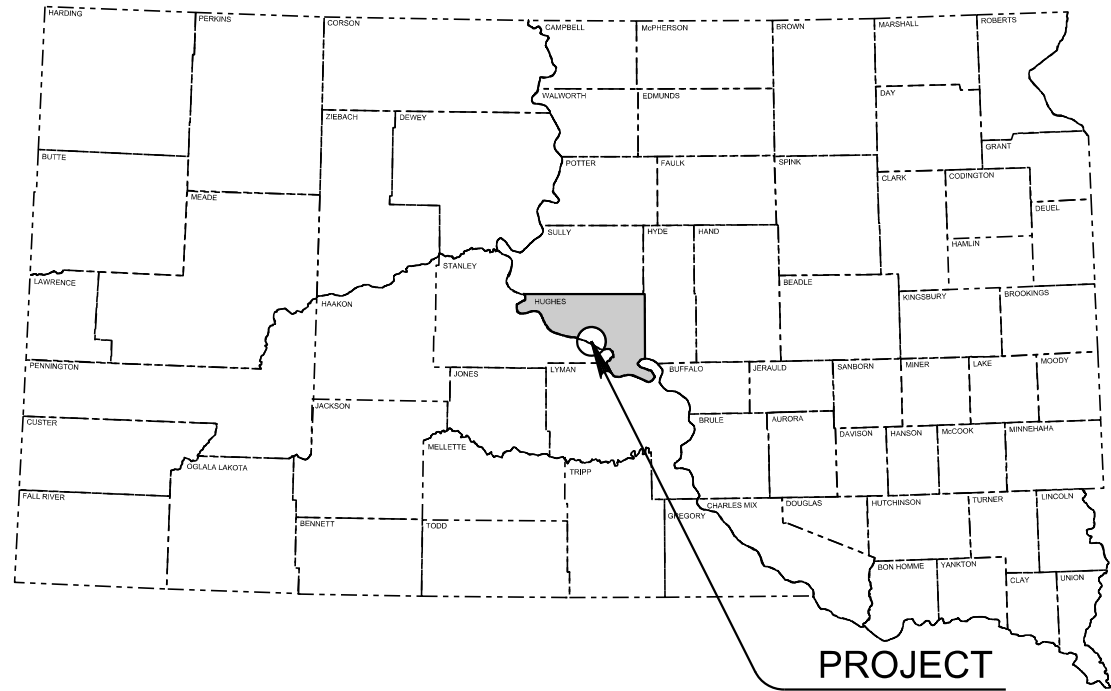


Plot Scale - 1:200

trp25584

Plotted From -



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT P 0034(00)232
SD HIGHWAY 34
HUGHES COUNTY
CONSTRUCT TRAFFIC DIVERSION &
PREPURCHASE OF REINFORCING STEEL

PCN 06JT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	1	33

Plotting Date: 06/27/2017

INDEX OF SHEETS

Sheet 1:	Title Sheet
Sheet 2:	Estimate of Quantities
Sheets 3-4:	Environmental Commitments
Sheets 5-7:	Plan Notes
Sheets 8-10:	Storm Water Pollution Prevention Plan Checklist
Sheet 11:	Project Sign Tabulation
Sheet 12:	Horizontal Alignment Data
Sheet 13:	Control Data
Sheet 14:	Fixed Location Sign Layout
Sheet 15:	Typical Grading Section
Sheet 16:	Topography Symbology & Legend
Sheets 17-18:	Plan Layout
Sheet 19:	Profile Layout
Sheet 20:	Reinforcing Schedule
Sheet 21:	Delineator Erection Detail
Sheets 22-26:	Standard Plates
Sheets 27-32:	Cross Sections
Sheet 33:	Pipe Cross Section

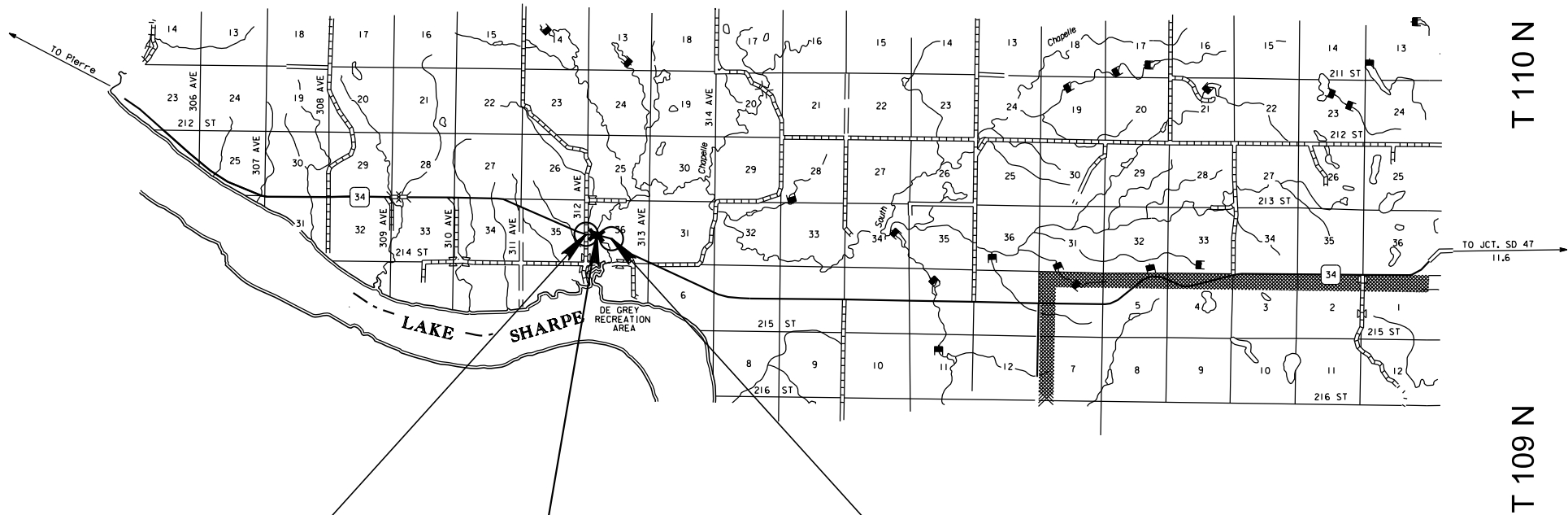


DESIGN DESIGNATION

ADT (2016)	681
ADT (2036)	903
DHV	114
D	50%
T DHV	6%
T ADT	13.2%
V	65 Mph

STORM WATER PERMIT

Major Receiving
Body of Water: Missouri River
Area Disturbed: 1.1 Acres
Total Project Area: 4.0 Acres
Approx. Begin Lat/Long 44°17'14 N & 99°55'24" W



BEGIN P 0034(00)232

Station 248+00
MRM = 232.00+0.178

R 76 W

R 75 W

R 74 W

T 110 N

T 109 N

END P 0034(00)232

Station 262+00
MRM = 232.00+0.443

GROSS LENGTH	1400.00 FEET	0.265 MILES
LENGTH OF EXCEPTIONS	0.00 FEET	0.000 MILES
NET LENGTH	1400.00 FEET	0.265 MILES

ESTIMATE OF QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0034(00)232	2	33

P 0034(00)232

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	597	Ft
110E1690	Remove Sediment	0.5	CuYd
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	548	CuYd
120E0600	Contractor Furnished Borrow Excavation	6,888	CuYd
120E6100	Water for Embankment	68.9	MGal
205E0010	Dust Control Chloride	3,733	Lb
230E0010	Placing Topsoil	215	CuYd
260E3010	Gravel Surfacing	1,120.7	Ton
450E4757	18" CMP 12 Gauge, Furnish	250	Ft
450E4760	18" CMP, Install	250	Ft
450E4857	78" CMP 10 Gauge, Furnish	120	Ft
450E4860	78" CMP, Install	120	Ft
450E5251	78" CMP Flared End, Furnish	6	Each
450E5252	78" CMP Flared End, Install	6	Each
450E9001	Reset Pipe End Section	1	Each
480E0200	Epoxy Coated Reinforcing Steel	52,023	Lb
620E0515	Type 1A Temporary Fence	948	Ft
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	40	Each
632E3530	Install State Furnished Barricade	48	Ft
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	252.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0210	Class B Riprap	822.9	Ton
730E0100	Cover Crop Seeding	25.5	Bu
734E0154	12" Diameter Erosion Control Wattle	220	Ft
734E0604	High Flow Silt Fence	550	Ft
734E0610	Mucking Silt Fence	38	CuYd
734E0620	Repair Silt Fence	138	Ft
831E0210	Non-woven Separator Fabric	661	SqYd
831E0300	Reinforcement Fabric (MSE)	915	SqYd

SPECIFICATIONS

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0034(00)232	3	33

ENVIRONMENTAL COMMITMENTS

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs. The Project Engineer is to be contacted immediately. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor will 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

Chapelle Creek is classified as warm water, marginal fishery with a total suspended solids standard of 150 milligrams/liter.

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 will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

Chapelle Creek is classified as warm water, marginal fishery with a Surface Water Discharge standard of 150 milligrams/liter total suspended solids.

Action Taken/Required:

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

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

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 will 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://www.sddot.com/business/environmental/stormwater/Default.aspx>

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

Contractor Certification Form:

The "Department of Environment and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) will 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 will 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 Public ROW. (Verify with designer)

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

The waste disposal site(s) will 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 the Environmental Office and the Project Engineer.

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search or a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will 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 will submit the cultural resources survey report 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 will cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

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

COMMITMENT J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

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

Action Taken/Required:

No excavation will be made below the ordinary high water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting. The natural streambed will not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high water elevations.

All dredged or excavated materials will be placed at a site above the ordinary high water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway.

The construction of temporary work platforms, crossings, or berms below the ordinary high water elevation will be allowed provided that all material placed below the ordinary high water elevation consists of Class B or larger riprap.

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

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

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

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High Water Elevation
6+80	Chapelle Creel	1435’

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 will comply with all requirements contained in the Section 404 permit.

The Contractor will 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.

SCOPE OF WORK

The work required for this project includes, but is not limited to, the following items, not listed in order of execution.

1. Install Fixed Location Signing Prior to Construction Activities Commencing
2. Remove/Stockpile Topsoil
3. Install Diversion Culvert Pipes
4. Construct Diversion Embankment
5. Place Surfacing on Traffic Diversion
6. Install Cover Crop on Disturbed Areas
7. SDDOT to Install Barricades to Close Diversion Road
8. Remove Project Temporary Signing

The Contractor is encouraged to inspect the project site prior to bidding to evaluate the extent of work that will be required for construction.

SEQUENCE OF OPERATIONS

The Contractor shall submit a proposed sequence of operations for the Engineer's review and approval at least one week prior to the preconstruction meeting.

The Contractor shall not commence work from Station 6+00 to Station 7+15 until the 404 permit has been obtained. See the special provision for further details.

Traffic shall be maintained through the project at ALL times. The Contractor shall maintain access on and off the highway for local residences and county roads. The Contractor may perform work on the roadway during daylight hours only, unless additional hours are approved by the Engineer. Traffic shall be returned to normal driving lanes during non-working hours.

GENERAL NOTES

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

The Contractor shall place three barricades at each end of the diversion to block traffic from accessing the diversion.

UTILITIES

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

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49 7A and Administrative Rule Article 20:25, the Contractor shall contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

CLEARING

The Contractor shall remove the existing brush/trees at the sites designated for the diversion road. All removed material shall become the property of the Contractor for their disposal.

It is estimated that the five trees that vary in diameter shall be removed before the placement of embankment material occurs. No additional compensation will be made based on the actual number of trees encountered.

All costs associated with removing the brush/trees shall be incidental to the contract lump sum price for "Clearing".

REMOVAL OF SIGNS

The Contractor shall notify Darren Griese (605-773-5291) one week before beginning the project to allow state DOT forces to remove the signs through the traffic diversion.

TYPE 3 BARRICADES

The Contractor shall notify Darren Griese (605-773-5291) to obtain six – 8' barricades to be placed on the traffic diversion. Three barricades shall be placed at each end of the traffic diversion and close the traffic diversion to public access.

THICKNESS DIMENSIONS

Material will be placed evenly, even though the thickness may vary from that shown on the typical section. At those locations where material must be placed to achieve a required elevation, quantities may be varied to achieve the required elevations, as approved by the Engineer.

GRADING OPERATIONS

Temporary fence shall be placed ahead of the grading operation unless otherwise directed by the Engineer.

UNCLASSIFIED EXCAVATION

Unclassified Excavation will occur throughout the project area as directed by the Engineer. Excavation maybe required to place culvert pipes.

Topsoil shall be stockpiled on site. Measurement of topsoil quantities will not be made. Topsoil will be paid for at plans quantity at the contract unit price per cubic yard for "Unclassified Excavation".

Table of Unclassified Excavation	
Item	Quantity (CuYd)
Excavation	50
Topsoil	498
Total Unclassified Excavation	548

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide a suitable site for Contractor Furnished Borrow Excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The plans quantity for "Contractor

Furnished Borrow Excavation" as shown in the Estimate of Quantities will be the basis of payment for this item.

Water for Embankment is estimated at the rate of 10.0 gallons of water per cubic yard of Embankment. For informational purposes only, an estimated 68.9 MGal is required to complete the work. Payment for Water for Embankment shall be incidental to the contract unit price per MGal for "Water for Embankment".

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

GRAVEL SURFACING

Gravel Surfacing shall be furnished by the Contractor and be utilized for constructing the surfacing of the traffic diversion as detailed in the plans.

1120.7 tons of gravel surfacing material has been included for use as surfacing for the traffic diversion. All costs associated with the aforementioned work shall be incidental to the contract unit price per ton for "Gravel Surfacing".

WATER FOR GRANULAR MATERIAL

The moisture content for compaction of the Gravel Surfacing material shall be approximately optimum moisture for the material or as directed by the Engineer. The quantity for Water for Granular Material is based on 4% of the quantity of the aforementioned material. All costs for furnishing and placing the water shall be incidental to the contract unit price per ton for "Gravel Surfacing".

TRAFFIC DIVERSION

The traffic diversion is located at Stations 0+00 to 14+13 (Diversion).

The traffic diversion located at Stations 0+00 to 14+13 (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". Construction of the Traffic Diversion shall be incidental to the contract unit price per cubic yard for "Contractor Furnished Borrow Excavation".

Table of Temporary Drainage Structures in Traffic Diversions

Traffic Diversion Structure Location	Design Flood Frequency	* Flowline Elevation	Temporary Structure	Skew
6+65.00	5 year	1428.90	1-78" CMP	10° RHF
6+80.00	5 year	1428.90	1-78" CMP	10° RHF
6+95.00	5 year	1428.90	1-78" CMP	10° RHF

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

Traffic diversions in waterways shall be constructed such that any material placed below the ordinary high water elevation (estimated as elevation 1435.00' from Sta. 6+00 to Sta. 7+15 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 estimate of quantities.

TRAFFIC DIVERSION (Continued)

The traffic diversions shall be built in close conformity to the plan gradeline.

Traffic Diversion Borrow as shown on the plans profile sheets is obtained from the Contractor Furnished Borrow Excavation.

