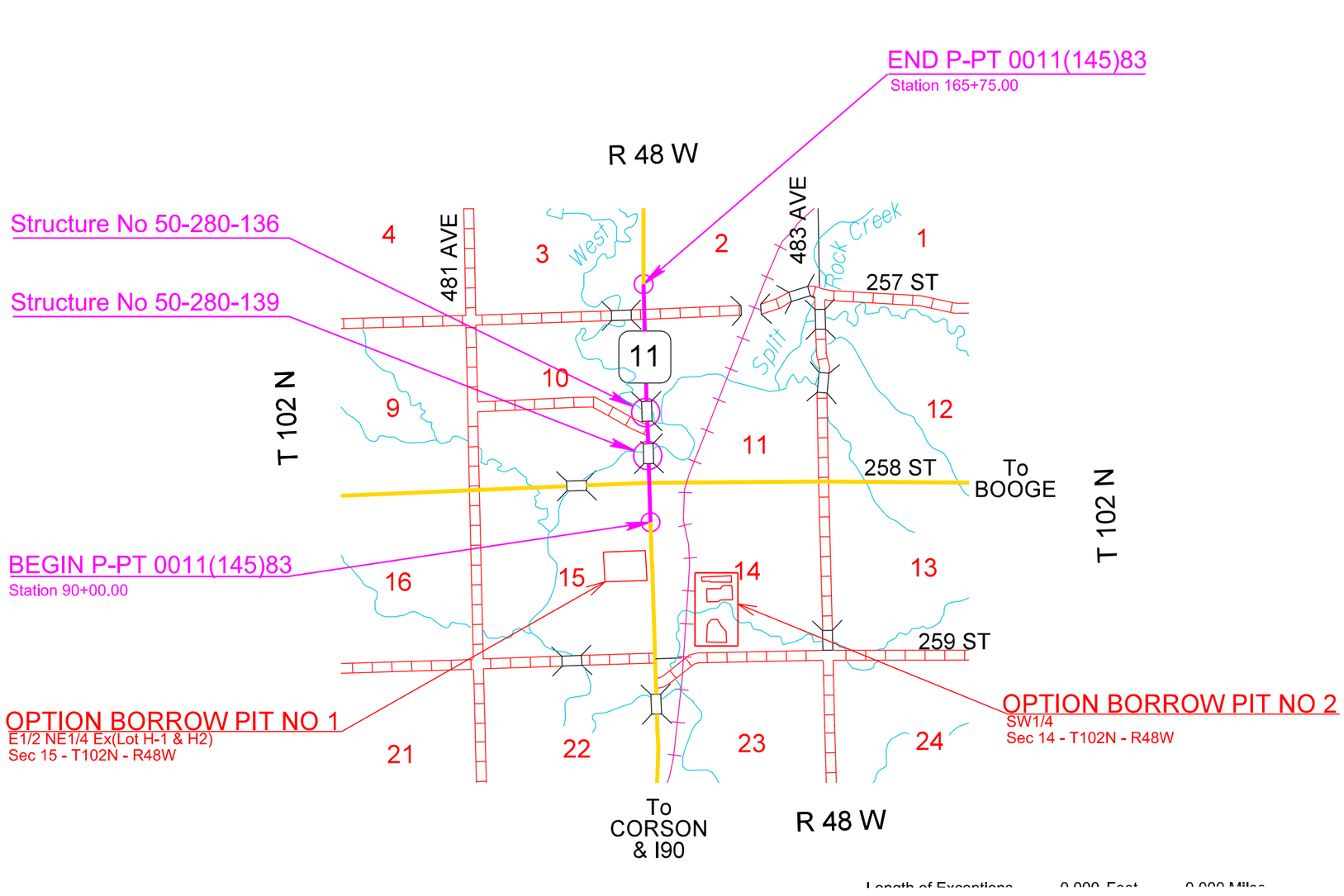
SECTION B: GRADING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B1	B53

Plotting Date: 07/11/2025 Revised: 07/11/2025 MMM

INDEX OF SHEETS



Length of Exceptions 0.000 Feet 0.000 Miles

Plot Scale - 1:200

Plotted From - TRSF12139

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SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	66	Each
009E3225	Reestablish Public Land Survey System Corner	5	Each
009E3230	Grade Staking	2.272	Mile
009E3245	Final Cross Section Survey	2.097	Mile
009E3250	Miscellaneous Staking	2.097	Mile
009E3280	Slope Staking	2.097	Mile
009E3290	Structure Staking	2	Each
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	17,697	Ft
110E0730	Remove Beam Guardrail	1,332.0	Ft
110E1010	Remove Asphalt Concrete Pavement	5,202.0	SqYd
120E0010	Unclassified Excavation	108,851	CuYd
120E0500	Option Borrow Excavation	522,313	CuYd
120E2000	Undercutting	5,440	CuYd
120E6100	Water for Embankment	5,569.4	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
270E0110	Salvage and Stockpile Granular Material	23,865.3	Ton
450E0122	18" RCP Class 2, Furnish	72	Ft
450E0130	18" RCP, Install	72	Ft
450E2008	18" RCP Flared End, Furnish	4	Each
450E2009	18" RCP Flared End, Install	4	Each
450E4759	18" CMP 16 Gauge, Furnish	1,408	Ft
450E4760	18" CMP, Install	1,408	Ft
450E4769	24" CMP 16 Gauge, Furnish	276	Ft
450E4770	24" CMP, Install	276	Ft
450E4778	30" CMP 14 Gauge, Furnish	346	Ft
450E4779	30" CMP 16 Gauge, Furnish	302	Ft
450E4780	30" CMP, Install	648	Ft
450E4789	36" CMP 16 Gauge, Furnish	158	Ft
450E4790	36" CMP, Install	158	Ft
450E5406	18" CMP Safety End, Furnish	20	Each
450E5407	18" CMP Safety End, Install	20	Each
450E5410	24" CMP Safety End, Furnish	4	Each
450E5411	24" CMP Safety End, Install	4	Each
450E5414	30" CMP Safety End, Furnish	8	Each
450E5417	30" CMP Safety End, Install	8	Each
450E5420	36" CMP Safety End, Furnish	4	Each
450E5423	36" CMP Safety End, Install	4	Each
462E0100	Class M6 Concrete	5.6	CuYd
480E0100	Reinforcing Steel	800	Lb

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	640	Ft
620E0030	Type 3 Right-of-Way Fence	16,544	Ft
620E0510	Type 1 Temporary Fence	14,100	Ft
620E1020	2 Post Panel	84	Each
620E1030	3 Post Panel	21	Each
630E0500	Type 1 MGS	400.0	Ft
630E1500	Type 1 Guardrail Transition	8	Each
630E2017	MGS MASH Flared End Terminal	8	Each
670E0200	Type A Frame and Grate	4	Each
670E5400	Precast Drop Inlet Collar	4	Each
700E0210	Class B Riprap	659.3	Ton
720E1010	PVC Coated Bank and Channel Protection Gabion	15.0	CuYd
734E0900	Temporary Diversion Channel for Fish Passage	2	Each
831E0110	Type B Drainage Fabric	1,037	SqYd
900E0010	Refurbish Single Mailbox	4	Each

GRADING OPERATIONS

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.

The estimated excavation required for placing the Granular Bridge End Backfill and/or Bridge End Embankment, and for constructing the Bridge Berms between bridge abutments and shaping the bridge waterway channels are listed in the Table of Unclassified Excavation. Overburden Excavation for Riprap is not included in the Unclassified Excavation quantity. Refer to Section E for information regarding the Overburden Excavation for Riprap. The excavated material from the construction of the Bridge Berms and shaping the bridge waterway channels should be disposed of at a site provided by the Contractor and approved by the Engineer. This waste material is not included in the Waste shown in the Table of Excavation Quantities by Balances.

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

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot-wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

CLASSIFICATION OF EXCAVATION

Large glacial boulders may be encountered sporadically within the project limits. Very large boulders could require more effort to excavate. Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation.

GENERAL GEOLOGY

The project alignment traverses glacial terrain typical of eastern South Dakota. Included within this terrain may be areas of loess, shale, sand, gravel, glacial till and boulder till. As is the case with most glacial terrain, the materials throughout the project can vary greatly in a short distance.

UTILITIES

The Contractor will 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 will 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.

RAILROAD CROSSING AT STATION 34+64 (xr107)

A separate highway-rail grade crossing project will be constructed by Minnehaha County beginning at station 33+85 (xr107). The railroad work will include flattening the grade at the highway-rail crossing. Minnehaha County will coordinate all work activities with BNSF Railroad Company and be responsible for notifying the railroad company of road closures.

TYPE III FIELD LABORATORY

The Contractor will provide high-speed broadband internet connection to the field lab. The multiport internet connection may be hardwired, through a cellular method, or other approved service that allows Wi-Fi connection. Prior to obtaining the internet connection, the Contractor will submit the internet connection's technical data to the Area Office to check for compatibility with the state's computer equipment. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. The internet service will be incidental to the contract unit price per each for "Type III Field Laboratory".

TABLE OF TEMPORARY DIVERSION CHANNELS FOR FISH PASSAGE

The Contractor will construct a temporary diversion channel in accordance with standard plate 734.30 at the locations listed in the following table:

Station	Quantity (Each)
116+50	1
128+45	1
Total:	2

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SHRINKAGE FACTOR: Embankment +35%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

	Station to	Station	Excavation (CuYd)	*Undercut (CuYd)	*Option Borrow Exc. (CuYd)	Total Excavation (CuYd)	**Out-of-Balance Exc. (CuYd)	**Out-of-Balance Waste (CuYd)	** Dead Haul (CuYdSta)	** Option Borrow Haul (CuYd)	** Haul (CuYdSta)
(mainline)	90+00	115+21	11,434	1,501	129,575	142,510	0	0	1,036,600	2,212,900	0
(mainline)	118+62	128+43	7,244	0	58,045	79,049	13,760	0	3,599,200	186,500	17,900
(mainline)	130+29	158+92	15,424	0	193,525	208,949	0	0	16,256,100	2,299,700	0
(mainline)	158+92	165+75	1,411	2,164	2,978	6,553	0	0	336,500	4,100	800
(xr107)	13+50	23+24	5,082	1,734	7,526	14,342	0	0	195,700	13,100	0
(xr107)	23+24	33+85	467	41	75,174	75,682	0	0	1,954,500	416,400	0
(xr126)	1+75	9+09	20,290	0	0	20,290	0	13,760	0	0	42,500
(xr159)	3+50	9+00	489	0	2,180	2,946	0	0	246,300	2,100	0
(xr159)	9+00	16+00	1,133	0	4,690	6,623	0	0	530,000	8,300	0
		Totals:	62,974	5,440	473,693	556,944	13,760	13,760	24,154,900	5,143,100	61,200

* The quantities for these items are in the Estimate of Quantities under their respective bid items.
** The quantities for these items are for information only.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	62,974
Undercut	5,440
Topsoil	13,736
Exc. for Granular Bridge End Backfill and/or Bridge End Embankment	18
Exc. for Bridge Berm(s) between bridge abutments and channel shaping	14,056
Salvaged Granular Base Material (from cut sections)	1,915
Salvaged Granular Base Material (from fill sections)	10,712
Total	108,851

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PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

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

Out-of-Balance Excavation is material obtained from waste generated from excavation from other balances. The quantity of Out-of-Balance Excavation is included in the Excavation quantity in the balance where it is excavated and is paid for once as Unclassified Excavation.

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

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

Salvaged Granular Base Material will be paid for at the contract unit price per ton and is also included in and paid for once as Unclassified Excavation. As shown in the Table of Unclassified Excavation, the estimated quantity of 10,712 cubic yards of Salvaged Granular Base Material from fill sections will be added to the Excavation quantity to determine the Unclassified Excavation quantity. When finaling a project, the quantities of Salvaged Asphalt Mix and Granular Base Material from fill sections will not be adjusted according to field measurements. The quantity of Salvaged Asphalt Mix and Granular Base Material from cut sections will not be added to the Excavation quantity as it is already in the cuts on the final cross sections.

The volume of in place Asphalt Surfacing removed will NOT be paid for as Unclassified Excavation.

The Excavation quantities from individual balances and the table above have been reduced by the volume of in place asphalt pavement that will be removed.

When finaling a project, the estimated quantity of 5352.5 cubic yards of Asphalt Pavement removed from the cut sections will be subtracted from the Unclassified Excavation quantity for final payment. The quantity of Asphalt Pavement from cut sections subtracted from the Unclassified Excavation quantity will be plans quantity and will not be adjusted according to field measurements.

TABLE OF OPTION BORROW EXCAVATION

	(CuYd)
Option Borrow Excavation	473,693
Topsoil in Option Borrow Pits	48,620
Total:	522,313

HAUL

Included in the Table of Excavation Quantities by Balances are Dead Haul, Option Borrow Haul, and Haul. They are not pay items and are for informational purposes only.

Dead Haul: Estimated quantity (CuYdSta) for moving option borrow excavation material from the option borrow site to the centerline mainline station listed in the Table of Option Borrow Pits.

Option Borrow Haul: Estimated quantity (CuYdSta) for moving option borrow excavation material from the centerline mainline station listed in the Table of Option Borrow Pits to the locations where it is needed throughout the earthwork balance.

Haul: Estimated quantity (CuYdSta) for moving unclassified excavation material to the locations where it is needed throughout the earthwork balance.

For Purpose of Extra Haul Computations:

Average Haul = (Haul + Out-of-Balance Haul)/Unclassified Excavation = 61,200/108,851 = 0.56 Sta.

Average Option Borrow Haul = (Option Borrow Haul + Dead Haul)/Total Option Borrow Excavation = 29,298,000/522,313 = 56.1 Sta.

Compensation for “Extra Haul” will not be made for haul distances less than 5 stations. When payment for “Extra Haul” is authorized, the distance used for “Extra Haul” calculations will be that in excess of 5 stations.

INCIDENTAL WORK, GRADING

Station	Remarks
95+94-56’ L	Take Out 18” – 68’ CMP
107+50-61’ L	Take Out 18” – 92’ CMP
112+70-72’ L	Take Out 18” – 103’ CMP
113+83-101’ L	Minor Channel Cleanout at Pipe Outlet
122+20-60’ R	Take Out 18” – 68’ CMP
127+63-44’ L	Take Out 18” – 76’ CMP
133+23-51’ L	Take Out 18” – 96’ CMP
133+23-53’ R	Take Out 18” – 84’ CMP
142+87-29’ R	Take Out 18” – 56’ CMP
158+92-55’ L	Take Out 18” – 70’ CMP
160+10-53’ L	Take Out 16” – 72’ CMP
163+51-51’ R	Take Out 18” – 76’ CMP
(xr107) 19+71-34’ L	Take Out 18” – 52’ CMP
(xr 107) 26+02	Take Out 28” – 62’ CMP
(xr107) 31+09-56’ R	Take Out 24”-30’ CMP

UNDERCUTTING

In all cut sections the earthen subgrade will be undercut 2 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2-foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content will 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 6 inches) will then be replaced and compacted to the density specified to the section being constructed.

Intersecting roads will be undercut to the same depth as the Mainline roadway out to the limits of asphalt concrete on the intersecting road unless specified otherwise. Quantities are included in the “Table of Undercutting”.

The undercut depth will be 2 feet for xr107 (asphalt surfaced). Undercutting will not be necessary for the realignment of Palisade Street (gravel surfaced).

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 will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNDERCUTTING LOCATIONS

	Station	to	Station
mainline	90+00		115+21
mainline	118+62		128+43
mainline	158+92		165+75
xr107	13+50		23+24
xr107	23+24		33+85

REMOVE ASPHALT CONCRETE PAVEMENT

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 18. This value was obtained from testing during construction of the in-place asphalt concrete.

An estimated 5,474.2 tons (5,202 Square Yards) of the in-place asphalt concrete surfacing will be removed from the existing highway according to the in-place surfacing typical sections and become the property of the Contractor for disposal. Care will be taken not to waste the in-place granular material. The remaining in-place granular material will be salvaged and stockpiled.

The quantity of removed asphalt material is estimated from the in-place surfacing typical sections. This estimated quantity is not included in the unclassified excavation quantities.

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OPTION BORROW EXCAVATION

The option borrow material required for the locations identified in the plans may be obtained from the Option Borrow Pit sites in accordance with the State of South Dakota Agreement to Sell Materials and the option borrow sheets/information provided in the plans. All costs associated with obtaining the option borrow material will be incidental to the contract unit price per Cubic Yard for Option Borrow Excavation.

Specific information pertaining to each Option Borrow Pit Site is provided as follows:

Option Borrow Pit #1(Heggen)

General: The Contractor's borrow material excavation/transport operations will be limited to designated haul routes and will minimize the amount of non-stripped topsoil that will be compacted. Prior to placement of the previously stripped topsoil, the Contractor will scarify (to the satisfaction of the Engineer) the finish graded material excavation areas to a minimum depth of 12" and material haul route locations to a minimum depth of 18". The Contractor will scarify any compacted topsoil outside of the material excavation areas to the depth of the topsoil and to the satisfaction of the Engineer.

Drilling results indicated gravelly sand was encountered at the Option Borrow Source #1, Hole #1 location. Any granular materials from the Option Borrow Sources that are used in the roadway embankment will be blended 2-parts cohesive soil with 1-part granular material. The blending process will be approved by the Engineer.

Access: Access to the option borrow pit is on the east side of the pit on SD Highway 11. Payment for any additional access points to the option borrow pit will be incidental to the contract unit bid price for Option Borrow.

Sediment Control: Included in the estimate of quantities is 2500' of Low Flow Silt Fence for Sediment Control along the edges of the borrow pit at the direction of the Engineer.

Topsoil: A minimum of 8 inches of topsoil will be removed and stockpiled from the borrow pit and any area of the borrow pit that will be disturbed by hauling. At the completion of the borrow operations, the topsoil will be evenly spread to a depth of 8" on the pit.

Right-of-Way Fence: The ROW Fence along the east boundary of the borrow pit may be required to be removed to achieve the desired cross sections of the borrow pit. Included in the estimate of quantities is 900' of fence removal, 900' of Type 3 Fence, and 3- 2 post panels for the ROW Fence.

Option Borrow Pit #2 (Knife River)

Access: A haul route will be developed to access Sections B & C from Section A. Payment for any additional access points to the option borrow pit will be incidental to the contract unit bid price for Option Borrow.

Sediment Control: Included in the estimate of quantities is 4000' of Low Flow Silt Fence for Sediment Control along the edges of the borrow pit to be placed at the direction of the Engineer.

Topsoil: A minimum of 6 inches of topsoil will be stripped in areas that have not been previously stripped in the borrow pit area. Topsoil will be stockpiled between Pit Area 2 and the RR ROW at the direction of the Engineer. Replacement of the topsoil will not be required at the end of borrow operations unless requested by the pit owner.

Cover Crop Seeding and Mulching: Included in the estimate of quantities is and 30 Bu of Cover Crop and 60 Ton of Mulching for Temporary Stabilization of the borrow pit if requested by the borrow pit owner.

CONTRACTOR FURNISHED BORROW EXCAVATION

If the Contractor does not utilize the established option borrow sources, the Contractor will 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.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

The Contractor furnished borrow excavation material will be uniform in texture and free from organic material. The liquid limit will not exceed 50 and the plastic index will be greater than 15 but less than 30.

The Contractor will be responsible for the following minimum testing prior to use of each borrow site: A minimum of one test for liquid limit and plastic index for each location and soil type, with samples obtained according to SD201.

The Department will be responsible for the following minimum testing: A minimum of one test for liquid limit and plastic index for every 100,000 cubic yards or a major change in soil type. Independent Assurance testing will not be required.

TABLE OF OPTION BORROW PITS

Site	Alignment	Station	L/R	Dead Haul Distance (Sta)	Option Borrow Exc. (CuYd)	Dead Haul (CuYdSta)
1	mainline	90+00	L	8	129,575	1,036,600
2	xr107	107+46	L	26	7,526	195,700
3	xr107	107+46	R	26	75,174	1,954,500
4	mainline	118+62	L	37	17,725	655,800
5	mainline	118+62	L	73	40,320	2,943,400
6	mainline	130+29	R	84	193,525	16,256,100
7	mainline	158+92	R	113	2,978	336,500
8	xr159	158+92	L	113	2,180	246,300
9	xr159	158+92	R	113	4,690	530,000
				Totals:	473,693	24,154,900

Stations in the above table are not pit locations, but stations where the option borrow is interjected into the earthwork balance for haul calculations.

The quantities listed in the above table for Dead Haul are for information only. The Dead Haul quantities are also included in the Table of Excavation Quantities by Balances.

The Dead Haul Distance and associated Dead Haul is based on the distance from the option borrow pit to the south end of grading work on SD 11 (90+00) via going west on 259th St from the borrow pit and crossing an at-grade railroad crossing. As noted in the "Haul Route Restriction" note, this railroad crossing cannot be used. Therefore, the Dead Haul Distance, Dead Haul, and Average Option Borrow Haul will likely be different than what is shown in these plans, depending on the haul route used by the Contractor.

The quantities listed in the above table for Option Borrow Excavation are also included in the Table of Excavation Quantities by Balances.

HAUL ROUTE RESTRICTION

The at-grade railroad crossing on 259th St, as shown in the below diagram, cannot be used by any vehicle hauling materials used on this project. This includes both loaded and unloaded vehicles.

SALVAGE AND STOCKPILE GRANULAR MATERIAL

An estimated 23,865.3 tons (12,627 Cubic Yards) of granular base material will be salvaged from the existing highway according to the in-place surfacing typical sections and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

Salvaged material will be processed to meet the requirements of Section 884.2 D.8 prior to stockpiling. The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged granular material.

The salvaged material not used on the project will be stockpiled or disposed of as directed by the Engineer.

The quantity of salvaged granular material may vary from the plans.

The quantity of salvageable material is estimated from the in-place surfacing typical sections. This estimated quantity was included in the unclassified excavation quantities.

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 14,283 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for “Unclassified Excavation”.

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION

	Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
mainline	108+00		112+50	L	2	1,077
mainline	113+00		115+21	L	2	630
mainline	108+00		115+21	R	2	1,990
mainline	118+62		120+00	L	2	420
mainline	118+62		120+00	R	2	296
mainline	130+29		133+00	L	2	1,005
mainline	133+50		158+75	L	2	5,680
mainline	143+00		158+75	R	2	2,136
xr107	24+00		26+00	L	2	467
xr159	10+00		12+00	L	2	272
xr159	10+00		12+00	R	2	310
					Total:	14,283

CORRUGATED METAL PIPE

Corrugated metal pipes will 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 will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The gauge of the corrugated metal ends will match the thickest gauge of corrugated metal pipe it is connected to.

Areas within the project have soils that are highly corrosive to steel. The corrugated metal pipe at station 112+70-101’ L and 26+02 on alignment xr107 will be polymer coated 14-gauge steel as specified in the Table of Pipe Quantities. Any required connection bands, elbows, tees, crosses, wyes, reducers, and transitions will also be polymer coated. The connection bands will be 24 inches wide. All polymer coated corrugated metal pipe and components will be in conformance with AASHTO M245. Riveted pipe will not be allowed.

