FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)/P 6575(02)	1	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH

STATE OF SOUTH DAKOTA

DEPARTMENT OF TRANSPORTATION

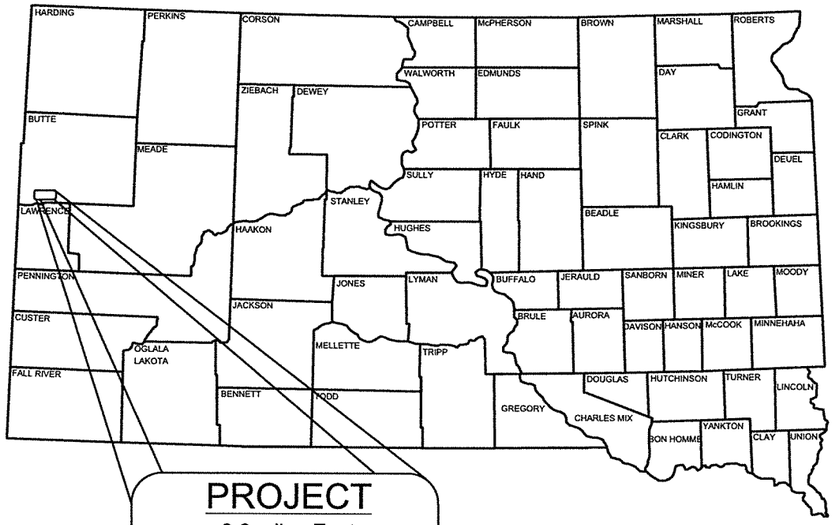
PLANS FOR PROPOSED

PROJECT P 6434(02) & P 6575(02)

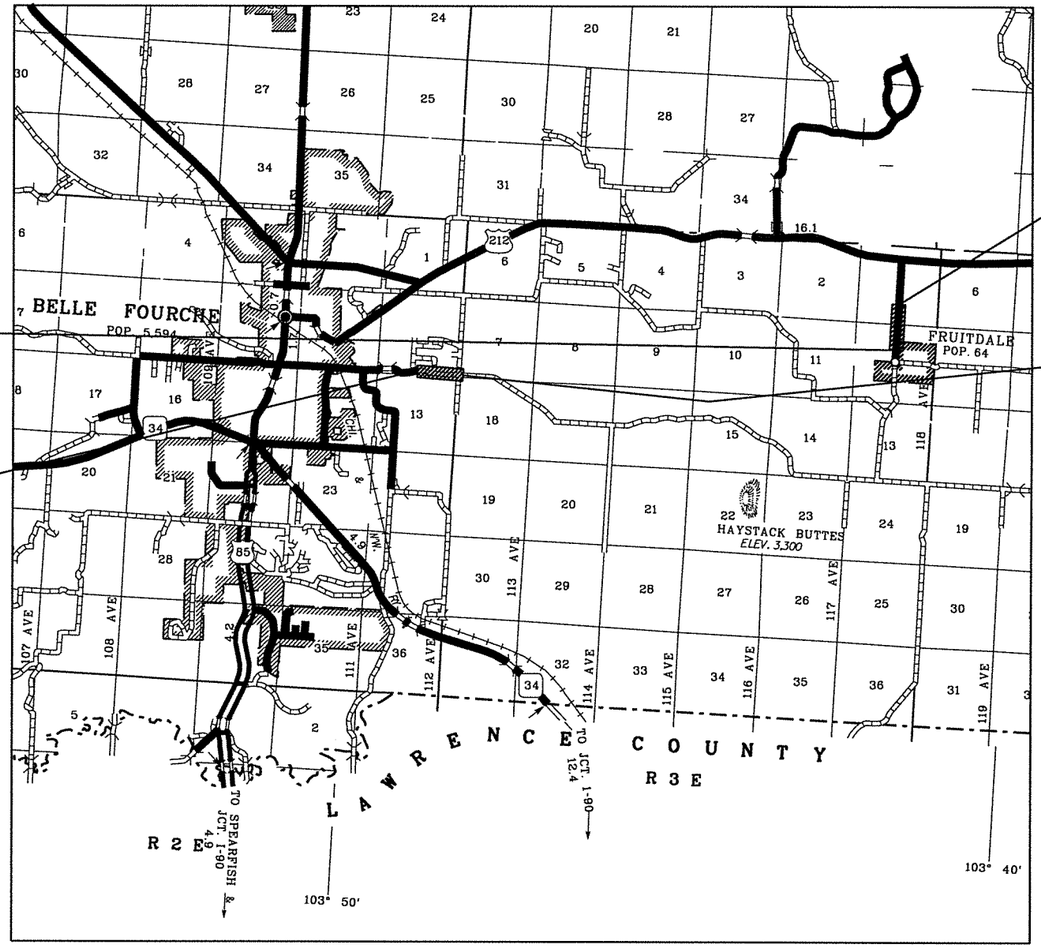
BUTTE COUNTY

GRADING AND ASPHALT SURFACING

PCN 00RJ & PCN 057L



PROJECT
0.8 miles East
of Belle Fourche
South Dakota



BEGIN PROJECT P 6575(02) - Fruitdale Rd.
At Sta. 1+00 = A Point Approx. 2,362' South and 2,640' East of the SW Corner of Section 1, T9N, R3E.

BEGIN PROJECT P 6434(02) - Snoma Rd.
At Sta. 3+05 = A Point Approx. 82' North and 2,357' East of the SW Corner of Section 12, T8N, R2E.

END PROJECT P 6575(02) - Fruitdale Rd.
At Sta. 27+67 A Point Approx. 317' North and 2,640' East of the SW Corner of Section 1, T9N, R3E.

END PROJECT P 6434(02) - Snoma Rd.
At Sta. 32+50 A Point Approx. 0.5' North and 23' West of the SE Corner of Section 12, T8N, R2E.

INDEX OF SHEETS

REGISTERED PROFESSIONAL ENGINEER
Reg No. 7107
JASON T. HANSON
SOUTH DAKOTA
10/16/15

STORM WATER PERMIT DATA

	P 6434 (02)	P 6575 (02)
MAJOR RECEIVING:		Belle Fourche River
BODY OF WATER:	Red Water River	
AREA DISTURBED:	4.7 Acres	2.3 Acres
TOTAL PROJECT AREA:	10.8 Acres	2.3 Acres
APPROX. BEGIN LAT/LONG:	44.6628°, 103.8203°	44.6705°, 103.6985°

DESIGN DESIGNATION P 6434(02)

No Data

DESIGN DESIGNATION P 6575(02)

ADT (2014)	300
ADT (2034)	340
DHV	50
D	50%
T DHV	3.4%
T*ADT	7.4%
V	45 mph

P 6434 (02) - Snoma Rd.				P 6575 (02) - Fruitdale Rd.			
Gross length	2,945 Feet	0.558 Miles		Gross length	2,667 Feet	0.505 Miles	
Length of exceptions	0 Feet	0 Miles		Length of exceptions	0 Feet	0 Miles	
Net length	2,945 Feet	0.558 Miles		Net length	2,667 Feet	0.505 Miles	

PLANS	
Survey by:	Brosz Engineering, Inc. Sturgis, SD
Plans by:	Brosz Engineering, Inc. Sturgis, SD

1

Revised: 9/29/15

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6434 (02) & P 6575 (02)	2	80

Estimate of Quantities – P 6434(02)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	1.116	Mile
009E3250	Miscellaneous Staking	0.558	Mile
009E3280	Slope Staking	0.558	Mile
009E3300	Three Man Survey Crew	40	Hour
009E3320	Checker	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	4,265	Ft
120E0010	Unclassified Excavation	12,066	CuYd
120E0600	Contractor Furnished Borrow Excavation	3,864	CuYd
120E2000	Undercutting	6,883	CuYd
120E6100	Water for Embankment	130.0	MGal
120E6200	Water for Granular Material	24.1	MGal
230E0010	Placing Topsoil	1,752	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	4,040.4	Ton
270E0112	Salvage Granular Material	2,232	Ton
*270E0210	Haul and Stockpile Granular Material	2,232	Ton
320E3000	Compaction Sample	3	Each
330E0010	MC-70 Asphalt for Prime	6.2	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	1.6	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	1.6	Ton
330E1000	Blotting Sand for Prime	39.3	Ton
330E2000	Sand for Flush Seal	31.4	Ton
450E0122	18" RCP Class 2, Furnish	196	Ft
450E0130	18" RCP, Install	196	Ft
450E2008	18" RCP Flared End, Furnish	2	Each
450E2009	18" RCP Flared End, Install	2	Each
450E4759	18" CMP 16 Gauge, Furnish	110	Ft
450E4760	18" CMP, Install	110	Ft
450E5211	18" CMP Flared End, Furnish	6	Each
450E5212	18" CMP Flared End, Install	6	Each
450E5406	18" CMP Safety End, Furnish	2	Each
450E5407	18" CMP Safety End, Install	2	Each
600E0200	Type II Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	4,256	Ft
620E0515	Type 1A Temporary Fence	1,088	Ft
620E1020	2 Post Panel	15	Each
620E1030	3 Post Panel	7	Each
620E2012	12' Tubular Gate	1	Each
630E1140	Straight Double Class A W Beam Guardrail with Wood Posts	1,009	Ft
630E2020	W Beam Guardrail Tangent End Terminal	2	Each
633E1305	Pavement Marking Paint, Yellow	7	Gal
634E0010	Flagging	600	Hour
634E0020	Pilot Car	50	Hour
634E0110	Traffic Control Signs	488	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	6	Each
634E0630	Temporary Pavement Marking	1.7	Mile
650E4360	Type D46 Concrete Curb and Gutter	5,604	Ft
650E4660	Type P6 Concrete Gutter	178	Ft
670E2015	3'x4' Type C Drop Inlet	1	Each
670E2200	Type C Frame and Grate	1	Each
670E3000	1.5'x3' Type D Drop Inlet	10	Each
670E3200	Type D Frame and Grate	10	Each
670E4442	4'x6' Concrete Type S Drop Inlet Base	1	Each
670E5342	4'x6' Precast Concrete Type S Drop Inlet Lid	1	Each
670E5400	Precast Drop Inlet Collar	10	Each
720E1015	Bank and Channel Protection Gabion	58.5	CuYd
730E0210	Type F Permanent Seed Mixture	122	Lb
731E0200	Fertilizing	3.2	Ton
732E0200	Fiber Mulching	4.8	Ton
734E0151	9" Diameter Erosion Control Wattle	2,574	Ft
734E0165	Remove and Reset Erosion Control Wattle	672	Ft
734E0604	High Flow Silt Fence	454	Ft
734E0610	Mucking Silt Fence	32	CuYd
734E0620	Repair Silt Fence	114	Ft
734E0845	Sediment Control at Inlet with Frame and Grate	10	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet	8	Ft
831E0110	Type B Drainage Fabric	160	SqYd
900E0010	Refurbish Single Mailbox	2	Each
900E0012	Refurbish Double Mailbox	2	Each

*Non-Participating

Alternate A

320E0007	PG 64-28 Asphalt Binder	107.9	Ton
320E1050	Class E Asphalt Concrete	1,858.5	Ton

Alternate B

320E0007	PG 64-28 Asphalt Binder	95.3	Ton
320E1050	Class E Asphalt Concrete	1,906.8	Ton

Estimate of Quantities – P 6575(02)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3250	Miscellaneous Staking	0.505	Mile
009E3320	Checker	Lump Sum	LS
120E0100	Unclassified Excavation, Digouts	404	CuYd
120E6200	Water for Granular Material	8.4	MGal
260E1010	Base Course	703.7	Ton
320E3000	Compaction Sample	3	Each
330E0100	SS-1h or CSS-1h Asphalt for Tack	2.9	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	1.5	Ton
330E2000	Sand for Flush Seal	27.6	Ton
633E1300	Pavement Marking Paint, White	18.0	Gal
633E1305	Pavement Marking Paint, Yellow	18.0	Gal
634E0010	Flagging	200	Hour
634E0020	Pilot Car	50	Hour
634E0110	Traffic Control Signs	298	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	1.5	Mile

Alternate A

320E0007	PG 64-28 Asphalt Binder	81.5	Ton
320E1050	Class E Asphalt Concrete	1,404.8	Ton

Alternate B

320E0007	PG 64-28 Asphalt Binder	72.0	Ton
320E1050	Class E Asphalt Concrete	1,441.4	Ton

SPECIFICATIONS

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

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 7107
JASON T. HANSON
SOUTH DAKOTA
10/12/15

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 and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of 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

This commitment is required for any work in streams. Include the stream classification(s) with the associated Water Quality standard for **EACH** stream that exists within the project. Examples follow:

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

Action Taken/Required:

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

COMMITMENT D2: SURFACE WATER DISCHARGE

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

Action Taken/Required:

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

COMMITMENT E: STORM WATER

Action Taken/Required:

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

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

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

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

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

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

SDDOT:
http://sddot.com/transportation/highways/environmental/stormwater/Default.aspx

DENR: http://www.denr.sd.gov/des/sw/stormwater.aspx
EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

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REG. NO. 7107
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SOUTH DAKOTA
10/16/15

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

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

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

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.

SEQUENCE OF OPERATIONS

The Contractor shall notify the SDDOT Belle Fourche Area Engineer (605-892-2872) a minimum of two weeks prior to installation of the fixed locations signing to give adequate time for the Area to verify the fixed sign locations as staked by the Contractor.

The project P 6434(02) – Snoma Road shall be divided into 2 phases. The project shall be closed to thru traffic during Phase I and shall be opened and maintained to thru traffic during Phase II.

Work to be completed during each phase of Snoma Road shall be as follows:

Phase I – Snoma Road

- Salvage and stockpile granular material
- General grading and slope flattening
- Installation of drop inlets, storm sewer pipe and culverts
- Installation of curb and gutter
- Installation of riprap and gabion baskets
- Installation of W beam guardrail
- All permanent and temporary erosion control BMP's
- Placing and compacting of 8" base course
- Application of MC-70 Prime and blotting sand
- Installation of ROW Fencing

Phase II – Snoma Road

- Asphalt concrete paving
- Asphalt flush seal
- Permanent pavement marking

The project P 6575(02) – Fruitdale Road shall be divided into 2 phases. Traffic shall be maintained during all phases of construction of this road.

Work to be completed during each phase of Fruitdale Lane shall be as follows:

Phase I – Fruitdale Road

- Unclassified Excavation - Digouts
- Shoulder preparation

Phase II – Fruitdale Road

- Cold milling project ends
- Asphalt concrete paving
- Asphalt flush seal
- Permanent pavement marking

COUNTY RESPONSIBILITIES

- Obtain Permanent and Temporary Easements for P 6434(02) – Snoma Road.
- Remove Erosion Control Wattles and Silt Fence once vegetation has been established.
- Permanent Signing

GRADING OPERATIONS P 6434(02)

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste.

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(s) 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 on the right and 3:1 backslopes on the left. 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.

A copy of the soils profile is available for review at the SDDOT Local Government Assistance office in Pierre Central Office.

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.

RESTRICTED WORK AREA P 6434(02)

The Contractor's work limits shall be confined to the area within the existing right-of-way for the parcels noted in the table below.

Parcel No.	Station	to	Station	L/R
Lot 9, 12-8-2	6+19		9+20	L/R

CLEARING

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

SHRINKAGE FACTOR: Embankment -40%

TABLE OF UNCLASSIFIED EXCAVATION P6434(02)

Mainline	
Excavation	2,250
Salvage Granular Material	1,181
Undercut	6,883
Topsoil	1,752
Total	12,066

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JASON T. HANSON
SOUTH DAKOTA
10/16/15

CONTRACTOR FURNISHED BORROW EXCAVATION P6434(02)

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 borrow material shall be approved by the Engineer. The plans quantity for "Contractor Furnished Borrow Excavation" as shown in the Estimate of Quantities will be the basis of payment for this item.

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

Revised: 9/29/15

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6434 (02) & P 6575 (02)	5	80

UNDERCUTTING P6434(02)

In all cut sections the earthen subgrade shall be undercut 2.0 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, shall then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 2.0 feet in height measured at the finished subgrade shoulders, shall be undercut to ensure a minimum 2.0 foot height of earth embankment for the entire width of roadbed. The upper 4 inches of undercut material that consists of topsoil with a high humus content shall be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4 foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 4 inches) shall then be replaced and compacted to the density specified for the section being constructed.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNDERCUTTING P6434(02)

Station	to	Station	Quantity (CuYd)
3+05		32+50	6,883
		Total:	6,883

SALVAGE GRANULAR MATERIAL P6434(02)

An estimated 2,232 tons (1,181 Cubic Yards) of granular material shall be salvaged from the entire length of the existing roadway and then hauled and stockpiled at a site furnished by Butte County. The stockpile site is located approximately 2.5 miles east on Snoma Road and 0 .6 miles north.

The quantity of granular material may vary from the plans. No adjustment will be made to the contract unit price for variations of the quantity of "Salvage Granular Material " and "Haul and Stockpile Granular Material".

It is estimated that there are 48 cubic yards of salvageable material per station. This rate was used to compute the unclassified excavation quantities. The rate of salvageable material is based on a 25.8 foot width.

The following table is furnished for information only.

STA	Distance from Centerline (Feet) Lt.	Rt.	Thickness of Granular Material (Inches)
6+00		7.7	6.0
12+00		6.0	6.0
18+00	6.3		6.0
24+00	6.4		6.0
	Average Thickness:		6.0

INCIDENTAL WORK, GRADING P6434(02)

Station	L/R	Remarks
10+67.1	L	Remove 18" CMP
11+67.5	CL	Remove 18" CMP
15+00	L	Remove 18" CMP
15+23.5	L	Remove & Reset Traffic Sign
16+43.3	L	Remove & Reset Traffic Sign
26+33.7	R	Remove & Reset Traffic Sign
29+51.7	R	Remove 15" CMP
31+45	L	Remove Sign Post

CORRUGATED METAL PIPE P6434(02)

Corrugated metal pipes shall have 2 ⅔-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.

DROP INLETS P6434(02)

Where drop inlets are constructed within areas of curb and gutter, the Contractor shall construct weep holes of at least 3 inches in diameter in the drop inlet walls. The weep holes shall be constructed at the same elevation as the adjacent top of the earthen subgrade and shall be maintained clean and open at all times until the permanent surfacing is placed. The drop inlets shall be covered throughout construction operations as necessary with an Engineer approved cover to provide safe travel for motorists and to prevent materials from entering the storm sewer system. After the permanent surfacing has been placed, the Contractor shall seal the weep holes with grout and remove all debris from the drop inlet. All costs involved with the coverings, weep holes, and removing debris from the drop inlets shall be incidental to the contract unit prices for the components of the drop inlets.

The plan shown quantities of the drop inlet components such as 3'x4 Type C Drop Inlet, 1.5'x3' Type D Drop Inlet, 4'x6' Concrete Type S Drop Inlet, Type C Frame and Grate, Type D Frame and Grate, and 4'x6' Precast Concrete Type S Drop Inlet Lid will be the basis of payment for these items.

If additions or reductions to the number of drop inlets are ordered by the Engineer, payment for the components required to construct the drop inlets will be made at the contract unit prices for the components of the drop inlets.

TABLE OF DROP INLETS AND QUANTITIES P6434(02)

Station	L/R	Drop Inlet Size	Drop Inlet Type	Class M6 Concrete (CuYd)	Reinf. Steel (Lb)	Frame and Grate/Lid Type
3+57.5	L	1.5'x3'	D	0.52	66	D
3+57.5	R	1.5'x3'	D	0.62	76	D
5+90	R	1.5'x3'	D	0.62	76	D
9+60	L	3'x4'	C	0.64	59	C
9+60	R	1.5'x3'	D	0.62	76	D
11+00	R	1.5'x3'	D	0.62	76	D
12+17.26	L	4'x6'	S	2.00	371	S
14+00	L	1.5'x3'	D	0.57	71	D
18+00	L	1.5'x3'	D	0.57	71	D
18+00	R	1.5'x3'	D	0.62	76	D
25+50	L	1.5'x3'	D	0.57	71	D
25+50	R	1.5'x3'	D	.62	76	D
			Totals:	8.59	1,165	

Total Type C Frame and Grate Assembly	1
Total Type D Frame and Grate Assembly	10
Total 4'x6' Precast Concrete Type S Drop Inlet Lid	1

TABLE OF BANK AND CHANNEL PROTECTION GABIONS P6434(02)

Station	L/R	Quantity (CuYd)	Type B Drainage Fabric (SqYd)
3+57.5	R	4.5	16
5+90	R	12.0	20
9+60	R	9.0	18
11+00	R	10.5	40
12+17	R	4.5	16
14+00	R	9.0	18
18+00	R	4.5	16
25+50	R	4.5	16
	Total:	58.5	160

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TABLE OF TYPE D46 CONCRETE CURB AND GUTTER P6434(02)

Station	to	Station	L/R	Quantity (Ft)
3+50		4+00	L	46
4+20		10+59	L	639
10+79		14+84.13	L	407
15+14.13		32+41.66	L	1,728
3+50		3+66	R	16
4+53.5		29+39	R	2,485.5
29+39		32+41.39	R	282
			Total:	5,603.5

TABLE OF TYPE P6 CONCRETE GUTTER P6434(02)

Station	to	Station	L/R	Quantity (Ft)
4+00		4+20	L	20
10+59		10+79	L	20
14+84.13		15+14.13	L	30
3+66		4+53.5	R	87.5
29+39		29+59	R	20
			Total:	177.5

MAILBOXES P6434(02)

The Contractor shall reset the existing mailboxes on new posts with the necessary support hardware for single or double mailbox assemblies. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

If large mailboxes are located at double mailbox installations, a single post may need to be used for the large mailbox.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for "Refurbish Single Mailbox" or "Refurbish Double Mailbox".

TABLE OF REFURBISH MAILBOX P6434(02)

Station	L/R	Single (Each)	Double (Each)
4+12	R		1
10+48	R	1	
13+73	R	1	1
	Totals:	2	2

BRACE PANELS FOR ROW FENCE P6434(02)

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace shall be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, shall be drilled before placement of lag screws. The following are contacts regarding the E-Z Brace:

Roger Papka
E-Z Brace
1160 Karen St.
Watertown, SD 57201
605-881-6142

Dennis Mack
E-Z Brace
108 18th St. NE
Watertown, SD 57201
605-881-4990

TABLE OF GUARDRAIL P6434(02)

Location	Straight Double Class A W Beam Guardrail with Wood Posts (Ft)	W Beam Guardrail Tangent End Terminal (Each)
Sta. 4+41 - R to Sta. 14+50 - R	1009	2
Totals:	1009	2

SAWING IN EXISTING CONCRETE (ASPHALT OR P.C.C.)

Where new pavement is to meet existing pavement, the existing pavement shall be sawed full depth to a true line with a vertical face. No separate payment will be made for sawing.

WATER FOR GRANULAR MATERIAL

Water for granular material is estimated at 12 gallons per ton.

SHOULDER PREPARATION P6575(02)

The Contractor shall blade and remove the vegetation and accumulated materials from the shoulders prior to starting the asphalt overlay.

Once construction operations are completed, this material is to be bladed back on the in-slopes up to the edge of the asphalt.

Costs associated with these operations shall be incidental to other bid items.

UNCLASSIFIED EXCAVATION – DIGOUTS - P 6575(02)

Unclassified Excavation - Digouts will include all excavation and removal of unsatisfactory material. Unclassified Excavation - Digouts will be excavated to a minimum depth of 8" below top of in-place surfacing, cut to a true line with a vertical face or as directed by the Engineer. Due to the quality of soil and site conditions, the Contractor will undercut 2' below the 8" excavation as indicated on the detail sheets and as directed by the Engineer. Base Course will be placed and compacted on the re-compacted subgrade to a depth, as shown on details, to the bottom of the existing surfacing.

The quantity will be measured and paid for per cubic yard of the removed area. Replacement materials; the base course and asphalt concrete will be paid for by the ton. Saw cuts and material disposal will be incidental to the contract unit price per cubic yard for "Unclassified Excavation – Digouts".

Digouts will be marked in the field by the Engineer:

A quantity of 300 CuYds of unclassified excavation – digouts have been estimated.

TEMPORARY PAVEMENT MARKING

Temporary pavement markings shall be as per the Specifications. However, Temporary Flexible Vertical Markers (tabs) shall be used on the top lift of asphalt concrete and flush seal to avoid the potential of temporary markings shadowing through and conflicting with the permanent markings.

The Contractor shall remove and dispose of the temporary flexible vertical markers (tabs) after Permanent Pavement Marking is applied. Method of removal shall be nondestructive to the road surface and shall be accomplished within one week of completion of the Permanent Pavement Marking.

At the end of each day the temporary pavement markings shall be in place and visible. No separate payment will be made for re-marking a segment of roadway that was not evened up with paving at the end of the previous day.

Quantities of Temporary Pavement Markings consist of:
P 6434(02) – Snoma Road

1. One pass on top of the bottom lift of Asphalt Concrete utilizing paint.
2. One pass on top of the top lift of Asphalt Concrete utilizing Temporary Flexible Vertical Markers .
3. One pass to remove covers from Temporary Flexible Vertical Markers after flush seal application.

P 6575(02) – Fruitdale Road

1. One pass on top of the first lift of Asphalt Concrete utilizing paint.
2. One pass on top of the top lift of Asphalt Concrete utilizing Temporary Flexible Vertical Markers (tabs) .
3. One pass to remove covers from Temporary Flexible Vertical Markers (tabs) after flush seal application.

Flagger symbol signs (W20-7) and flaggers, or shadow vehicle with rotating yellow lights or strobe lights shall be positioned on the roadway shoulder in advance of the workers in both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used shall be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), Workers Symbol (W21-1) or a BE PREPARED TO STOP (W3-4) warning sign shall be mounted on the rear of the shadow vehicle. The method of traffic control used for this operation shall be approved by the Engineer.

The cost for the traffic control to remove and install the Temporary Flexible Vertical Markers shall be incidental to the contract unit price for Temporary Pavement Marking per mile for all applications.

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PERMANENT PAVEMENT MARKING

Application of permanent pavement marking shall be completed within 14 calendar days following the completion of the flush seal. A minimum of 7 day cure time shall be required for the Flush Seal prior to pavement marking paint application.

The Contractor shall survey and re-mark disturbed Passing/No Passing zone markings as they currently exist.

All materials shall be applied as per manufacturer's recommendations.

All permanent pavement markings shall be a Waterborne Pavement Marking Paint. All costs involved in furnishing and application of the pavement marking paint and glass beads shall be incidental to the contract unit price per gallon for "Permanent Pavement Marking".

All areas to be painted shall be thoroughly broomed prior to placement of any permanent paint to the satisfaction of the Engineer.

Traffic Control shall be incidental to the cost of application. The striper and advance or trailing warning vehicle shall be equipped with flashing amber lights or advance warning arrow panel.

PAVEMENT MARKING RATES OF APPLICATION

Approximate paint application rates shall be as follows:

Two Lane Roadway (Rates for two Lines)
*Yellow Centerline Striping – Rate = 12.34 Gals./ Mile
**Solid White Edgeline – Rate = 33.8 Gals./ Mile
Glass Beads – Rate = 8 Lbs./Gal.

*Rate is the Region average. The actual gallons used will vary depending upon the presence of No Passing Zones.

**Rate is for both edgelines.

Fruitdale Road P 6775(02) is currently striped with a double yellow no passing zone and fog lines centered at 11' from centerline. Permanent pavement marking shall follow the current configuration.

Snoma Road P 6434(02) is currently a gravel road with no current No Passing Zones indicated. The roadway will be striped with a double yellow no passing zone the entire length. No fog lines will be necessary along the curb and gutter.

CHECKING SPREAD RATES

The Contractor shall be responsible for checking the Asphalt Concrete Surfacing and Base Course spread rates and take the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor shall compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts.

The station to station spread shall be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor shall verify the following:

- All tickets are present and accounted for
- The quantity summary for each item is calculated
- The amount of material wasted if any
- Each day's ticket summary is marked with the corresponding 'computed by'
- The ticket summary is initialed and certified that the delivered and placed quantity is correct

All daily tickets and the summary by item shall be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor shall correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor shall be responsible for placement of material to the correct depth unless otherwise directed by the Engineer.

If the placed material is not within a tolerance of $\pm$1/4" of the plan shown depth, the Contractor shall correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

All costs for providing the checker and performing all related duties shall be incidental to the contract lump sum price for the CHECKER. No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25% Payment for the CHECKER shall then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

GENERAL MAINTENANCE OF TRAFFIC

1. Traffic control shall at all times be maintained in accordance with applicable MUTCD Standards, Section 634 of the Specifications and these plans.

2. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State or County, and to the satisfaction of the Engineer.

3. 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 and signs damaged or lost shall be replaced by the Contractor at no cost to the State or County.

4. The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

5. At the end of each day's work all non-applicable traffic control devices shall be pulled off the roadway and taken down and traffic shall be opened to two lanes on P 6575(02). Applicable fixed signing shall remain in place, i.e. "Road Work Ahead" etc.

6. The Contractor shall at all times, keep the portion of the project being used by public traffic in a condition that will adequately and safely accommodate traffic.

7. The use of a pilot car and/or flagger(s) will be required where work activity and/or equipment encroach into a lane open to traffic. Flaggers and a pilot car shall control traffic past the work zone.

8. During periods of working hours the Contractor shall maintain one lane of traffic through the construction zone for project P 6575(02) at all times with traffic being controlled with a pilot car and flagger or with the use of a flagger only as directed by the Engineer. Project P 6434(02) shall remain closed to thru traffic during construction up until paving operations. During the paving operations, this road shall maintain one lane of traffic through the construction zone at all times with traffic being controlled with a pilot car and flagger or with the use of a flagger only as directed by the Engineer.

9. The pilot car shall be a 4-wheeled vehicle with the Contractor's name prominently displayed on both sides of the vehicle. A 36"x18" black on orange sign G20-4, PILOT CAR (top line) FOLLOW ME (bottom line) shall be mounted in a conspicuous position on the rear of the vehicle. The pilot car will be equipped with a flashing amber light.

10. The Contractor shall coordinate his operations such that during non-working hours the roadway shall be open to two-way traffic.

11. Work activities shall only be during daylight hours. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

IRRIGATION CHANNEL P 6434(02)

There is a seasonal irrigation channel running adjacent to the roadway from approximately 3+05 to 15+00. The Redwater Irrigation District is in charge of this channel. Irrigation water is introduced into the channel in the late spring each year. There is not a set time for this water release into the channel, but could occur as early as May 1, 2016 and last through the end of October.

The Contractor shall take great care as to not disturb the channel when working along the roadway inslope. It may become necessary to install "Temporary Works" to help facilitate this work. The "Temporary Works" plan shall be submitted to the Engineer a minimum of two weeks prior to implementation for approval. The "Temporary Works" shall be considered incidental to the contract unit price per cubic yard for "Bank and Channel Protection Gabion".

Prior to installation of the gabions, the Contractor shall contact the Redwater Irrigation District representative Alan Kindsfater, 605-892-2113, concerning the seasonal release date of irrigation water.

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BASE COURSE P6434(02)

3+05 to 32+50 per station:

Crushed Aggregate 143.4 Tons.

Water for Granular at the rate of 0.86 M. Gallons.

MC-70 Asphalt for Prime at the rate of 0.32 tons applied 24 feet wide (Rate = 0.30 gallon per square yard).

Blotting Sand for Prime at the rate of 1.33 tons applied 24 feet wide (Rate = 10 lbs. per square yard).

CLASS E ASPHALT CONCRETE

Mineral aggregate for Class E Asphalt – Alternate A shall conform to the requirements for Class E, Type 1.

Mineral aggregate for Class E Asphalt – Alternate B shall consist of a minimum of 80 percent crushed limestone ledgerock and shall conform to the requirements for Class E, Type 1.

All other requirements for Class E shall apply.

P 6434(02) Snoma Road per station:

Class E Asphalt Concrete - 3+05 to 32+50 (per 2" Lift)

	Alt A	Alt B	
Crushed Aggregate	27.91	28.88	Tons
PG 64-28 Asphalt Binder	1.72	1.52	Tons
Totals	29.63	30.40	Tons

SS-1h of CSS-h1 Asphalt for Tack at the rate of 0.06 tons applied 24 feet wide (Rate = 0.05 gallon per square yard).

SS-1h of CSS-h1 Asphalt for Flush Seal at the rate of 0.06 tons applied 24 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.07 tons applied 24 feet wide (Rate = 8 lbs. per square yard).

P 6575(02) Fruitdale Road per station:

Class E Asphalt Concrete – 1+00 to 27+67

1st 1" Lift	Alt A	Alt B	
Crushed Aggregate	13.38	13.84	Tons
PG 64-28 Asphalt Binder	0.82	0.73	Tons
Totals	14.20	14.57	Tons

2nd 2" Lift	Alt A	Alt B	
Crushed Aggregate	26.17	27.08	Tons
PG 64-28 Asphalt Binder	1.61	1.42	Tons
Totals	27.78	28.50	Tons

SS-1h of CSS-h1 Asphalt for Tack at the rate of 0.05 tons applied 23 feet wide (Rate = 0.05 gallon per square yard).

SS-1h of CSS-h1 Asphalt for Flush Seal at the rate of 0.05 tons applied 22 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 0.98 tons applied 22 feet wide (Rate = 8 lbs. per square yard).

TABLE OF ADDITIONAL QUANTITIES

P 6434(02)

	Base Course TON	Alternate A Class E Asphalt Concrete TON	Alternate B Class E Asphalt Concrete TON	Alternate A PG 64-28 Asphalt Binder TON	Alternate B PG 64-28 Asphalt Binder TON
3 Driveways	104.7	39.2	2.3	40.2	2.0
1 Intersecting Road	52.3	19.6	1.2	20.1	1.0
Totals	**157.0**	**58.8**	**3.5**	**60.3**	**3.0**

P 6575(02)

	Base Course TON	Alternate A Class E Asphalt Concrete TON	Alternate B Class E Asphalt Concrete TON	Alternate A PG 64-28 Asphalt Binder TON	Alternate B PG 64-28 Asphalt Binder TON
3 Field Approaches	15.0	9.7	0.6	9.9	0.5
4 Driveways	37.1	28.1	1.6	28.8	1.4
Totals	**52.4**	**37.8**	**2.2**	**38.7**	**1.9**

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Revised: 9/29/15

SUMMARY OF MATERIAL QUANTITIES

P 6434(02)

	Base Course Ton	Alternate A Class E Asphalt Concrete TON	Alternate B Class E Asphalt Concrete TON	Alternate A PG 64-28 Asphalt Binder TON	Alternate B PG 64-28 Asphalt Binder TON	MC-70 Asphalt for Prime	Blotting Sand for Prime	SS-1h or CSS-1h Asphalt for Tack TON	SS-1h or CSS-1h Asphalt for Flush TON	Sand for Flush Seal TON
3+05 to 32+50	3,764.7	1,745.2	1,790.6	101.2	89.5	6.2	39.3	1.6	1.6	31.4
Additional Quantities	157.0	58.8	60.3	3.5	3.0					
Engineers Discretion	118.7	54.5	55.9	3.2	2.8					
Totals	**4,040.4**	**1,858.5**	**1,906.8**	**107.9**	**95.3**	**6.2**	**39.3**	**1.6**	**1.6**	**31.4**

P 6575(02)

	Unclassified Excavation – Digouts CUYD	Base Course Ton	Alternate A Class E Asphalt Concrete TON	Alternate B Class E Asphalt Concrete TON	Alternate A PG 64-28 Asphalt Binder TON	Alternate B PG 64-28 Asphalt Binder TON	SS-1h or CSS-1h Asphalt for Tack TON	SS-1h or CSS-1h Asphalt for Flush TON	Sand for Flush Seal TON
0+20 to 28+47			1,177.9	1,208.6	68.3	60.4	2.9	1.5	27.6
Digouts	404	617.8	148.2	152.1	8.6	7.6			
Additional Quantities		5.4	37.8	38.7	2.2	1.9			
Engineers Discretion	20	33.5	40.9	42.0	2.4	2.1			
Totals	**424**	**703.7**	**1,404.8**	**1,441.4**	**81.5**	**72.0**	**2.9**	**1.5**	**27.6**

TABLE OF CONSTRUCTION STAKING FOR PROJECT P 6434(02)

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking: Length (Mile)	Grade Staking: Lane Factor	Grade Staking: *Sets of Stakes	Grade Staking: **Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)
Snoma Road	3+05	32+50	2	2,945	0.558	1	2	1.116	0.558	0.558
							Totals:	1.116	0.558	0.558

* 1 = Blue Top Stakes Only (Asphalt Concrete Pavement)
2 = Blue Top and Paving Hub Stakes (PCC Pavement)

** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

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TABLE OF PIPE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6434(02	10	80

Revised: 9/29/15

		Reinforced Concrete														Corrugated Metal											
		Circular				Circular Flared End										Circular			Circular Flared End				Circular Safety End				
Station	Offset (L/R)	18" Cl. 2 Ft				18" Each										18" 16 Ga Ft			18" Each				18" Each				
3+75.5	CL	26														12			1								
5+90	R															12			1								
9+60	R	36														14			1								
11+00	R															18			1								
12+17	CL	48				1																					
14+00	CL	34				1																					
18 +00	CL	26														14			1								
25+50	CL	26														14			1								
29+52	R															26							2				
Subtotal:		196				2										110			6				2				

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TABLE OF FENCE QUANTITIES

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STATE OF SOUTH DAKOTA	PROJECT P 6434 (02)	SHEET 11	TOTAL SHEETS 80

Station to Station		Side (L/R)	Right-of-Way Fence TYPE 2	Temporary Fence TYPE 1A	Post Panels 2PP	Post Panels 3PP	Gates 12' Tubular Gate (Each)	Remove Fence
19+00	32+41	L	1,286			4		1,286
2+93	15+25	R	1,232		8			1,227
15+25	15+25	R	25		3	1		
15+25	26+13	R	1,088	1088	1	1		1,105
26+13	32+38	R	625		3	1	1	647
TOTALS:			4256	1088	15	7	1	4,265

Post Type and Sequence:
Right-of-way fence shall be constructed using alternate wood and steel posts except as noted.

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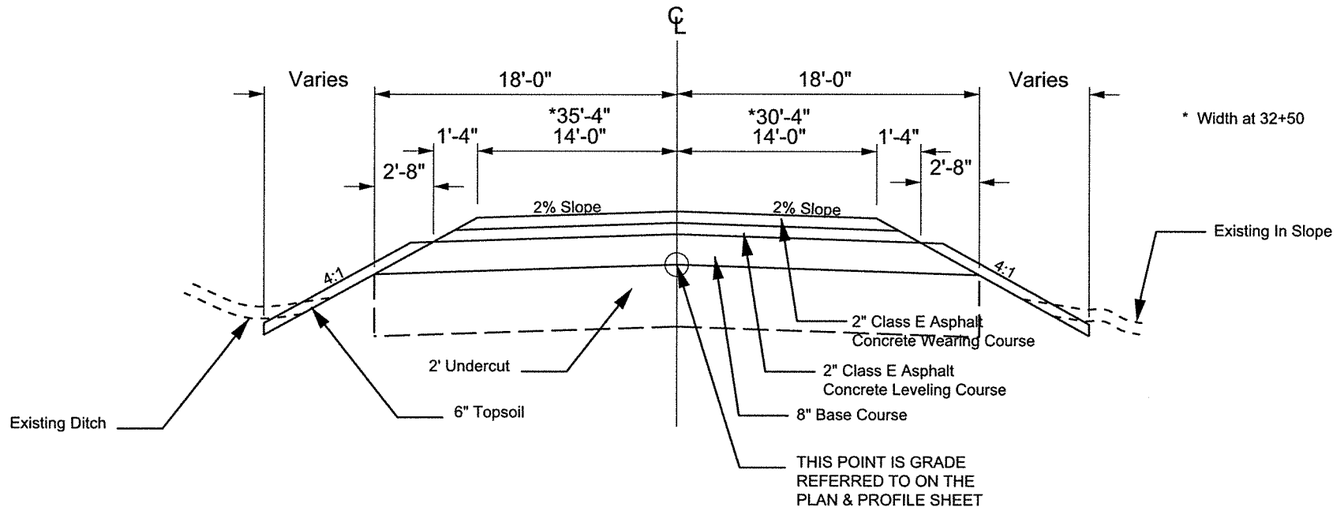
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	12	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

TYPICAL SECTION

(NOT TO SCALE)

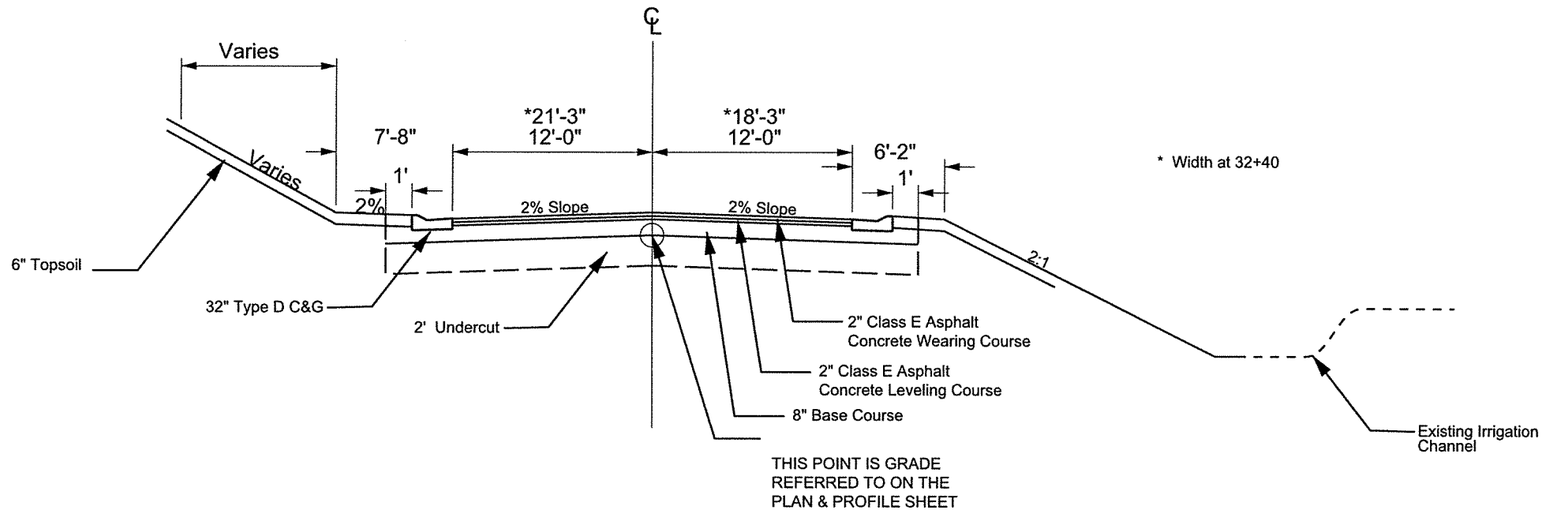
P 6434 (02) - Snoma Rd.



MAINLINE TYPICAL TIE IN

3+05 & 32+50

Transition from
3+05 - 3+50
32+14.5 - 32+40



MAINLINE TYPICAL SECTION

3+50 - 32+40

Transition from
15+75 - 16+00

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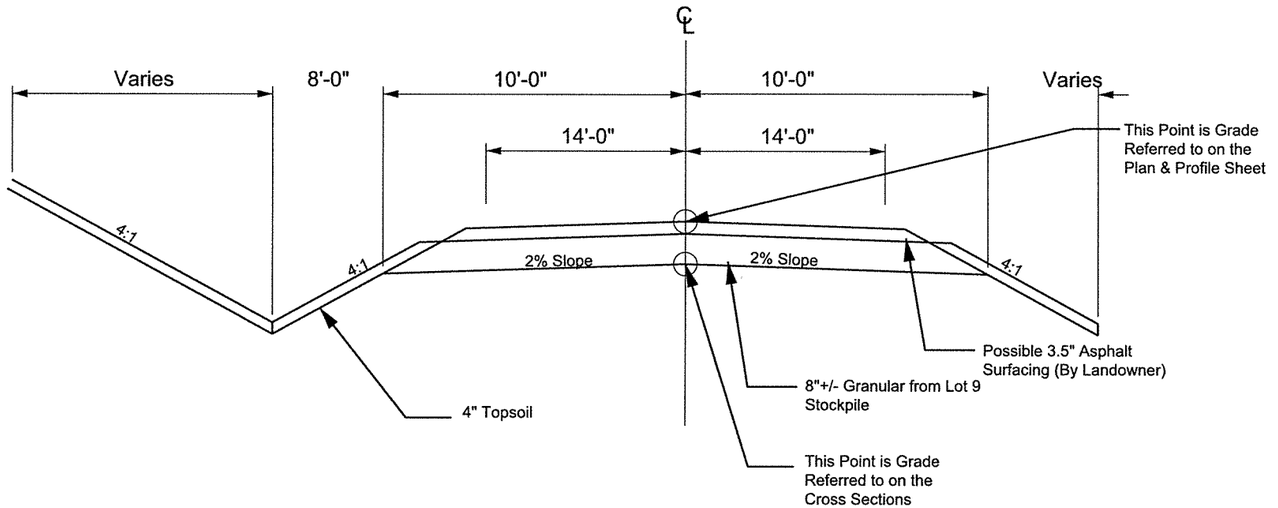
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	13	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

TYPICAL SECTION

(NOT TO SCALE)

P 6434 (02) - Snoma Rd.



