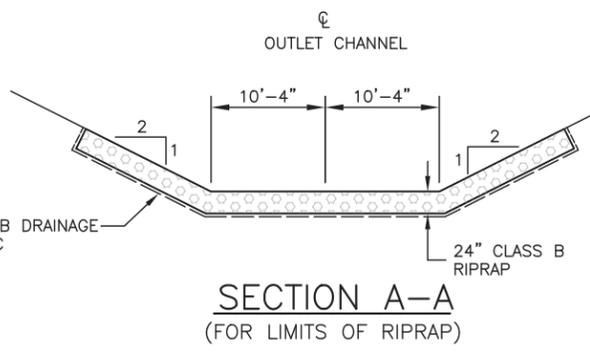
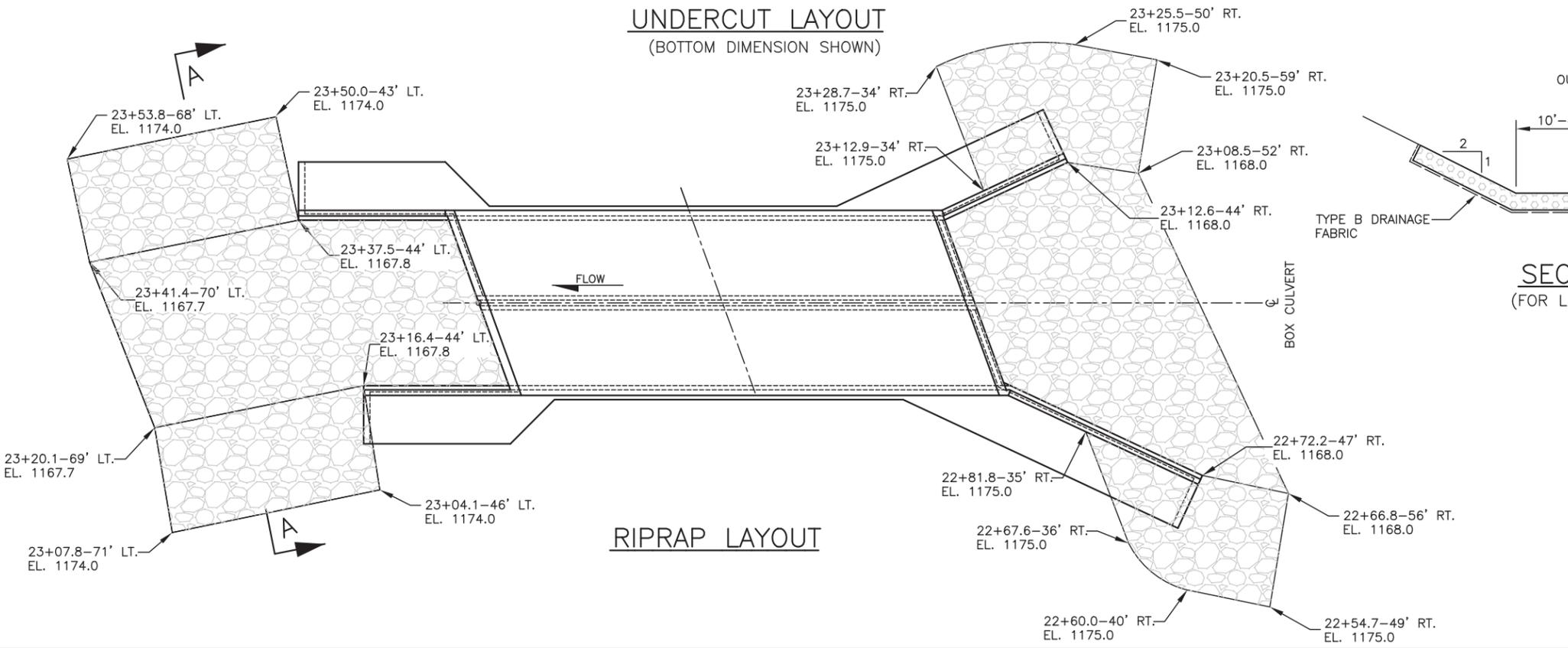
**FOR BIDDING PURPOSES ONLY**



ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Box Culvert Undercut	CuYd	212
Type B Drainage Fabric	SqYd	425
* Class B Riprap	Ton	312.0

\* FOR ESTIMATING PURPOSES ONLY, A FACTOR OF 1.4 TONS/CuYd WAS USED TO CONVERT CuYd TO TONS.