NON-WOVEN SEPARATOR FABRIC

The traffic diversion from station 6+00 to station 7+15 shall be compacted Class B Riprap covered with Non-woven Separator Fabric and Contractor Furnished Borrow Excavation embankment. The riprap shall be shaped and compacted to provide a relatively smooth, level surface for placement of the Separator Fabric and Embankment as outlined below:

Typical Installation Procedure

- Any protrusions that might damage the fabric will be removed prior to placing the fabric.
- The Non-Woven Separator Fabric shall be placed directly on top of Class B Riprap.
- The fabric should be kept as taut as possible prior to backfilling.
- All seams in the fabric shall be overlapped at least 2 feet and shingled in a manner that assures that embankment material will not be forced under the fabric during backfilling operations.
- Embankment material shall be dumped behind the leading edge of the fill and pushed into place with a loader or dozer.
- No equipment shall be allowed on the fabric until the Embankment material has been placed.

The Separator Fabric will conform to Section 831 of the Specifications.

Non-Woven Separator Fabric will be paid for at the contract unit price per square yard for Non-woven Separator Fabric. Payment quantities will be based on area covered plus 15%. Overlaps are accounted for by the additional 15%. Payment will be full compensation for furnishing and installing the Non-Woven Separator Fabric only. Backfill material will be paid for as Contractor Furnished Borrow Excavation.

REINFORCEMENT FABRIC (MSE)

The geotextile to be used will form to specifications of Geotextiles and Impermeable Plastic Membrane, Reinforcement Fabric (MSE) (Section 831 of the Specifications). The geotextile provided shall be from the approved products list or shall be certified by the supplier to meet this specification prior to installation.

Seams in the geotextile shall be overlapped a minimum of 2 feet and shingled to prevent material being forced under the fabric. No equipment will be allowed on the geotextile until the riprap is placed.

The geotextile shall be placed on the ground separating the riprap from existing ground from Station 6+00 to Station 7+15.

Geotextile will be paid for at the contract unit price per square yard for “Reinforcement Fabric (MSE)”. Payment quantities will be based on area covered plus 15%. Payment will be full compensation for furnishing and installing the geotextile.

CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 ¾-inch x ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes shall have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The gauge of the corrugated metal elbows, tees, crosses, wyes, and ends shall match the thickest gauge of corrugated metal pipe it is connected to.

APPROACH PIPE

The Contractor shall remove the existing approach pipe end section located Station 249+53. The Contractor shall then attach an extension of 18” CMP - 250’ onto the existing approach pipe to allow proper drainage from the property.

TRAFFIC CONTROL

The Contractor shall designate an employee to be responsible for the maintenance of traffic. The Engineer must approve the employee selected. The name and phone number of person(s) shall be provided to the SD Department of Transportation (605-773-5294), SD Highway Patrol (Pierre State Radio (605-773-3536)), and Hughes County Sheriff Department (605-773-7470).

All traffic control devices shall be in “like new” condition.

GENERAL MAINTENANCE OF TRAFFIC

All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation.

Channelizing devices in a series shall be of the same type. Channelizing drums shall be of a two part construction with breakaway bases. The cost of additional channelizing devices shall be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

A shadow vehicle, equipped with flashing amber light and a ROAD MACHINERY AHEAD sign prominently displayed, shall be used in advance of clean up and other mobile work activities. The cost of ROAD MACHINERY AHEAD sign shall be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

4”X4” WHITE DELINEATOR BACK TO BACK WITH 1.12 LB/FT POST

The Contractor shall install delineators through the traffic diversion on 50 foot spacing.

REMOVE FENCE

The Contractor shall remove all fence detailed in the table below.

TABLE OF REMOVE FENCE

Station	To	Station	L/R	Quantity (Ft)
252+32		253+54	L	151
255+48		255+51	L	52
255+51		259+42	L	394
Total				597

TEMPORARY FENCE

The Contractor shall verify the location of the temporary fence with the landowner prior to installation of the fence.

TABLE OF TYPE 1A TEMPORARY FENCE

Station	To	Station	L/R	Quantity (Ft)
250+64		259+42	L	948
Total				948

EPOXY COATED REINFORCING STEEL

The epoxy coated reinforcing steel is being pre-purchased for the project P 0034(195)232 and needs to be fabricated and delivered by September 15, 2017.

All mild reinforcing steel shall conform to ASTM A615, Grade 60.

The Contractor shall be responsible for unloading the steel. Care shall be taken when unloading the pre-purchase steel. Any damage to the pre-purchased items in transport to the Pierre Region Maintenance Yard shall be the Contractor's responsibility and shall be replaced or repaired to the satisfaction of the Engineer.

The epoxy coated reinforcing steel shall be delivered to the SDDOT Pierre Maintenance Yard located at 104 South Garfield, Building B Pierre, SD 57501.The Contractor shall contact the SDDOT at (605-773-5294) to set up a time and date to deliver and stockpile the epoxy coated reinforcing steel.

See reinforcing schedule for details.

COVER CROP SEEDING

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

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.

Erosion control wattle shall be place at the Engineers Discretion.

Erosion control wattles shall remain on the project to decompose.

An additional quantity of 12” Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels.

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

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

TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
249+00 to 267+00	L	12	Engineers Discretion	200
			Additional Quantity:	20
			Total:	220

HIGH FLOW SILT FENCE

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

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

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

High flow silt fence shall be place at the Engineers Discretion.

High flow silt fence shall remain in place on the project.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
249+00 to 267+00	L	Engineers Discretion	500
		Additional Quantity:	50
		Total:	550

DUST CONTROL CHLORIDE

The Contractor shall provide a calcium chloride or magnesium chloride solution to the Traffic Diversion. Dust Control shall be applied 28 feet wide.

One application of dust control may need to be applied after placement of the granular surfacing, as directed by the Engineer.

Water for mixing the calcium chloride or magnesium chloride solution shall be incidental to the cost per pound of the Dust Control Chloride. This work shall be completed, and approved by the Engineer.

Each application of dust control shall be rolled with a pneumatic roller for a minimum of 3 coverages.

PLACING TOPSOIL

The thickness will be approximately 4 inches on the Traffic Diversion.

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

Station	to	Station	Topsoil (CuYd)
1+00		12+60	215
		Total:	215

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 4.0 Acres (4.2 1.b.)
- Total Area To Be Disturbed 1.1 Acres (4.2 1.b.)
- Existing Vegetative Cover (%) 70%
- Soil Properties: USDA-NRCS Soil Series
- Classification Nimbro and Wendte Soils, channeled and Promise clay, 0 to 3 percent slopes (4.2 1. d.)
- Name of Receiving Water Body/Bodies Missouri 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.)
- Install traffic diversion.
 - Clearing and grubbing.
 - Stabilize disturbed areas.
 - Seed disturbed areas.

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 Facility
- ☐ Temporary Diversion Channel
- ☐ Work Platform
- ☐ Temporary Water Barrier
- ☒ Temporary Water Crossing
- ☐ Other:

➤ Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☒ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

➤ Storm Water Management (4.2 2.b., (1) and (2))

Storm water management will be handled by temporary controls outlined in “EROSION AND SEDIMENT CONTROLS” above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

➤ Other Storm Water Controls (4.2 2.c., (1) and (2))

- **Waste Disposal**

All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general Contractor’s representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
- **Hazardous Waste**

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the Contractor’s on-site representative will be responsible for seeing that these practices are followed.
- **Sanitary Waste**

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management Contractor or as required by any local regulations.

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

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

NON-STORM WATER DISCHARGES (3.0)

- The following non-storm water discharges are anticipated during the course of this project (check all that apply).
- ☐ Discharges from water line flushing.
 - ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
 - ☐ Uncontaminated ground water associated with dewatering activities.

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

- The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings “EROSION AND SEDIMENT CONTROLS” and “SPILL PREVENTION” (check all that apply).
- ☐ Concrete and Portland Cement
 - ☐ Detergents
 - ☐ Paints
 - ☒ Metals
 - ☐ Bituminous Materials
 - ☐ Petroleum Based Products
 - ☐ Cleaning Solvents
 - ☐ Wood
 - ☐ Cure
 - ☐ Texture
 - ☐ Chemical Fertilizers
 - ☐ Other:

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

➤ Material Management

- Housekeeping
 - Only needed products will be stored on-site by the Contractor.
 - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
 - Products must be stored in original containers and labeled.
 - Material mixing will be conducted in accordance with the manufacturer's recommendations.
 - When possible, all products will be completely used before properly disposing of the container off-site.
 - The manufacturer's directions for disposal of materials and containers will be followed.
 - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
 - Dust generated will be controlled in an environmentally safe manner.
 - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.
- Hazardous Materials
 - Products will be kept in original containers unless the container is not resealable.
 - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
 - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
 - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, 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 facilities on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.
- Spill Control Practices (4.2 2 c.(2))

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

 - For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
 - Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
 - All spills will be cleaned immediately after discovery and the materials disposed of properly.
 - The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
 - After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
 - The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The Contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.
- Spill Response (4.2 2 c.(2))

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

 - The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
 - If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
 - Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
 - If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of

the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

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

SPILL NOTIFICATION

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

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

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

CONSTRUCTION CHANGES (4.4)

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

CERTIFICATIONS

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

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

➤ South Dakota Department of Transportation

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



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

➤ Prime Contractor

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

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

Authorized Signature

CONTACT INFORMATION

➤ Contractor Information:

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

➤ Erosion Control Supervisor

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

➤ SDDOT Project Engineer

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

➤ SD DENR Contact Spill Reporting

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

➤ SD DENR Contact for Hazardous Materials.

- (605) 773-3153

➤ National Response Center Hotline

- (800) 424-8802.

Project Sign Tabulation

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0034(00)232	11	33

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W16-2P	___ FEET (supplemental distance plaque)	2	30" x 24"	5.0	10.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			
		252.0			

HORIZONTAL ALIGNMENT DATA

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0034(00)232	12	33

TRAFFIC DIVERSION ALIGNMENT

Type	Station			Northing	Easting
POB	0+00.00			712390.911	2075234.637
		TL= 107.08	S 83°18'50" E		
PI	1+07.08			712379.268	2075333.953
		TL= 7.08	S 89°52'06" E		
PC	1+07.08			712379.252	2075341.035
PI	1+57.14	R= 600.00	Delta = 9°32'19" L	712379.137	2075391.095
PT	2+06.97			712387.319	2075440.482
		TL = 60.75	N 80°35'35" E		
PC	2+67.72			712397.248	2075500.414
PI	3+70.34	R= 800.00	Delta = 14°37'12" R	712414.021	2075601.658
PT	4+71.85			712404.697	2075703.857
		TL = 385.82	S 84°47'13" E		
PC	8+57.67			712369.642	2076088.085
PI	9+73.07	R= 800.00	Delta = 16°24'59" R	712359.157	2076203.006
PT	10+86.89			712316.621	2076310.279
		TL = 34.91	S 68°22'14" E		
PC	11+21.80			712303.753	2076342.729
PI	12+08.20	R= 800.00	Delta = 12°19'44" L	712271.904	2076423.050
PT	12+93.94			712257.940	2076508.320
		TL = 17.68	S 80°41'58" E		
PI	13+11.62			712255.083	2076525.766
		TL= 101.47	S 78°07'21" E		
POE	14+13.09			712234.199	2076625.064

MAINLINE ALIGNMENT

Type	Station			Northing	Easting
POB/TS	235+52.27			712725.324	2074044.604
		R= 3819.72	S 67°12'12" E		
SC	238+52.27	R= 3819.72	Delta = 12°42'54" L	712612.723	2074322.648
CS	246+99.94			712612.723	2074322.648
		L = 746.32	S 84°25'06" E		
TS	257+46.26			712299.691	2076183.702
		R= 2291.83	S 84°25'06" E		
SC	260+46.26	R= 2291.83	Delta = 26°18'28" R	712264.012	2076481.515
ST/POE	270+98.57			711865.083	2077445.302

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00
Geoid 12A; SF = 0.9999090203
The elevations shown on this sheet are based on NAVD 88.

CONTROL DATA

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0034(00)232	13	33

HORIZONTAL AND VERTICAL CONTROL DATA						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP_BR1	251+26.50	72.51'	Rebar/Cap	712429.846	2075565.875	1445.073

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00
Geoid 12A; SF = 0.9999090203
The elevations shown on this sheet are based on NAVD 88.

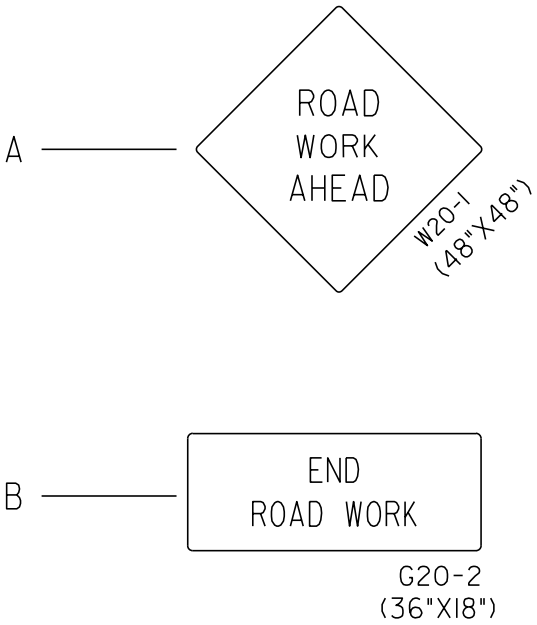
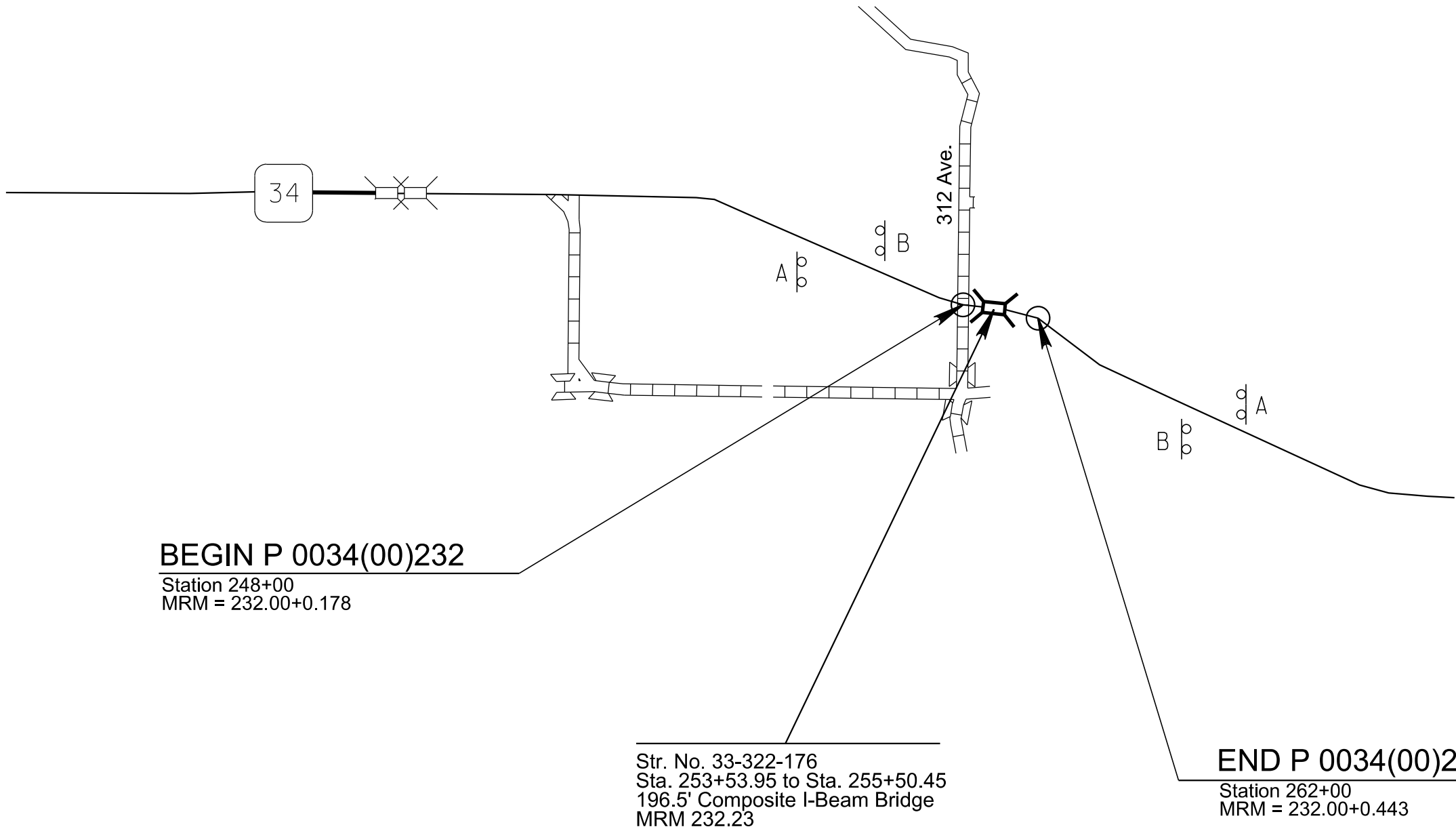
Plot Scale - 1:150