LOT 9 DRIVEWAY

0+00 to 3+96

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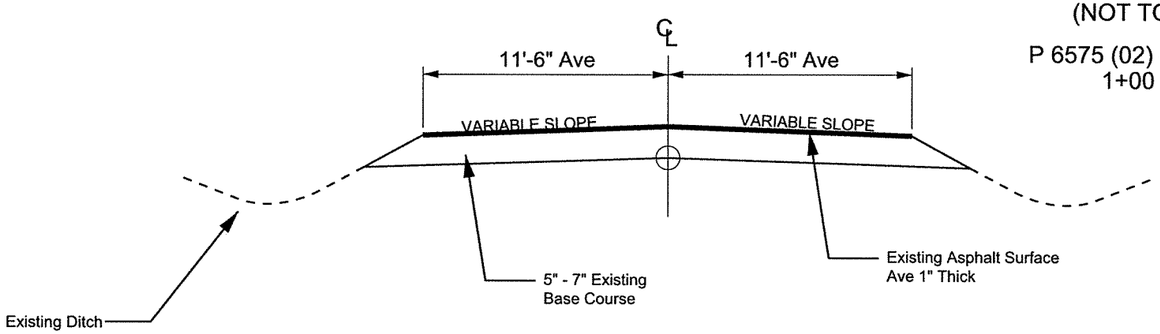
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6575(02)	14	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

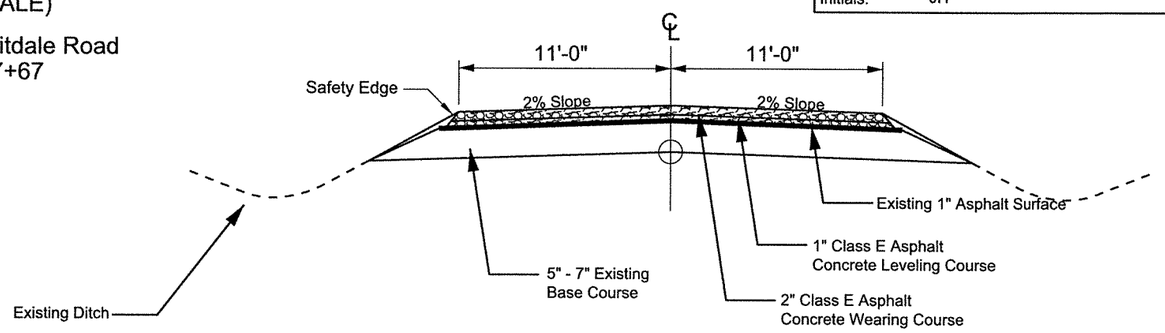
TYPICAL SECTION

(NOT TO SCALE)

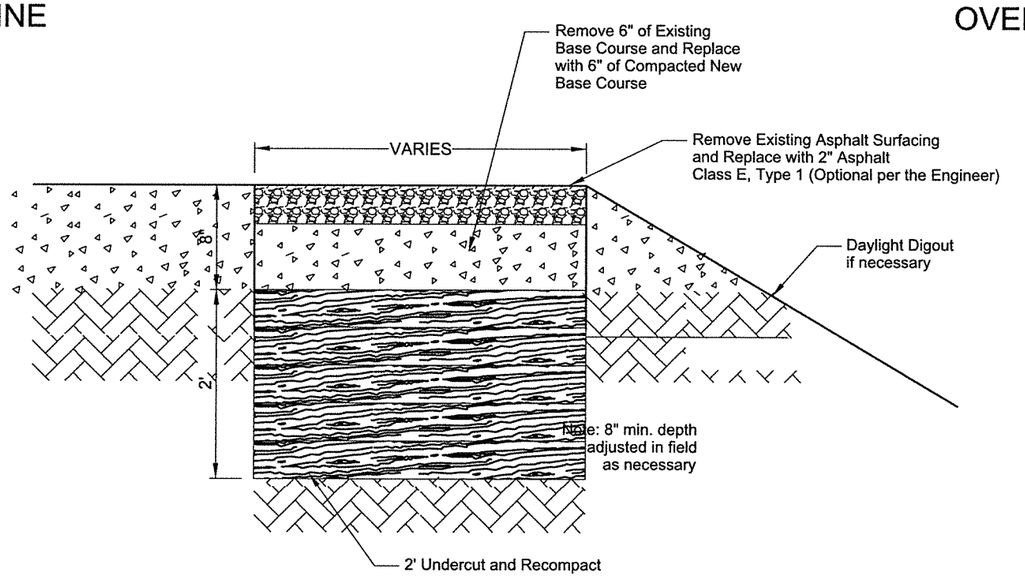
P 6575 (02) - Fruitdale Road
1+00 to 27+67



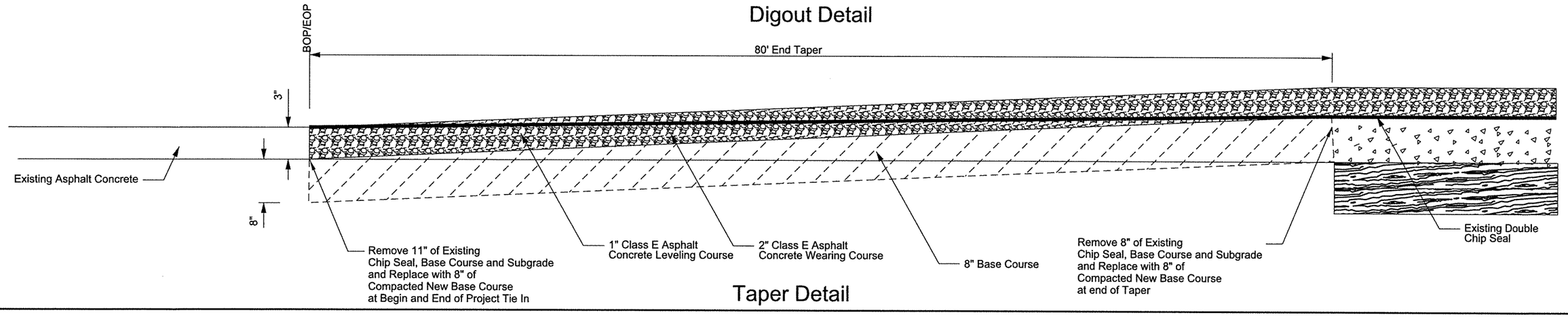
EXISTING MAINLINE



OVERLAY SECTION



Digout Detail



Taper Detail

FOR BIDDING PURPOSES ONLY

Phase I

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	15	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

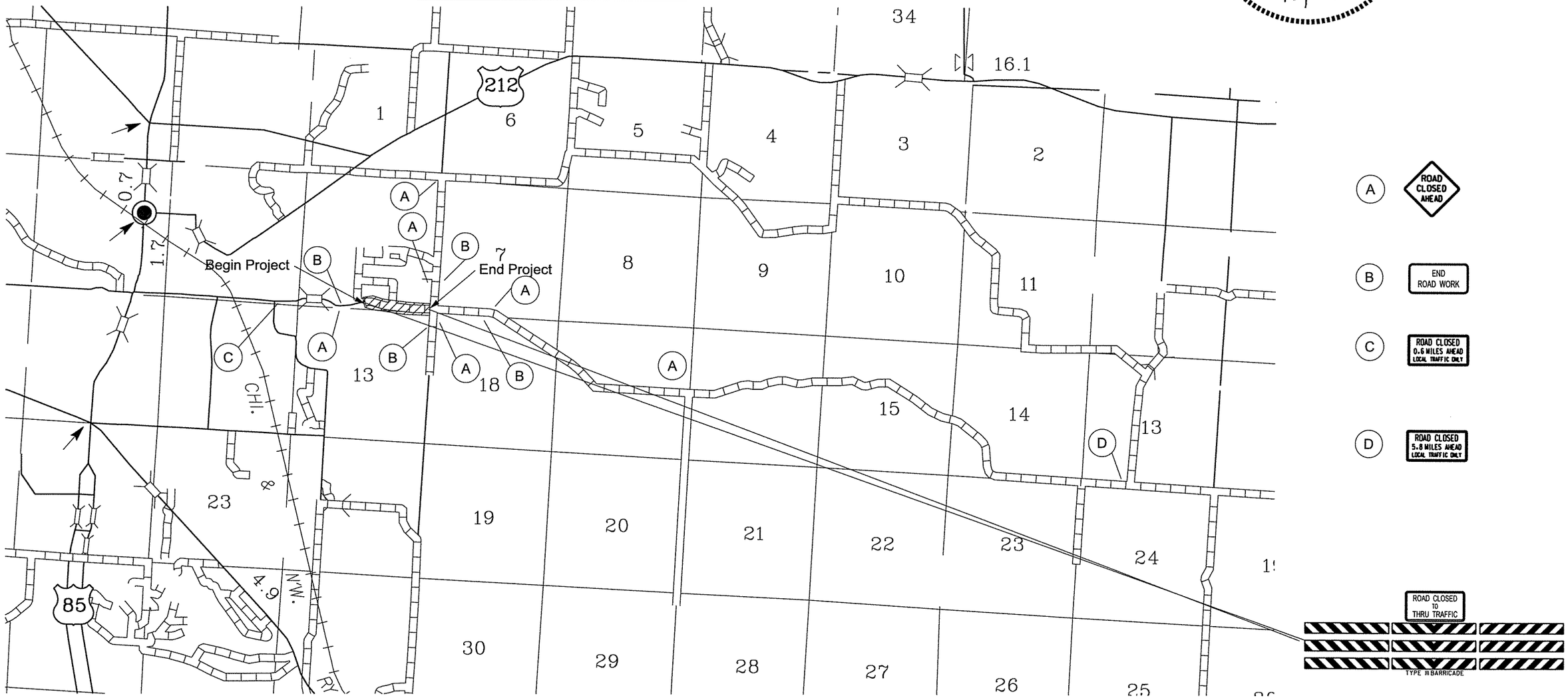
SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-3a	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY	2	60" x 30"	13	26
R11-4	ROAD CLOSED TO THRU TRAFFIC	2	60" x 30"	13	26
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W8-1	BUMP	2	48" x 48"	16	32
W8-11	UNEVEN LANES	2	48" x 48"	16	32
W20-1	ROAD WORK AHEAD	6	48" x 48"	16	96
W20-3	ROAD CLOSED AHEAD	6	48" x 48"	16	96
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-2	FRESH OIL	2	48" x 48"	16	32
W21-3	ROAD MACHINERY AHEAD	2	48" x 48"	16	32
G20-2	END ROAD WORK	4	36" x 18"	5	20
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			488

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	6 Each

Snoma Road

REGISTERED PROFESSIONAL ENGINEER
Reg. No. 7107
JASON T. HANSON
SOUTH DAKOTA
10/16/15



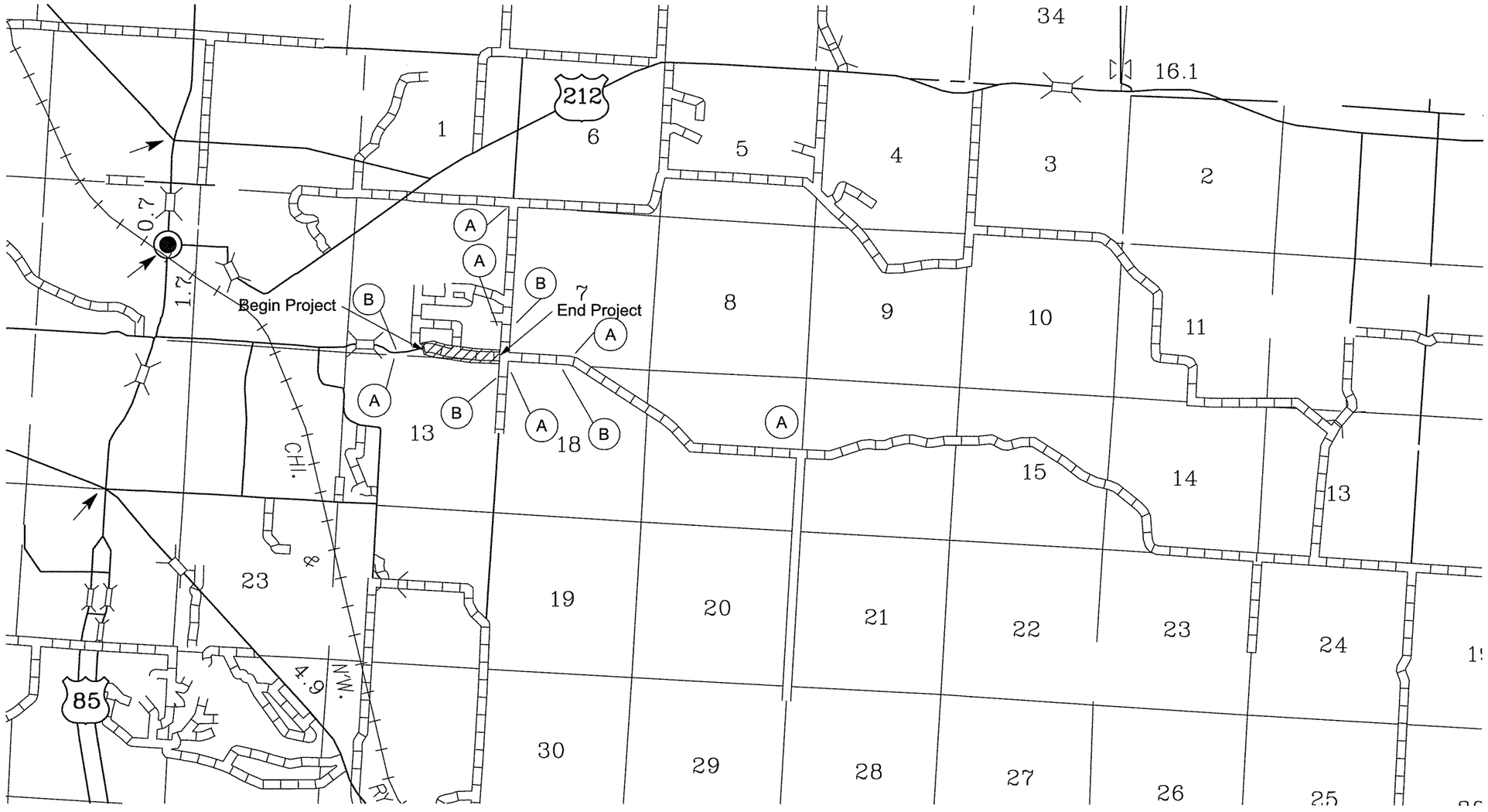
FOR BIDDING PURPOSES ONLY

Phase II

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	16	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH

Snoma Road



A — ROAD WORK AHEAD

B — END ROAD WORK

REGISTERED PROFESSIONAL ENGINEER
Reg. No. 7107
JASON T. HANSON
SOUTH DAKOTA
10/16/15

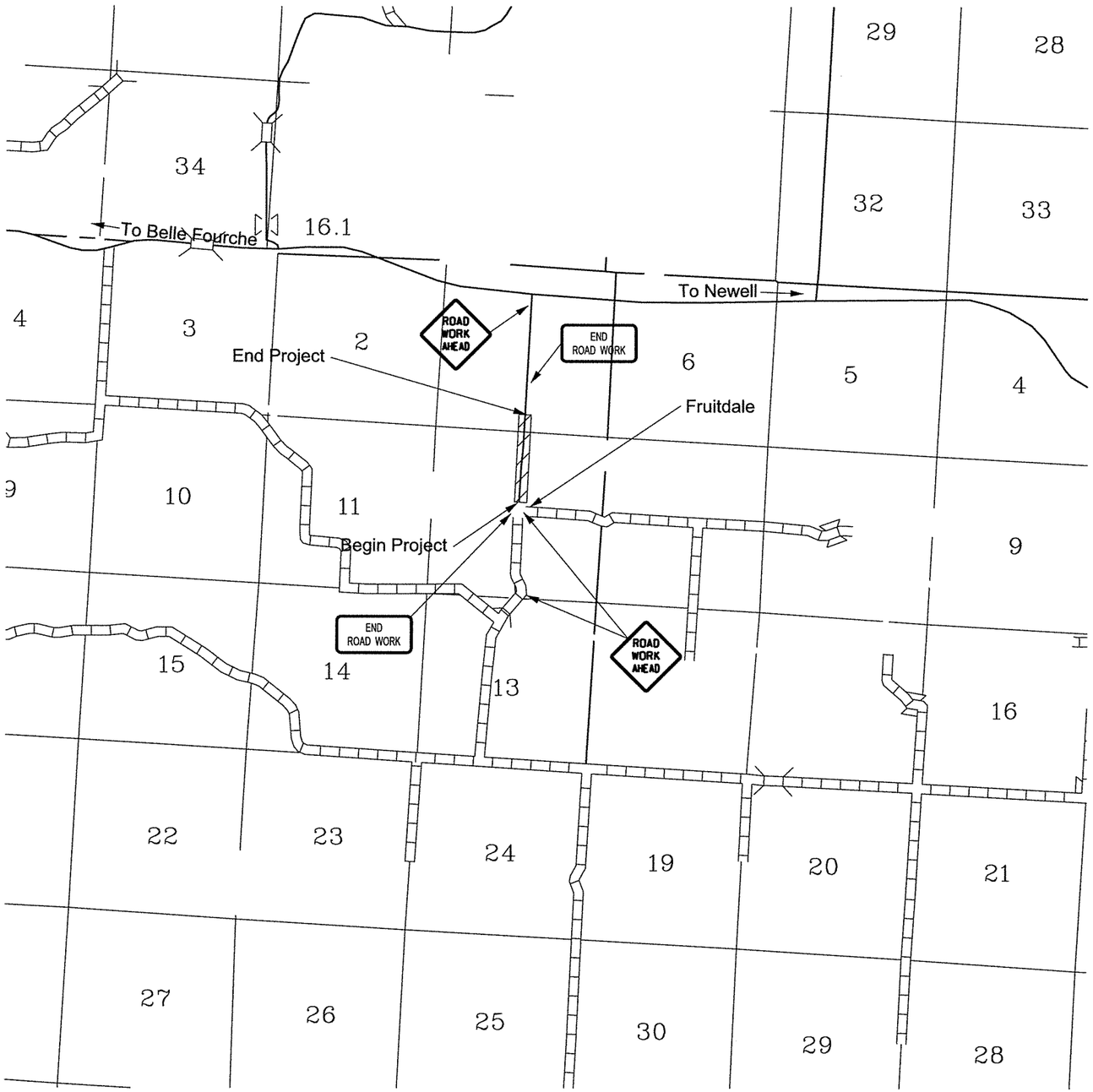
FOR BIDDING PURPOSES ONLY

Phase I & II

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6575(02)	17	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH

Fruitdale Road



ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W8-1	BUMP	2	48" x 48"	16	32
W8-11	UNEVEN LANES	2	48" x 48"	16	32
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-2	FRESH OIL	2	48" x 48"	16	32
W21-3	ROAD MACHINERY AHEAD	2	48" x 48"	16	32
G20-2	END ROAD WORK	2	36" x 18"	5	10
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			298

REGISTERED PROFESSIONAL ENGINEER
Reg. No. 7107
JASON T. HANSON
SOUTH DAKOTA
10/16/15

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 Snoma Road** 10.8 **(4.2 1.b.)**
- **Total Area To Be Disturbed** 4.7 **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 89
- **Soil Properties:** AASHTO Soil Classification A-7,
- Clay, Silty Clay **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Red Water River **(4.2 1.e.)**
-
- **Total Project Area Fruitdale Road** 2.3 **(4.2 1.b.)**
- **Total Area To Be Disturbed** 1.0 **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 45
- **Soil Properties:** AASHTO Soil Classification A-7,
- Clay, Silty Clay **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Belle Fourche River **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**
(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)
- **Special sequencing requirements, See Traffic Control**
- **Install perimeter protection where runoff sheets from the site.**
- **Remove and store topsoil.**
- **Grading and earth moving activities**
- **Place granular material on new road bed**
- **Stabilize disturbed areas.**
- **Apply remainder of granular material**
- **Complete final paving**
- **Complete traffic control installation**

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

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**
- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^1/_3$ of the height of the silt fence.
  - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
  - Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ 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.

❖ 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.

Tom Kahlhamer

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.

PLACING TOPSOIL P 6434(02)

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)
Mainline				
3+05		32+50		1,752
			Total:	1,752

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".

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

Glomus intraradices	25%
Glomus aggregatu	25%
Glomus mosseae	25%
Glomus etunicatum	25%

All seed shall be inoculated with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum shall be from the list below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 http://www.mycorrhizae.com/

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 1,500 pounds per acre.

The all-natural slow release fertilizer shall be from the list below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways.

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Blue Grama	Bad River, Willis	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November	-	10
	Total:	26

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per ton for "Fiber Mulching".

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

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

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 wattles shall remain on the project to decompose.

An additional quantity of 9" and 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence.

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 9" EROSION CONTROL WATTLE

Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
3+02 to 4+00	R	9	10' off toe of Inslope	98
4+22 to 5+50	R	9	10' off toe of Inslope	128
6+06 to 8+00	R	9	10' off toe of Inslope	194
8+00 to 9+50	R	9	10' off toe of Inslope	150
9+60	L	9	Around Type C Inlet	24
10+50 to 13+50	R	9	10' off toe of Inslope	300
14+50 to 20+00	R	9	10' off toe of Inslope	550
20+00 to 26+00	R	9	10' off toe of Inslope	600
26+00 to 29+25	R	9	10' off toe of Inslope	325
			Additional Quantity:	205
			Total:	2,574

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://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp

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

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

REGISTERED PROFESSIONAL ENGINEER REG. NO. 7107 JASON T. HANSON SOUTH DAKOTA 10/16/15

FOR BIDDING PURPOSES ONLY

Revised: 9/29/15

TABLE OF HIGH FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
3+00	L	Pipe Inlet	18
15+50	L	Pipe inlet	18
29+60	R	Pipe Inlet	18
		Additional Quantity:	400
		Total:	454

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlets with Frame and Grates shall be installed prior to working in the vicinity of the drop inlets.

The Contractor shall be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance shall be scheduled to prevent storm water from backing up into the driving lane.

"Sediment Control at Inlets with Frames and Grates" will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlets with Frames and Grates shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

Sediment collection devices shall be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer's recommendations.

Sediment Control at Inlet with Frame and Grate Approved List:

Product	Manufacturer
InfraSafe Debris Collection Device with filter sock	Royal Environmental Systems, Inc. Stacy, MN Phone: 1-800-817-3240 www.royalenterprises.net
Dandy Curb Sack	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 www.silttrapper.com
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 1-605-520-0555 www.skyviewconst.com
FLEXSTORM Inlet Filters	Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 www.inletfilters.com
GR-8 Guard or Combo Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com
Sediment Catchers	Shaun Jensen Brookings, SD Phone: 1-605-690-4950
Grate FX, Slammer, or VertPro	Enviroscape ECM, Ltd. Oakwood, OH Phone: 1-419-594-3210 www.strawblanket.com

TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

Station	L/R	Quantity (Each)
3+57.5	L/R	1
5+90	R	1
9+60	R	1
11+00	R	1
14+00	L	1
18+00	L/R	1
25+50	L/R	1
	Total:	10

SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

The sediment control device provided shall be from the list shown below. Refer to Standard Plate 734.11 for details.

Product	Manufacturer
Dandy Curb	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Gutterbuddy	ACF Environmental Richmond, VA Phone: 1-800-448-3636 www.acfenvironmental.com
SS-300	Silt-Saver, Inc. Conyers, GA Phone: 1-888-382-7458 www.siltsaver.com
Curb Inlet Guard	ECTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com

TABLE OF SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

Station	L/R	Clear Opening Width (Ft)	Quantity* (Ft)
12+17	L	6	8
		Total:	8

* Quantity shown is the minimum length required and shall be the basis of payment.

EROSION CONTROL - SNOMA ROAD

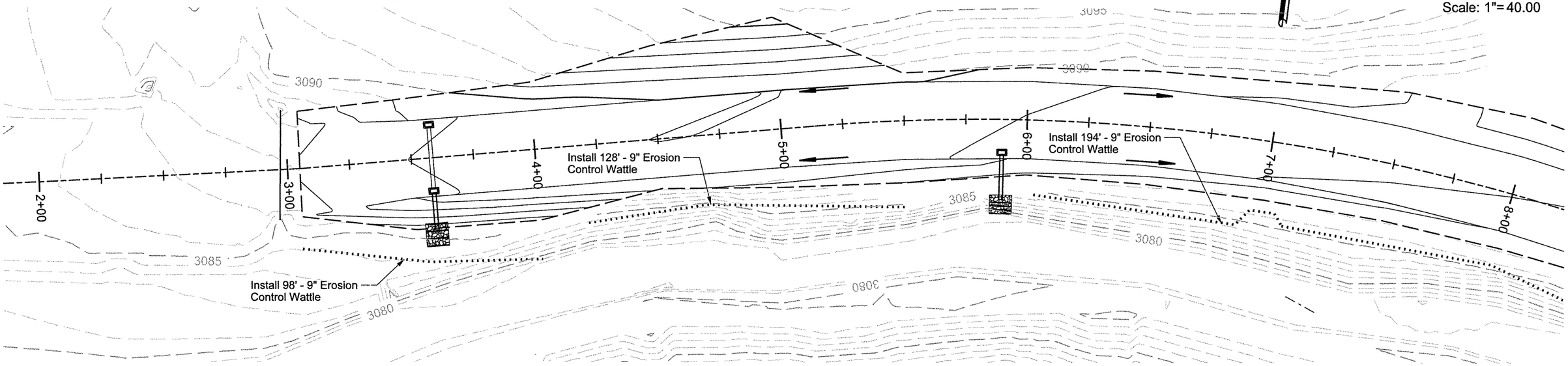
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P6434 (02)	23	80

Plotting Date: 08/11/15
Revised Date: 9/29/15
Initials: JH

Scale: 1"= 40.00

Install High Flow Silt Fence at the following locations:
3+00 L Inlet end of existing pipe 18 Ft



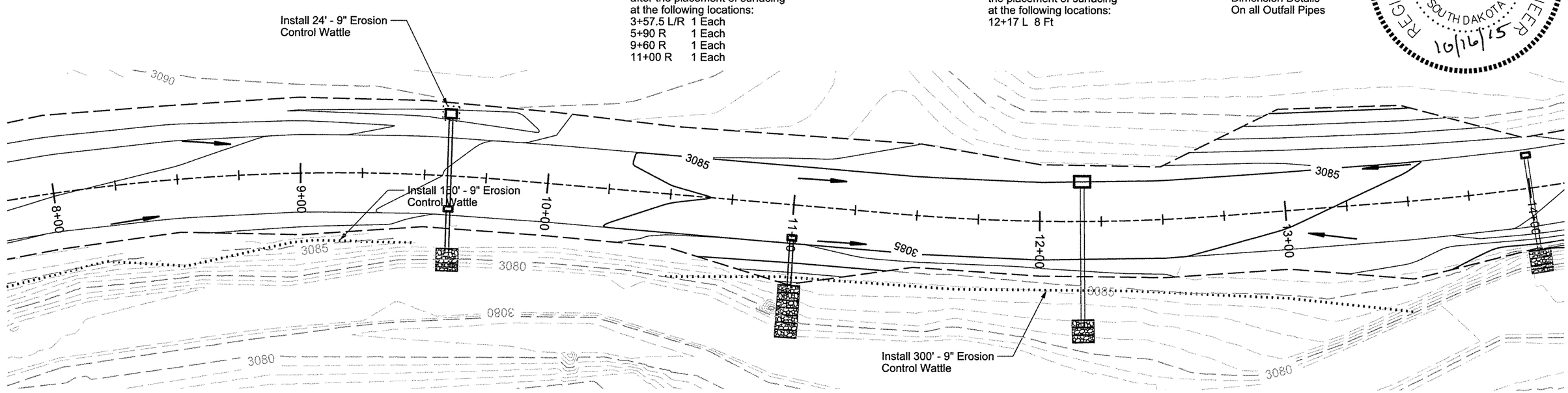
Install Gabion Baskets w/Type B Drainage Fabric
at the pipe outlet at the following locations:
3+57.5 R 4.5 CuYd; 16 SqYd Fabric
5+90 R 12.0 CuYd; 20 SqYd Fabric

Install Gabion Baskets w/Type B Drainage Fabric
at the pipe outlet at the following locations:
9+60 R 9.0 CuYd; 18 SqYd Fabric
11+00 R 10.5 CuYd; 40 SqYd Fabric
12+17 R 4.5 CuYd; 16 SqYd Fabric

Install Sediment Control at
Inlets with Frames and Grates
after the placement of surfacing
at the following locations:
3+57.5 L/R 1 Each
5+90 R 1 Each
9+60 R 1 Each
11+00 R 1 Each

Install Sediment Control
at Type S Drop Inlets after
the placement of surfacing
at the following locations:
12+17 L 8 Ft

See Pipe Cross
Sections for
Dimension Details
On all Outfall Pipes



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SOUTH DAKOTA
10/16/15

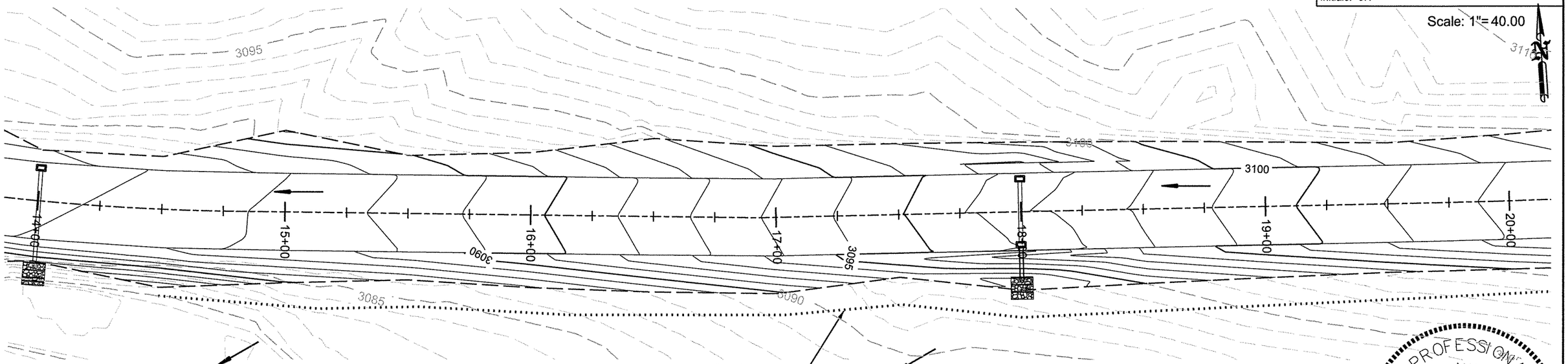
EROSION CONTROL - SNOMA ROAD

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	24	80

Plotting Date: 08/11/15
Revised Date: 9/29/15
Initials: JH

Scale: 1"= 40.00



Install Gabion Baskets w/ Type B Drainage Fabric At the Pipe Outlet at the following locations:
14+00 R 9.0 CuYd; 18 SqYd Fabric
18+00 R 4.5 CuYd; 16 SqYd Fabric
25+50 R 4.5 CuYd; 16 SqYd Fabric

Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:
14+00 L 1 Each
18+00 R 1 Each
18+00 L 1 Each
25+50 L 1 Each
25+50 R 1 Each

Install 550' - 9" Erosion Control Wattle

Install High Flow Silt Fence at the following locations:
Around topsoil stockpiles--quantity and location to be determined

See Pipe Cross Sections for Gabion Dimensions

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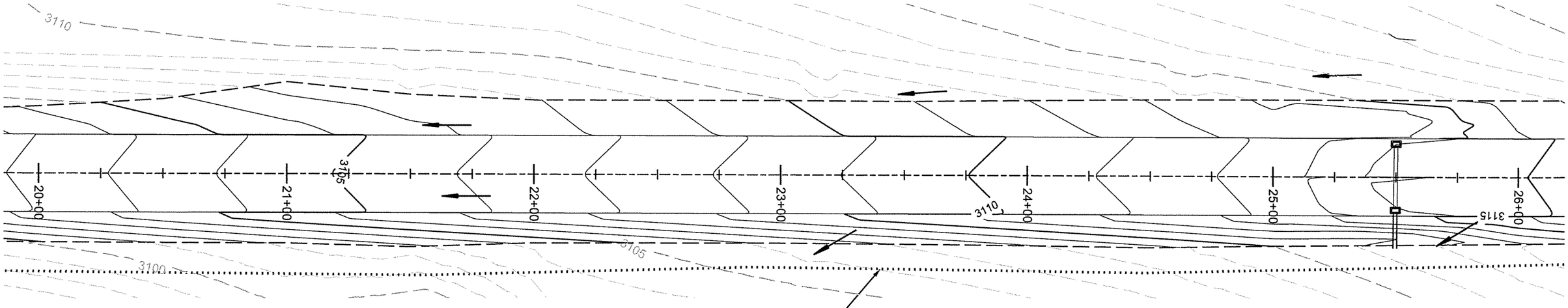


Install High Flow Silt Fence at the following locations:
Around topsoil stockpiles--quantity and location to be determined

Install 600' - 9" Erosion Control Wattle

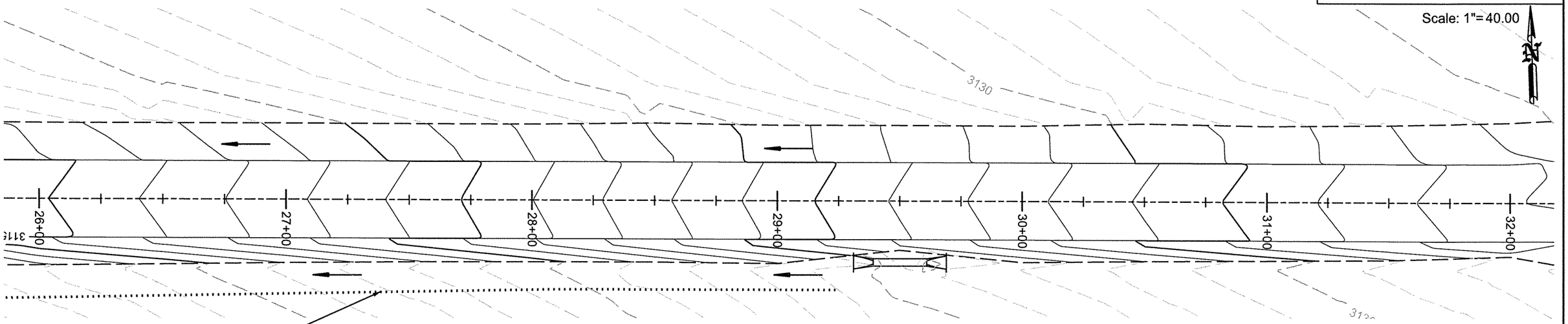
EROSION CONTROL - SNOMA ROAD

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	25	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JH

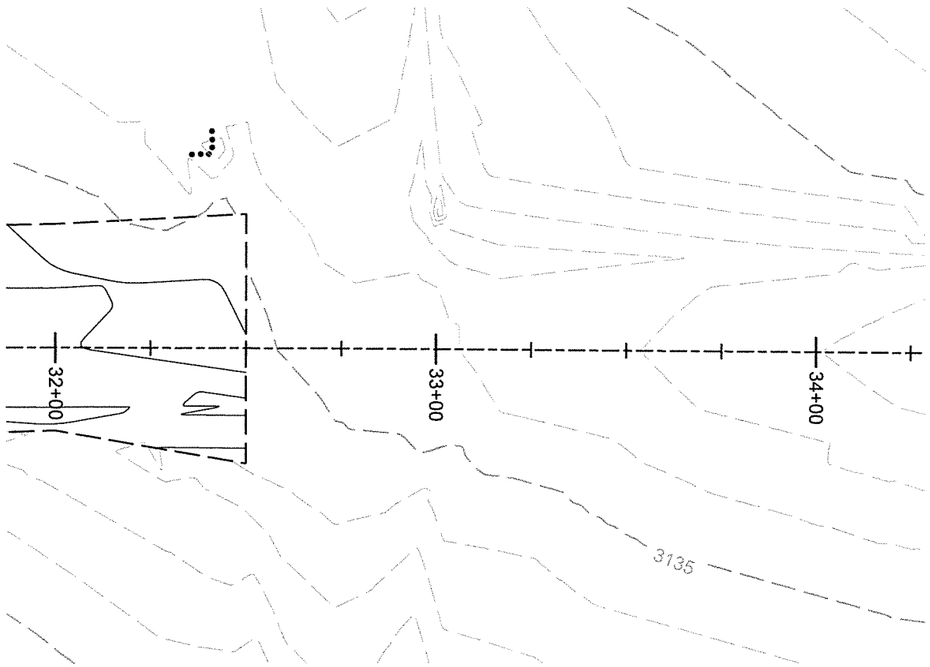
Scale: 1"= 40.00



Install 325' - 9" Erosion Control Wattle

Install High Flow Silt Fence at the following locations:
Around topsoil stockpiles--quantity and location to be determined

Install High Flow Silt Fence at the following locations:
29+60 R Inlet end of pipe 18 Ft



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10/16/15

CONTROL DATA

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6434(02)/P 6575(02)	26	80

HORIZONTAL AND VERTICAL CONTROL POINTS – P 6434(02)

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP 1	32+56.80	1836.52 Lt	Rebar & Cap	977869.048	327495.391	3146.018
CP 2	19+69.17	26.8' Rt	Rebar & Cap	976512.964	325682.214	3099.356
212 016.56			State Harn Pin Bench Mark	975612.715	331941.197	3056.926

HORIZONTAL AND VERTICAL CONTROL POINTS – P 6575(02)

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
212 23.92			State Harn Pin Bench Mark	1013853.69	333502.149	3014.936
CP 1	11+88.08	38.2' Lt	Rebar & Cap	1006680.058	328249.366	3022.318

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.
South Dakota North Zone (NAD 83/2011) SF = 0.9999600
The elevations shown on this sheet are based on NAVD 88.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6434 (02)	27	80

HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			325817.81	974580.82
		TL= 305.00	N 80°00'29" E		
PI	3+05			325870.73	974881.20
		TL= 208.71	N 78°11'59" E		
PC	5+15.71			325913.42	975085.49
PI	7+55.92	R = 800.00	Delta = 33°41'19" R	325962.96	975322.58
PT	9+84.09			325872.67	975547.33
		TL= 159.00	S 68°06'47" E		
PC	11+43.09			325813.40	975694.88
PI	12+09.63	R = 800.00	Delta = 9°30'29" L	325788.59	975756.61
PT	12+75.85			325774.33	975821.60
		TL= 70.44	S 77°37'16" E		
PC	13+46.30			325759.23	975890.41
PI	14+13.32	R = 1000.00	Delta = 7°40'06" L	325744.86	975955.87
PT	14+80.13			325739.36	975022.66
		TL= 212.82	S 85°17'27" E		
PT	16+92.96			325721.88	976234.76
		TL= 300.65	S 87°19'42" E		
PT	19+93.61			325707.87	976535.09
		TL= 1279.20	S 87°50'25" E		
PT	32+72.81			325659.66	977813.38
		TL= 506.45	S 87°33'03" E		
POE	37+79.27			325638.02	978319.37

LOT 9 DRIVEWAY

Type	Station			Northing	Easting
POB	0+00.00			325932.90	975372.52
		TL= 26.88	N 8°45'25" E		
PC	0+26.88			325959.47	975376.61
PI	0+41.72	R = 50.00	Delta = 33°03'10" R	325974.13	975378.87
PT	0+55.73			325985.19	975388.76
		TL= 48.42	S 41°48'35" E		
PC	1+04.15			326021.28	975421.04
PI	1+52.45	R = 140.00	Delta = 38°04'03" L	326057.28	975453.24
PT	1+97.17			326105.48	975456.40
		TL= 88.57	S 3°44'31" E		
PC	2+85.73			326193.86	975462.18
PI	3+13.92	R = 75.00	Delta = 41°11'38" L	326221.98	975464.01
		TL= 42.7	N 37°27'06" W		
POE	3+82.36			326278.26	975420.91

TABLE OF SUPERELEVATION - MAINLINE

Station	to Station		
3+05	4+55.05	-	Normal Crown Section
4+55.05	5+28.37	-	Superelevation Transition
5+28.37	9+67.43	-	800' Radius Curve Right 2.000'/' Superelevation Rate Point of Rotation at Centerline
9+67.43	10+42.75	-	Superelevation Transition
10+42.75	10+84.44	-	Normal Crown Section
10+84.44	11+57.76	-	Superelevation Transition
11+57.76	14+65.47	-	800' Radius Curve Left 2.000'/' Superelevation Rate Point of Rotation at Centerline
14+65.47	15+38.79	-	Superelevation Transition
15+38.79	37+79.27	-	Normal Crown Section

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/2011); Geoid 12A; SF = 0.99989905

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	28	80

Plotting Date: 08/11/15
Revised Date: 9/29/15
Initials: JH

Scale: 1"= 100.00

EASEMENTS & R.O.W.

Lot 24
Sec 12, T8N R2E
Steve & Jinger Clyde
11140 Snoma Road
Belle Fourche

Lot 15
Sec 12, T8N R2E
Cass & Mona Heimbaugh
11146 Snoma Road
Belle Fourche

T1- Temp. Easement for Cut/Fill
0.40 Acres ±

P1- Parcel 1
Permanent Row
0.27 Acres ±

Lot 9
Sec 12, T8N R2E
Allan Schreier
605 Janet Ct
Belle Fourche

Lot 10
Sec 12, T8N R2E
Reva Potter

T3- Temp. Easement for Cut/Fill
0.25 Acres ±

P3- Parcel 3
Permanent Row
0.19 Acres ±

Lot 1
Sec 12, T8N R2E
Grubbing Hoe Ranch Inc.