**UNDERCUT LAYOUT**  
(BOTTOM DIMENSION SHOWN)



**RIPRAP AND UNDERCUT LAYOUT FOR 2 - 10' X 10' RC BOX CULVERT**

OVER UNNAMED CREEK  
STA. 23+11.00  
PCN 6867  
STRUCTURE 14-110-056

20' SKEW LHF  
SEC. 35/36 T95N R52W  
BRO 8014(26)

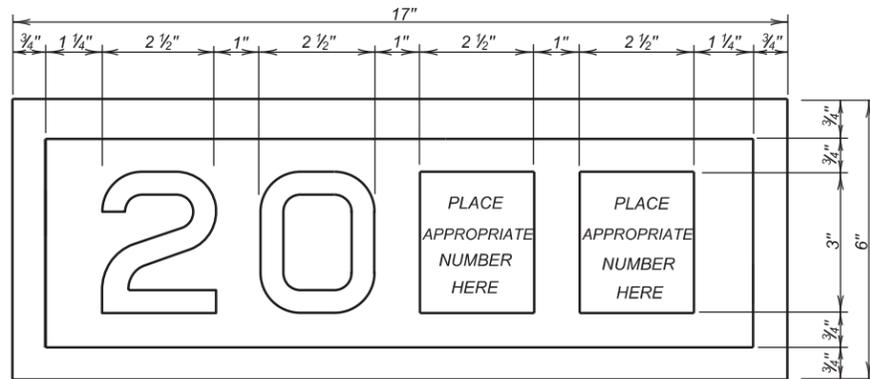
CLAY COUNTY  
SOUTH DAKOTA

PREPARED BY:  
JOHNSON ENGINEERING CO.  
YANKTON, SOUTH DAKOTA

HL93

DESIGNED BY: SMW/GSS  
DRAWN BY: SMW  
CHECKED BY: GSS

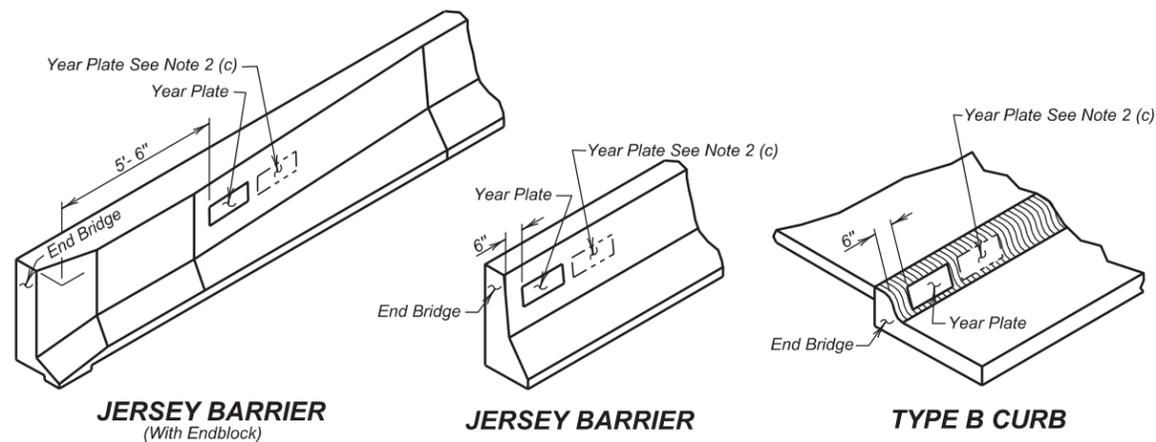
DECEMBER, 2014 (8) OF (9)