Plotted From - tnp25584

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	14	33

Plotting Date: 06/27/2017

FIXED LOCATION SIGN LAYOUT



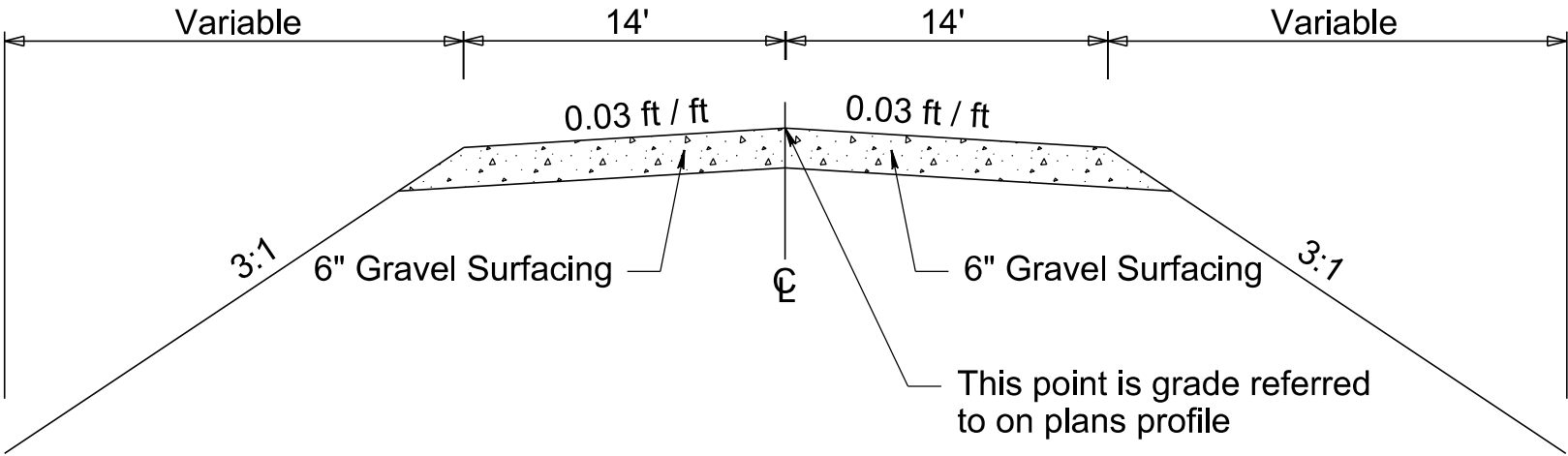
Notes:
Sign locations will be verified in the field by the
Engineer prior to installation.

TYPICAL GRADING SECTION

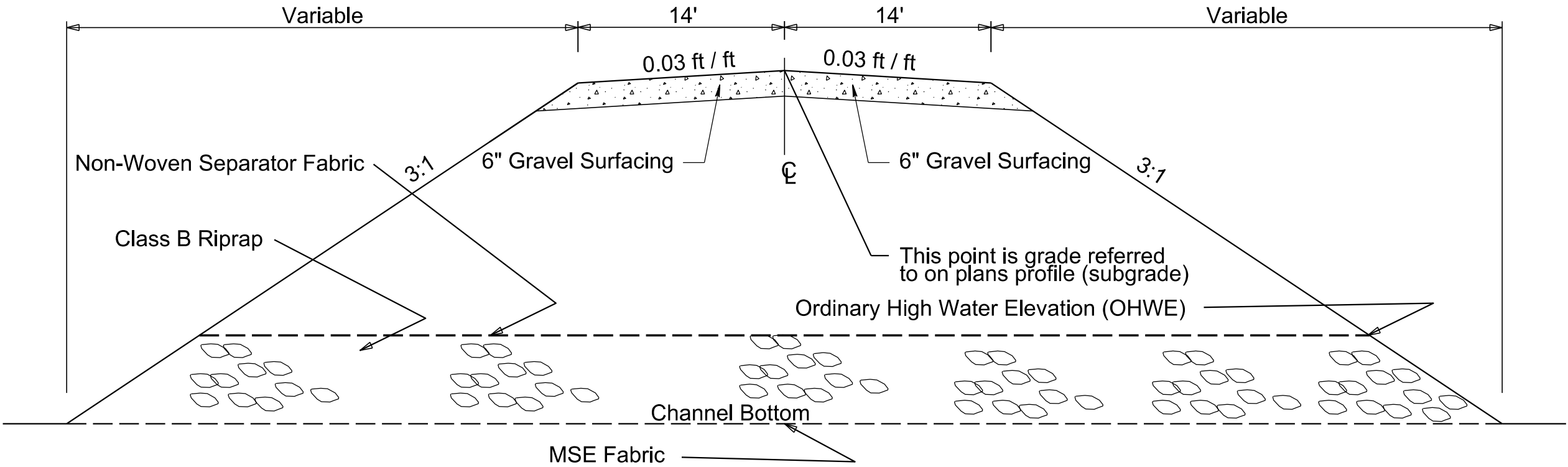
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0034(00)232	15	33

Plotting Date: 06/27/2017

Traffic Diversion
Sta. 1+00 to Sta. 6+00
Sta. 7+15 to Sta. 13+00



Traffic Diversion
Sta. 6+00 to Sta. 7+15
(OHWE 1435.00)



PLOT SCALE - 1+5.62013

PLOTTED FROM - TRPR25584

PLOT NAME - 3

FILE - ... \DIVERSION\TYPICAL SECTIONS.DGN

Topography Symbolology & Legend

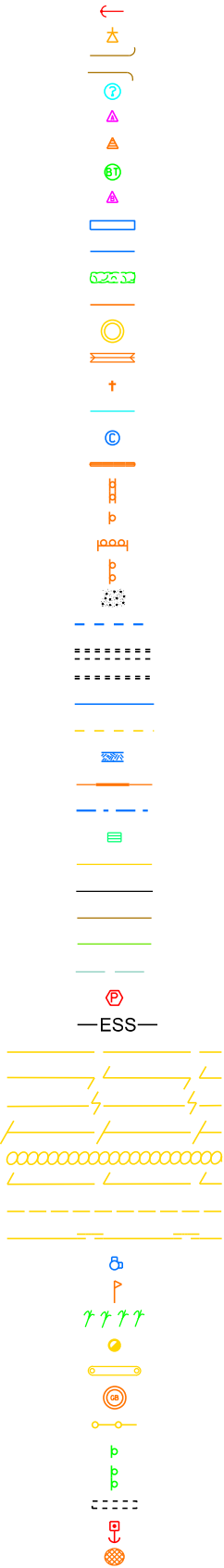
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	16	33

Plotting Date: 06/27/2017

Plot Scale - 1:200

Plotted From - top25584

Anchor
Antenna
Approach
Assumed Corner
Azimuth Marker
BBQ Grill/ Fireplace
Bearing Tree
Bench Mark
Box Culvert
Bridge
Brush
Buildings
Bulk Tank
Cattle Guard
Cemetery
Centerline
Cistern
Clothes Line
Commercial Sign Double Face
Commercial Sign One Post
Commercial Sign Overhead
Commercial Sign Two Post
Concrete Symbol
Creek Edge
Curb/Gutter
Curb
Dam Grade/Dike/Levee
Deck Edge
Ditch Block
Doorway Threshold
Drainage Profile
Drop Inlet
Edge Of Asphalt
Edge Of Concrete
Edge Of Gravel
Edge Of Other
Edge Of Shoulder
Elec. Trans./Power Jct. Box
Environmental Sensitive Site
Fence Barbwire
Fence Chainlink
Fence Electric
Fence Misc.
Fence Rock
Fence Snow
Fence Wood
Fence Woven
Fire Hydrant
Flag Pole
Flower Bed
Gas Valve Or Meter
Gas Pump Island
Grain Bin
Guardrail
Guide Sign One Post
Guide Sign Two Post
Gutter
Guy Pole
Haystack



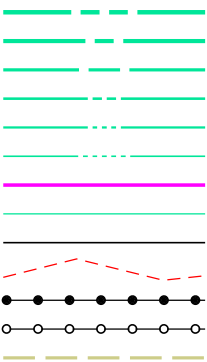
Hedge
Highway R.O.W. Marker
Interstate Close Gate
Iron Pin
Irrigation Ditch
Lake Edge
Lawn Sprinkler
Mailbox
Manhole Electric
Manhole Gas
Manhole Misc
Manhole Sanitary Sewer
Manhole Storm Sewer
Manhole Telephone
Manhole Water
Merry-Go-Round
Microwave Radio Tower
Misc. Line
Misc. Property Corner
Misc. Post
Overhang Or Encroachment
Overhead Utility Line
Parking Meter
Pipe With End Section
Pipe With Headwall
Pipe Without End Section
Playground Slide
Playground Swing
Power And Light Pole
Power And Telephone Pole
Power Meter
Power Pole
Power Pole And Transformer
Power Tower Structure
Propane Tank
Property Pipe
Property Pipe With Cap
Property Stone
Public Telephone
Railroad Crossing Signal
Railroad Milepost Marker
Railroad Profile
Railroad R.O.W. Marker
Railroad Signs
Railroad Switch
Railroad Track
Railroad Trestle
Rebar
Rebar With Cap
Reference Mark
Regulatory Sign One Post
Regulatory Sign Two Post
Retaining Wall
Riprap
River Edge
Rock And Wire Baskets
Rockpiles
Satellite Dish
Septic Tank



Shrub Tree
Sidewalk
Sign Face
Sign Post
Slough Or Marsh
Spring
Stream Gauge
Street Marker
Subsurface Utility Exploration Test Hole
Telephone Fiber Optics
Telephone Junction Box
Telephone Pole
Television Cable Jct Box
Television Tower
Test Wells/Bore Holes
Traffic Signal
Trash Barrel
Tree Belt
Tree Coniferous
Tree Deciduous
Tree Stumps
Triangulation Station
Underground Electric Line
Underground Gas Line
Underground High Pressure Gas Line
Underground Sanitary Sewer
Underground Storm Sewer
Underground Tank
Underground Telephone Line
Underground Television Cable
Underground Water Line
Warning Sign One Post
Warning Sign Two Post
Water Fountain
Water Hydrant
Water Meter
Water Tower
Water Valve
Water Well
Weir Rock
Windmill
Wingwall
Witness Corner



State and National Line
County Line
Section Line
Quarter Line
Sixteenth Line
Property Line
Construction Line
R. O. W. Line
New R. O. W. Line
Cut and Fill Limits
Control of Access
New Control of Access
Proposed ROW
(After Property Disposal)



Drainage Arrow



Remove Concrete Pavement



Remove Concrete Driveway Pavement



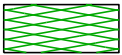
Remove Asphalt Concrete Pavement



Remove Concrete Sidewalk



Remove Concrete Approach Pavement



Remove Concrete Median Pavement



Remove Concrete Curb



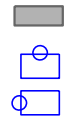
Remove Concrete Curb and Gutter



Remove Concrete Gutter



Detectable Warning
Pedestrian Push Button Pole
and 30" x 48" Clear Space
with 1.5% slope

