

FOR BIDDING PURPOSES ONLY

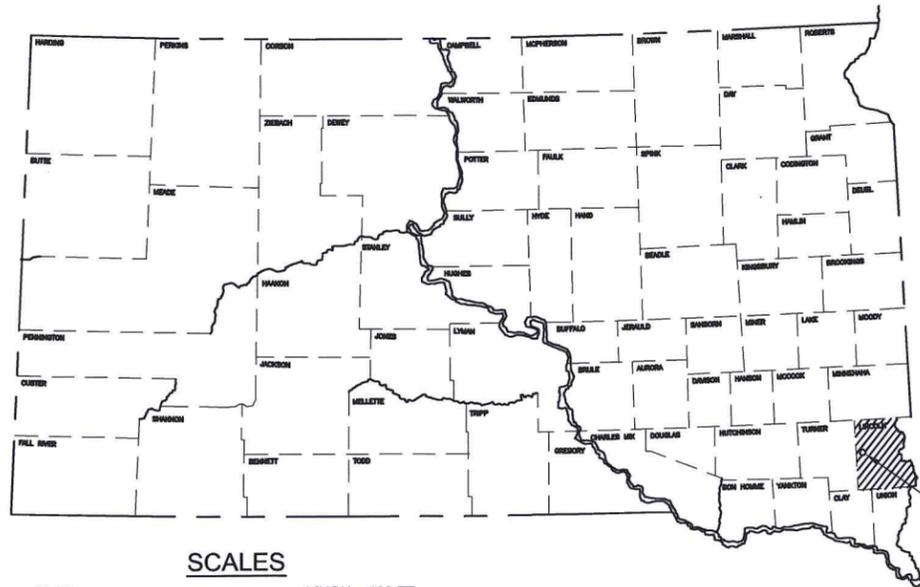
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|-----------------------|---------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | BRO 8042 (29) | 1 | 27 |

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PROJECT BRO 8042(29)
LINCOLN COUNTY
STRUCTURE, APPROACH GRADING &
ASPHALT CONCRETE SURFACING
STRUCTURE NO. 42-016-140
PCN 5319

INDEX OF SHEETS

| | |
|-------------|---|
| SHEET 1 | Title Sheet |
| SHEET 2-5 | Notes & Quantities |
| SHEET 6-9 | Erosion Control Notes and S.W.P.P.P. |
| SHEET 10 | Erosion Control Plan |
| SHEET 11 | Standard Plates for Erosion Control Wattle |
| SHEET 12 | Standard Plate Temporary Diversion Channel |
| SHEET 13 | Typical Section |
| SHEET 14 | Traffic Control Details |
| SHEET 15 | Plan & Profile Sheet |
| SHEET 16-25 | Details for Triple 12'x9' Box Culvert |
| SHEET 26 | Standard Plates for Inslope Transition for Culverts |
| SHEET 27 | Cross Sections |



PROJECT NO.
BRO 8042(29)

SCALES

| | |
|----------------|------------------------------|
| PLAN, | 1 INCH = 100 FT. |
| PROFILE | HORIZONTAL 1 INCH = 100 FEET |
| | VERTICAL 1 INCH = 10 FEET |
| CROSS SECTIONS | HORIZONTAL 1 INCH = 20 FEET |
| | VERTICAL 1 INCH = 10 FEET |

STORM WATER PERMIT

Major Stream: LONG CREEK
Major Receiving Body of Water: JAMES RIVER
Area Disturbed: 0.8 ACRES
Project Area: 1.5 ACRES
Lat. 43°18'5.29"N, Long. 96°53'49.41"W

DESIGN DESIGNATION

| | |
|-----------|-----------|
| ADT(2009) | 168 |
| ADT(2029) | 332 |
| DHV | 48 |
| D | 50% |
| T DHV | 3.9% |
| T ADT | 8.6% |
| V | 55 M.P.H. |

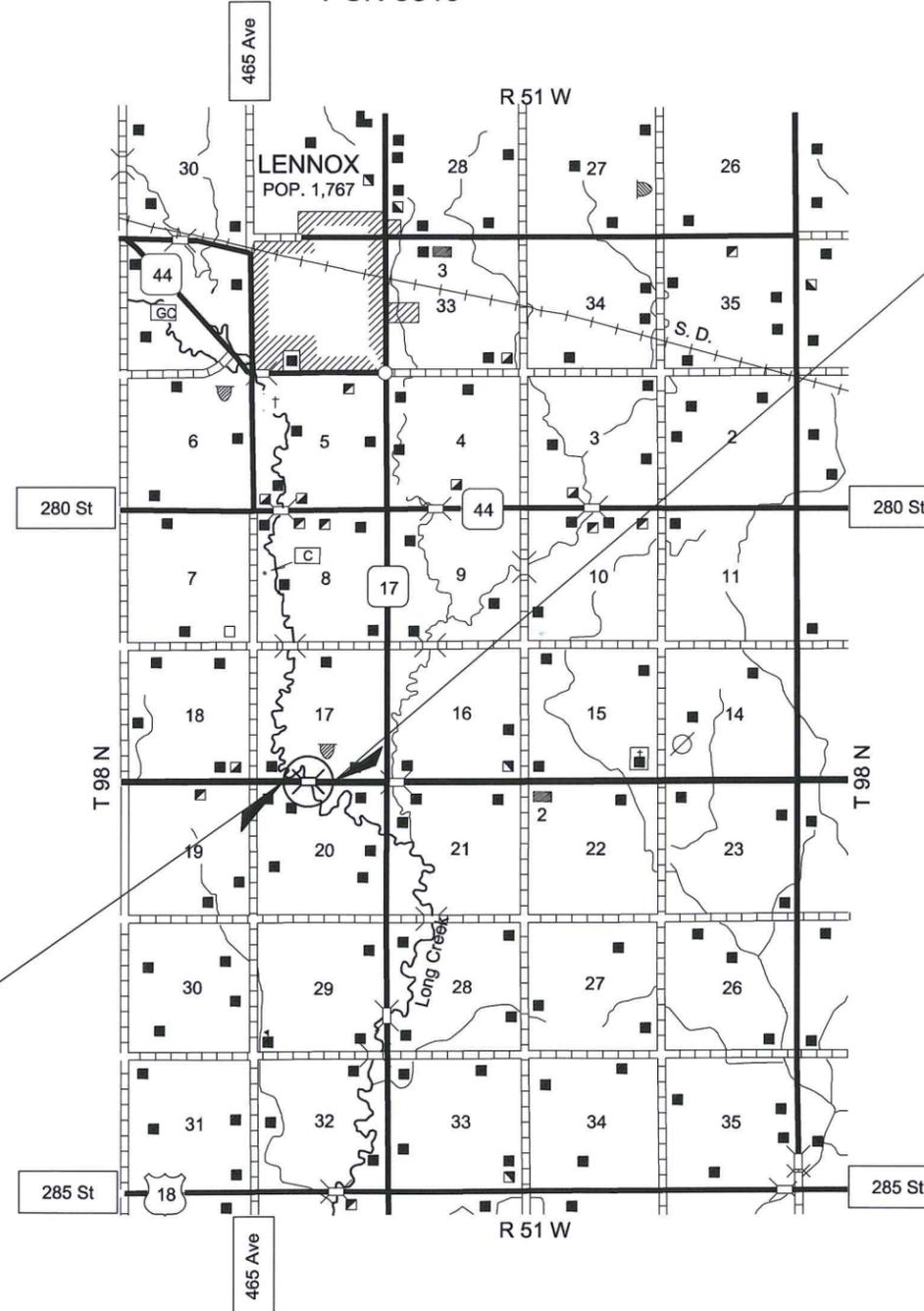
LEGEND

| | |
|-------------------------|-------|
| STATE AND NATIONAL LINE | ————— |
| COUNTY LINE | ————— |
| SECTION LINE | ————— |
| QUARTER LINE | ————— |
| SIXTEENTH LINE | ————— |
| PROPERTY LINE | ————— |
| SURVEY LINE | ————— |
| ROW LINE | ————— |
| CUT SLOPE | ————— |
| FILL SLOPE | ————— |

BEGIN BRO 8042(29)
STATION 21+00 - APPROXIMATELY 2100
FEET EAST OF THE NW CORNER
OF SECTION 20 - TOWNSHIP 98 NORTH
- RANGE 51 WEST OF THE 5TH P.M.

END BRO 8042(29)
STATION 24+00 - APPROXIMATELY 2400
FEET EAST OF THE NW CORNER
OF SECTION 20 - TOWNSHIP 98 NORTH
- RANGE 51 WEST OF THE 5TH P.M.

TURNER COUNTY



ENGINEER'S CERTIFICATE

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of South Dakota.

Dated this 15th of April, 2014.



DONALD J. HAMMOND
REG. NO. 8026

1

ESTIMATE OF QUANTITIES**GRADING & SURFACING**

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 110E1690 | Remove Sediment | 1 | CuYd |
| 110E1693 | Remove Erosion Control Wattle | 58 | Ft |
| 120E0010 | Unclassified Excavation | 1173 | CuYd |
| 120E0600 | Contractor Furnished Borrow | 425 | CuYd |
| 230E0010 | Placing Topsoil | 264 | CuYd |
| 250E0010 | Incidental Work | Lump Sum | LS |
| 260E1010 | Base Course * | 442.0 | Ton |
| 320E1200 | Asphalt Concrete Composite * | 206.0 | Ton |
| 634E0100 | Traffic Control | 640 | Unit |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 734E0154 | 12" Diameter Erosion Control Wattle | 235 | Ft |
| 734E0165 | Remove and Reset Erosion Control Wattle | 58 | Ft |
| 734E0900 | Temporary Diversion Channel and/or Pipe | 1 | Each |
| 734E5005 | Dewatering | Lump Sum | LS |

STRUCTURE

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|-----------------------------------|----------|------|
| 250E0030 | Incidental Work, Structure | Lump Sum | LS |
| 420E0200 | Structure Excavation, Box Culvert | 196 | CuYd |
| 421E0200 | Box Culvert Undercut | 356 | CuYd |
| 460E0120 | Class A45 Concrete, Box Culvert | 316.8 | CuYd |
| 480E0100 | Reinforcing Steel | 65,962 | Lb |
| 700E0210 | Class B Riprap | 489.2 | Ton |
| 831E0110 | Type B Drainage Fabric | 646 | SqYd |

* Pay items "Base Course" and "Asphalt Concrete Composite" are non-participating items and shall be paid fully by the county.

SPECIFICATIONS

South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required provisions, supplemental specifications and/or special provisions as included in the proposal.

COUNTY RESPONSIBILITIES

Lincoln County will be responsible for the following items without Federal Participation:

1. Arrange for relocation of any Utilities within the limits of the proposed work area.
2. Obtain permanent right-of-way
3. Obtain any temporary and/or permanent work easements required.
4. Install permanent signing.
5. Remove and replace all existing fence.
6. Place temporary fence.

UTILITIES

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

SEQUENCE OF OPERATIONS

The contractor shall utilize the following sequence unless an alternate sequence is submitted in writing and approved by Lincoln County.

1. Install traffic control signing as shown on the plans.
2. Close the road to thru traffic.
3. Install Erosion Control Measures.
4. Install Diversion Channel
5. Construct the new structure.
6. Complete Roadway Work.
7. Complete miscellaneous cleanup.
8. Remove traffic control devices.

REMOVE AND REPLACE TOPSOIL

Prior to beginning resurfacing operations, a 4" depth of topsoil shall be bladed down the respective inslopes and left in a windrow. Following completion of resurfacing operations, topsoil shall be bladed back up the inslope to the point indicated on the typical section.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 13 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 notes on the profile sheets.

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 5:1 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.

Due to the depth of excavation below the flow line it is anticipated the dewatering may be required. If dewatering is performed all costs associated with dewatering shall be paid for under the bid item "Dewatering".

FOR BIDDING PURPOSES ONLY**SHRINKAGE FACTOR**

| | | | |
|-----------------------|--------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | BRO 8042(29) | 2 | 27 |

Embankment plus 40%.

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 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.

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:

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 PROTECTED WATERWAYS

| Station | Protected Waterway | Ordinary High Water Elevation |
|---------|--------------------|-------------------------------|
| 22+55 | Long Creek | 1286.82 |

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 located in Section D – Erosion and Sediment Control Plans.

BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

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.

WATER QUALITY STANDARDS

Surface Water Quality

Long 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.

Surface Water Discharge

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.

Long 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.

STORM WATER

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

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".

DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

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>

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>

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| | | | |
|-----------------------------|--------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | BRO 8042(29) | 3 | 27 |

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

Action Taken/Required:

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

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and 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.

HISTORICAL PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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

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.

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) |
|---------|-----------------|
| 21+50 | 1 |
| Total: | 1 |

INSLOPE TRANSITIONS

Inslope transitions will be required at the box culvert. Refer to Standard Plate 120.05 for details.

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity shall be used for final payment. If final cross sections are taken in the field, add all of the items in the Table of Unclassified Excavation using the following procedures:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finaling a project, the Unstable Material Excavation quantity shall be added to the Excavation quantity to compute the Unclassified Excavation quantity.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil shall be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed.

TABLE OF UNCLASSIFIED EXCAVATION

| Station to | Station | Unclassified Excavation (C.Y.) | Topsoil (C.Y.) | |
|------------|---------|--------------------------------|----------------|-----------------|
| 21+00 | 24+00 | 909 | 264 | |
| Total = | | 909 | 264 | $\Sigma = 1173$ |

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. The plans quantity for "Contractor Furnished Borrow" as shown in the Estimate of Quantities will be the basis of payment for this item.

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

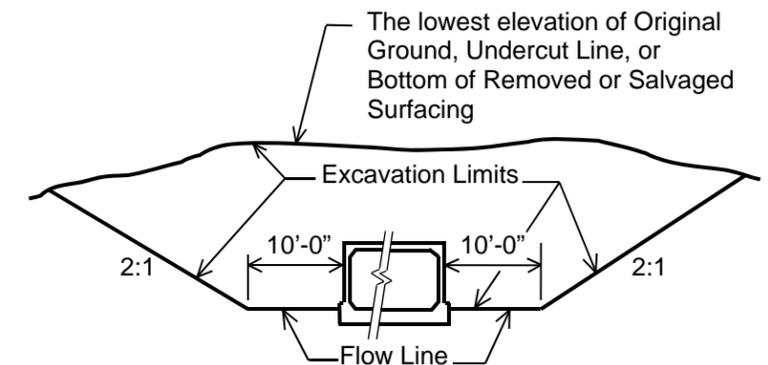
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|-----------------------|--------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | BRO 8042(29) | 4 | 27 |

EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION

Included in the quantity of "Unclassified Excavation" are 5 cubic yards of excavation for installation of reinforced concrete box culverts.

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.



INCIDENTAL WORK, STRUCTURE

If any portion of the existing structure is located within the limits of the new box culvert, those portions shall be removed to 2 feet below the bottom of the box culvert or to the bottom of the undercut, whichever is greater. All costs involved in this removal shall be incidental to the contract lump sum price for "Incidental Work, Structure".

| Station | Remarks |
|---------|---|
| 22+60 | Remove in place 60' Continuous Concrete Bridge with +/- 45° RHF Skew. |

SALVAGED ITEMS

All existing bridge rail shall be salvaged for future highway use and hauled to the Lincoln County Highway Department as directed by the Engineer. Care shall be taken not to damage the structural properties of the items during dismantling and transporting. All broken concrete and materials not salvaged shall be disposed of in accordance with the Standard Specifications. All costs for salvaging and transporting the items shall be incidental to the contract lump sum price for "Incidental Work". Before preparing his/her bid, the Contractor shall make a visual inspection of the project to verify the extent of the work and material involved.