**YEAR PLATE DETAILS**

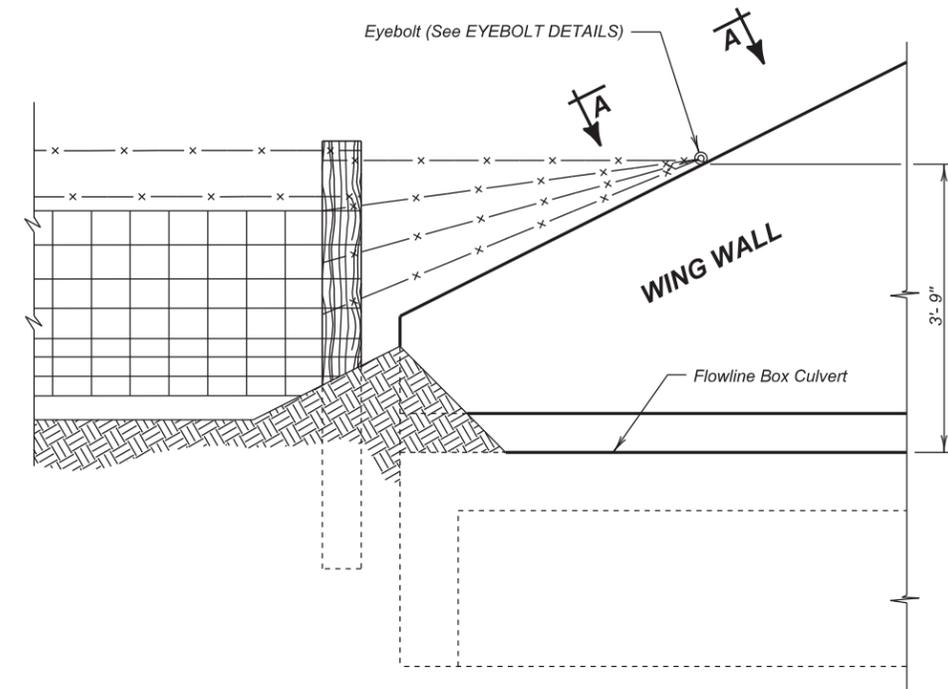
**GENERAL NOTES:**

- 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.
- Year plates shall be located on structure (s) as follows:
  - 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.
  - 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.
  - 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.
- 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

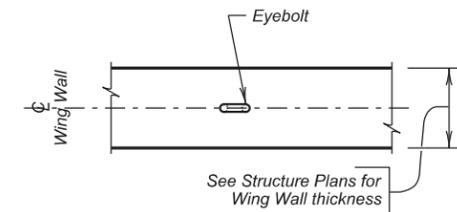
Published Date: 4th Qtr. 2015	S D D O T	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



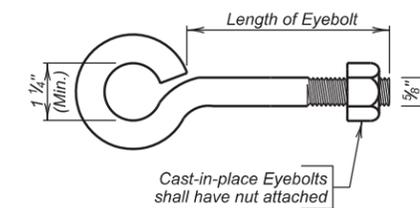
**DETAIL FOR FENCE ANCHORS**

**GENERAL NOTES:**

- The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
- Eyebolts shall be placed on all of the box culvert wing walls.
- Eyebolts shall be 5/8 inch diameter and shall conform to ASTM A307.
- Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
- Cast-in-place eyebolts shall have a nut attached, be 4 1/2 inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the 5/8 inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
- The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