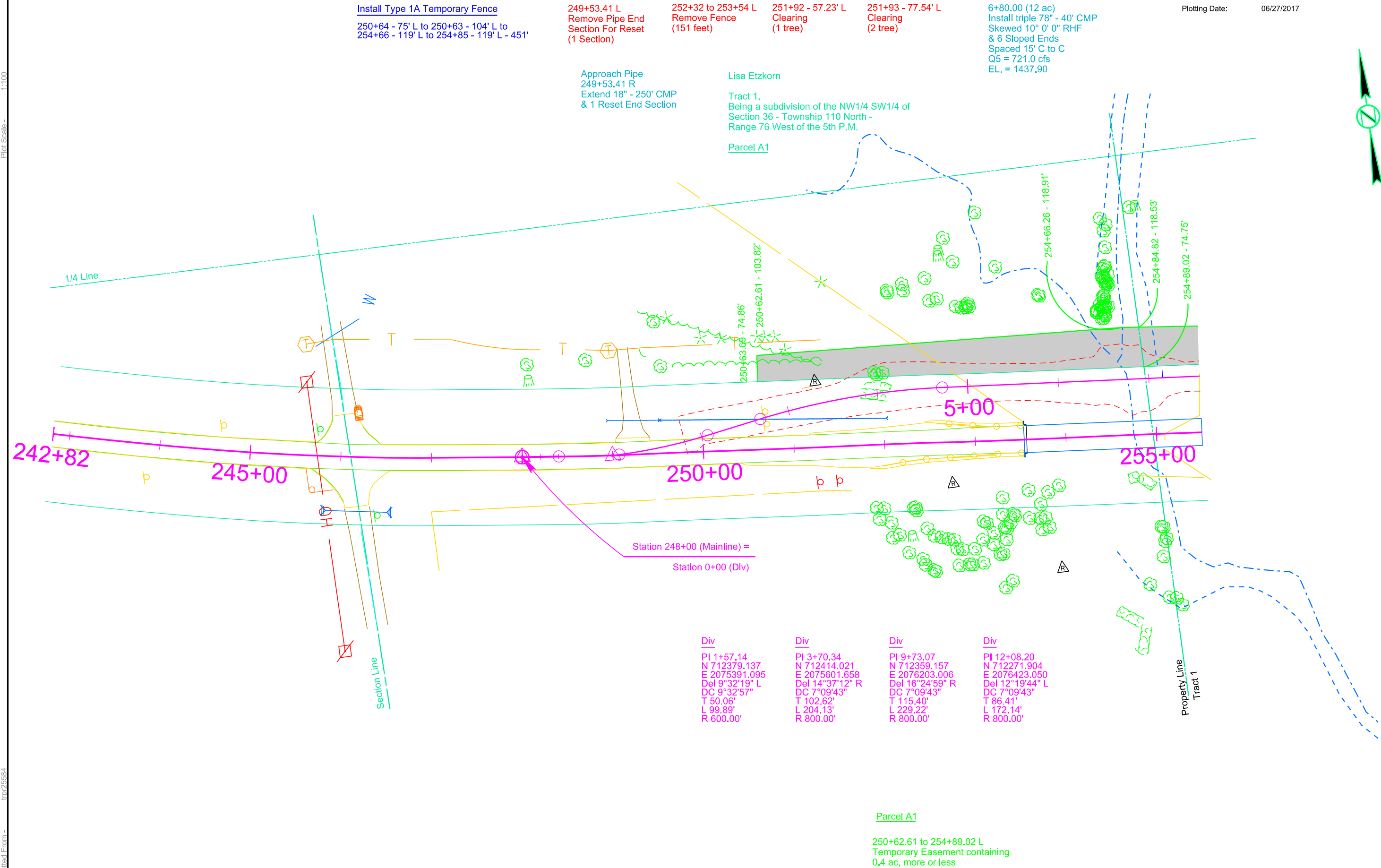


Plot Scale - 1:100

Plotted From - trp25584

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	17	33

Plotting Date: 06/27/2017



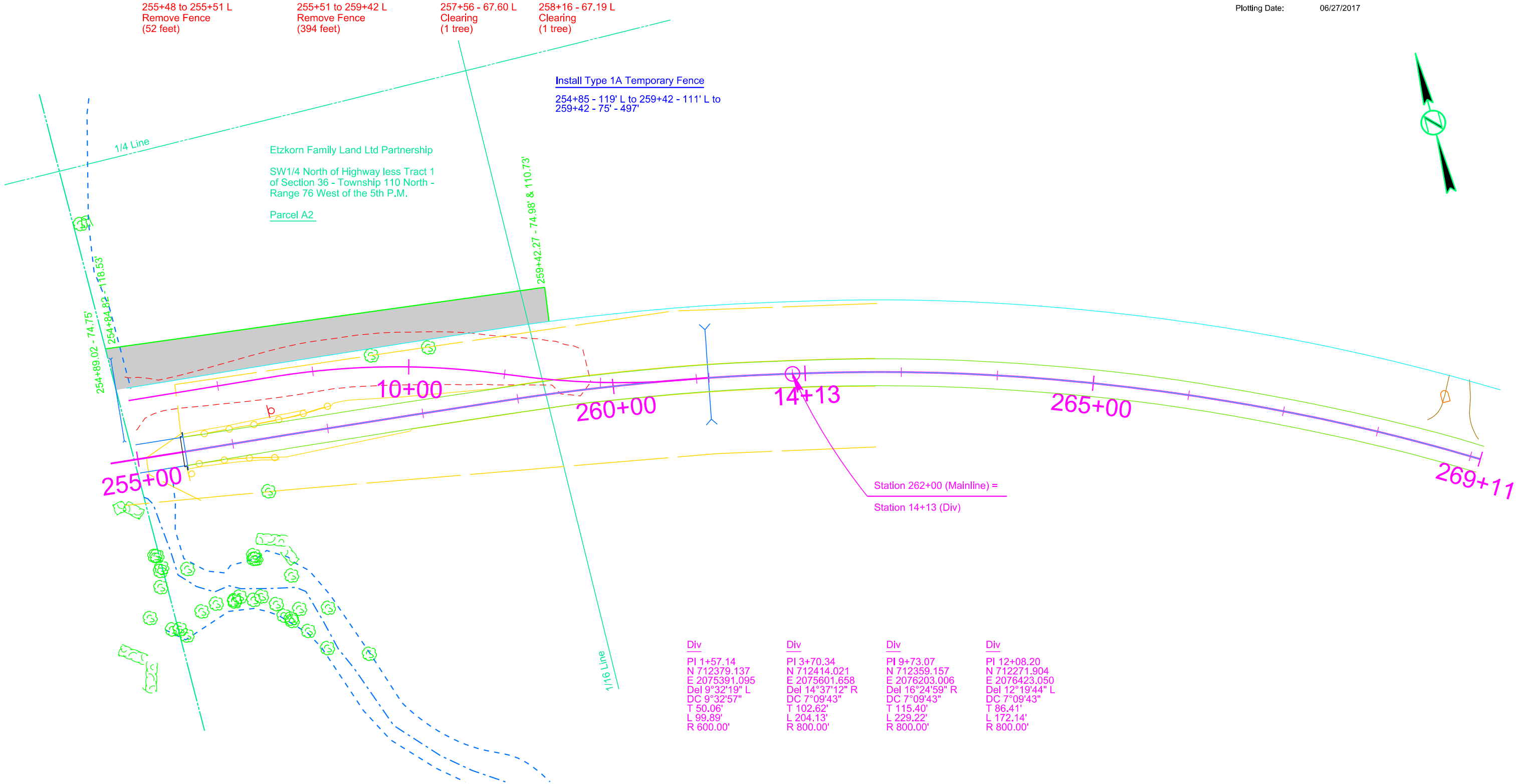
File - ...Hug05.00\Diversion\plant1.dgn

Plot Scale - 1:100

Plotted From - tnp25584

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	18	33

Plotting Date: 06/27/2017



Div

PI 1+57.14
N 712379.137
E 2075391.095
Del 9°32'19" L
DC 9°32'57"
T 50.06'
L 99.89'
R 600.00'

Div

PI 3+70.34
N 712414.021
E 2075601.658
Del 14°37'12" R
DC 7°09'43"
T 102.62'
L 204.13'
R 800.00'

Div

PI 9+73.07
N 712359.157
E 2076203.006
Del 16°24'59" R
DC 7°09'43"
T 115.40'
L 229.22'
R 800.00'

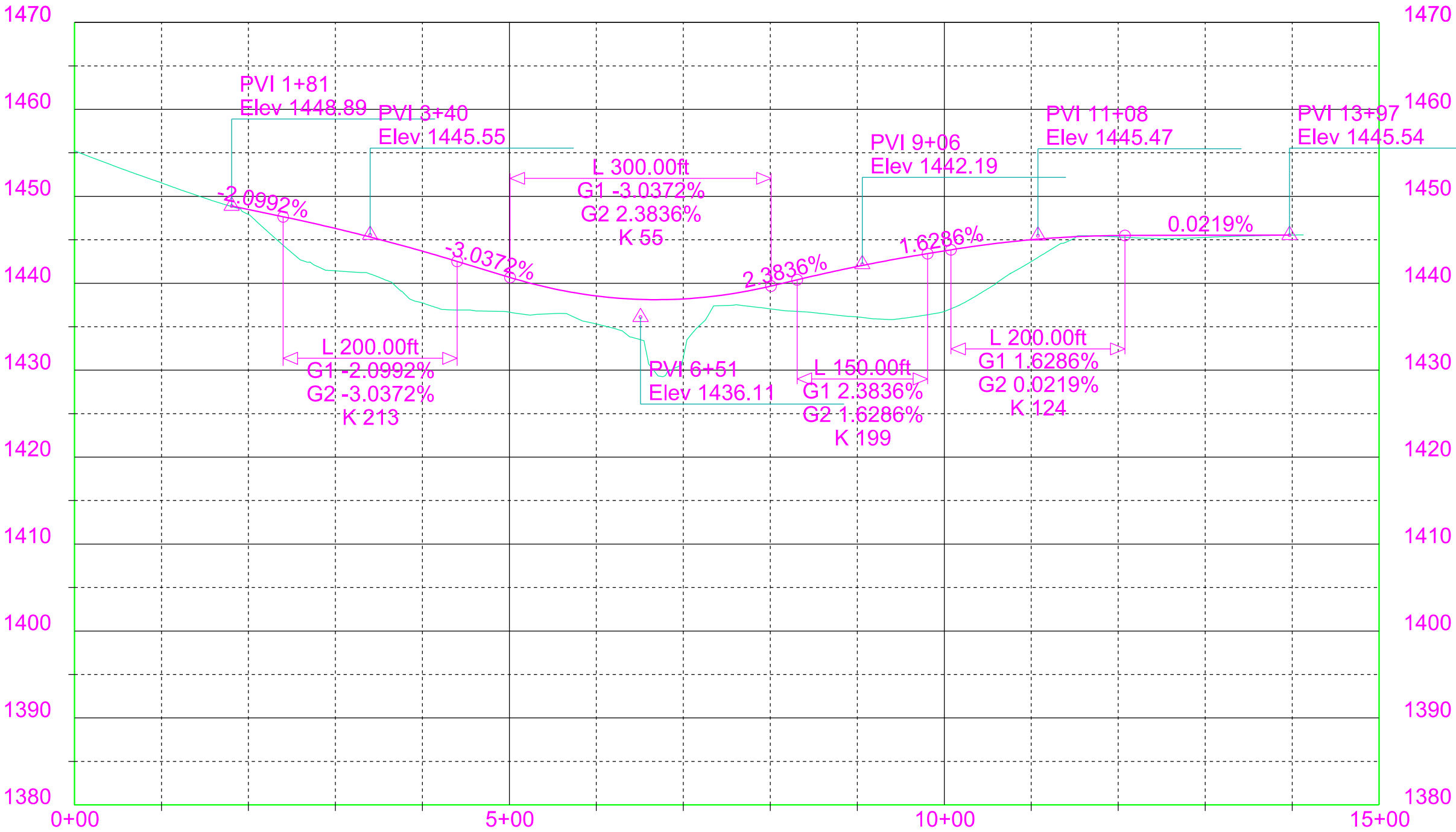
Div

PI 12+08.20
N 712271.904
E 2076423.050
Del 12°19'44" L
DC 7°09'43"
T 86.41'
L 172.14'
R 800.00'

Plot Scale - 1"=133.1' Plot Scale - 1"=133.1' Plotted From - Imp25584

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	19	33

Plotting Date: 06/27/2017



LINE	SURFACE	OFFSET
	Existing Surface	0.00
Scaled 10.0000 Times Ver. Scaled 1.0000 Times Hor.		

REINFORCING SCHEDULE					Bending Details	
Mk.	No.	Size	Length	Type		
B	474	5	33' - 6"	1		
B1	339	5	32' - 4"	Str.		
B15	12	5	14' - 6"	Str.		
B16	8	4	49' - 5"	Str.		
B17	8	4	8' - 6"	19B		
B18	12	8	4' - 3"	19B		
B19	12	5	2' - 4"	Str.		
B20	12	6	3' - 1"	17A		
C1	378	5	5' - 7"	T1A		
C2	350	5	5' - 1"	S11		
C3	4	5	5' - 0"	S11		
C4	4	5	5' - 0"	S11		
C5	4	5	5' - 0"	S11		
C6	4	5	6' - 8"	T1		
C7	4	5	6' - 9"	T1		
C8	4	5	6' - 11"	T1		
C9	4	5	7' - 0"	T1		
C10	16	6	5' - 9"	T1A		
C11	16	5	7' - 1"	T1		
C12	4	6	5' - 6"	17		
C13	4	5	5' - 4"	17		
D	16	4	50' - 8"	Str.		
D0	16	5	50' - 10"	Str.		
D1	48	5	44' - 11"	Str.		
D2	136	5	21' - 7"	Str.		
D3	272	5	41' - 0"	Str.		
S1	4	9	32' - 4"	Str.		

Type 1

Type S11

Type 19B

Type T1A

Type T1A

Type 17

Type 17A

Type T1

Type S11

NOTE-
All dimensions are out to out of bars.
All reinforcing steel shall be epoxy coated.

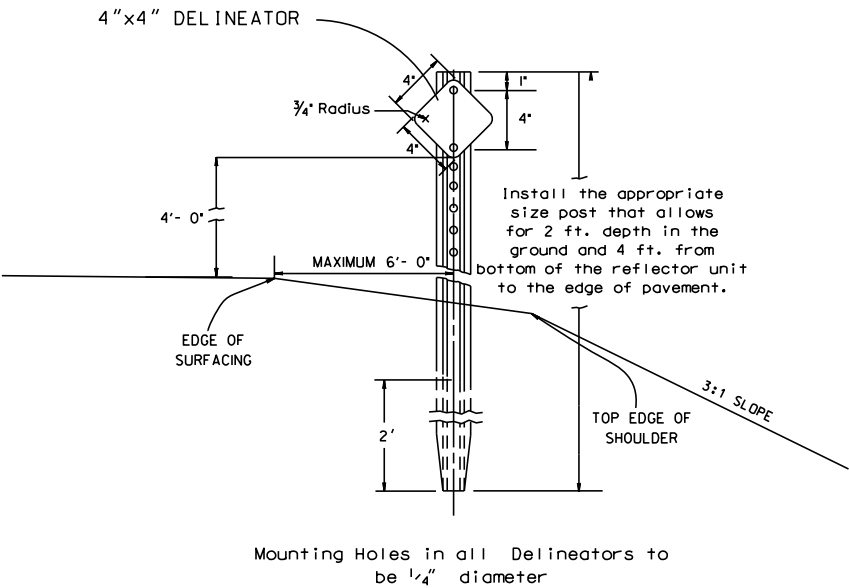
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Epoxy Coated Reinforcing Steel	Lb.	52023

Delineator Erection Details

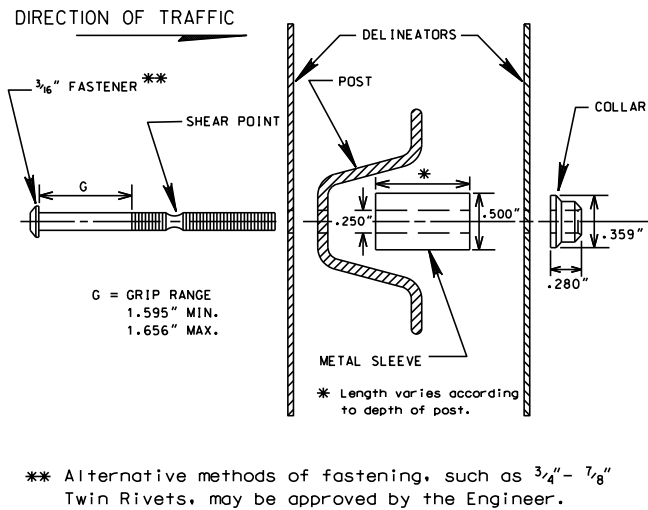
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	21	33

Plotting Date: 06/27/2017

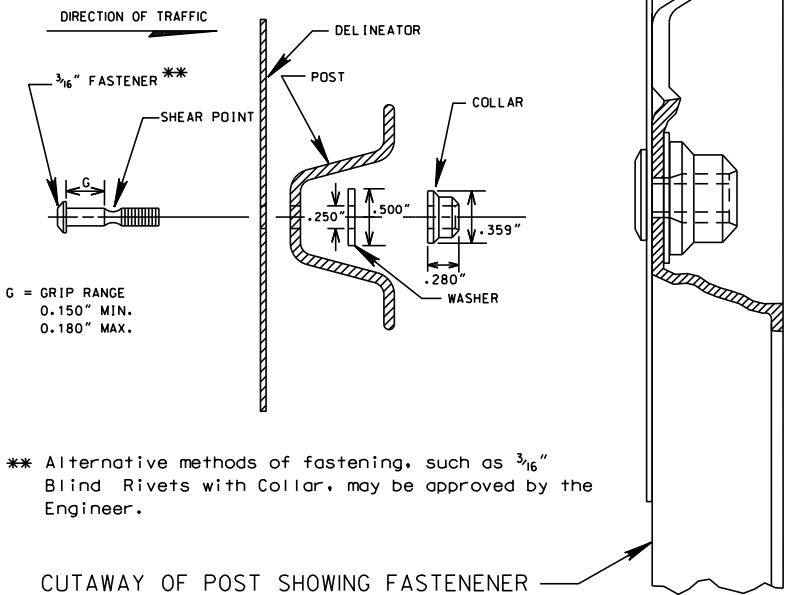
4"x4" and 4"x8" DELINEATORS



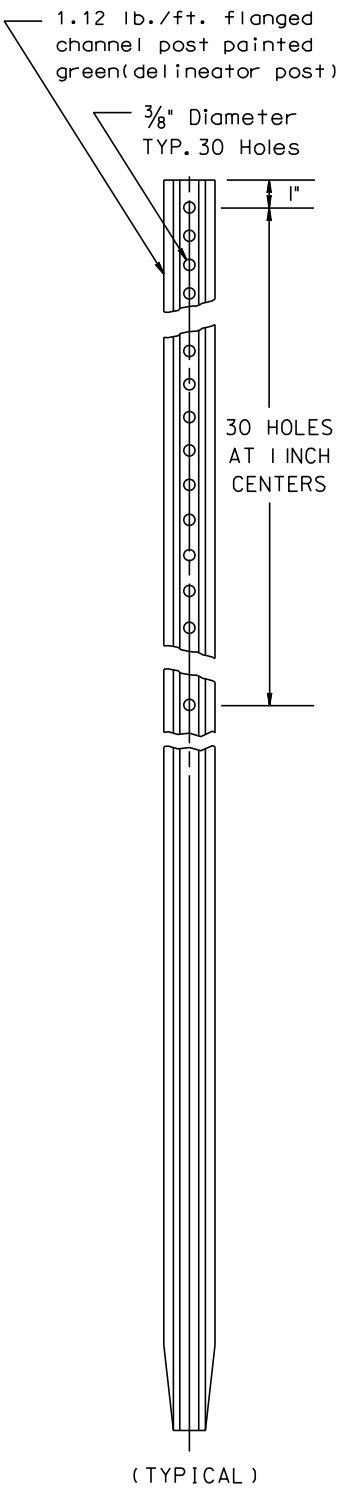
DETAIL FOR MOUNTING 4"x4" DELINEATORS BACK TO BACK ON POST