REMOVAL OF EXISTING ASPHALT PAVEMENT
STA. 21+00.00 to STA. 24+00.00

The Contractor shall dispose of the asphalt concrete pavement at a site approved by the Engineer.

All costs associated with the removal and disposal of the asphalt concrete pavement shall be incidental to other items.

TABLE OF RIPRAP AND DRAINAGE FABRIC

| Station | L/R | Class B | Type B |
|---------|-----|-----------------|---------------------------|
| | | Riprap (Ton) | Drainage Fabric (SqYd) |
| 22+00 | L | 281.6 | 366 |
| 23+00 | R | 207.6 | 280 |
| Totals: | | 489.2 | 646 |

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements for Class E, Type 1. All other requirements in the Standard Specifications for Asphalt Concrete Composite shall apply.

The asphalt used in the mixture shall be PG 64-22, or PG 64-34 Asphalt Binder.

The minimum density requirement is as stated in the Standard Specifications.

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

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

| Station | to | Station | Topsoil (CuYd) |
|---------|----|---------|-------------------|
| 21+00 | | 22+50 | 140 |
| 22+60 | | 24+00 | 124 |
| Total: | | | 264 |

DRILLS

In addition to the drills specified in Section 730 of the Standard Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of ¼" to ½" .

FERTILIZING

Application of fertilizer will not be required on this project.

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

All permanent seed shall be planted in the topsoil at a depth of ¼" to ½" .

All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type C Permanent Seed Mixture shall consist of the following:

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

All costs associated with permanent seeding shall be incidental to other items.

MULCHING (GRASS HAY OR STRAW)

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

All costs associated with mulching shall be incidental to other items.

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.

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

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

TABLE OF EROSION CONTROL WATTLE

| Station | L/R | Diameter (Inch) | Location | Quantity (Ft) |
|----------------|-----|--------------------|----------------|------------------|
| 20+50 to 20+80 | L | 12 | Toe of Inslope | 30 |
| 21+20 to 21+50 | L | 12 | Toe of Inslope | 30 |
| 22+70 | L | 12 | Ditch | 50 |
| 22+40 | R | 12 | Ditch | 60 |
| 23+65 to 24+25 | R | 12 | Toe of Inslope | 65 |
| Total: | | | | 235 |

REMOVE EROSION CONTROL WATTLE

Erosion control wattles shall be removed when vegetation is established. Some or all of the erosion control wattles may be left on the project until vegetation is established.

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STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

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

❖ **SITE DESCRIPTION (4.2 1)**

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Cutting and filling
 - Other (describe):
- **Total Project Area 1.5 (4.2 1.b.)**
- **Total Area To Be Disturbed 0.8 (4.2 1.b.)**
- **Existing Vegetative Cover (%) 100**
- **Soil Properties:** USDA-NRCS Soil Series Classification DgB Delmont-Graceville Complex, 2%-6% Slopes and WhA Wentworth-Chancellor silty clay loams, 0%-2% Slopes. **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Long Creek **(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.)

- **Sequencing requirements** (see sheet). 3
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Complete final grading.**
- **Complete final paving.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities.**

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

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
 - Temporary Seeding (Cover Crop Seeding)
 - Permanent Seeding
 - Sodding
 - Planting (Woody Vegetation for Soil Stabilization)
 - Mulching (Grass Hay or Straw)
 - Hydraulic Mulch (Wood Fiber Mulch)
 - Soil Stabilizer
 - Bonded Fiber Matrix
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Dust Control
 - 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 $\frac{1}{3}$ 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 $\frac{1}{2}$ 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, de-greasing 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 8042(29) | 9 | 27 |

❖ **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**

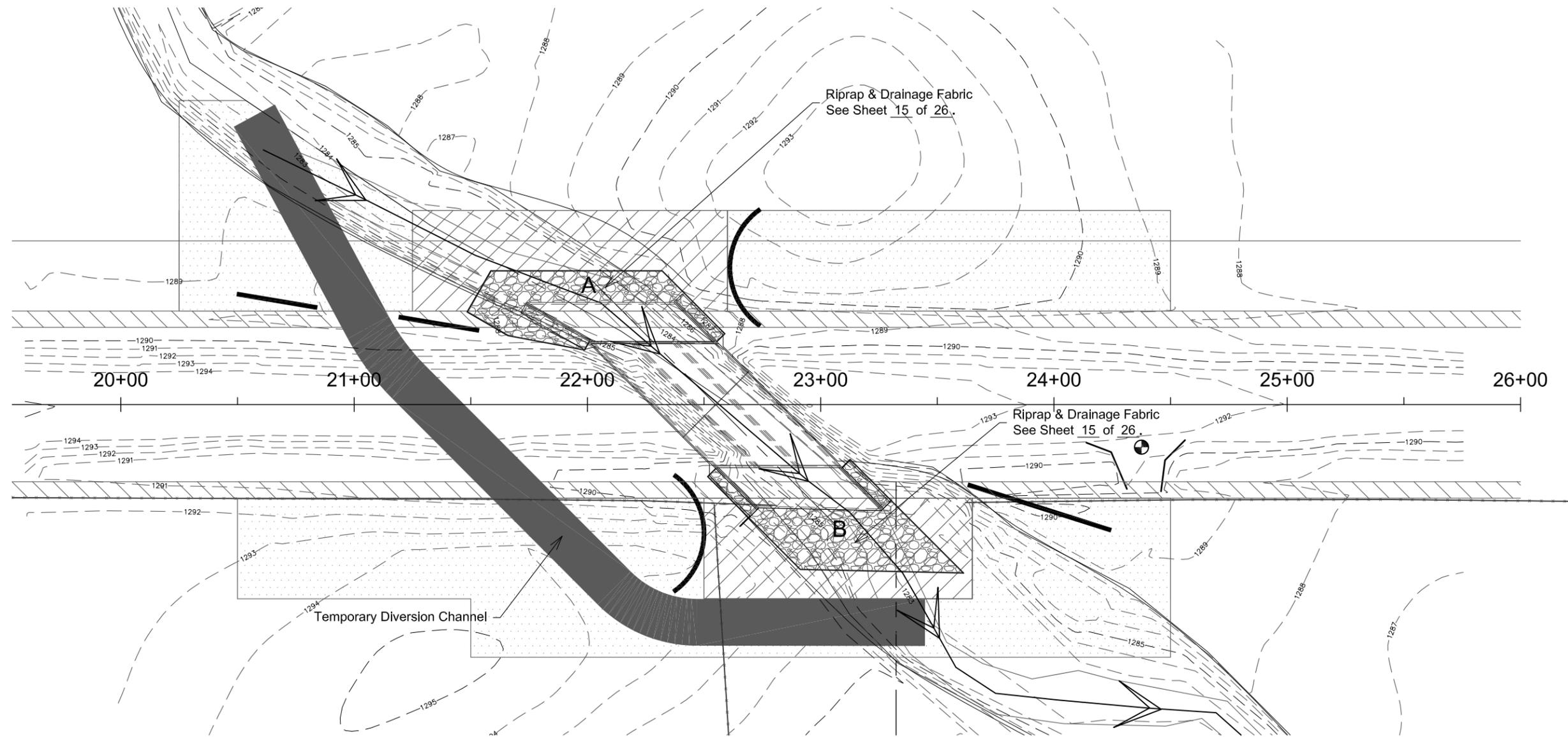
- (800) 424-8802.

EROSION AND SEDIMENT CONTROL PLAN

STRUCTURE 42-016-140

FOR BIDDING PURPOSES ONLY

| | | | |
|--------------------------------|---------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | BRO 8042 (29) | 10 | 27 |



| TABLE OF 12" DIAMETER EC WATTLE | | | | |
|---------------------------------|-----|----------|----------------|------------------------|
| STATION | L/R | Diameter | LOCATION | LENGTH |
| 20+50 TO 20+80 | L | 12" | TOE OF INSLOPE | 30 Ft. |
| 21+20 TO 21+50 | L | 12" | TOE OF INSLOPE | 30 Ft. |
| 22+70 | L | 12" | DITCH | 50 Ft. |
| 22+40 | R | 12" | DITCH | 60 Ft. |
| 23+65 TO 24+25 | R | 12" | TOE OF INSLOPE | 65 Ft. |
| | | | | Total Length = 235 Ft. |

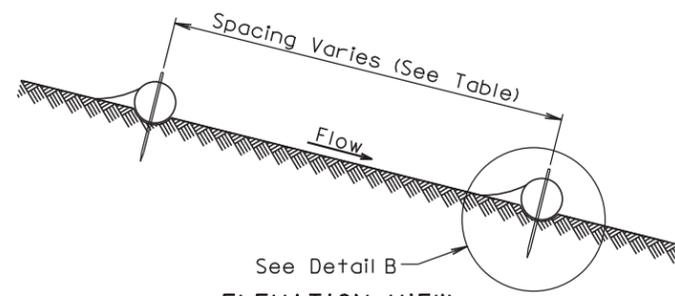
| TABLE OF CLASS "B" RIPRAP | | | | |
|---------------------------|---------|---------|--------------------------|--------------------------|
| LABEL | STATION | OFFSET | QUANTITY | TYPE "B" DRAINAGE FABRIC |
| A | 22+00 | 50' Lt. | 281.6 Ton | 366 SqYd. |
| B | 23+00 | 60' Rt. | 207.6 Ton | 280 SqYd. |
| | | | Total Riprap = 489.2 Ton | Total Fabric = 646 SqYd |

LEGEND

12" DIAMETER WATTLE

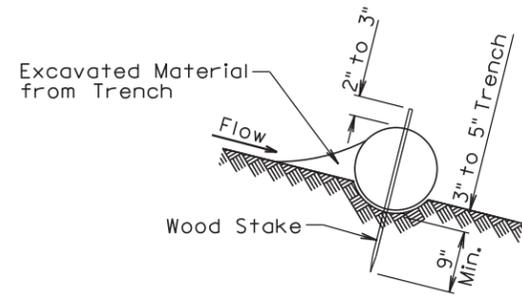


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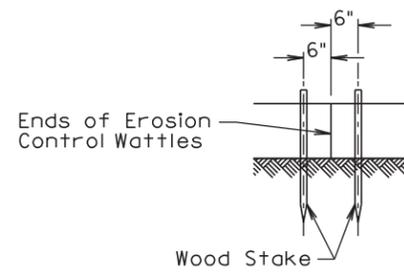


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

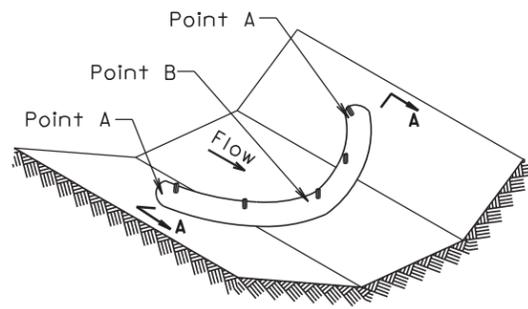
| CUT OR FILL SLOPE INSTALLATION | |
|--------------------------------|--------------|
| Slope | Spacing (Ft) |
| 1:1 | 10 |
| 2:1 | 20 |
| 3:1 | 30 |
| 4:1 | 40 |



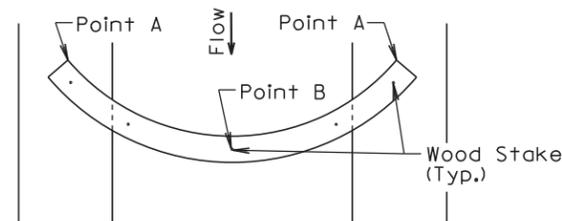
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



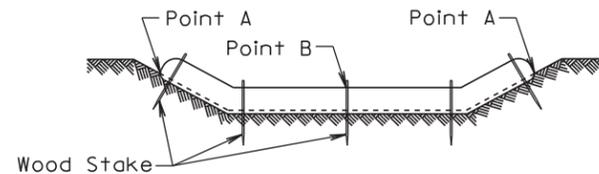
DETAIL C



ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION



SECTION A-A

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

December 23, 2004

| | | |
|----------------------------------|-------------------------------|------------------------|
| S D D O T | EROSION CONTROL WATTLE | PLATE NUMBER 734.06 |
| | | Sheet 1 of 2 |

Published Date: 4th Qtr. 2012

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".

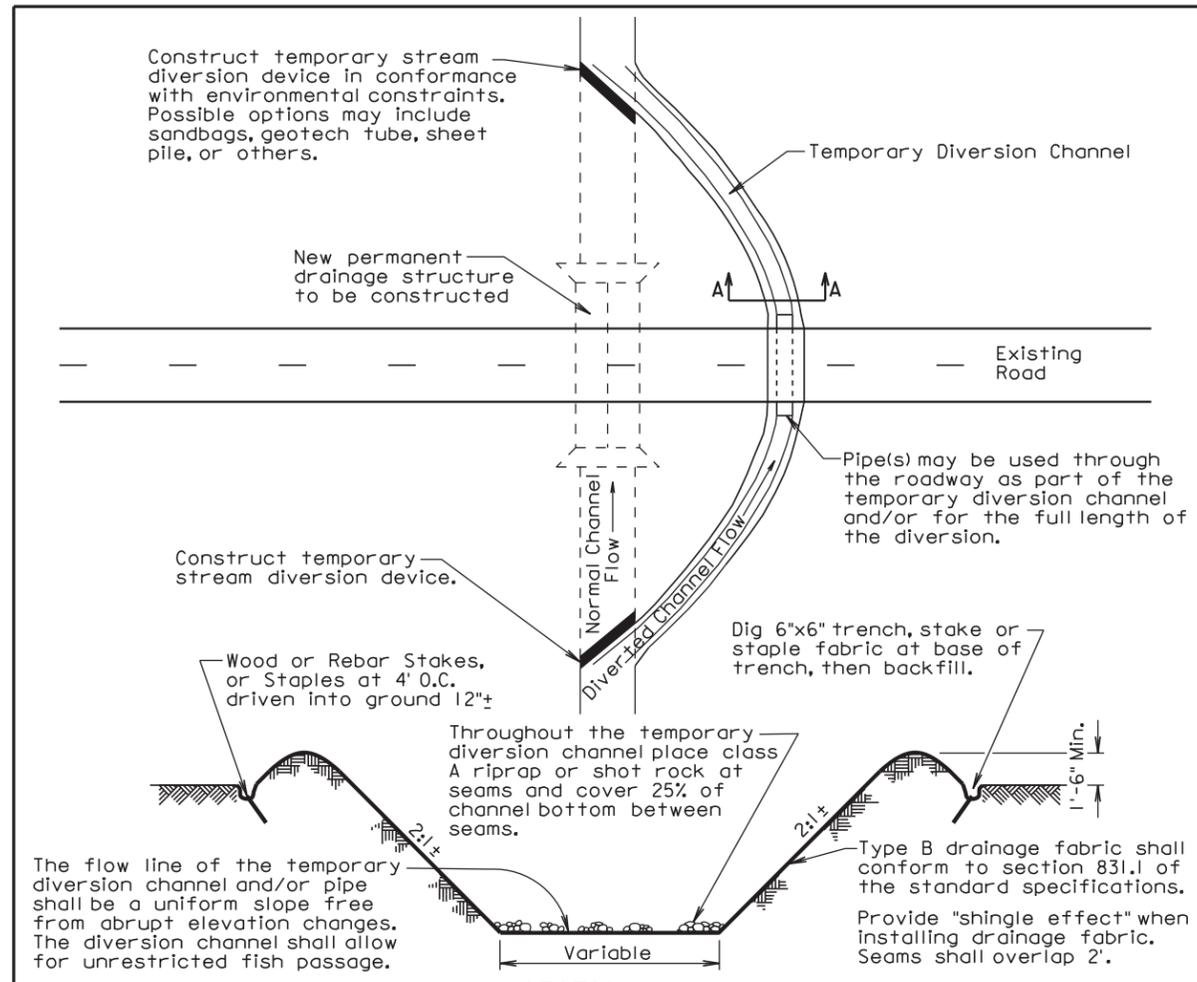
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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

| | | |
|----------------------------------|-------------------------------|------------------------|
| S D D O T | EROSION CONTROL WATTLE | PLATE NUMBER 734.06 |
| | | Sheet 2 of 2 |