All damage to the polymer coating will be repaired in accordance with the manufacturer’s recommendations prior to installation of the pipe.

All costs associated with the polymer coating including repair of polymer coating will be incidental to the corresponding CMP contract items.

Metal pipe end sections connected to polymer coated CMP will be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections will be incidental to the corresponding CMP End Section contract items.

PIPE FOR APPROACHES AND INTERSECTING ROADS

Class 2 reinforced concrete pipe, high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe may be substituted for corrugated metal pipe at approaches and intersecting roads at no additional cost to the State.

If corrugated metal pipes are provided, the pipes will be as specified in the CORRUGATED METAL PIPE note.

If high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe are provided, then the end sections will be metal, be compatible, and conform to the type of end section as shown in the plans.

CONCRETE PIPE CONNECTIONS

Pipe connections to existing pipes, manholes, junction boxes, and drop inlets will be done by breaking a hole into the existing structure and inserting the pipe. A concrete collar will then be poured around the pipe in the area of the connection.

When it is not possible to use a normal pipe joint (male-female ends), connections to existing pipe will be made by placing a 2’ wide by 6" thick M6 concrete collar around the outside of the connection. The concrete collar will be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor will be incidental to the contract unit price per foot for the corresponding pipe contract item.

DROP INLETS

After the permanent surfacing has been placed, the Contractor will remove all debris from the drop inlets. All costs involved with removing debris from the drop inlets will 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 Class M6 Concrete, Reinforcing Steel, Type A Frame and Grate, and Precast Drop Inlet Collar 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

Station	L / R	Drop Inlet Size	Drop Inlet Type	Class M6 Concrete (CuYd)	Reinf. Steel (Lb)	Precast Drop Inlet Collar (Each)	Frame and Grate/ Lid Type
118+76.71	L	2’x3’	B	1.85	261	1	A
118+76.71	R	2’x3’	B	0.99	147	1	A
128+27.67	L	2’x3’	B	1.08	159	1	A
128+27.67	R	2’x3’	B	1.64	233	1	A
			Totals:	5.56	800	4	
Total Type A Frame and Grate						4	

TABLE OF PVC COATED BANK AND CHANNEL PROTECTION GABIONS AND DRAINAGE FABRIC

	Station	L/R	PVC Coated Bank and Channel Protection Gabion (CuYd)	Type B Drainage Fabric (SqYd)
xr107	30+31	88’ L	4.5	15
xr107	32+07	68’ R	4.5	15
mainline	113+78	101’ L	6.0	19
		Totals:	15.0	49

RIPRAP REVETMENT ALONG CHANNEL

A 2'-0" thick layer of Class B riprap will be placed in the proposed mainline embankment from station 125+50 Rt to 126+50 Rt at an elevation of 1340.90' downward at a 3:1 slope to a toe elevation of 1321.4' All riprap will be underlain with Type B drainage fabric. The ground will be restored above the riprap that is to be buried.

All costs for placing the Class B Riprap and Type B Drainage Fabric will be incidental to the contract unit price per ton for "Class B Riprap" and the contract unit price per square yard for "Type B Drainage Fabric."

TABLE OF RIPRAP AND DRAINAGE FABRIC

	Station		L/R	Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)
mainline	125+50 126+50	to	R	659.3	988
			Totals:	659.3	988

PUBLIC LANDS SURVEY SYSTEM, RIGHT OF WAY, AND PROPERTY CORNERS

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify public land survey system (PLSS) corners, right of way (ROW) corners, and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 5 PLSS corners and 66 ROW and property corners will be set, reestablished, or verified for this project. The Contractor's Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

< https://dot.sd.gov/doing-business/engineering/design-services/surveyors >

The SDDOT Region Land Surveyor will furnish the ROW corner caps, property corner caps, and guard posts for ROW corners in rural areas. All costs associated with furnishing and installing rebar, PLSS corner caps, and all other materials associated with setting, reestablishing, or verifying PLSS corners, ROW corners, and property corners in accordance with the SDDOT Survey Manual will be incidental to the contract unit price per each for "Reestablish Public Land Survey System Corner" and/or "Reestablish Right-of-Way and Property Corner".

BRACE PANELS FOR ROW FENCE

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 will be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following is the contact regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

MAILBOXES

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

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

TABLE OF REFURBISH MAILBOX

	Station	L/R	Single (Each)
xr107	16+33	L	1
xr107	31+39	R	1
Mainline	142+73	R	1
Mainline	160+40	L	1
		Totals:	4

TEMPORARY FENCE

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

MACHINE CONTROL GRADING & MODEL INFORMATION

The roadway subgrade models xml files provided for this project on the Bid Letting website includes the following highway features: guardrail widening and mailbox turnouts.

Highway features not included in the roadway subgrade models xml files are the following: ditch blocks, entrances, undercutting, muck excavation, and unstable excavation.

Other subgrade models xml files provided for this project include option borrow pits.

TABLE OF SUPERELEVATION (xr126)

Station to	Station		
1+75.00	4+67.02	-	Normal Crown Section
4+67.02	5+45.02	-	Superelevation Transition
5+45.02	7+49.54	-	205' Radius Curve Right 0.04' Superelevation Rate Point of Rotation at Centerline
7+49.54	8+27.54	-	Superelevation Transition
8+27.54	9+09.41	-	Normal Crown Section

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B8	B53

Plotting Date: 06/06/2025

TABLE OF GUARDRAIL

Location	Remove Beam Guardrail (Ft)	Type 1 MGS (Ft)	Type 1 Guardrail Transition (Each)	MGS MASH Flared End Terminal (Each)
Structure No. 50-280-139				
Begin Bridge Lt. & Rt.	352	100	2	2
End Bridge Lt & Rt.	312	100	2	2
Structure No. 50-280-136				
Begin Bridge Lt. & Rt.	294	100	2	2
End Bridge Lt. & Rt.	374	100	2	2
Totals:	1,332	400	8	8

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

					Grade Staking							
Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Lane Factor	*Sets of Stakes	**Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Final Cross Section Survey Quantity (Mile)	Structure Staking Quantity (Each)
SD Hwy 11 (2 Lanes AC Pavement)	90+00	95+99	2	599	0.113	1	1	0.113	0.113	0.113	0.113	
SD Hwy 11 (Transition from 2 Lanes to 3 Lanes AC Pavement)	95+99	100+19	3	420	0.080	1.5	1	0.120	0.080	0.080	0.080	
SD Hwy 11 (3 Lanes AC Pavement)	100+19	110+20	3	1,001	0.190	1.5	1	0.285	0.190	0.190	0.190	
SD Hwy 11 (Transition from 3 Lanes to 2 Lanes AC Pavement)	110+20	114+40	3	420	0.080	1.5	1	0.120	0.080	0.080	0.080	
SD Hwy 11 (2 Lanes AC Pavement)	114+40	115+21	2	81	0.015	1	1	0.015	0.015	0.015	0.015	
SD Hwy 11 (Bridge over Split Rock Creek)												1
SD Hwy 11 (2 Lanes AC Pavement)	118+62	128+43	2	981	0.186	1	1	0.186	0.186	0.186	0.186	
SD Hwy 11 (Bridge over West Pipestone Creek)												1
SD Hwy 11 (2 Lanes AC Pavement)	130+29	165+75	2	3,546	0.672	1	1	0.672	0.672	0.672	0.672	
xr107 (2 Lanes AC Pavement)	13+50	33+85	2	2,035	0.385	1	1	0.385	0.385	0.385	0.385	
xr126 (2 Lanes Gravel)	1+75	9+09	2	733	0.139	1	1	0.139	0.139	0.139	0.139	
xr159 (2 Lanes Gravel)	3+50	16+00	2	1,250	0.237	1	1	0.237	0.237	0.237	0.237	
							Totals:	2.272	2.097	2.097	2.097	2

* 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)

PIPE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B9	B53

Plotting Date: 07/11/2025 Revised: 7-11-2025 JWF

P-PT 0011(145)83 PCN 05V6 Station Offset (L/R)	Reinforced Concrete Circular	RCP Ends Circular Flared	Corrugated Metal Pipe Circular					CMP Ends Circular Safety			
	18" Cl. 2	18"	18" 16 Ga	24" 16 Ga	30" 16 Ga	30" 14 Ga	36" 16 Ga	18"	24"	30"	36"
	Ft	Each	Ft	Ft	Ft	Ft	Ft	Each	Each	Each	Each
SD Hwy 11											
95+97-64' L				96					2		
107+46-91' L						218				2	
112+70-101' L					188					2	
122+22-76' L			148					2			
122+20-85' R			178					2			
118+76.71-19.44' L to 118+76.71-44.10' L	18	1									
118+76.71-19.44' R to 118+76.71-44.10' R	18	1									
126+15-78' L			178					2			
128+27.67-19.44' L to 128+27.67-44.11' L	18	1									
128+27.67-19.44' R to 128+27.67-44.11' R	18	1									
133+23-94' R			182					2			
133+23-93' L				180					2		
142+87-88' R			184					2			
158+91-60' L							88				2
158+92-68' R					114					2	
160+18-57' L							70				2
163+51-52' R			66					2			
xr107											
19+71-38' L			82					2			
26+02						128				2	
31+50-88' L			198					2			
33+00-68' R			124					2			
fr 159											
7+55-34' L			68					2			
Total:	72	4	1408	276	302	346	158	20	4	8	4

Plot Scale - 1:200

Plotted From - TRSF12139

File - ...\rd\prj\mhn05V6\TablePipe.dgn

FENCE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B10	B53

Plotting Date: 06/06/2025

Station to Station		Side (L/R)	Right-of-Way Fence Type 2 (Ft)	Right-of-Way Fence Type 3 (Ft)	Right-of-Way Fence Remove Fence (Ft)	Temporary Fence Type 1 (Ft)	Post Panels 2 Post Panel (Each)	Post Panels 3 Post Panel (Each)	Gates N.A.B.I. 24' Barbed Wire Gate (Each)	Gates N.A.B.I. 40' Barbed Wire Gate (Each)	
Mainline											
90+00	106+70	L		1695	1700	1730	8	2	1		
108+26	133+23	L		3716	3684	3176	43	2	4	1	
133+23	158+53	L		3052	3124	3107	3	3	2		
159+22-190' L	159+10-622' L	L			433						
162+57	165+75	L		318	318		1	1			
90+00	106+70	R		2282	2301	2232	2	5			
108+05	133+22	R		3435	3451	3855	23	4	3	1	
133+22	142+21	R		891	891			2			
158+56-108'	158+60-748'	R	640		640		1	1			
159+32	163+38	R		405	405		1	1			
Option Borrow Pit #1 (Heggen)				750	750		2				
		Total:	640	16544	17697	14100	84	21	10	2	

Right-of-way fence will be constructed using alternate wood and steel posts except as noted.

BORROW PIT INFORMATION LAYOUT
Option Borrow Pit #1 (Sheet 1 of 2)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		B11	B53

Plotting Date: 06/06/2025

PIT NO. Pit 1

PROJECT NO. P-PT 0011(145)83 PCN 05V6 COUNTY MINNEHAHA

LOCATION E 1/2 NE 1/4 Ex(Lot H-1 & H-2) SEC. 15 TOWNSHIP 102N RANGE 48W

PIT OWNER LIH Land, LLLP ADDRESS
48251 258th St.
Brandon, SD 57005

AVERAGE DEPTH OF MATERIAL 5.3' AVERAGE DEPTH OF TOPSOIL 8"

MATERIAL AVAILABLE 230,000 CU.YDS.

ESTIMATED CU. YDS. OF TOPSOIL 29,000 CU.YDS.

825' DEADHAUL TO STATION 90+00

E1/2 NE1/4

Sec 15 - T102N - R48W

LJH Land, LLLP

The E1/2 NE1/4 of Section 15 - Township 102 North - Range 48 West of the 5th P.M., except County Auditor's Lot H2 in the NE1/4 NE1/4 and except Lot H1 therein

1/16 Line

Section Line

Present SD Hwy 11

90+00

85+00

81+29

Contours shown refelct the proposed grade of the Borrow Pit.

Pit Area
27.02 acres

Hole #1

Hole #2

PIT DATA		
LAB. SAMPLE #	24-1387	24-1388
PIT NUMBER/NAME	Heggen	Heggen
HOLE#	1	2
FIELD SAMPLE #	1	2
DEPTH	1'-25'	1'-18'
FIELD MOISTURE	#N/A	#N/A
DRY LOOSE WT.	104.2	72.9
% passing 3/8	91.6	100.0
% passing # 4	84.9	100.0
% passing # 10	71.9	100.0
% coarse sand	44.6	2.8
% fine sand	18.3	20.9
% silt	6.3	22.5
% clay	2.7	53.8
% passing # 40	27.3	97.2
% passing # 200	9.0	76.3
% coarse & fine sand	62.9	23.7
liquid limit	0	52
liquid plastic limit	0	20
P. I.	NP	32
TEX. CLASSIFICATION	GRVLY SND	CLAY
AASHTO CLASS.	A-1-b	A-7-6
GP Index	0	18
Field Color	Brown	Brown
DEPTH TO GROUNDWATER	Dry Hole	Dry Hole
Drilling Date	04/25/2024	04/25/2024
DEPTH OF TOPSOIL	8"	8"

SCALE:
200 ft = 1"

STANDARD PIT INFORMATION SHEET
SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

PLOT SCALE - 1=200

PLOT NAME - 11

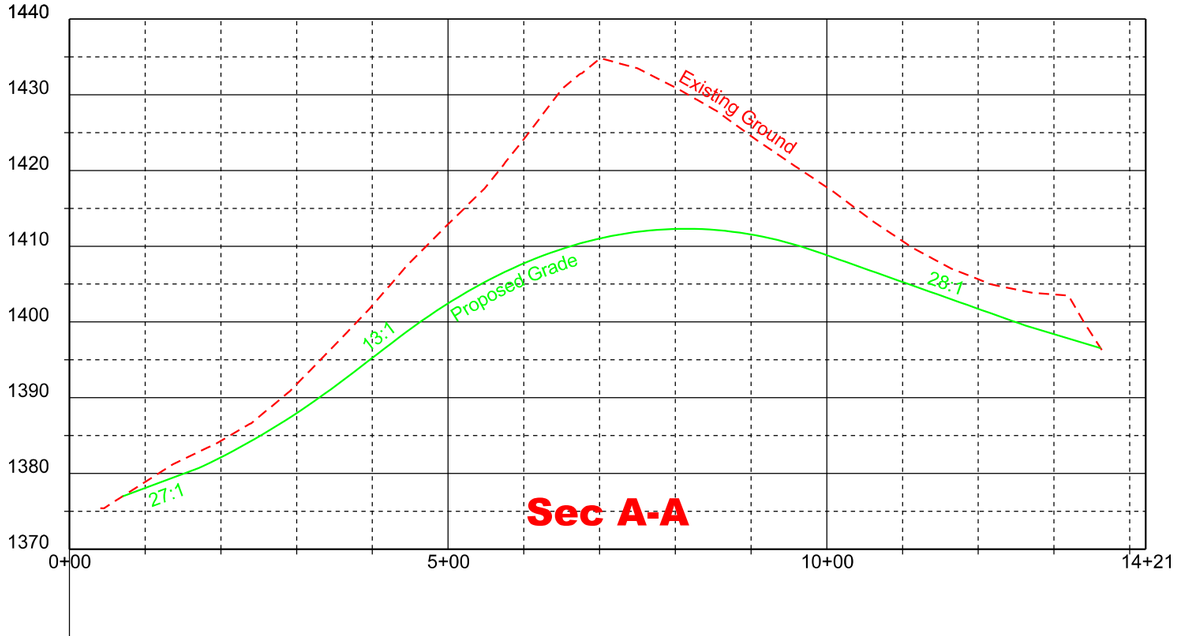
PLOTTED FROM - TRSF12144

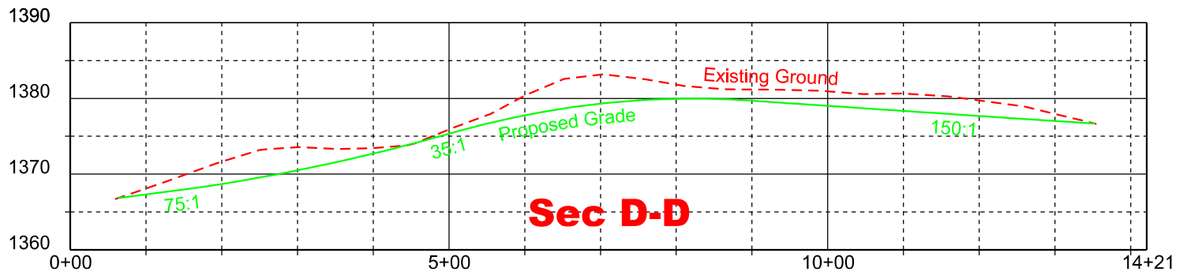
FILE - ...\PITS\MINN05V6\BP05V6.DGN

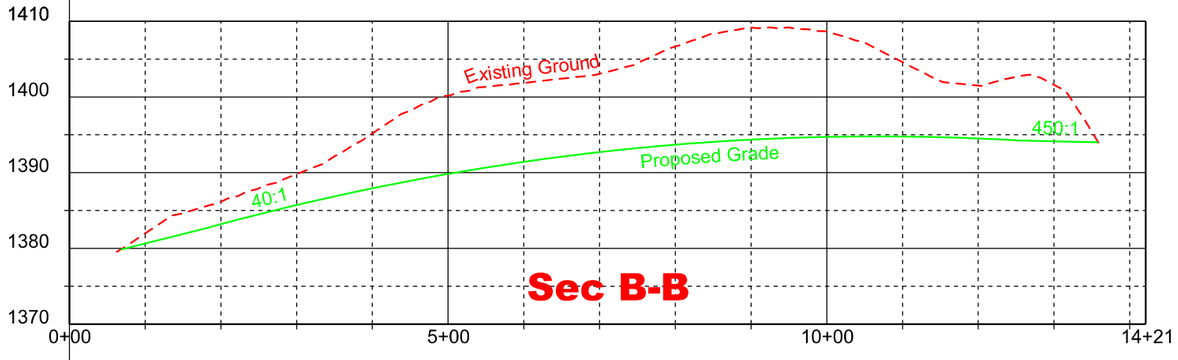
BORROW PIT INFORMATION LAYOUT
Option Borrow Pit #1 (Sheet 2 of 2)

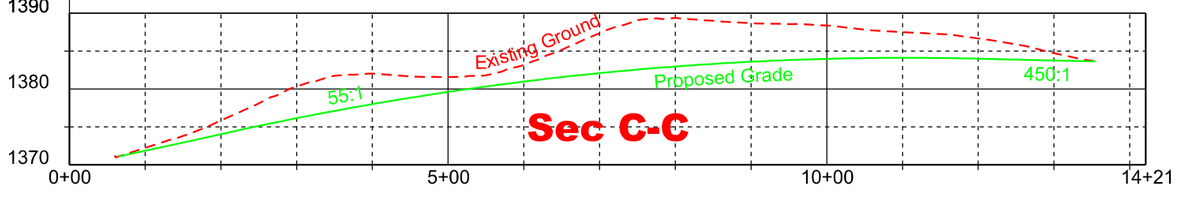
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		B12	B53

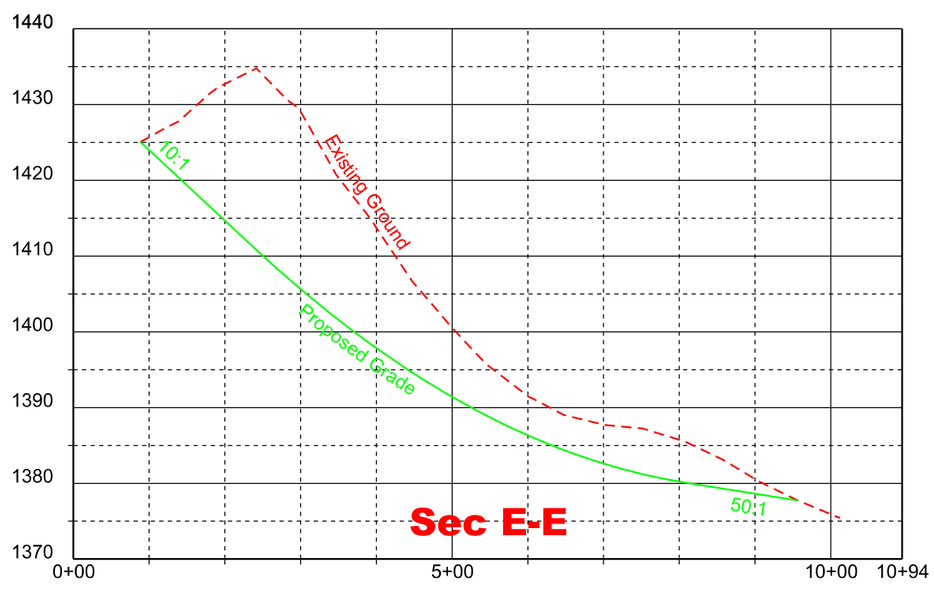
Plotting Date: 06/06/2025











BORROW PIT INFORMATION LAYOUT
Option Borrow Pit #2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		B13	B53

Plotting Date: 06/06/2025

PIT NO. Pit 2

PROJECT NO. P-PT 0011(145)83 PCN 05V6 COUNTY MINNEHAHA

LOCATION SW 1/4 SEC. 14 TOWNSHIP 102N RANGE 48W

PIT OWNER Knife River ADDRESS

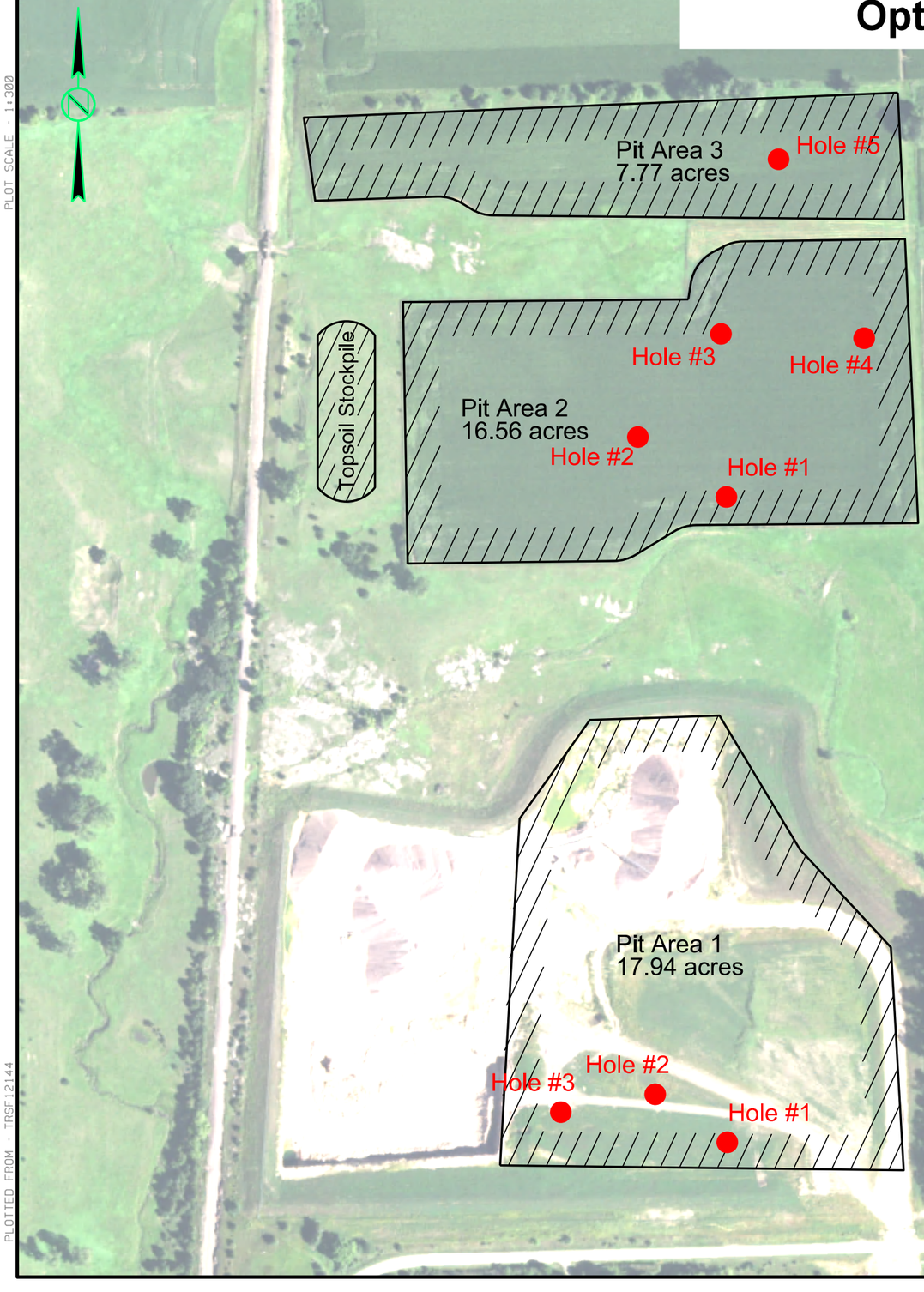
Area 1 is stripped;

AVERAGE DEPTH OF MATERIAL NA AVERAGE DEPTH OF TOPSOIL Areas 2 & 3 = 6"

MATERIAL AVAILABLE 400,000 CU.YDS.