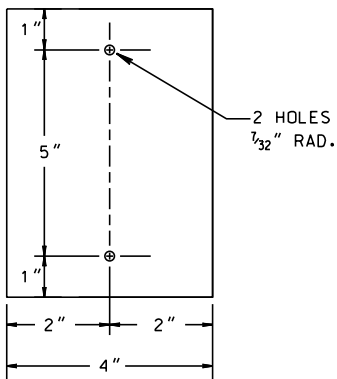
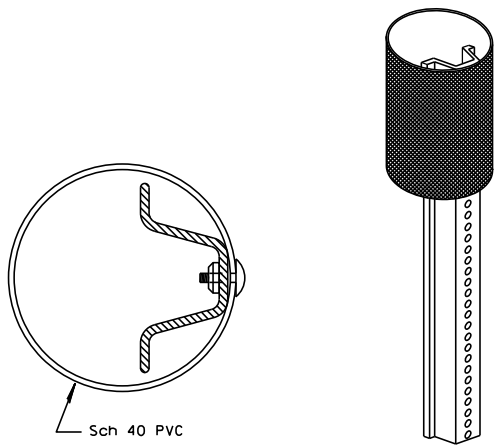
DETAIL FOR SINGLE MOUNTING DELINEATORS ON POST



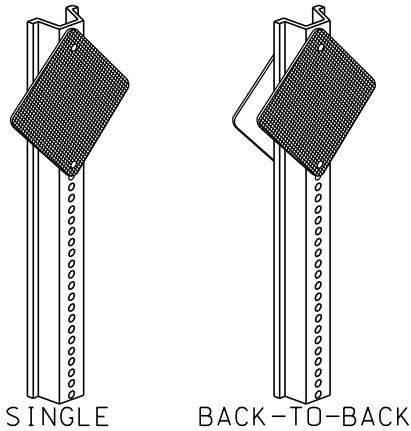
POST DETAIL



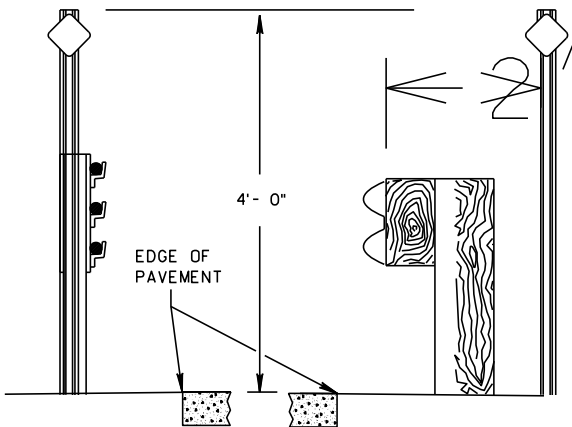
4" TUBULAR DELINEATORS



4"x4" DELINEATORS

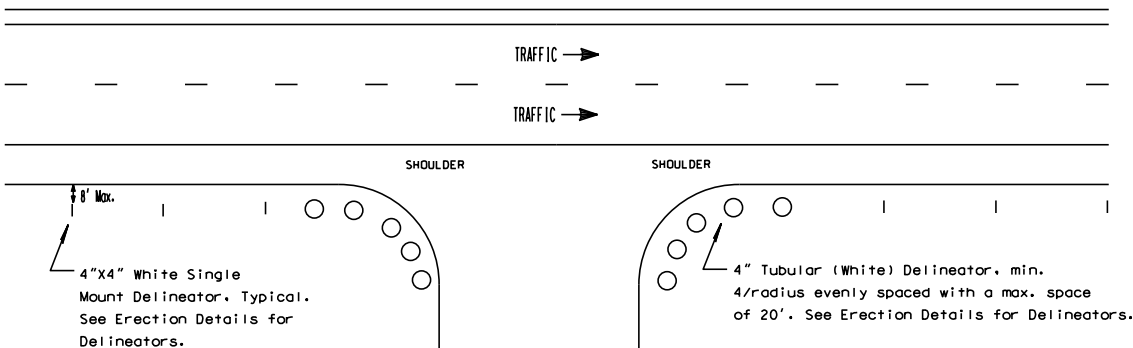


PLACEMENT BEHIND GUARDRAIL

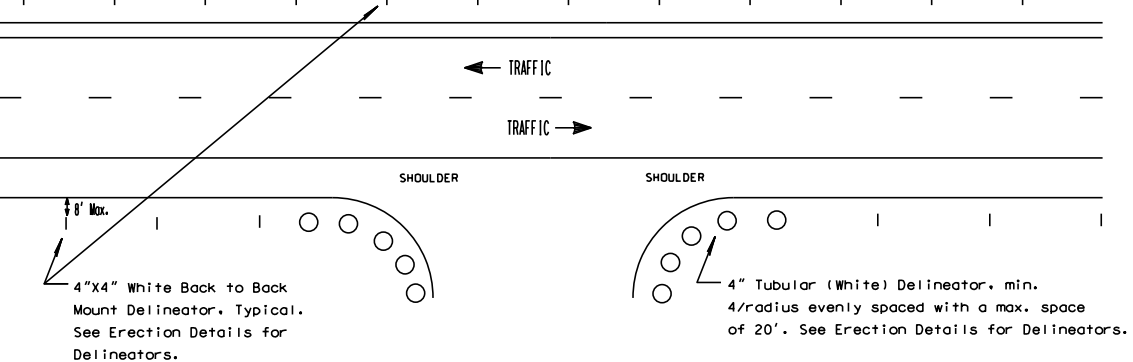


LOCATION DETAILS

SIDE ROAD - ONE-WAY TRAFFIC



SIDE ROAD - TWO-WAY TRAFFIC



Alternate Type Connector
Sections may be used with
approval of the Engineer.

PLAN

ELEVATION

TUBING ATTACHMENT DETAILS
SECTION A-A

TYPICAL CROSS-SECTION

GENERAL NOTES:
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by 3/8" Dia. galvanized rivets or bolts.
For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x 1/4" for 60" through 72" diameters and 2 1/2" x 2 1/2" x 1/4" for 78" and 84" diameters. The angles shall be attached by 3/8" diameter galvanized nuts and bolts.
Rivets and Bolts shall be 3/8" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

Dia. D (in.)	Ga.	DIMENSIONS (in.)						Approx. Slope	Body
		A	B	H	L	W			
12	16	6	6	6	21	24	2 1/2:1	1 Pc.	
15	16	7	8	6	26	30	2 1/2:1	1 Pc.	
18	16	8	10	6	31	36	2 1/2:1	1 Pc.	
21	16	9	12	6	36	42	2 1/2:1	1 Pc.	
24	16	10	13	6	41	48	2 1/2:1	1 Pc.	
30	14	12	16	8	46	60	2 1/2:1	1 Pc.	
36	14	14	19	9	51	72	2 1/2:1	2 Pc.	
42	12	16	22	11	60	84	2 1/2:1	2 Pc.	
48	12	18	27	12	69	90	2 1/4:1	2 Pc.	
54	12	18	30	12	78	102	2:1	3 Pc.	
60	12	18	33	12	84	114	1 3/4:1	3 Pc.	
66	12	18	36	12	87	120	1 1/2:1	3 Pc.	
72	12	18	39	12	87	126	1 1/3:1	3 Pc.	
78	12	18	42	12	87	132	1 1/4:1	3 Pc.	
84	12	18	45	12	87	138	1 1/6:1	3 Pc.	

STANDARD CONNECTIONS

For 30" through 84"

Alternate for all sizes

For 12" through 24" only

SECTION A-A (alternate)

SECTION A-A (alternate)