Published Date: 4th Qtr. 2012



GENERAL NOTES:

**SECTION A-A
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.

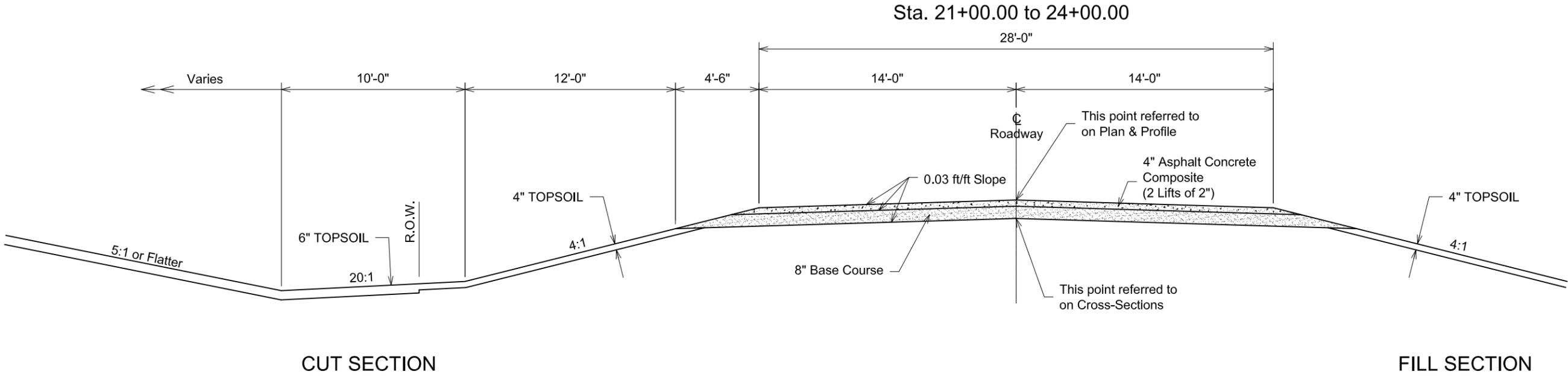
December 23, 2004

| | | |
|----------------------------------|------------------------------------|-------------------------------|
| S D D O T | TEMPORARY DIVERSION CHANNEL | PLATE NUMBER 734.30 |
| | Published Date: 4th Qtr. 2012 | Sheet 1 of 1 |

TYPICAL GRADING AND SURFACING SECTION

FOR BIDDING PURPOSES ONLY

| | | | |
|-----------------------|---------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | BRO 8042 (29) | 13 | 27 |



| HORIZONTAL AND VERTICAL CONTROL POINTS | | | | | | |
|--|----------|---------------|-------------|-----------|-----------|-----------|
| POINT | STATION | OFFSET | DESCRIPTION | NORTHING | EASTING | ELEVATION |
| CP1 | 0+00.00 | On Centerline | 5/8" Rebar | 10000.000 | 10000.000 | 1308.77 |
| CP2 | 26+32.30 | On Centerline | Nail | 10000.000 | 12632.330 | 1291.31 |
| CP3 | 24+37.50 | 18.20' Rt. | 5/8" Rebar | 9981.811 | 12437.524 | 1291.46 |

| HORIZONTAL ALIGNMENT DATA TABLE | | | | | |
|---------------------------------|----------|-----------|-----------|--------------|----------|
| POINT | STATION | NORTHING | EASTING | BEARING | DISTANCE |
| POB | 21+00.00 | 10000.000 | 12100.000 | | |
| POE | 24+00.00 | 10000.000 | 12400.000 | N 90°00'00"W | 300.00' |

Brosz Engineering, Inc. Project No. S13-F900

The elevations shown on this sheet are based on NAVD 88.



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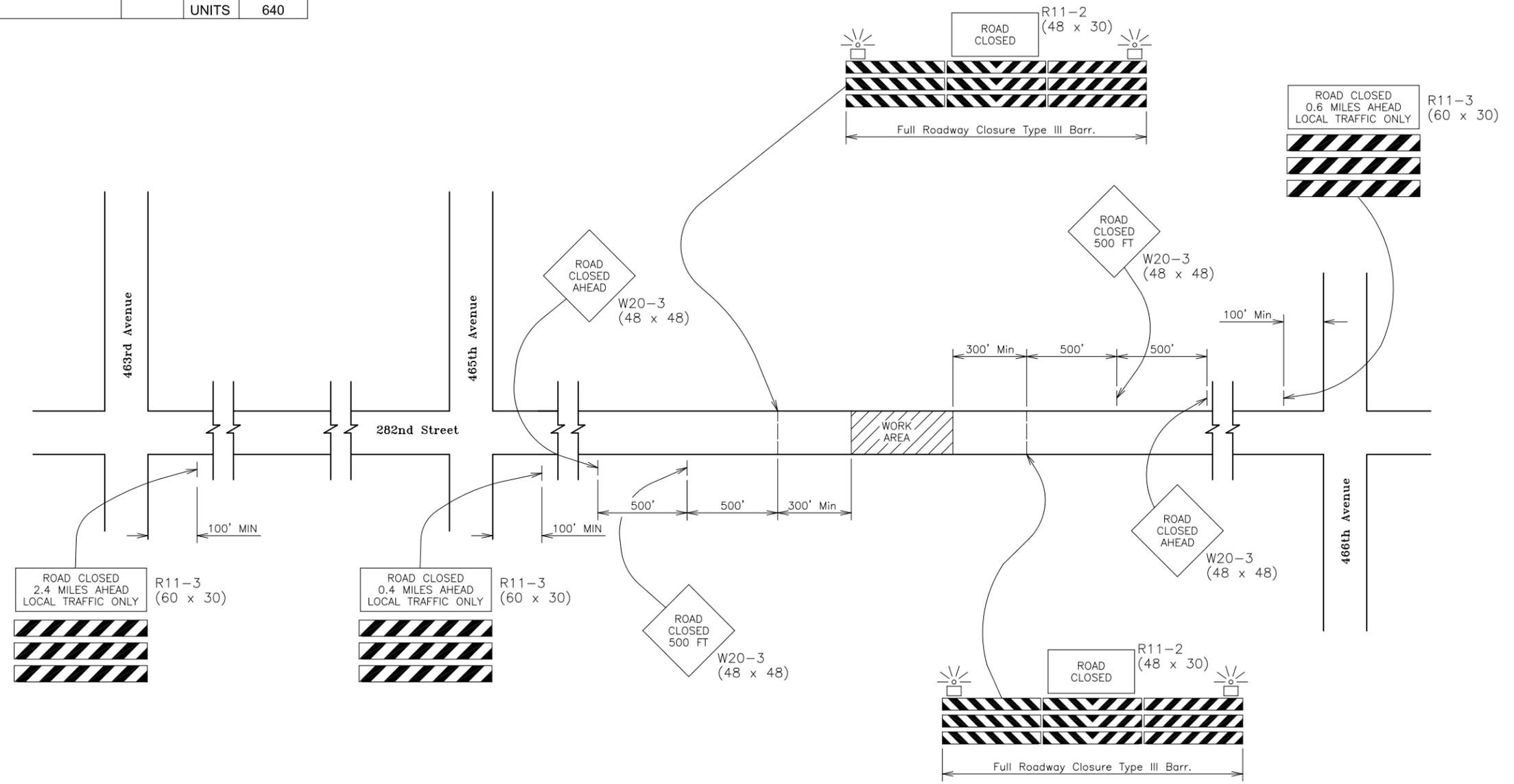
ITEMIZED LIST FOR TRAFFIC CONTROL

| SIGN CODE | SIGN SIZE | DESCRIPTION | NUMBER REQUIRED | UNITS PER SIGN | UNITS |
|-----------|-----------|---|-----------------|----------------|-------|
| R11-2 | 48 x 30 | ROAD CLOSED | 2 | 27 | 54 |
| R11-3 | 60 x 30 | ROAD CLOSED ## MILES AHEAD LOCAL TRAFFIC ONLY | 3 | 30 | 90 |
| W20-3 | 48 x 48 | ROAD CLOSED #### FT. OR AHEAD | 4 | 34 | 136 |
| ***** | ***** | TYPE III BARRICADE - 8 FT. SINGLE SIDED | 9 | 40 | 360 |
| | | | | TOTAL UNITS | 640 |

TRAFFIC CONTROL DETAILS

FOR BIDDING PURPOSES ONLY

| | | | |
|-----------------------|---------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | BRO 8042 (29) | 14 | 27 |



TRAFFIC CONTROL AS SHOWN IS FOR THE PURPOSE OF ALLOWING CONSTRUCTION ON THE SITE.

ALL APPROACHES WITHIN WORK AREA SHALL BE MAINTAINED FOR LOCAL RESIDENTS.



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Brosz Engineering, Inc. Project No. S13-F900

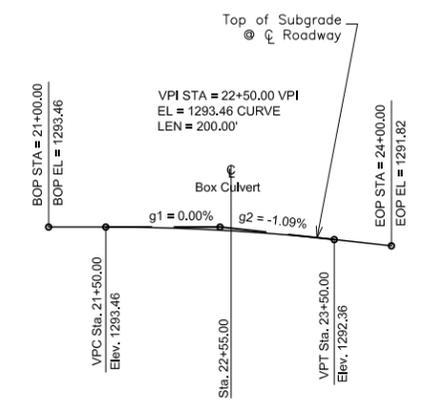
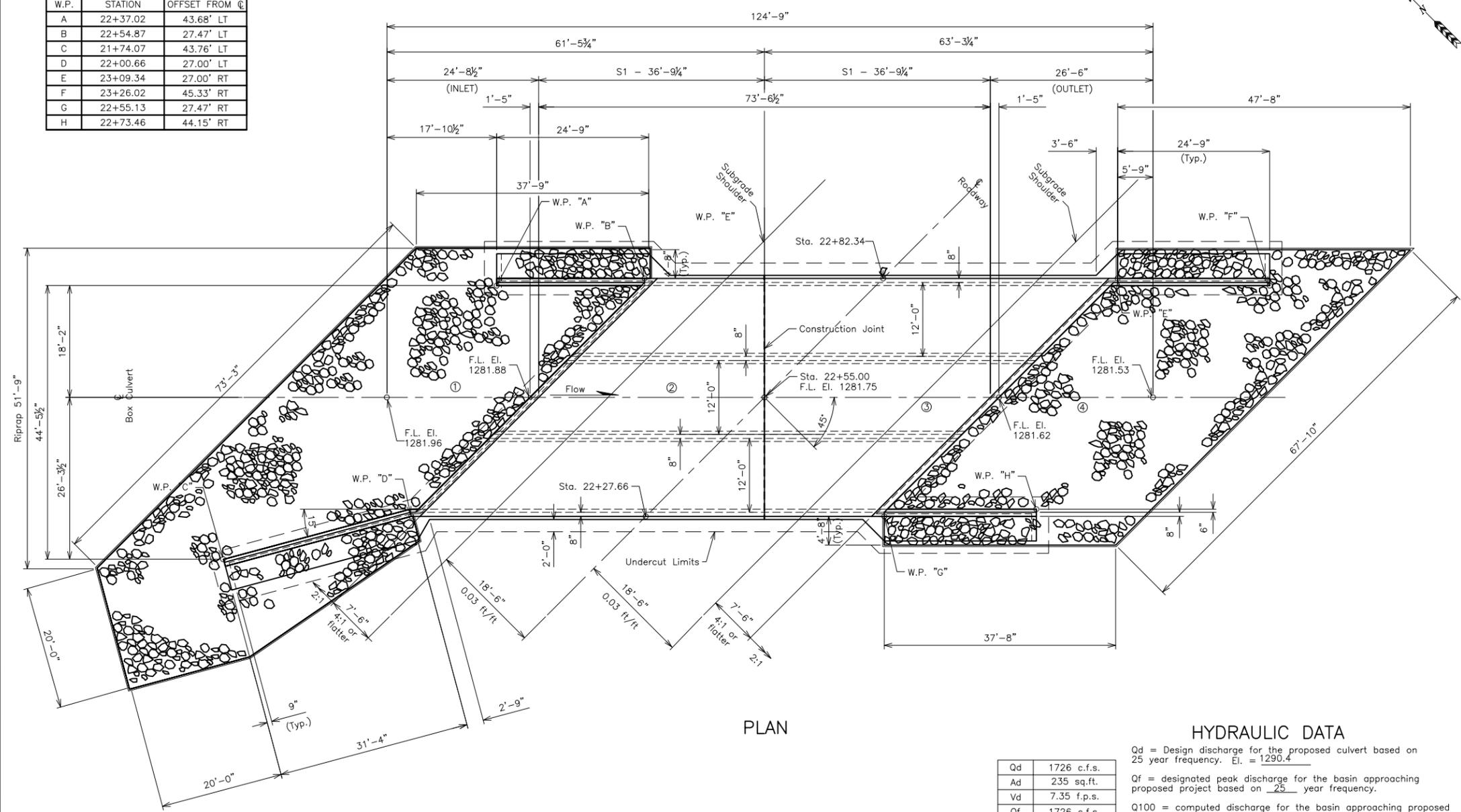
FOR BIDDING PURPOSES ONLY

TABLE OF WORKING POINTS

| W.P. | STATION | OFFSET FROM CL |
|------|----------|----------------|
| A | 22+37.02 | 43.68' LT |
| B | 22+54.87 | 27.47' LT |
| C | 21+74.07 | 43.76' LT |
| D | 22+00.66 | 27.00' LT |
| E | 23+09.34 | 27.00' RT |
| F | 23+26.02 | 45.33' RT |
| G | 22+55.13 | 27.47' RT |
| H | 22+73.46 | 44.15' RT |

-X028- INDEX OF CULVERT SHEETS

- Sheet 1 General Drawing & Quantities
- Sheet 2 Notes & Undercut Details
- Sheet 3-4 Inlet Details
- Sheet 5-6 Outlet Details
- Sheet 7-8 S1 Barrel Section Details (73'-6 1/2")
- Sheet 9 Details of Standard Plate No. 460.02 & 460.10
- Sheet 10 Details of Standard Plate No. 620.16



VERTICAL GRADE DATA
(FINISHED GRADE)

| ESTIMATED QUANTITIES | | |
|-----------------------------------|----------|----------|
| ITEM | UNIT | QUANTITY |
| Incidental Work, Structure | Lump Sum | L.S. |
| Class A45 Concrete Box Culvert | Cu.Yd. | 316.8 |
| Reinforcing Steel | Lb. | 65,962 |
| Structure Excavation, Box Culvert | Cu.Yd. | 196 |
| Box Culvert Undercut | Cu.Yd. | 356 |
| Class B Riprap | Ton | 489.2 |
| Type B Drainage Fabric | Sq.Yd. | 646 |

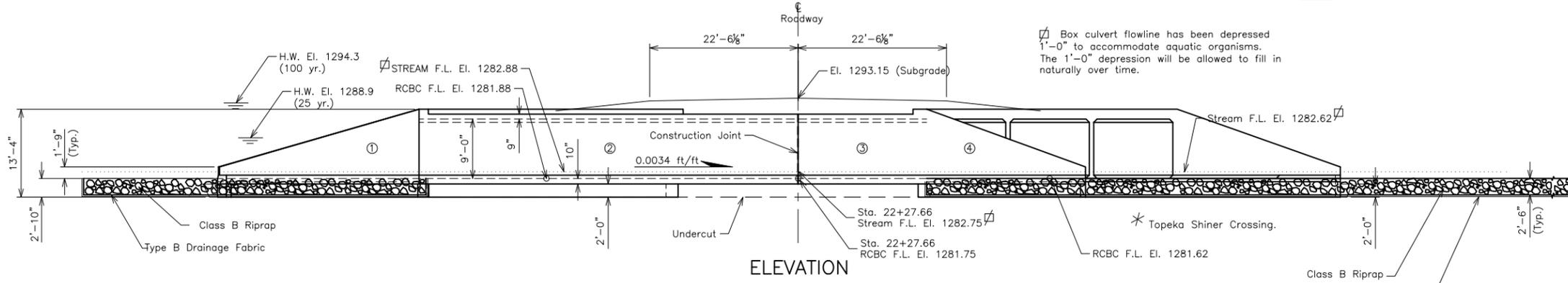
For estimating purposes only a factor of 1.4 tons/cu.yd. was used to convert Cu.Yds. to Tons.