ESTIMATED CU. YDS. OF TOPSOIL Area 1 = 0; Area 2 = 13,350; Area 3 = 6,270 CU.YDS.

4400' DEADHAUL TO STATION 90+00



PIT DATA

LAB. SAMPLE #	24-1675	24-1676	24-1677	24-1678	24-1679	24-1680
PIT NUMBER/NAME	Knife River	Knife River	Knife River	Knife River	Knife River	Knife River
HOLE#, Pit Area	1, Area 2	2, Area 2	2, Area 2	3, Area 2	4, Area 2	5, Area 3
FIELD SAMPLE #	1	2	3	4	5	1'-21'
DEPTH	1'-13'	1'-8'	9'-14'	1'-10'	1'-14'	#N/A
FIELD MOISTURE	#N/A	#N/A	#N/A	#N/A	#N/A	71.2
DRY LOOSE WT.	71.6	73.0	83.0	71.2	71.1	100.0
% passing 3/8	100.0	100.0	95.7	100.0	100.0	100.0
% passing # 4	100.0	100.0	94.7	100.0	100.0	99.9
% passing # 10	100.0	99.9	93.7	100.0	99.8	3.7
% coarse sand	0.7	3.1	15.2	1.4	2.5	22.4
% fine sand	28.5	28.4	27.1	30.2	25.0	21.0
% silt	15.4	19.0	17.3	17.6	21.6	52.7
% clay	55.4	49.4	34.1	50.8	50.7	96.2
% passing # 40	99.3	96.8	78.5	98.6	97.3	73.8
% passing # 200	70.8	68.4	51.5	68.4	72.3	26.1
% coarse & fine sand	29.2	31.5	42.3	31.6	27.5	47
liquid limit	46	45	39	45	47	20
liquid plastic limit	19	18	16	19	19	27
P. I.	27	27	23	26	27	CLAY
TEX. CLASSIFICATION	CLAY	SNDY CLAY	SNDY CLAY	CLAY	CLAY	A-7-6
AASHTO CLASS.	A-7-6	A-7-6	A-6	A-7-6	A-7-6	16
GP Index	15	14	8	14	16	Brown
Field Color	Brown	Brown	Brown	Brown	Brown	Dry Hole
DEPTH TO GROUNDWATER	Dry Hole	Dry Hole	Dry Hole	Dry Hole	Dry Hole	

PIT DATA

LAB. SAMPLE #	22-0529	22-0530	22-0531	22-0532	22-0533	22-0534	22-0535
PIT	Knife River	Knife River	Knife River	Knife River	Knife River	Knife River	Knife River
HOLE#, Pit Area	1, Area 1	1, Area 1	1, Area 1	2, Area 1	2, Area 1	3, Area 1	3, Area 1
FIELD SAMPLE #	1	2	3	4	5	6	7
DEPTH	0.3'-10'	10'-14'	15'-23'	0.3'-12'	12.5'-17'	0.3'-10'	10'-14'
FIELD MOISTURE	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
DRY LOOSE WT.	77.4	80.5	78.6	79.1	86.1	79.4	86.8
% passing 3/8	100.0	97.2	99.6	100.0	91.8	95.0	95.7
% passing # 4	99.9	96.8	99.5	100.0	89.8	94.5	94.0
% passing # 10	99.3	95.5	99.0	98.7	88.3	94.1	93.0
% coarse sand	5.2	12.6	6.1	7.9	19.3	5.0	16.1
% fine sand	24.6	26.1	32.0	24.9	28.1	20.0	27.1
% silt	31.8	28.1	31.2	38.2	23.2	40.8	27.5
% clay	37.7	28.6	29.7	27.6	17.7	28.2	22.3
% passing # 40	94.1	82.9	92.9	90.8	68.9	89.0	76.9
% passing # 200	69.6	56.7	60.9	65.8	40.8	69.0	49.8
% coarse & fine sand	29.8	38.7	38.1	32.8	47.4	25.0	43.2
liquid limit	40	34	32	31	28	33	30
liquid plastic limit	16	15	14	16	14	17	14
P. I.	24	19	18	15	14	16	16
TEX. CLASSIFICATION	SNDY CLAY	CLAY SAND	CLAY SAND	CLAY SILT	SILTY SAND	CLAY SILT	CLAY SAND
AASHTO CLASS.	A-6	A-6	A-6	A-6	A-6	A-6	A-6
GP Index	12	8	8	8	2	9	5
Field Color	Brown	Lt. Tan	Lt. Tan/ Yellow	Brown	Dk. Tan	Brown	Dk. Tan
DEPTH TO GROUNDWATER	Dry Hole	Dry Hole	Dry Hole	Dry Hole	Dry Hole	Dry Hole	Dry Hole

SCALE:
300 ft = 1"

STANDARD PIT INFORMATION SHEET
SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

PLOT SCALE - 1:300

PLOTTED FROM - TRSF12144

PLOT NAME - 13

FILE - ...\BP05V6 -KNIFERIVER.DGN

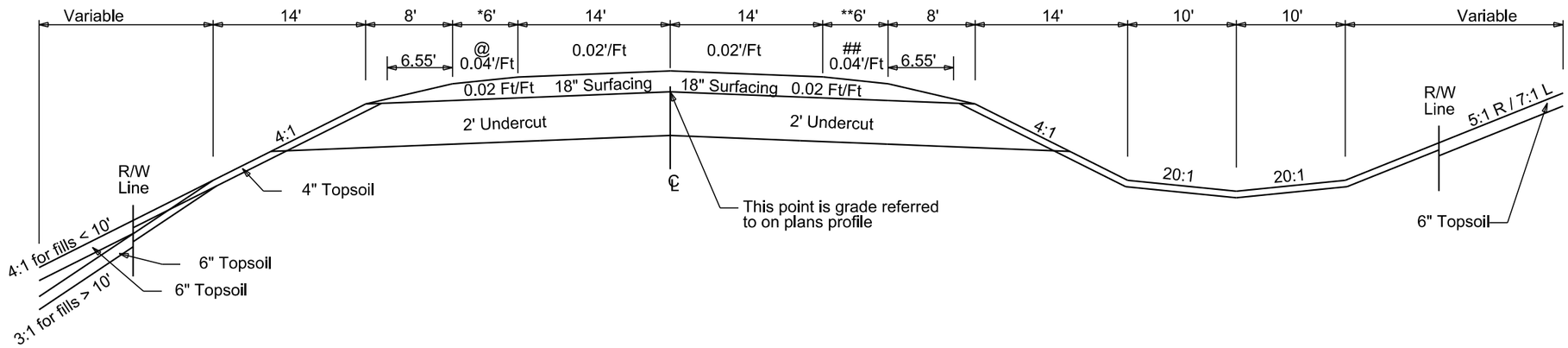
TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B14	B53

Plotting Date: 07/11/2025 Revised: 7-11-2025 JWF

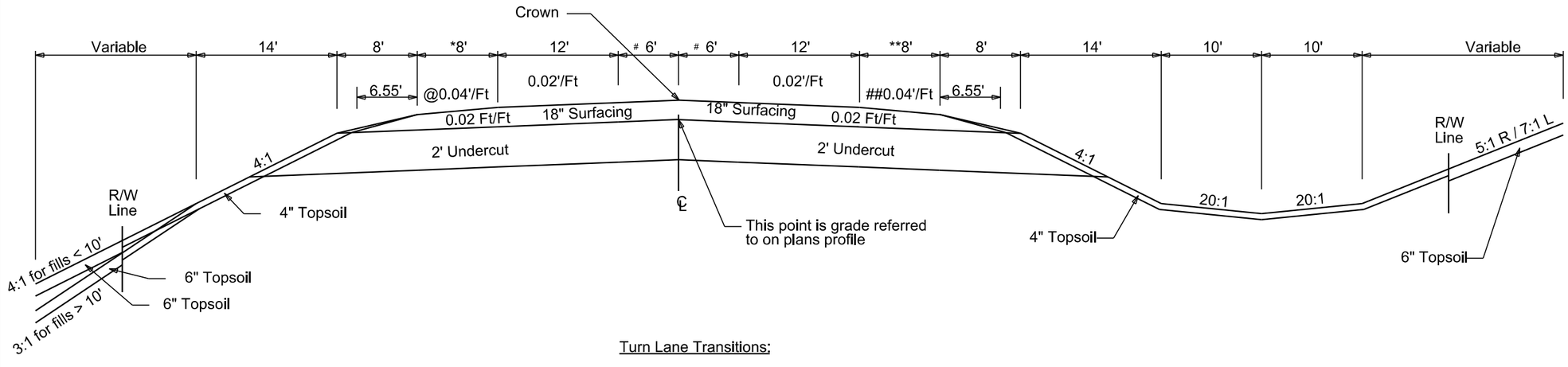
MAINLINE

90+00.00 to 95+98.83
114+39.50 to 114+99.46
118+83.71 to 128+20.67
130+50.64 to 165+75



MAINLINE

95+98.83 to 114+39.50



Turn Lane Transitions:

0' at 95+98.83 to 6' at 100+18.83
6' at 100+18.83 to 110+19.5
6' at 110+19.5 to 0' at 114+39.50

Widening for Guardrail
(See Guardrail Layouts)

Structure 50-280-139 ** Rt

6' to 19.28'	111+83.44 to 113+47.64
19.28' to 14.32'	113+47.87 to 113+87.85
14.32' to 14.46'	113+87.85 to 113+97.23
14.46' to 10.00'	113+97.23 to 114+75.19
10.00'	114+75.19 to 115+21.46
10.00'	118+61.71 to 119+20.51
10.00' to 15.50'	119+20.51 to 119+60.54
15.50' to 6'	119+60.54 to 121+03.53

Structure 50-280-139 * Lt

6' to 15.26'	113+08.60 to 114+22.67
15.26' to 10.00'	114+22.67 to 114+62.69
10.00'	114+62.69 to 115+21.46
10.00'	118+61.71 to 119+07.96
10.00' to 15.20'	119+07.96 to 119+85.92
15.20'	119+85.92 to 119+95.27
15.20' to 20.70'	119+95.27 to 120+35.29
20.70' to 6'	120+35.29 to 122+58.37

Structure 50-280-136 ** Rt

6' to 20.48'	124+59.49 to 126+69.03
20.48' to 17.06'	126+69.03 to 127+09.07
15.06'	127+09.07 to 127+18.41
15.06' to 10.00'	127+18.41 to 127+96.39
10.00'	127+96.39 to 128+42.67
10.00'	130+28.67 to 130+87.45
10.00' to 15.50'	130+87.45 to 131+27.49
15.50' to 6'	131+27.49 to 132+59.22

Structure 50-280-136 * Lt

6' to 15.50'	125+98.19 to 127+43.88
15.50' to 10.00'	127+43.88 to 127+83.91
10.00'	127+83.91 to 128+42.67
10.00'	130+28.67 to 130+74.91
10.0' to 15.30'	130+74.91 to 131+52.86
15.30'	131+52.86 to 131+62.18
15.30' to 20.89'	131+62.18 to 132+02.18
22.89' to 6'	132+02.18 to 134+31.66

Shoulder Slope Transitions
at the Approach Slabs:
(Finished Surface Shoulder Slopes
shown in Section F)

@ 0.04'/Ft to 0.02'/Ft	113+40.46 to 114+20.46
@ 0.02'/Ft	114+20.46 to 120+37.53
@ 0.02'/Ft to 0.04'/Ft	120+37.53 to 121+17.53
## 0.04'/Ft to 0.02'/Ft	112+65.63 to 113+45.63
## 0.02'/Ft	113+45.63 to 119+62.71
## 0.02'/Ft to 0.04'/Ft	119+62.71 to 120+42.71
## 0.04'/Ft to 0.02'/Ft	125+86.81 to 126+66.81
## 0.02'/Ft	126+66.81 to 131+29.68
## 0.02'/Ft to 0.04'/Ft	131+29.68 to 132+09.68
@ 0.04'/Ft to 0.02'/Ft	126+61.69 to 127+41.69
@ 0.02'/Ft	127+41.69 to 132+04.44
@ 0.02'/Ft to 0.04'/Ft	132+04.44 to 132+84.44

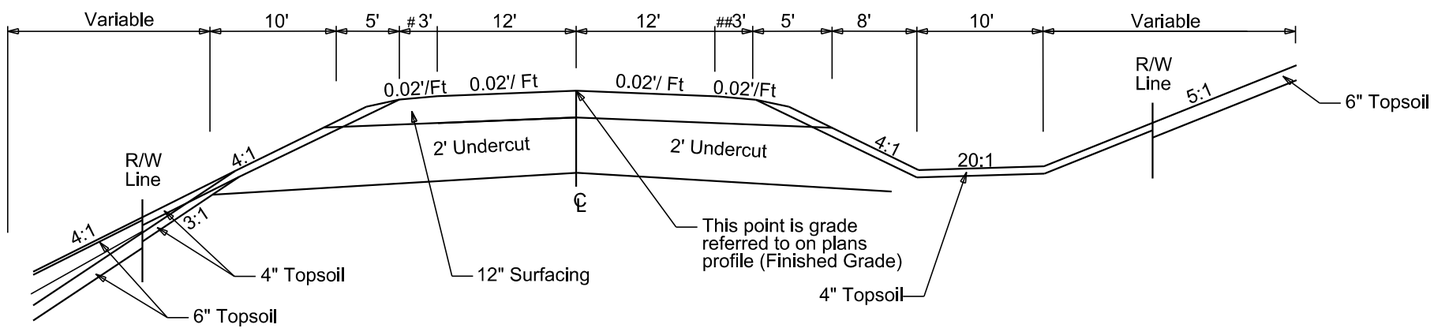
TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B15	B53

Plotting Date: 07/11/2025 Revised: 7-11-2025 JWF

XR 107

13+50 to 33+84.93



Mailbox Turnouts:

15+87.29 to 16+49.77
3' to 8'
16+49.77 to 16+77.76
8'
16+77.76 to 17+75.95
8' to 3'

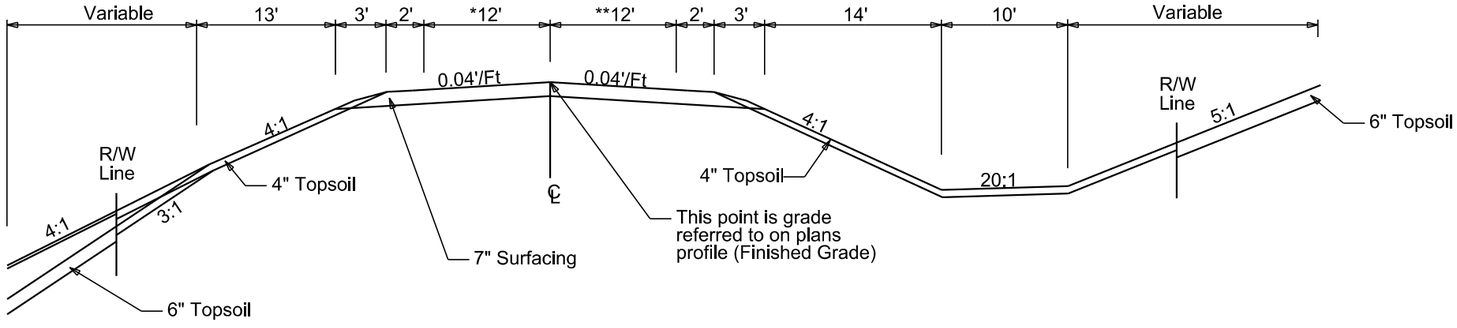
31+41.13 to 32+41.13
3' to 8'
32+41.13 to 32+69.13
8'
32+69.13 to 33+31.63
8' to 3'

XR 126

1+75.00 to 9+09.41

XR 159

3+50.00 to 16+00.00



Note: There is no undercut for alignment XR126.

XR 126 Transitions:

1+75.00 to 3+75.00
* 10' to 12'
** 10' to 12'

XR 159 Transitions:

3+50.00 to 5+50.00
* 10' to 12'
** 10' to 12'

14+00.00 to 16+00.00
* 12' to 10'
**12' to 10'

Plot Scale - 1:200

Plotted From - TRSF12144

File - U:\rdpr\minn05\B1\typ.dgn

HORIZONTAL ALIGNMENT DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B16	B53

Plotting Date: 06/06/2025

MAINLINE

Type	Station			Northing	Easting
POB	81+28.71			498201.474	2963896.145
		TL= 2059.61	N 2°40'38" W		
PC	101+88.32			500258.837	2963799.939
PI	107+50.82	R = 479065.96	Delta = 0°08'04" L	500820.723	2963773.664
PT	113+13.32			501382.546	2963746.070
		TL= 733.00	N 2°48'43" W		
PC	120+46.32			502114.661	2963710.112
PI	126+08.82	R = 133508.42	Delta = 0°28'58" R	502676.487	2963682.518
PT	131+71.32			503238.526	2963659.658
		TL= 2159.82	N 2°19'45" W		
PC	153+31.14			505396.562	2963571.887
PI	158+93.67	R = 44659.80	Delta = 1°26'36" R	505958.627	2963549.026
PT	164+56.14			506521.090	2963540.330
		TL= 4174.32	N 0°53'09" W		
POE	206+30.46			510694.908	2963475.802

xr107

Type	Station			Northing	Easting
POB	-0+00.00			500662.054	2961454.688
		TL= 279.70	N 86°02'19" E		
PI	2+79.70			500681.377	2961733.724
		TL= 1382.13	N 86°02'40" E		
PC	16+61.83			500776.717	2963112.557
PI	23+61.93	R = 33621.70	Delta = 2°23'09" R	500825.011	2963810.990
PT	30+61.83			500844.189	2964510.829
		TL= 1916.96	N 88°25'49" E		
POE	49+78.79			500896.699	2966427.068

xr126

Type	Station			Northing	Easting
POB	1+53.00			503073.420	2963090.962
PI	3+11.72	R = 565.00	Delta = 31°22'54" R	502989.463	2963225.656
PT	4+62.46			502847.648	2963296.927
		TL= 66.96	S 26°40'56" E		
PC	5+29.42			502787.820	2963326.994
PI	6+62.25	R = 205.00	Delta = 65°52'53" L	502669.138	2963386.639
PT	7+65.14			502675.079	2963519.333
		TL= 164.27	N 87°26'11" E		
POE	9+29.41			502682.426	2963683.437

xr159

Type	Station			Northing	Easting
POB	2+95.48			505925.468	2962943.914
		TL= 356.56	N 86°56'26" E		
PC	6+52.04			505944.498	2963299.965
PI	9+02.05	R = 29938.63	Delta = 0°57'25" R	505957.842	2963549.614
PT	11+52.04			505967.014	2963799.452
		TL= 352.60	N 87°53'51" E		
PI	15+04.64			505979.950	2964151.810
		TL= 2086.25	N 88°01'45" E		
POE	35+90.89			506051.701	2966236.830

ent160

Type	Station	Northing	Easting
POB	0+00.00	505950.451	2963415.535

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00; Geoid 18; SF = 0.9998465510

CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B17	B53

Plotting Date: 06/06/2025

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP1	133+00	67’ L	SDDOT BARCAP STAMPED CONTROL POINT	503366.994	2963587.847	1336.438
CP2	118+15	23’ R	CHISELED "X" IN NE BRIDGE ABUTMENT WINGWALL (STR. 50-280-136)	501884.611	2963744.284	1342.479
CP3	171+87	72’ R	SDDOT BARCAP STAMPED CONTROL POINT	507253.256	2963600.168	1365.841

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00
Geoid 18; SF = 0.9998465510
The elevations shown on this sheet are based on NAVD 88.