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

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

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

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

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

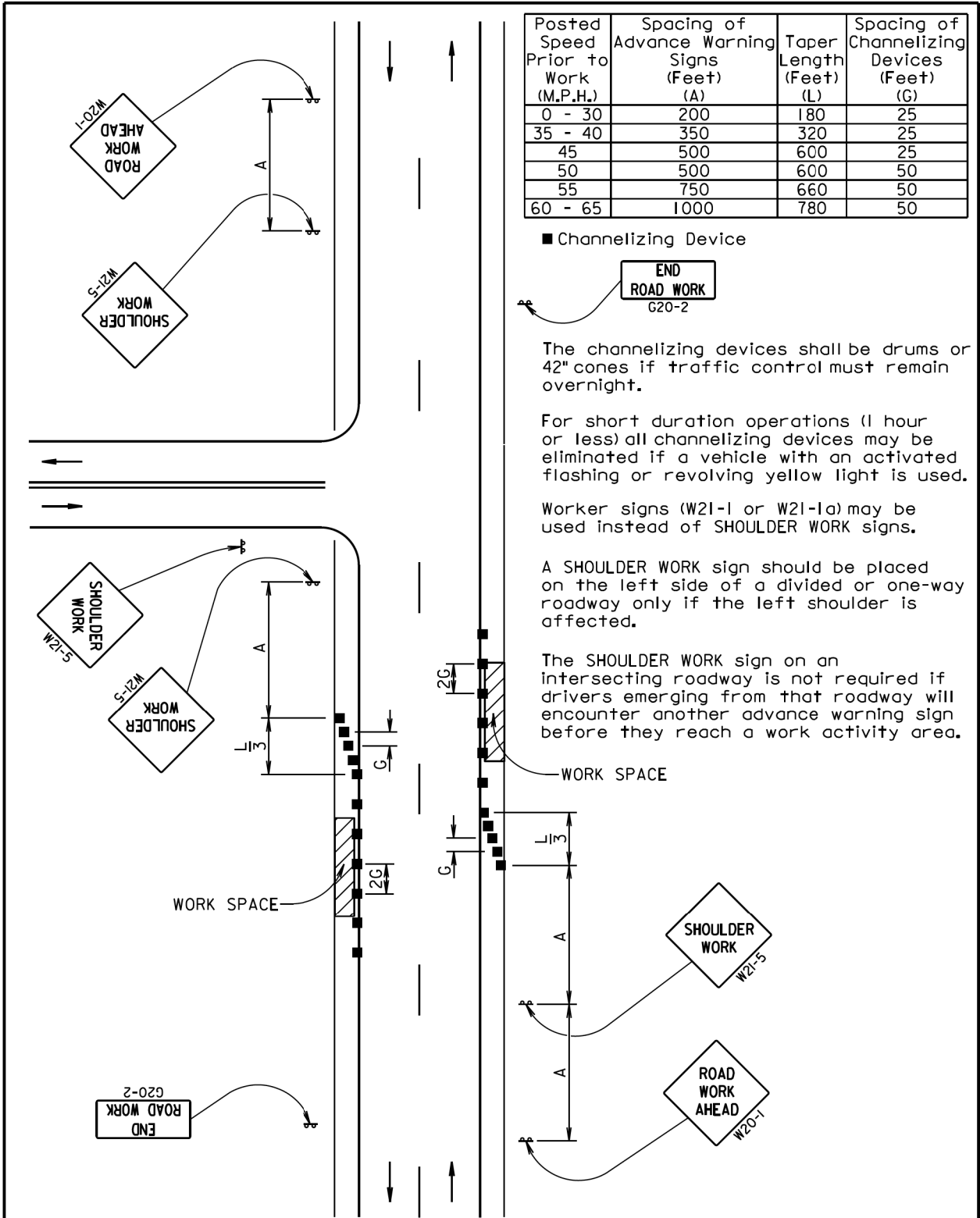
WORK SPACE

ROAD WORK AHEAD W20-1

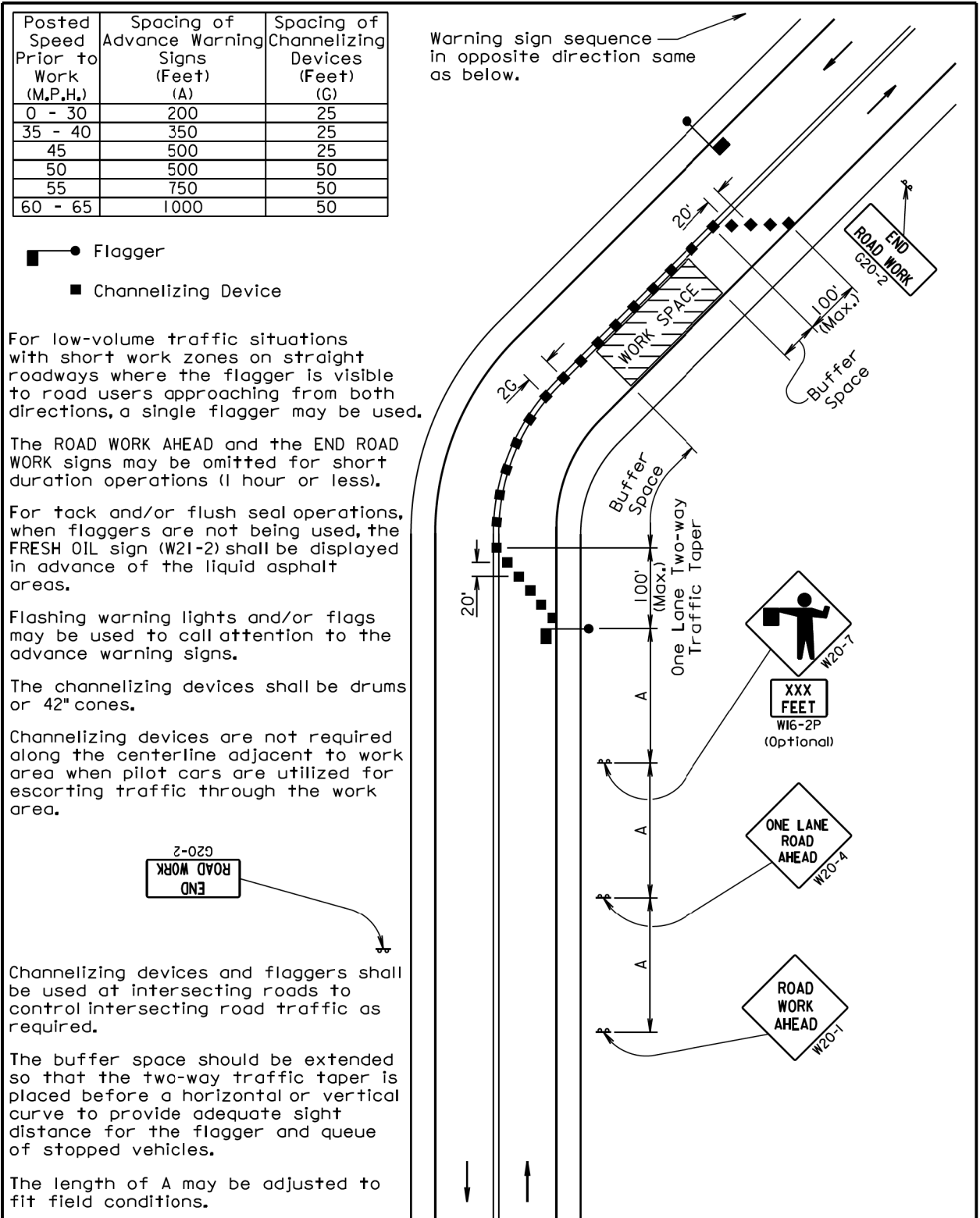
April 15, 2015

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
		Sheet 1 Of 1

Published Date: 2nd Qtr. 2017



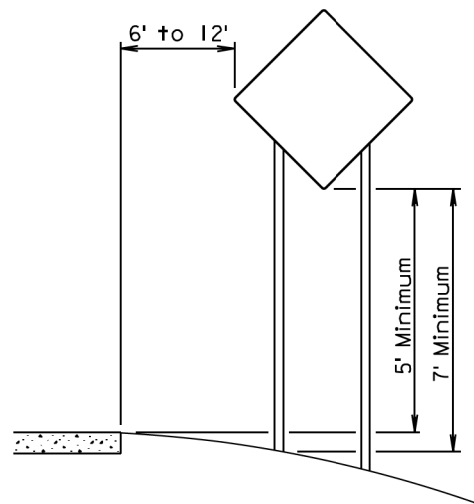
June 3, 2016



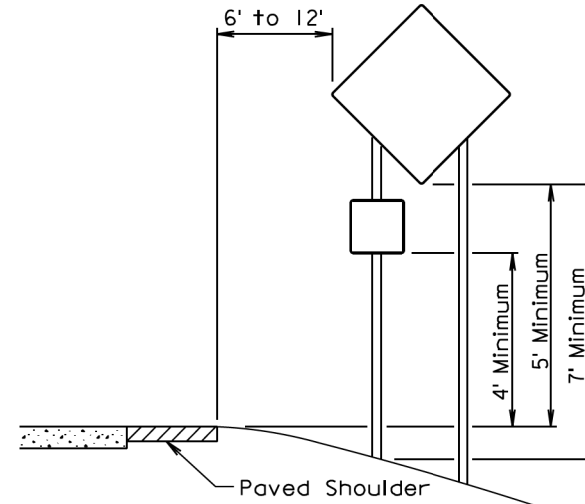
June 3, 2016

STATE OF SOUTH DAKOTA	PROJECT P 0034(00)232	SHEET 24	TOTAL SHEETS 33
-----------------------------	--------------------------	-------------	-----------------------

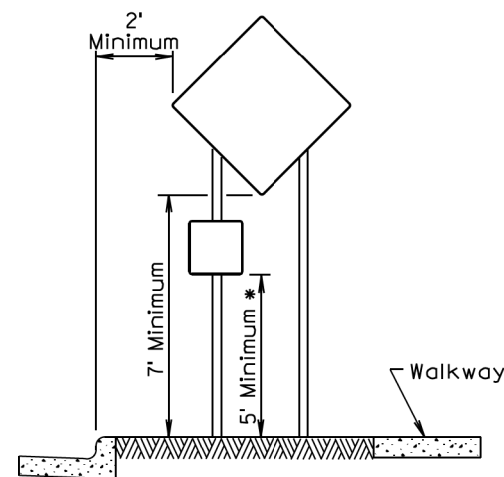
Plotting Date: 06/27/2017



RURAL DISTRICT

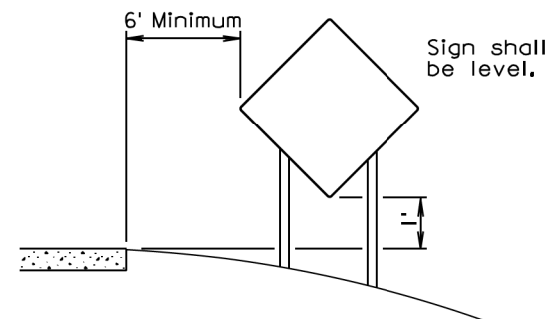


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

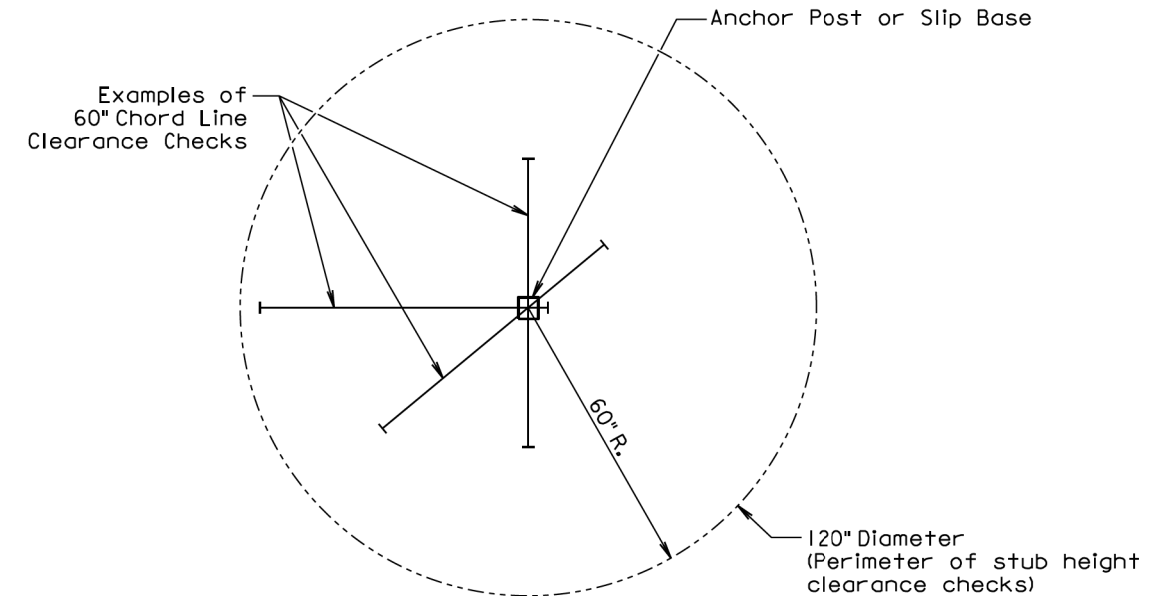
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



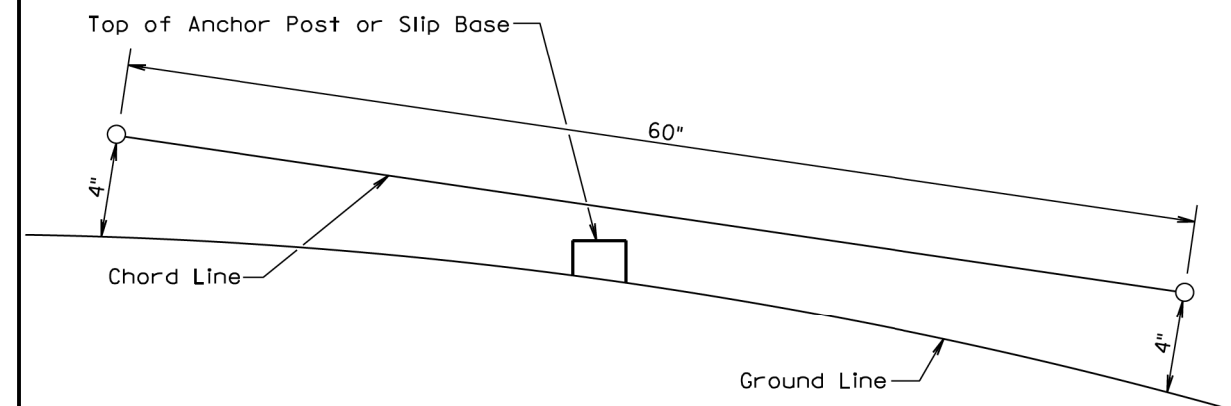
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 2nd Qtr. 2017	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

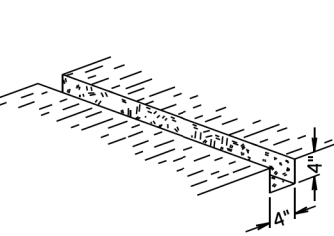
July 1, 2005

Published Date: 2nd Qtr. 2017	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

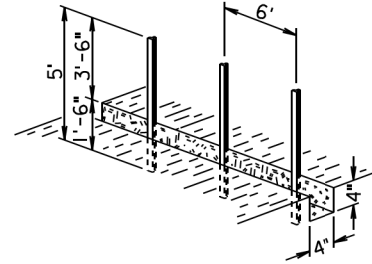
STATE OF SOUTH DAKOTA	PROJECT P 0034(00)232	SHEET 25	TOTAL SHEETS 33
-----------------------------	--------------------------	-------------	-----------------------

Plotting Date: 06/27/2017

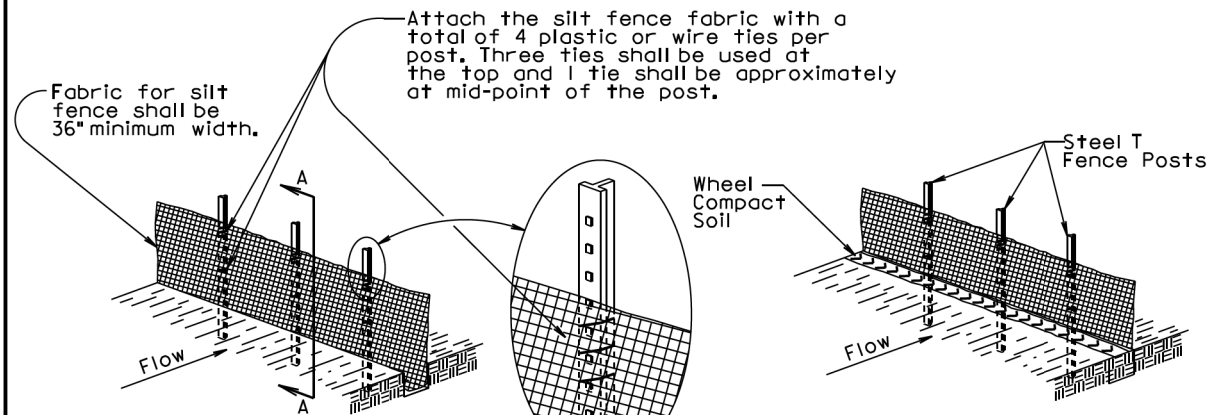
MANUAL HIGH FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH

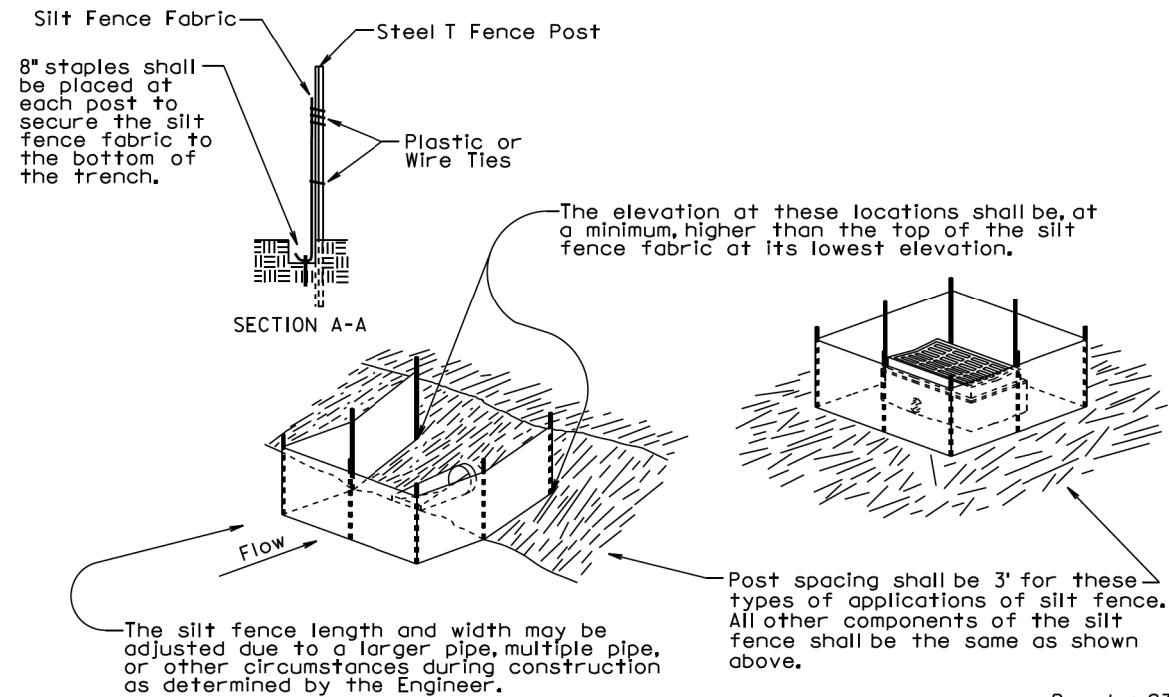


② DRIVE STEEL T FENCE POSTS



③ ATTACH SILT FENCE FABRIC

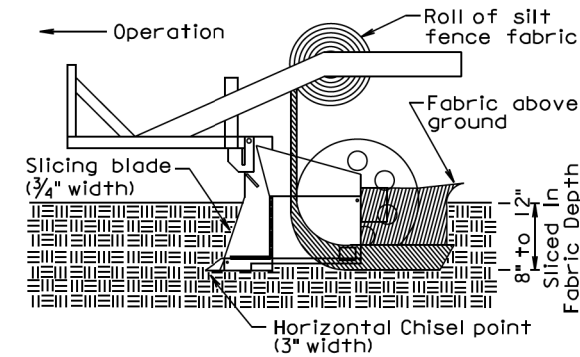
④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



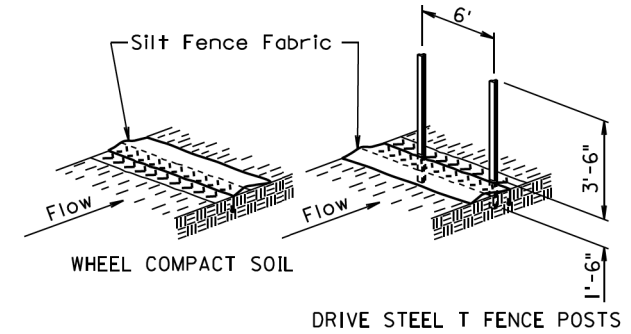
December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 1 of 2
		Published Date: 2nd Qtr. 2017