PLAN

HYDRAULIC DATA

| | |
|-------|-------------|
| Qd | 1726 c.f.s. |
| Ad | 235 sq.ft. |
| Vd | 7.35 f.p.s. |
| Qf | 1726 c.f.s. |
| Q100 | 3789 c.f.s. |
| Qotfr | 2750 c.f.s. |
| Vmax | 12.0 fps |

Qd = Design discharge for the proposed culvert based on 25 year frequency. El. = 1290.4
 Qf = designated peak discharge for the basin approaching proposed project based on 25 year frequency.
 Q100 = computed discharge for the basin approaching proposed project based on 100 yr. frequency. El. 1294.3
 Qotfr = overtopping discharge & frequency 55 yr. recurrence interval, El. 1292.6, location Sta. 26+50±
 Vmax = maximum computed outlet velocity for the proposed culvert, based on a 100 year frequency.



ELEVATION

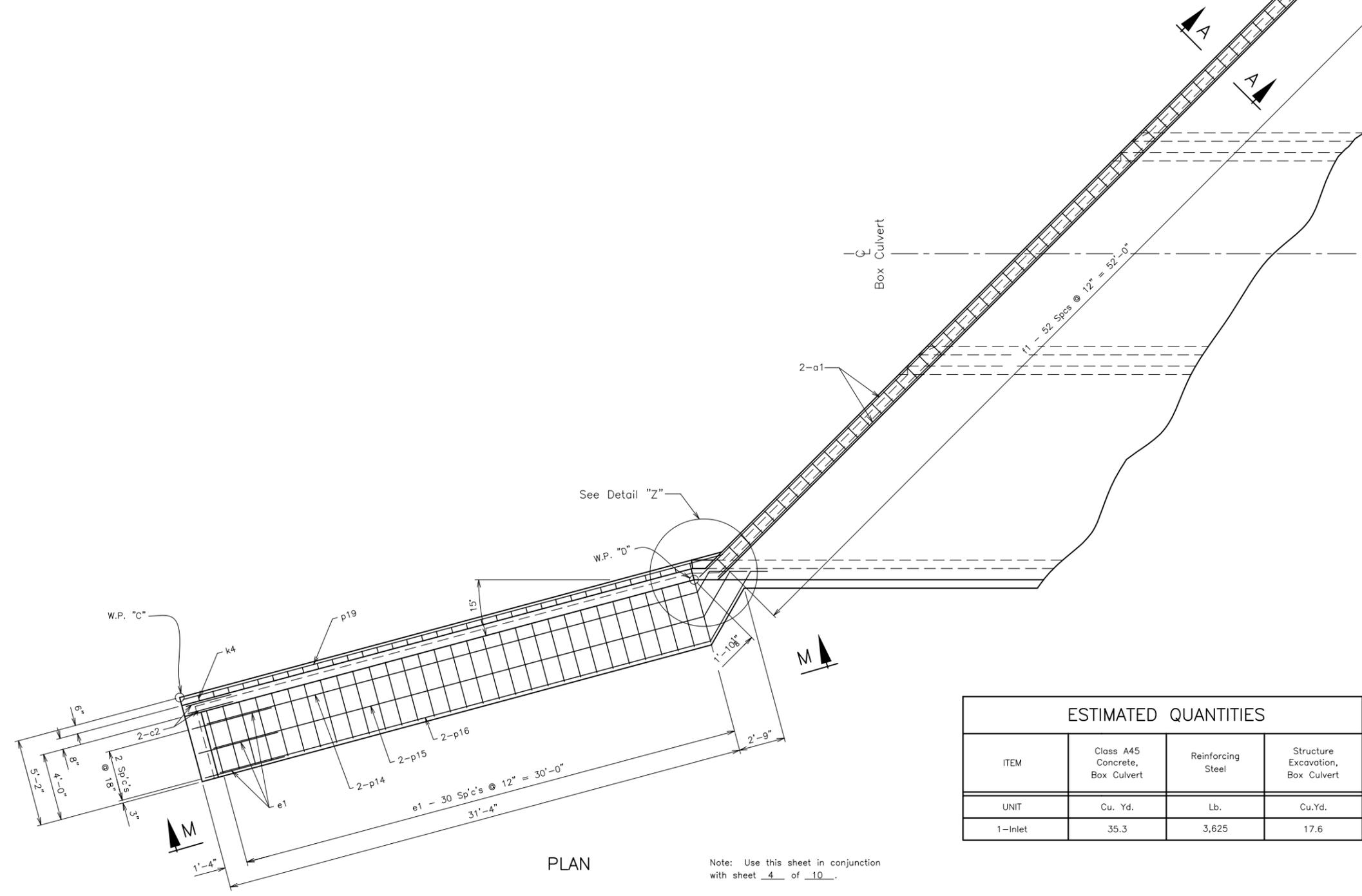
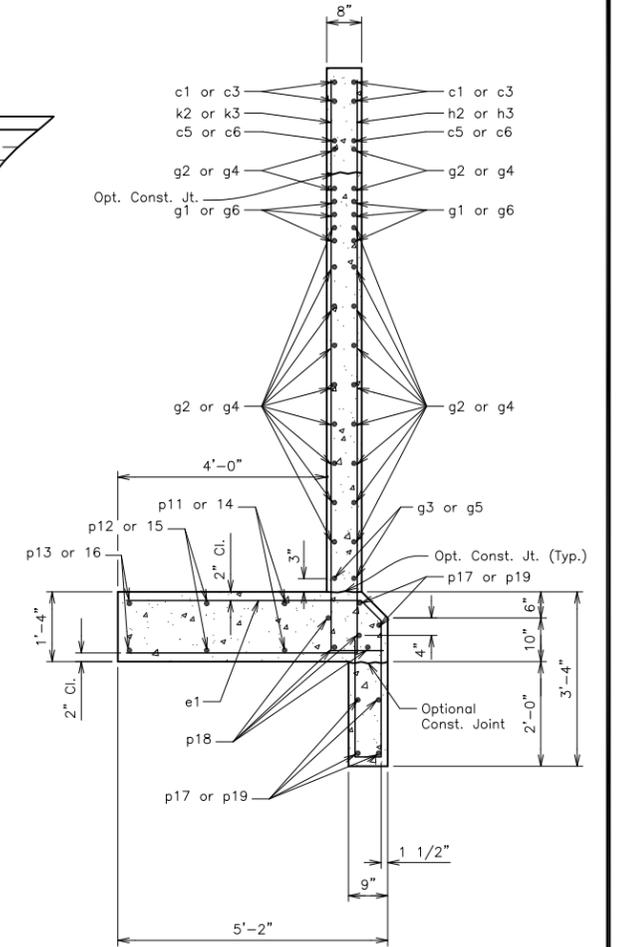
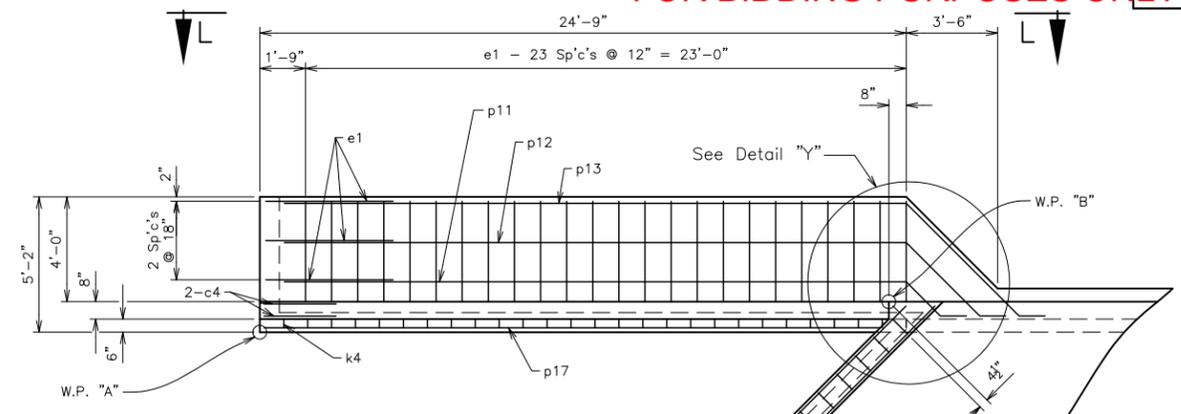
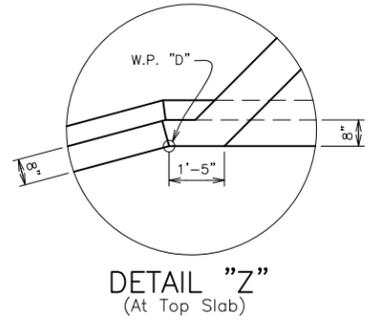
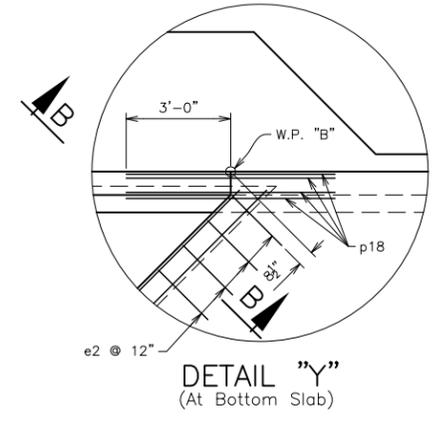
GENERAL DRAWING & QUANTITIES

FOR
TRIPLE 12' x 9' BOX CULVERT
 STA. 22+55.00 45° RHF SKEW
 LONG CREEK* SEC. 17-20, T98N/R51W
 STR NO. 42-016-140
 PROJECT BRO 8042(29) HS20-44 & ALT.
 PCN 5319 LINCOLN COUNTY
 MAY 2013 ① OF ⑩

| | | | |
|--------------|---|-------------|-----------------|
| PLANS BY: | Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57105 | | |
| DESIGNED BY: | DRAWN BY: | CHECKED BY: | APPROVED BY: |
| DJH | DJH | TMW | BRIDGE ENGINEER |

-X028-

FOR BIDDING PURPOSES ONLY



PLAN

Note: Use this sheet in conjunction with sheet 4 of 10.

| ESTIMATED QUANTITIES | | | |
|----------------------|---------------------------------|-------------------|-----------------------------------|
| ITEM | Class A45 Concrete, Box Culvert | Reinforcing Steel | Structure Excavation, Box Culvert |
| UNIT | Cu. Yd. | Lb. | Cu.Yd. |
| 1-Inlet | 35.3 | 3,625 | 17.6 |

INLET DETAILS (1 of 2)

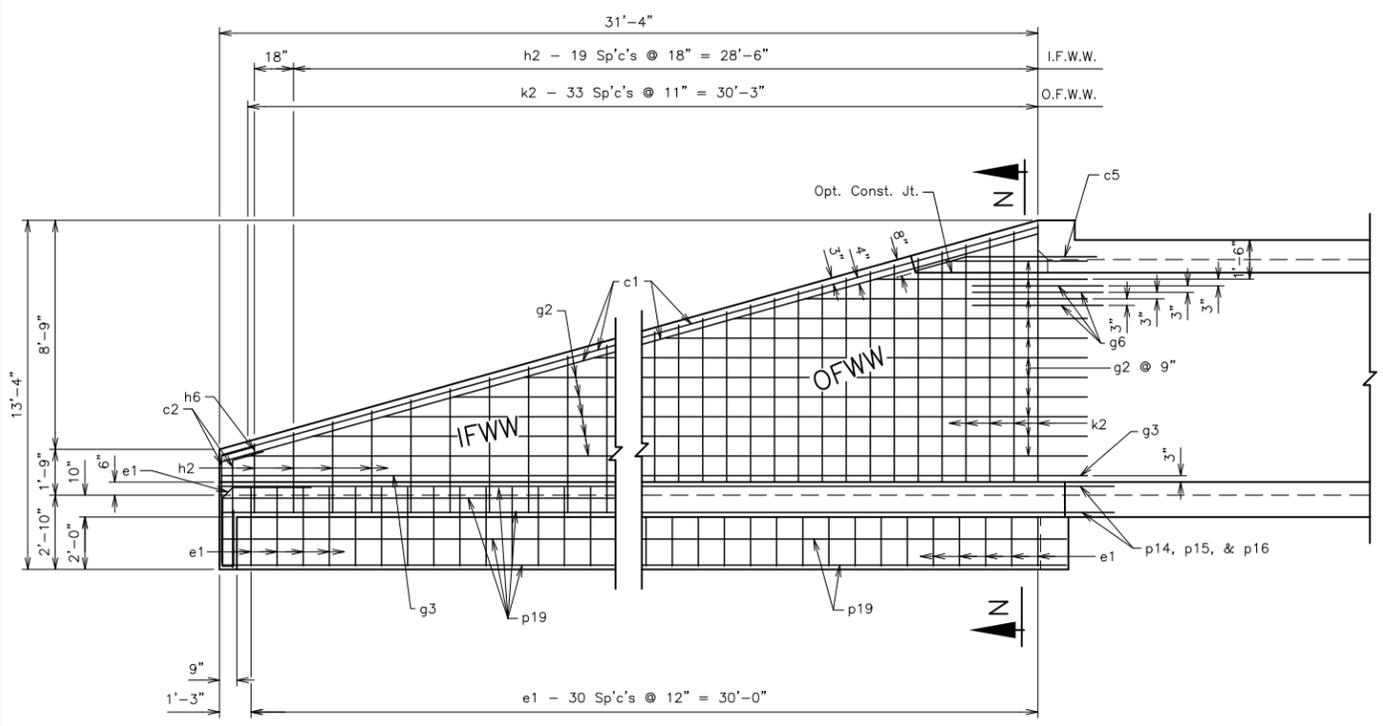
FOR TRIPLE 12' x 9' BOX CULVERT

STA. 22+55.00 45° RHF SKEW
 LONG CREEK SEC. 17-20, T98N/R51W
 STR NO. 42-016-140
 PROJECT BRO 8042(29) HS20-44 & ALT.
 PCN 5319 LINCOLN COUNTY
 MAY 2013 ③ OF ⑩

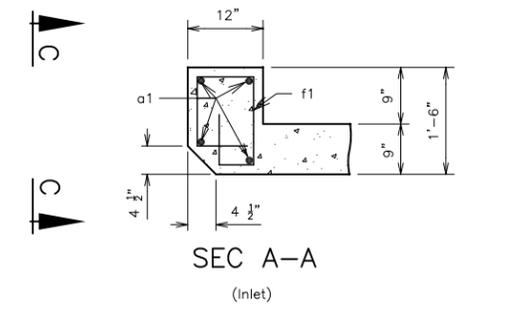
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|--------------|---|-------------|-----------------|
| PLANS BY: | Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57105 | | |
| DESIGNED BY: | DRAWN BY: | CHECKED BY: | APPROVED BY: |
| DJH | DJH | TMW | BRIDGE ENGINEER |