T4- Temp. Easement for Cut/Fill
0.17 Acres ±

P4- Parcel 4
Permanent Row
0.13 Acres ±

P5
T5

Property Line
Property Line

6+13.13
73.22' Lt

2+95.55
76.33' Lt

9+20.47
73.74' Lt

12+74.14
66.97 Lt

12+87.85
101.50' Rt
Temp. Easement

Existing Row 66'
New Row 100'
New Row 100'
Temp. Easement

Section Line

Quarter Line

NW1/4 NE1/4 NE1/4 NW1/4
Sec 13, T8N R23
Croell Redi Mix Inc.
19002 Helmer Rd
Belle Fourche

E1/2 NW1/4 except
NW1/4 NE1/4 NE1/4 NW1/4
Sec 13, T8N R23
Croell Redi Mix Inc.
19002 Helmer Rd
Belle Fourche

NW1/4 NE1/4
Sec 13, T8N R23
Croell Redi Mix Inc.
19002 Helmer Rd
Belle Fourche

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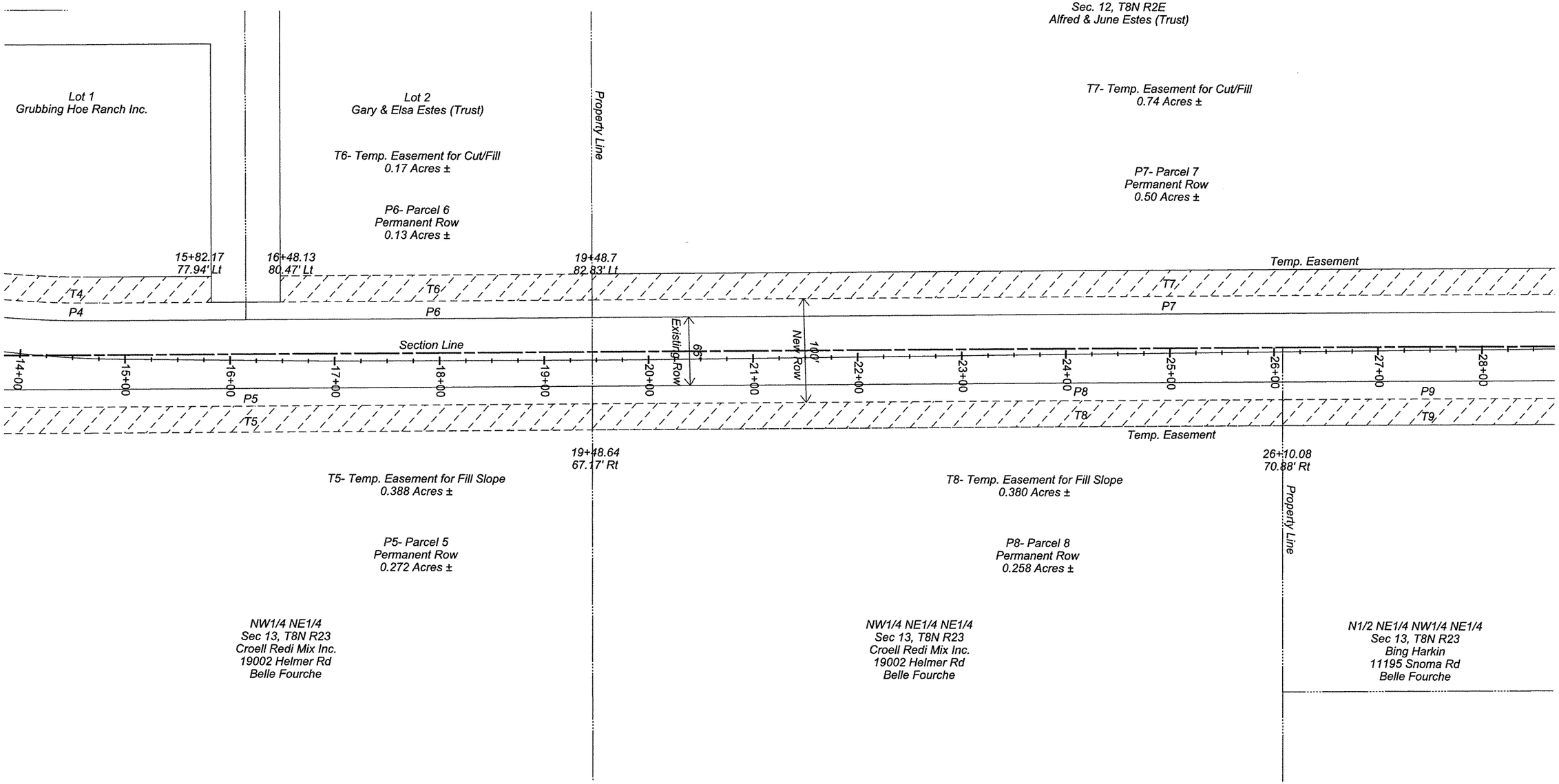
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	29	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

Scale: 1"= 100.00



EASEMENTS & R.O.W.

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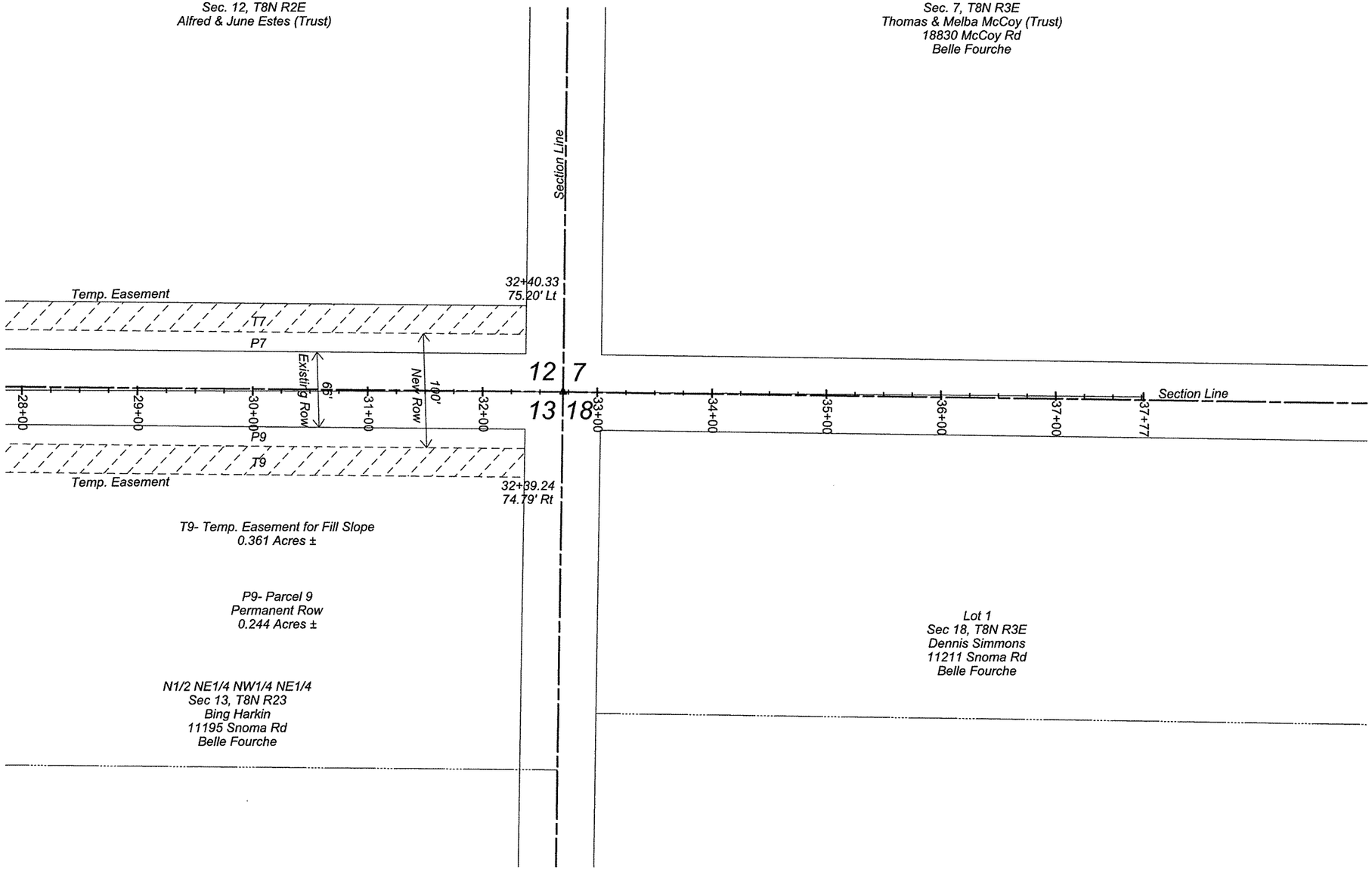
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	30	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

Scale: 1"= 100.00



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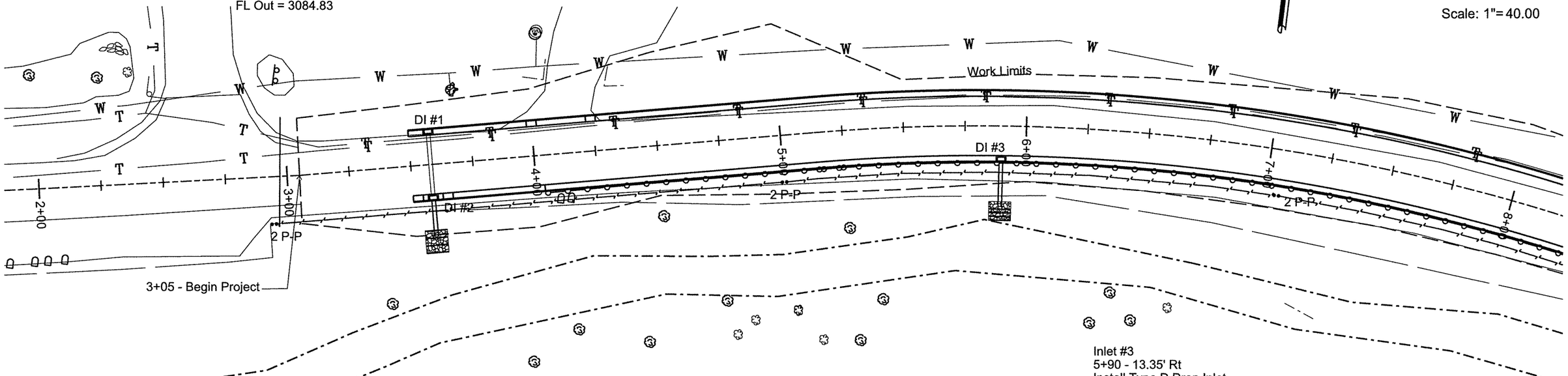
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P6434 (02)	31	80

Plotting Date: 08/11/15
Revised Date: 9/29/15
Initials: JH

Scale: 1"= 40.00

Inlet #1
3+57.5 - 13.35' Lt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3087.33
FL Out = 3084.83



3+57.5 - 12.60' Lt - 12.60' Rt
Install 18" x 26' RC Pipe

3+57.5 - 14.10' Rt
Install 18" x 12' CM Pipe
& 1 Flared End Section

Inlet #2
3+57.5 - 13.35' Rt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3087.33
FL In = 3084.43
FL Out = 3084.33

4+03.5 - 4+41 Rt
Install Tangent End Terminal

4+41 - 8+00 Rt
Install 359' Double W Beam Guardrail

4+12 - 15' Rt (2+25 New Location)
Remove Double
Mailbox Assembly

Install Double Mailbox
Assembly @ the following locations:
2+25 - 30' Rt
2+29 - 30' Rt
2+33 - 30' Rt

Inlet #3
5+90 - 13.35' Rt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3087.28
FL Out = 3085.28

5-90 - 14.17' Rt
Install 18" x 12' CM Pipe
& 1 Flared End Section

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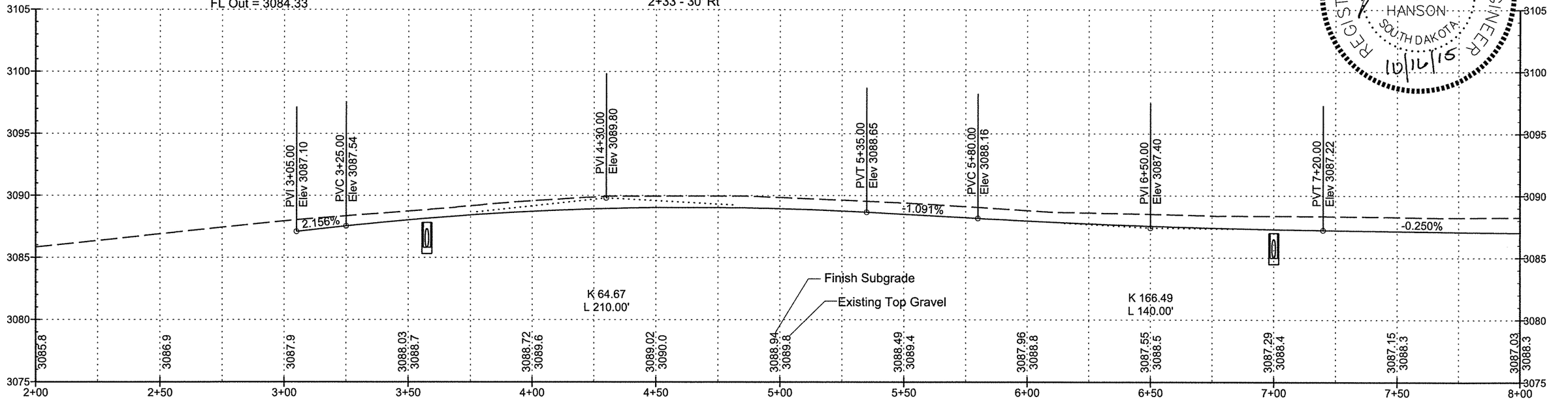
10/16/15



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P6434 (02)	32	80

Plotting Date: 08/11/15
Revised Date: 9/29/15
Initials: JH

Scale: 1"= 40.00

Inlet #4a
9+60 - 25.1' Lt
Install Type C Drop Inlet
W/ Type C Frame & Grate
Top Wall = 3086.15
FL Out = 3083.94

9+60 - 23.6' Lt to 12.6' Rt
Install 18" x 36' RC Pipe
Between DI 4a and DI 4

10+76.12 - 23' Lt
Remove 15' CM Pipe
(Incidental Work, Grading)

Inlet #6
12+17.26 - 16.13' Lt
Install 4' x 6' Type S Drop Inlet
Top Wall = 3084.16
FL Out = 3081.66

DI #4a
DI #4
DI #5
DI #6
Work Limits
Work Limits
2 P-P
2 P-P
2 P-P
OHE
OHE
OHE

8+00 - 14+00 Rt
Install 600' Double W Beam Guardrail

11+67.5 Lt
Remove 18" CM Pipe
(Incidental Work, Grading)

12+12.26 - 14.13' Lt - 33.87' Rt
Install 18" x 48' RC Pipe
& 1 Flared End Section

10+48 - 15' Rt (2+29 New Location)
Remove Single Mailbox Assembly

13+73 - 15' Rt (2+33 New Location)
Remove
1 Single Mailbox Assembly
1 Double Mailbox Assembly

Inlet #4
9+60 - 13.35' Rt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3085.11
FL Out = 3083.11

9+60 - 14.17' Rt
Install 18" x 13' CM Pipe
& 1 Flared End Section

Inlet #5
11+00 - 13.35' Rt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3084.21
FL Out = 3081.71

11+00 - 14.17' Rt
Install 18" x 18' CM Pipe
& 1 Flared End Section

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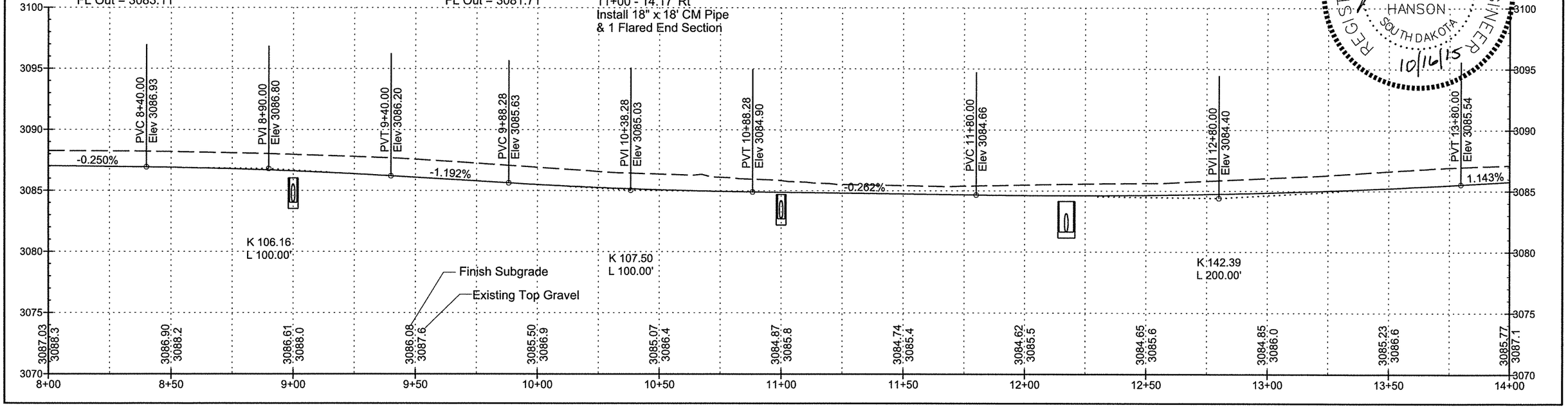
10/16/15



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	33	80

Plotting Date: 08/11/15
Revised Date: 9/29/15
Initials: JH

Inlet #7
14+00 - 13.35' Lt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3085.03
FL Out = 3082.53

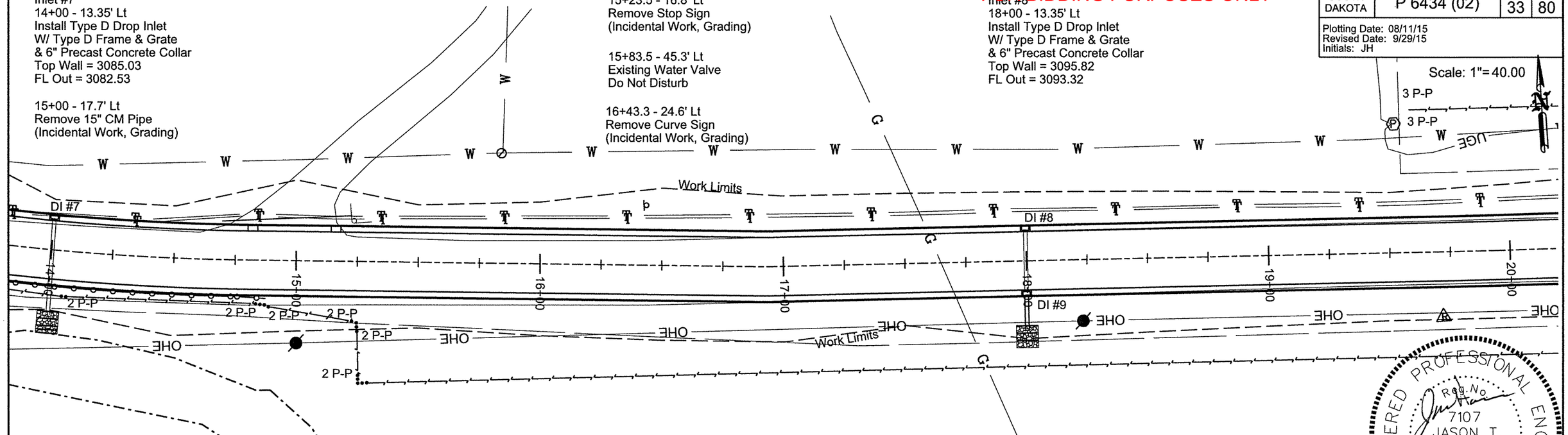
15+00 - 17.7' Lt
Remove 15" CM Pipe
(Incidental Work, Grading)

15+23.5 - 16.8' Lt
Remove Stop Sign
(Incidental Work, Grading)

15+83.5 - 45.3' Lt
Existing Water Valve
Do Not Disturb

16+43.3 - 24.6' Lt
Remove Curve Sign
(Incidental Work, Grading)

Inlet #8
18+00 - 13.35' Lt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3095.82
FL Out = 3093.32



14+00 - 12.60' Lt - 19.33' Rt
Install 18" x 34' RC Pipe
& 1 Flared End Section

14+00 - 14+50 Rt
Install 50' Double W Beam Guardrail

14+50 - 14+87.5 Rt
Install Tangent End Terminal

Inlet #9
18+00 - 13.35' Rt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3095.82
FL In = 3092.92
FL Out = 3092.82

18+00 - 12.60' Lt - 12.60' Rt
Install 18" x 26' RC Pipe

18+00 - 14.10' Rt
Install 18" x 14' CM Pipe
& 1 Flared End Section

18+22.9 - 25.2 Rt
Work Around Existing
Power Pole

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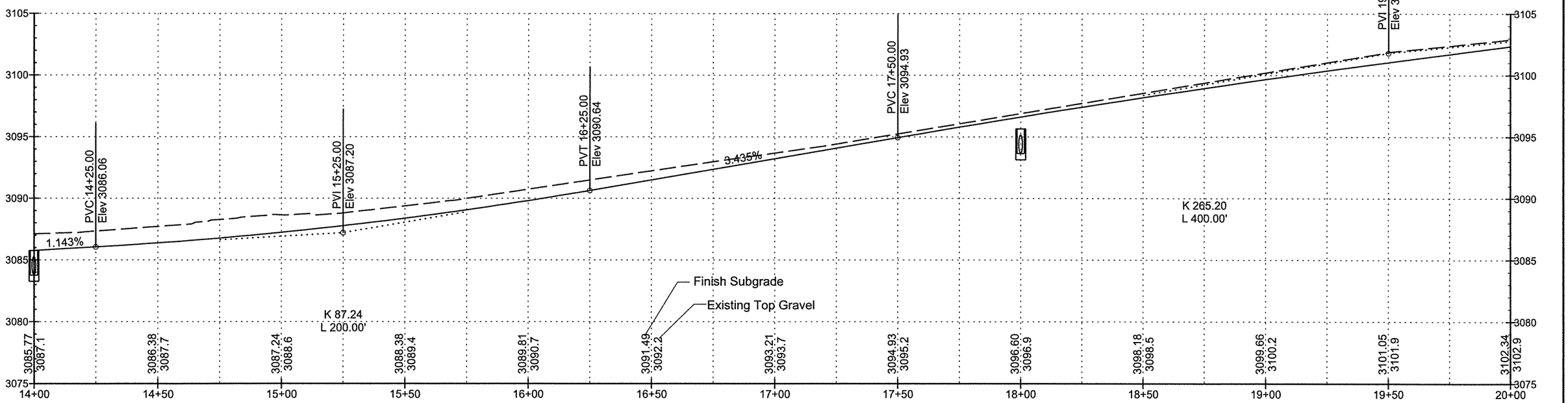
10/16/15

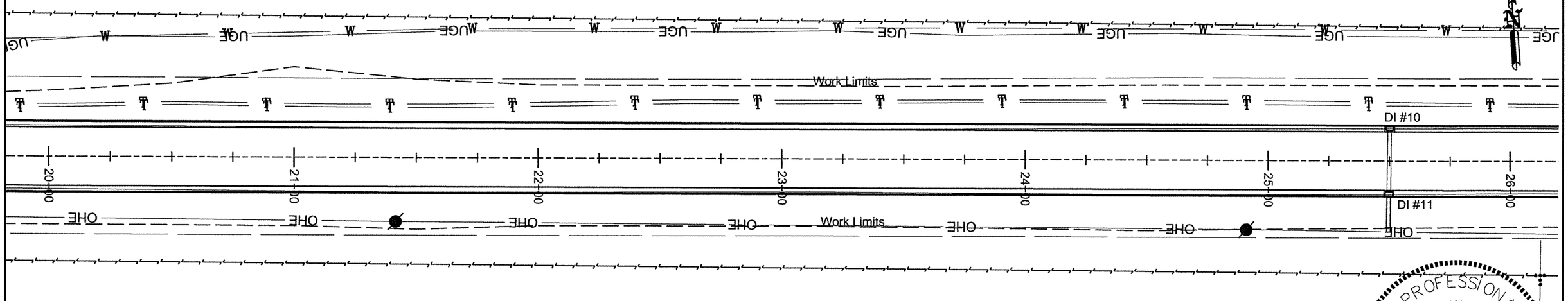


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	34	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

Scale: 1"= 40.00



Inlet #10
25+50 - 13.35' Lt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3112.86
FL Out = 3110.36

21+41.5 - 26.3' Rt
Work Around Existing
Power Pole

25+50 - 12.60' Lt - 12.60' Rt
Install 18" x 26' RC Pipe

25+50 - 14.10' Rt
Install 18" x 14' CM Pipe
& 1 Flared End Section

Inlet 11
25+50 - 13.35' Rt
Install Type D Drop Inlet
W/ Type D Frame & Grate
& 6" Precast Concrete Collar
Top Wall = 3112.86
FL In = 3109.96
FL Out = 3109.86

24+91.1 - 28.3' Rt
Work Around Existing
Power Pole

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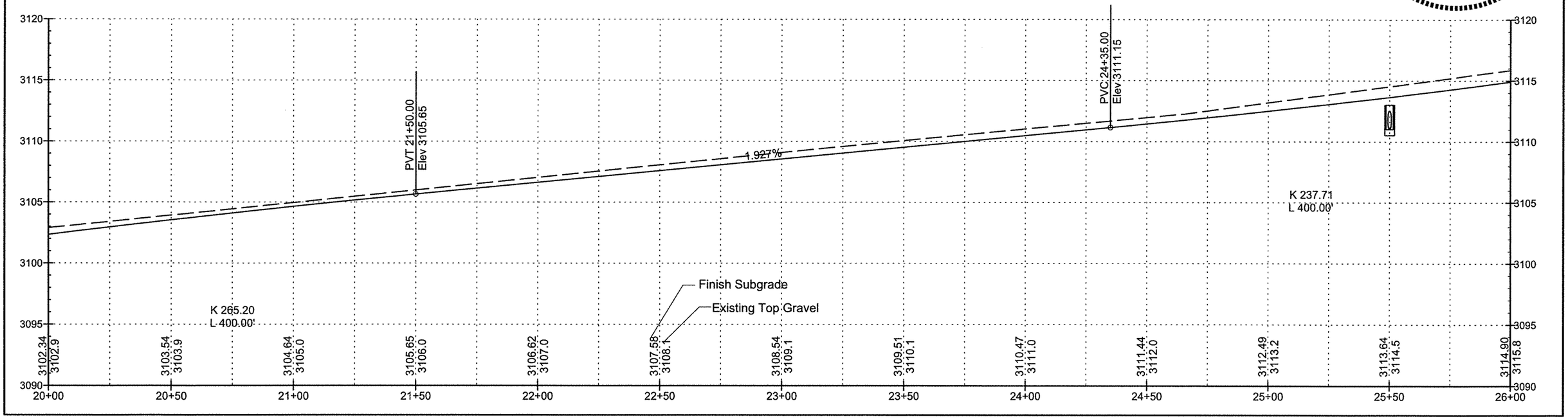
10/16/15



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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	35	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

Scale: 1"= 40.00

31+45 - 22' Lt
Remove Sign Post
(Incidental Work, Grading)

Work Limits

Work Limits

3 P-P
2 P-P

2 P-P

2 P-P

26+33.7 - 21' Rt
Remove Truck Crossing Sign
(Incidental Work, Grading)

29+51.7 - 26.1' Rt
Remove 15" CMP
(Incidental Work, Grading)

29+52 - 25' Rt
Install 18" x 26' CM Pipe
& 2 Safety Ends

PVI 26+35.00
Elev 3115.00

PVT 28+35.00
Elev 3122.22
PVC 28+45.00
Elev 3122.58
3.610%

PVI 30+45.00
Elev 3129.80

K.237.71
L 400.00'

K 251.73
L 400.00'

Finish Subgrade

Existing Top Gravel

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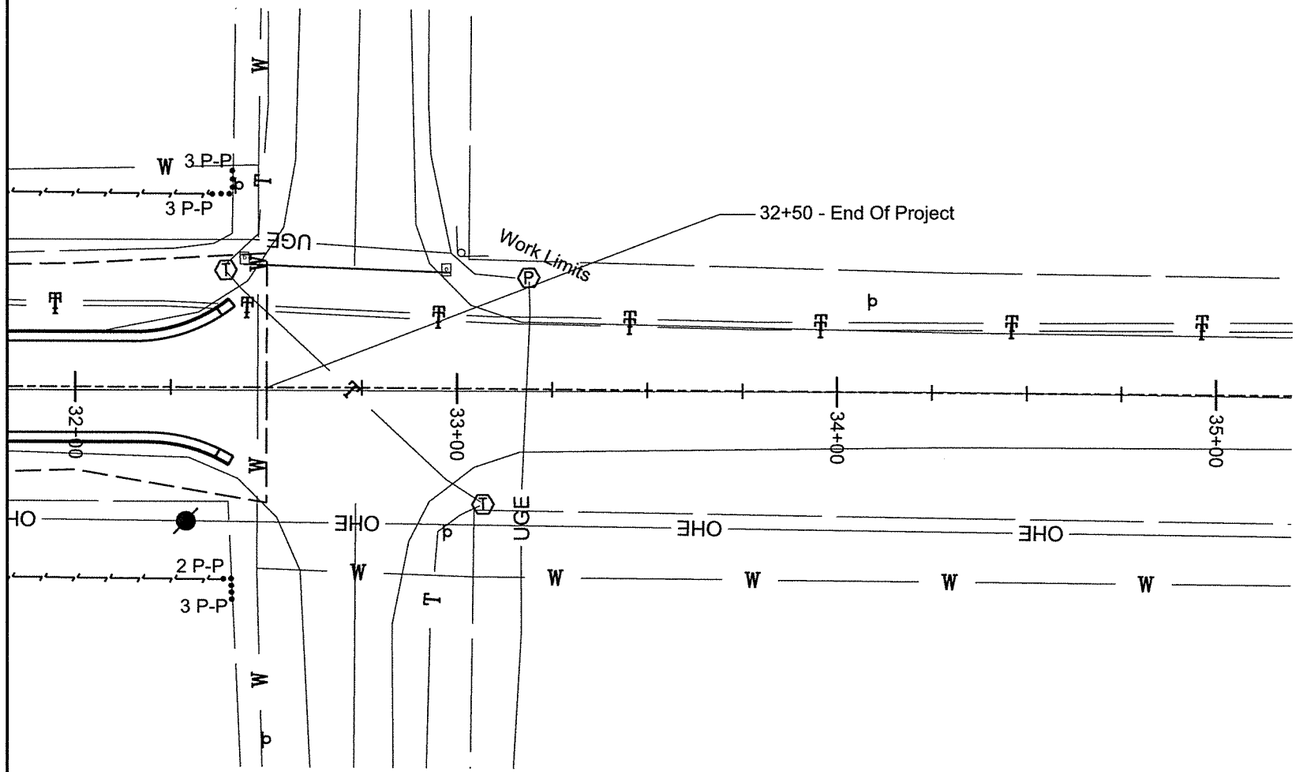
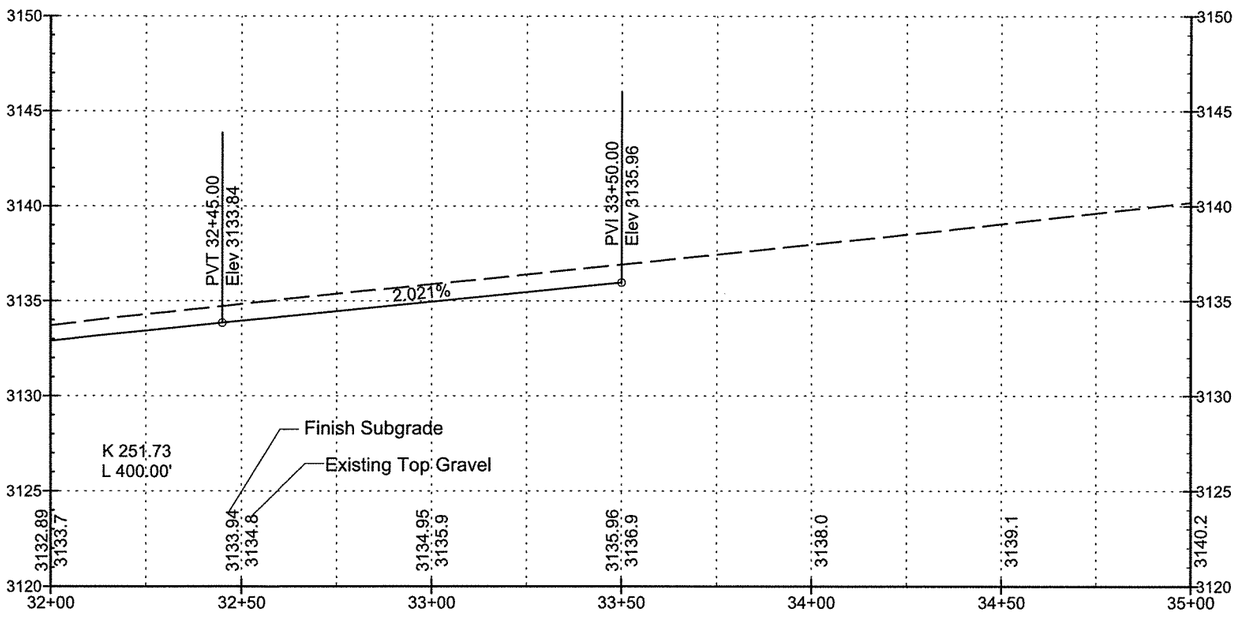
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	36	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

Scale: 1"= 40.00





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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P6434 (02)	37	80

Plotting Date: 08/11/15
Revised Date: 9/29/15
Initials: JH

Scale: 1"= 40.00

1. 3+50 - 12' Lt
Begin Curb Taper
TC = 3089.05 (Theor)

2. 3+54 - 12' Lt
End Curb Taper
Begin Str Type D C & G
TC = 3089.12

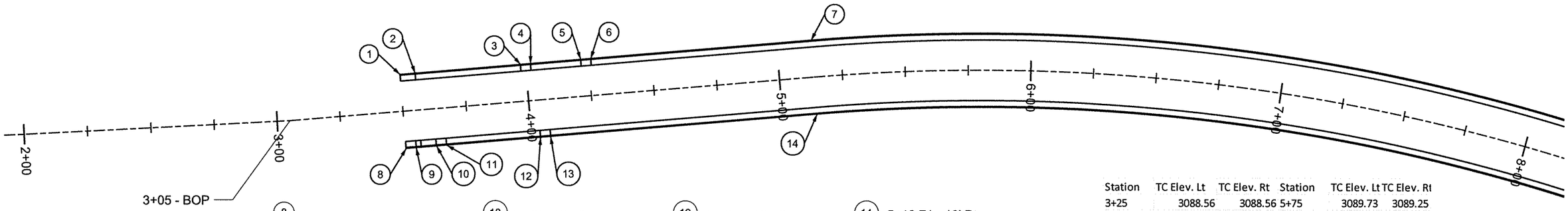
3. 3+96 - 12' Lt
End Str Type D C & G
Begin Curb Taper
TC EL = 3089.72

4. 4+00 - 12' Lt
End Curb Taper
Begin Type P Gutter
TC EL = 3089.76 (Theor)

5. 4+20 - 12' Lt
End Type P Gutter
Begin Curb Taper
TC = 3089.87 (Theor)

6. 4+24 - 12' Lt
End Curb Taper
Begin Str. Type D C & G
TC = 3089.90

7. 5+13.71 - 12' Lt
End Str. Type D C & G
Begin 812' Rad. Type D C & G
TC = 3090.15



8. 3+50 - 12' Rt
Begin Curb Taper
TC = 3089.05 (Theor)

9. 3+56 - 12' Rt
End Curb Taper
Begin Str Type D C & G
TC = 3089.10

10. 3+62 - 12' Rt
End Str Type D C & G
Begin Curb Taper
TC = 3089.25

11. 3+66 - 12' Rt
End Curb Taper
BeginType P Gutter
TC = 3089.31 (Theor)

12. 4+53.5 - 12' Rt
End Type P Gutter
Begin Curb Taper
TC = 3090.05 (Theor)

13. 4+57.5 - 12' Rt
End Curb Taper
Begin Str Type D C & G
TC = 3090.06

14. 5+13.71 - 12' Rt
End Str Type D C & G
Begin 788' Rad. C & G
TC = 3089.84

Station	TC Elev. Lt	TC Elev. Rt	Station	TC Elev. Lt	TC Elev. Rt
3+25	3088.56	3088.56	5+75	3089.73	3089.25
3+50	3089.05	3089.05	6+00	3089.46	3088.98
3+75	3089.44	3089.44	6+25	3089.23	3088.75
4+00	3089.74	3089.74	6+50	3089.1	3088.57
4+25	3089.94	3089.94	6+75	3088.9	3088.42
4+50	3090.04	3090.04	7+00	3088.31	3088.31
4+75	3090.05	3090.05	7+25	3088.71	3088.23
5+00	3090.22	3089.96	7+50	3088.17	3088.17
5+25	3090.15	3089.78	7+75	3088.59	3088.11
5+50	3089.99	3089.51	8+00	3088.04	3088.04

15. 9+84.09 - 12' Lt
End 812' Rad. Type D C & G
Begin Str Type D C & G
TC = 3087.01

16. 10+55 - 12' Lt
End Str Type D C & G
Begin Curb Taper
TC = 3086.06

17. 10+59 - 12' Lt
End Curb Taper
Begin Type P Gutter
TC = 3086.04 (Theor)

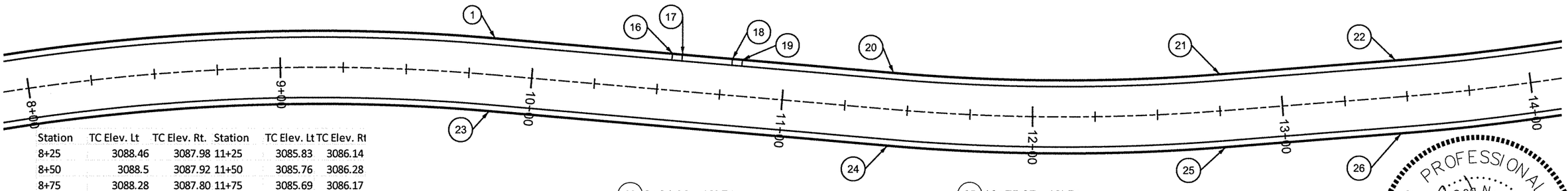
18. 10+79 - 12' Lt
End Type P Gutter
Begin Curb Taper
TC = 3085.95

19. 10+85 - 12' Lt
End Curb Taper
Begin Str Type D C & G
TC = 3085.94 (Theor)

20. 11+43.09 - 12' Lt
End Str Type D C & G
Begin 788' Rad. Type D C & G
TC = 3085.78

21. 12+75.87 - 12' Lt
End 788' Rad. Type D C & G
Begin Str Type D C & G
TC = 3086.15

22. 13+46.30 - 12' Lt
End Str Type D C & G
Begin 988' Rad. Type D C & G
TC = 3086.26



Station	TC Elev. Lt	TC Elev. Rt.	Station	TC Elev. Lt	TC Elev. Rt
8+25	3088.46	3087.98	11+25	3085.83	3086.14
8+50	3088.5	3087.92	11+50	3085.76	3086.28
8+75	3088.28	3087.80	11+75	3085.69	3086.17
9+00	3088.21	3087.63	12+00	3085.64	3086.12
9+25	3087.87	3087.39	12+25	3085.64	3086.12
9+50	3087.69	3087.10	12+50	3085.67	3086.15
9+75	3087.29	3086.81	12+75	3085.75	3086.23
10+00	3086.82	3086.52	13+00	3085.87	3086.35
10+25	3086.54	3086.27	13+25	3086.04	3086.52
10+50	3086.09	3086.09	13+50	3086.25	3086.73
10+75	3085.96	3085.96	13+75	3086.51	3096.99
11+00	3085.89	3085.98	14+00	3086.79	3087.27

23. 9+84.09 - 12' Rt
End 788' Rad. Type D C & G
Begin Str Type D C & G
TC= 3086.71

24. 11+43.09 - 12' Rt
End Str Type D C & G
Begin 812' Rad. Type D C & G
TC = 3086.15

25. 12+75.87 - 12' Rt
End 812' Rad. Type D C & G
Begin Str Type D C & G
TC = 3086.23

26. 13+46.30 - 12' Rt
End Str Type D C & G
Begin 1012' Rad Type D C & G
TC = 3086.70

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	38	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

Scale: 1"= 40.00

(1) 14+80.13 - 12' Lt
End 988' Rad Type D G&G
Begin Curb Taper
TC = 3087.88 (Theor)

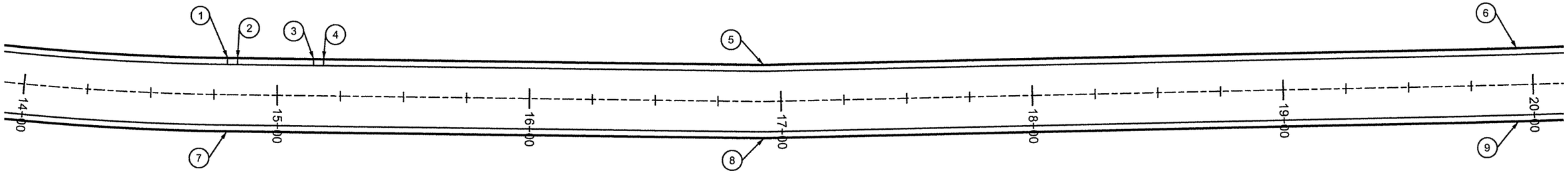
(2) 14+84.13 - 12' Lt
End Curb Taper
Begin Type P Gutter
TC = 3087.95 (Theor)

(3) 15+14.13 - 12' Lt
End Type P Gutter
Begin Curb Taper
TC = 3088.63 (Theor)

(4) 15+18.13 - 12' Lt
End Curb Taper
Begin Str Type D C&G
TC = 3088.64

(5) 16+92.96 - 12' Lt
PI in Str Type D C&G
TC = 3093.98

(6) 19+93.61 - 12' Lt
PI in Str. Type D C&G
TC = 3103.20

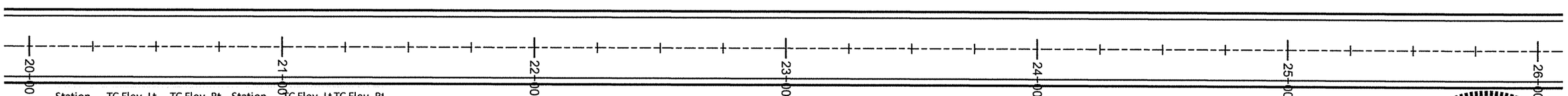


(7) 14+80.13 - 12' Rt
End 1,012' Rad. Type D C&G
Begin Str. Type D C&G
TC = 3087.93

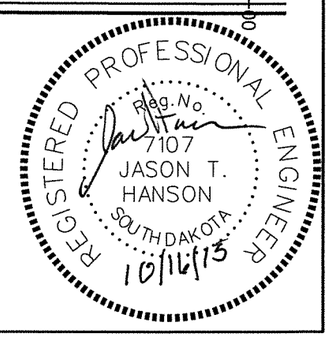
(8) 16+92.96 - 12' Lt
PI in Str Type D C&G
TC = 3093.98

(9) 19+93.61 - 12' Lt
PI in Str. Type D C&G
TC = 3103.20

Station	TC Elev. Lt	TC Elev. Rt.	Station	TC Elev. Lt	TC Elev. Rt
14+25	3087.08	3087.56	17+25	3095.09	3095.09
14+50	3087.40	3087.88	17+50	3095.95	3095.95
14+75	3087.79	3088.19	17+75	3096.80	3096.80
15+00	3088.28	3088.60	18+00	3097.62	3097.62
15+25	3088.79	3088.95	18+25	3098.42	3098.42
15+50	3089.40	3089.40	18+50	3099.20	3099.20
15+75	3090.08	3098.08	18+75	3099.95	3099.95
16+00	3090.83	3090.83	19+00	3100.68	3100.68
16+25	3091.66	3091.66	19+25	3101.38	3101.38
16+50	3092.51	3092.51	19+50	3102.07	3102.07
16+75	3093.37	3093.37	19+75	3102.72	3102.72
17+00	3094.23	3094.23	20+00	3103.36	3103.36



Station	TC Elev. Lt	TC Elev. Rt.	Station	TC Elev. Lt	TC Elev. Rt
20+25	3103.97	3103.97	23+25	3110.05	3110.05
20+50	3104.56	3104.56	23+50	3110.53	3110.53
20+75	3105.12	3105.12	23+75	3111.01	3111.01
21+00	3105.66	3105.66	24+00	3111.49	3111.49
21+25	3106.18	3106.18	24+25	3111.97	3111.97
21+50	3106.67	3106.67	24+50	3112.46	3112.46
21+75	3107.16	3107.16	24+75	3112.97	3112.97
22+00	3107.64	3107.64	25+00	3113.51	3113.51
22+25	3108.12	3108.12	25+25	3114.07	3114.07
22+50	3108.6	3108.6	25+50	3114.66	3114.66
22+75	3109.08	3109.08	25+75	3115.28	3115.28
23+00	3109.56	3109.56	26+00	3115.92	3115.92

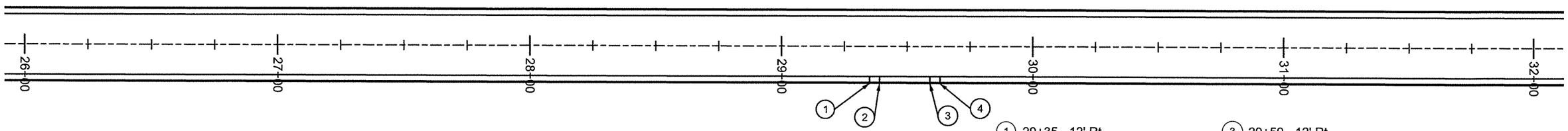


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434 (02)	39	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JH

Scale: 1"= 40.00



(1) 29+35 - 12' Rt
End Str. Type D G&G
Begin Curb Taper
TC = 3126.69

(2) 29+39 - 12' Rt
End Curb Taper
Begin Type P Gutter
TC = 3126.82(Theor)

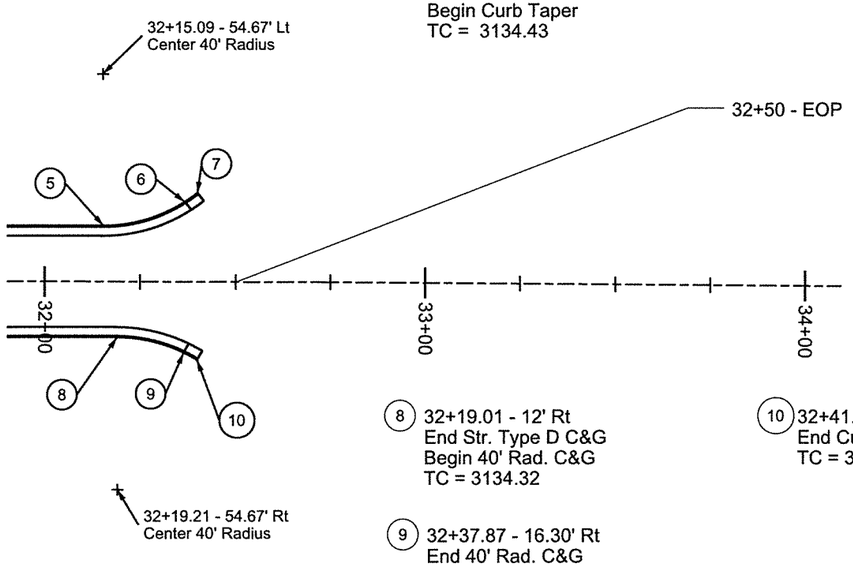
(3) 29+59 - 12' Rt
End Type P Gutter
Begin Curb Taper
TC = 3127.46 (Theor)

(4) 29+63 - 12' Rt
End Curb Taper
Begin Str Type D C&G
TC = 3127.58

(5) 32+14.76 - 12' Lt
End Str Type D C&G
Begin 40' Rad C&G
TC = 3134.23

(6) 32+38.42 - 18.94' Lt
End 40' Rad C&G
Begin Curb Taper
TC = 3134.43

(7) 32+41.66 - 21.28' Lt
End Curb Taper
TC = 3134.48 (Theor)



(8) 32+19.01 - 12' Rt
End Str. Type D C&G
Begin 40' Rad. C&G
TC = 3134.32

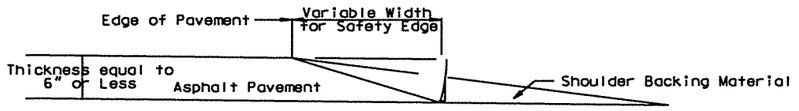
(9) 32+37.87 - 16.30' Rt
End 40' Rad. C&G
Begin Curb Taper
TC = 3134.52

(10) 32+41.39 - 18.21' Lt
End Curb Taper
TC = 3134.57 (Theor)

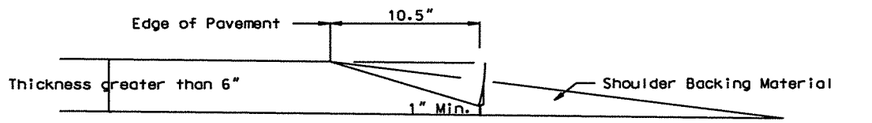
Station	TC Elev. Lt	TC Elev. Rt.	Station	TC Elev. Lt	TC Elev. Rt
26+25	3116.59	3116.59	29+25	3126.36	3126.36
26+50	3117.28	3117.28	29+50	3127.17	3127.17
26+75	3118.00	3118.00	29+75	3127.96	3127.96
27+00	3118.75	3118.75	30+00	3128.72	3128.72
27+25	3119.52	3119.52	30+25	3129.45	3129.45
27+50	3120.32	3120.32	30+50	3130.17	3130.17
27+75	3121.15	3121.15	30+75	3130.85	3130.85
28+00	3122.00	3122.00	31+00	3131.51	3131.51
28+25	3122.88	3122.88	31+25	3131.15	3131.15
28+50	3123.78	3123.78	31+50	3132.76	3132.76
28+75	3124.67	3124.67	31+75	3133.35	3133.35
29+00	3125.53	3125.53	32+00	3133.91	3133.91

Plotting Date: 08/11/15

SAFETY EDGE CONFIGURATION FOR ASPHALT PAVEMENTS



Detail 1: Safety Edge Dimension For HMA Pavements (Thickness 6" or Less)



Detail 2: Safety Edge Dimension For HMA Pavements (Thickness greater than 6")

GUIDE SPECIFICATION FOR SAFETY EDGE CONSTRUCTION WITH HOT MIX ASPHALT PAVEMENTS

When specified in the plans an approved longitudinal paver wedge system shall be included to create a sloped safety edge along the outside edge of the asphalt concrete pavement. The wedge system shall be attached to the paver screed and shall compact the hot mixed asphalt pavement (HMA) to a density at least as dense as the compaction imparted to the rest of the HMA by the paving screed.