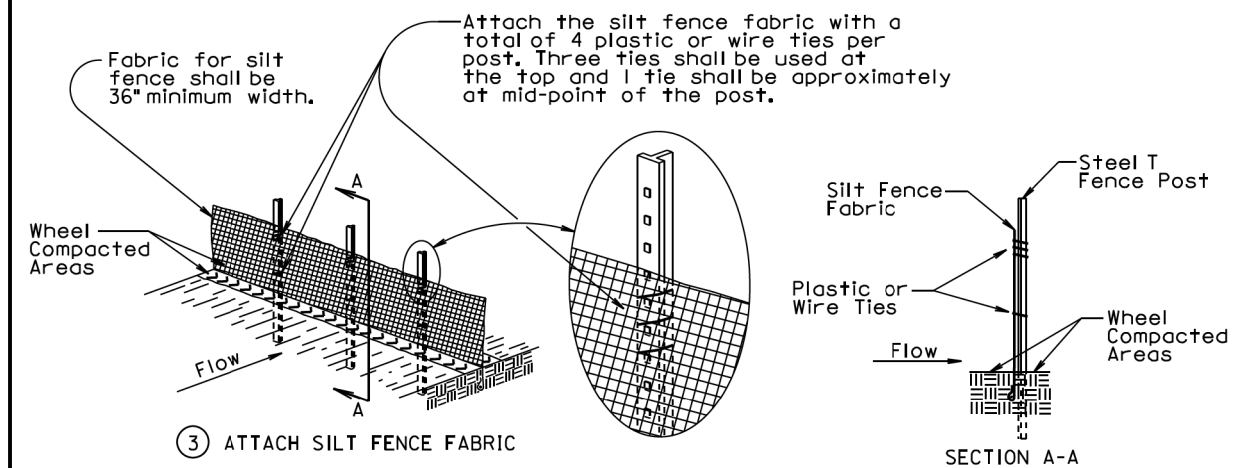
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



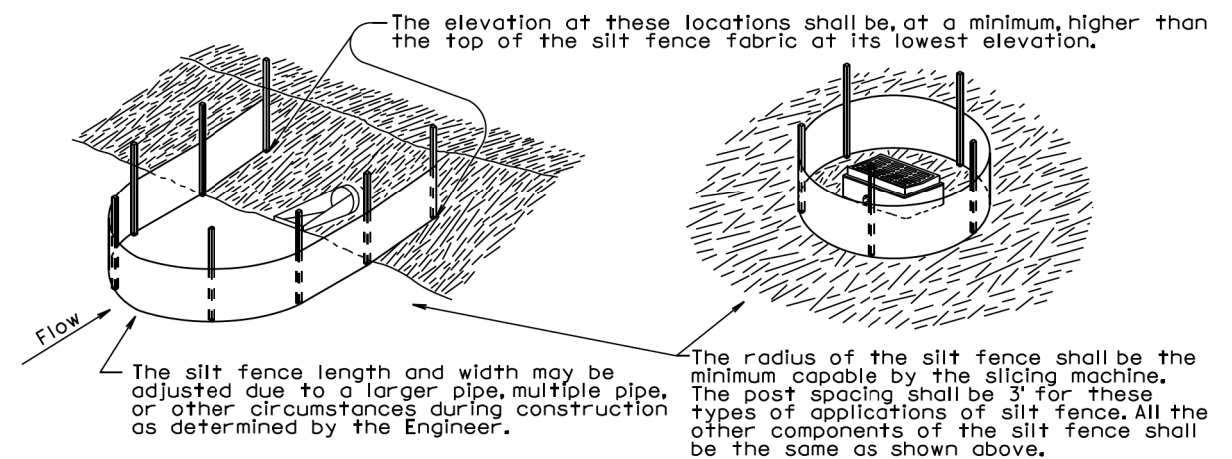
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



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



③ ATTACH SILT FENCE FABRIC

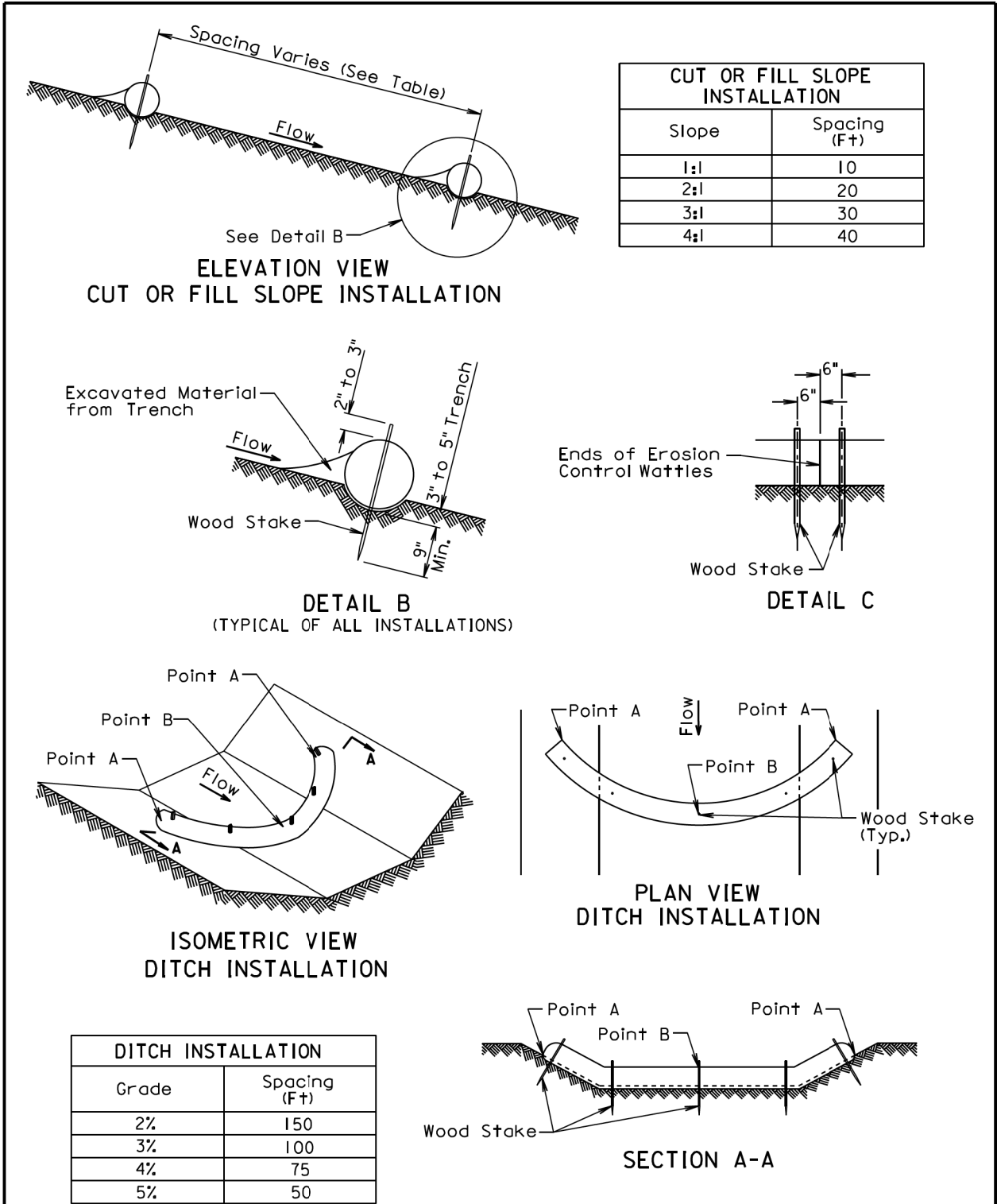


GENERAL NOTE:

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

December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 2 of 2
		Published Date: 2nd Qtr. 2017



December 23, 2004

Published Date: 2nd Qtr. 2017	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER
			734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

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

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

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

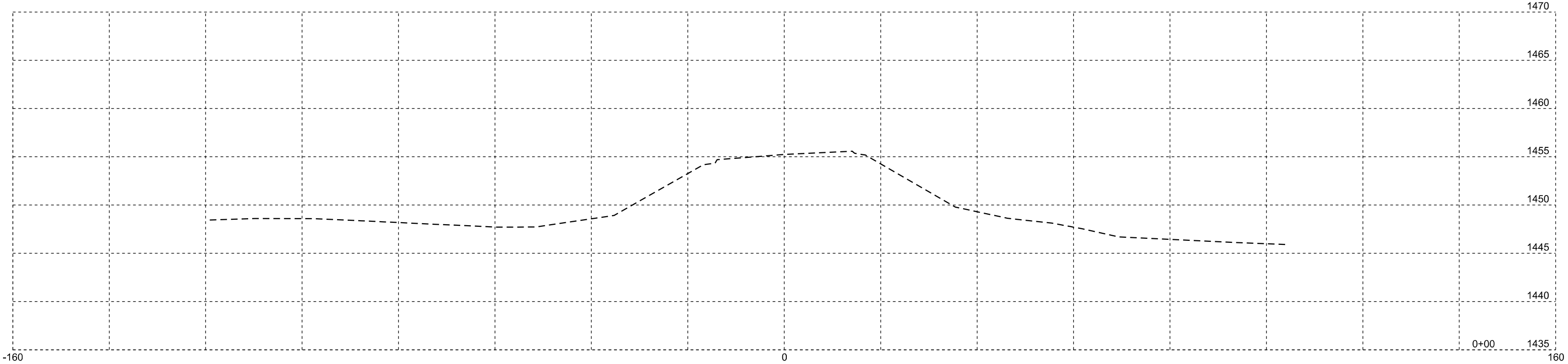
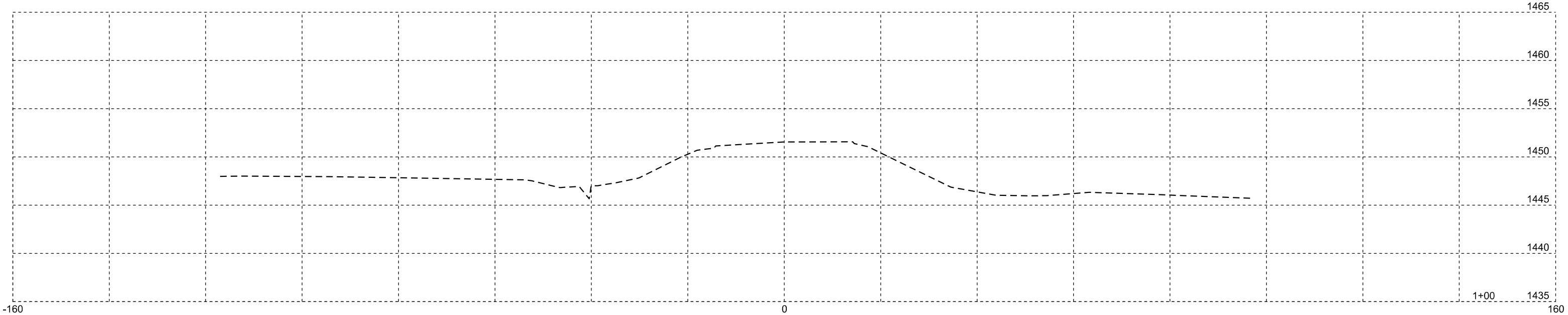
All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

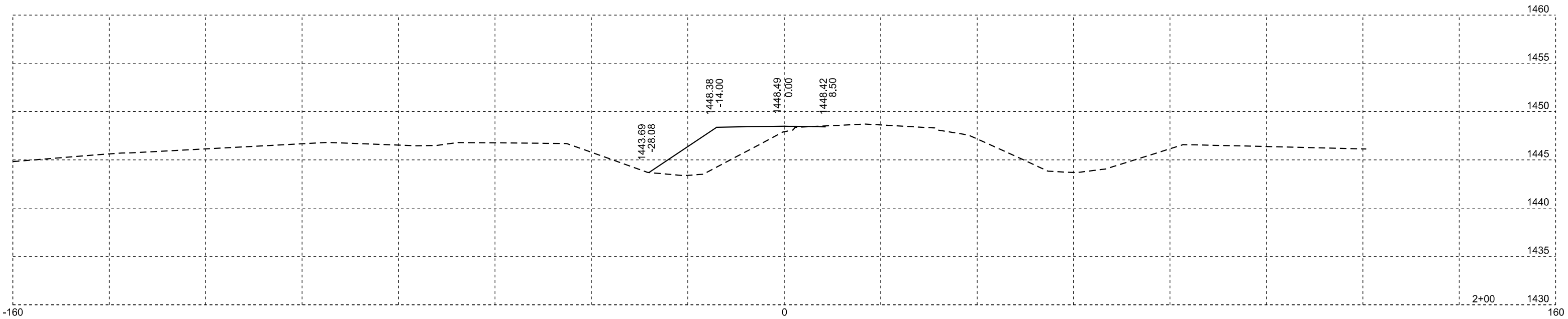
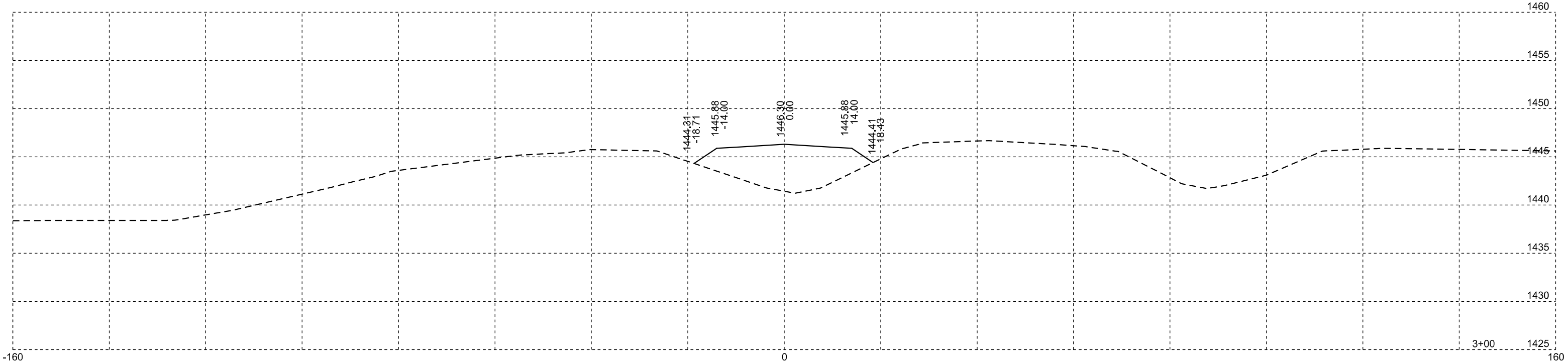
Published Date: 2nd Qtr. 2017	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER
			734.06
			Sheet 2 of 2