**VIEW A - A**



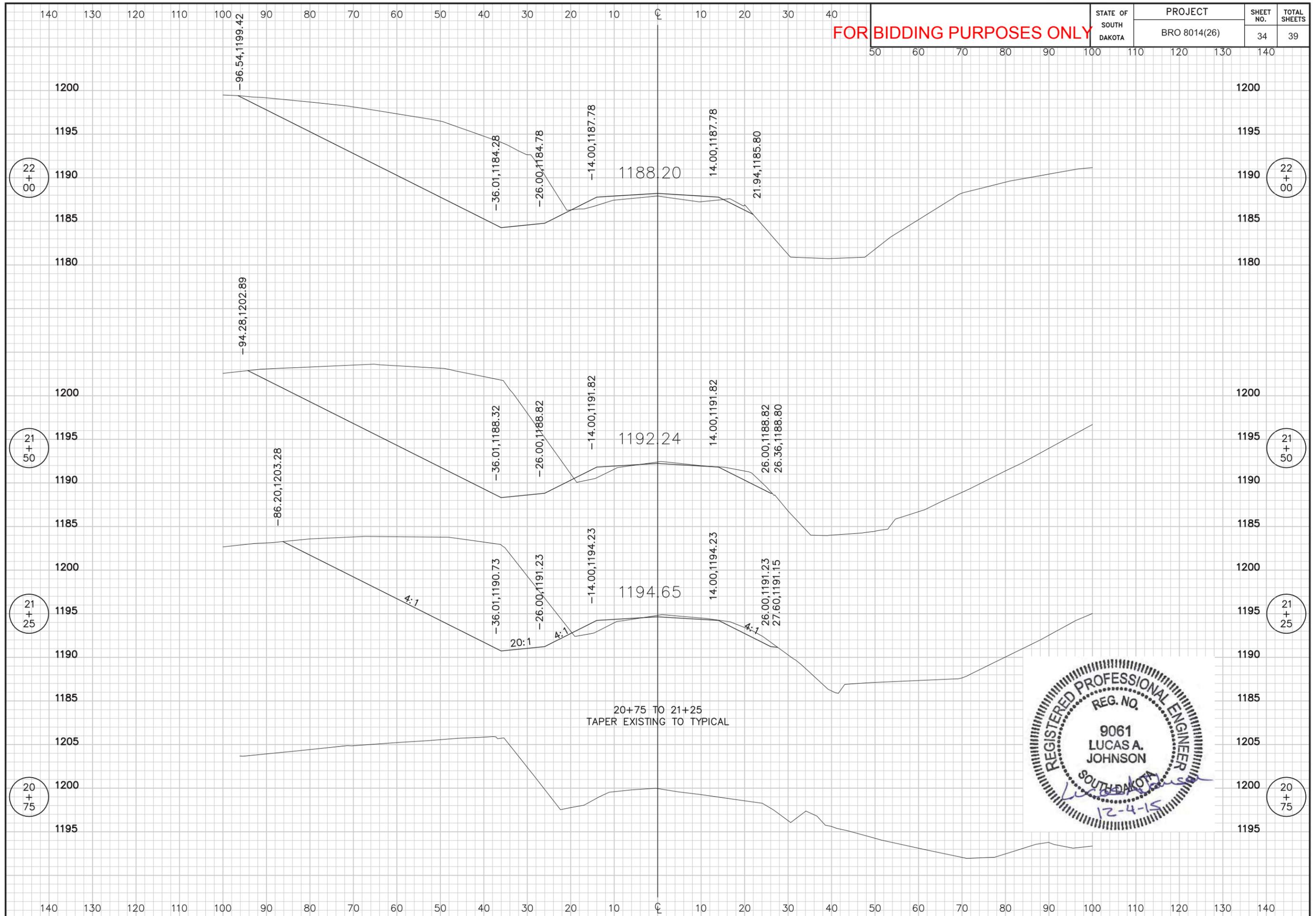
**EYEBOLT DETAILS**

December 23, 2012

Published Date: 4th Qtr. 2015	S D D O T	FENCE ANCHORS FOR BOX CULVERT WING WALLS	PLATE NUMBER 620.16
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	34	39



20+75 TO 21+25  
TAPER EXISTING TO TYPICAL



140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40

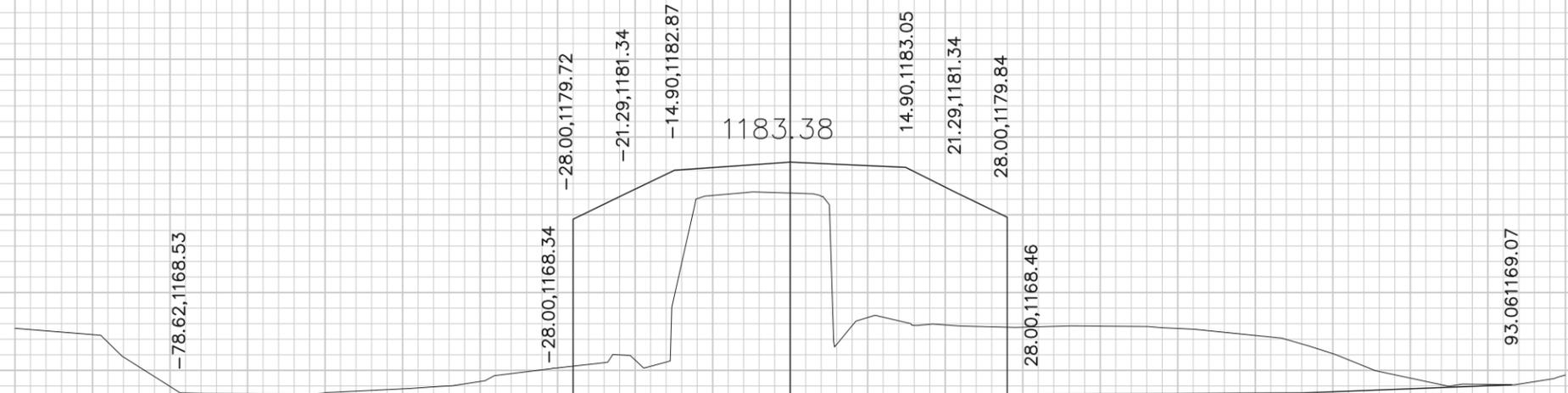
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)		