Brosz Engineering, Inc. Project No. S13-F900

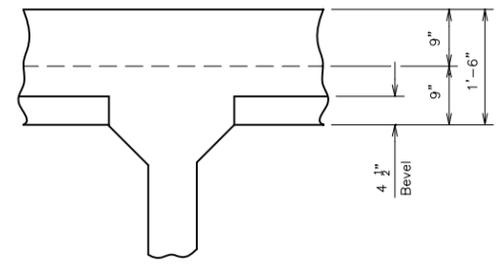
FOR BIDDING PURPOSES ONLY



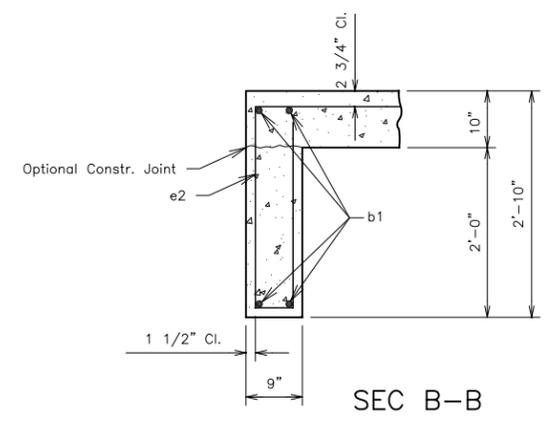
VIEW M-M



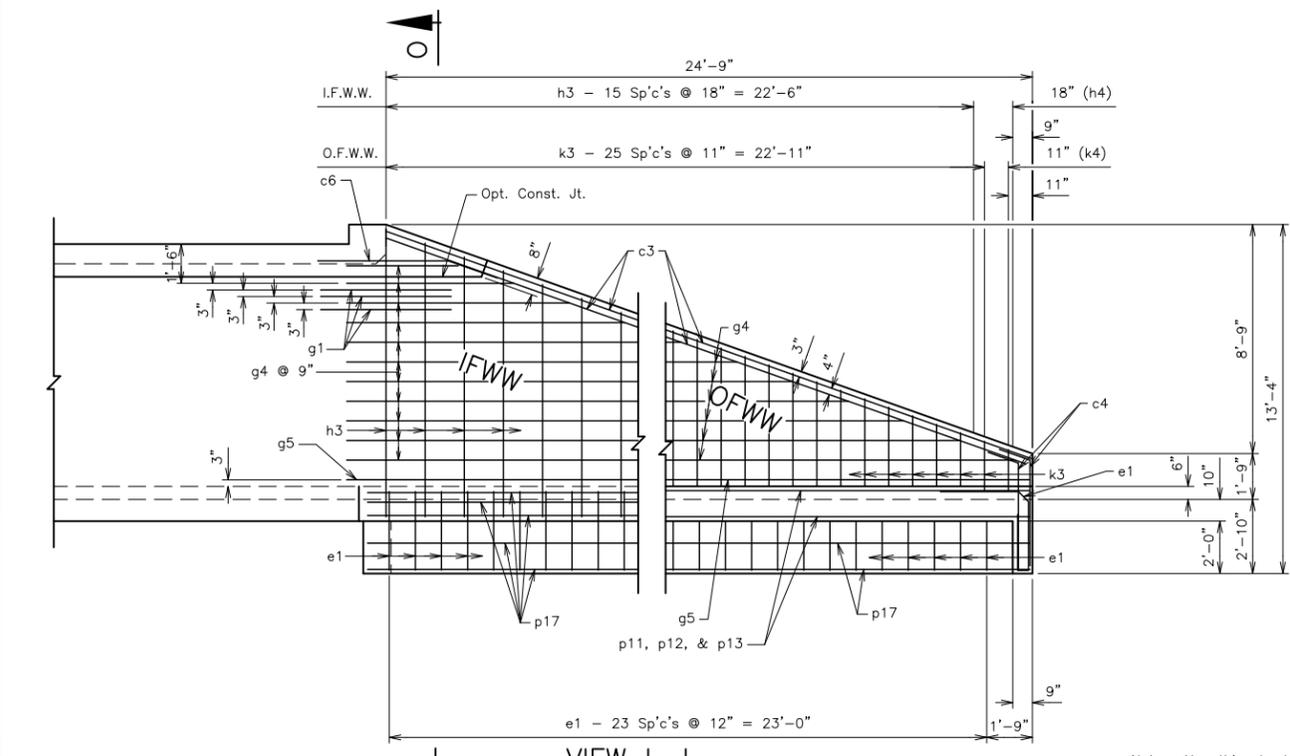
SEC A-A (Inlet)



VIEW C-C (At Interior Wall)



SEC B-B



VIEW L-L

Note: Use this sheet in conjunction with sheet 3 of 10.

| REINFORCING SCHEDULE | | | | |
|----------------------|-----|------|---------|------|
| MK. | NO. | SIZE | LENGTH | TYPE |
| a1 | 4 | 6 | 54'-2" | Str. |
| b1 | 4 | 4 | 53'-2" | Str. |
| c1 | 4 | 5 | 32'-6" | Str. |
| c2 | 4 | 5 | 5'-5" | 19B |
| c3 | 4 | 5 | 26'-0" | Str. |
| c4 | 4 | 5 | 5'-5" | 19B |
| c5 | 2 | 5 | 7'-0" | 19B |
| c6 | 2 | 5 | 7'-0" | 19B |
| e1 | 61 | 4 | 10'-5" | S12A |
| e2 | 52 | 4 | 7'-6" | S12 |
| f1 | 53 | 4 | 4'-6" | T2A |
| *g1 | 6 | 5 | 5'-0" | Str. |
| *g2 | 11 | 4 | 37'-9" | 19B |
| *g3 | 2 | 4 | 33'-3" | 19B |
| *g4 | 11 | 4 | 30'-8" | Str. |
| *g5 | 2 | 4 | 26'-6" | Str. |
| *g6 | 6 | 5 | 5'-0" | 19B |
| *h2 | 10 | 4 | 22'-9" | 17A |
| *h3 | 8 | 4 | 22'-9" | 17A |
| *h4 | 1 | 4 | 7'-0" | 17A |
| *h6 | 1 | 4 | 6'-11" | 17A |
| *k2 | 17 | 5 | 15'-2" | 17A |
| *k3 | 13 | 5 | 15'-7" | 17A |
| *k4 | 1 | 5 | 3'-5" | 17A |
| *p11 | 2 | 4 | 26'-8" | Str. |
| *p12 | 2 | 4 | 28'-10" | Str. |
| *p13 | 2 | 4 | 30'-11" | Str. |
| *p14 | 2 | 4 | 32'-8" | Str. |
| *p15 | 2 | 4 | 34'-3" | Str. |
| *p16 | 2 | 4 | 36'-0" | Str. |
| p17 | 7 | 4 | 25'-9" | Str. |
| p18 | 8 | 5 | 7'-0" | Str. |
| p19 | 7 | 4 | 32'-5" | Str. |

See Cutting Diagram
 * Bend in field as necessary to fit.
 Note: All dimensions are out to out of bars

INLET DETAILS (2 of 2)

FOR TRIPLE 12' x 9' BOX CULVERT

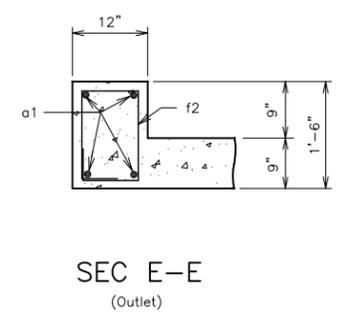
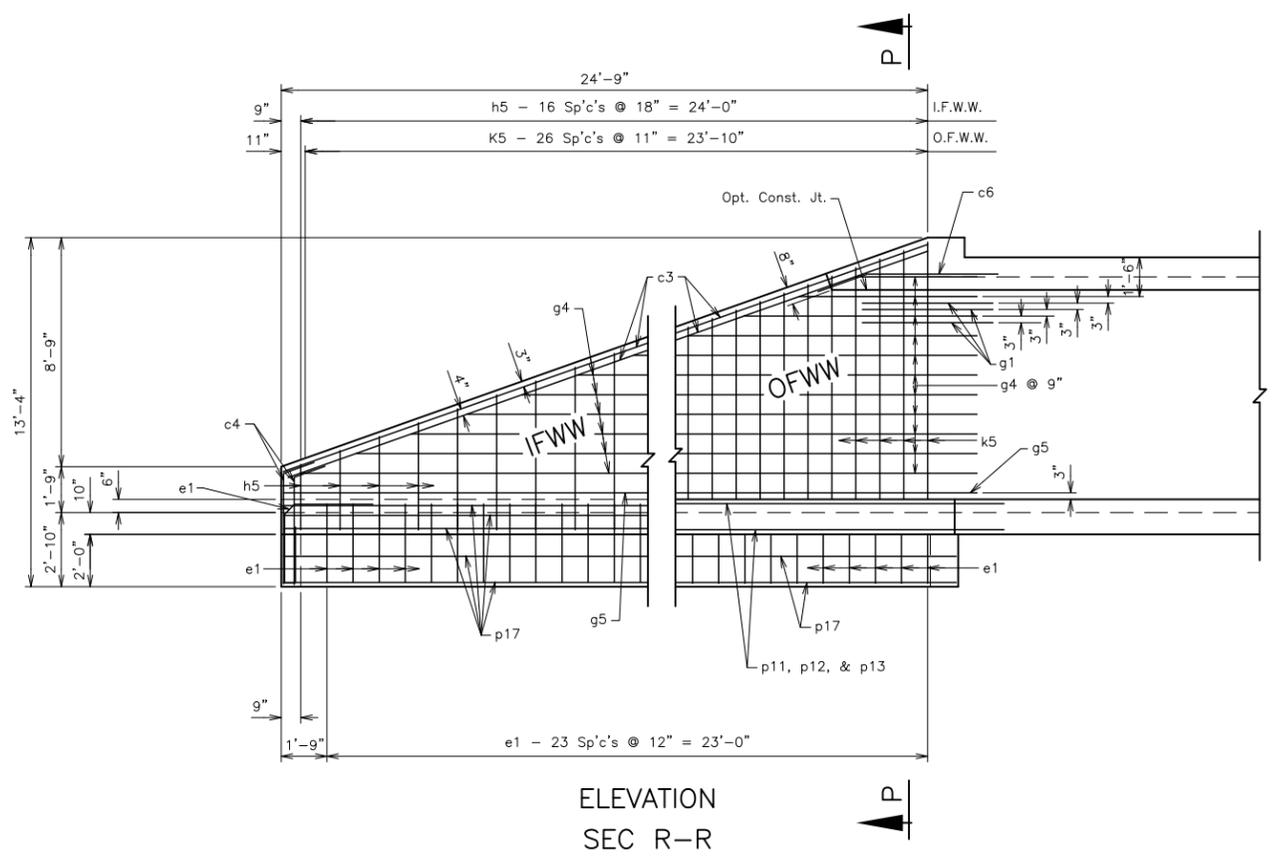
STA. 22+55.00 45° RHF SKEW
 LONG CREEK SEC. 17-20, T98N/R51W
 STR NO. 42-016-140
 PROJECT BRO 8042(29) HS20-44 & ALT.
 PCN 5319 LINCOLN COUNTY
 MAY 2013 4 OF 10

| | | | |
|---|---------------|-----------------|------------------------------|
| PLANS BY: Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57105 | | | |
| DESIGNED BY: DJH | DRAWN BY: DJH | CHECKED BY: TMW | APPROVED BY: BRIDGE ENGINEER |

Brosz Engineering, Inc. Project No. S13-F900

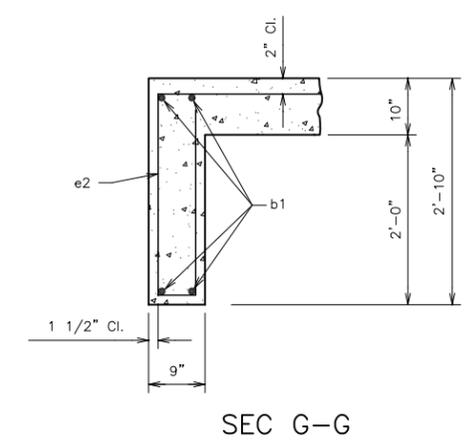
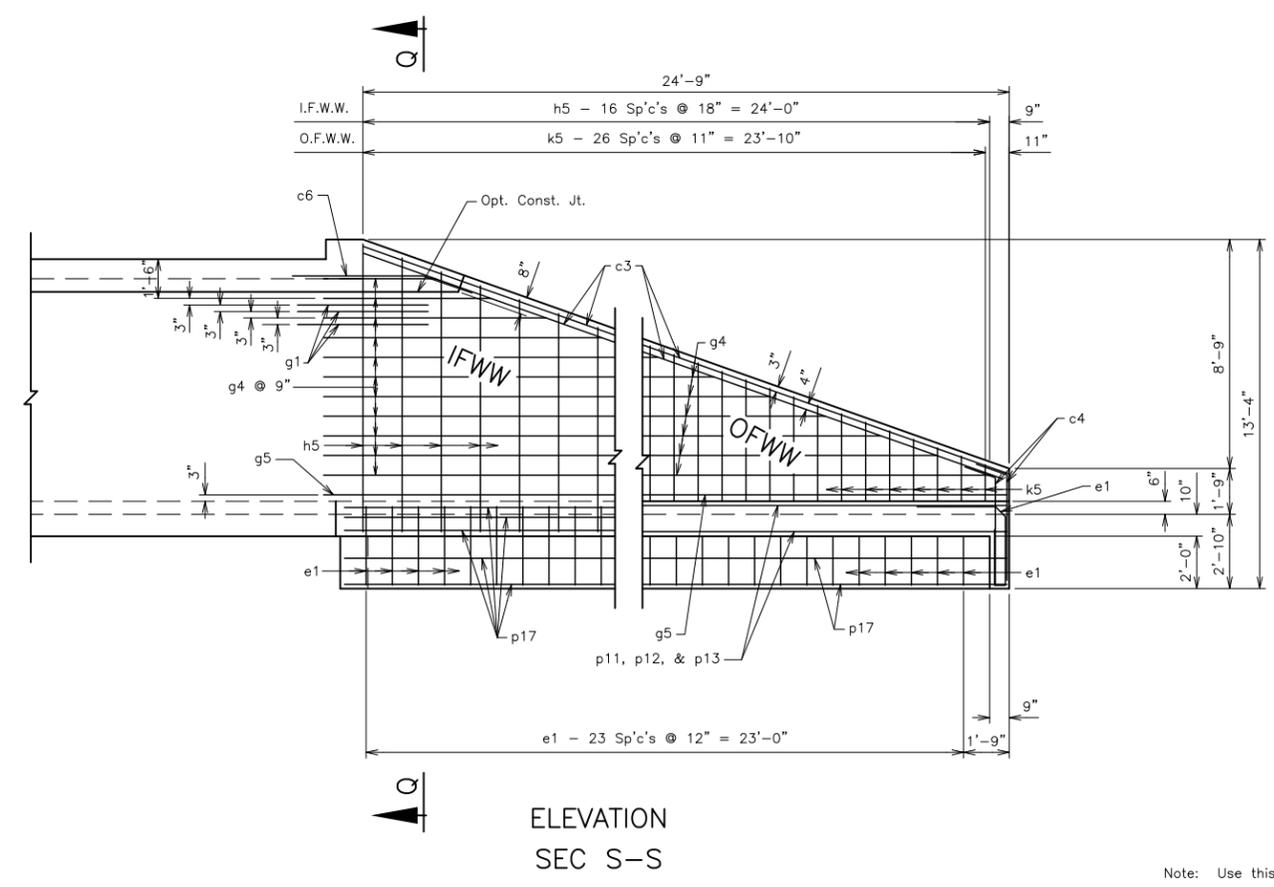
FOR BIDDING PURPOSES ONLY

| | | | |
|-----------------------|---------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | BRO 8042 (29) | 21 | 27 |



| REINFORCING SCHEDULE | | | | | Bending Details | |
|----------------------|-----|------|---------|------|-----------------|--|
| MK. | NO. | SIZE | LENGTH | TYPE | | |
| a1 | 4 | 6 | 54'-2" | Str. | | |
| b1 | 4 | 4 | 53'-2" | Str. | | |
| c3 | 8 | 5 | 26'-0" | Str. | | |
| c4 | 8 | 5 | 5'-5" | 19B | | |
| c6 | 4 | 5 | 7'-0" | 19B | | |
| e1 | 54 | 4 | 10'-5" | S12A | | |
| f2 | 53 | 4 | 4'-10" | T2 | | |
| g1 | 12 | 5 | 5'-0" | Str. | | |
| g4 | 22 | 4 | 30'-8" | Str. | | |
| g5 | 4 | 4 | 26'-6" | Str. | | |
| h5 | 17 | 4 | 22'-2" | 17A | | |
| k5 | 27 | 5 | 15'-3" | 17A | | |
| *p11 | 4 | 4 | 26'-8" | Str. | | |
| *p12 | 4 | 4 | 28'-10" | Str. | | |
| *p13 | 4 | 4 | 30'-11" | Str. | | |
| p17 | 14 | 4 | 25'-9" | Str. | | |
| p18 | 8 | 5 | 7'-0" | Str. | | |