The system shall provide a sloped Safety Edge equal to 30° plus or minus 5° measured from the extended pavement surface cross slope. The safety edge must be constructed as an integral operation in the paving process and in accordance with the attached Detail.

The use of a single plate strike-off method to construct the safety edge will not be allowed.

The Engineer may allow the Contractor to use handwork for short sections or to saw cut the sloped safety edge after paving operations are complete in areas such as driveways, intersections, and interchanges.

The Contractor shall submit the proposed system for approval by the Engineer at the Preconstruction Meeting. The Engineer may require proof that the system has been used on previous projects with acceptable results or may require a test section to be constructed prior to the beginning of work to demonstrate that it can create an acceptable safety wedge and compaction. Paving shall not begin until the system is approved in writing by the Engineer. The safety edge shall be constructed on each lift of HMA specified in the plans.

The safety edge device shall be attached to the paving machine as recommended by the supplier. The device shall use a spring loaded shoe that constrains the asphalt head, thus increasing the density of the extruded profile. The shoe shall be capable of applying variable pressure to ensure some compaction of the edge during the paving operation. Currently there is a least four manufactures producing equipment that can create a Safety Edge (see list below). The Engineer may permit an approved equal.

Transtech Systems, Inc.
1594 State Street
Schenectady, NY 12304
Phone: 1-800-724-6306 or 1-518-370-5558
www.transtechsys.com

Carlson Paving Products
18425 50th Ave. E
Tacoma WA 98446
Phone: 1-253-278-9426
http://www.carlsonpavingproducts.com

Advant-Edge Paving Equipment LLC
1197 Hillside Avenue, Suite B47
Niskayuria, NY 12309
Phone: 1-518-280-6090
www.advantagepaving.com

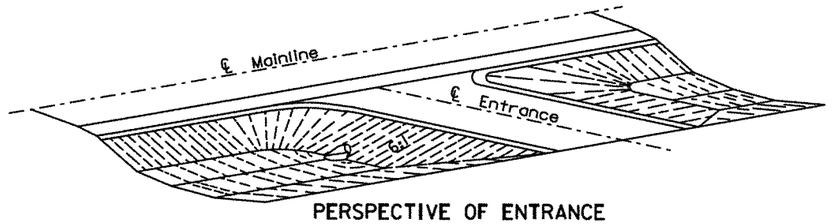
Troxler Electronic Laboratories, Inc.
3008 E. Cornwallis Rd. • PO Box 12057
Research Triangle Park, NC 27709
Phone: 1-877-876-9537
http://www.troxlerlabs.com/products/paving.php

Separate measurement and payment will not be made; all work associated with furnishing and constructing the safety edge shall be incidental to the Asphalt Concrete Placement Bid Item.

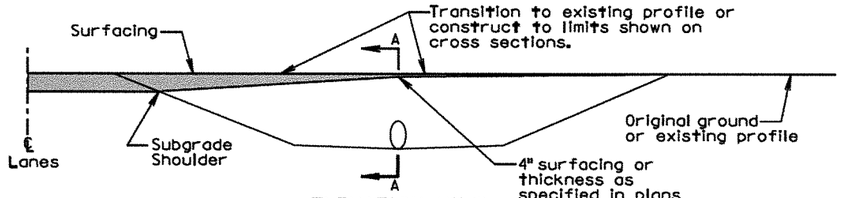
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	41	80

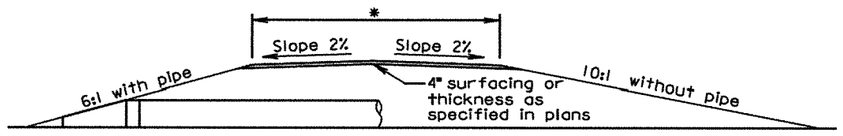
Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



PERSPECTIVE OF ENTRANCE



ELEVATION VIEW (ENTRANCE)



SECTION A-A (ENTRANCE)

*The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective and elevation view is only for illustrative purposes.

A 6:1 inslope shall be constructed for an entrance when a pipe is required. A 10:1 inslope shall be constructed when a pipe is not required.

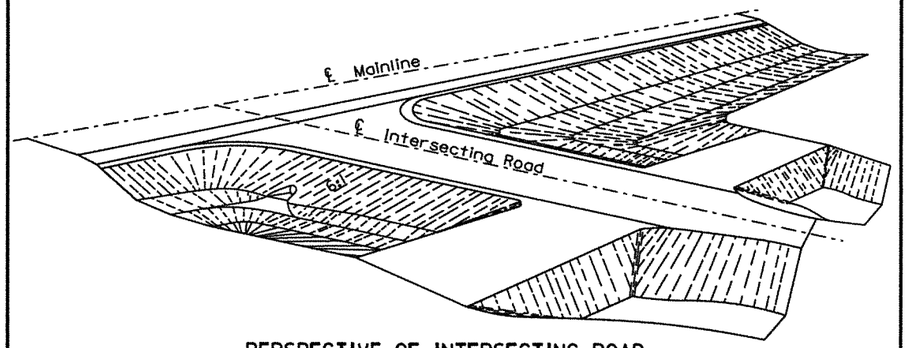
Pipe lengths shall be adjusted if necessary during construction to obtain the 6:1 slopes. For grading projects, the pipe lengths are estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the approach inslope for entrances shall be rounded to eliminate an abrupt transition.

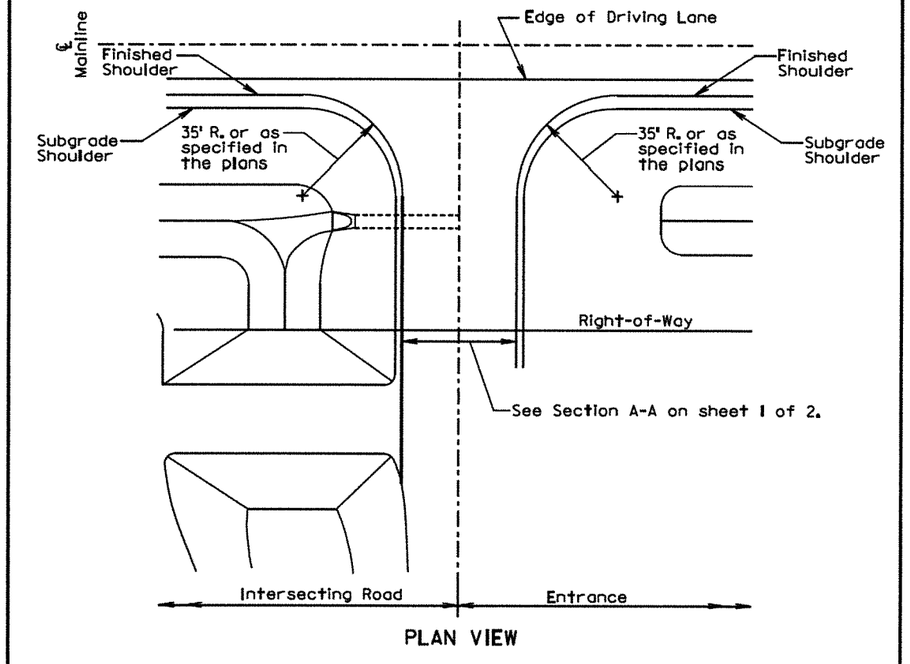
The turning radii shall be 35' for intersecting roads and entrances unless stated otherwise in the plans.

September 6, 2013

Published Date: 3rd Qtr. 2015	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

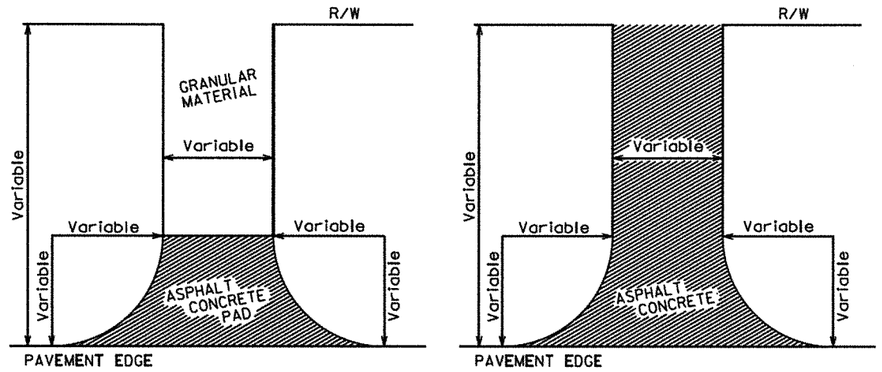
September 6, 2013

Published Date: 3rd Qtr. 2015	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

FOR BIDDING PURPOSES ONLY

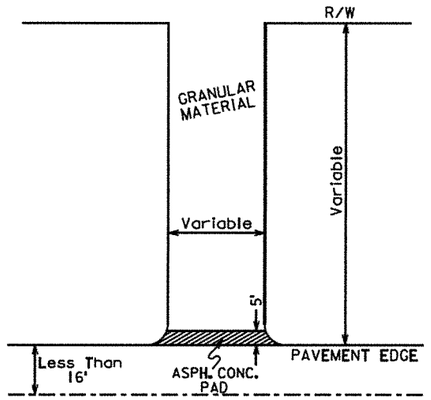
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	42	80

Plotting Date:
Revised Date: xx/xx/xx
Initials: JTH 08/11/15



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

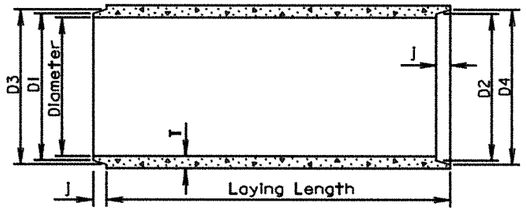
ROADWAY WITH OR WITHOUT SHOULDER

March 31, 2000

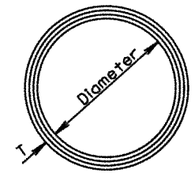
Published Date: 3rd Qtr. 2015	SDDOT	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.10
			Sheet 1 of 1

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or 3/8" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± 1/4" for 36" or greater.
Length of joint (J): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 1/8	58 3/8	59 3/8	59 1/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

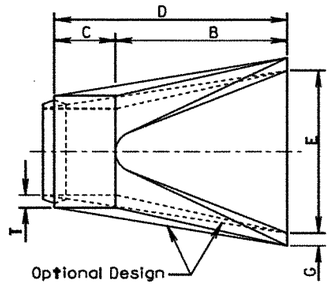
June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1

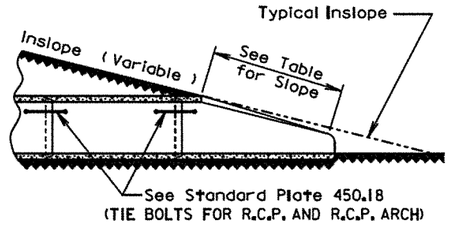
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	43	80

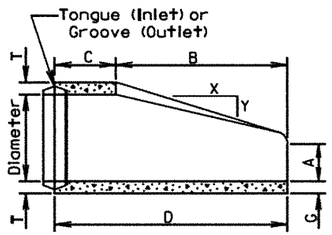
Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



TOP VIEW



SLOPE DETAIL

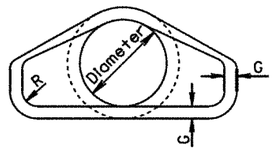


LONGITUDINAL SECTION

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



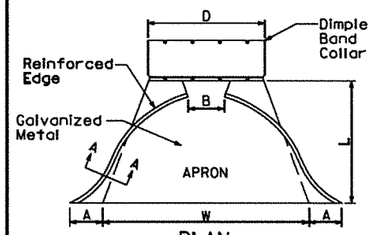
END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 1/8	72 1/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5:1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5:1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5:1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5:1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5:1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5:1	5	24	72	26	98	84	5	1 1/2
54	8240	2:1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9:1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7:1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8:1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8:1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6:1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5:1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

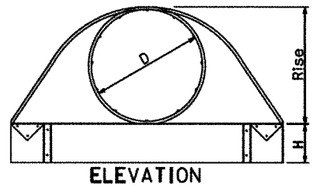
June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1

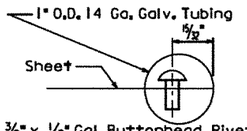
Alternate Type Connector Sections may be used with approval of the Engineer.



PLAN

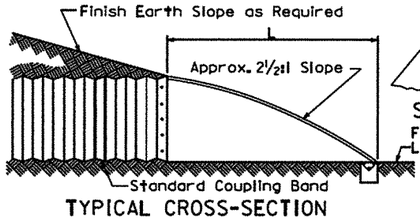


ELEVATION



3/8" x 1/2" Gal. Buttonhead Rivets spaced 6" C. to C. Overall length of rivets=0.78"

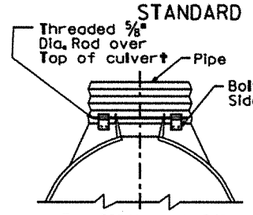
TUBING ATTACHMENT DETAILS
SECTION A-A



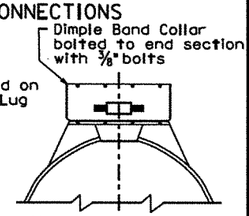
TYPICAL CROSS-SECTION

Dia. D (in.)	Ga.	DIMENSIONS (in.) A	B	H	L	W	Approx. Slope	Body
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 1/8:1	3 Pc.

STANDARD CONNECTIONS

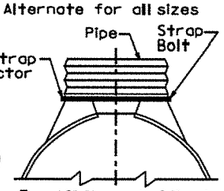


For 30" through 84"

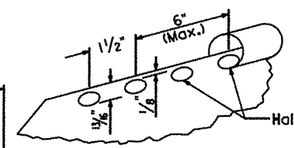


Alternate for all sizes

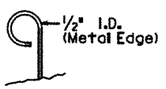
NOTE:
Tubing is slipped over the sheet and rivets or lugs prior to forming operations of the apron.



For 12" through 24" only



SECTION A-A (alternate)



SECTION A-A (alternate)

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.

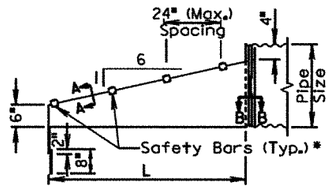
March 31, 2000

Published Date: 3rd Qtr. 2015	SDDOT	C.M.P. FLARED ENDS	PLATE NUMBER 450.35
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

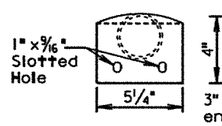
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	44	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



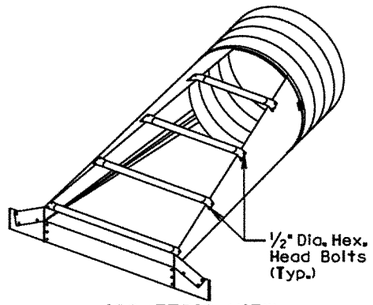
ELEVATION VIEW

*Number of bars required will vary depending on the length of the end section.

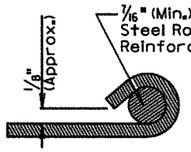


3" Galvanized Pipe: Flatten end, then bend outside 4" to match end section sides.

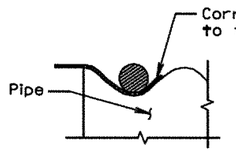
DETAIL OF SAFETY BARS



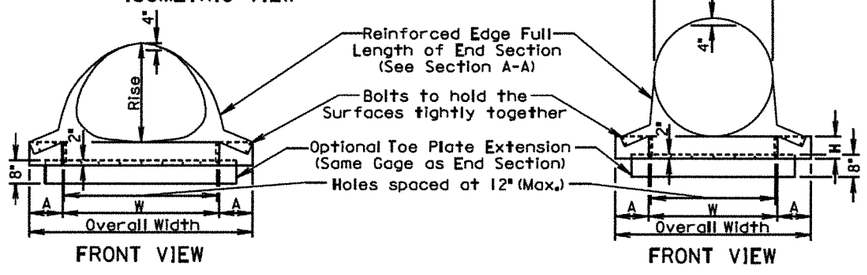
ISOMETRIC VIEW



SECTION A-A

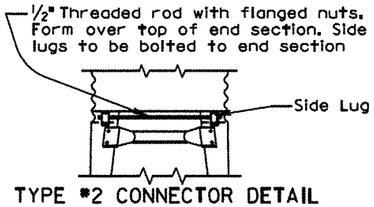


SECTION B-B

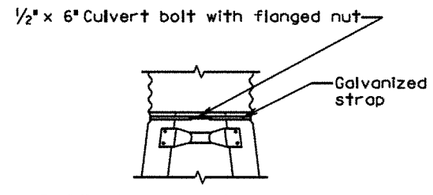


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21" X 15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

Equv. Dia. (Inch)	(Inches) Span	Rise	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	6:1	30
21	24	18	.064	16	8	6	30	46	6:1	48
24	28	20	.064	16	8	6	34	50	6:1	60
30	35	24	.079	14	12	9	41	65	6:1	84
36	42	29	.109	12	12	9	48	72	6:1	114
42	49	33	.109	12	16	12	55	87	6:1	138
48	57	38	.109	12	16	12	63	95	6:1	168
54	64	43	.109	12	16	12	70	102	6:1	198
60	71	47	.109	12	16	12	77	109	6:1	222
72	83	57	.109	12	16	12	89	121	6:1	282

CIRCULAR C.M.P. SAFETY ENDS

Pipe Dia. (Inch)	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
15	.064	16	8	6	21	37	6:1	30
18	.064	16	8	6	24	40	6:1	48
21	.064	16	8	6	27	43	6:1	66
24	.064	16	8	6	30	46	6:1	84
30	.109	12	12	9	36	60	6:1	120
36	.109	12	12	9	42	66	6:1	156
42	.109	12	16	12	48	80	6:1	192
48	.109	12	16	12	54	86	6:1	228
54	.109	12	16	12	60	92	6:1	264
60	.109	12	16	12	66	98	6:1	300

GENERAL NOTES:

Safety ends shall be fabricated from galvanized steel conforming to the requirements of the Specifications.

Safety bars shall be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5X.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment shall be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.

When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

Installation shall be performed in accordance with the Specifications.

Cost of all work and materials required for fabrication and installation of safety ends shall be incidental to the bid items for the various sizes of safety ends.

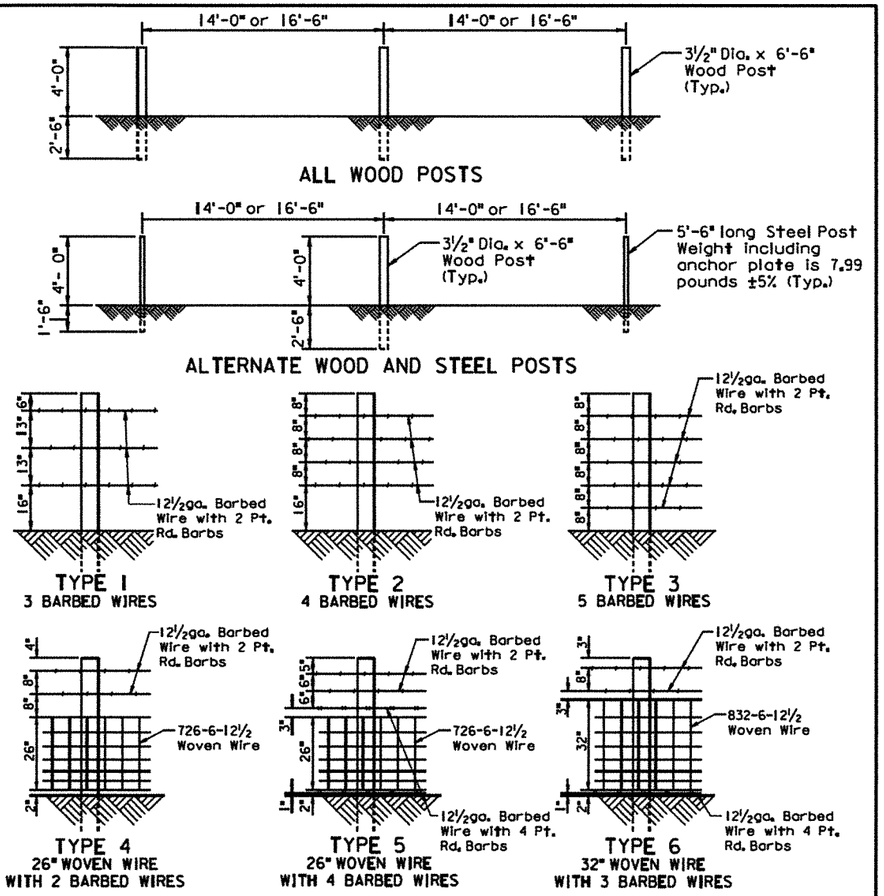
June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	45	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

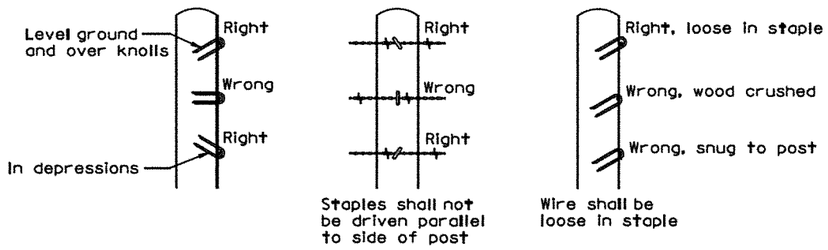
Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

September 14, 2009

Published Date: 3rd Qtr. 2015	SDDOT	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01 Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

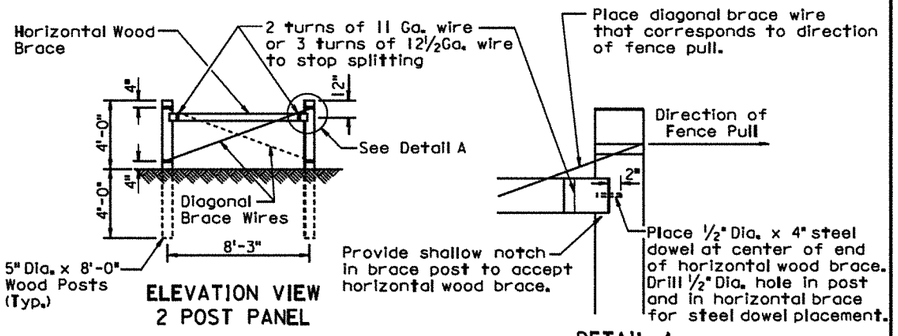
December 23, 2004

Published Date: 3rd Qtr. 2015	SDDOT	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02 Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

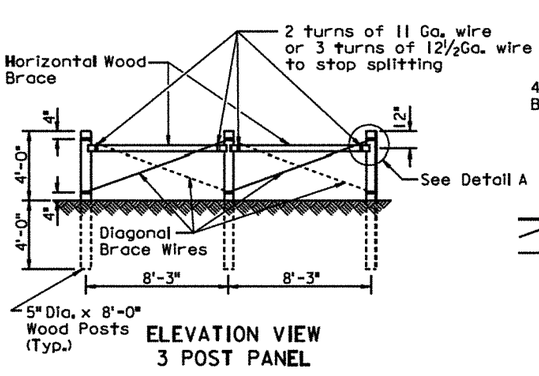
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	46	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

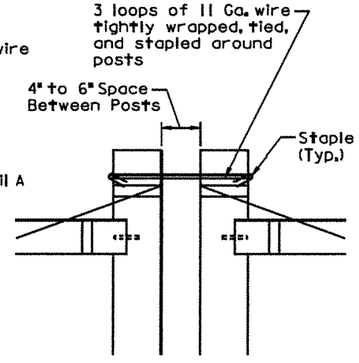


ELEVATION VIEW
2 POST PANEL

DETAIL A



ELEVATION VIEW
3 POST PANEL



DETAIL B

GENERAL NOTES:

Two Post Panels shall be installed at least every 1320' between corners.

Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

December 23, 2004

Published Date: 3rd Qtr. 2015	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	**At P.C., P.T., and at every 1320' between P.C. and P.T.

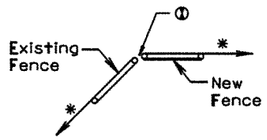
GENERAL NOTE:

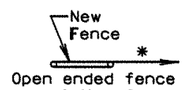
All degrees of curvature stated for fence are at centerline of roadway.

* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

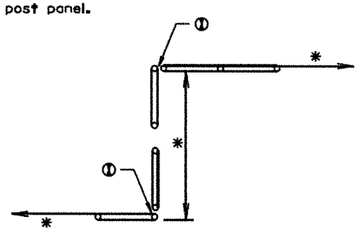
** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

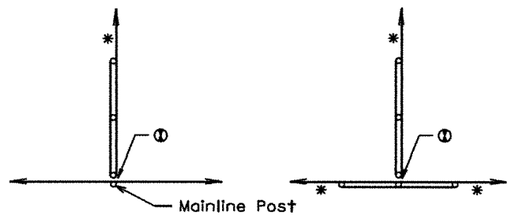




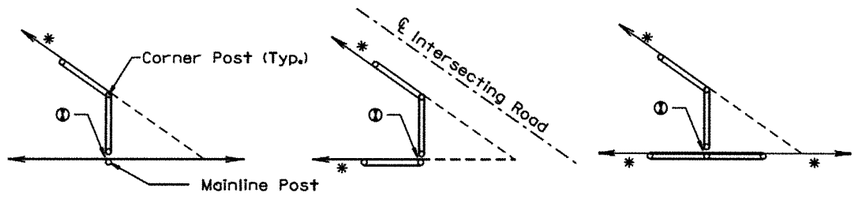
BEGIN OR END FENCE
(where new fence ties into existing fence)



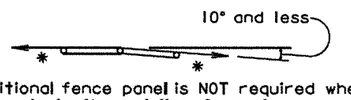
SHORT JOGS IN FENCE



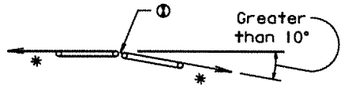
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.



Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

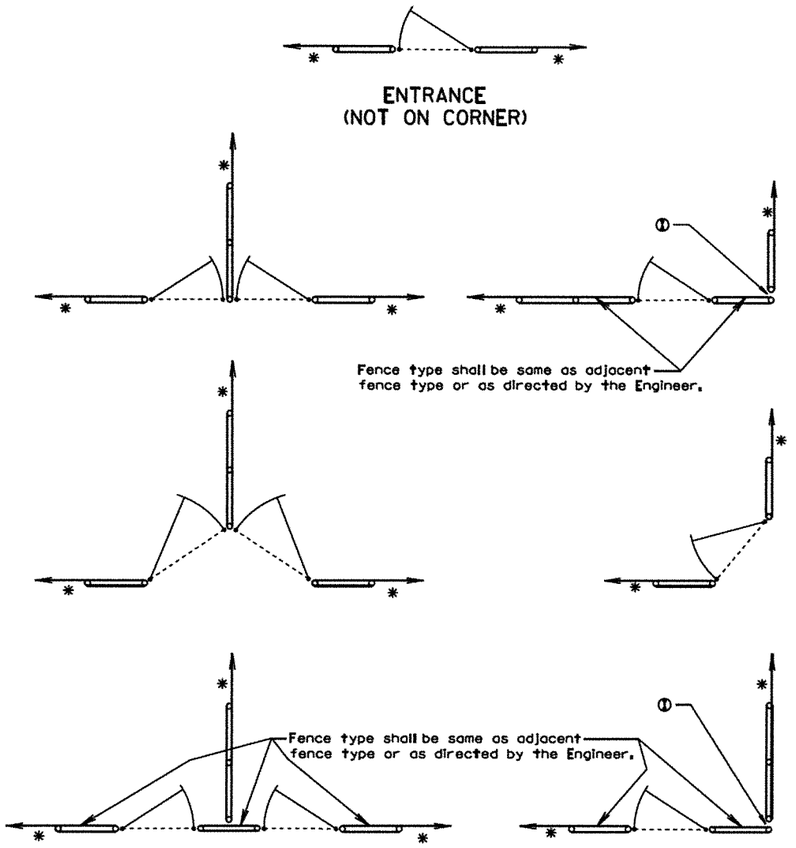
December 23, 2004

Published Date: 3rd Qtr. 2015	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	47	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



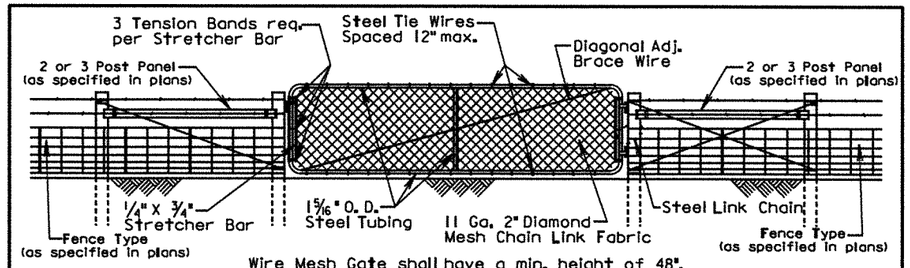
GATES

* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

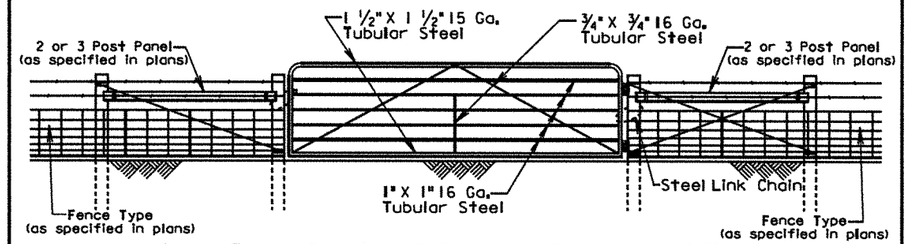
December 23, 2004

Published Date: 3rd Qtr. 2015	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 3 of 3



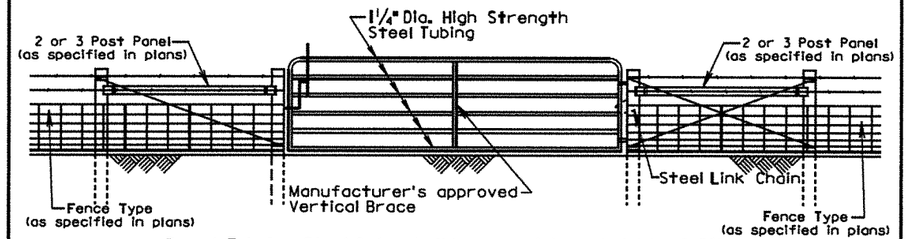
Wire Mesh Gate shall have a min. height of 48".

WIRE MESH GATE



Square Tubular Steel Gate shall have a minimum height of 52".

SQUARE TUBULAR STEEL GATE



Round Tubular Steel Gate shall have a minimum height of 52".

ROUND TUBULAR STEEL GATE

GENERAL NOTES:

Only single tubular frame gates are shown on this standard plate. If double tubular frame gates are specified, the gates shall be of the same type and materials as shown above. Double tubular gates shall swing toward the middle of the opening and shall be secured by a chain, latch, or other suitable hardware.

Gate hardware shall conform to the specific type of gate installed. The gate and gate hardware shall either be painted or galvanized. The paint on the gates and hardware shall be subject to approval by the Engineer.

The Steel Link Chain shall be a minimum of 1/4", 4' long, rust resistant, and have electrically welded links. The chain shall be wrapped around the gate hinge post and gate frame and the ends of the chain shall be welded together with enough slack in the chain to provide free operation of the gate.

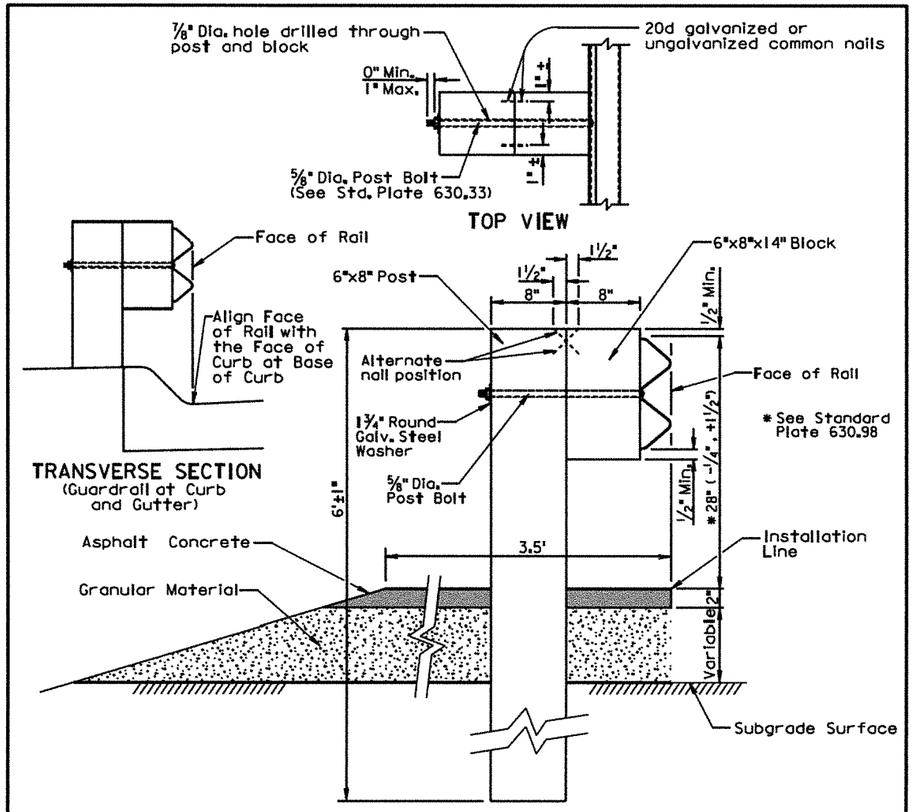
March 31, 2000

Published Date: 3rd Qtr. 2015	SDDOT	TUBULAR FRAME GATES	PLATE NUMBER 620. 21
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	48	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



TRANSVERSE SECTION

GENERAL NOTES:

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." For informational purposes, the Rate of Materials for the 3.5' wide section of asphalt concrete as shown above shall be 4.80 Tons per Station.

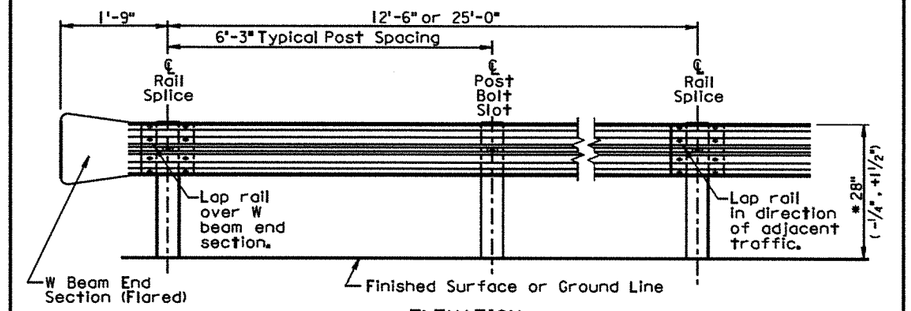
Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

The top of post and top of block shall have a true square cut. The top of block shall be ±1 inch from the top of the post.

June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	W BEAM GUARDRAIL POST INSTALLATION	PLATE NUMBER 630.31
			Sheet 1 of 1



W BEAM GUARDRAIL DEFLECTION CRITERIA	
POST SPACING	MAXIMUM DEFLECTION
6'-3"	5'-0"
3'-1½"	3'-9"

For Informational Purposes Only

GENERAL NOTES:

All W beam rail shall be Type 1.

There will be no separate payment for furnishing and installing W Beam End Sections (Flared) and W Beam Terminal Connectors. All costs for the W Beam End Sections (Flared) and W Beam Terminal Connectors shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used shall be compatible with the total length of rail per site as shown in the plans.

W Beam End Sections (Flared) shall only be used in a one way traffic situation. See Standard Plate 630.80 for W Beam End Section (Flared) in the Beam Guardrail Trailing End Terminal.

All costs for constructing W beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

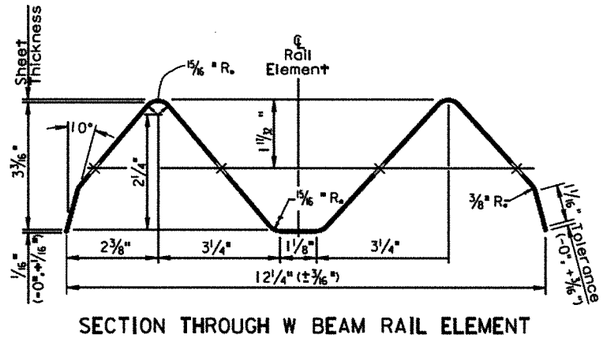
June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	W BEAM GUARDRAIL INSTALLATION	PLATE NUMBER 630.32
			Sheet 1 of 1

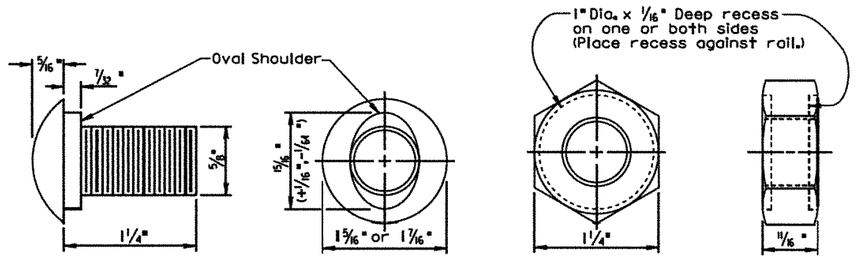
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	49	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

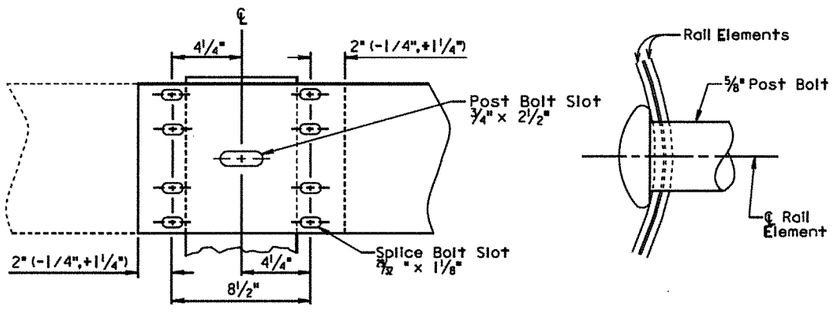


SECTION THROUGH W BEAM RAIL ELEMENT



The Post Bolt is similar except the post bolt is 18" long.