Plot Scale - 1:200
Plotted From - TRSF12144
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LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B18	B53

Plotting Date: 06/06/2025

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush/Hedge
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Concrete Symbol
- Control Point
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Electric Transformer/Power Junction Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Miscellaneous
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Gutter
- Guy Pole
- Haystack
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Miscellaneous
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Miscellaneous Line
- Miscellaneous Property Corner
- Miscellaneous Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad ROW Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Sign Double Face
- Traffic Sign One Post
- Traffic Sign Two Post
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner
- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)
- Drainage Arrow
- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter
- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

Plot Scale - 1:200

Plotted From - TRSF12144

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B19	B53

Plotting Date: 07/31/2025 Revised: 7-31-2025 JWF

Install Type B Drop Inlet with 6" Concrete collar and Type A Frame & Grate the Following locations:
118+76.71-19.44' L (2'x3')
118+76.71-19.44' R (2'x3')

95+94-56' L
Take Out 18" - 68' CMP
(Incidental Work, Grading)

95+97-64' L (7 Ac)
Install 24" - 96' CMP
& 2 Safety Ends

107+50-61' L
Take Out 18" - 92' CMP
(Incidental Work, Grading)

107+46-91' L (15 Ac)
Install 30" - (14 Ga) - 218' CMP
& 2 Safety Ends

Install Steel Beam Guardrail and Flared End Terminals at the Following locations:
113+45.63 R to 115+23.96 R
114+20.46 L to 115+23.96 L
118+59.21 L to 120+37.53 L
118+59.21 R to 119+62.71 R

112+70-72' L
Take Out 18" - 103' CMP
(Incidental Work, Grading)

112+70-101' L (20 Ac)
Install 30" - 188' CMP
& 2 Safety Ends

113+78-101' L
Install PVC Coated Bank and Channel Protection Gabions
(6.0 CY)
and Type B Drainage Fabric
(19 SqYd)

113+83-101' L
Minor Channel Cleanout at Pipe Outlet
(Incidental Work, Grading)

115+01.25 to 118+15.75
Take Out 314'- 6" Bridge
(Incidental Work, Structure)

115+21.46 to 118+61.71 (471.5 Sq. Mi.)
Install 340'-3" Steel Girder Bridge
(See Section E)

118+76.71-19.44' L to
118+76.71-44.10' L
Install 18" - 18' RCP
& 1 Flared End
(Between drop Inlets & Outlet)

Remove Beam Guardrail
at the following locations:
113+45.17-20.08' L to 115+02.12-11.74' L
113+07.26-27.93' R to 115+01.55-20.02' R
118+15.45-9.46' L to 119+70.50-14.00' L
118+15.10-21.24' R to 119+71.90-30.23' R

Sec 15 - T102N - R48W

Sec 10 - T102N - R48W

Sec 14 - T102N - R48W

Sec 11 - T102N - R48W

Begin P-PT 0011(145)83
Station 90+00.00

LJH Land, LLLP
Parcel 1 & 1A

LJH Land, LLLP
Parcel 4, 4A & 4B

Lee N. Holt and Emmalie J. Holt
Parcel A1

Norbert Schmitz and Karon A. Schmitz
Parcel 3 & 3A

Leo & Joanne Heggen Living Trust
Parcel 2 & 2A

LJH Land, LLLP
Parcel 5 & 5A

TRACT 2B

TRACT 1A
WANGSNESS' ADDITION

E1/2 NE1/4

E1/2 SE1/4

W1/2 NW1/4

W1/2 SW1/4

Present SD Hwy 11

Section Line

Split Rock Creek

transmission line right of way

90+00 L
Begin Type 3 Fence

95+97 L
24' Barbed Wire Gate

106+70 L
End Type 3 Fence

108+26 L
Begin Type 3 Fence

112+70 L
24' Barbed Wire Gate

115+23 L
End Type 3 Fence

118+58 L
Begin Type 3 Fence

119+28-91' L
24' Barbed Wire Gate

119+33-146' L
24' Barbed Wire Gate

90+00 R
Begin Type 3 Fence

106+70 R
End Type 3 Fence

108+05 R
Begin Type 3 Fence

114+26 R
24' Barbed Wire Gate

115+20-175' R
24' Barbed Wire Gate

115+23 R
End Type 3 Fence

118+59 R
BeginType 3 Fence

PI 107+50.82
N 500820.72
E 2963773.66
Del 0°08'04" L
Dc 0°00'43"
T 562.50'
L 1125.00'
R 479065.96'

N 2°40'38" W

N 88°59'46" E

N 2°40'43" W

Parcel 1
91+19.27 to 106+75.61 L
Temporary Easement containing
2.8 ac, more or less

Parcel 2
97+97.48 to 100+00.82 R
Temporary Easement containing
0.1 ac, more or less

Parcel 1
106+63.00 to 106+95.79 L
Temporary Easement containing
0.3 ac, more or less

Parcel A1
107+92.26 to 108+24.93 L
Temporary Easement containing
0.1 ac, more or less

Parcel 3
107+93.60 to 111+43.06 L
Temporary Easement containing
1.0 ac, more or less

Parcel 4
111+41.05 to 128+72.31 L
Temporary Easement containing
2.4 ac, more or less

Plot Scale - 1:200

Plotted From - TRSF12139

File - U:\rdp\hjmlm05\V6\090.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B20	B53

Plotting Date: 07/31/2025 Revised: 7-31-2025 JWF

90+00.00
Begin Grading

115+21

118+62

95+97 L
24' Ent

107+49 L
30' Int Road
75' Radius Lt & Bk
90' Radius Lt & Ah

107+49 R
30' Int Road
90' Radius Lt & Bk
75' Radius Lt & Ah

112+70 L
24' Ent

L 1125.00ft
G1 -3.6250%
G2 -0.3590%
K 344

-3.6250%

PVI 95+90
Elev 1359.48

LDGPI 93+00
Elev 1361.25

LDG -2.0111%

LDGPI 101+00
Elev 1345.16

LDG -0.9437%

LDGPI 108+00
Elev 1338.56

LDG -0.9931%

LDGPI 113+14
Elev 1333.45

-0.3590%

Q_{100}=32822 cfs
El 1345.5
Q_{25} =15338 cfs
El 1339.8

CP2
118+15-23' R
CHISELED "X" IN NE BRIDGE
ABUTMENT WINGWALL (STR 50-280-136)
Elev 1342.48

Station 90+00 to 115+21

Exc	11,434	Emb	104,061		
Undercut	1,501	35.00%	36423	140484	
OPT Borrow	129,575	Undercut	1,501	2,026	
	142,510	35.00%	525	142,510	

Dead Haul = 1,036,600 CuYdSta
OPT Borrow Haul = 2,212,900 CuYd Sta.

Included in the EXC is 3,697 CY of Unstable material.
Option Borrow may be obtained from Pit #1 or Pit #2.
Haul calculations are based on option borrow obtained from Pit #1

1465 1460 1450 1440 1430 1420 1410 1400 1390 1380 1370 1360 1350 1340 1330 1320 1310 1300 1290 1280

1380.88 1377.33 1374.06 1371.08 1368.39 1365.99 1363.88 1362.06 1360.53 1359.29 1358.35 1357.69 1357.29 1356.93 1356.57 1356.21 1355.85 1355.49 1355.14 1354.78 1354.42 1354.06 1353.70 1353.34 1352.98 1352.62 1352.26 1351.90 1351.55 1351.19 1350.83

90+00 95+00 100+00 105+00 110+00 115+00 120+00

1:200

Plot Scale -

TRSF12139

Plotted From -

File -

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B21	B53

Plotting Date: 08/22/2025 Revised: 8-22-2025 MMM

19+71-34' L
Take Out 18" - 52' CMP
(Incidental Work, Grading)

19+71-38' L (1 ac)
Install 18" - 82' CMP
& 2 Safety Ends

26+02
Take Out 28" - 62' CMP
(Incidental Work, Grading)

26+02 (59 ac)
Install 30" - 128' CMP
& 2 Safety Ends

31+09-56' R
Take Out 24" - 30' CMP
(Incidental Work, Grading)

31+50-88' L (1 ac)
Install 18" - 198' CMP
& 2 Safety Ends

30+31-88' L
Install PVC Coated Bank and Channel Protection Gabions (4.5 CY)
and Type B Drainage Fabric (15 SqYd)

33+00-68' R (9 ac)
Install 18" - 124' CMP
& 2 Safety Ends

32+07-68' R
Install PVC Coated Bank and Channel Protection Gabions (4.5 CY)
and Type B Drainage Fabric (15 SqYd)

Refurbish Single Mailbox at the following stations:
16+33 L
31+39 R

Sec 10 - T102N - R48W

LJH Land, LLLP
Parcel 4, 4A & 4B

Lee N. Holt and Emmalie J. Holt
Parcel A1

Norbert Schmitz J. and Karon A. Schmitz
Parcel 3 & 3A

19+58 to 19+82 L
Take out Trees within Temporary Easement
(Clearing)

32+50 L
Do Not Disturb Well and Cement Encasement

32+51-75' L
Do Not Disturb Well

33+10 L
Do Not Disturb Corral

Begin xr107
Station 13+50.00

13+54 L
Do Not Disturb mailbox

E1/2 SE1/4

13+50 L to 18+00 L
Do Not Disturb Trees Outside of Work limits

WANGSNESS' ADDITION

TRACT 3B

TRACT 2B

TRACT 1A

Sec 11 - T102N - R48W

LJH Land, LLLP
Parcel 5 & 5A

24+29 L
Begin Type 3 Fence

26+64 L
Elim Ent

31+50 L
24' Barbed Wire Gate

33+66 L
End Type 3 Fence

W1/2 SW1/4

County Hwy 130

Section Line

250th Street

1/16 Line

13+50 R
Begin Type 3 Fence

16+21 R
24' Barbed Wire Gate

22+20 R
End Type 3 Fence

24+30 R
Begin Type 3 Fence

29+85 R
End Type 3 Fence

Leo & Joanne Heggen
Living Trust
Parcel 2 & 2A

LJH Land, LLLP
Parcel 1 & 1A

xr107
PI 23+61.93
N 500825.01
E 2963810.99
Del 2°23'09" R
Dc 0°10'13"
T 700.10'
L 1400.00'
R 33621.70'

NW1/4 NE1/4

E1/2 NE1/4

W1/2 NW1/4

24+00 R to 31+00 R
Do Not Disturb Drainage Tile Field

31+09 R
Elim Ent

105+50-830' R
Do Not Disturb Concrete Pad

29+85 R to 30+52 R
Take out Trees within Permanent Right-of-way
(Clearing)

End xr107
Station 33+84.93

Sec 15 - T102N - R48W

Sec 14 - T102N - R48W

31+03-140' R to 32+50-75' L
Do Not Disturb Private Water Lines

BNSF Railroad Company
(INFORMATION ONLY)

Parcel 5
107+80.03 to 114+60.63 R
Temporary Easement containing
1.0 ac, more or less

Parcel 2
105+52.00 to 106+81.40 R
Temporary Easement containing
0.4 ac, more or less

Plot Scale - 1:200

Plotted From - TRSF12144

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B22	B53

Plotting Date: 07/14/2025 Revised: 07/14/2025 MMM

13+50.00
Begin Grading

23+24

33+85.00
End Grading

16+21 L
24' Ent

19+71 L
24' Ent

31+50 L
24' Ent

16+21 R
24' Ent

33+00 R
24' Ent

(xr107) Station 13+50 to 23+24

Exc	5,082	Emb	8,889	12,000
Undercut	1,734	35.00%	3,111	
Option Borrow	7,526	Undercut	1,734	
	14,342	35.00%	608	2,342
				14,342

Dead Haul = 195,700 CuYdSta.
OPT. Borrow Haul = 13,100 CuYdSta.

Option Borrow may be obtained from Pit #1 or Pit #2.
Haul calculations are based on option borrow obtained from Pit #1.

(xr107) Station 23+24 to 33+85

Exc	467	Emb	56,021	
Undercut	41	35.00%	19,606	75,627
OPT Borrow	75,174	Undercut	41	
	75,682	35.00%	14	55
				75,682

Dead Haul = 1,954,500 CuYdSta.
OPT. Borrow Haul = 416,400 CuYdSta.

Included in the EXC is 467 CY of Unstable material.
Option Borrow may be obtained from Pit #1 or Pit #2.
Haul calculations are based on option borrow obtained from Pit #1.

PVI 8+89
Elev 1350.93

1.2113%

PVI 16+34
Elev 1359.95

RDGPI 16+21
Elev 1353.85

RDG -0.6332%

L 500.00ft
G1 1.2113%
G2 -0.6440%
K 269

LDGPI 19+00
Elev 1352.07

-0.6440%

LDG -0.9627%

RDGPI 20+00
Elev 1351.45

LDGPI 20+25
Elev 1350.87

RDG -3.7600%

LDG -5.9936%

RDGPI 22+50
Elev 1342.05

LDGPI 22+34
Elev 1338.34

PVI 22+74
Elev 1355.83

PVI 23+04
Elev 1356.43

PVI 23+44
Elev 1356.43

PVI 23+24
Elev 1356.83

PVI 23+74
Elev 1355.83

2.0000%
2.0000%
2.0000%
-2.0000%
-2.0000%

L 625.00ft
G1 -2.0000%
G2 3.2202%
K 120

PVI 27+30
Elev 1348.71

3.2202%

PVI 32+38
Elev 1365.07

L 275.00ft
G1 3.2202%
G2 0.8333%
K 115

0.3198%
0.8333%
0.3198%
0.8333%

PVI 34+33
Elev 1366.69

PVI 34+61
Elev 1366.93

PVI 34+63
Elev 1366.93

PVI 34+67
Elev 1366.95

1351.06 1352.27 1353.48 1354.69 1355.90 1357.11 1358.08 1358.67 1358.90 1358.75 1358.24 1357.60 1356.95 1356.31 1356.35 1355.31 1353.59 1352.70 1352.64 1353.42 1355.03 1357.47 1360.62 1363.41 1365.34 1366.42

5+00 10+00 15+00 20+00 25+00 30+00 35+00

1475 1470 1460 1450 1440 1430 1420 1410 1400 1390 1380 1370 1360 1350 1340 1330 1320 1310 1300 1290

Plot Scale - 1:200

TPSF12139

Plotted From -

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B23	B53

Plotting Date: 07/14/2025 Revised: 07/14/2025 MMM

Plot Scale - 1:200

PI 6+62.25
N 502669.14
E 2963386.64
Del 65°52'53" L
Dc 27°56'57"
T 132.83'
L 235.72'
R 205.00'

122+20-60' R
Take Out 18"-68' CMP
(Incidental Work, Grading)

122+20-76' L (1 Ac)
Install 18" - 148' CMP
& 2 Safety Ends

122+20-85' R (1 Ac)
Install 18" - 178' CMP
& 2 Safety Ends

127+63-44' L
Take Out 18"-76' CMP
(Incidental Work, Grading)

126+15-78' L (4 Ac)
Install 18" - 178' CMP
& 2 Safety Ends

128+27.67-19.44' R to
128+27.67-44.11' R
Install 18" - 18' RCP
& 1 Flared End
(Between Drop Inlet and Outlet)

128+57.58 to 130+43.58
Take Out 186' Bridge
(Incidental Work, Structure)

128+27.67-19.44' L to
128+27.67-44.11' R
Install 18" - 18' RCP
(Between Drop Inlet and Outlet)

133+23-51' L
Take Out 18"-96' CMP
(Incidental Work, Grading)

133+23-53' R
Take Out 18"-84' CMP
(Incidental Work, Grading)

133+23-93' L (40 Ac)
Install 24" - 180' CMP
& 2 Safety Ends

133+23-94' R (7 Ac)
Install 18" - 182' CMP
& 2 Safety Ends

142+87-29' R
Take Out 18"-56' CMP
(Incidental Work, Grading)

142+87-88' R (6 Ac)
Install 18" - 184' CMP
& 2 Safety Ends

Install Steel Beam Guardrail and
Flared End Terminals at the
Following Locations:
126+66.81 R to 128+45.17 R
127+41.69 L to 128+45.17 L
130+26.17 R to 131+29.68 R
130+26.17 L to 132+04.46 L

128+42.67 to 130+28.67 (86.5 Sq. Mi.)
Install 186'-0" Steel Girder Bridge
(See Section E)

142+73 R
Refurbish Single
Mailbox

Remove Beam Guardrail
at the Following Locations:
127+88.91-49.33' L to 128+61.61-6.27' L
126+64.33-33.75' R to 128+60.88-23.85' R
130+43.44-6.54' L to 132+24.91-15.92' L
130+45.55-24.52' R to 132+18.25-29.16' R

Install Type B Drop Inlet
with 6" Concrete collar
and Type A Frame & Grate
at the following locations:
128+27.67-19.44' L (2'x3')
128+27.67-19.44' R (2'x3')

Sec 10 - T102N - R48W

Begin xr126
Station 1+75

xr126
PI 3+11.72
N 502989.46
E 2963225.66
Del 31°22'54" R
Dc 10°08'27"
T 158.72'
L 309.46'
R 565.00'

LJH Land, LLLP
Parcel 4,4A & 4B

End xr126
Station 9+09.41

E1/2 SE1/4

125+60 L
Begin Type 3
Fence

125+60 L
End Type 3
Fence

Tract B

131+08-625' L
End Type 3
Fence

130+26 L
Begin Type 3
Fence

xr126
PI 6+62.25
N 502669.14
E 2963386.64
Del 65°52'53" L
Dc 27°56'57"
T 132.83'
L 235.72'
R 205.00'

ANDERSON'S ADDITION

Sundvold Farms, LLC
Parcel 6

NE1/4

TRACT 2

120+45 L
Elim Ent

122+20 L
40' Barbed Wire
Gate

128+16-327' L
24' Barbed Wire
Gate

133+23 L
24' Barbed Wire
Gate

60' Palisade Street

Present SD Hwy 11

125+00 130+00 135+00 140+00 145+00 150+00

Section Line

N 2°19'45" W

3 PP

2-2 PP

2 PP

122+20 R
40' Barbed Wire
Gate

128+45 R
End Type 3
Fence

130+26 R
Begin Type 3
Fence

133+23 R
24' Barbed Wire
Gate

142+21 R
End Type 3
Fence

West Pipestone Creek

Split Rock Creek

TRACT 3

TRACT 4
NW1/4

Richard and Barbara Funke Irrevocable
Family Legacy Trust
Parcel 7

COBURN'S ADDITION

TRACT 5

Alex Rogen and Courtney Rogen
Parcel 9

Richard A. Funke and Barbara N. Funke
Parcel 8

Mutual Access Easement

W1/2 SW1/4

LJH Land, LLLP
Parcel 5 & 5A

PI 126+08.82
N 502676.49
E 2963682.52
Del 0°28'58" R
Dc 0°02'34"
T 562.50'
L 1125.00'
R 133508.42'

1/4 Line

TRACT 5

Sec 11 - T102N - R48W

Parcel 4
126+64.66 to 128+36.58 L
Temporary Easement containing
0.5 ac, more or less

Parcel 5
120+15.99 to 133+22.32 R
Temporary Easement containing
2.1 ac, more or less

Parcel 4
128+31.07 to 133+20.62 L
Temporary Easement containing
0.9 ac, more or less

Parcel 6
133+18.27 to 158+57.72 L
Temporary Easement containing
1.7 ac, more or less

Parcel 7
133+20.84 to 142+17.00 R
Temporary Easement containing
0.5 ac, more or less

Parcel 9
142+13.63 to 143+42.17 R
Temporary Easement containing
0.2 ac, more or less

Parcel 7
143+39.00 to 158+55.08 R
Temporary Easement containing
0.8 ac, more or less

Plotted From - TRSF12139

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B24	B53

Plotting Date: 07/14/2025 Revised: 07/14/2025 MMM

Plot Scale - 1:200

120+45 L
D Block
Elev 1340.11

122+20 L
40' Ent

122+20 R
40' Ent

126+15 L
26' Int Rd
Lt & Ah 2-centered curve
radius 110' & 55'
Lt & Bk 75' Radius

133+23 L
24' Ent

133+23 R
24' Ent

128+43

130+29

Station 118+62 to 128+43

Exc	7,244				
OPT Borrow	58,045	Emb	58,555		
OB Exc.	13,760	35.00%	20,494	79,049	
	79,049			79,049	

Dead Haul = 3,599,200 CuYdSta.
OPT. Borrow Haul = 186,500 CuYdSta.
Haul = 17,900 CuYd.Sta.

Included in the EXC is 716 CY of Unstable material.
Option Borrow may be obtained from Pit #1 or Pit #2.
Out-of-Balance Excavation is Out-of-Balance waste obtained from xr126.

Haul calculations are based on option 17,725 CY option borrow obtained from Pit #1 and 40,320 CY borrow obtained from Pit #2

Station 130+29 to 158+92

Exc	15,424	Emb	154,777		
OPT. Borrow	193,525	35.00%	54,172	208,949	
	208,949			208,949	

Dead Haul = 16,256,100 CuYdSta.
OPT. Borrow Haul = 2,299,700 CuYdSta.

Included in the EXC is 8,821 CY of Unstable material.
Option Borrow may be obtained from Pit #1 or Pit #2.

Haul calculations are based on option borrow obtained from Pit #2

xr126

(xr126) Station 1+75 to 9+09

Exc	20,290	Emb	4,837	
	20,290	35.00%	1,693	6,530
		OB Waste		13,760
				20,290

Haul = 42,500 CuYd Sta.