50 60 70 80 90 100 110 120 130 140

23  
+  
11  
20' SKEW  
LHF

1180  
1175  
1170

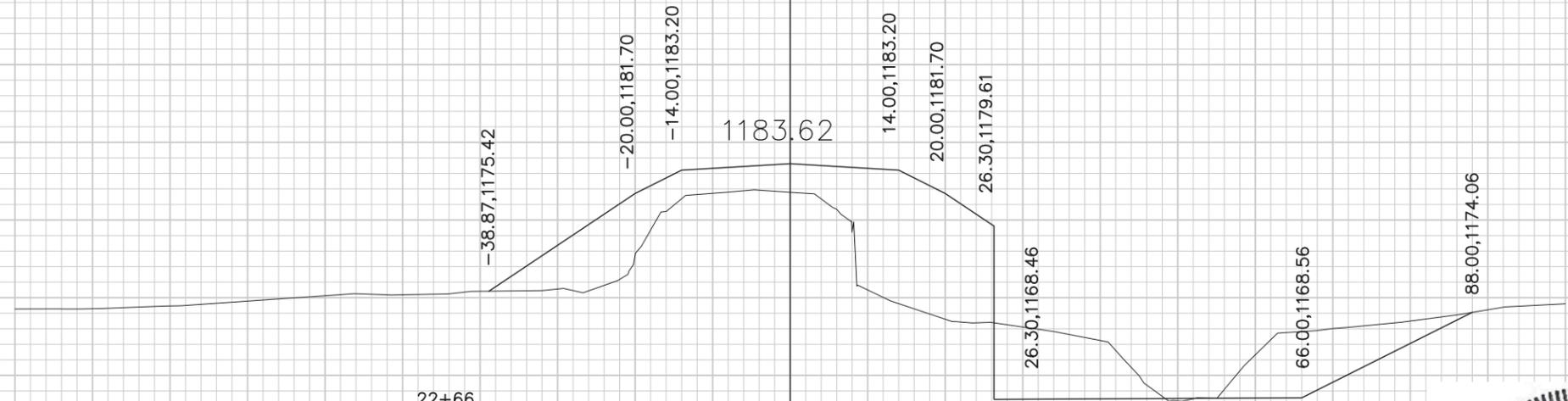


23  
+  
11  
20' SKEW  
LHF

1180  
1175  
1170

22  
+  
99.29

1180  
1175  
1170



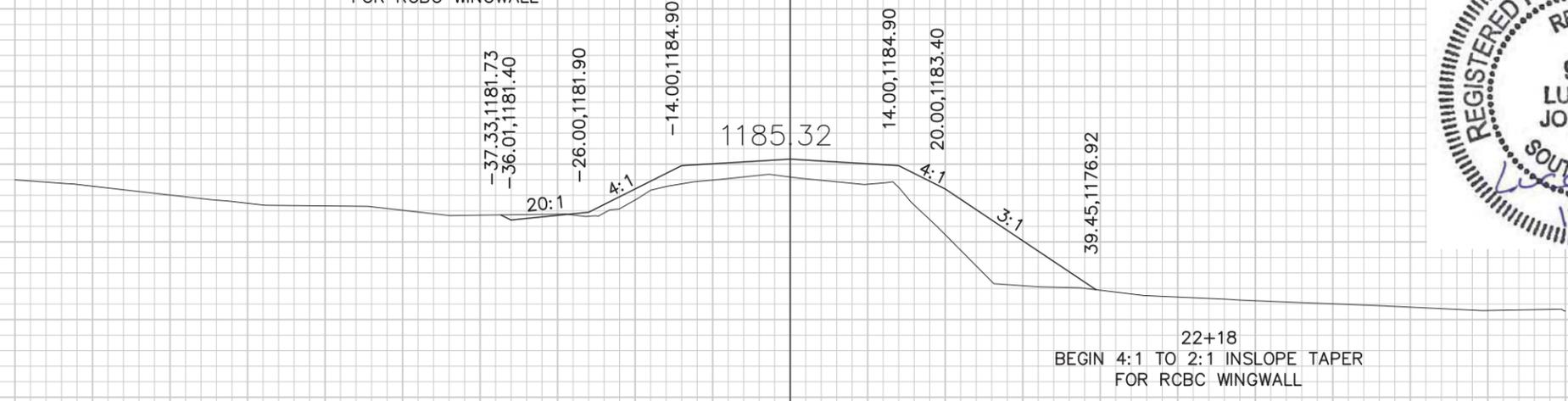
22  
+  
99.29

1180  
1175  
1170

22+66  
BEGIN 4:1 TO 2:1 INSLOPE TAPER  