SPLICE BOLT
(5/8" BUTTON HEAD BOLT AND RECESS NUT)

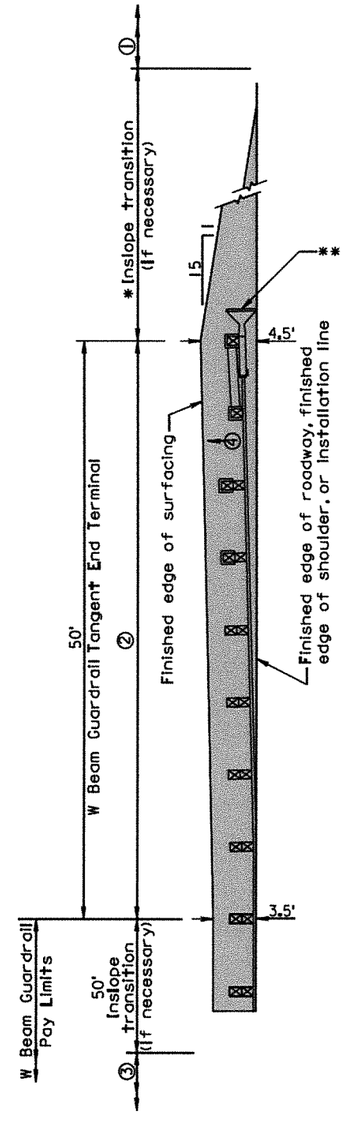


Lap in direction of traffic.

RAIL SPLICE

December 23, 2004

Published Date: 3rd Qtr. 2015	SDDOT	W BEAM RAIL, RAIL SPLICE, AND HARDWARE	PLATE NUMBER 630.33
			Sheet 1 of 1



PLAN

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition shall change 100' for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 100'. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200'.

① Same inslope as mainline inslope
② 4:1 inslope
③ 2:1 inslope or flatter, or inslope as specified in plans
④ Same slope as roadway cross slope

GENERAL NOTES:

The W beam guardrail tangent end terminal shall be installed according to the manufacturer's installation instructions.

**An adhesive object marker shall be placed on the end section buffer or extruder after placement of the end section buffer or extruder. The adhesive object marker dimensions may be 16"x 16" or other variation due to the shape of the end section buffer or extruder. A minimum of 256 square inches of object marker reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite."

Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

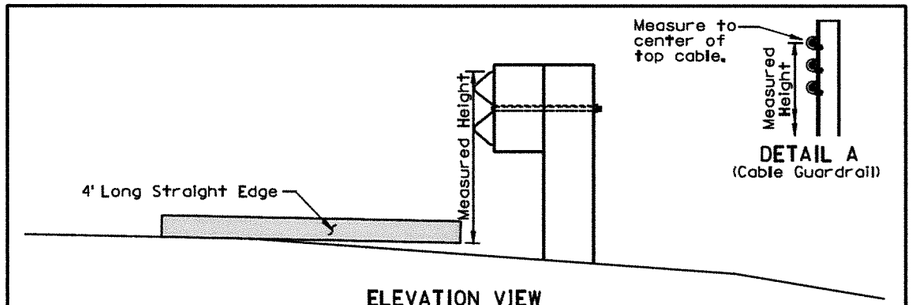
December 16, 2014

Published Date: 3rd Qtr. 2015	SDDOT	EMBANKMENT AND SURFACING FOR W BEAM GUARDRAIL TANGENT END TERMINAL	PLATE NUMBER 630.46
			Sheet 1 of 1

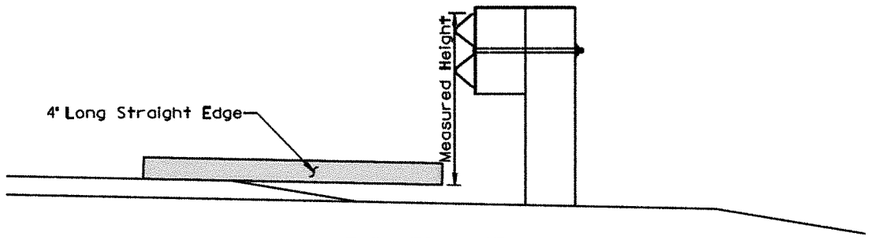
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	50	80

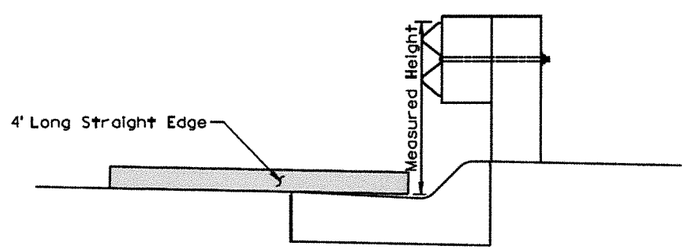
Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH 06/19/15



ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)



ELEVATION VIEW
(Guardrail Adjacent to Differential Surfacing Elevations)



ELEVATION VIEW
(Guardrail at Curb and Gutter)

GENERAL NOTES:

The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems shall be measured in accordance with this standard plate.

When measuring height of cable guardrail or cable barrier the height shall be measured to the center of the top cable. See Detail A.

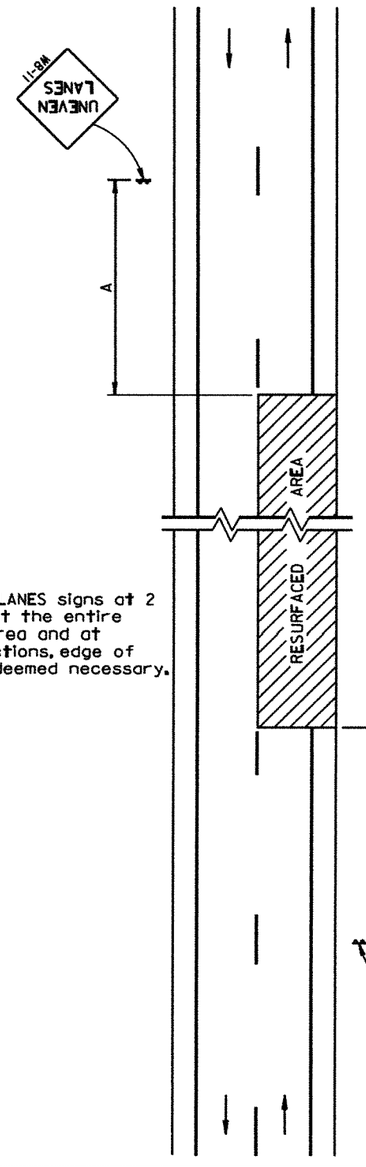
June 26, 2010

Published Date: 3rd Qtr. 2015	SDDOT	**MEASURING GUARDRAIL HEIGHT**	*PLATE NUMBER* 630.98
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	51	80

Plotting Date: 06/19/15
Revised Date: xx/xx/xx
Initials: JTH



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 - 75	1000

Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

April 15, 2015

Published Date: 3rd Qtr. 2015

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
UNEVEN ROAD SURFACE

PLATE NUMBER 634.22

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45 - 50	500	50
55	750	50
60 - 65	1000	50

Flagger

Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

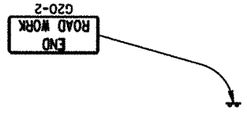
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

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

The channelizing devices shall be drums or 42" cones.

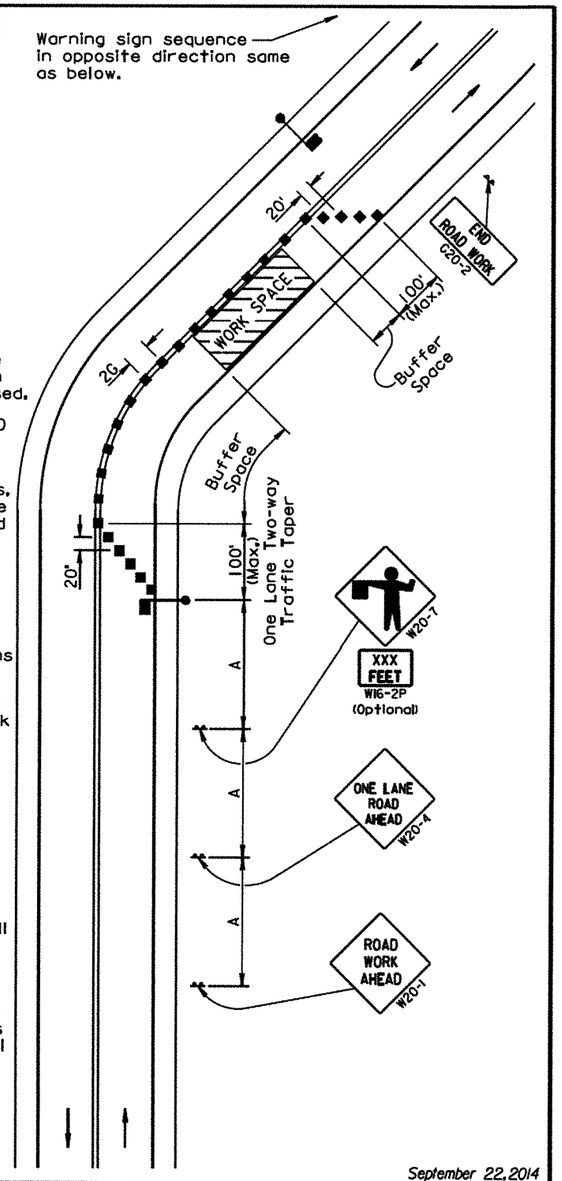
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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



September 22, 2014

Published Date: 3rd Qtr. 2015

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
LANE CLOSURE WITH FLAGGER PROVIDED

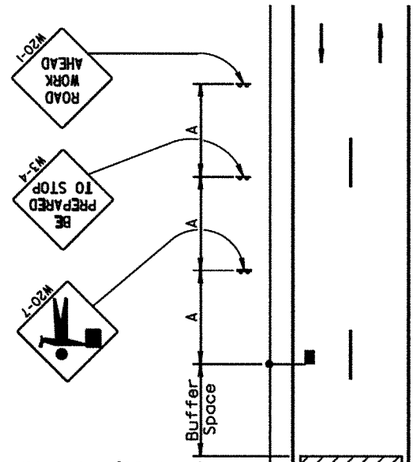
PLATE NUMBER 634.23

Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	52	80

Plotting Date: 06/19/15
Revised Date: xx/xx/xx
Initials: JTH



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

Flagger

END ROAD WORK
C20-2
(Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485

Buffer space dependent on work site limitations.

A changeable message sign may be used in addition to the initial warning sign.

Flagger station to be lighted at night.

On unfinished grades, until gravel is in place, reflectorized devices (cones, tubular markers, drums, or vertical panels back-to-back) defining the outside edge of the road shall be placed at 264 feet maximum spacing on tangent and at 132 feet maximum spacing on curves (greater than 3 degrees) during night time hours and during daytime hours at inactive locations where grading work is being performed. During daytime hours at active locations, a well defined path of adequate width shall be provided by motor grader, normally in conjunction with flagging operations either with or without pilot car. Minimum width for one-way operations is 12 feet for two-way operations is 24 feet.

END ROAD WORK
C20-2
(Optional)

Work areas which are duplicated less than one mile apart, may be classified as one work area for purposes of sign installation unless otherwise directed by the Highway Authority. PAVEMENT ENDS signs (W8-3) to be used as appropriate to warn of existing surfacing being removed.

September 22, 2014

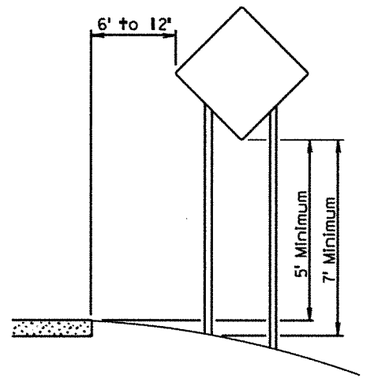
Published Date: 3rd Qtr. 2015

SDDOT

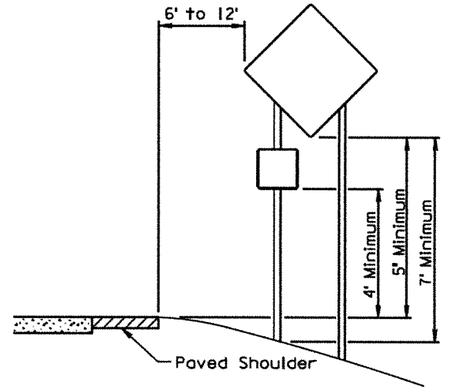
GUIDES FOR TRAFFIC CONTROL DEVICES LONG TERM ROAD WORK

PLATE NUMBER 634.31

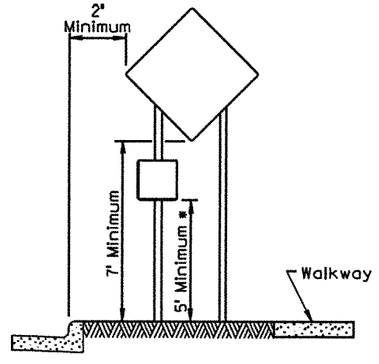
Sheet 1 of 1



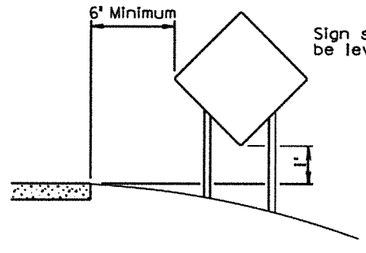
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



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

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

September 22, 2014

Published Date: 3rd Qtr. 2015

SDDOT

CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)

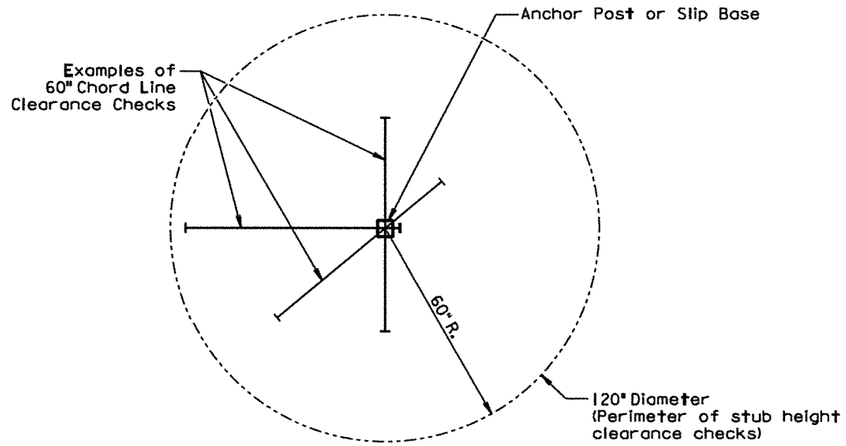
PLATE NUMBER 634.85

Sheet 1 of 1

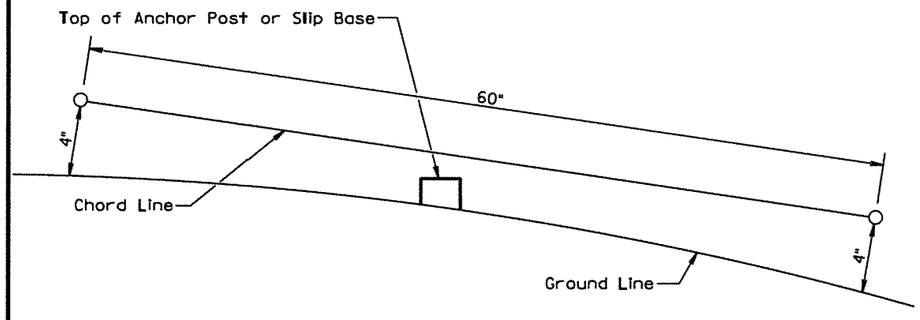
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	53	80

Plotting Date: 06/19/15
Revised Date: xx/xx/xx
Initials: JTH



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

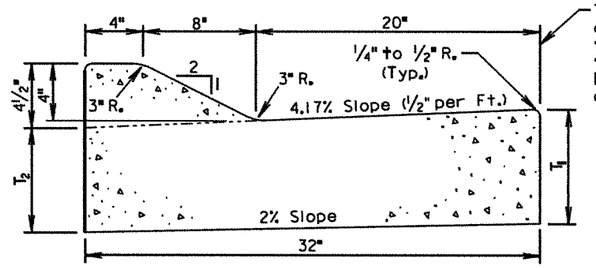
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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: 3rd Qtr. 2015	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
D46	6	5 5/16	0.056	18.0
D47	7	6 5/16	0.064	15.7
D48	8	7 5/16	0.072	13.9
D48.5	8.5	7 13/16	0.076	13.1
D49	9	8 5/16	0.080	12.5
D49.5	9.5	8 13/16	0.084	11.9
D410	10	9 5/16	0.088	11.3
D410.5	10.5	9 13/16	0.093	10.8
D411	11	10 5/16	0.097	10.3
D411.5	11.5	10 13/16	0.101	9.9
D412	12	11 5/16	0.105	9.5

GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

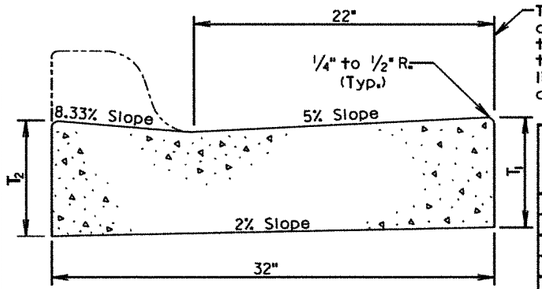
September 6, 2006

Published Date: 3rd Qtr. 2015	SDDOT	TYPE D CONCRETE CURB AND GUTTER	PLATE NUMBER 650.15
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	54	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

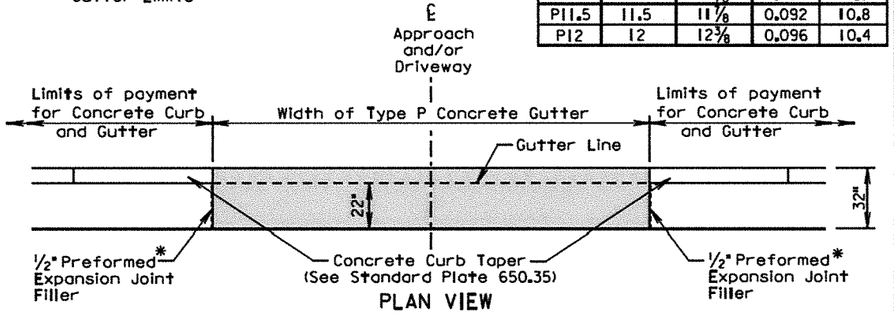


TRANSVERSE SECTION

The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 3/8	0.047	21.2
P7	7	7 3/8	0.055	18.1
P8	8	8 3/8	0.064	15.7
P8.5	8.5	8 7/8	0.068	14.8
P9	9	9 3/8	0.072	13.9
P9.5	9.5	9 7/8	0.076	13.2
P10	10	10 3/8	0.080	12.5
P10.5	10.5	10 7/8	0.084	11.9
P11	11	11 3/8	0.088	11.3
P11.5	11.5	11 7/8	0.092	10.8
P12	12	12 3/8	0.096	10.4

Type P Concrete Gutter Limits



PLAN VIEW

* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the 1/2" Preformed Expansion Joint Filler is provided, then the joint shall be sealed in accordance with standard plate 650.90.

GENERAL NOTES:

The concrete for the Type P Concrete Gutter shall comply with the requirements of the Standard Specifications for Class M6 Concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete gutter at each mainline PCC pavement transverse contraction joint location.

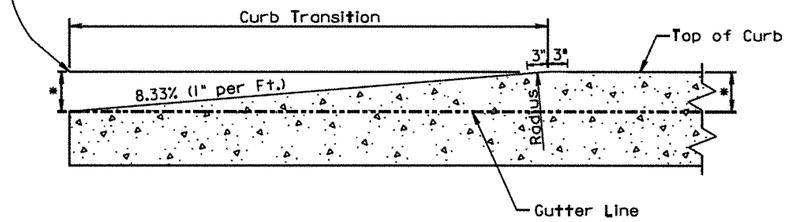
When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter shall be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

When concrete gutter is not placed monolithically with the mainline PCC pavement and when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete.

September 6, 2013

Published Date: 3rd Qtr. 2015	SDDOT	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
			Sheet 1 of 1

End and theoretical elevation of top of curb and gutter shown on plans and cross sections.



* Height of Curb

LONGITUDINAL SECTION OF CONCRETE CURB TAPER

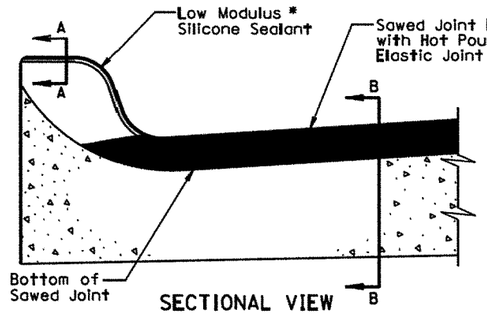
September 14, 2005

Published Date: 3rd Qtr. 2015	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

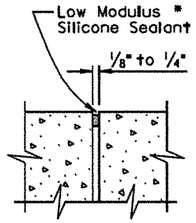
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	55	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

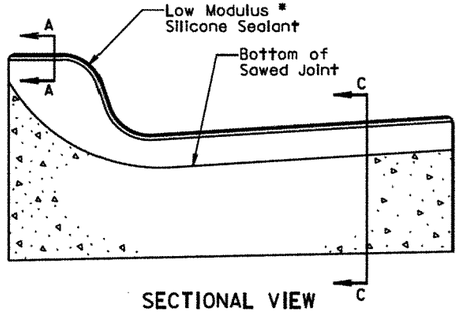


SECTIONAL VIEW

(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

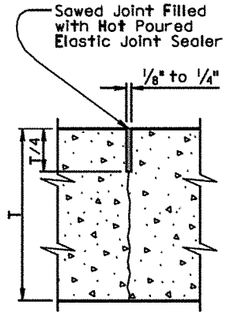


SECTION A-A

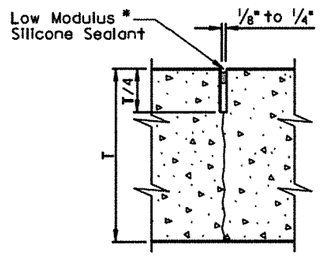


SECTIONAL VIEW

(Curb and Gutter not Placed Monolithic with Adjacent Mainline PCC Pavement or Mainline Surfacing is not PCC Pavement)



SECTION B-B

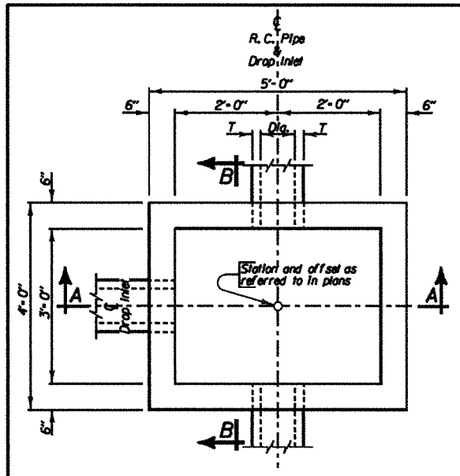


SECTION C-C

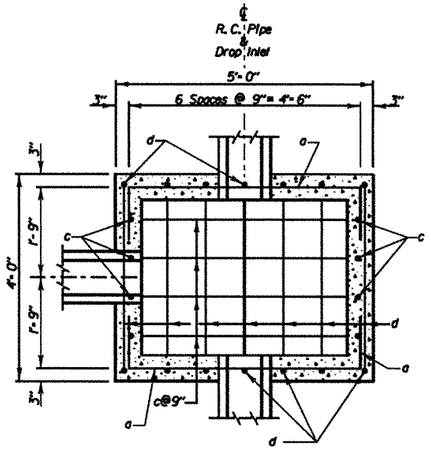
* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

September 6, 2013

Published Date: 3rd Qtr. 2015	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 2



PLAN



BOTTOM SECTION

PIPE DISPLACEMENT REDUCTIONS

R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
30	3 1/2	0.14
36	4	0.20

ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	Cu'd	0.43	0.29H
Reinforcing Steel	Lb	57	26.72H
Frame and Grate	Each	1	———

DROP INLETS FOR 12" TO 36" DIAMETER PIPE

GENERAL NOTES:

* Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.

Reinforcing steel shall conform to ASTM A615 Grade 60. The b bars shall be lapped 12 inches. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Pipe shall not enter through a corner of the drop inlet.

Use 2" clear cover on all reinforcing steel unless otherwise noted.

Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.

Maximum pipe diameter shall not exceed 27 inches on the 4 foot wide side and shall not exceed 36 inches on the 5 foot wide side of the drop inlet.

The dimension of H is in feet.

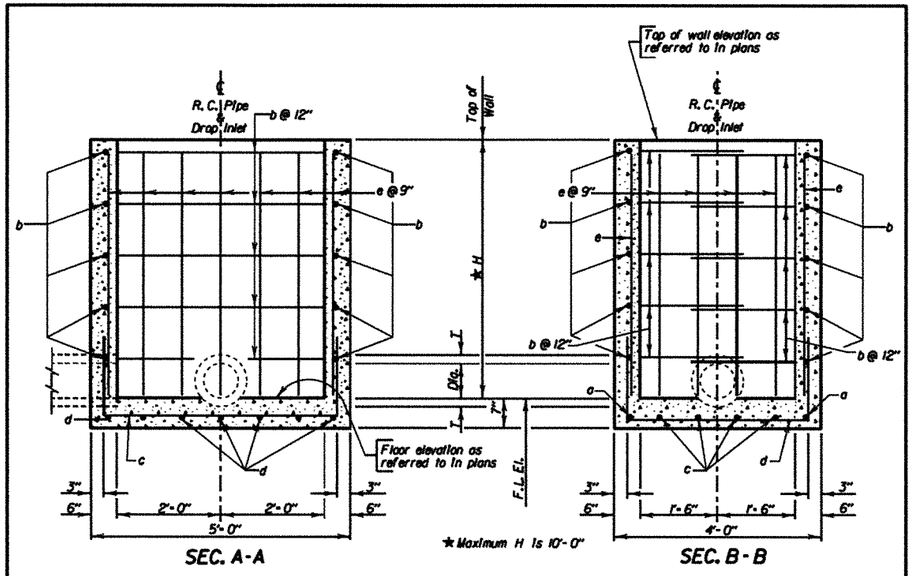
December 23, 2009

Published Date: 3rd Qtr. 2015	SDDOT	3'X 4' TYPE C REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.10
			Sheet 1 of 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	56	80

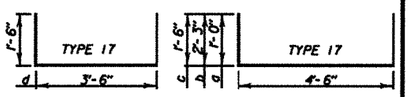
Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



DROP INLETS FOR 12" TO 36" DIAMETER PIPE

REINFORCING SCHEDULE

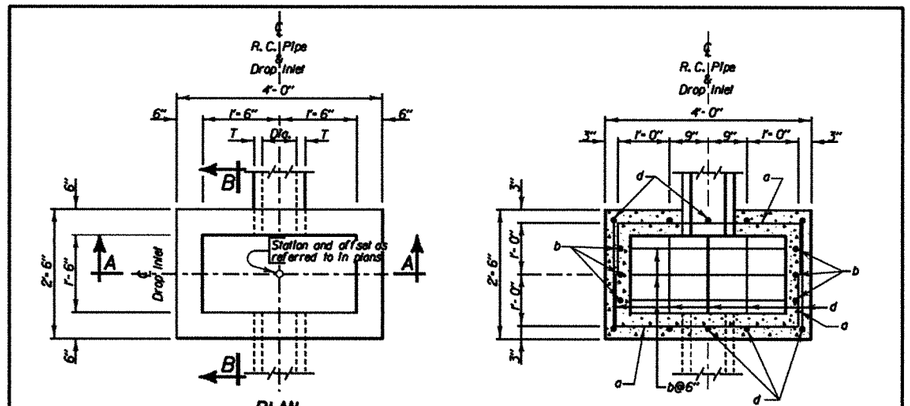
Mk.	No.	Size	Length	Type	Bending Details
a	2	4	6'-6"	17	
b	2H	4	9'-0"	17	
c	4	4	7'-6"	17	
d	7	4	6'-6"	17	
e	22	4	H - 2"	Str.	



NOTE: All dimensions are out to out of bars.

December 23, 2009

Published Date: 3rd Qtr. 2015	SDDOT	3' X 4' TYPE C REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.10
			Sheet 2 of 2



ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
✳ Class M6 Concrete	Cu'd	0.22	0.20H
Reinforcing Steel	Lb	37	19.37H
Frame and Grate	Each	1	———

DROP INLETS FOR 12" TO 27" DIAMETER PIPE

GENERAL NOTES:

✳ Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.

Reinforcing steel shall conform to ASTM A615 Grade 60. The b bars shall be lapped 12 inches. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Pipe shall not enter through a corner of the drop inlet.

Use 2" clear cover on all reinforcing steel unless otherwise noted.

Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.

Maximum pipe diameter shall not exceed 12 inches on the 2.5 foot wide side and shall not exceed 27 inches on the 4 foot wide side of the drop inlet.

The dimension of H is in feet.

PIPE DISPLACEMENT REDUCTIONS

R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
27	3 1/4	0.11

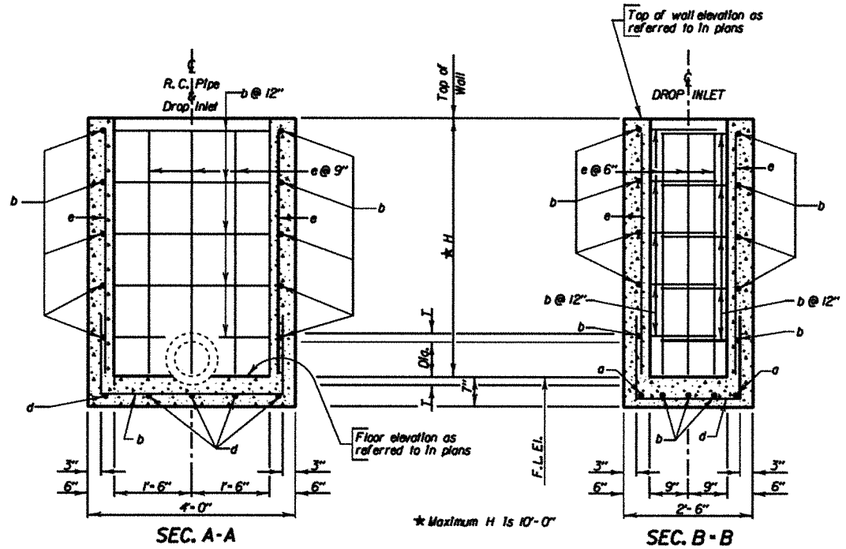
December 23, 2009

Published Date: 3rd Qtr. 2015	SDDOT	1.5' X 3' TYPE D REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.20
			Sheet 1 of 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	57	80

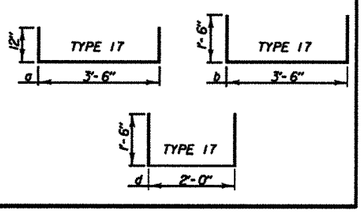
Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



DROP INLETS FOR 12" TO 27" DIAMETER PIPE

REINFORCING SCHEDULE

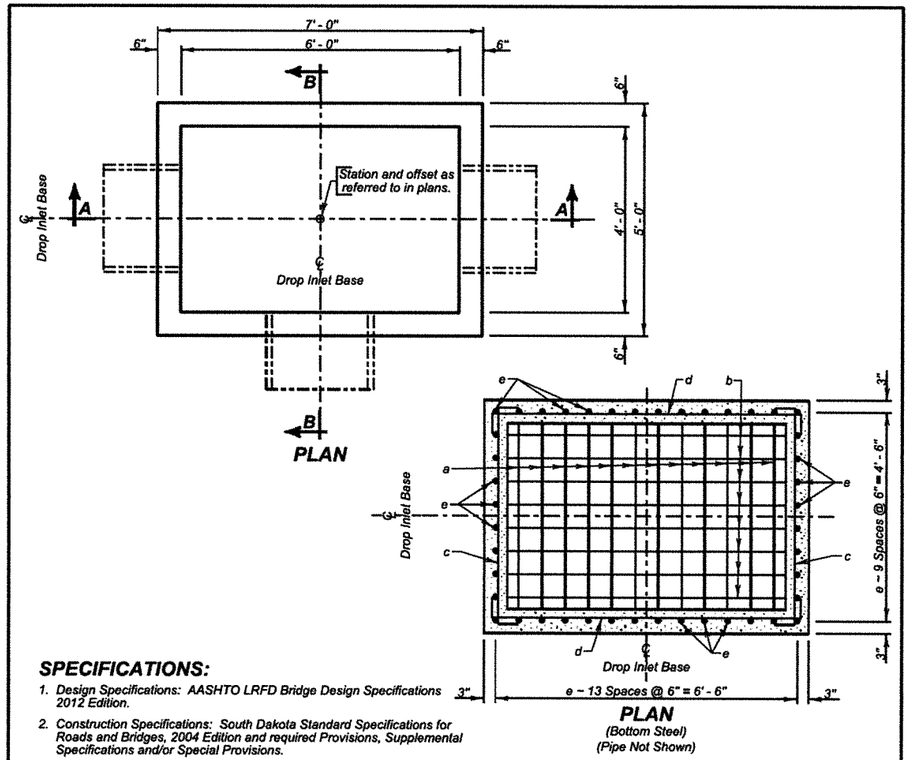
MK.	No.	Size	Length	Type	Bending Details
a	2	4	5'-6"	17	
b	3+2H	4	6'-6"	17	
d	5	4	5'-0"	17	
e	16	4	H + 2"	Str.	



NOTE:
All dimensions are out to out of bars.

December 23, 2009

Published Date: 3rd Qtr. 2015	SDDOT	1.5' X 3' TYPE D REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.20
			Sheet 2 of 2



SPECIFICATIONS:

1. Design Specifications: AASHTO LRFD Bridge Design Specifications 2012 Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and/or Special Provisions.

GENERAL NOTES:

1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Base is intended for use with a Precast Concrete Type S Drop Inlet Lid, Standard Plate 670.38. Base may be precast. If precast base used, and details differ from that shown, the precast base must be on the current approved list. The current approved list is available through proper channels from the SDDOT Office of Bridge Design.
3. To qualify for addition to the approved list, submit a checked design, by South Dakota Registered Professional Engineers and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. ✳ Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.
5. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
6. Maximum R.C.P. diameter shall not exceed 36 inches (30 inches for R.C. Arch) on the 4-foot wide side and shall not exceed 54 inches (48 inches for R.C. Arch) on the 6-foot wide side of the Drop Inlet.
7. Reinforcing steel shall conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the inlet wall.
8. Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
9. The dimension of H is in feet. Maximum H is 8 feet.

December 23, 2012

Published Date: 3rd Qtr. 2015	SDDOT	4' X 6' TYPE S DROP INLET BASE	PLATE NUMBER 670.30
			Sheet 1 of 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	58	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
	30	3 ½	0.14
	36	4	0.20
	42	4 ½	0.26
	48	5	0.34
	54	5 ½	0.43
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09
	30	4	0.14
	36	4 ½	0.19
	42	4 ½	0.24
	48	5	0.32

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
a	14	5	9' - 6"	17
b	10	5	11' - 6"	17
c	2H	4	5' - 6"	17
d	2H	4	7' - 6"	17
e	44	4	H - 2"	Str.

Bending Details

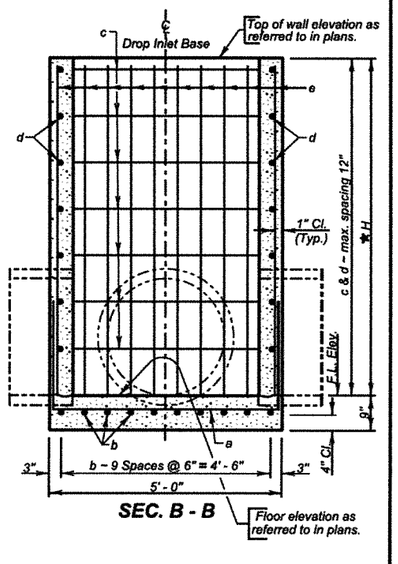
Type 17

a	4' - 10"
b	6' - 10"
c	4' - 8"
d	6' - 8"

NOTE:
All dimensions are out to out of bars

ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
✱Class M6 Concrete	Cu.Yd.	0.97	0.41H
Reinforcing Steel	Lb.	253.77	46.76H



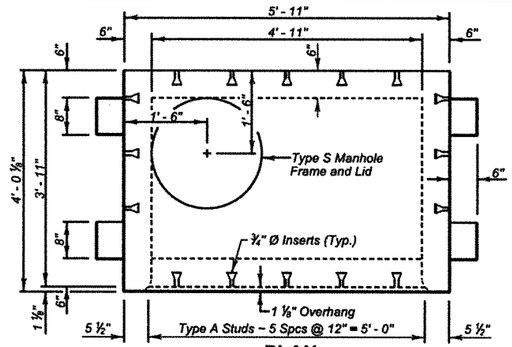
SEC. A - A

SEC. B - B

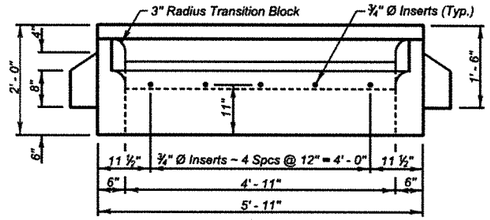
✱ Maximum H is 8' - 0"

December 23, 2012

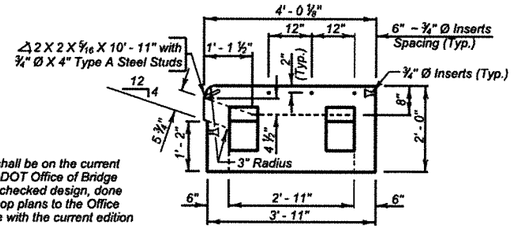
Published Date: 3rd Qtr. 2015	SDDOT	4'X 6' TYPE S DROP INLET BASE	PLATE NUMBER 670.30
			Sheet 2 of 2



PLAN



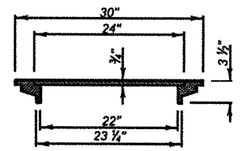
ELEVATION



SIDE VIEW
(With Sidewalk Inserts)

GENERAL NOTES:

1. The Precast Concrete Type S Drop Inlet Lid and the shims shall be on the current approved list available through proper channels from the SDDOT Office of Bridge Design. To qualify for addition to the approved list, submit a checked design, done by South Dakota Registered Professional Engineers, and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
2. Design Live Load shall be HL - 93.
3. Concrete mix shall be as per fabricators design, however, minimum compressive strength shall not be less than 4500 psi. Type II Cement is required.
4. The Type S Manhole Frame and Lid shall conform to AASHTO M105, Class 30.
5. Structural Steel shall conform to ASTM A36. The ¾ inch diameter Headed Type A Steel Studs shall comform to Section 7 of the current edition of AWS DI. I Structural Steel Welding Code.
6. The ¾ inch diameter Concrete Inserts shall be galvanized or made of a corrosion resistant material. Provide ¾ inch diameter x 1' - 6" long dowels conforming to ASTM A615, Gr. 60 threaded to fit Inserts with each lid.
7. All costs associated with furnishing and installing the Precast Concrete Type S Drop Inlet Lid including the type S manhole frame and lid, shims, inserts, and dowels shall be included in the contract unit price per each for " 4' x 6' Precast Concrete Type S Drop Inlet Lid ".



TYPICAL SECTION THROUGH TYPE S MANHOLE FRAME AND LID
(Weight 140 Lbs.)

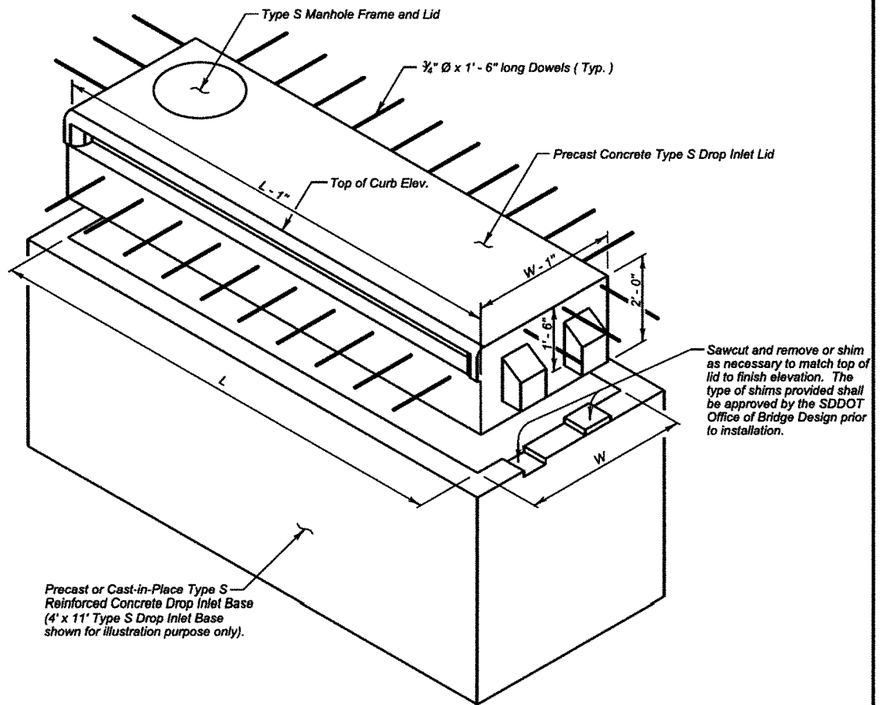
December 23, 2012

Published Date: 3rd Qtr. 2015	SDDOT	4'X 6' PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.38
			Sheet 1 of 1

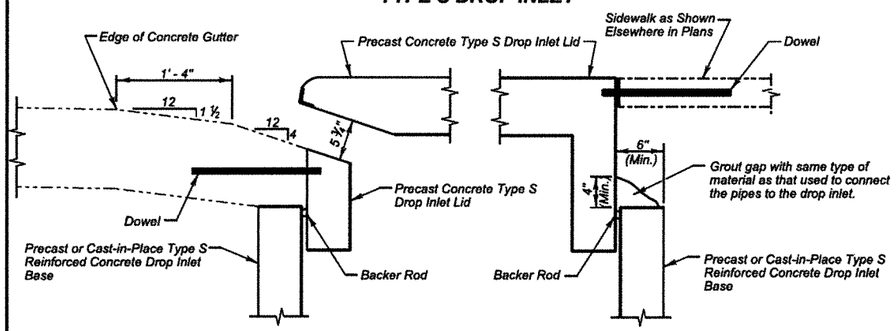
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	59	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



TYPE S DROP INLET

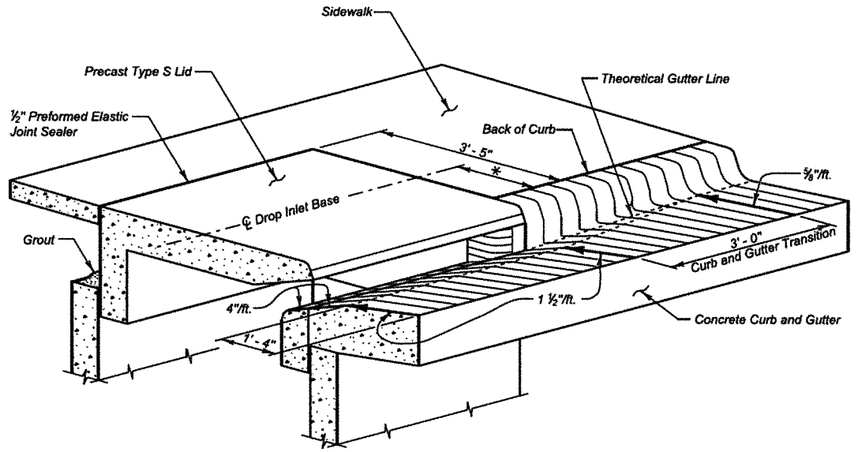


CONCRETE GUTTER DETAIL

GROUTING DETAIL
(Sides and Back, Adjacent to Sidewalk)

December 23, 2012

Published Date: 3rd Qtr. 2015	SDDOT	INSTALLATION DETAILS FOR PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.45 Sheet 1 of 2



CURB AND GUTTER TRANSITION DETAILS

Drop Inlet Base Unit Size	* Distance
4' x 6'	1' - 5 ½"
4' x 11'	1' - 5 ½"
7' x 11'	2' - 11 ½"

GENERAL NOTES:

1. Dowels shall be used to anchor the precast concrete Type S drop inlet lid to the concrete gutter. See Standard Plate 670.38 or 670.40 as applicable. If there is sidewalk adjacent dowels shall be used to anchor the precast concrete Type S drop inlet lid to the sidewalk. If there is sidewalk adjacent to the drop inlet, the precast lid shall match the finish elevations and cross slopes of the sidewalk.
2. The sidewalk shall be steel reinforced when the sidewalk adjoins the precast lid. Refer to Standard Plate 651.70 for reinforced concrete sidewalk details.