See Cutting Diagram
 * Bend in field as necessary to fit.
 Note: All dimensions are out to out of bars



OUTLET DETAILS (2 of 2)
 FOR
TRIPLE 12' x 9' BOX CULVERT
 STA. 22+55.00 45° RHF SKEW
 LONG CREEK SEC. 17-20, T98N/R51W
 STR NO. 42-016-140
 PROJECT BRO 8042(29) HS20-44 & ALT.
 PCN 5319 LINCOLN COUNTY
 MAY 2013 6 OF 10

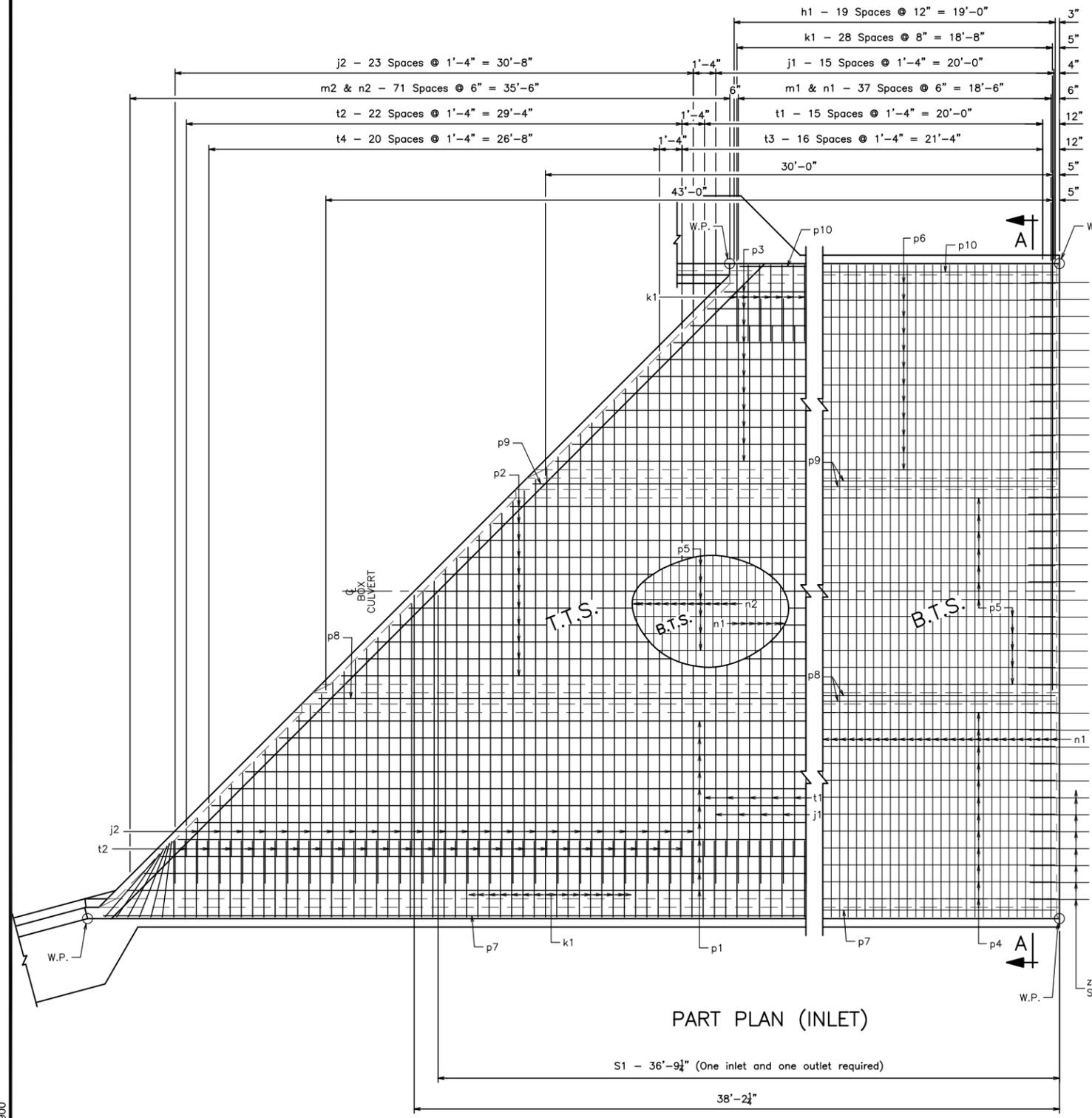
| | | | |
|---|---------------|-----------------|---------------------------------------|
| PLANS BY: Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57105 | | | |
| DESIGNED BY: DJH | DRAWN BY: DJH | CHECKED BY: TMW | APPROVED BY: _____ BRIDGE ENGINEER |

Note: Use this sheet in conjunction with sheet 5 of 10.

Brosz Engineering, Inc. Project No. S13-F900

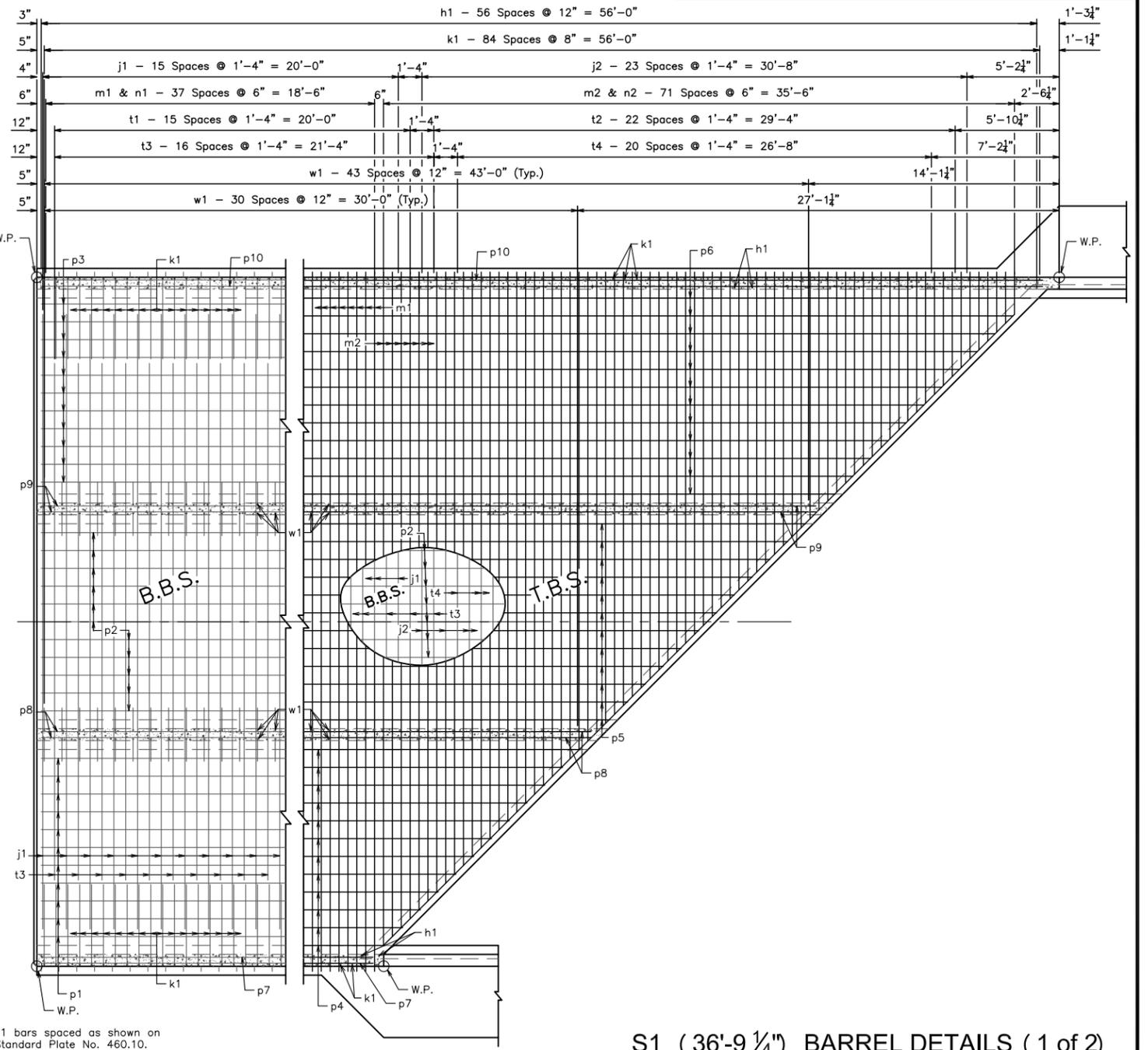
FOR BIDDING PURPOSES ONLY

| | | | |
|-----------------------------|---------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | BRO 8042 (29) | 22 | 27 |



PART PLAN (INLET)

S1 - 36'-9 1/4" (One inlet and one outlet required)
38'-2 1/4"



PART PLAN (OUTLET)

z1 bars spaced as shown on Standard Plate No. 460.10.

S1 (36'-9 1/4") BARREL DETAILS (1 of 2)

FOR
TRIPLE 12' x 9' BOX CULVERT
STA. 22+55.00 45° RHF SKEW
LONG CREEK SEC. 17-20, T98N/R51W
STR NO. 42-016-140
PROJECT BRO 8042(29) HS20-44 & ALT.
PCN 5319 LINCOLN COUNTY
MAY 2013 7 OF 10

| 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 |

NOTE:
Use this sheet in conjunction with sheet 8 of 10.

| | | | |
|---|------------------|--------------------|---------------------------------|
| PLANS BY: Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57105 | | | |
| DESIGNED BY: DJH | DRAWN BY: DJH | CHECKED BY: TMW | APPROVED BY: BRIDGE ENGINEER |

Brosz Engineering, Inc. Project No. S13-F900

REINFORCING SCHEDULE (Inlet and Outlet)

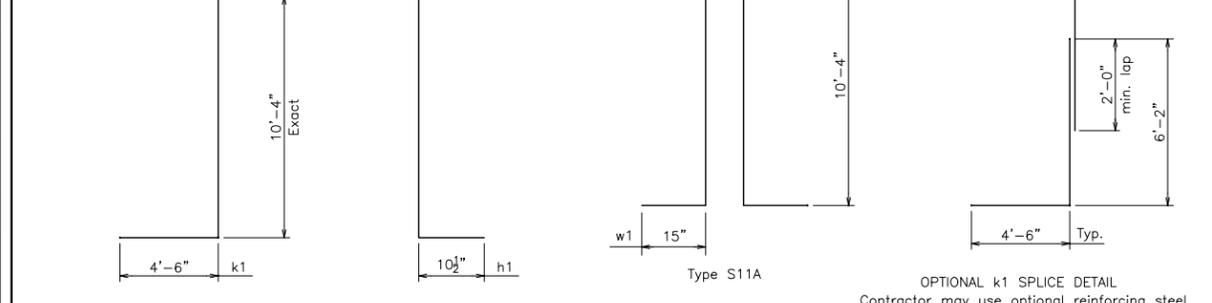
| MK. | NO. | SIZE | LENGTH | TYPE |
|-----|-----|------|---------|------|
| h1 | 154 | 4 | 11'-2" | 17A |
| j1 | 64 | 8 | 34'-6" | Str. |
| j2 | 48 | 8 | 35'-8" | Str. |
| k1 | 228 | 6 | 19'-4" | 17 |
| m1 | 76 | 6 | 39'-3" | Str. |
| m2 | 72 | 6 | 40'-3" | Str. |
| n1 | 76 | 6 | 38'-6" | Str. |
| n2 | 72 | 6 | 39'-5" | Str. |
| p1 | 22 | 4 | 99'-10" | Str. |
| p2 | 22 | 4 | 74'-6" | Str. |
| p3 | 22 | 4 | 49'-2" | Str. |
| p4 | 24 | 4 | 100'-4" | Str. |
| p5 | 24 | 4 | 75'-0" | Str. |
| p6 | 24 | 4 | 49'-8" | Str. |
| p7 | 32 | 4 | 56'-4" | Str. |
| p8 | 30 | 4 | 43'-7" | Str. |
| p9 | 30 | 4 | 30'-11" | Str. |
| p10 | 32 | 4 | 18'-8" | Str. |
| t1 | 32 | 8 | 31'-4" | Str. |
| t2 | 23 | 8 | 32'-6" | Str. |
| t3 | 34 | 8 | 29'-0" | Str. |
| t4 | 21 | 8 | 30'-2" | Str. |
| w1 | 150 | 5 | 23'-5" | S11A |
| z1 | 90 | 6 | 3'-6" | Str. |

| Bending Details | | cut | |
|-----------------|---------|---------|--|
| t4 | 1'-9" | 28'-5" | |
| t2 | 1'-7" | 30'-11" | |
| p6 | 19'-4" | 30'-4" | |
| p5 | 32'-0" | 43'-0" | |
| p4 | 44'-8" | 55'-8" | |
| p3 | 19'-7" | 29'-7" | |
| p2 | 32'-3" | 42'-3" | |
| p1 | 44'-11" | 54'-11" | |
| n2 | 2'-0" | 37'-5" | |
| m2 | 2'-5" | 37'-10" | |
| j2 | 2'-6" | 33'-2" | |
| j2 | 33'-2" | 2'-6" | |
| m2 | 37'-10" | 2'-5" | |
| n2 | 37'-5" | 2'-0" | |
| p1 | 54'-11" | 44'-11" | |
| p2 | 42'-3" | 32'-3" | |
| p3 | 29'-7" | 19'-7" | |
| p4 | 55'-8" | 44'-8" | |
| p5 | 43'-0" | 32'-0" | |
| p6 | 30'-4" | 19'-4" | |
| t2 | 30'-11" | 1'-7" | |
| t4 | 28'-5" | 1'-9" | |