FOR RCBC WINGWALL

22  
+  
50

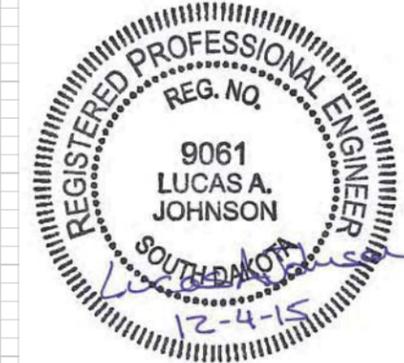
1185  
1180  
1175



22  
+  
50

1185  
1180  
1175

22+18  
BEGIN 4:1 TO 2:1 INSLOPE TAPER  
FOR RCBC WINGWALL



140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40

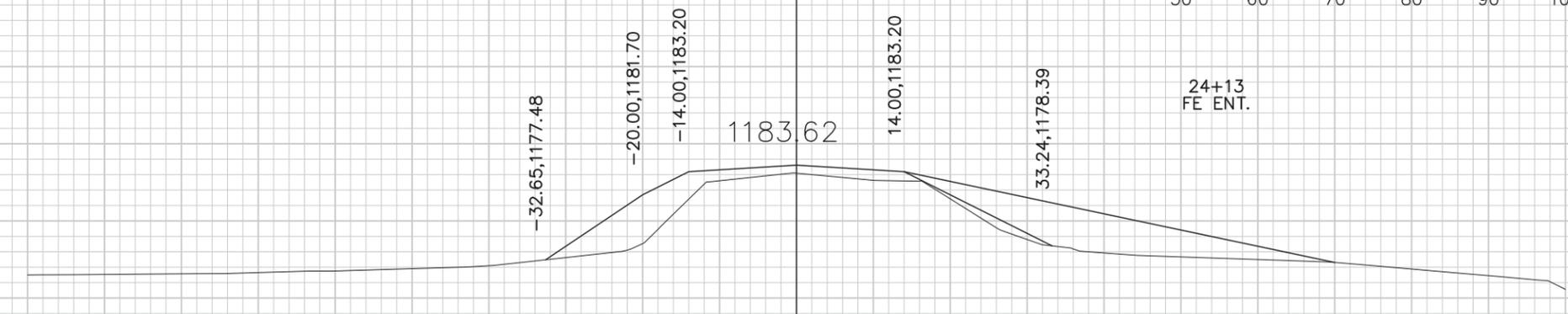
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)		