OB Waste shall be used as Out-of-balance Exc in:
Sta 118+62 to 128+43

PVI 1+26
Elev 1346.86
L 550.00ft
G1 -1.4501%
G2 2.0000%
K 159
PVI 4+43
Elev 1342.27
PVI 9+09
Elev 1351.59
-1.4501%
2.0000%
2.0000%
RDGPI 2+00
Elev 1338.20
RDGPI 7+00
Elev 1339.20
RDGPI 8+50
Elev 1336.98
LDG 0.2369%
RDG 0.2000%
RDG 0.8989%
RDG 1.4800%
LDGPI 1+90
Elev 1337.00
LDGPI 7+00
Elev 1338.21
LDGPI 8+50
Elev 1336.86

1338.20 1338.40 1338.60 1338.80 1339.00 1339.20 1337.72

L 500.00ft
G1 -0.3590%
G2 0.3000%
K 759
-0.3590%
PVI 123+30
Elev 1349.64
0.3000%
PVI 136+98
Elev 1353.75
142+87 R
40' Ent
-0.1306%
LDGPI 120+45
Elev 1338.40
LDG -0.3077%
RDG 0.8519%
RDG -0.3000%
RDGPI 120+58
Elev 1333.25
RDGPI 122+20
Elev 1334.63
RDGPI 127+50
Elev 1333.04
LDGPI 128+25
Elev 1336.00
LDGPI 133+00
Elev 1334.12
RDG 0.0940%
RDGPI 131+00
Elev 1333.86
L 1000.00ft
G1 0.3000%
G2 -0.1306%
K 2922
LDG 0.3000%
RDG 0.3000%
RDGPI 137+00
Elev 1334.42
Q_{100}=7748cfs
El 1346.0
Q_{25}=4755cfs
El 1340.4
CP1
133+00-67' L
SDDOT BARCAP STAMPED
CONTROL POINT
Elev 1336.44

1350.83 1350.47 1350.20 1350.07 1350.07 1350.20 1350.45 1350.75 1351.05 1351.35 1351.65 1351.95 1352.25 1352.53 1352.77 1352.96 1353.11 1353.21 1353.27 1353.29 1353.27 1353.20 1353.09 1352.96 1352.83 1352.70 1352.57 1352.44 1352.31 1352.18 1352.05

120+00 125+00 130+00 135+00 140+00 145+00 150+00

1465 1460 1450 1440 1430 1420 1410 1400 1390 1380 1370 1360 1350 1340 1330 1320 1310 1300 1290 1280

Plotted From - TPSF12139

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B25	B53

Plotting Date: 10/20/2025 Revised: 10-20-2025 AR

158+92-55' L
Take Out 18"-70' CMP
(Incidental Work, Grading)

160+10-53' L
Take Out 16"-72' CMP
(Incidental Work, Grading)

158+91-60' L (21 ac)
Install 36" - 88' CMP
& 2 Safety Ends

163+51-51' R
Take Out 18"-76' CMP
(Incidental Work, Grading)

163+51-52' R
Install 18" - 66' CMP
& 2 Safety Ends

7+55-34' L (xr 159)
Install 18" - 68' CMP
& 2 Safety Ends

160+18-57' L (11 ac)
Install 36" - 70' CMP
& 2 Safety Ends

Do Not Disturb
Trees at the following
Locations:
163+77-102' R
164+61-112' R
164+78-687' R
164+46-85' R

160+40 L
Refurbish Single
Mailbox

Begin xr159
Station 3+50.00

158+92-68' R
Install 30" - 114' CMP
& 2 Safety Ends

158+34.00-624.00'
158+45.34-624.03'

Sec 10 - T102N - R48W

158+40-624' L
End Type 3
Fence

7+29 L
Take out Tree
(Clearing)

3+50 L to
8+00 L (FR159)
Do Not Disturb
Trees Outside
Work Limits

160+25 L
Do Not Disturb
Lift Pump

Sec 3 - T102N - R48W

DESCHEPPER'S ADDITION

TRACT 1

TRACT 2

1/64 Line

159+10.49-622.74'
159+14.24-622.75'

2 PP

xr 159

158+43-583' L
24' Barbed Wire
Gate

Sundvold Farms, LLC
Parcel 6

Michael W. Marsh and Michelle M. Marsh
Parcel A2
Omitted

Loren R. Schoeneman and
Wanda N. Schoeneman
Parcel 10

159+87-55' L
Take out Tree within
Temporary Easement
(Clearing)

Barbara M. Marsh
(INFORMATION ONLY)

158+28.00-351.00'
158+93.14'
0+00
257th Street
159+20.70-214.75'
159+23.61-99.78'
159+30.65-215.00'
159+31.00-336.00'
159+33.58-100.04'
159+53.00-313.00'

SE1/4 SE1/4 NE1/4

160+61-147' L to
159+87-87' L
Do Not Disturb
Private Drain Line

160+61-147' L to
159+75-104' L
Do Not Disturb
Private Drain Line

160+61-147' L
Do Not Disturb
Lift Station

NE1/4 SE1/4 SE1/4

xr159
PI 9+02.05
N 505957.84
E 2963549.61
Del 0°57'25" R
Dc 0°11'29"
T 250.01'
L 500.00'
R 29938.63'

ANDERSON'S ADDITION

TRACT 2

NE1/4

158+53-106' L
Begin Type 3
Fence

158+53
End Type 3
Fence

158+15.00-111.00'
158+57.72-100.62'

161+00 L to
162+50 L
Do Not Disturb
Lilac Bushes
outside of
Work limits

LIFT STATION MH

159+48.00-129.00'
159+59.00-170.00'
159+78.00-81.00'
160+34.00-116.00'
160+76.00-78.00'
160+99.00-90.00'

162+57 L
Begin Type 3
Fence

165+34.99-98.61'
165+35.91-73.21'
165+38.53
165+75.69-73.14'
165+76.00 103.00'

1/64 Line

165+75 L
End Type 3
Fence

End P-PT 0011(145)83
Station 165+75

1/16 Line

171+84.01

NE1/4 SE1/4

2 PP
3 PP

Present SD Hwy 11

209'

150'

150+00

Section Line

155+00

160+00

165+00

170+00

175+00

NW1/4 SW1/4

158+56-108' R
Begin Type 2
Fence

158+07.00-117.00'
158+23.39-108.72'
158+94.59-107.98'

159+27.42-74.14'
159+69.00-94.00'

161+51.00-88.00'

163+37 R
End Type 3
Fence

159+27 R
Begin Type 3
Fence

159+32 R
Begin Type 3
Fence

163+35.00-117.00'
163+83.00-117.00'
165+02.00-105.00'
165+75.00-103.00'
165+75.05-76.76'

Environmentally
Sensitive Site

TRACT 4

NW1/4

S1/2 SW1/4

Richard and Barbara Funke Irrevocable
Family Legacy Trust
Parcel 7

PI 158+93.67
N 505958.63
E 2963549.03
Del 1°26'36" R
Dc 0°07'42"
T 562.53'
L 1125.00'
R 44659.80'

158+53.66-497.56'

Section Line

33'

Thomas J. Soulek and Rita M. Soulek
Parcel A3

164+46-85' R
Do Not Disturb
Row of 4 Evergreen
Trees

Marvin Manifold Trust
Parcel A4

Barbara M. Marsh
(INFORMATION ONLY)

COBURN'S ADDITION

Richard A. Funke and Barbara N. Funke
Parcel 8

158+60-748' R
End Type 2
Fence

10'

158+00-51.66'

257th Street

159+31.89-682.18'
159+48.91-681.99'

Property Line 902.24 feet

Property Line 641.57 feet

159+32.35-744.74'
159+56.00-745.00'

Sec 2 - T102N - R48W

Sec 11 - T102N - R48W

End xr159
Station 16+00.00

158+37.00-747.00'
158+55.08-747.56'

Parcel 10
159+10.49 to 165+35.91 L
Temporary Easement containing
0.5 ac, more or less

Parcel A3
159+27.42 to 165+75.05 R
Temporary Easement containing
0.8 ac, more or less

Parcel A4
159+31.89 to 159+56.00 R
Temporary Easement containing
0.1 ac, more or less

Plot Scale - 1:200

Plotted From - TRSF12141

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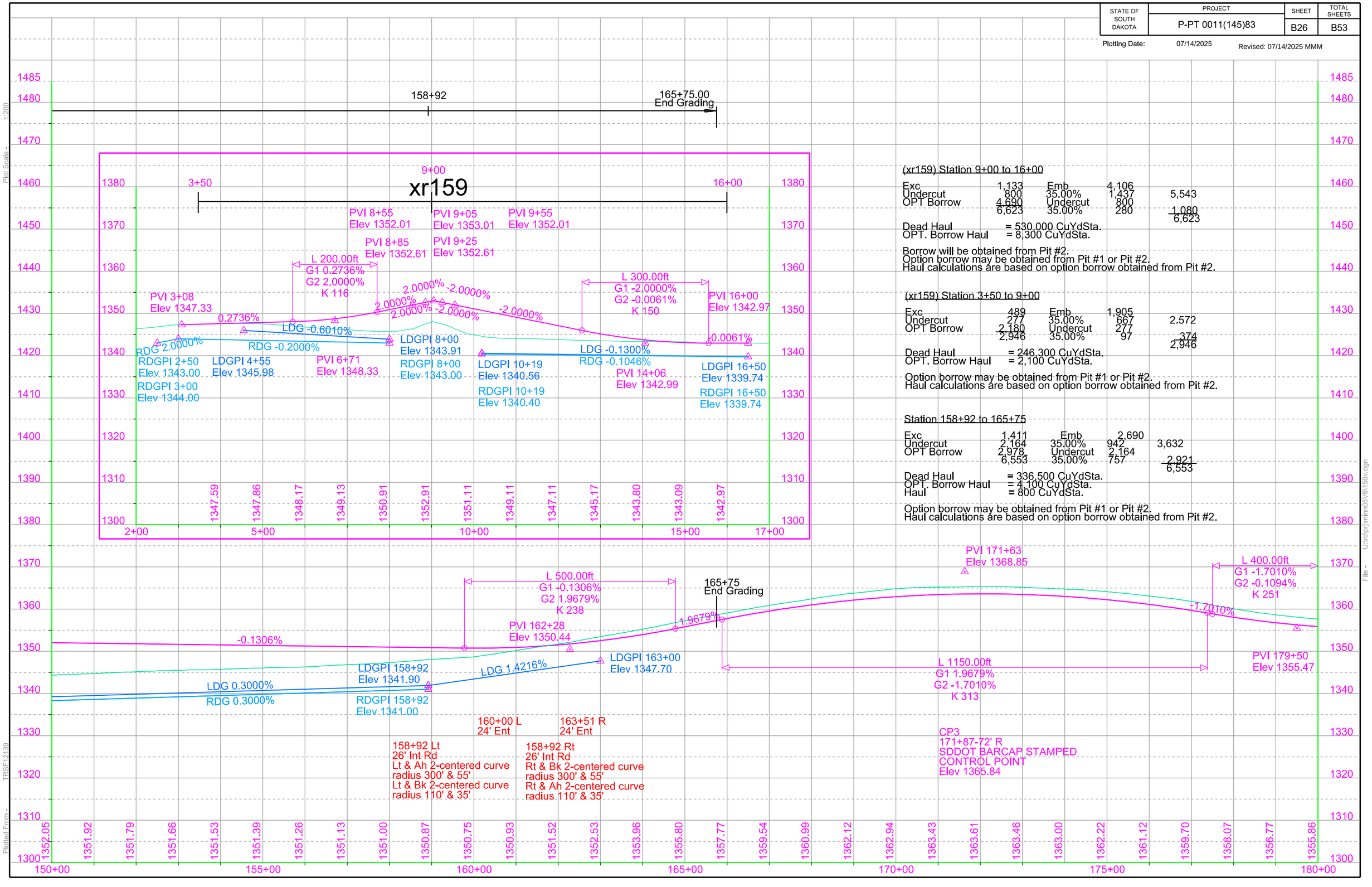
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B26	B53

Plotting Date: 07/14/2025 Revised: 07/14/2025 MMM



(xr159) Station 9+00 to 16+00

Exc	1,133	Emb	4,106		
Undercut	800	35.00%	1,437	5,543	
OPT Borrow	4,690	Undercut	800	1,080	
	6,623	35.00%	280	6,623	

Dead Haul = 530,000 CuYdSta.
OPT. Borrow Haul = 8,300 CuYdSta.

Borrow will be obtained from Pit #2.
Option borrow may be obtained from Pit #1 or Pit #2.
Haul calculations are based on option borrow obtained from Pit #2.

(xr159) Station 3+50 to 9+00

Exc	489	Emb	1,905		
Undercut	277	35.00%	667	2.572	
OPT Borrow	2,180	Undercut	277	374	
	2,946	35.00%	97	2,946	

Dead Haul = 246,300 CuYdSta.
OPT. Borrow Haul = 2,100 CuYdSta.

Option borrow may be obtained from Pit #1 or Pit #2.
Haul calculations are based on option borrow obtained from Pit #2.

Station 158+92 to 165+75

Exc	1,411	Emb	2,690		
Undercut	2,164	35.00%	942	3,632	
OPT Borrow	2,978	Undercut	2,164	2,921	
	6,553	35.00%	757	6,553	

Dead Haul = 336,500 CuYdSta.
OPT. Borrow Haul = 4,100 CuYdSta.
Haul = 800 CuYdSta.

Option borrow may be obtained from Pit #1 or Pit #2.
Haul calculations are based on option borrow obtained from Pit #2.

GUARDRAIL LAYOUT

Structure No. 50-280-139

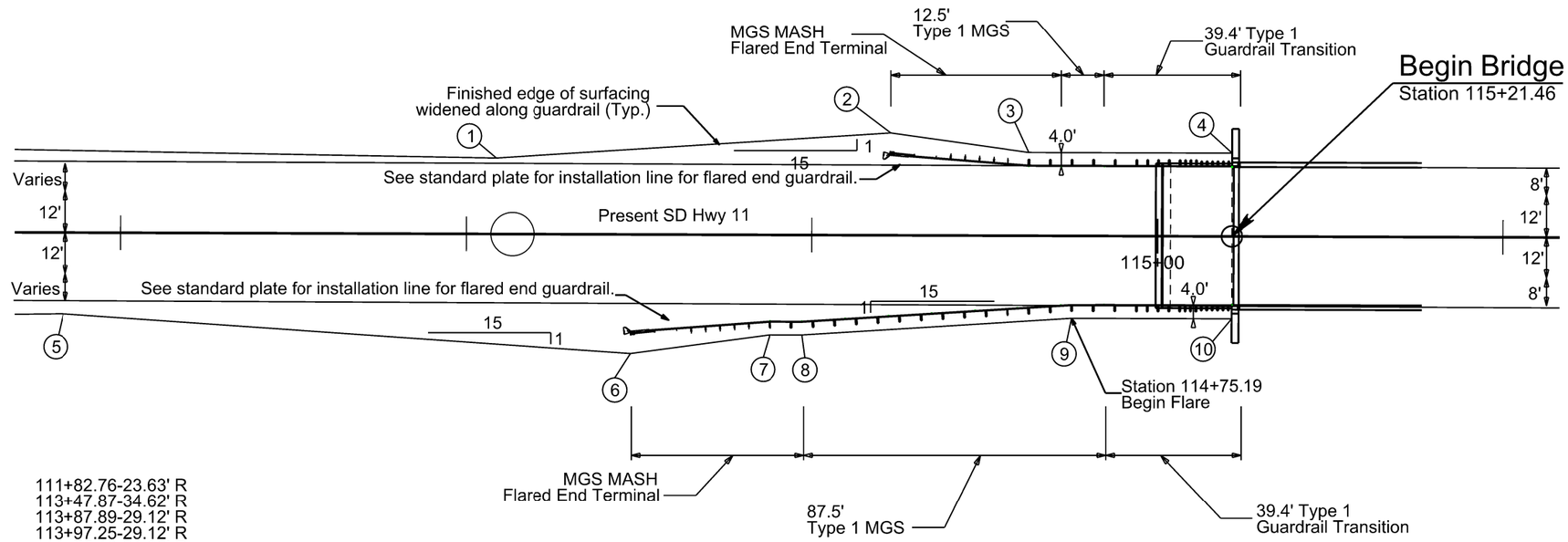
MRM 83.65+0.060

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B27	B53

Plotting Date: 07/11/2025 Revised: 7-11-2025 JWF

Plot Scale - 1:40

1 113+07.92-21.91' L
2 114+22.71-29.56' L
3 114+62.72-24.06' L
4 115+21.46-24.06' L



5 111+82.76-23.63' R
6 113+47.87-34.62' R
7 113+87.89-29.12' R
8 113+97.25-29.12' R
9 114+75.10-24.06' R
10 115+21.46-24.06' R

Install Steel Beam Guardrail and Flared End Terminals at the Following locations:
113+45.63 R to 115+23.96 R
114+20.46 L to 115+23.96 L

Plotted From - TRSF12139

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B28	B53

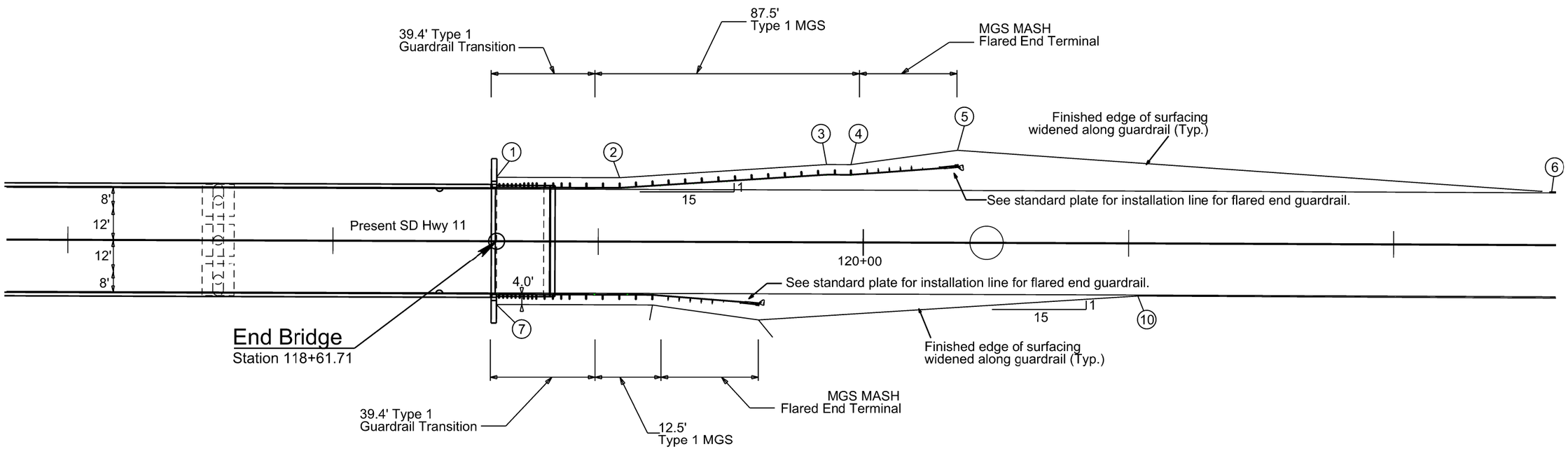
Plotting Date: 06/06/2025

GUARDRAIL LAYOUT

Structure No. 50-280-139

MRM 83.65+0.060

1	118+61.71-24.06' L
2	119+07.96-24.06' L
3	119+85.92-29.25' L
4	119+95.27-29.25' L
5	120+35.29-34.76' L
6	122+59.26-20.00' L



Install Steel Beam Guardrail and Flared End Terminals at the Following locations:
118+59.21 L to 120+37.53 L
118+59.21 R to 119+62.71 R

7	118+61.71-24.06' R
8	119+20.45-24.06' R
9	119+60.48-29.56' R
10	121+03.53-20.00' R

Plot Scale - 1:40

Plotted From - TRSF12144

File - U:\rdlprj\minn05V61118gr.dgn

GUARDRAIL LAYOUT

Structure No. 50-280-136

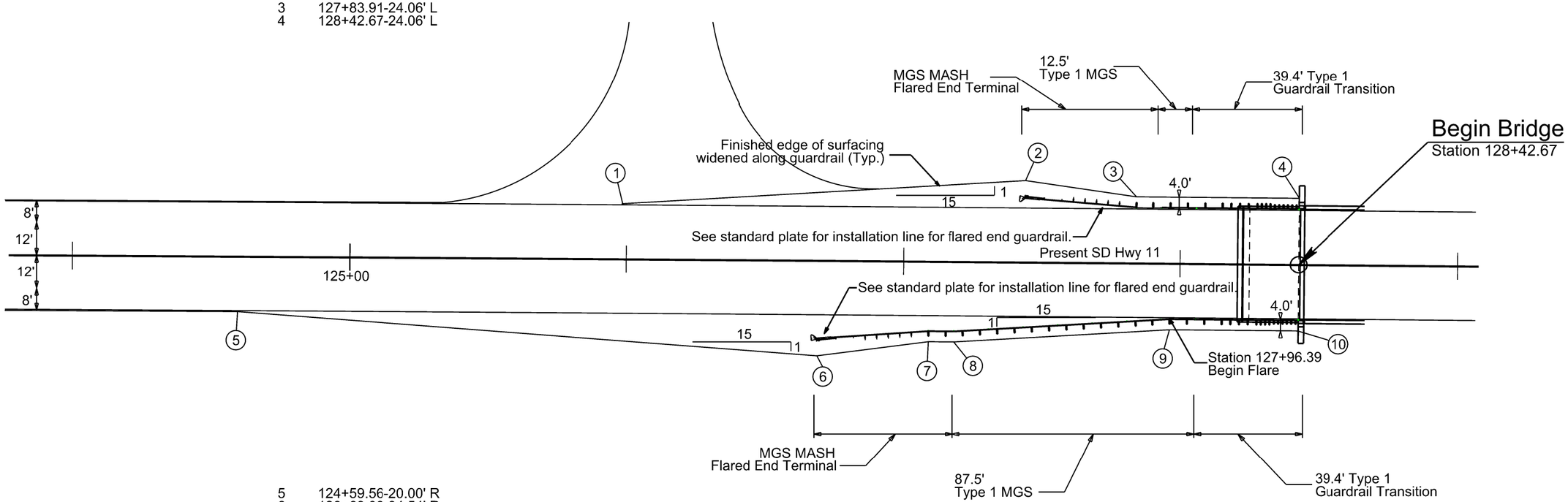
MRM 83.89+0.035

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B29	B53

Plotting Date: 06/06/2025

Plot Scale - 1:40

1	125+98.57-20.00' L
2	127+43.88-29.58' L
3	127+83.91-24.06' L
4	128+42.67-24.06' L



5	124+59.56-20.00' R
6	126+69.03-34.54' R
7	127+09.08-29.12' R
8	127+18.45-29.13' R
9	127+96.42-24.06' R
10	128+42.67-24.06' R

Install Steel Beam Guardrail and Flared End Terminals at the Following locations:
126+66.81 R to 128+45.17 R
127+41.69 L to 128+45.17 L

Plotted From - TRSF12144

File - U:\rdlpr\hmin05V61125gr.dgn

GUARDRAIL LAYOUT

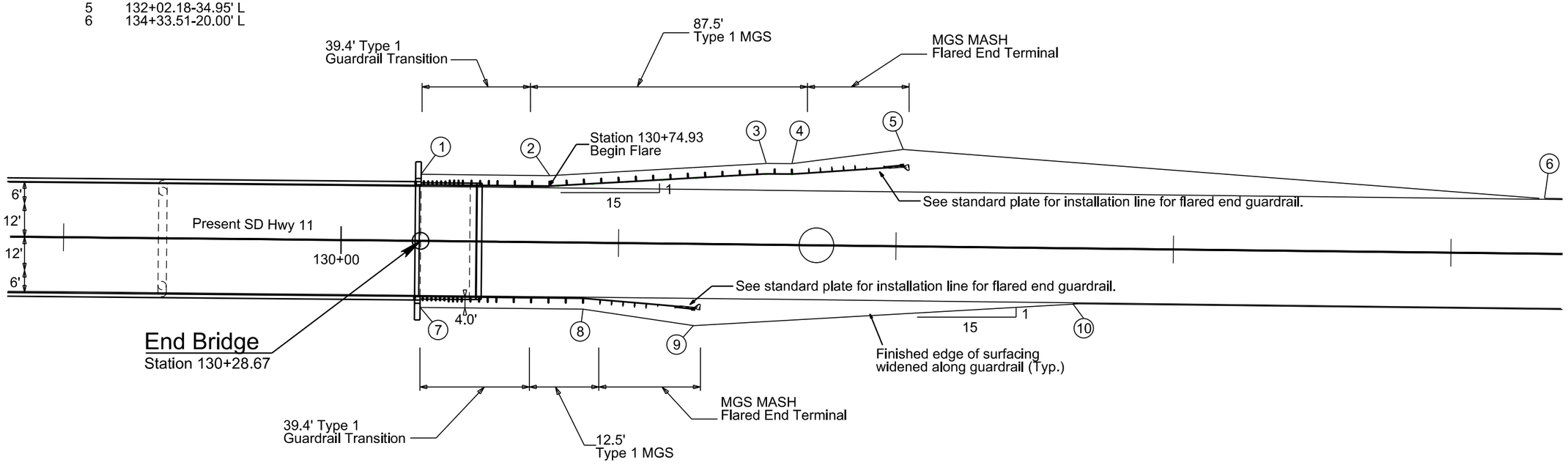
Structure No. 50-280-136

MRM 83.89+0.035

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B30	B53

Plotting Date: 06/06/2025

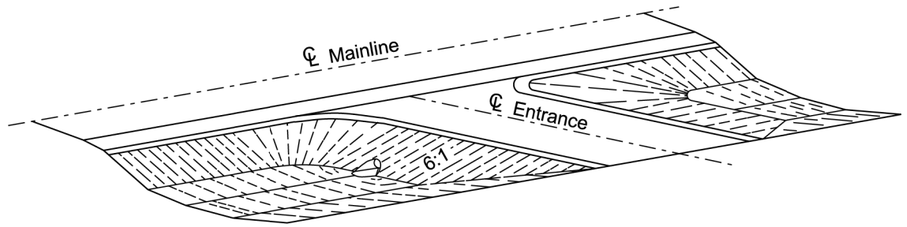
1 130+28.67-24.06' L
2 130+74.93-24.06' L
3 131+52.86-29.36' L
4 131+62.18-29.38' L
5 132+02.18-34.95' L
6 134+33.51-20.00' L