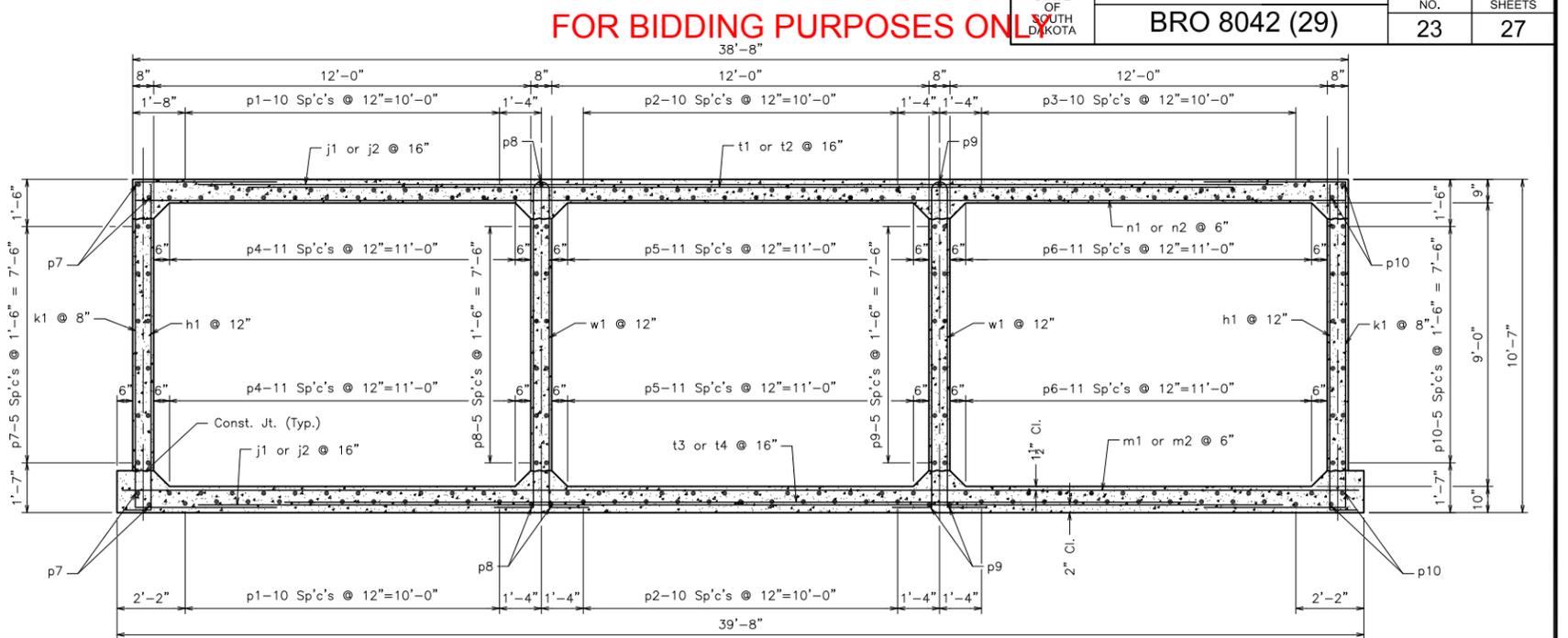
NOTE - All dimensions are out to out of bars.

Place z1 bars through construction joint between barrels as shown on Standard Plate No. 460.10 See Sheet 9 of 10.

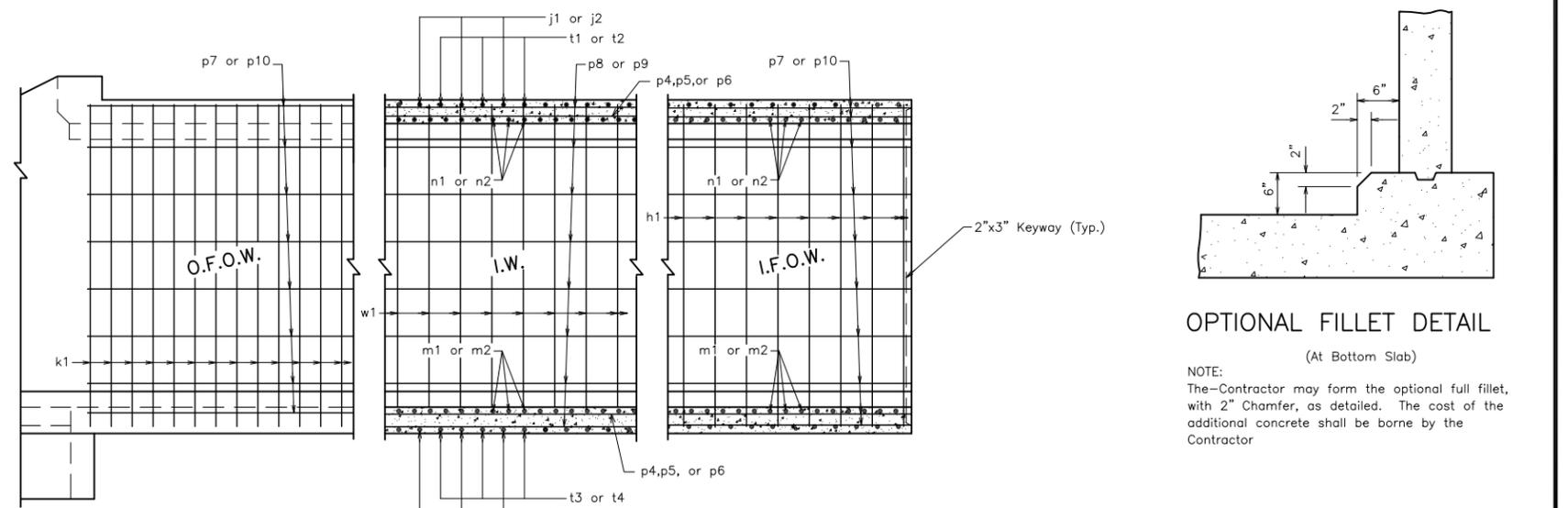
See Cutting Diagram



Request 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.



SECTION A-A (BARREL SECTION) (5'-0" Maximum Fill)



ELEVATION

OPTIONAL FILLET DETAIL (At Bottom Slab)

NOTE: The Contractor may form the optional full fillet, with 2" Chamfer, as detailed. The cost of the additional concrete shall be borne by the Contractor.

OPTIONAL POUR - BOTTOM SLAB

The Bottom Slab may be poured continuously, at the option of the Contractor, with the use of a Preformed Metal keyway conforming to the keyway dimensions and location as shown on the plans. The keyway length shall be full width of the bottom slab. Care shall be taken to maintain proper alignment of the keyway during the pour sequence. All additional costs of this option shall be borne by the Contractor.

S1 (36'-9 1/4") BARREL DETAILS (2 of 2)

FOR TRIPLE 12' x 9' BOX CULVERT

STA. 22+55.00 45° RHF SKEW
 LONG CREEK SEC. 17-20, T98N/R51W
 STR NO. 42-016-140
 PROJECT BRO 8042(29) HS20-44 & ALT.
 PCN 5319 LINCOLN COUNTY
 MAY 2013 8 OF 10

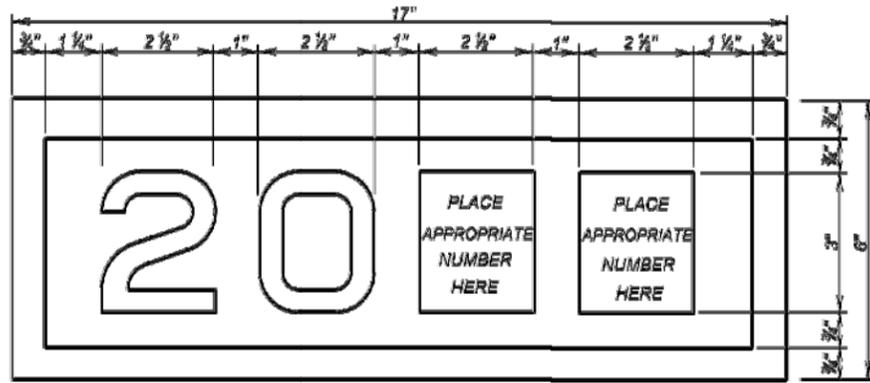
| ESTIMATED QUANTITIES | | | |
|------------------------------|---------------------------------|-------------------|-----------------------------------|
| ITEM | Class A45 Concrete, Box Culvert | Reinforcing Steel | Structure Excavation, Box Culvert |
| UNIT | Cu. Yd. | Lb. | Cu.Yd. |
| 1-S1 Barrel Section (Inlet) | 124.5 | 29,424 | 80.8 |
| 1-S1 Barrel Section (Outlet) | 124.5 | 29,424 | 80.8 |

| LEGEND FOR PLACING RE-STEEL | |
|-----------------------------|------------------------------|
| O.F.O.W. | Outside Face of Outside Wall |
| I.F.O.W. | Inside Face of Outside Wall |
| I.W. | Interior Wall |

NOTE: Use this sheet in conjunction with sheet 7 of 10.

| | | | |
|---|---------------|-----------------|------------------------------|
| PLANS BY: Brosz Engineering, Inc. 3500 S. Phillips Ave., Ste. 201 Sioux Falls, SD 57105 | | | |
| DESIGNED BY: DJH | DRAWN BY: DJH | CHECKED BY: TMW | APPROVED BY: BRIDGE ENGINEER |

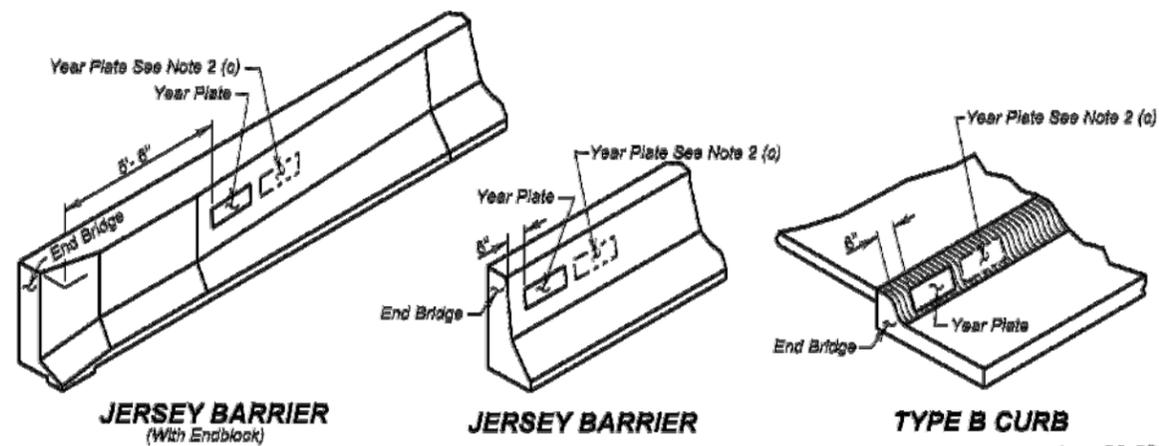
Brosz Engineering, Inc. Project No. S13-F900



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.



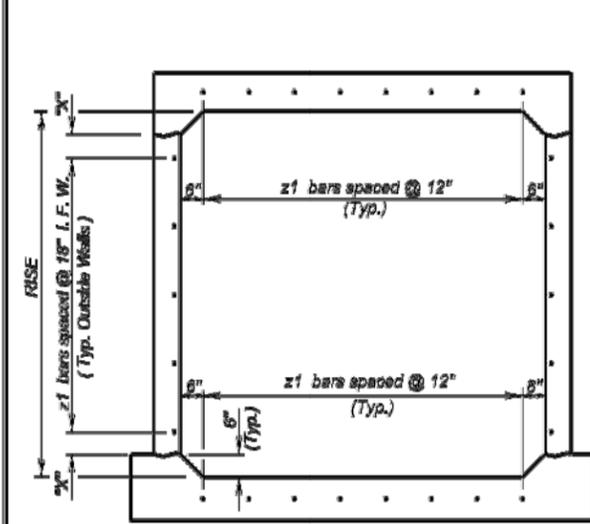
JERSEY BARRIER
(With Endblock)

JERSEY BARRIER

TYPE B CURB

June 26, 2012

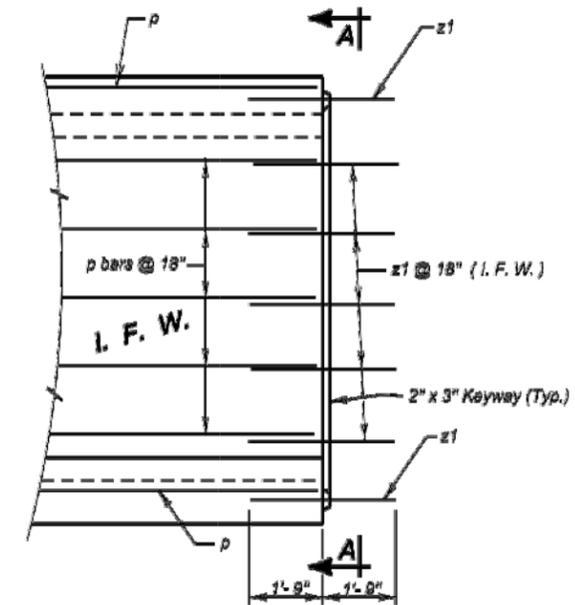
| | | | |
|-------------------------------|-----------------------|--------------------|--------------|
| Published Date: 4th Qtr. 2012 | S D D O T | YEAR PLATE DETAILS | PLATE NUMBER |
| | | | 460.02 |
| | | | Sheet 1 of 1 |



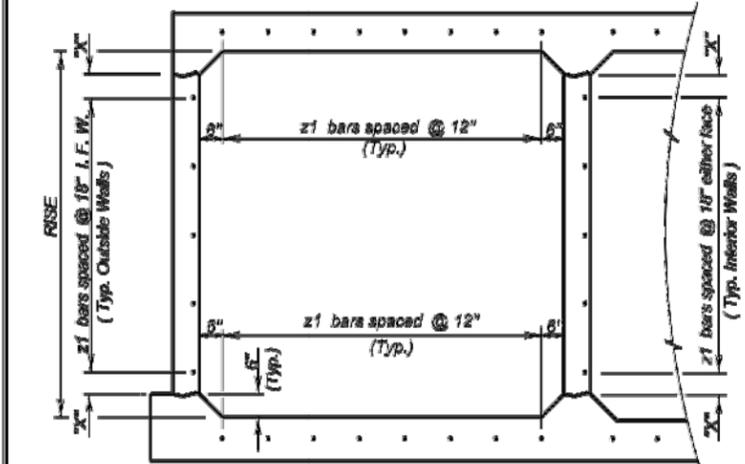
TYPICAL SINGLE BARREL VIEW A - A

LEGEND FOR PLACING RE-STEEL

I. F. W. - Inside Face Wall



ELEVATION



TYPICAL MULTIPLE BARREL VIEW A - A

| RISE | " X " |
|--------|-------|
| 3'-0" | 3" |
| 4'-0" | 3" |
| 5'-0" | 3" |
| 6'-0" | 3" |
| 7'-0" | 3" |
| 8'-0" | 3" |
| 9'-0" | 3" |
| 10'-0" | 3" |
| 11'-0" | 3" |
| 12'-0" | 3" |

GENERAL NOTES:

- z1 bars shall be placed in the middle of the 2" X 3" keyway in the top and bottom slabs. z1 bars shall be lapped with the longitudinal p bars in the inside face of the wall for outside walls and in either face for interior walls. z1 bars are listed and included elsewhere in plans.
- Drainage Fabric Protection shall be placed in accordance with Section 422, or Section 560, whichever is applicable.