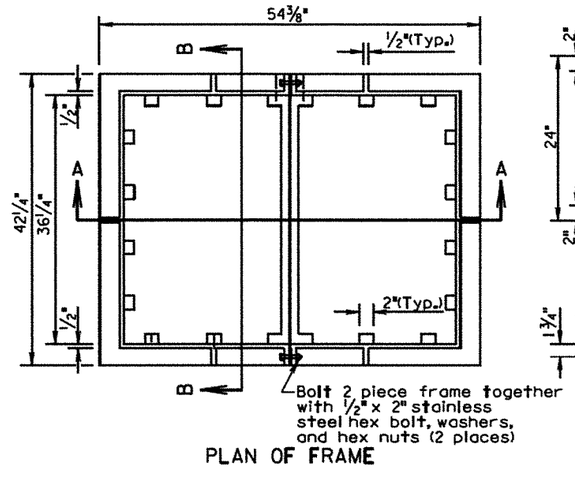
December 23, 2012

Published Date: 3rd Qtr. 2015	SDDOT	INSTALLATION DETAILS FOR PRECAST CONCRETE TYPE S DROP INLET LID	PLATE NUMBER 670.45 Sheet 2 of 2

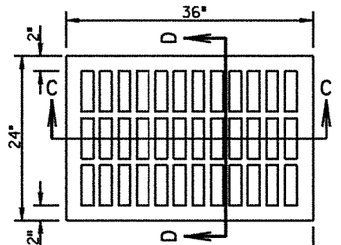
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	60	80

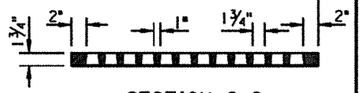
Plotting Date:
Revised Date: 9/29/15
Initials: JTH



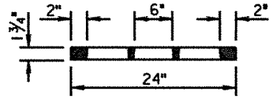
PLAN OF FRAME



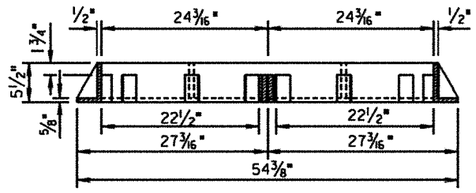
PLAN OF GRATE



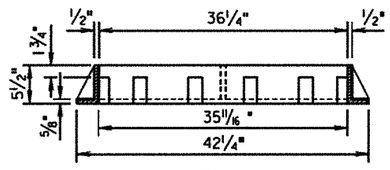
SECTION C-C



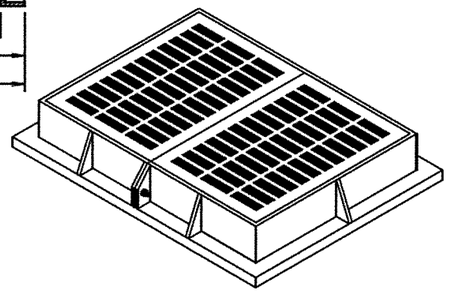
SECTION D-D



SECTION A-A



SECTION B-B

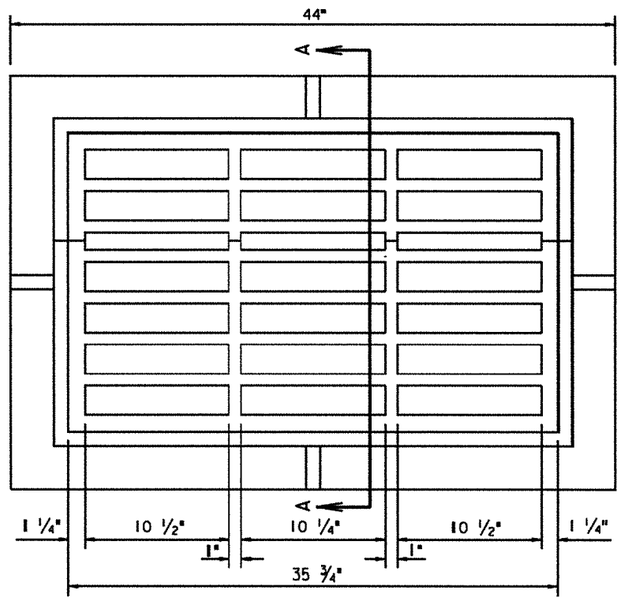


ASSEMBLED VIEW

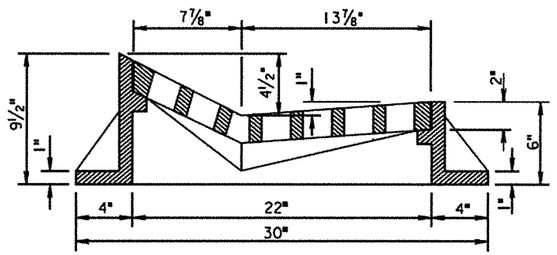
GENERAL NOTE:
The total weight of the frame and grate shall be 850 pounds minimum.

March 31, 2000

Published Date: 3rd Qtr. 2015	SDDOT	*TYPE C FRAME AND GRATE*	*PLATE NUMBER* 670.82
			Sheet 1 of 1



PLAN VIEW



SECTION A-A

GENERAL NOTE:
The total weight of the frame and grate shall be 620 pounds minimum.

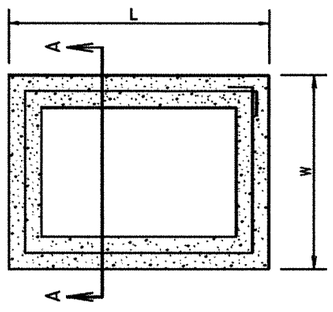
March 31, 2000

Published Date: 3rd Qtr. 2015	SDDOT	*TYPE D FRAME AND GRATE*	*PLATE NUMBER* 670.84
			Sheet 1 of 1

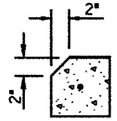
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	61	80

Plotting Date:
Revised Date: 9/29/15
Initials: JTH

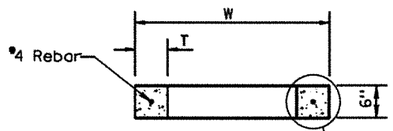


PLAN VIEW



For Type D Drop Inlets only:
Use Precast Drop Inlet Collar with 2" chamfer on L sides only.

DETAIL B



SECTION A-A

See Detail B (For Type D Drop Inlets Only)

INFORMATIONAL QUANTITIES

FRAME AND GRATE TYPE	L Ft-In	W Ft-In	T In	CLASS M6 CONCRETE CuYd	REINFORCING STEEL Lb
TYPE B	4'-0"	3'-0"	6	0.11	9
TYPE C	5'-0"	4'-0"	6	0.15	11
TYPE D	4'-0"	2'-6"	6	0.10	8

GENERAL NOTES:

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

The ½" diameter bar shall lap 6"± and shall be centered in the concrete.

The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals shall be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

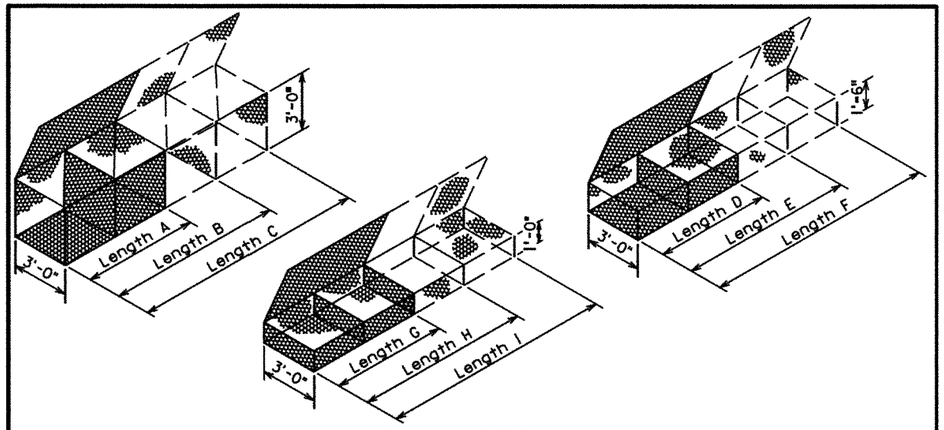
March 31, 2000

Published Date: 3rd Qtr. 2015	SDDOT	PRECAST DROP INLET COLLAR	PLATE NUMBER 670.99
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	62	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



GABION DETAILS

STANDARD SIZES

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

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

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

The lacing procedure is as follows:

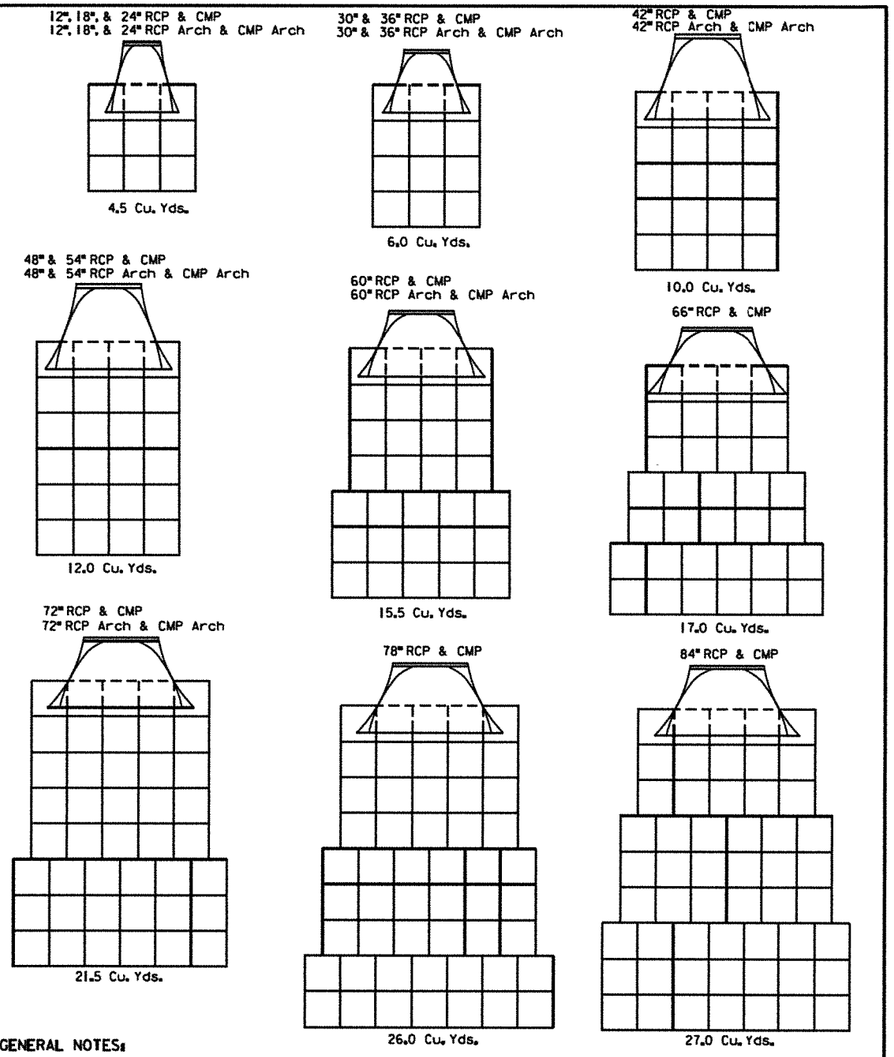
1. Cut a length of lacing wire approximately 1 ½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

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

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class I. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches. All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

Published Date: 3rd Qtr. 2015	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



GENERAL NOTES:

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

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

June 26, 2001

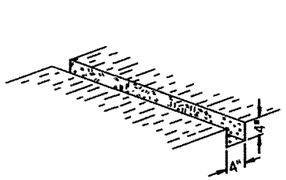
Published Date: 3rd Qtr. 2015	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

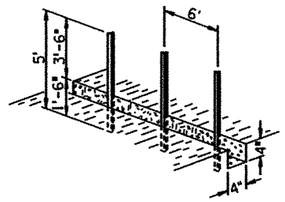
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	63	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

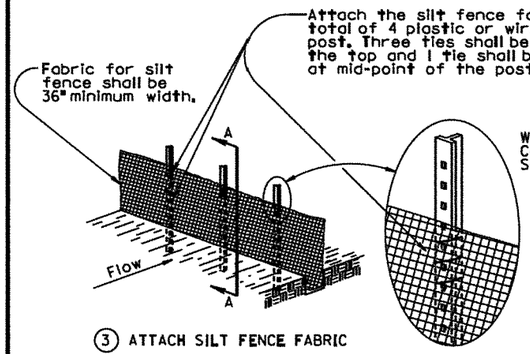
MANUAL HIGH FLOW SILT FENCE INSTALLATION



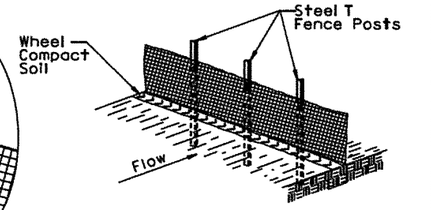
(1) EXCAVATE TRENCH



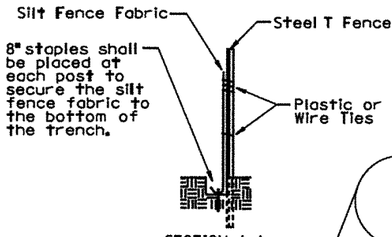
(2) DRIVE STEEL T FENCE POSTS



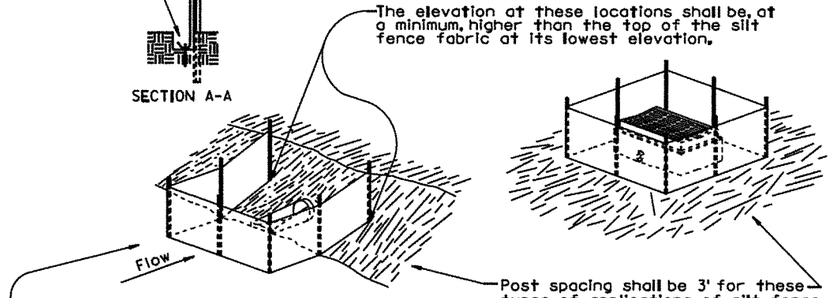
(3) ATTACH SILT FENCE FABRIC



(4) BACKFILL TRENCH AND WHEEL COMPACT SOIL



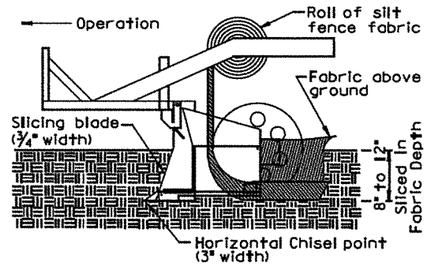
SECTION A-A



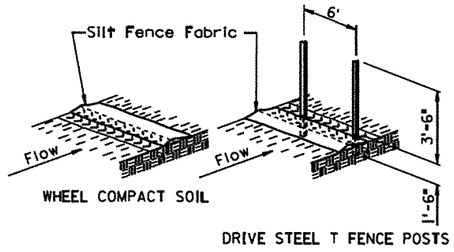
December 23, 2003

Published Date: 3rd Qtr. 2015	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

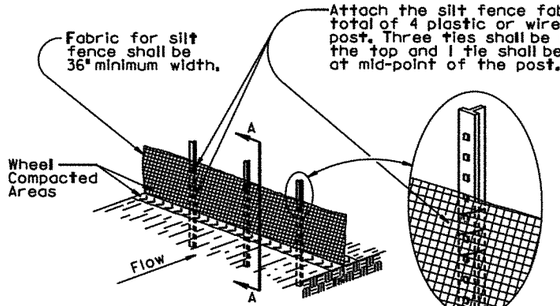
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



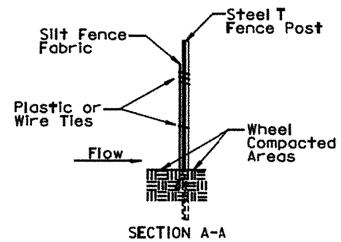
(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



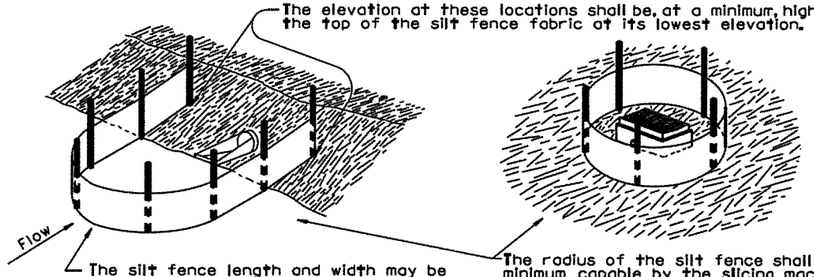
(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



(3) ATTACH SILT FENCE FABRIC



SECTION A-A



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.

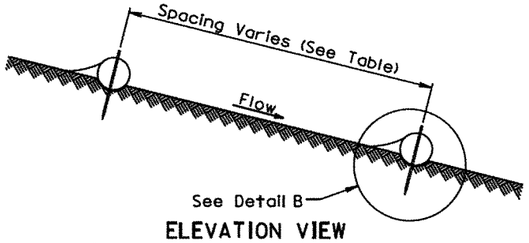
December 23, 2003

Published Date: 3rd Qtr. 2015	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

FOR BIDDING PURPOSES ONLY

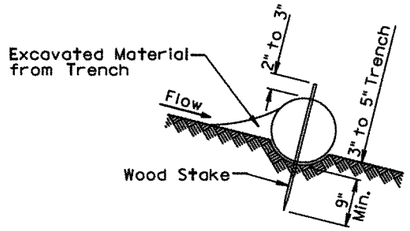
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	64	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

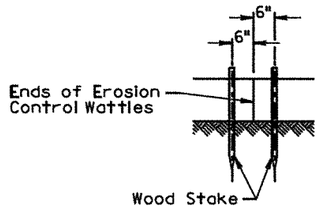


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

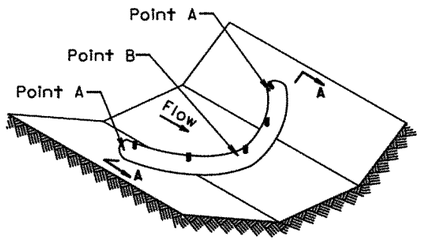
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



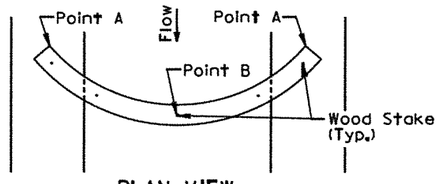
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

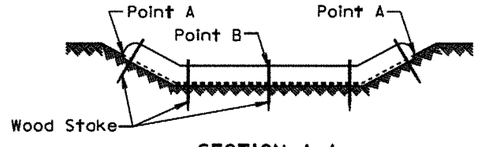


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

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



SECTION A-A

December 23, 2004

Published Date: 3rd Qtr. 2015	SDDOT	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 ½". 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

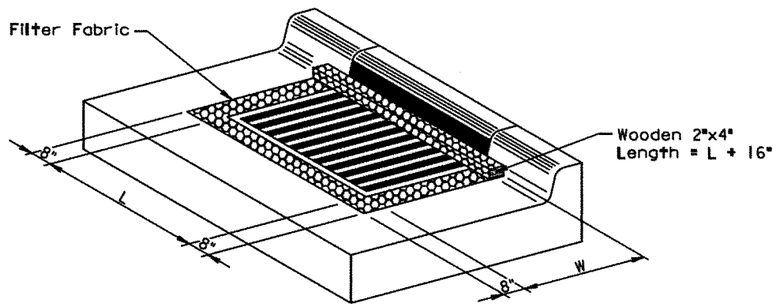
Published Date: 3rd Qtr. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	65	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH

L = Length of Grate
W = Width of Grate



ISOMETRIC VIEW

GENERAL NOTES:

The grate and curb and gutter shown are for illustrative purposes only.

The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.

The filter fabric shall be the type specified in the plans.

The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.

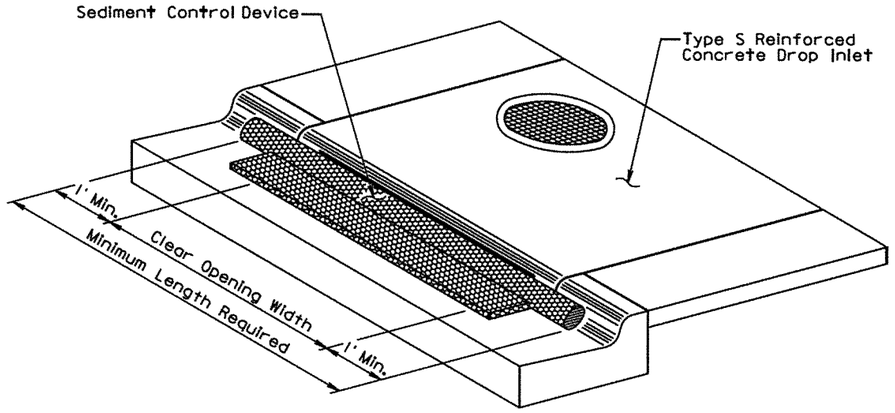
The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

Published Date: 3rd Qtr. 2015	SDDOT	SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES	PLATE NUMBER 734.10
			Sheet 1 of 1



ISOMETRIC VIEW

GENERAL NOTES:

The type of sediment control device shown is for illustrative purposes only.

The type of sediment control device used shall be one of the types as specified in the plans.

The sediment control device shall be placed at the drop inlets according to the manufacturers' installation instructions.

The sediment control at inlet for type S reinforced concrete drop inlet shall be placed at locations stated in the plans or at locations determined by the Engineer.

The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing the device, removing accumulated sediment, and resetting the device.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

Payment for the "Sediment Control at Type S Drop Inlet" shall be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.

All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

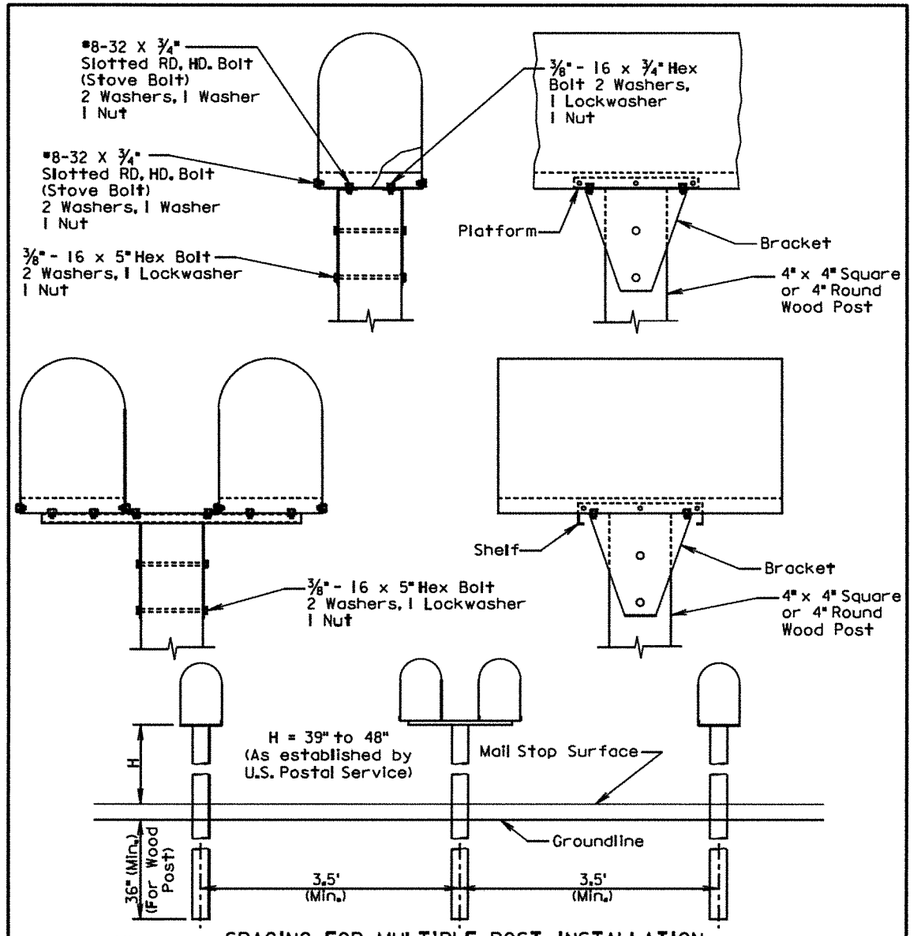
September 14, 2005

Published Date: 3rd Qtr. 2015	SDDOT	SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS	PLATE NUMBER 734.11
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	66	80

Plotting Date: 08/11/15
Revised Date: xx/xx/xx
Initials: JTH



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

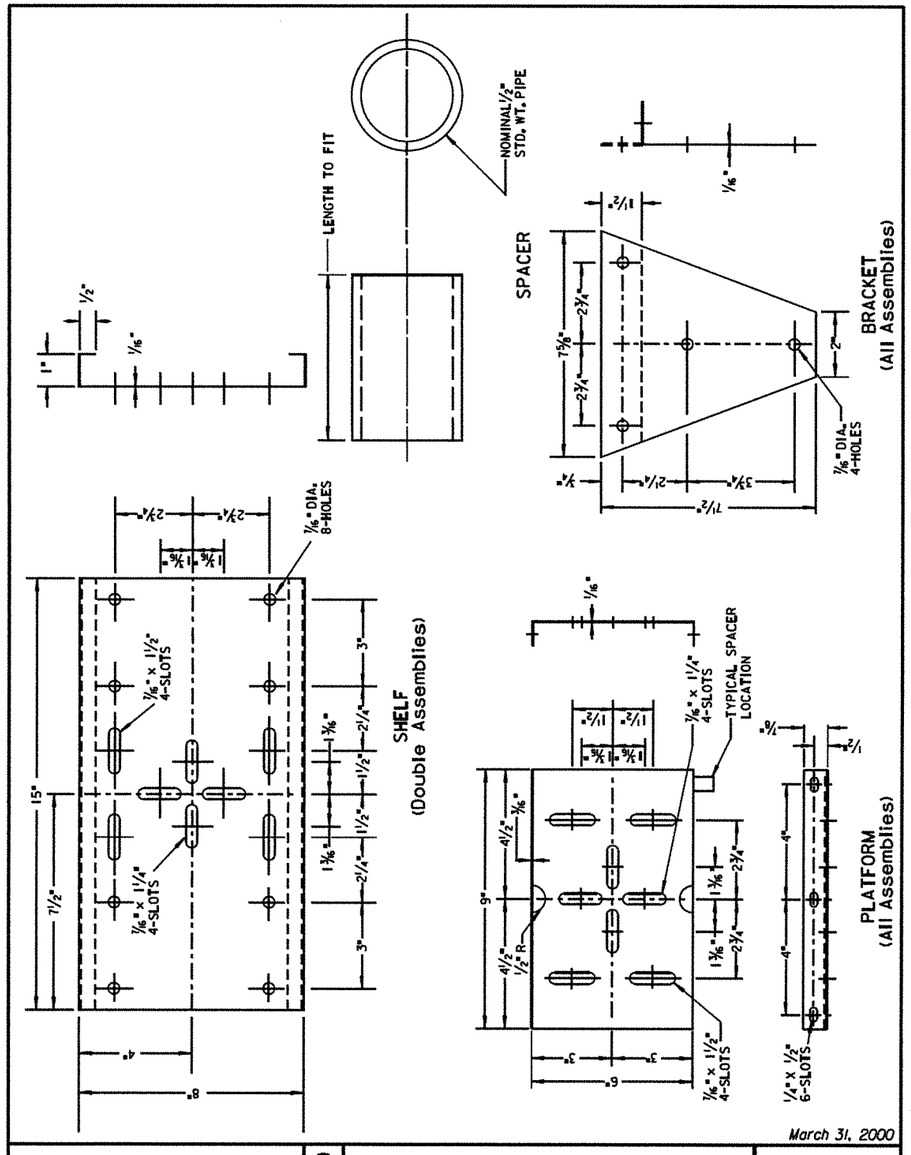
Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 3rd Qtr. 2015	SDDOT	**SINGLE AND DOUBLE MAILBOX ASSEMBLIES**	PLATE NUMBER 900.02
			Sheet 1 of 1



March 31, 2000

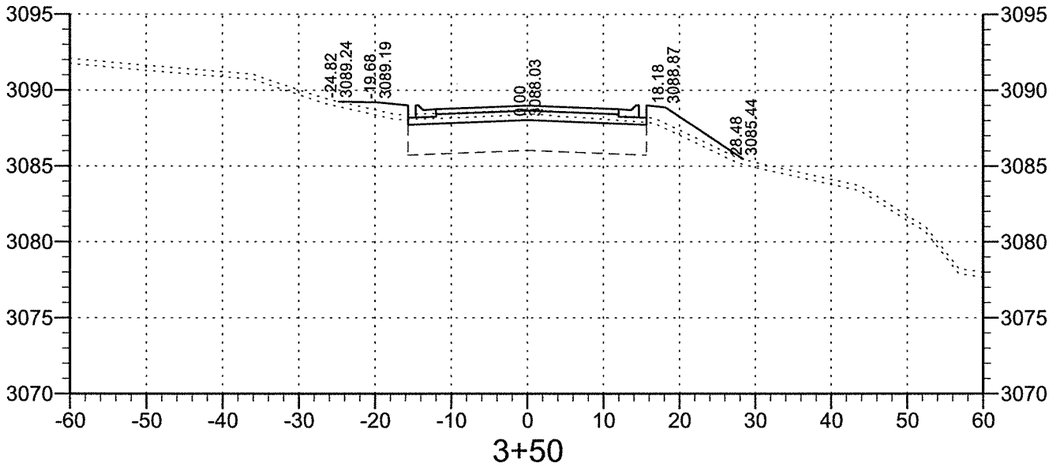
Published Date: 3rd Qtr. 2015	SDDOT	**MAILBOX SUPPORT HARDWARE**	PLATE NUMBER 900.03
			Sheet 1 of 1

Mainline Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	67	80

Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH



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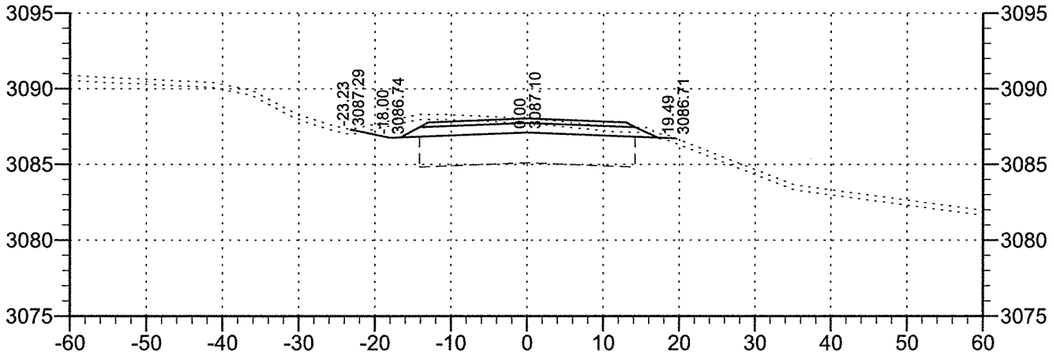

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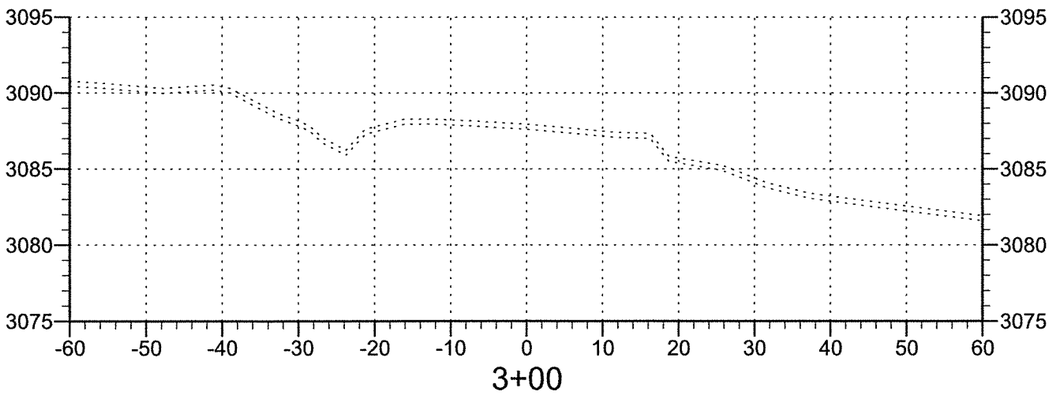

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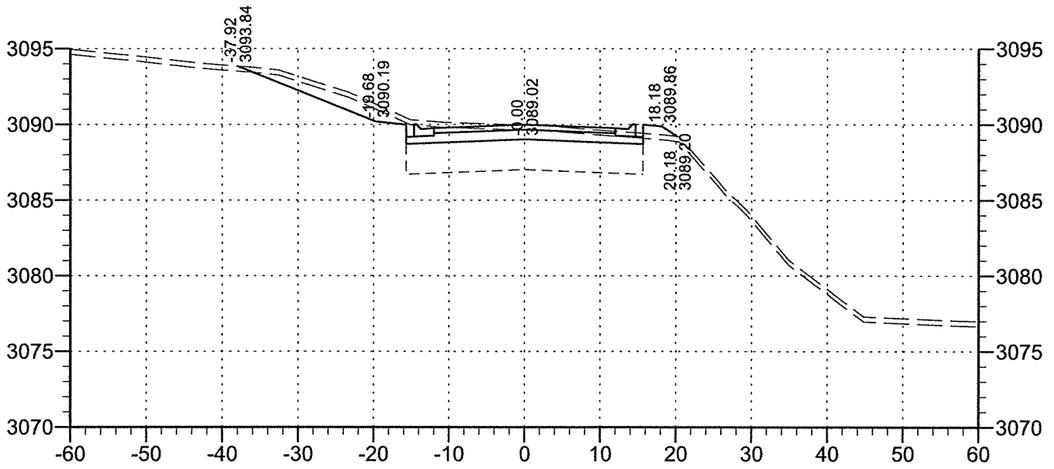

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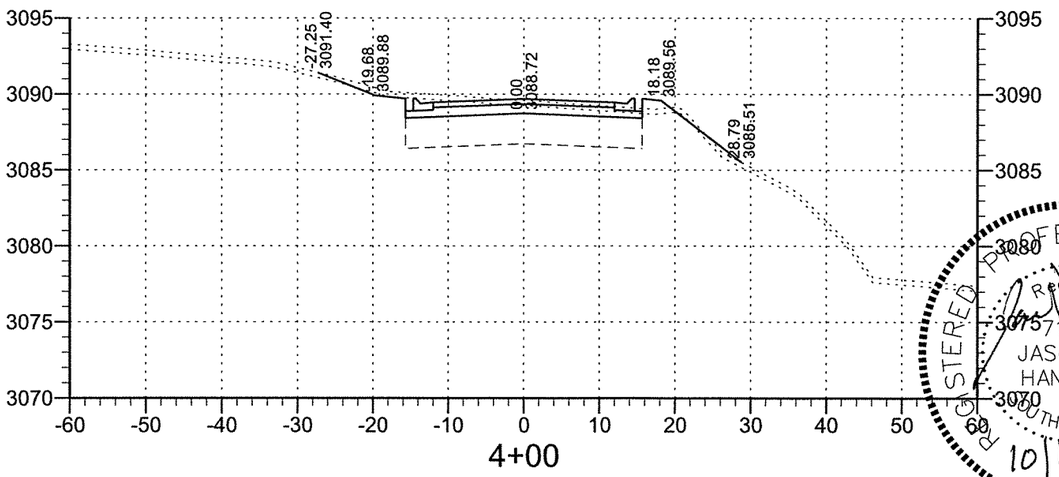

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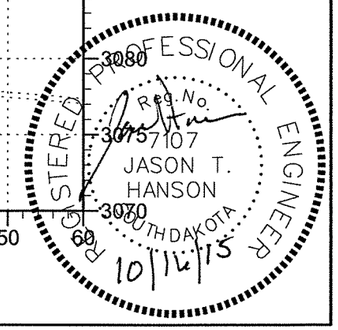
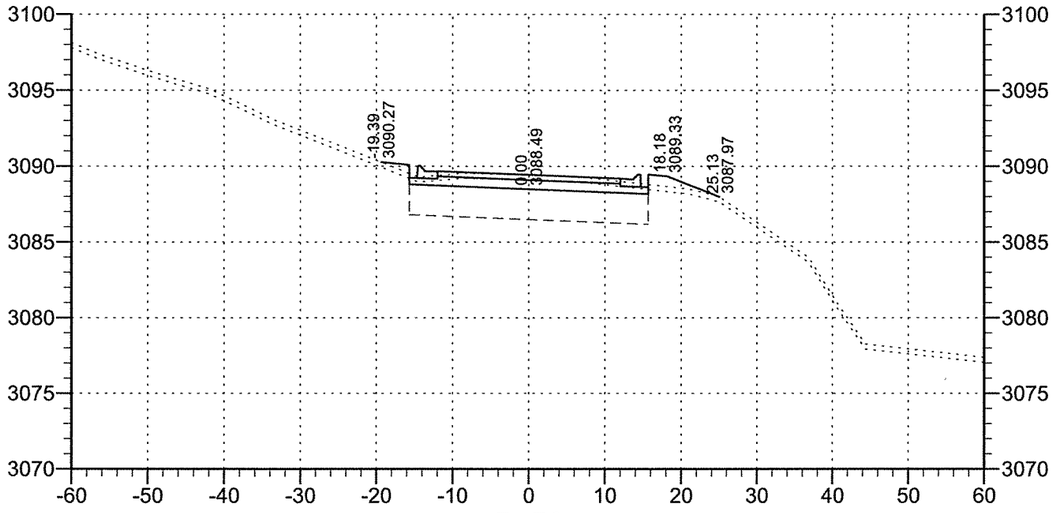


Mainline Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	68	80

Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH



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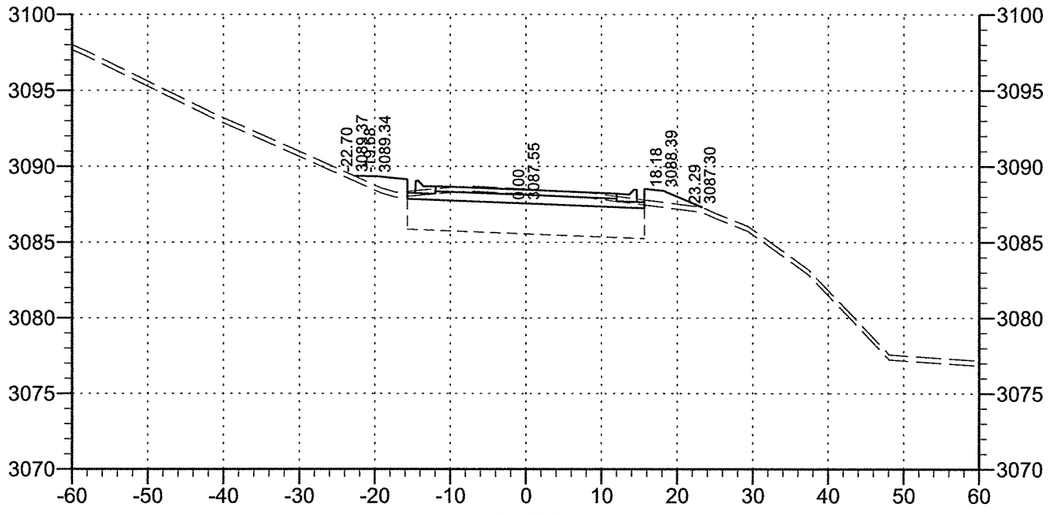

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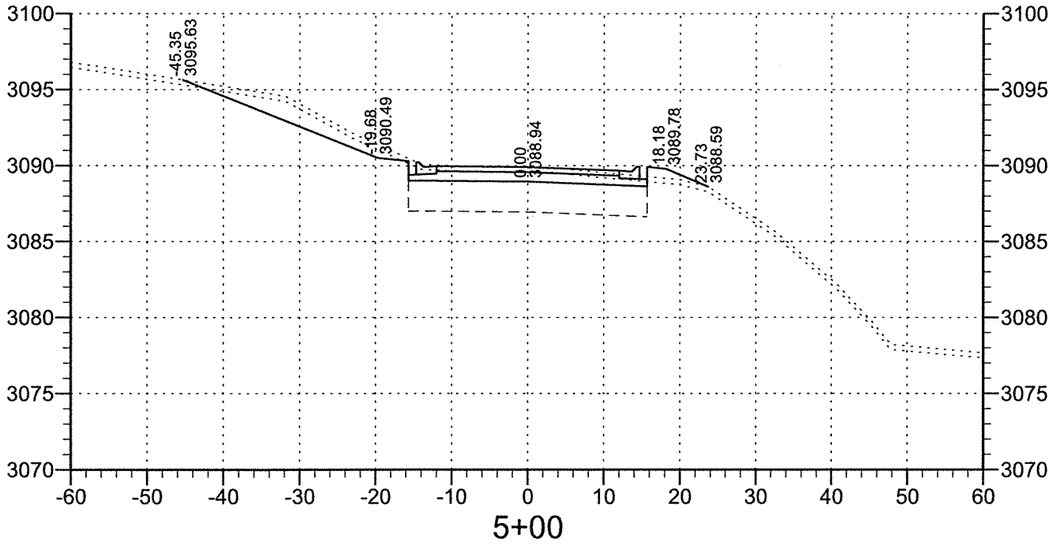

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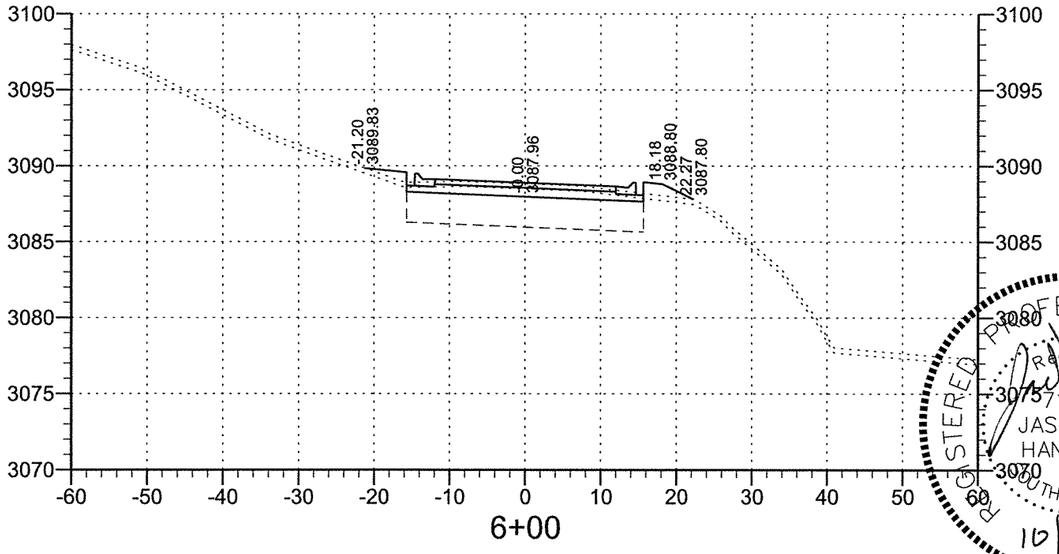