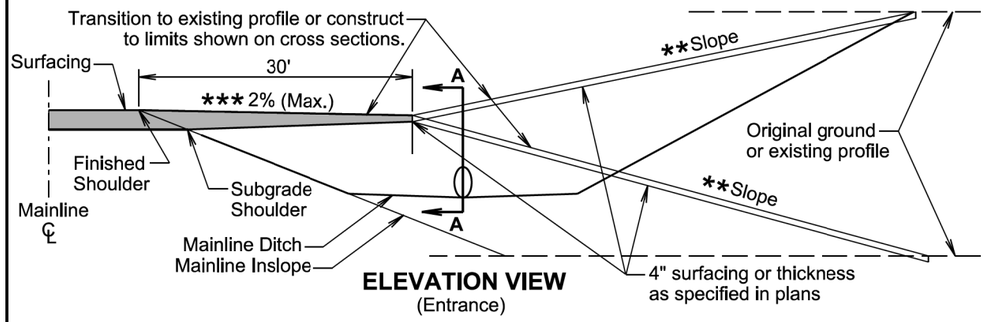
Install Steel Beam Guardrail and Flared End Terminals at the Following locations:
130+26.17 R to 131+29.68 R
130+26.17 L to 132+04.46 L

7 130+28.67-24.06' R
8 130+87.45-24.06' R
9 131+27.46-29.51' R
10 132+66.55-20.00' R

Plot Scale - 1:40
Plotted From - TRSF12144
File - U:\rdpr\minn05\61131gr.dgn



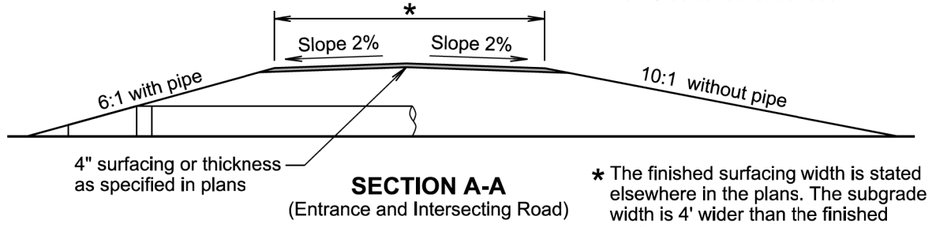
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A
(Entrance and Intersecting Road)

* 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 view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

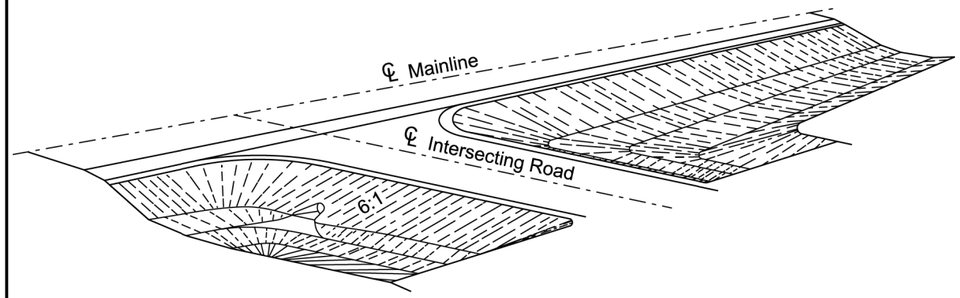
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

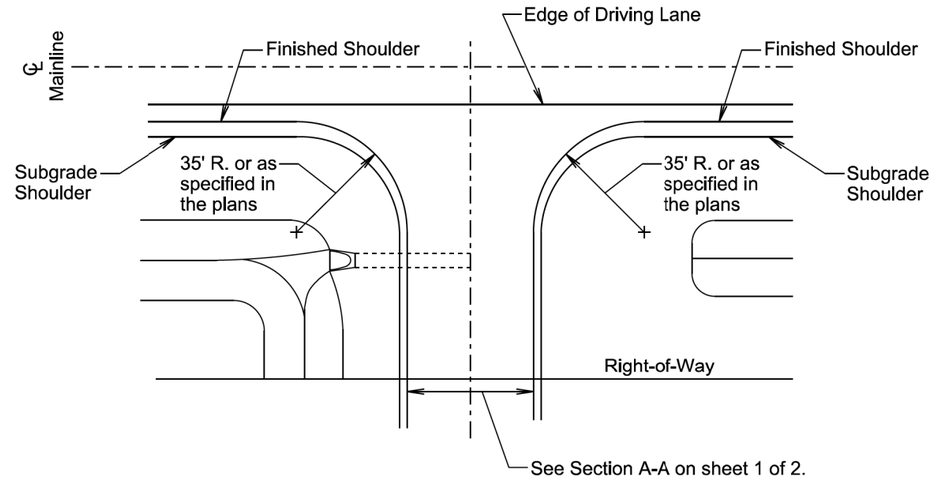
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



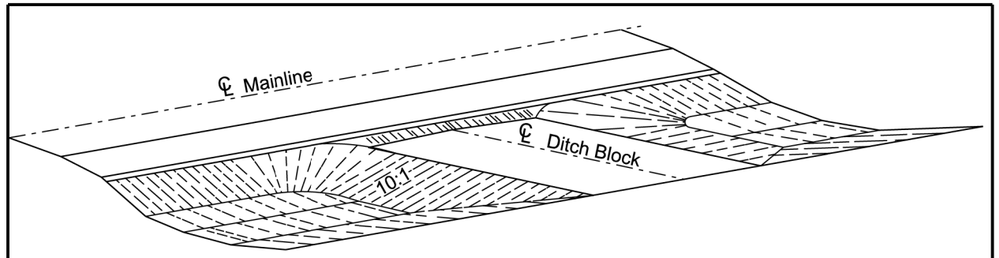
PLAN VIEW

GENERAL NOTES:

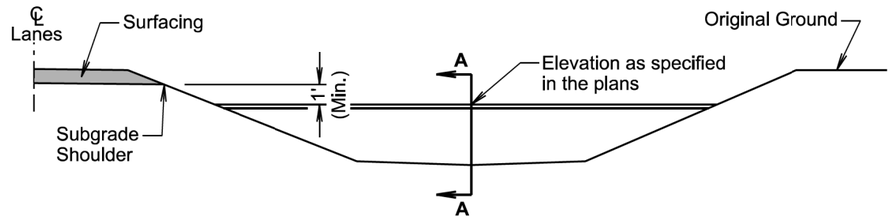
The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

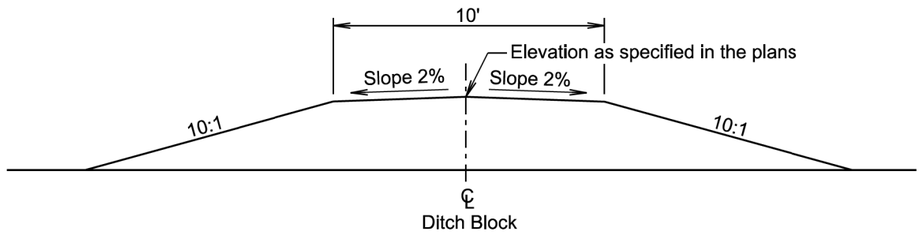
Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2



PERSPECTIVE OF DITCH BLOCK



ELEVATION VIEW



SECTION A-A

GENERAL NOTES:

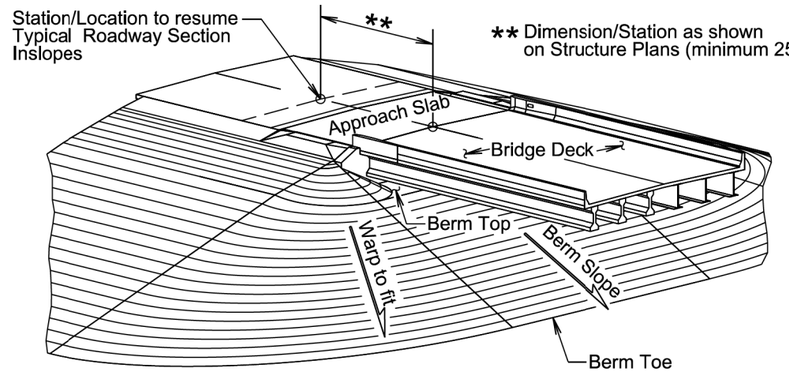
The ditch section shown above in the perspective and elevation view is only for illustrative purpose.

The inslopes of the ditch block will be 10:1 or as specified in the plans.

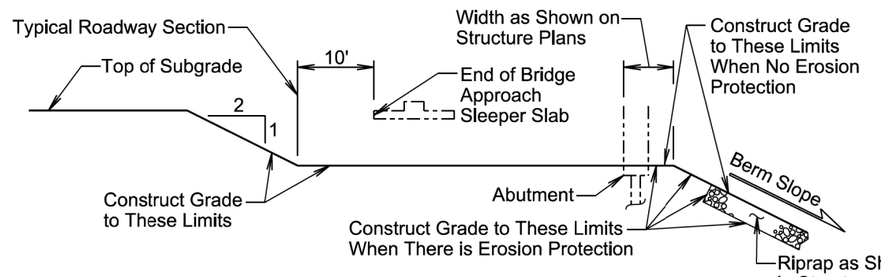
The transition area between the mainline inslope and the ditch block inslope will be rounded to eliminate an abrupt transition.

September 14, 2018

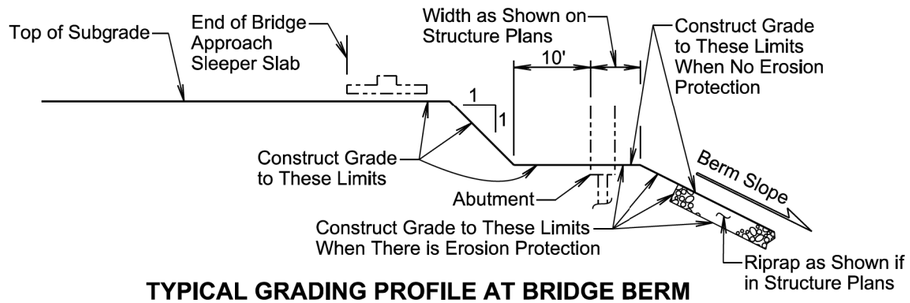
Published Date: 2026	SDDOT	***DITCH BLOCK***	***PLATE NUMBER 120.02***
			Sheet 1 of 1



ISOMETRIC VIEW OF BRIDGE BERM
(Girder Bridge shown, others similar)



TYPICAL GRADING PROFILE AT BRIDGE BERM
(Normal to ℄ Abutment at ℄ Roadway)



TYPICAL GRADING PROFILE AT BRIDGE BERM
(Normal to ℄ Abutment at ℄ Roadway)

GENERAL NOTES:

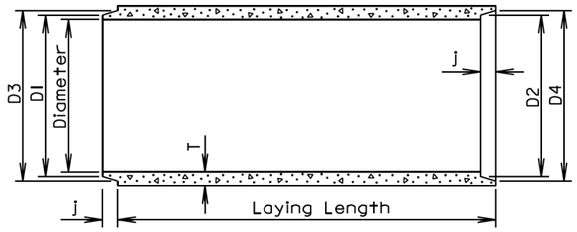
The bridge berm elevation and slope will be as shown in the Structure Plans.
See Structure Plans to determine which grading profile to use.

January 22, 2021

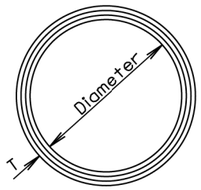
Published Date: 2026	SDDOT	***BRIDGE BERM (PROJECTING EMBANKMENT)***	***PLATE NUMBER 120.11***
			Sheet 1 of 1

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:

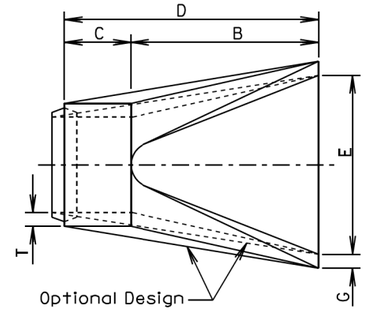
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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.

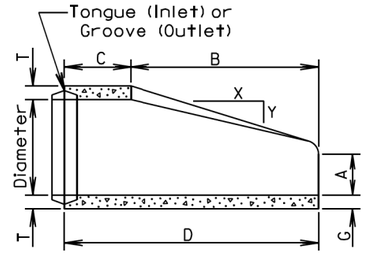
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	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 7/8	58 3/8	59 3/8	59 7/8
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

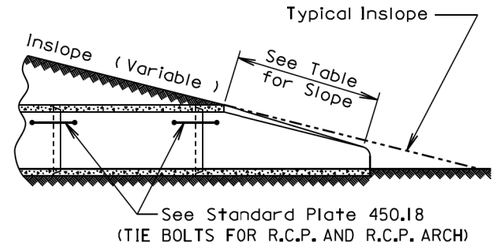
Published Date: 2026	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



TOP VIEW



LONGITUDINAL SECTION

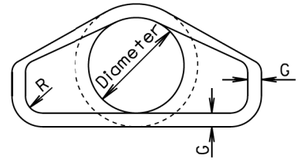


SLOPE DETAIL

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.



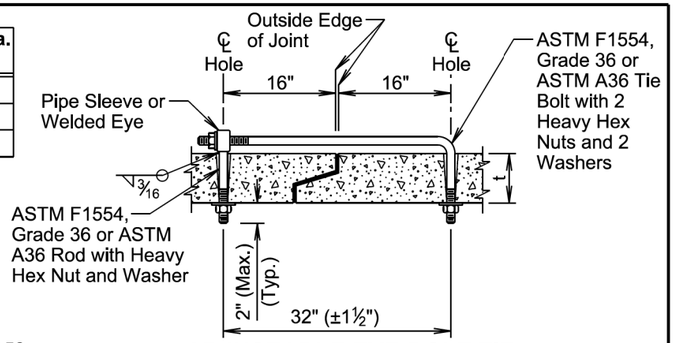
END VIEW

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 7/8	72 7/8	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: 2026	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½-6½	¾	1
≥ 7	1	1¼



ADJUSTABLE EYE BOLT TIE

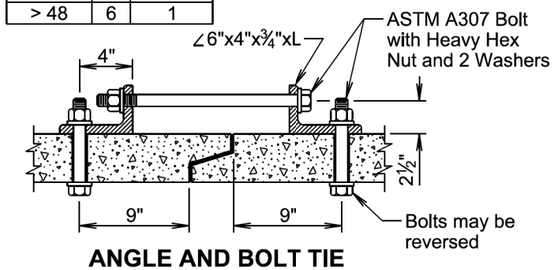
GENERAL NOTES:

Tie bolts will conform to ASTM F1554, Grade 36 or ASTM A36. Nuts will be heavy hex conforming to ASTM A563. Washers will conform to ASTM F436.

Pipe Sleeve will conform to ASTM A53, Grade B or ASTM A500, Grade B or C.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



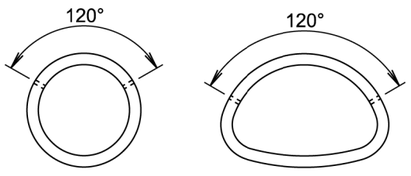
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles will conform to ASTM A36.

Bolts will conform to ASTM A307. Nuts will be heavy hex conforming to ASTM A563. Washers will conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW (Circular)

END VIEW (Arch)

GENERAL NOTES:

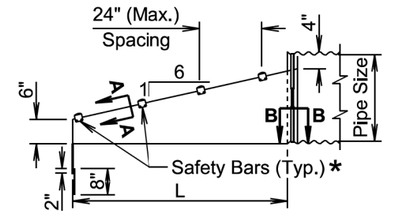
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch will be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manholes, and junction boxes will be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts will be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

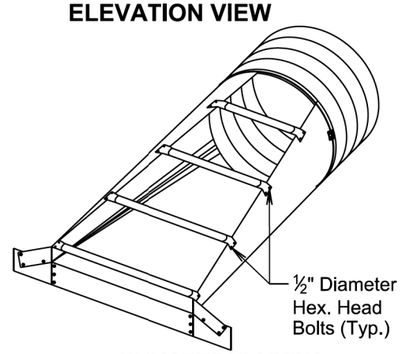
April 8, 2025

Published Date: 2026	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1

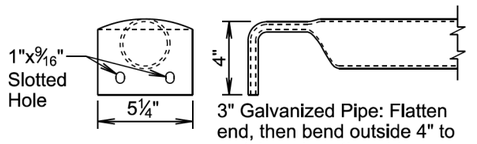


* Number of bars required will vary depending on the length of the end section.

ELEVATION VIEW

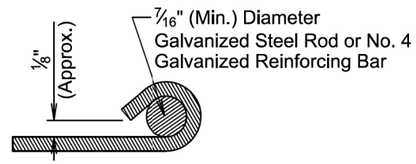


ISOMETRIC VIEW

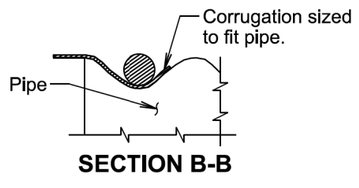


3" Galvanized Pipe: Flatten end, then bend outside 4" to match end section sides.

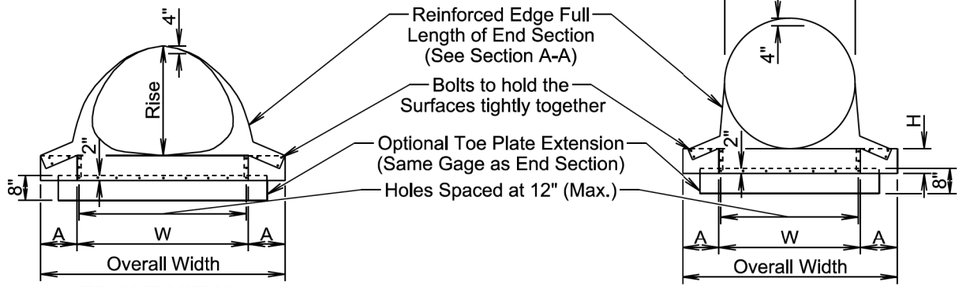
DETAIL OF SAFETY BARS



SECTION A-A

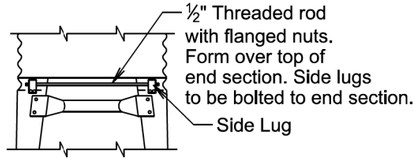


SECTION B-B

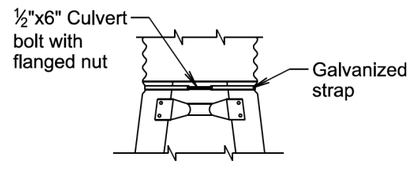


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21"x15" and Larger)



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

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS										
Equlv. Dia. (Inch)	(Inches)		(Min.) Thick.		Dimensions (Inches)				L Dimensions	
	Span	Rise	Inch	Gage	A	H	W	Overall Width	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.		Dimensions (Inches)				L Dimensions	
	Inch	Gage	A	H	W	Overall Width	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 bars will be provided when specified in the plans.

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

Safety bars will 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 or C.

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

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

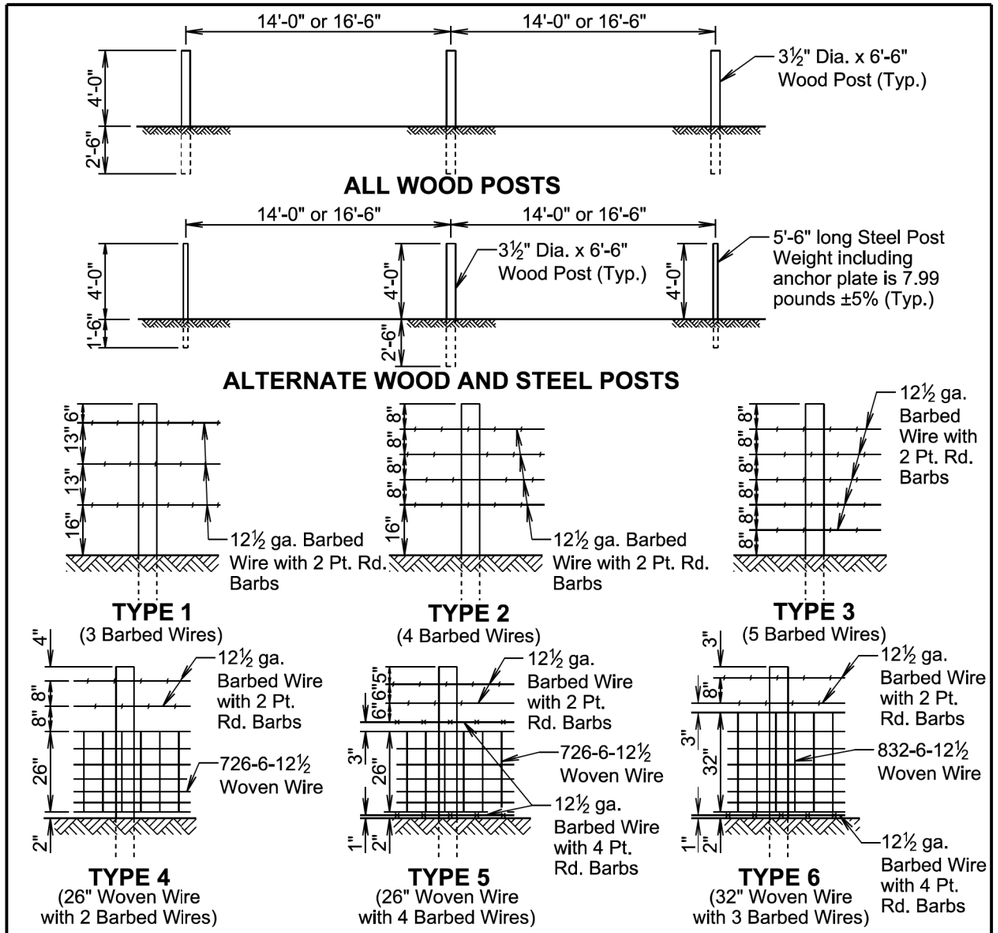
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

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

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2



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:

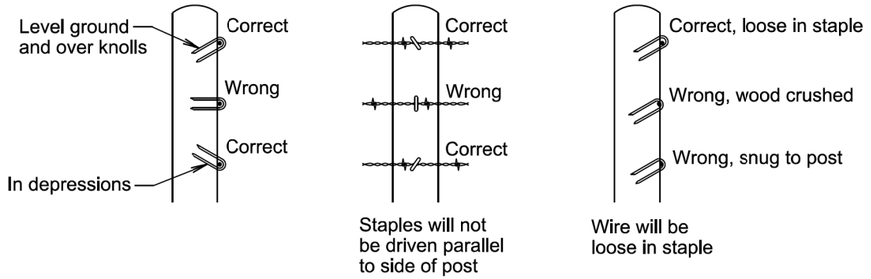
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

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

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

April 8, 2025

Published Date: 2026	SDDOT	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
			Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will 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 will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

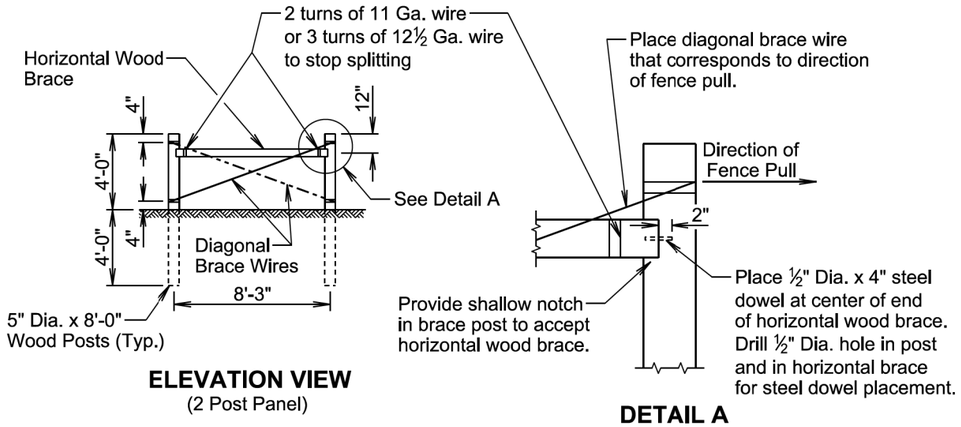
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch 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 will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

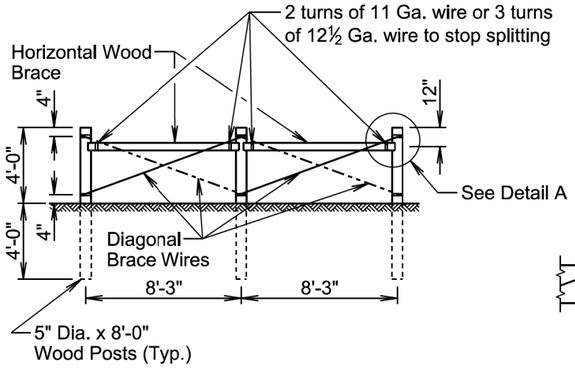
June 26, 2019

Published Date: 2026	SDDOT	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02 Sheet 1 of 1

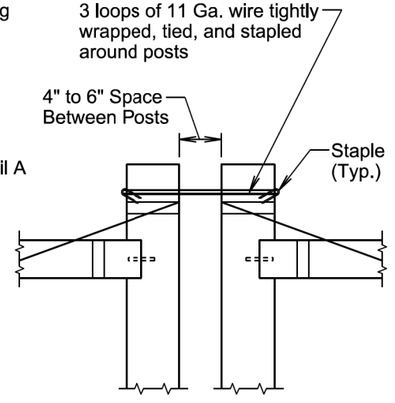


ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)



DETAIL B

GENERAL NOTES:

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

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

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

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

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03 Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	** At P.C., P.T., and at every 1320' between P.C. and P.T.