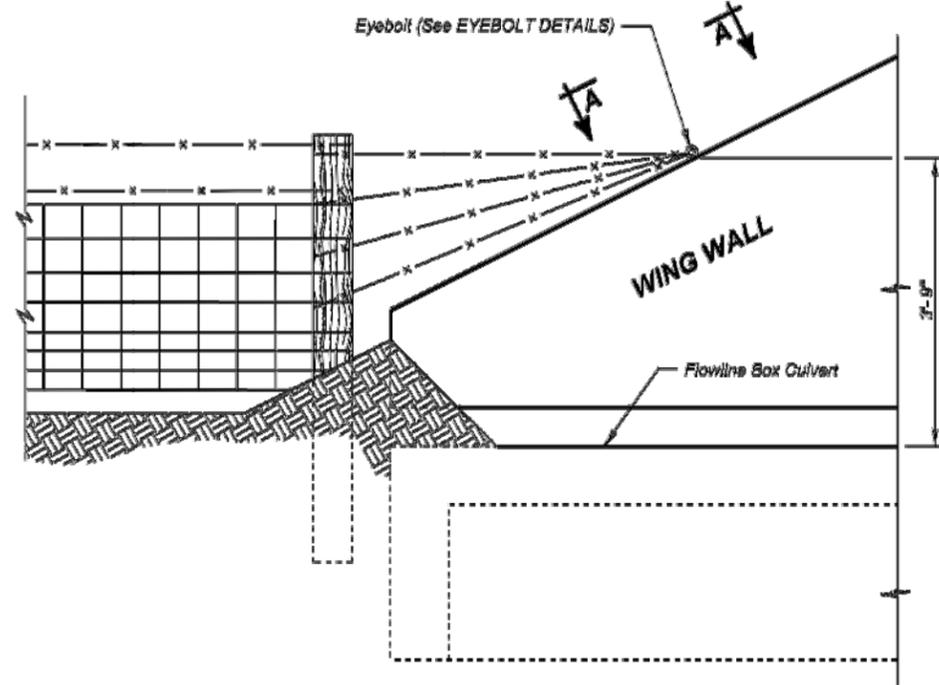
June 26, 2012

| | | | |
|-------------------------------|-----------------------|--------------------------------------|--------------|
| Published Date: 4th Qtr. 2012 | S D D O T | BOX CULVERT BARREL TIE REINFORCEMENT | PLATE NUMBER |
| | | | 460.10 |
| | | | Sheet 1 of 1 |

3 - 12' x 9' BOX CULVERT (C.I.P.)

STR NO. 42-016-140

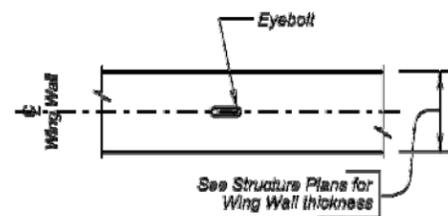
MAY 2013



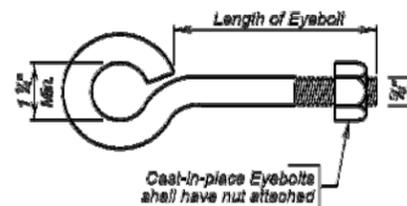
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the box culvert wing walls.
3. Eyebolts shall be 3/8" dia. and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A163). Concrete inserts of corrosion resistant material need not be galvanized.
5. Cast-in-place eyebolts shall have a nut attached, be 4 1/2" (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 3/8" 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.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to the contract unit price per pound for "Reinforcing Steel".



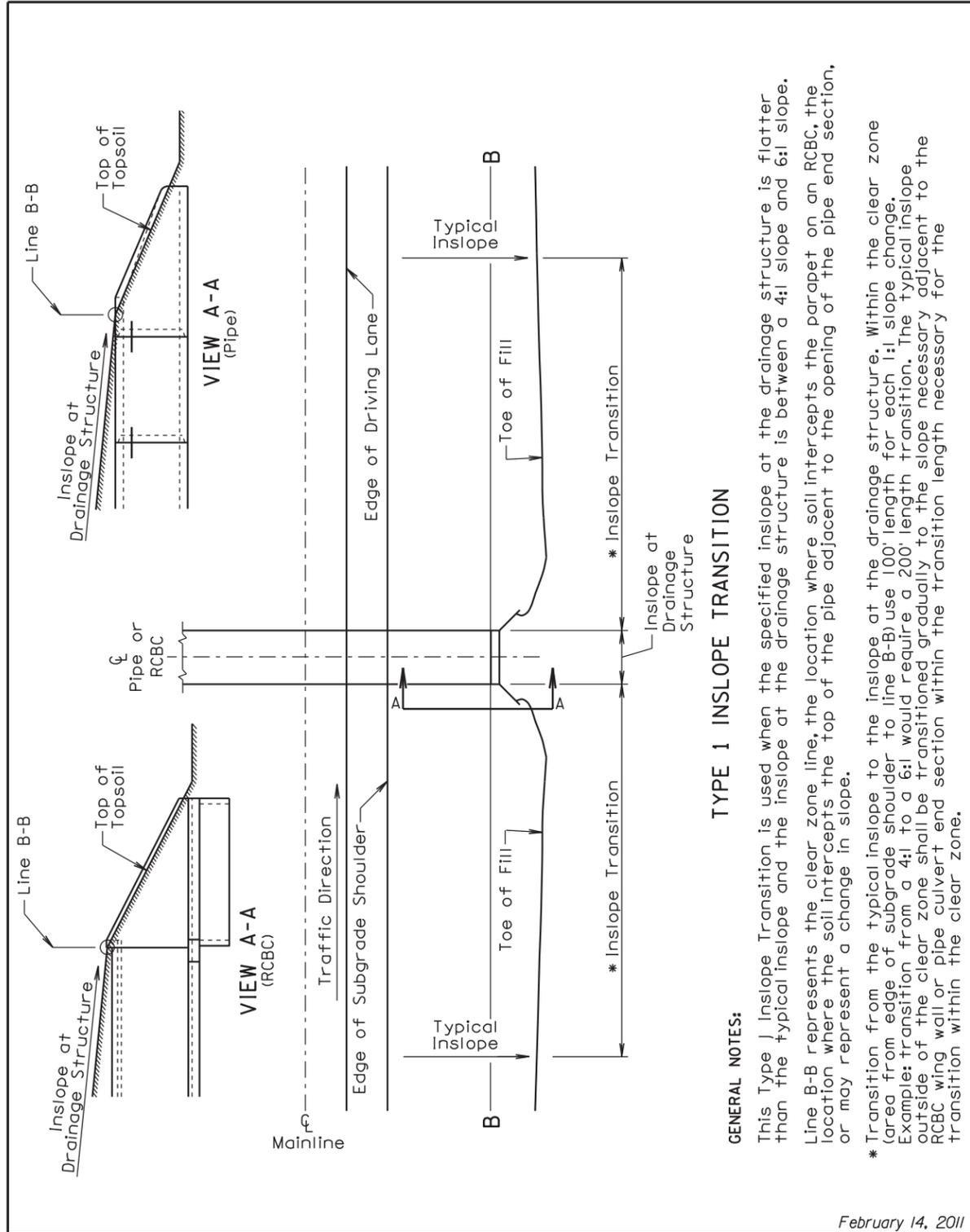
VIEW A - A



EYEBOLT DETAILS

June 26, 2012

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| <p>Published Date: 4th Qtr. 2012</p> | <p>S D D O T</p> | <p>FENCE ANCHORS FOR BOX CULVERT WING WALLS</p> | <p>PLATE NUMBER 620.16</p> |
| | | <p>Sheet 1 of 1</p> | |



TYPE 1 INSLOPE TRANSITION

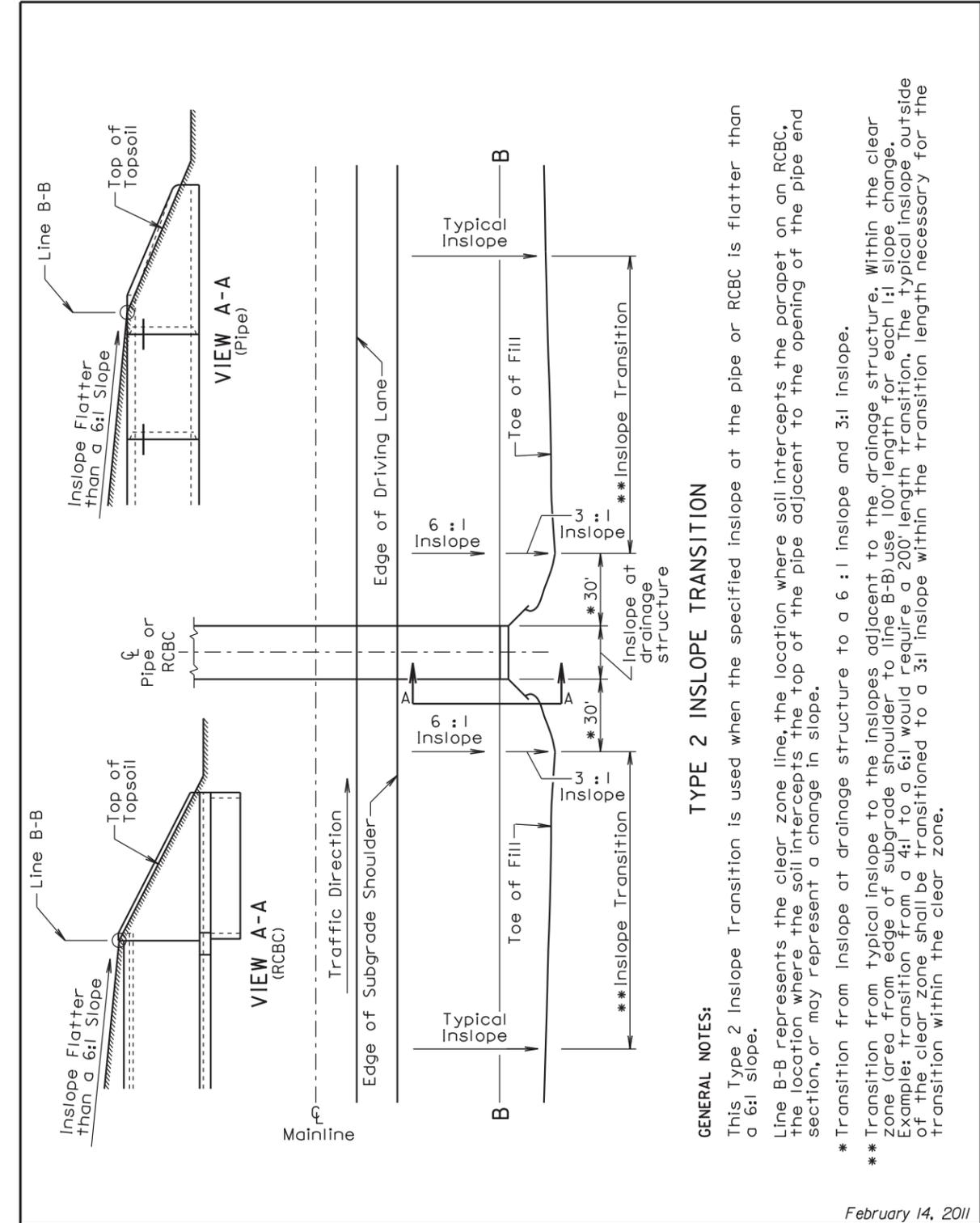
GENERAL NOTES:

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

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

February 14, 2011

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| Published Date: 4th Qtr. 2012 | SDOT | INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS | PLATE NUMBER 120.05 |
| | | | Sheet 1 of 2 |



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

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

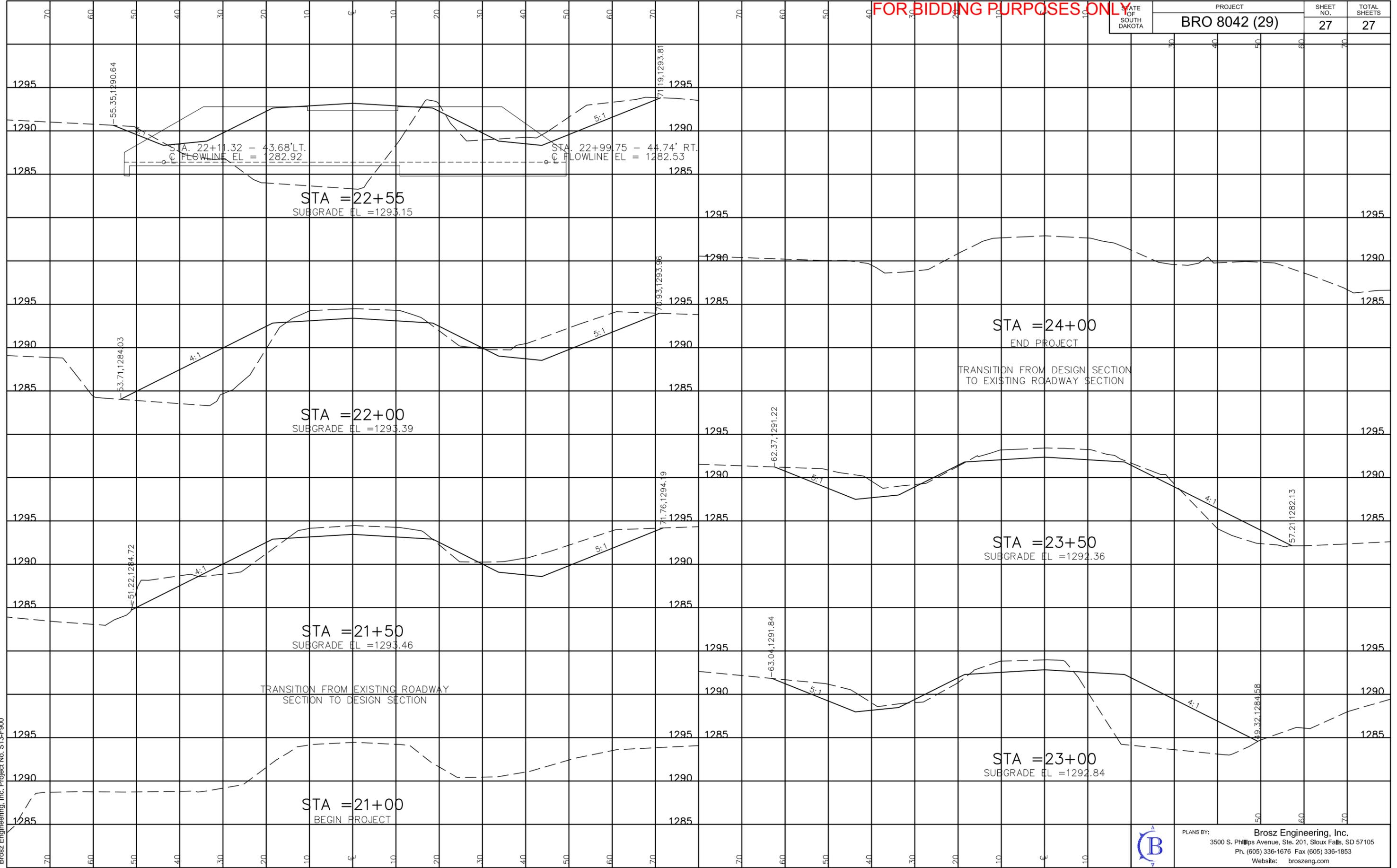
** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope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

February 14, 2011

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| Published Date: 4th Qtr. 2012 | SDOT | INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS | PLATE NUMBER 120.05 |
| | | | Sheet 2 of 2 |

FOR BIDDING PURPOSES ONLY

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| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | BRO 8042 (29) | | |



Brosz Engineering, Inc. Project No. S13-F900



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