6+00

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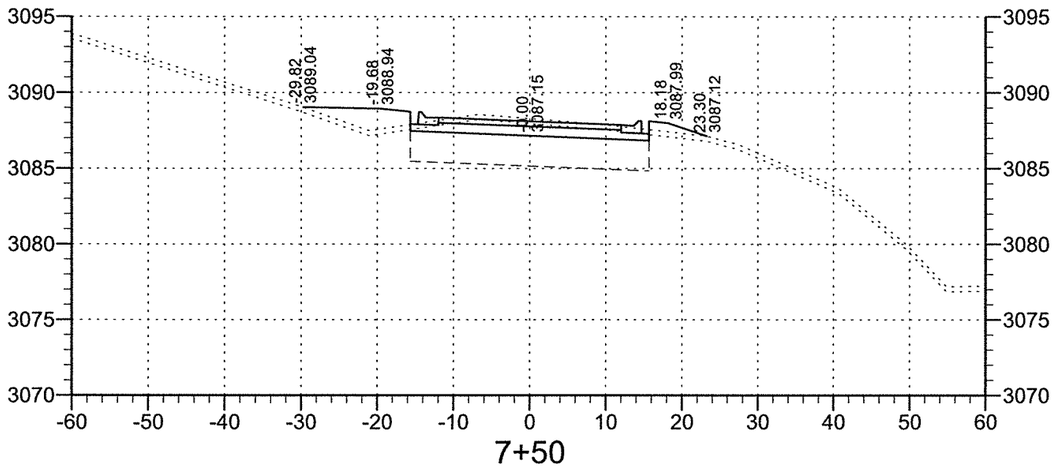
10/16/15

Mainline Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	69	80

Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH



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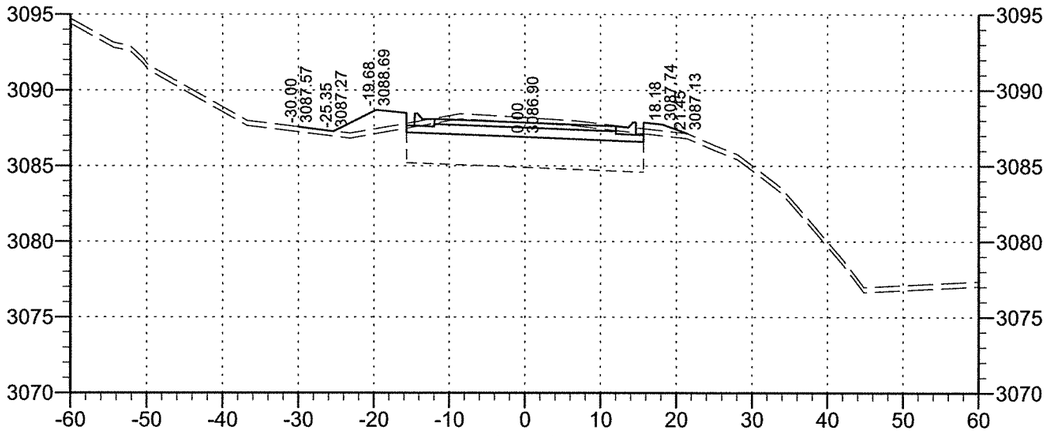

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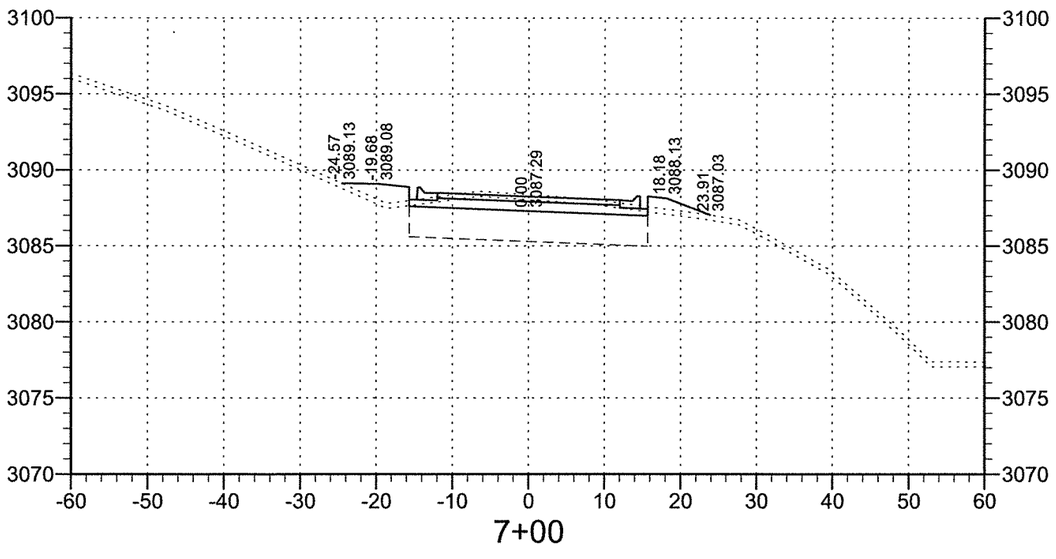

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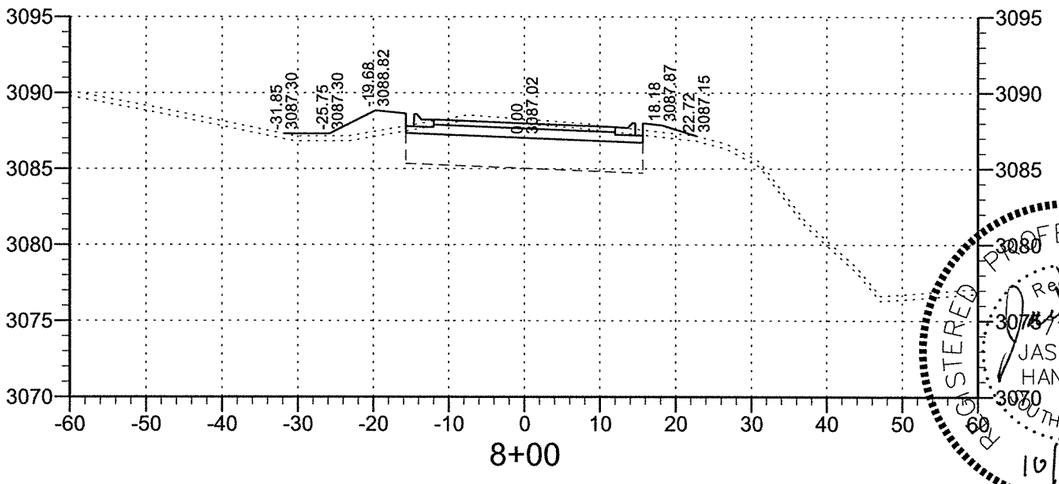

8+00

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Mainline Cross Sections
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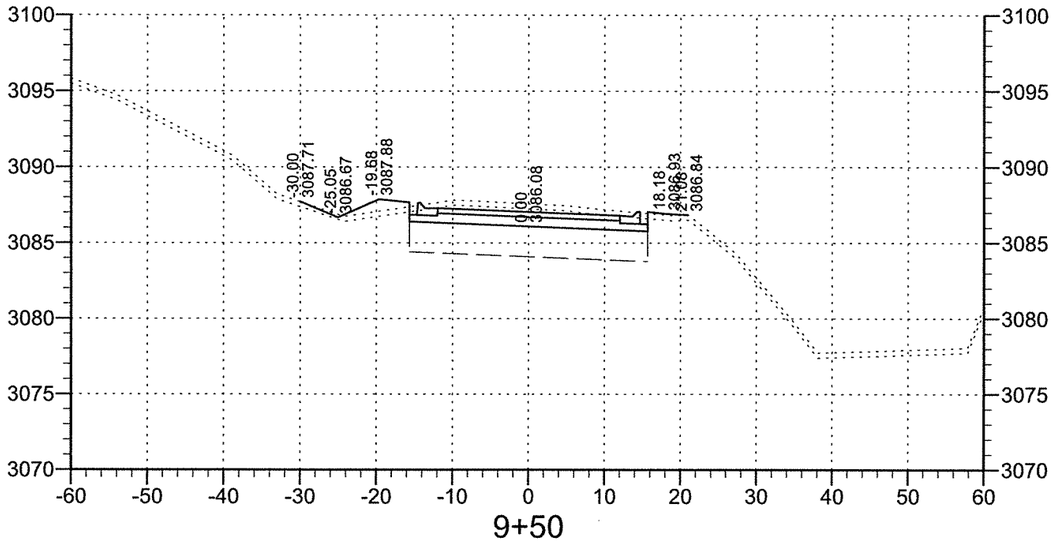
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	70	80

Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH



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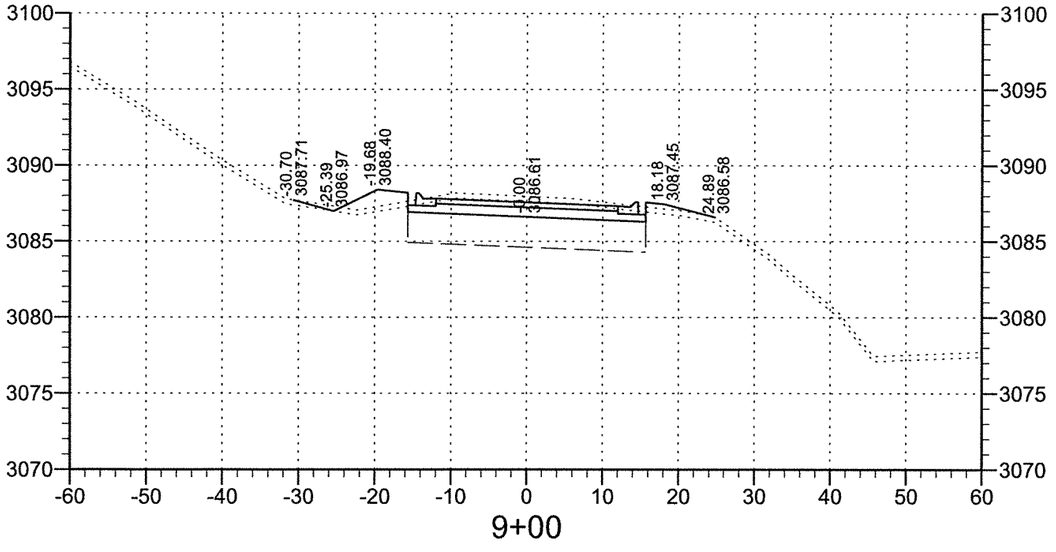

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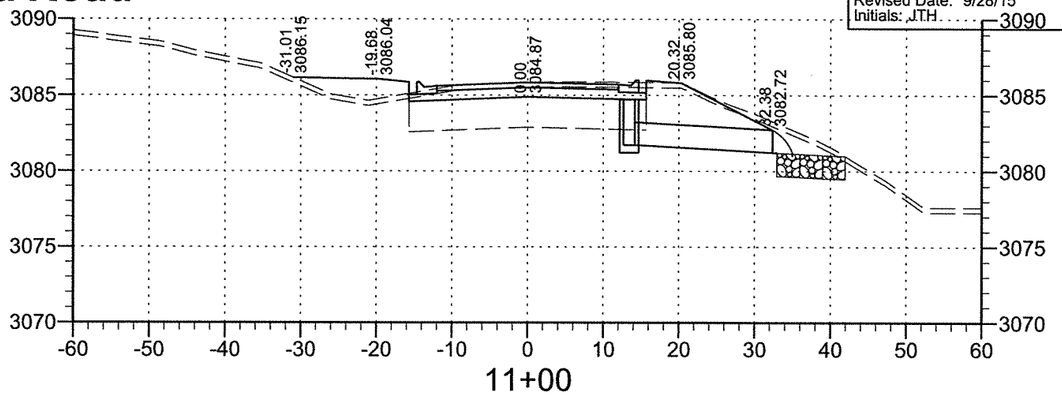

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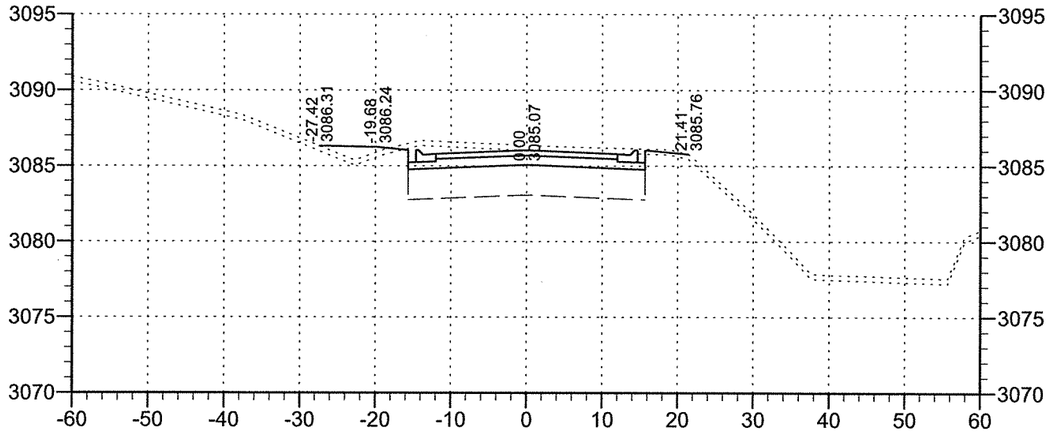

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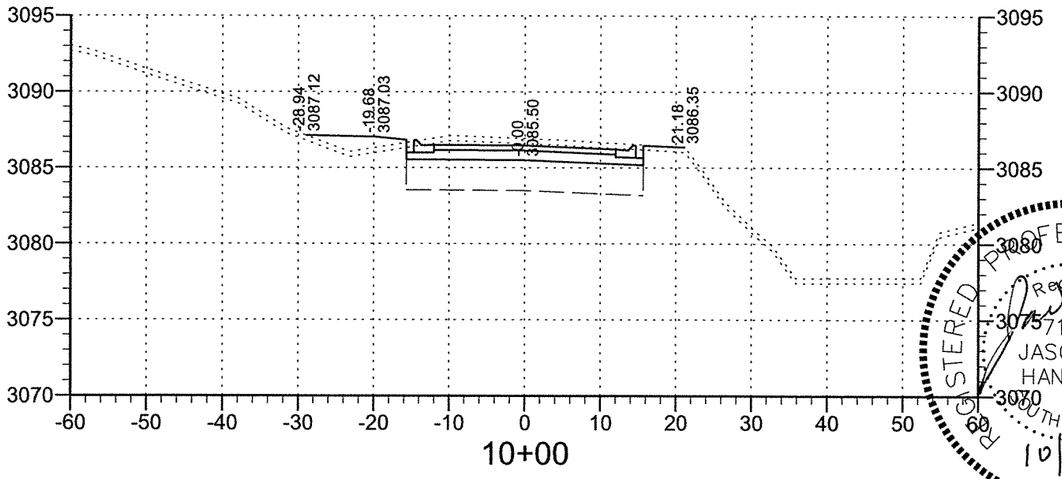

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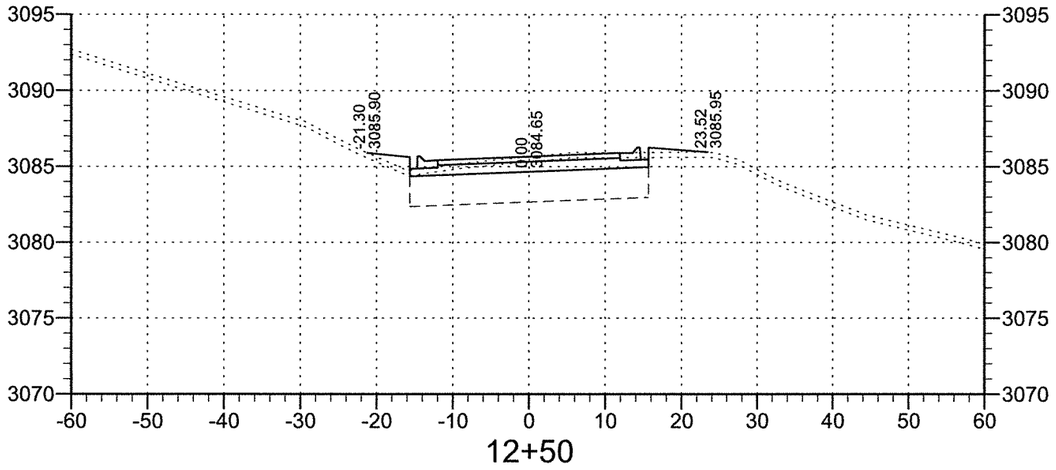
Mainline Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	71	80

Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH



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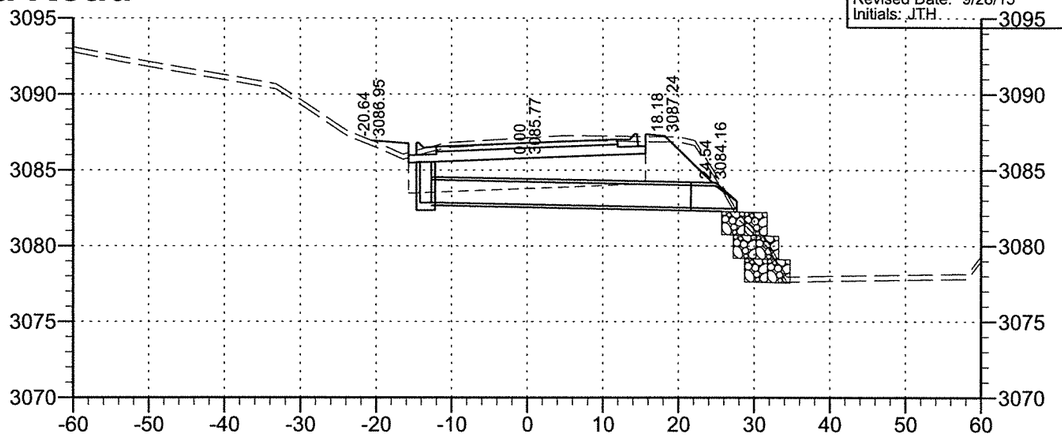

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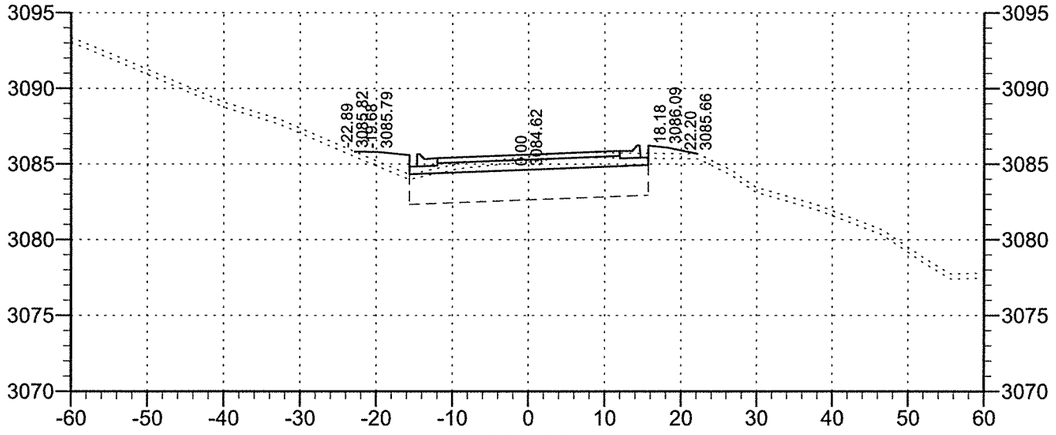

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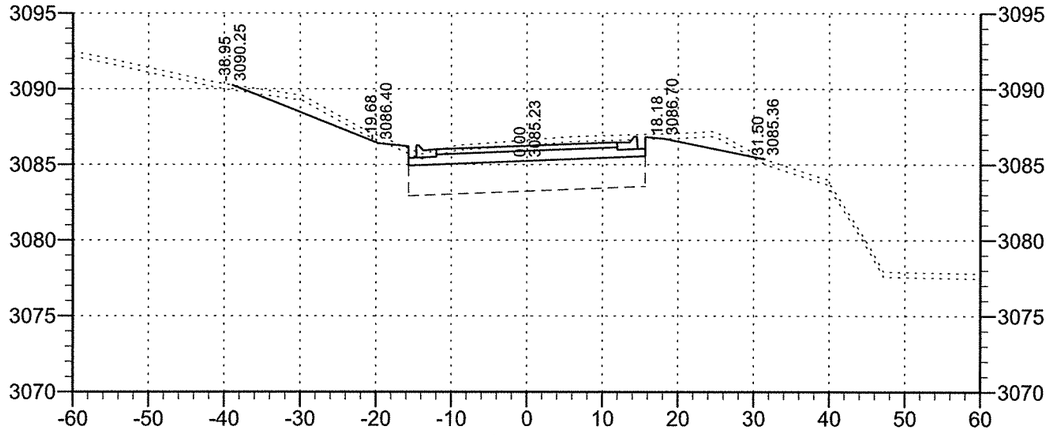

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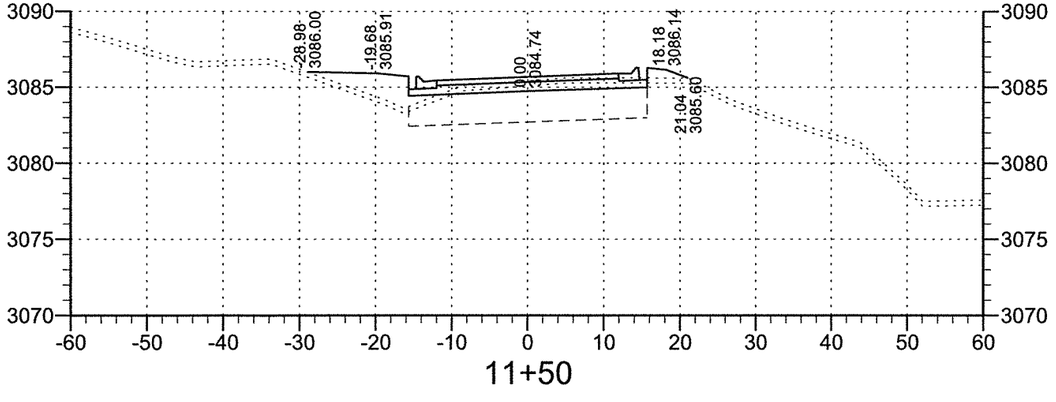

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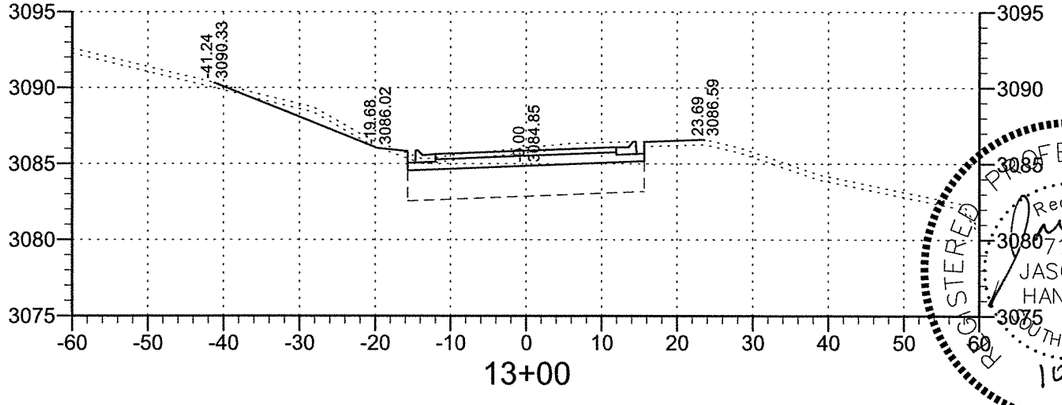

13+00

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Mainline Cross Sections
Snoma Road

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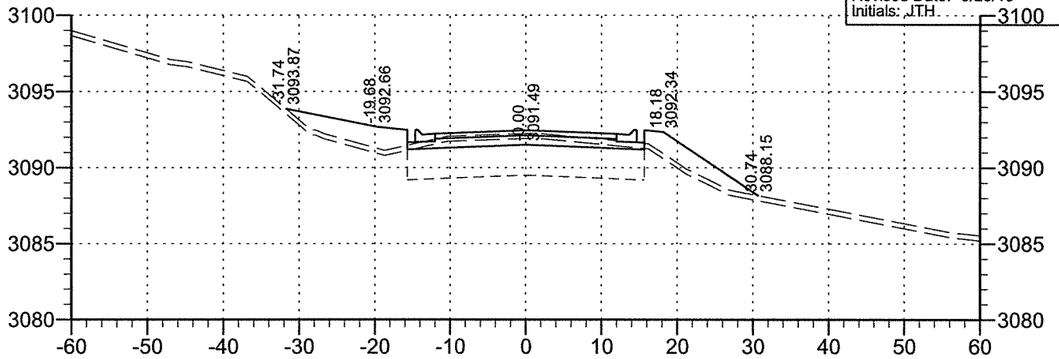
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	72	80

Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH



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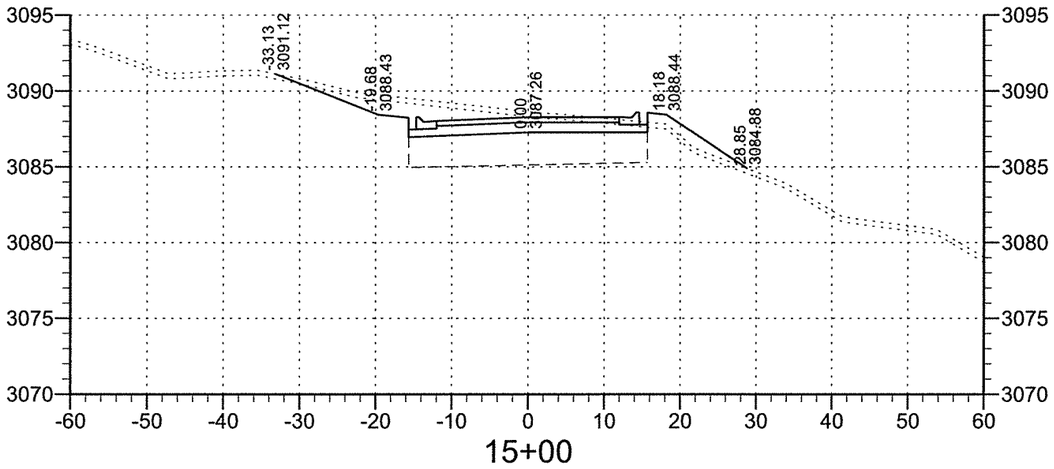

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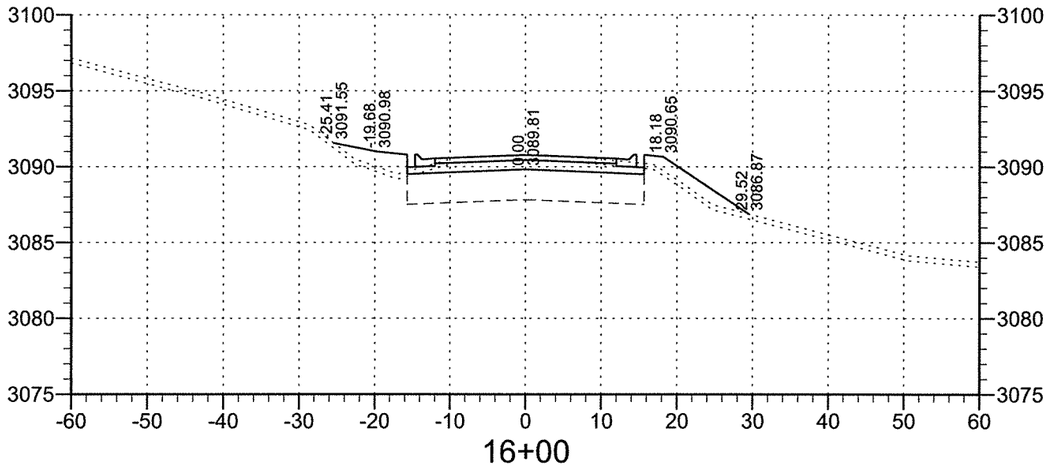

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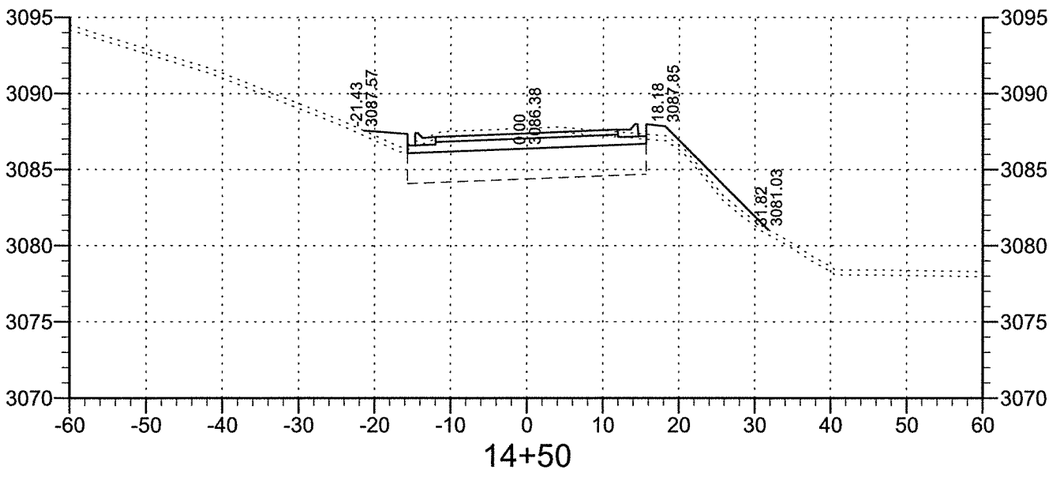

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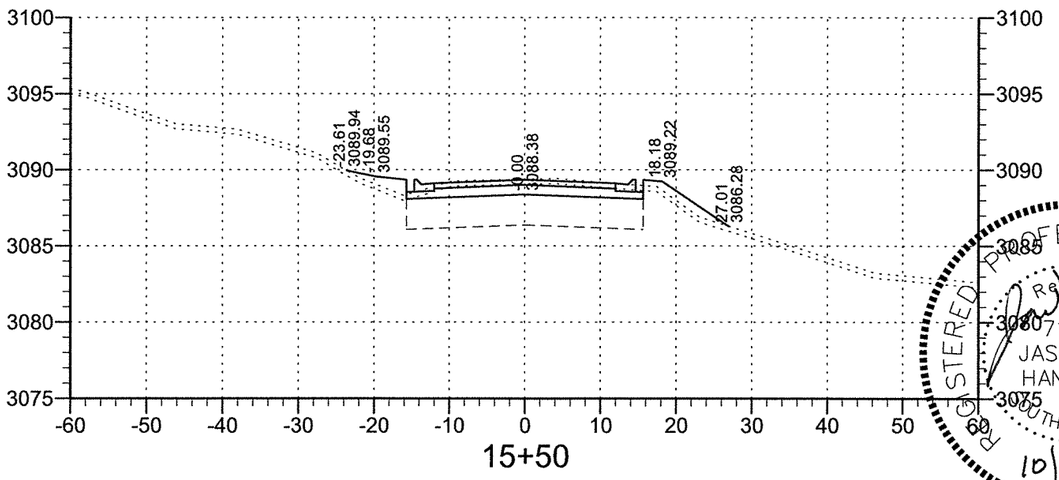

15+50

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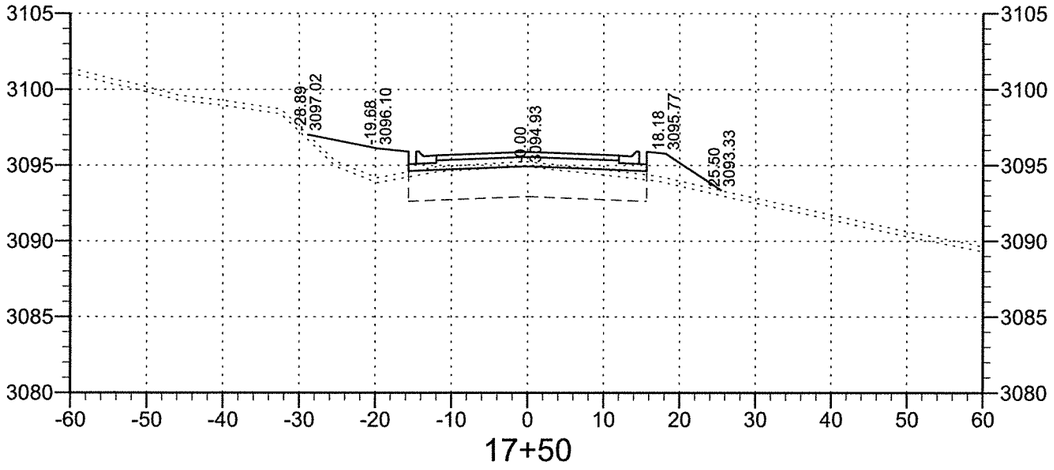
SOUTH DAKOTA
10/16/15

Mainline Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	73	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH



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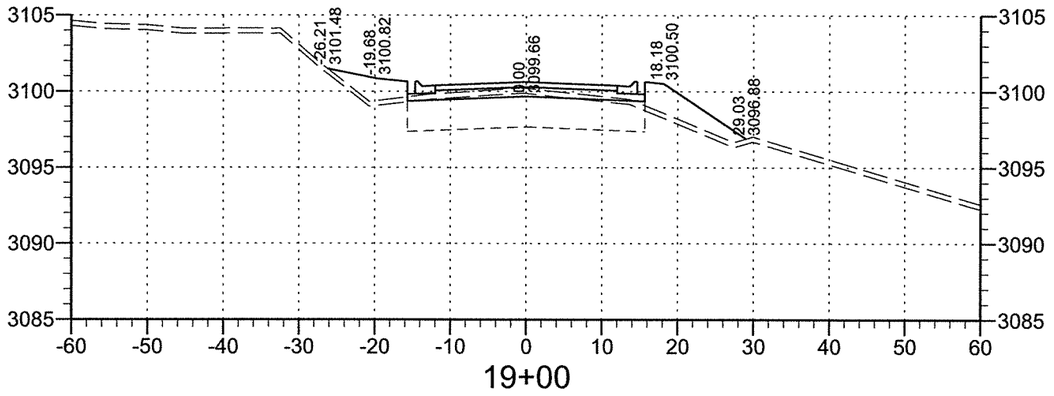

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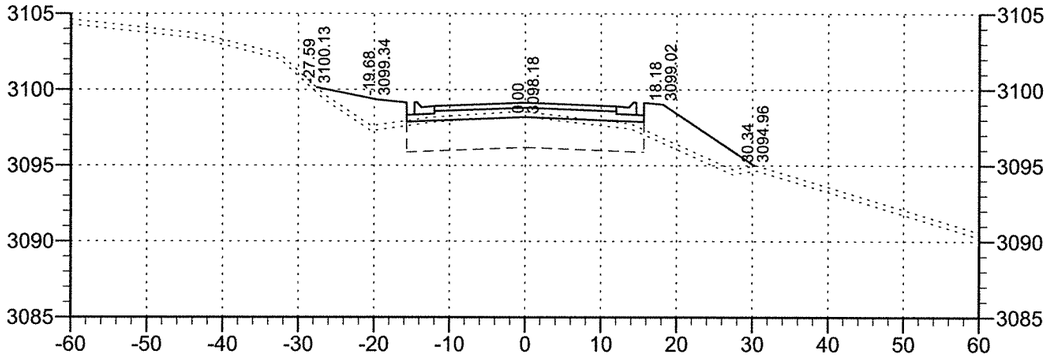

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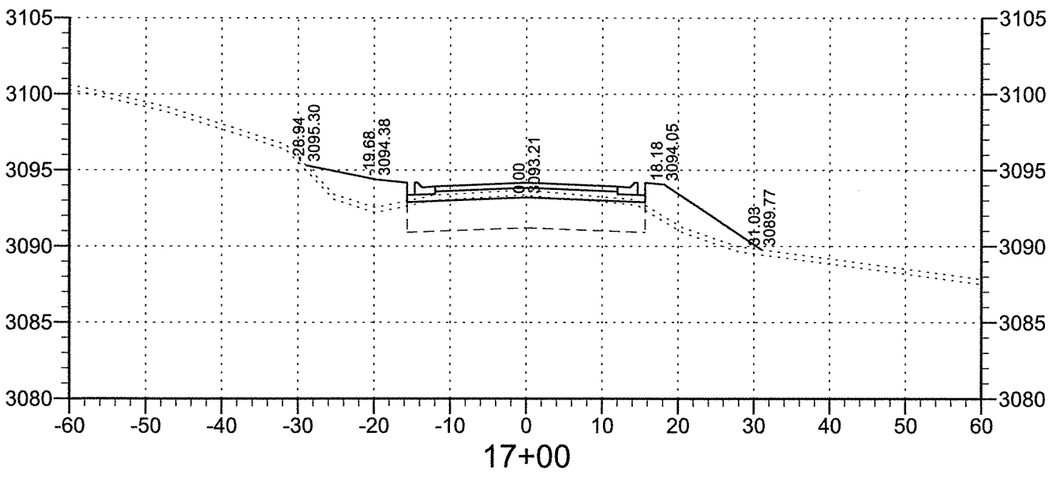

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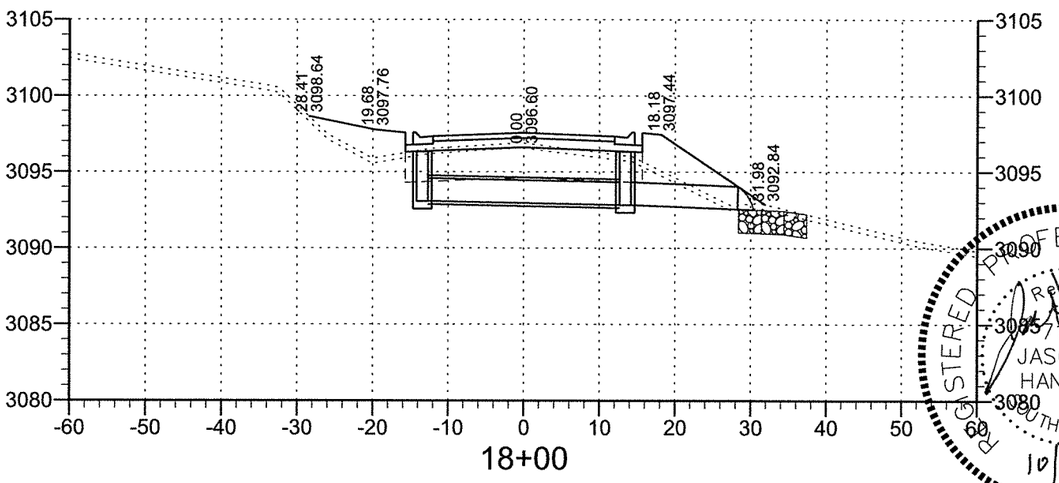

18+00

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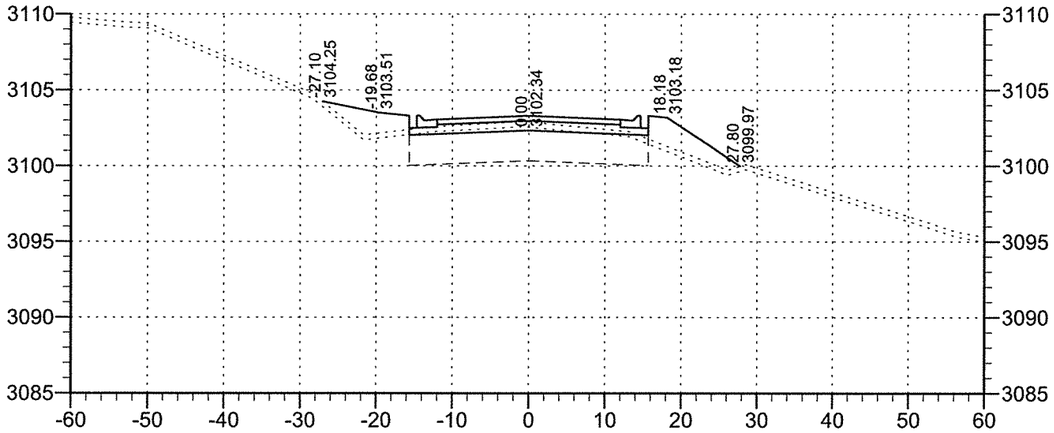
SOUTH DAKOTA
10/16/15

Mainline Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	74	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH



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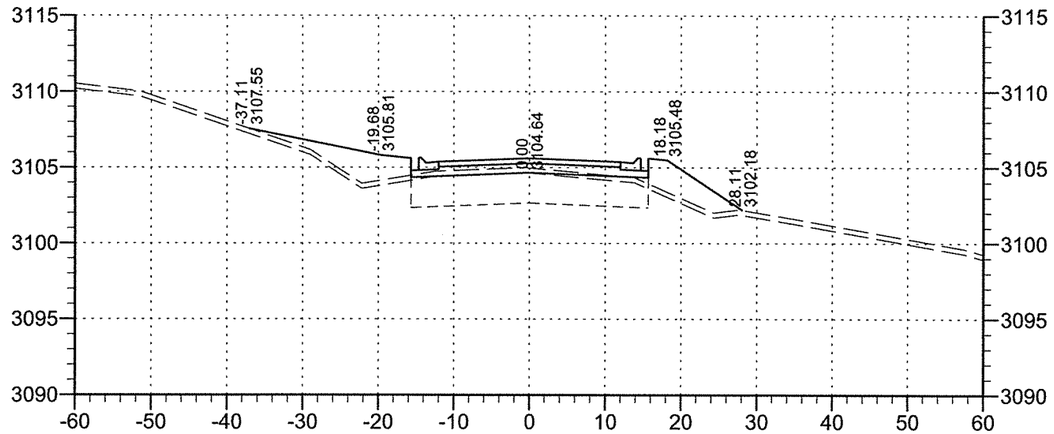

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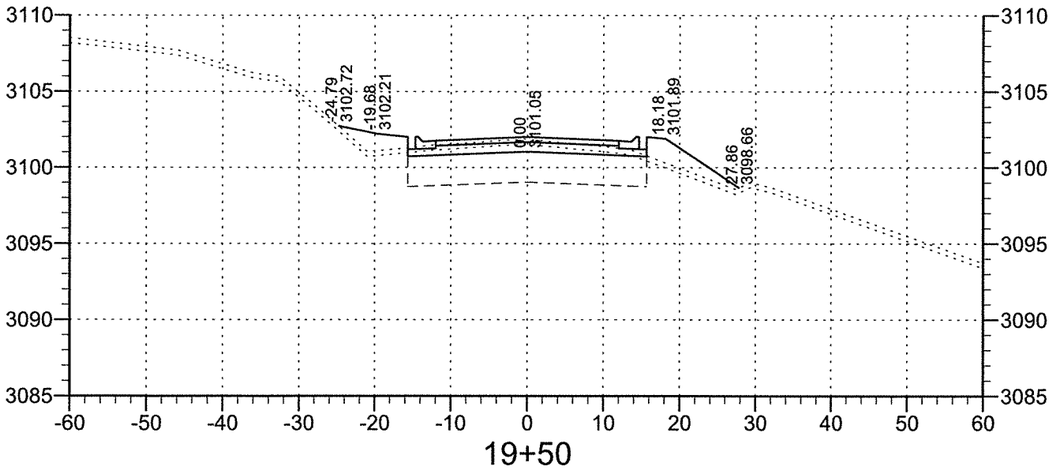

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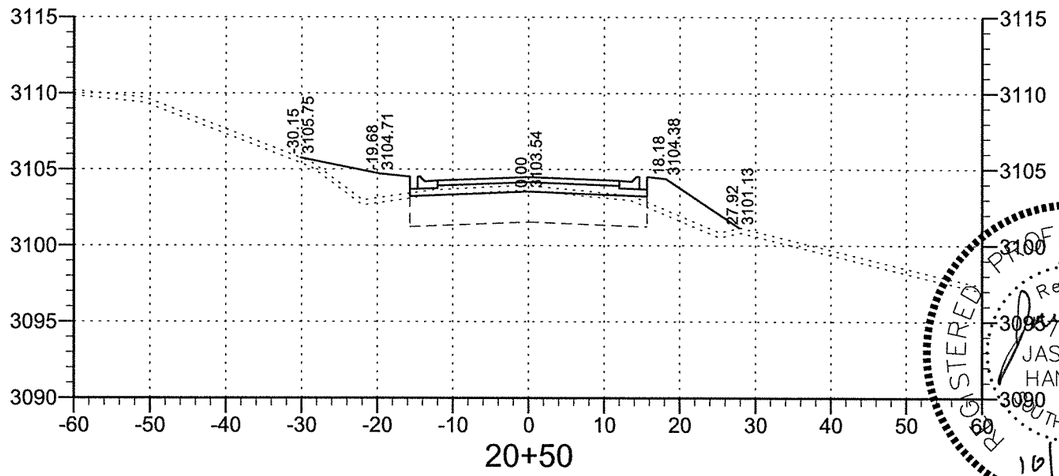