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

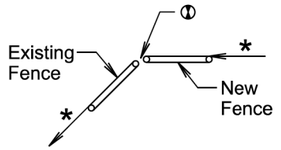
① See Detail B on Sheet 1 of 3.

GENERAL NOTE:

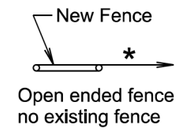
All radius of curvature stated for fence are at centerline of roadway.

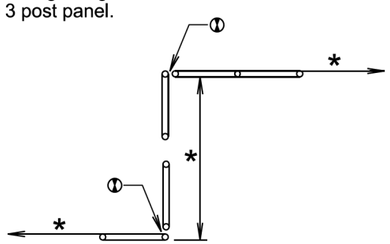
If fence length is less than 600' to next corner use a 2 post panel.

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

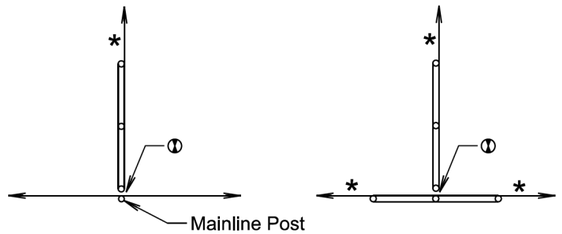


BEGIN OR END FENCE
(Where new fence ties into existing fence)

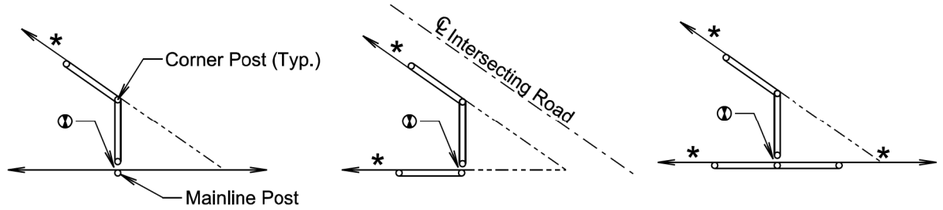




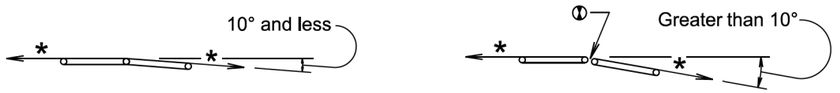
SHORT JOGS IN FENCE



CROSS FENCE



SHARP ANGLES IN CROSS FENCE



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

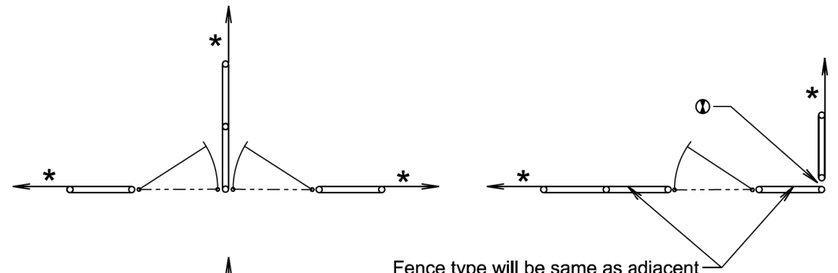
Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

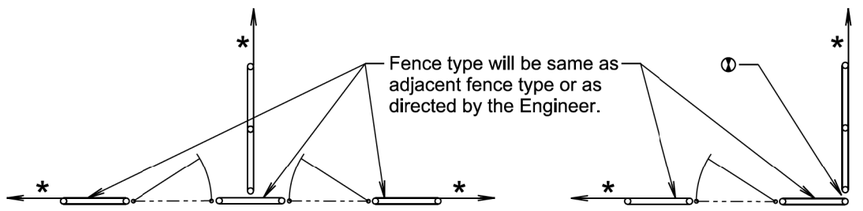
March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03 Sheet 2 of 3

ENTRANCE
(Not on corner)



Fence type will be same as adjacent fence type or as directed by the Engineer.



DOUBLE ENTRANCES

ENTRANCES AT CORNERS

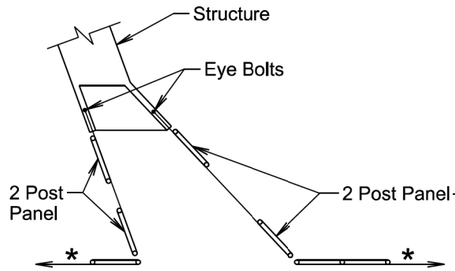
GATES

* 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.

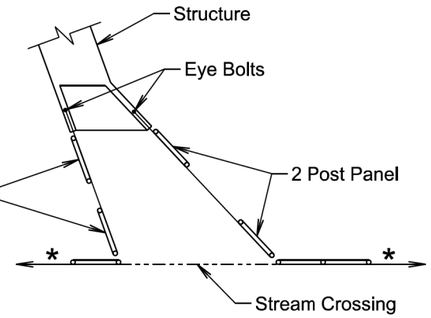
① See Detail B on Sheet 1 of 3.

March 31, 2024

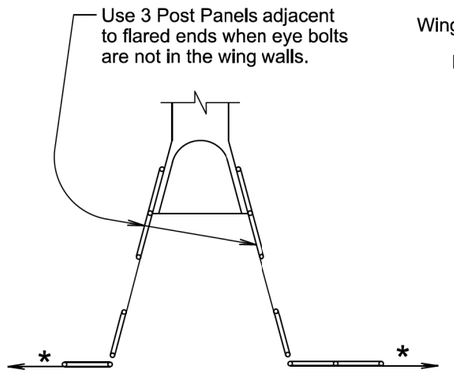
Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03 Sheet 3 of 3



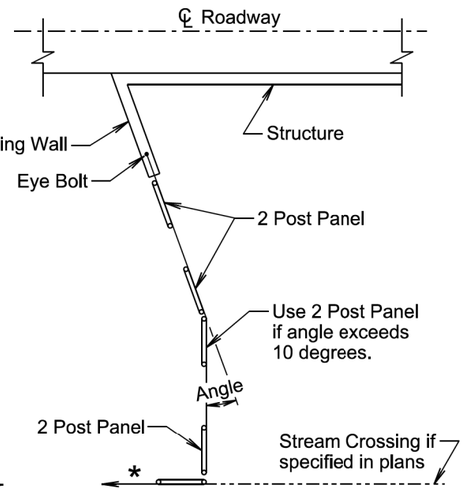
R.C. BOX CULVERT OR CATTLE PASS



STRUCTURE WITH STREAM CROSSING FENCE



R.C. BOX CULVERT OR CATTLE PASS

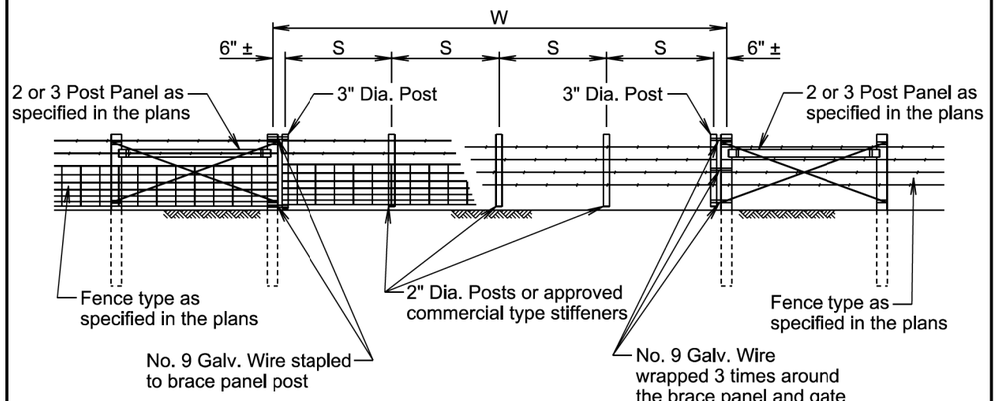


BRIDGE

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

June 26, 2019

Published Date: 2026	SDDOT	BRACE PANEL APPLICATIONS AT STRUCTURES	PLATE NUMBER 620.04 Sheet 1 of 1



ELEVATION VIEW

W Gate Width (Ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

GENERAL NOTES:

Creosote treatment of the gate posts will not be accepted.

The type of fencing in the gate will be of the same type as specified for the adjacent Right-of-Way fence.

All costs for furnishing and constructing the wire gate(s) will be incidental to the contract unit price per foot for the respective Right-of-Way fence contract item.

June 26, 2019

Published Date: 2026	SDDOT	WIRE GATES	PLATE NUMBER 620.20 Sheet 1 of 1

TYPE AND DETAILS OF MGS						
Type of MGS	W Beam Rail Single or Double (Nested)	Blockout Size	Blockout Material	Post Size	Post Material	Post Spacing
1	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"
1C	Single	6"x12"x14"	Wood	6"x8"x7'-6"	Wood	6'-3"
2	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	3'-1½"
3	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	1'-6¾"
4	Double	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"

STANDARD PLATE REFERENCE	
Type of MGS	See Standard Plate(s)
1	630.20, 630.22
1C	630.20, 630.25
2	630.20
3	630.20
4	630.20

GENERAL NOTES:

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

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

Topsoil is not shown in the transverse section drawing on sheet 2 of 6.

All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

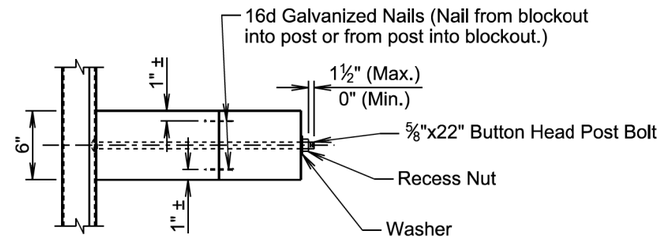
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

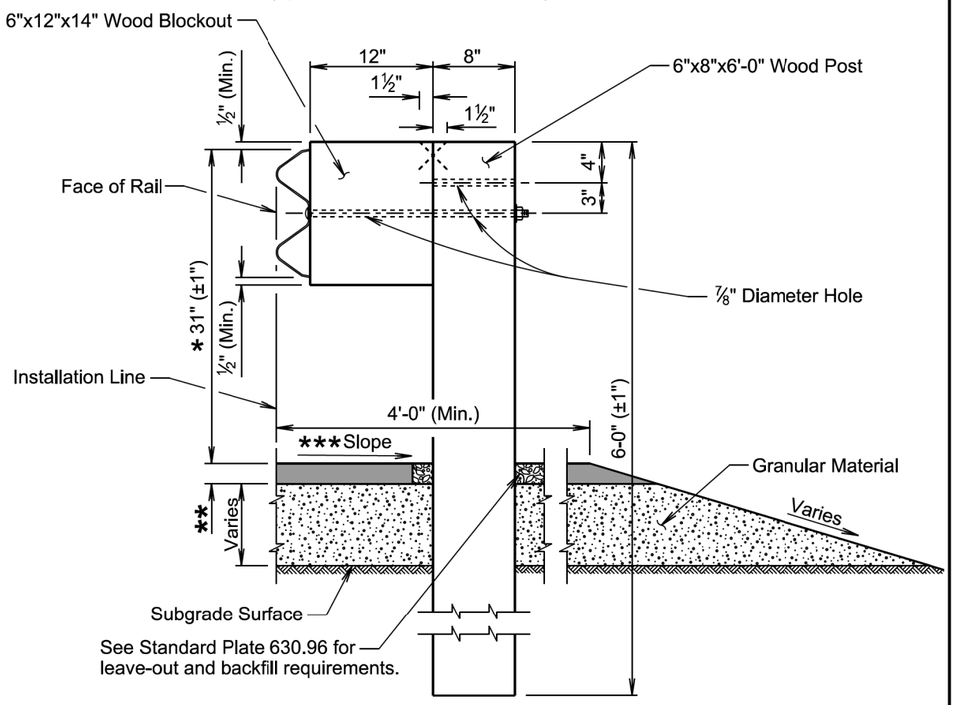
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20 Sheet 1 of 6



TOP VIEW
(Type 1, 2, or 3 MGS Installation)



TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

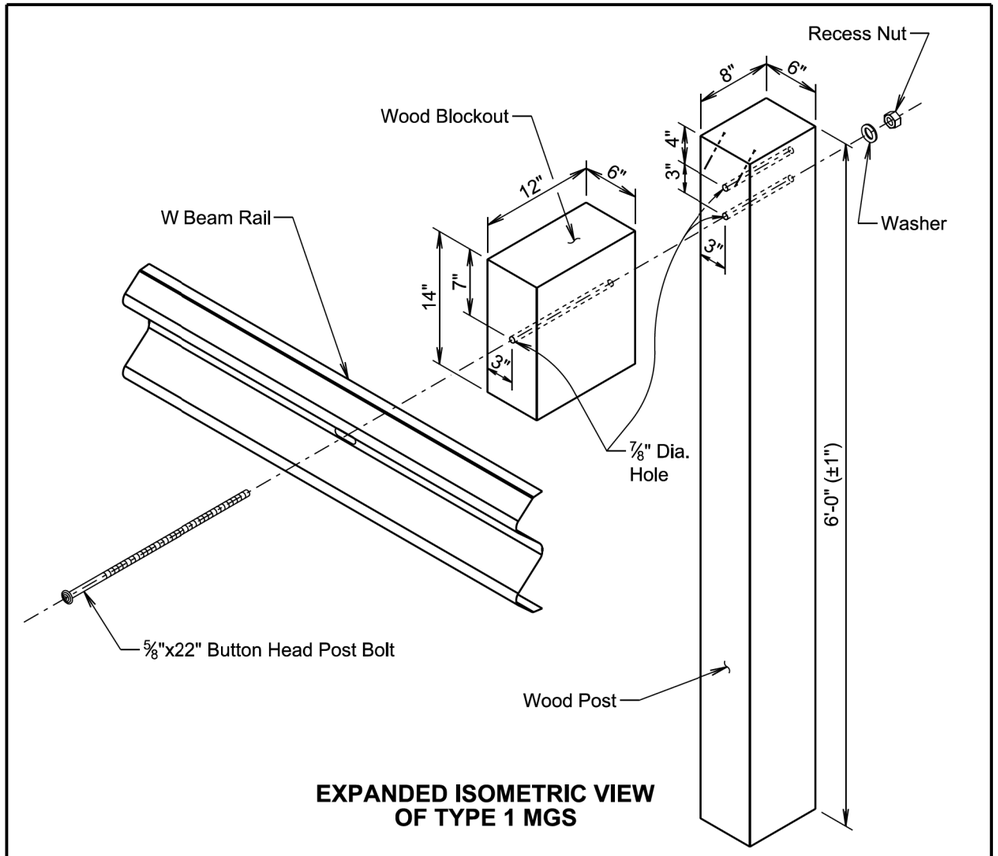
* See Standard Plate 630.99

** 2" asphalt concrete or as specified in the plans.

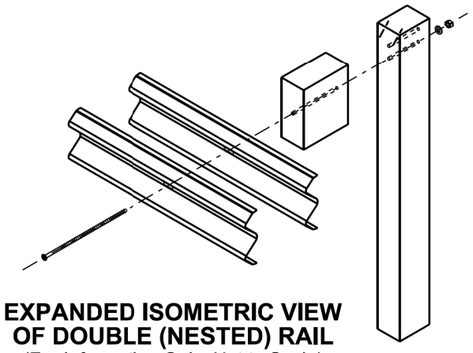
*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 2 of 6



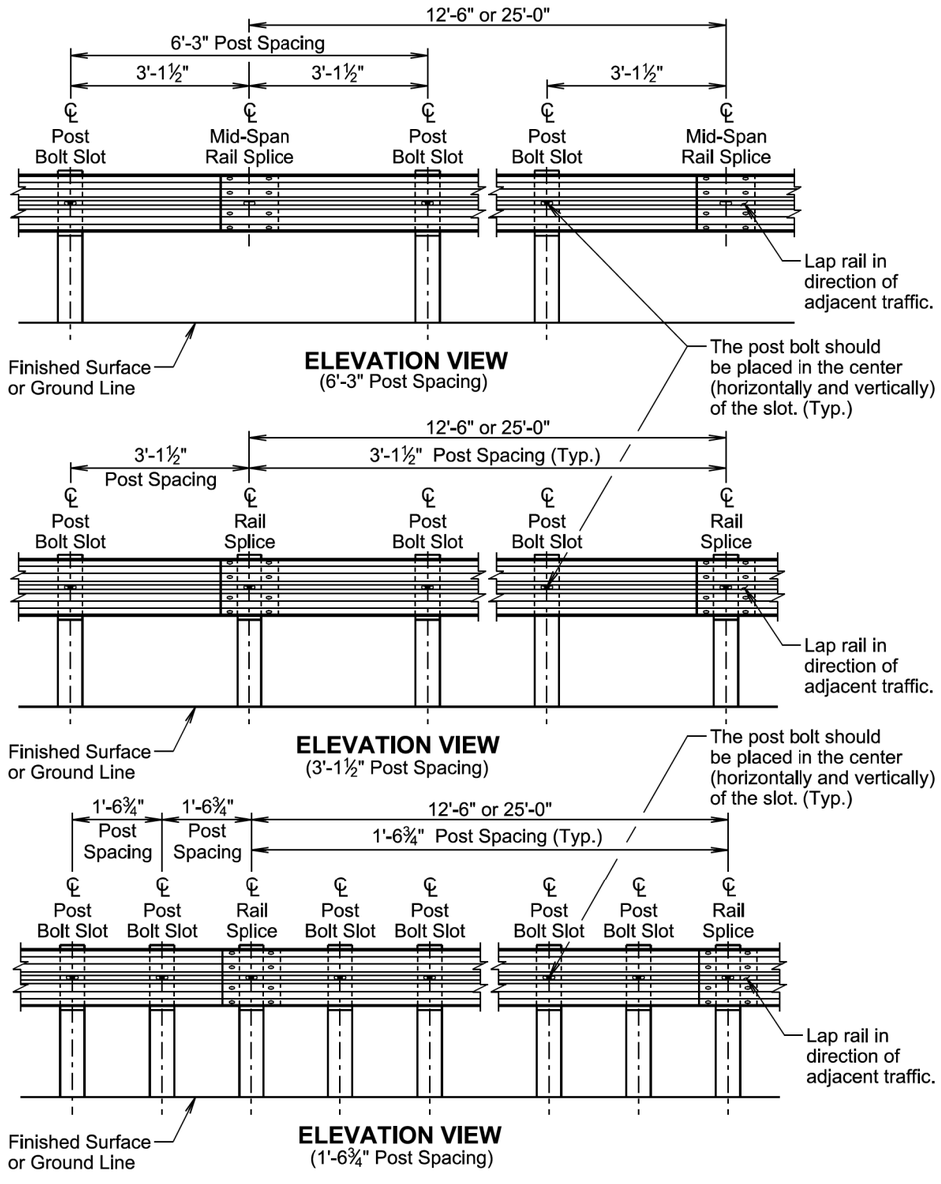
EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS



EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) RAIL
(For Information Only, Not to Scale)