50 60 70 80 90 100 110 120 130 140

24  
+  
00

1185  
1180  
1175



24  
+  
00

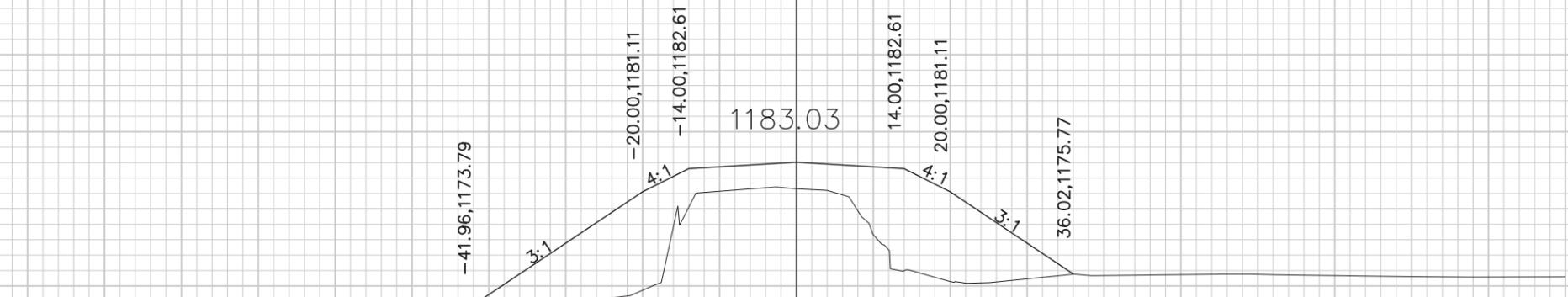
1185  
1180  
1175

23+86  
END 4:1 TO 2:1 INSLOPE TAPER  
FOR RCBC WINGWALL

23+64  
END 4:1 TO 2:1 INSLOPE TAPER  
FOR RCBC WINGWALL

23  
+  
50

1185  
1180  
1175



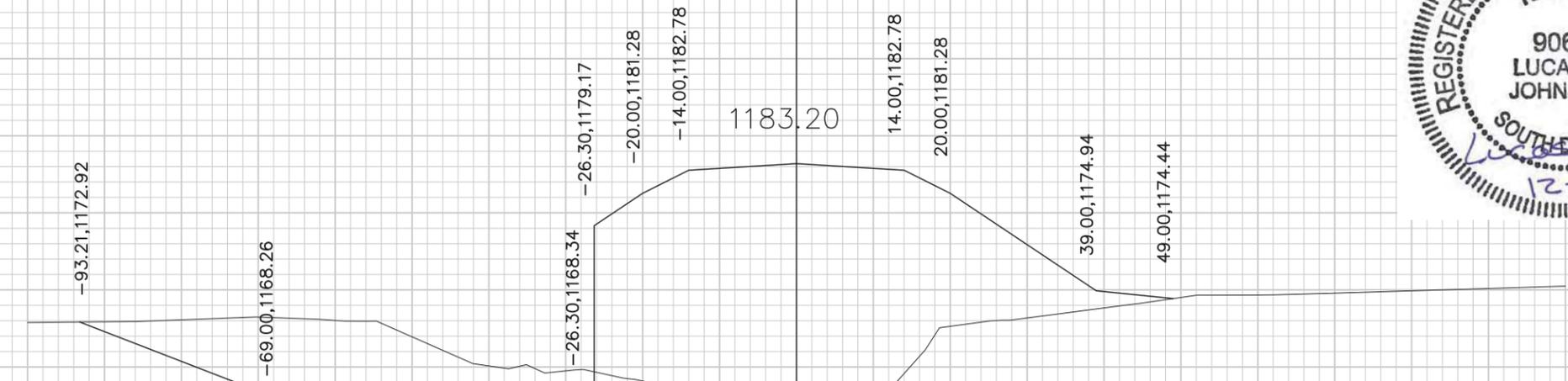
23  
+  
50

1185  
1180  
1175



23  
+  
22.71

1180  
1175  
1170



23  
+  
22.71

1180  
1175  
1170

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	37	39

50 60 70 80 90 100 110 120 130 140

1195 1195

1190 1190

1185 1185

1180 1180

1175 1175

25+00 TO 25+50  
TAPER TYPICAL TO EXISTING

25  
+  
50