20+50

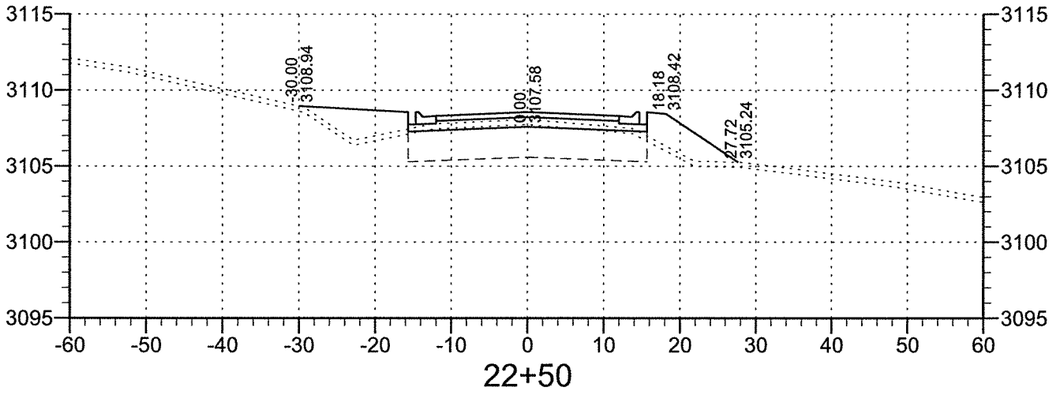
REGISTERED PROFESSIONAL ENGINEER
Reg. No. 7107
JASON T. HANSON
SOUTH DAKOTA
10/16/15

Mainline Cross Sections
Snoma Road

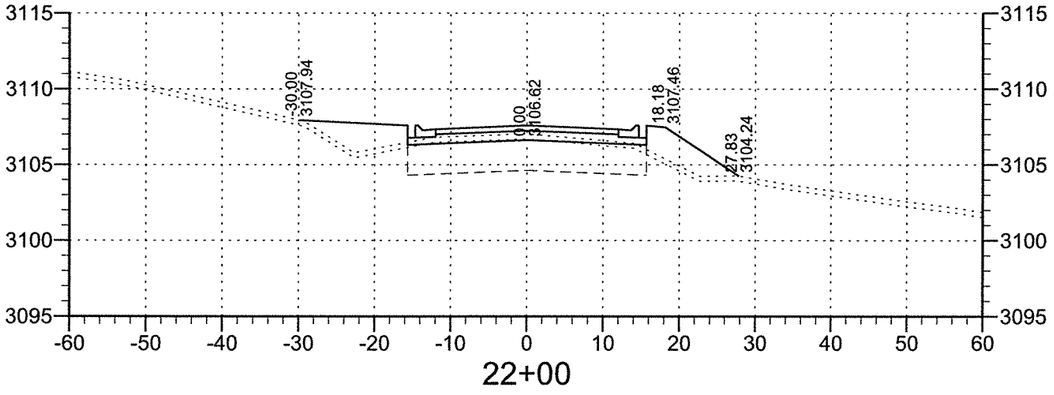
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	75	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH



22+50



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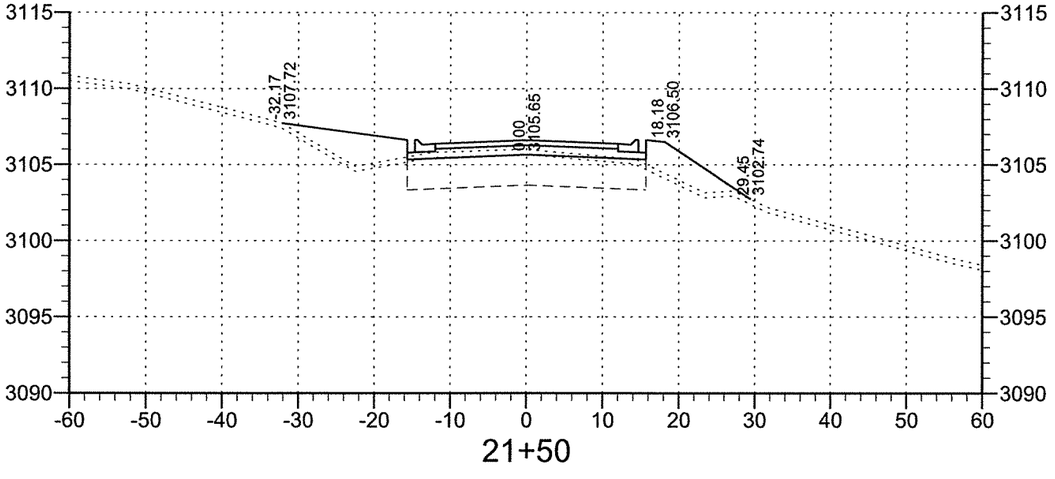

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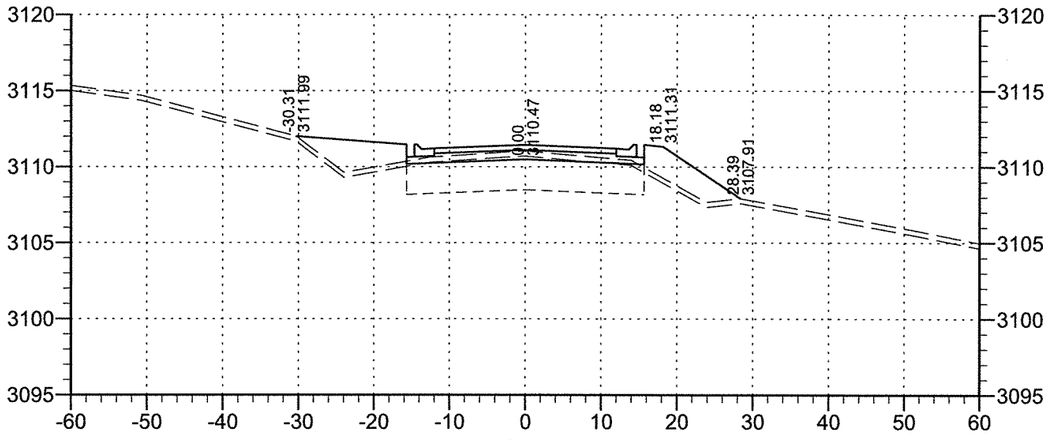
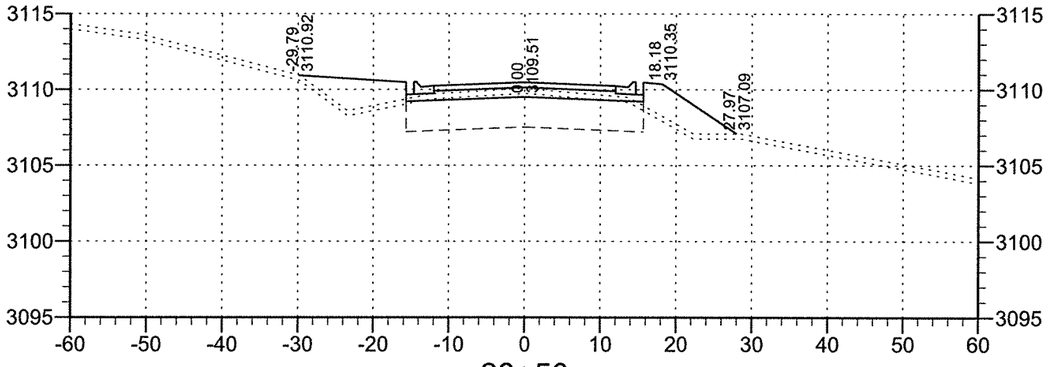


24+00



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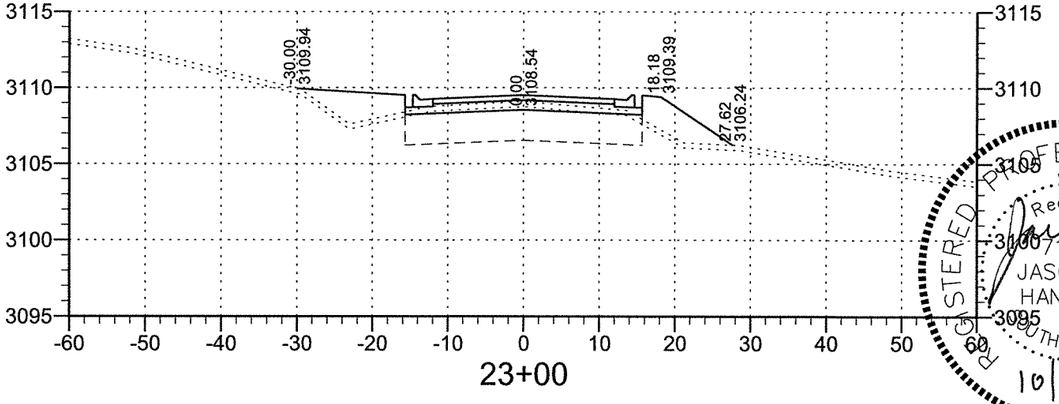

23+00

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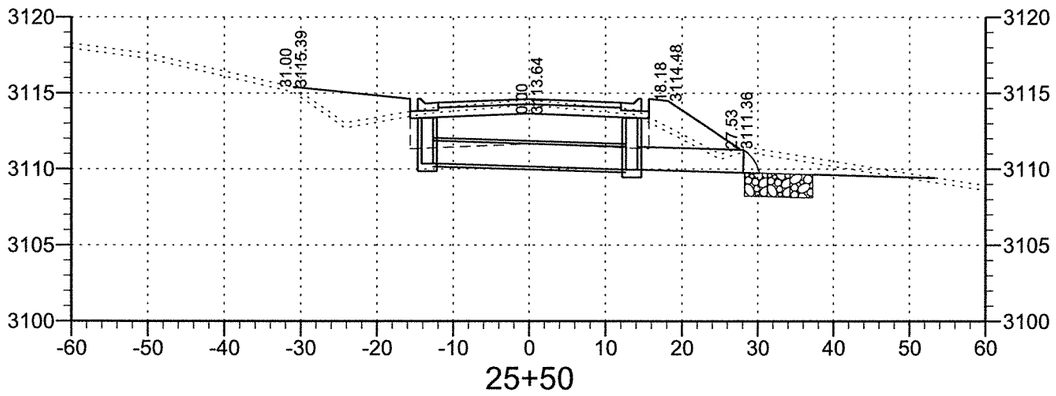
SOUTH DAKOTA
10/16/15

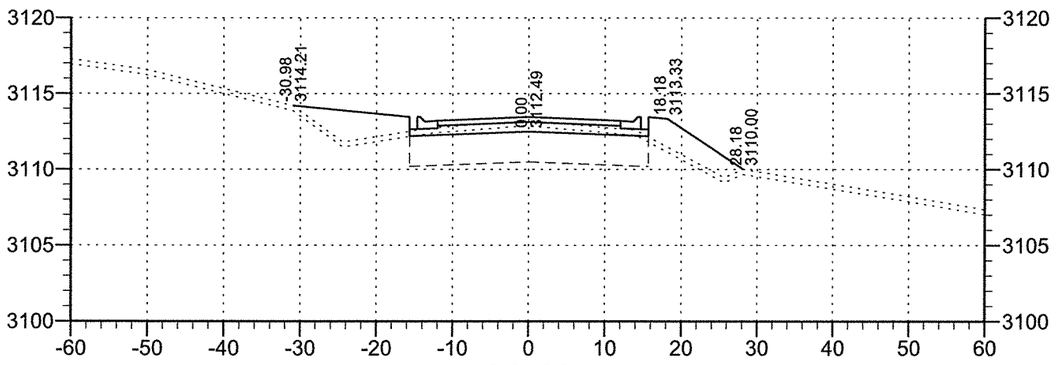
Mainline Cross Sections
Snoma Road

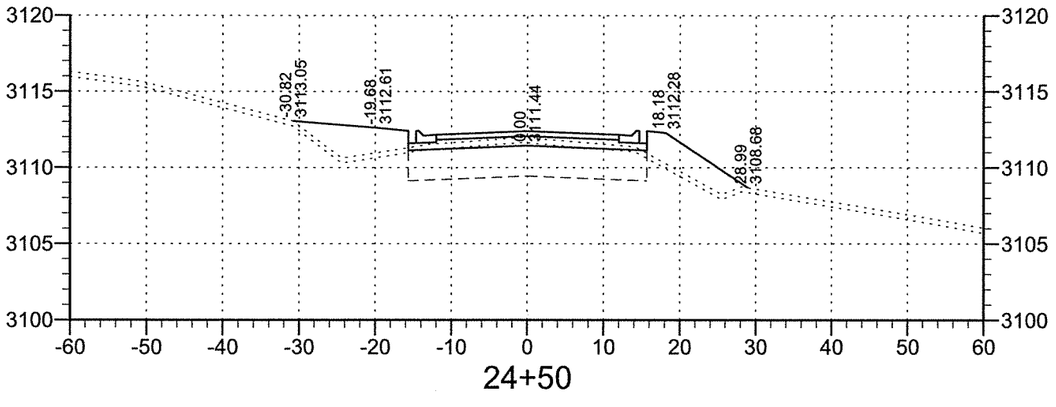
FOR BIDDING PURPOSES ONLY

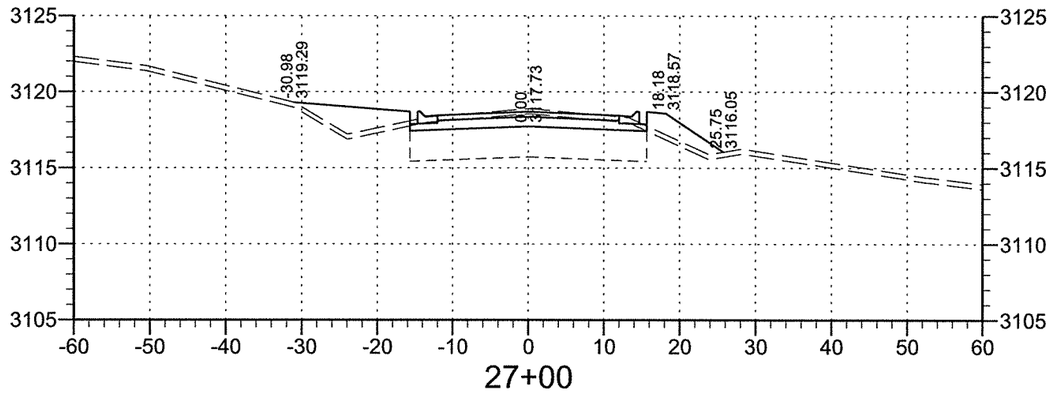
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	76	80

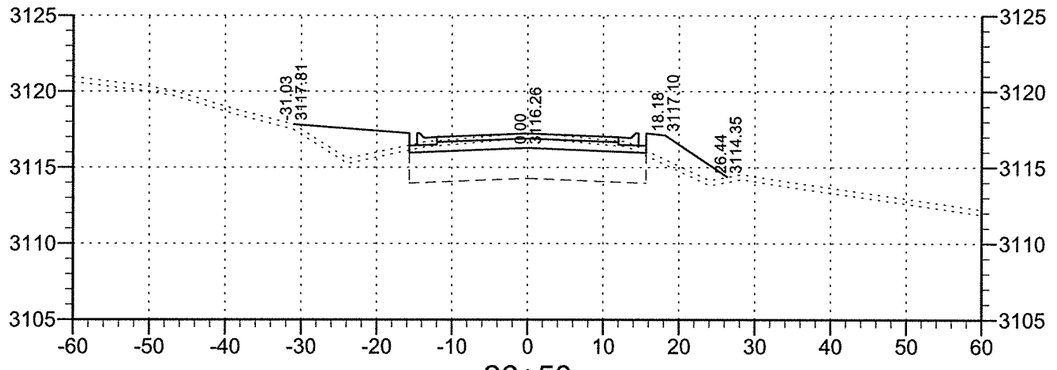
Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH

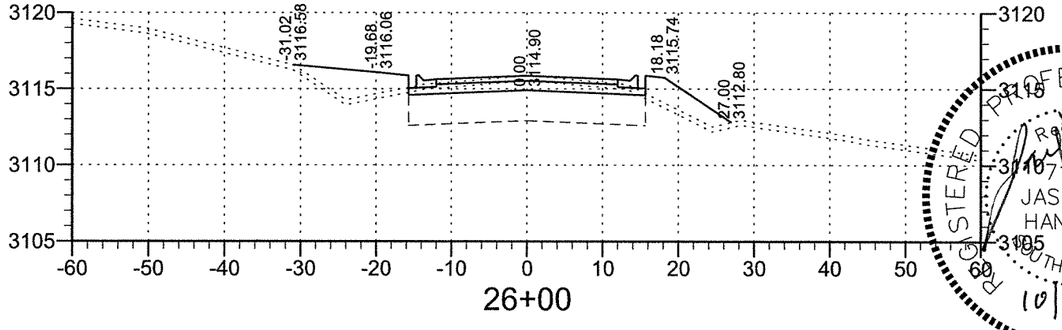












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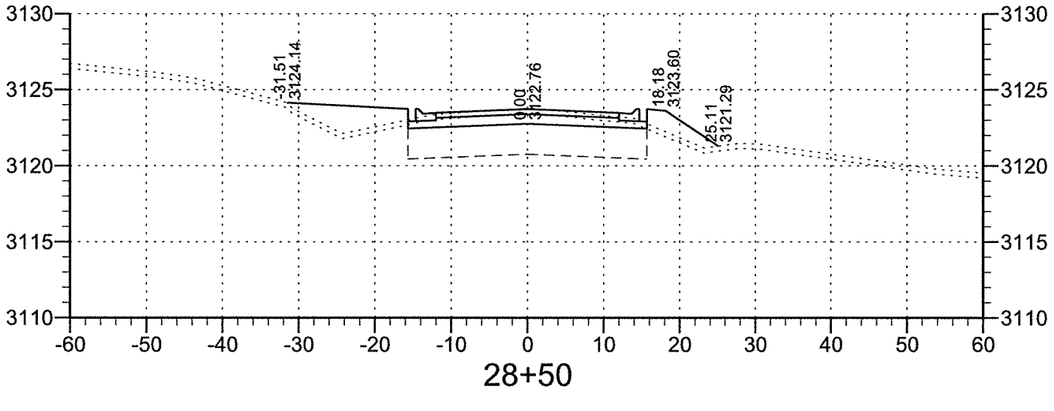
JASON T. HANSON
SOUTH DAKOTA
10/16/15

Mainline Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	77	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH



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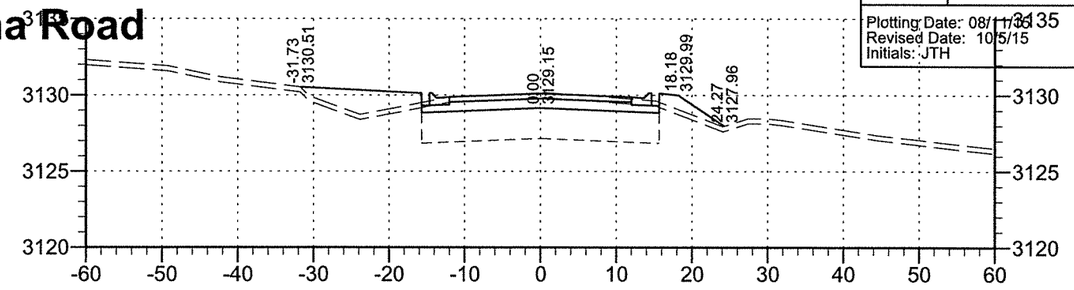

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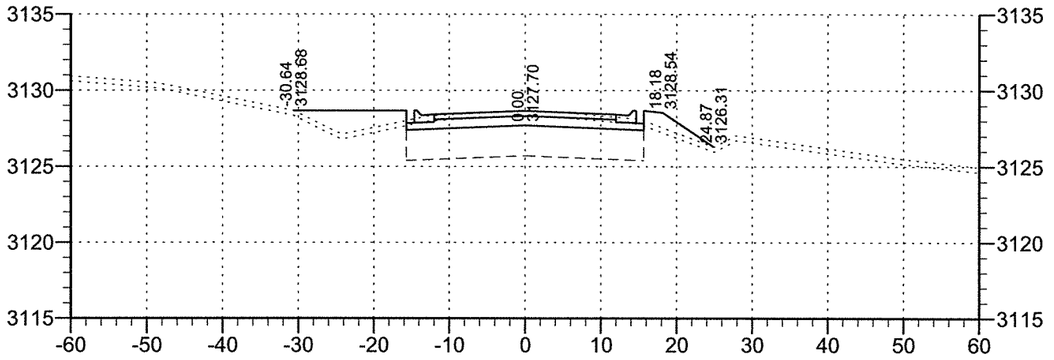

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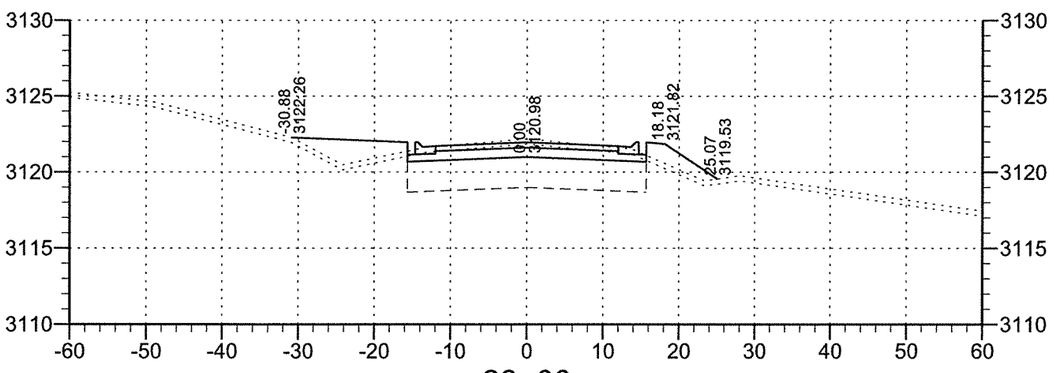

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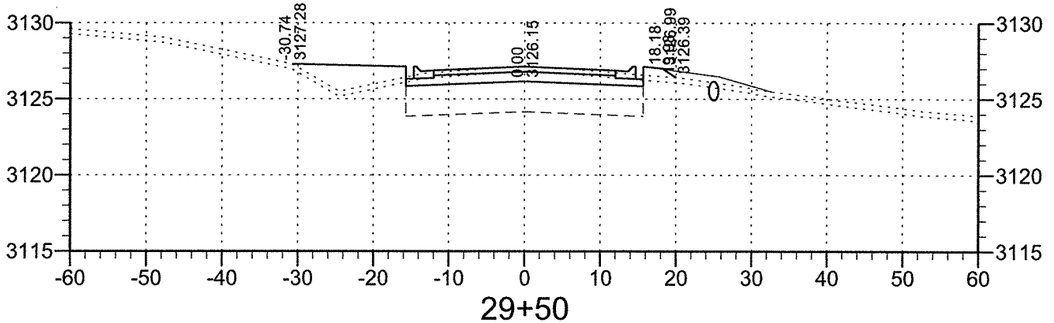

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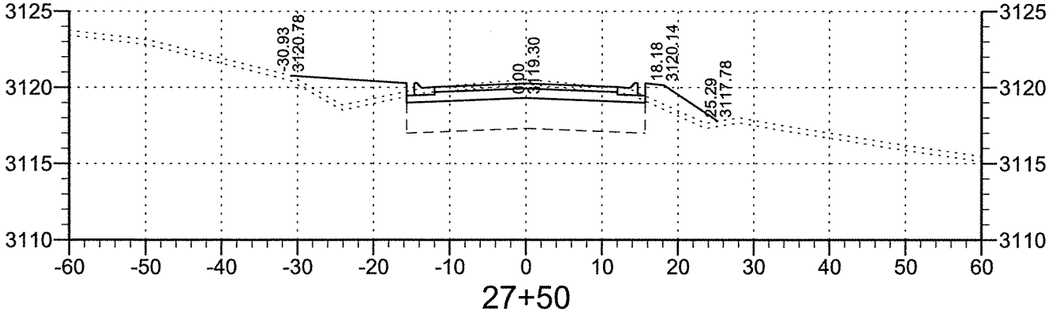

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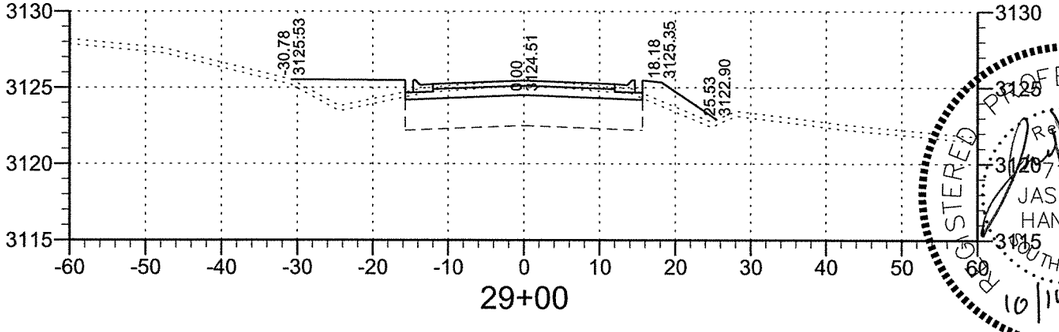

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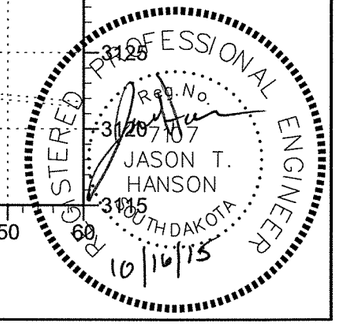
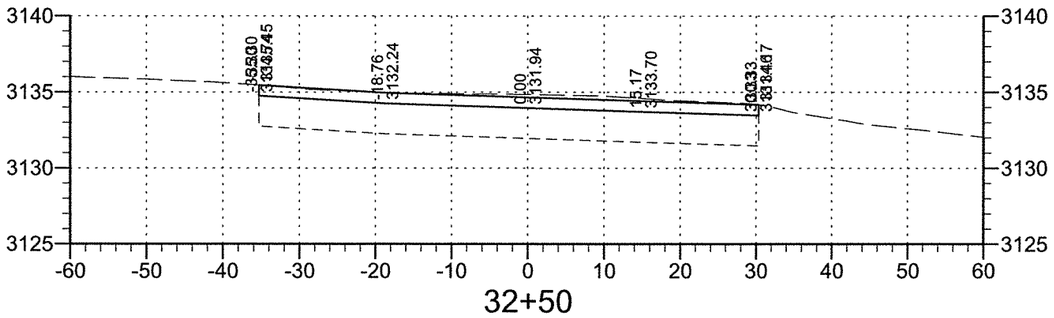


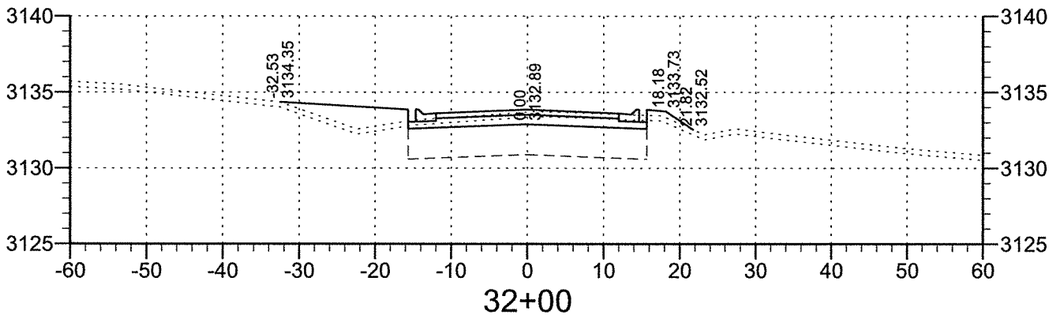
Mainline Cross Sections
Snoma Road

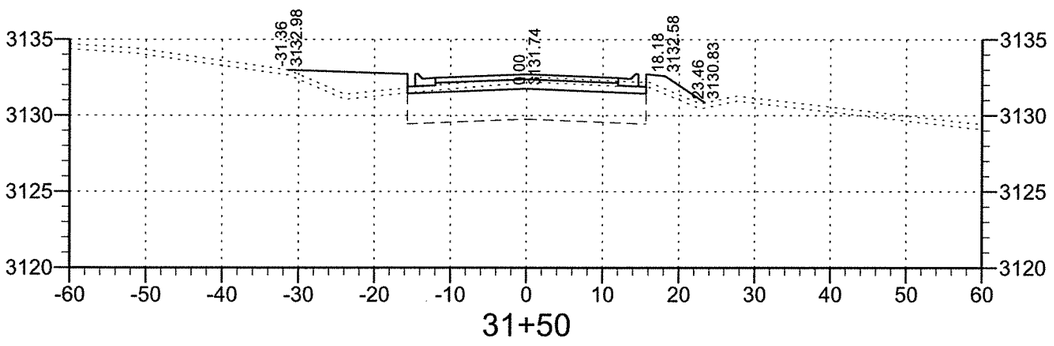
FOR BIDDING PURPOSES ONLY

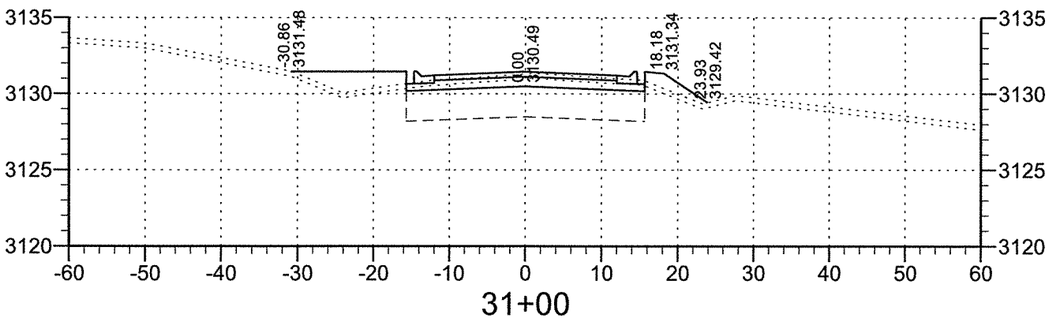
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	84
	P 6434(02)	78	80

Plotting Date: 08/11/15
Revised Date: 10/5/15
Initials: JTH









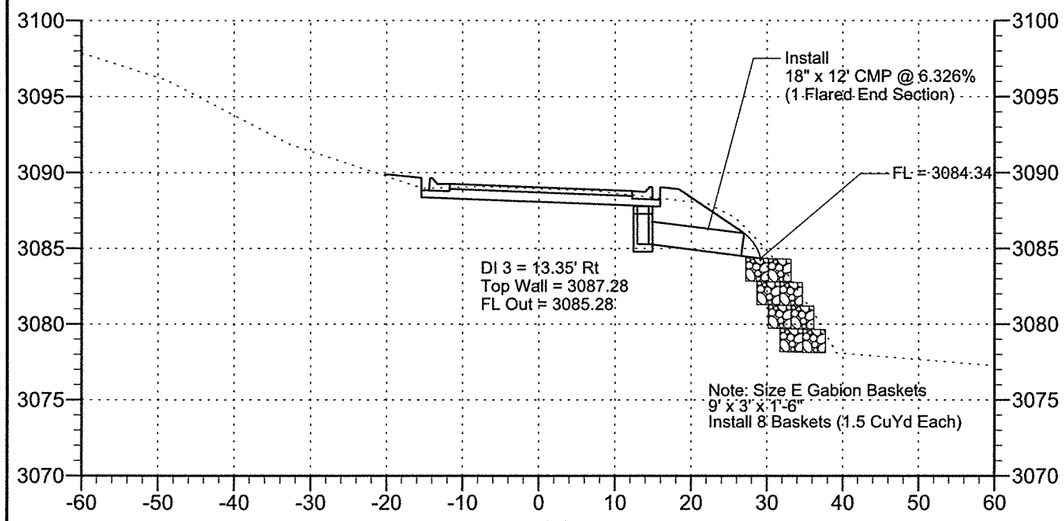
Pipe Cross Sections
Snoma Road

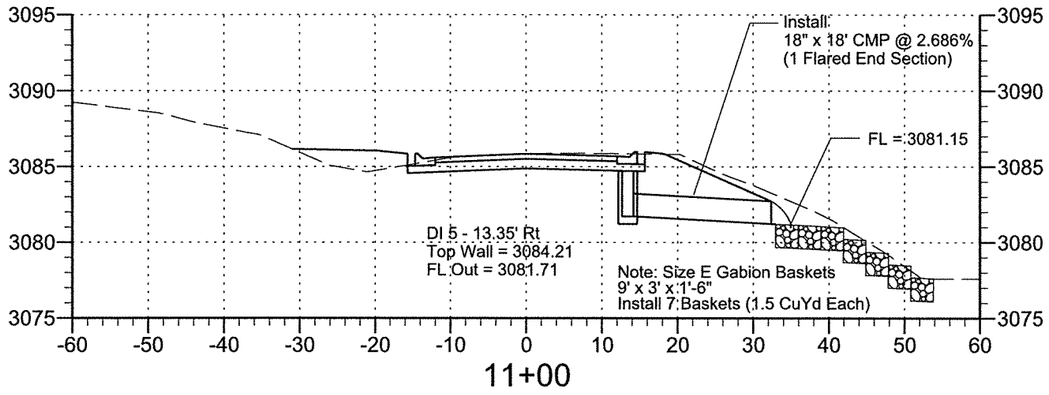
FOR BIDDING PURPOSES ONLY

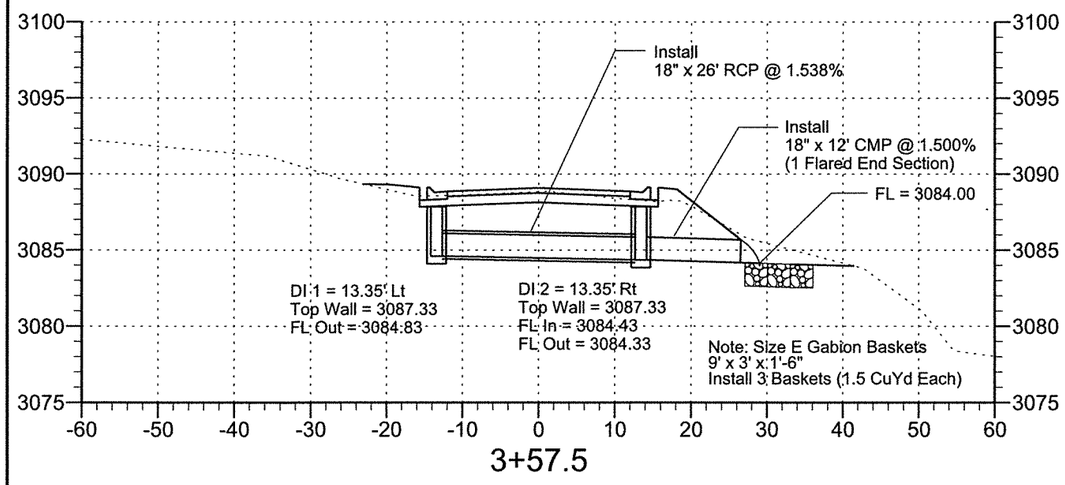
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	79	80

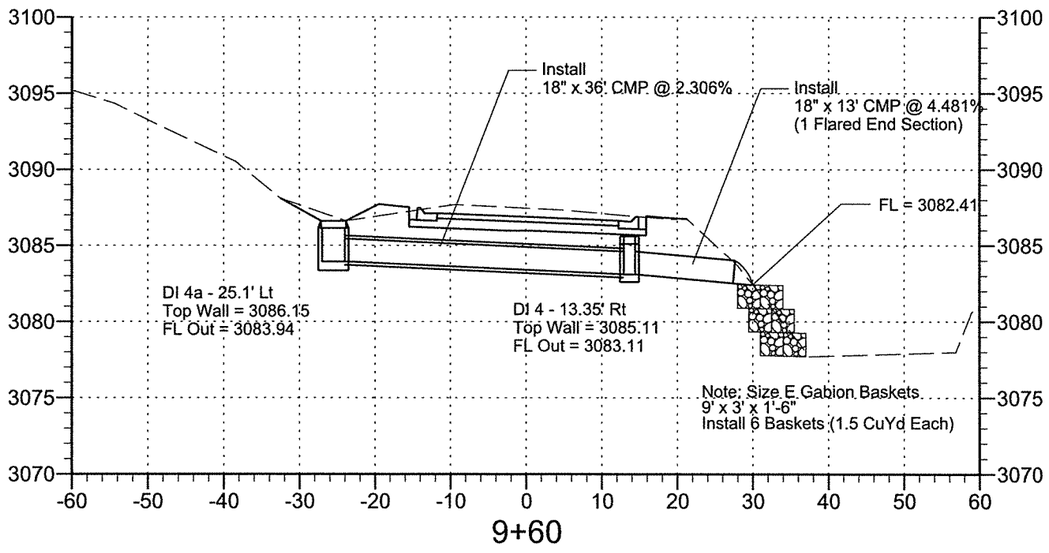
Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH

REGISTERED PROFESSIONAL ENGINEER
Reg. No. 7107
JASON T. HANSON
SOUTH DAKOTA
10/12/15









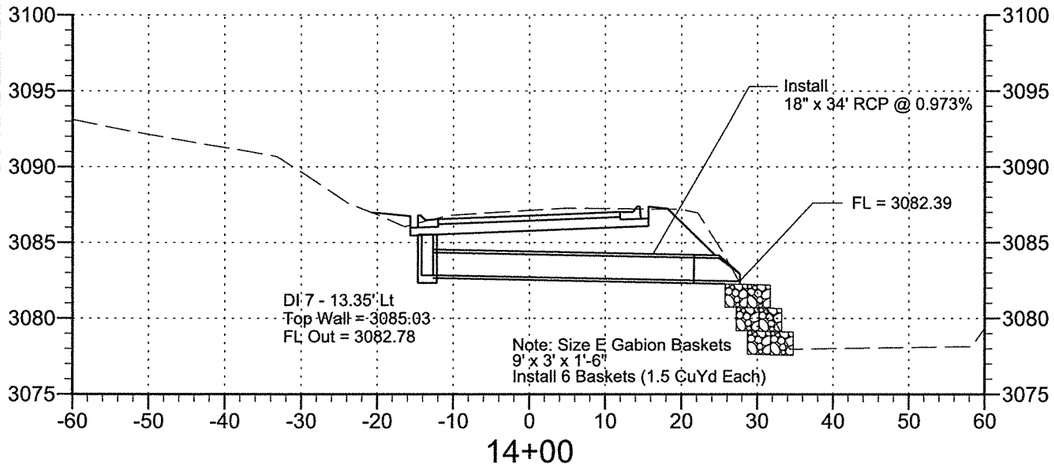
Pipe Cross Sections
Snoma Road

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6434(02)	80	80

Plotting Date: 08/11/15
Revised Date: 9/28/15
Initials: JTH

REGISTERED PROFESSIONAL ENGINEER
Reg. No. 7107
JASON T. HANSON
SOUTH DAKOTA
10/16/15



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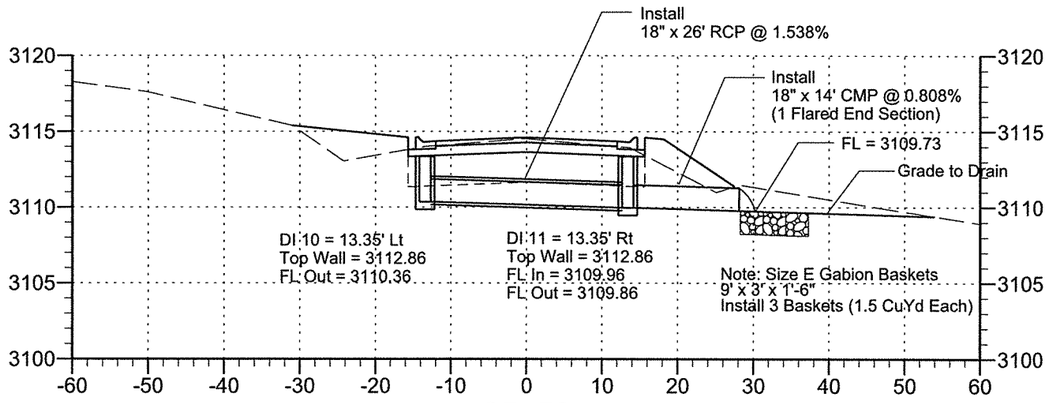

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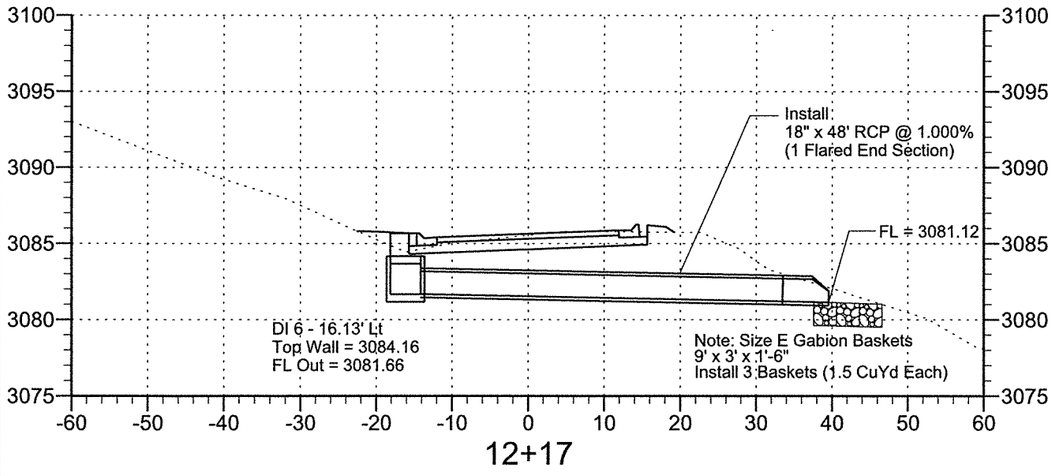

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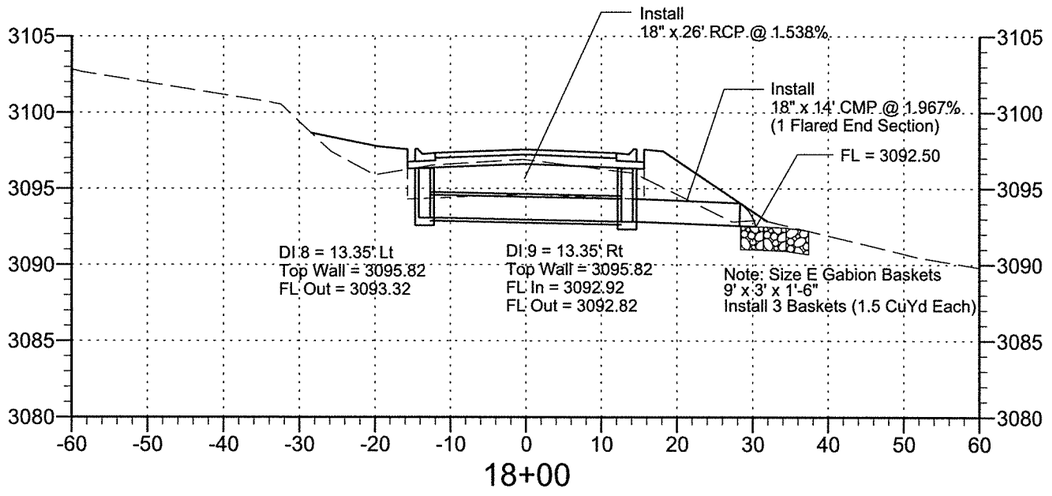

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