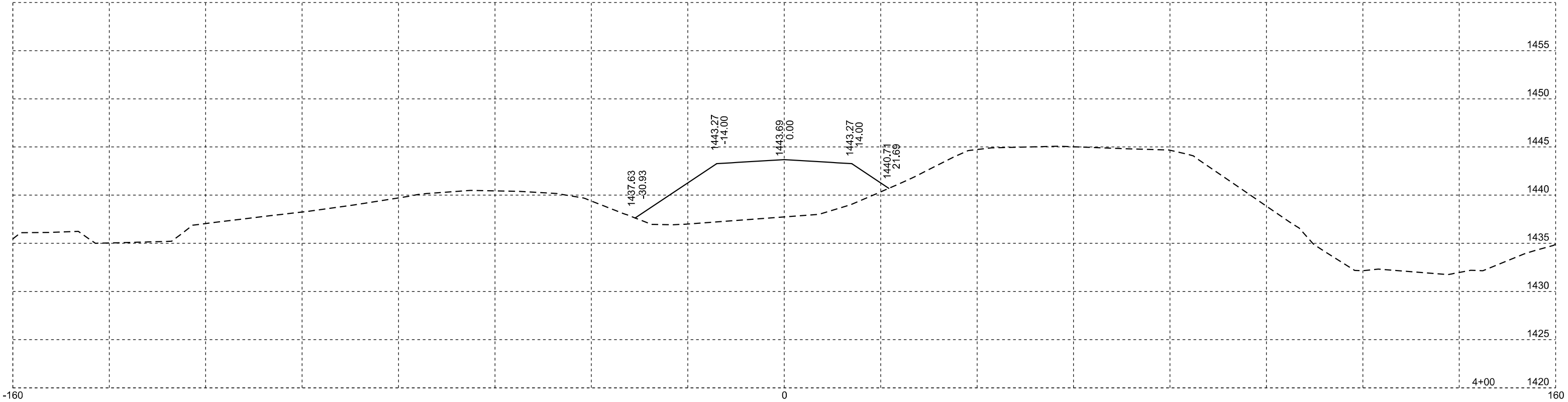
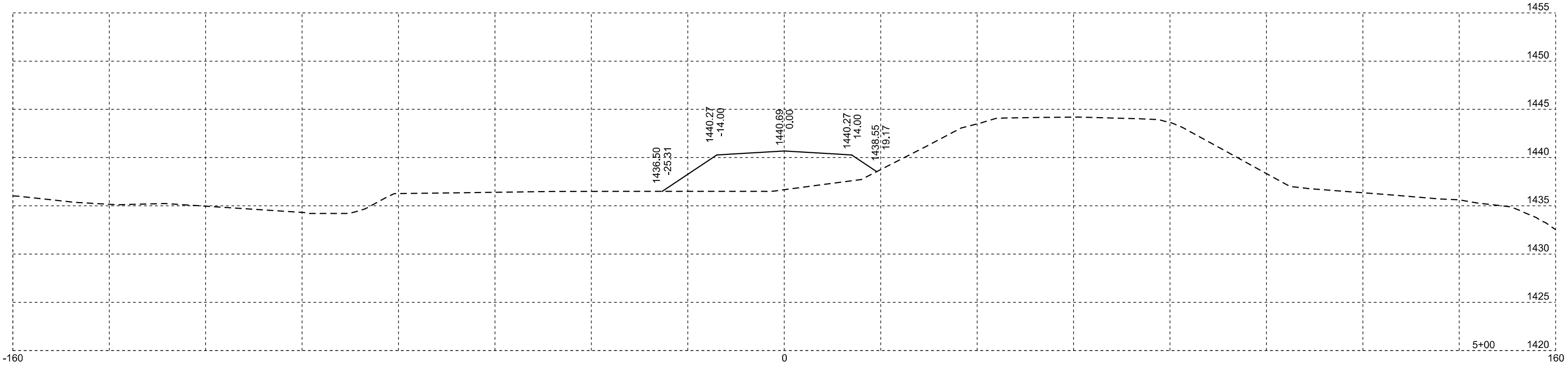
Plotting Date: 06/27/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0034(00)232	27	33

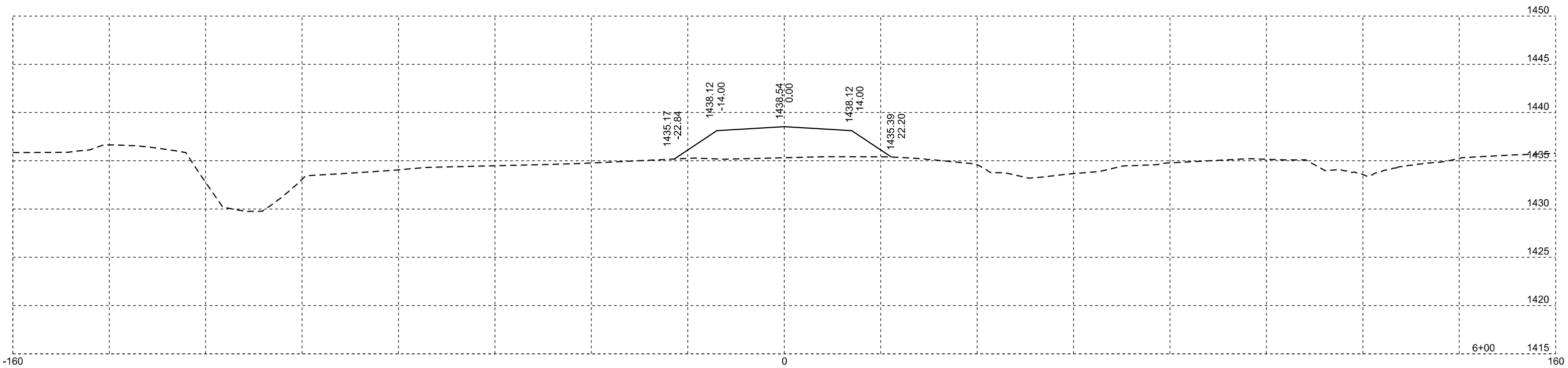
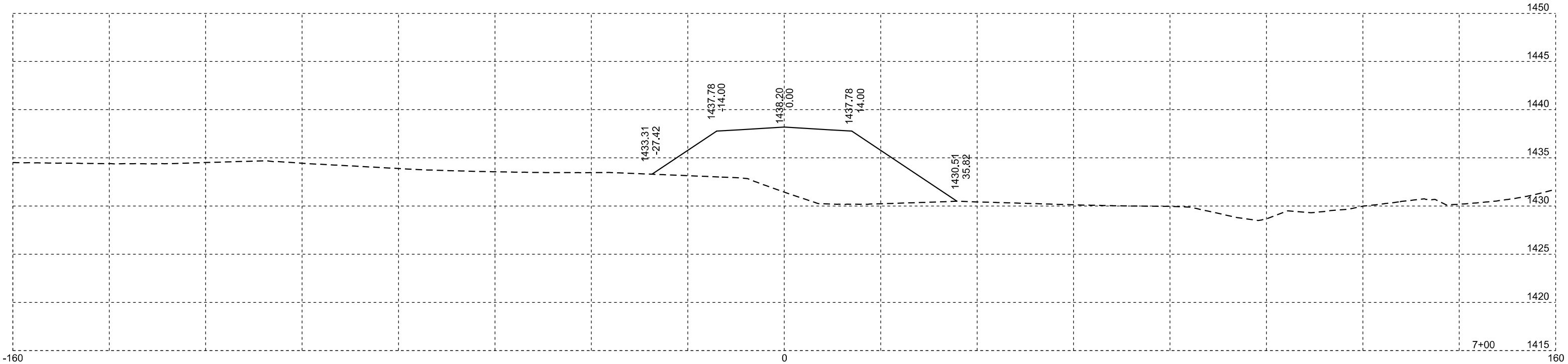


STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0034(00)232	28	33

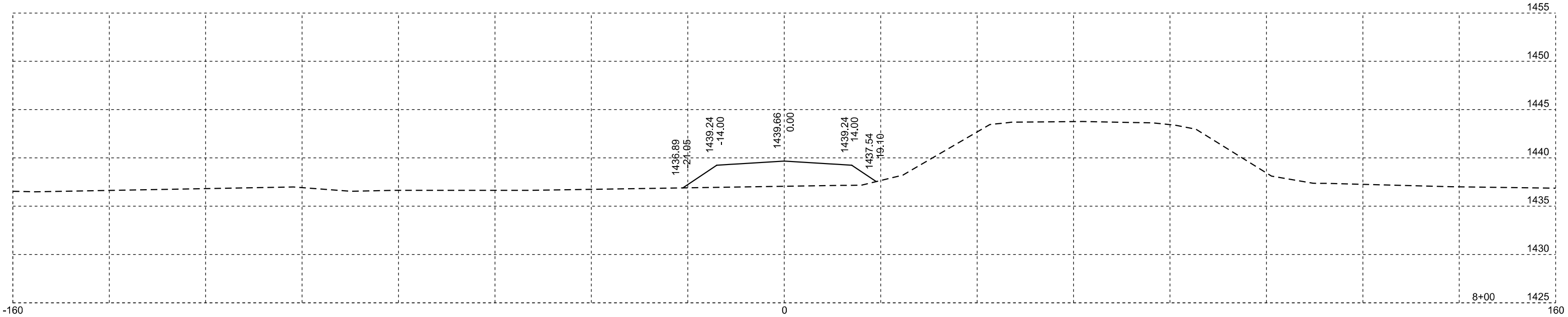
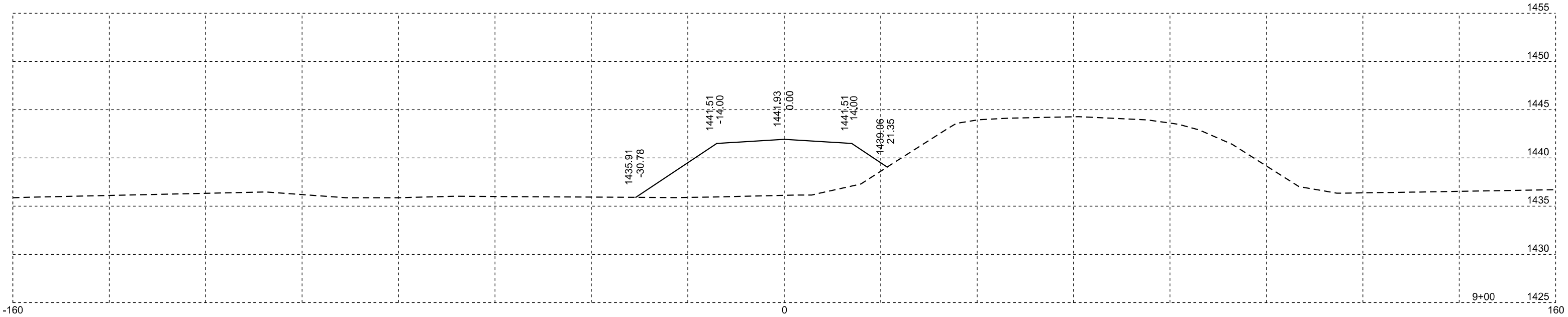
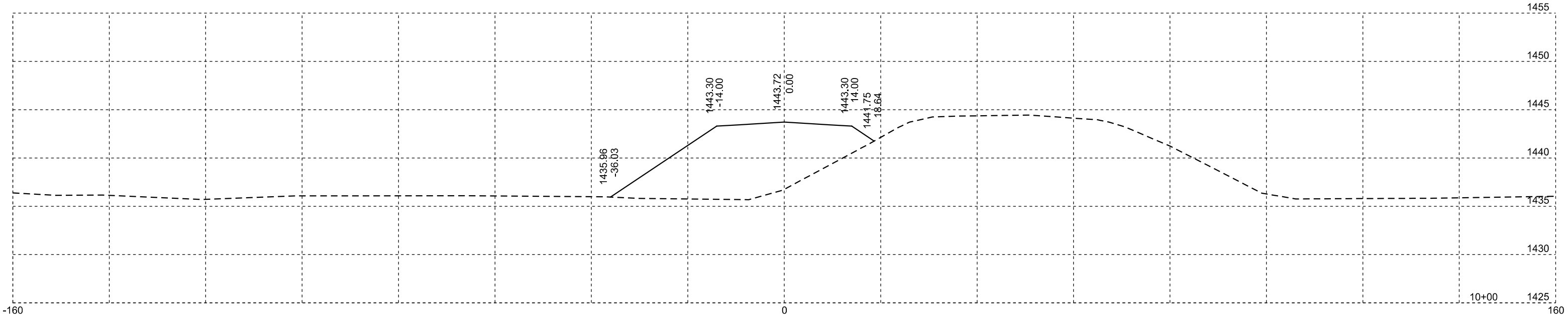




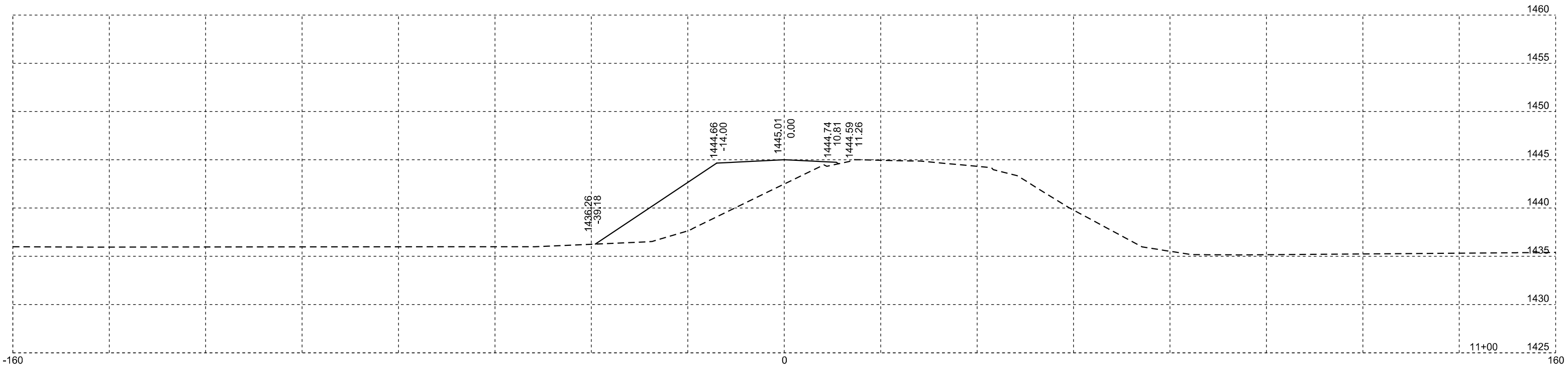
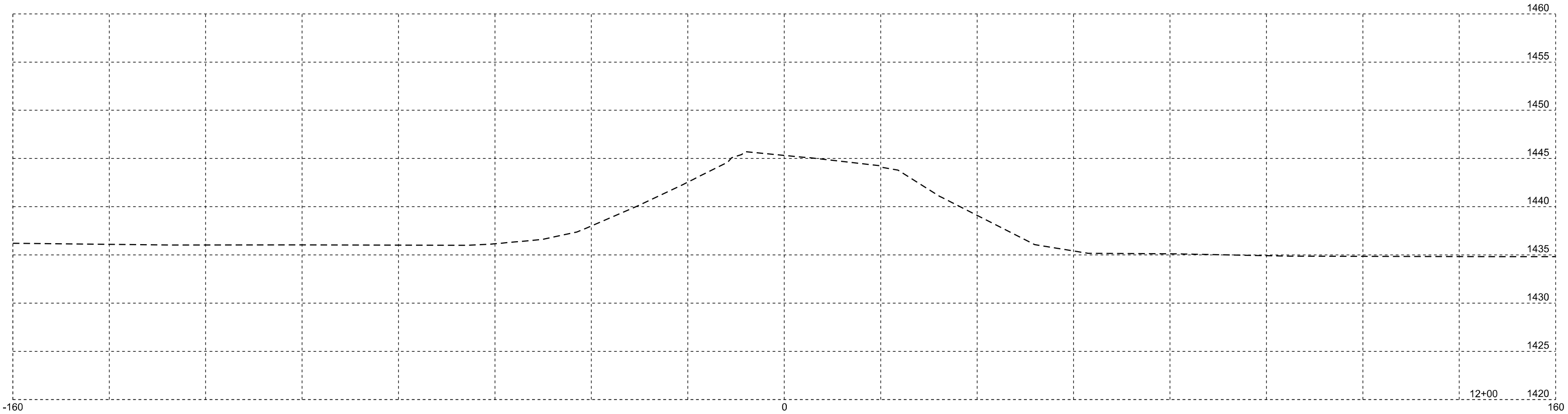
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0034(00)232	30	33



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0034(00)232	31	33



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0034(00)232	32	33



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0034(00)232	33	33