25  
+  
50

-43.81,1185.96

-36.01,1184.01

-26.00,1184.51

-14.00,1187.51

1187.93

14.00,1187.51

26.00,1184.51

36.01,1184.01  
36.54,1184.14

1185 1185

1180 1180

1175 1175

1170 1170

25  
+  
00

25  
+  
00

-33.64,1180.03

-14.00,1184.94

1185.36

14.00,1184.94

26.00,1181.94  
26.26,1181.92

1185 1185

1180 1180

1175 1175

1170 1170

24  
+  
50

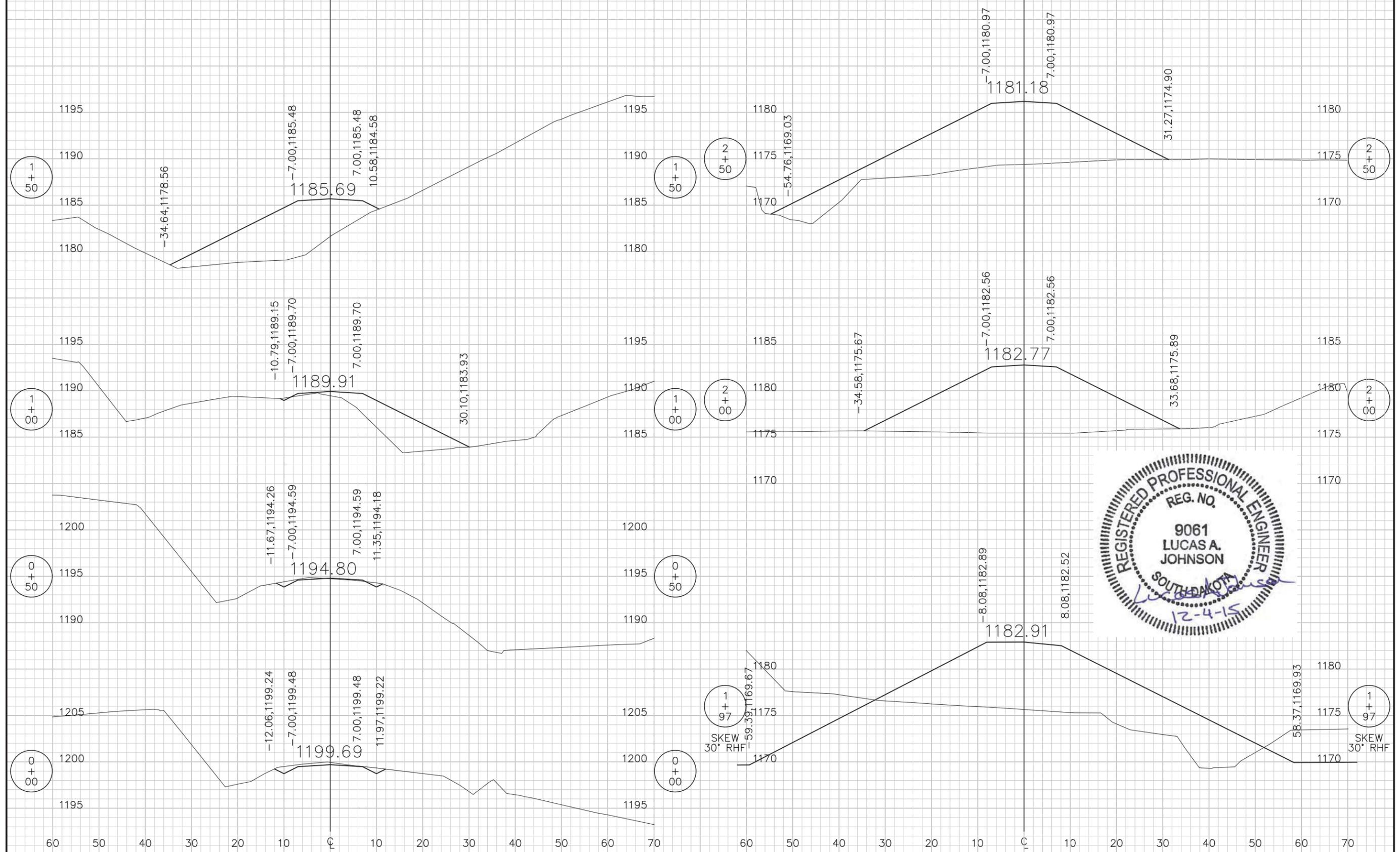
24  
+  
50



140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

**FOR BIDDING PURPOSES ONLY**

**TRAFFIC DIVERSION  
CROSS SECTIONS**



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8014(26)	39	39

### TRAFFIC DIVERSION CROSS SECTIONS