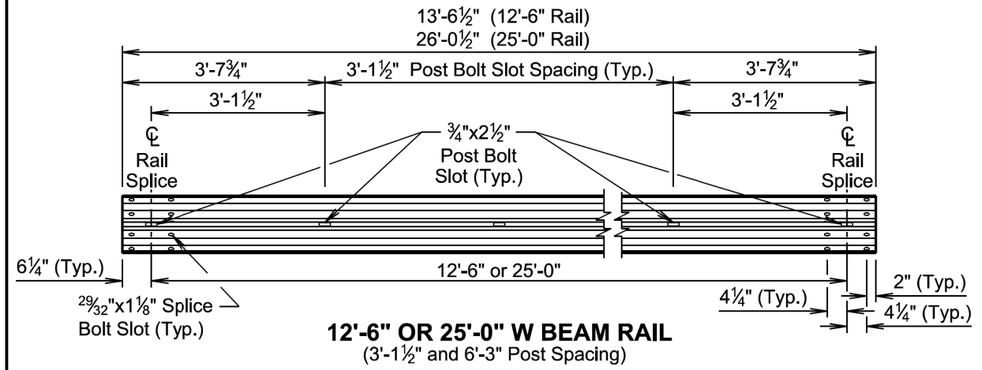
April 8, 2025

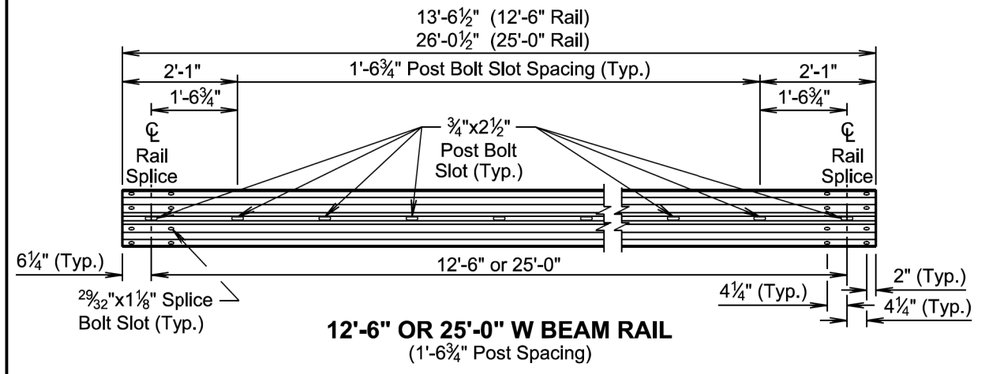
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 3 of 6



April 8, 2025

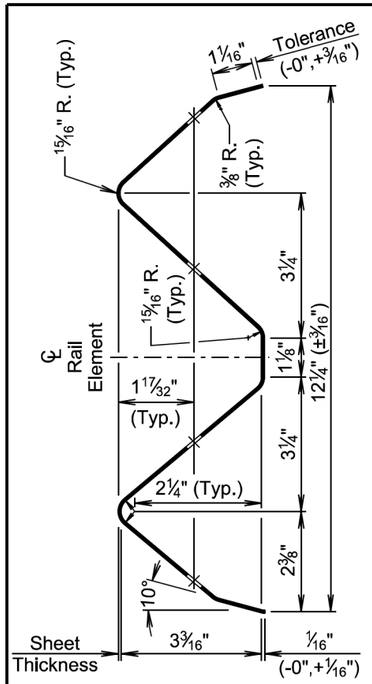
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 4 of 6



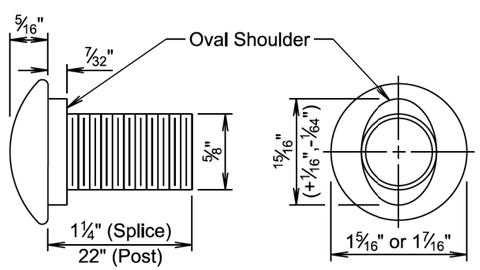


April 8, 2025

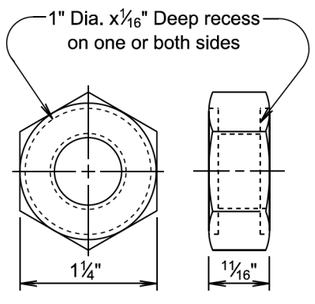
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



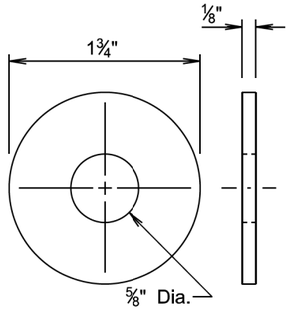
SECTION THROUGH W BEAM RAIL



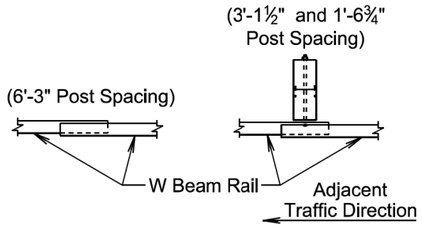
SPLICE BOLT AND POST BOLT
(5/8" Button Head Bolt)



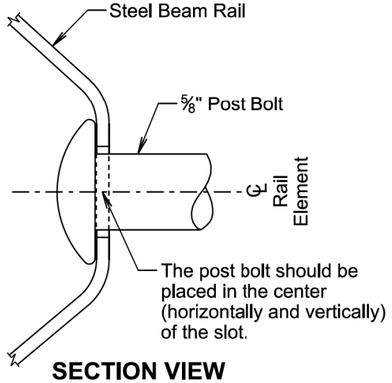
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 2 and 3.)



PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(8 splice bolts and 8 recess nuts per splice, NO washers)

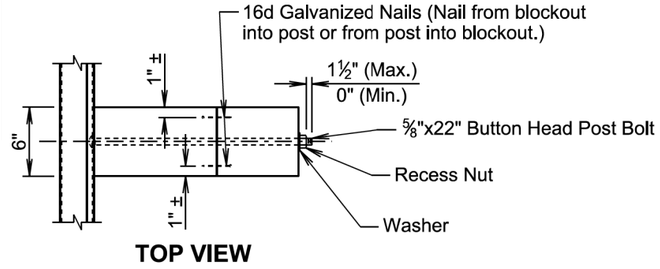


SECTION VIEW
(At Post Bolt)

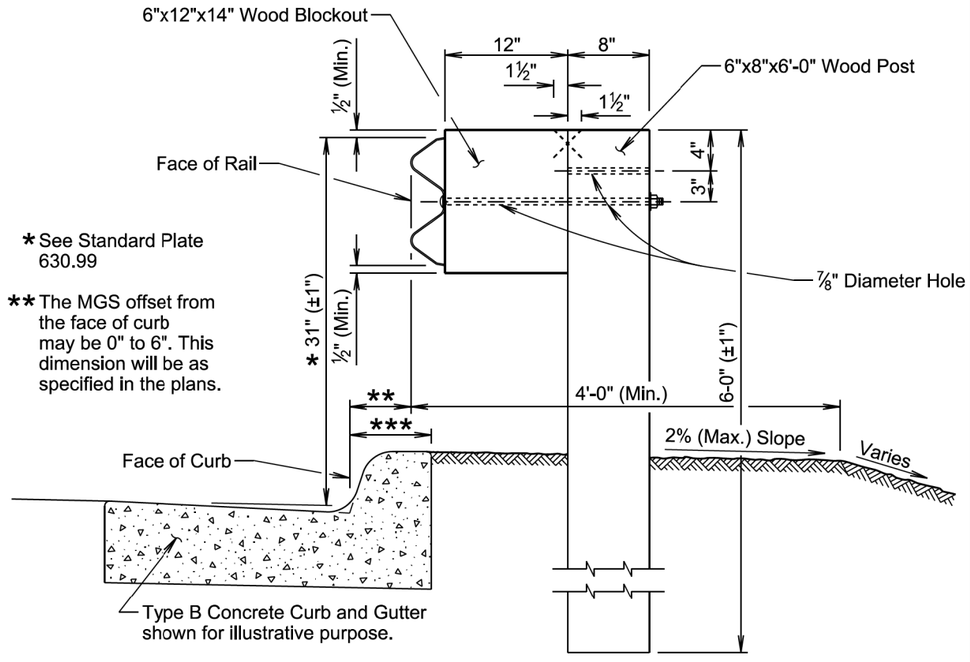
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 6 of 6

CONCRETE CURB AND GUTTER TYPE	DIMENSION *** (in.)
B and BL	8
D	12
F and FL	10
R	11



TOP VIEW



TRANSVERSE SECTION

* See Standard Plate 630.99

** The MGS offset from the face of curb may be 0" to 6". This dimension will be as specified in the plans.

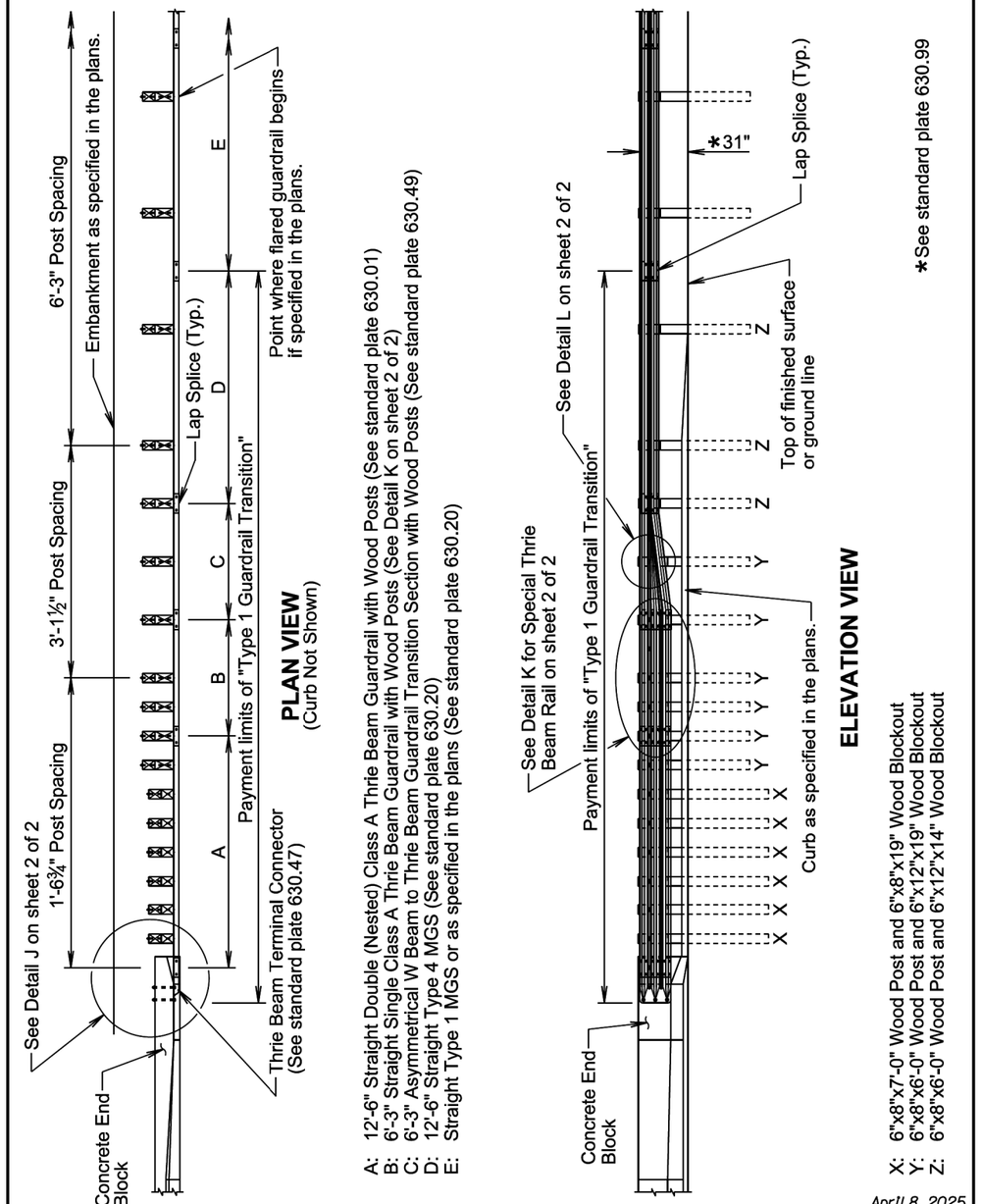
GENERAL NOTES:

The guardrail on this standard plate is Type 1 MGS. See standard plate 630.20 for specifications regarding Type 1 MGS.

When PCC pavement or asphalt concrete pavement is adjacent to the post, see standard plate 630.96 for leave-out and backfill requirements.

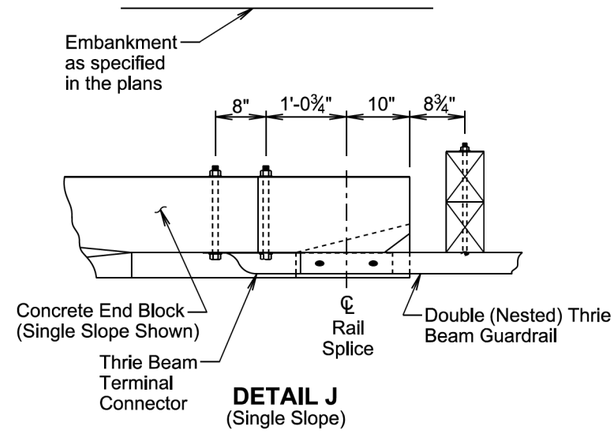
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS) AT CURB AND GUTTER	PLATE NUMBER 630.22
			Sheet 1 of 1

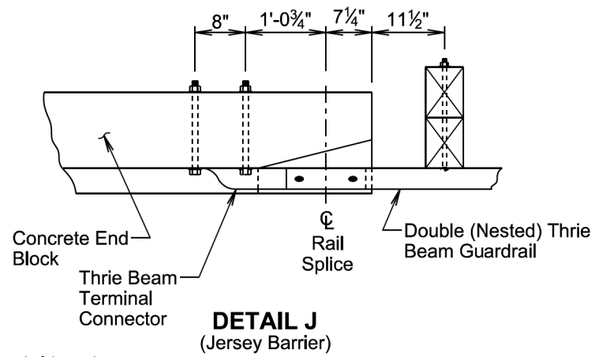


April 8, 2025

Published Date: 2026	SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 1 of 3

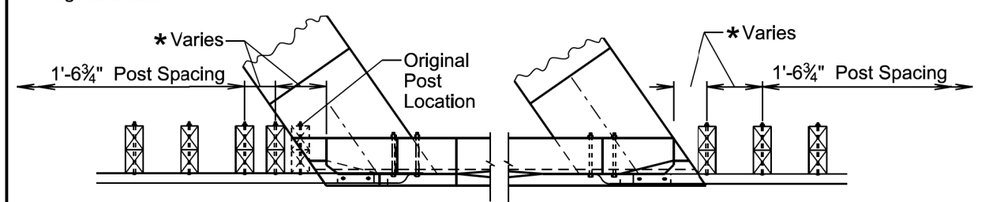


DETAIL J
(Single Slope)



DETAIL J
(Jersey Barrier)

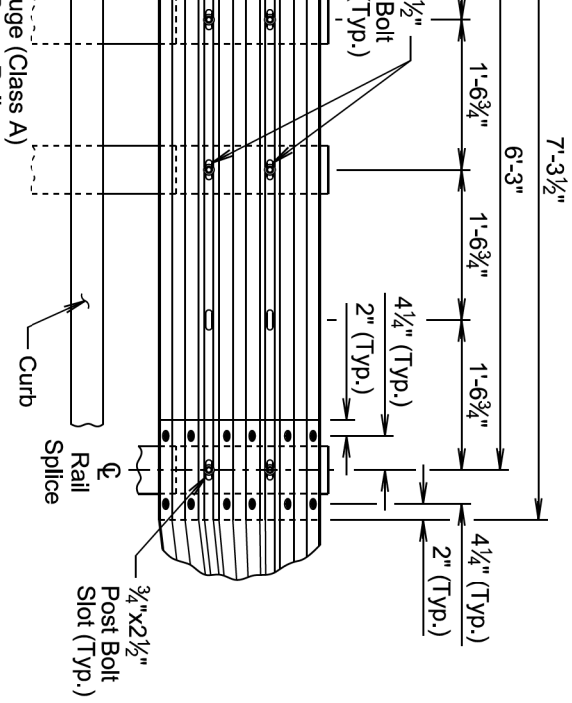
*Due to the skew of the bridge, the placement of the first "X" post and blockout will need to be moved from the original location. It will need to be installed as close as possible to the wingwall provided that the second "X" post and blockout is located in it's original location.



DETAIL J
(Skewed Bridge)

April 8, 2025

Published Date: 2026	SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 2 of 3



DETAIL L

DETAIL K
(Special Thrie Beam Rail)

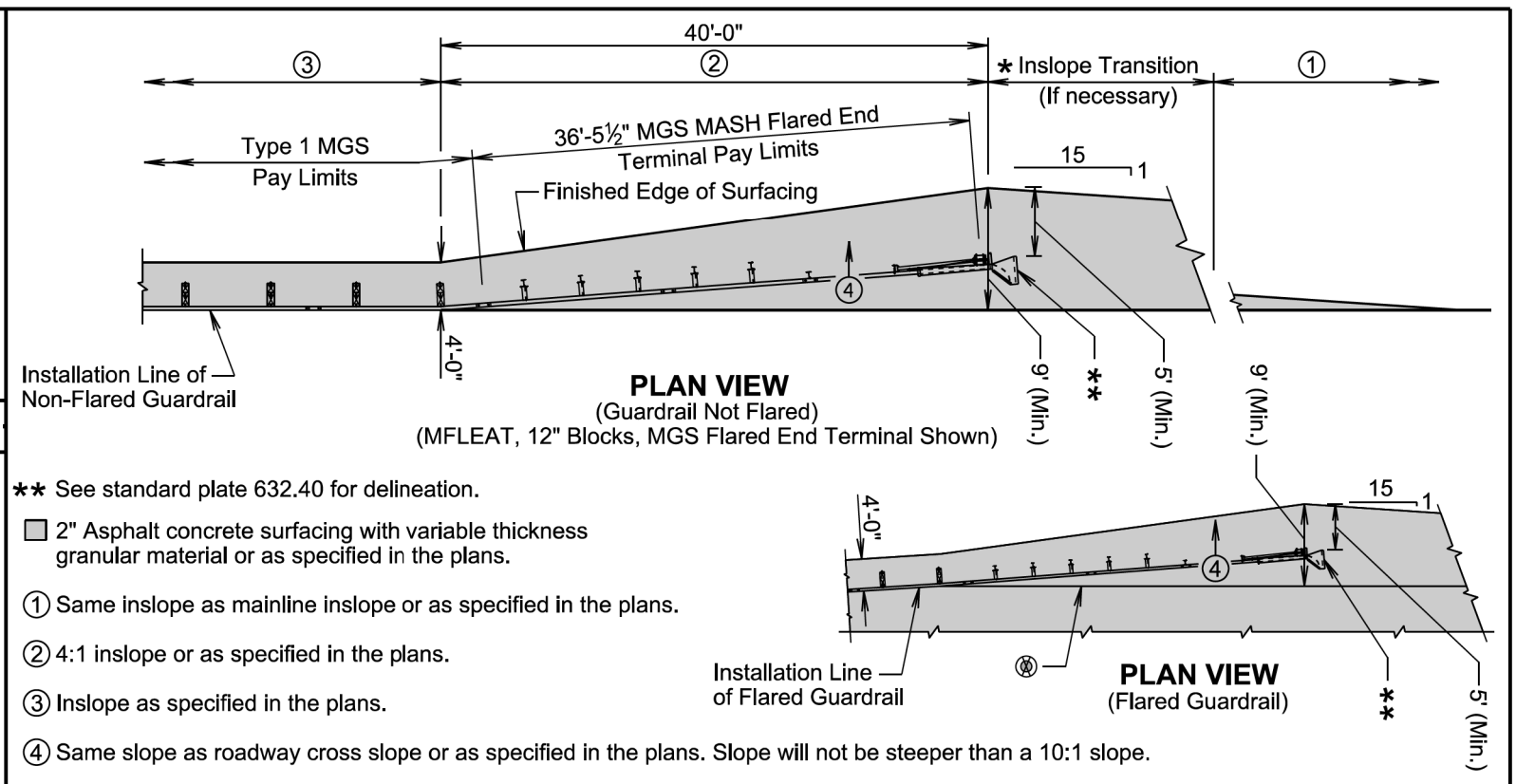
GENERAL NOTES:

Throughout the type 1 guardrail transition, slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for furnishing and installing the type 1 guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Guardrail Transition".

April 8, 2025

SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))
Published Date: 2026	PLATE NUMBER 630.50
	Sheet 3 of 3



PLAN VIEW
(Guardrail Not Flared)
(MFLEAT, 12" Blocks, MGS Flared End Terminal Shown)

PLAN VIEW
(Flared Guardrail)

** See standard plate 632.40 for delineation.

▭ 2" Asphalt concrete surfacing with variable thickness granular material or as specified in the plans.

① Same inslope as mainline inslope or as specified in the plans.

② 4:1 inslope or as specified in the plans.

③ Inslope as specified in the plans.

④ Same slope as roadway cross slope or as specified in the plans. Slope will not be steeper than a 10:1 slope.

GENERAL NOTES:

The flared guardrail end terminals above are for illustrative purpose only.

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100 feet 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 feet. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200 feet.

Ⓜ The installation reference line for flared guardrail end terminals will always be parallel to the roadway.

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

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

April 8, 2025

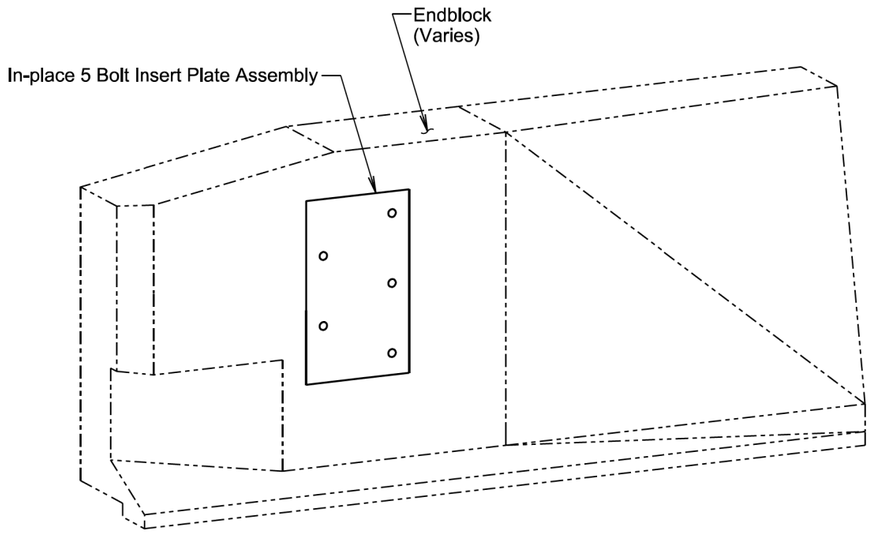
SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL
Published Date: 2026	PLATE NUMBER 630.87
	Sheet 1 of 2

Plotting Date: 06/06/2025

STATE OF SOUTH DAKOTA	PROJECT P-PT 0011(145)83
SHEET	B44
TOTAL SHEETS	B53

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B45	B53

Plotting Date: 07/14/2025 Revised: 07/14/2025 MMM



ISOMETRIC VIEW

GENERAL NOTES:

Bolts, nuts, and washers are furnished with each new assembly. Where guardrail is to be reset, bolts will be salvaged and reset for guardrail installation. Any hardware damaged or lost from the Contractor's operation will be replaced at no additional cost to the State.

New bolts, if required, will be galvanized and conform to the requirements of ASTM A307, F3125 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

Bolt heads will be placed on the traffic side of the endblock. Bolt projection at the back side of the insert will not exceed 1 inch beyond the nut.

All costs for salvaging, resetting, and refurnishing lost hardware will be incidental to the contract unit price for the respective guardrail contract item.

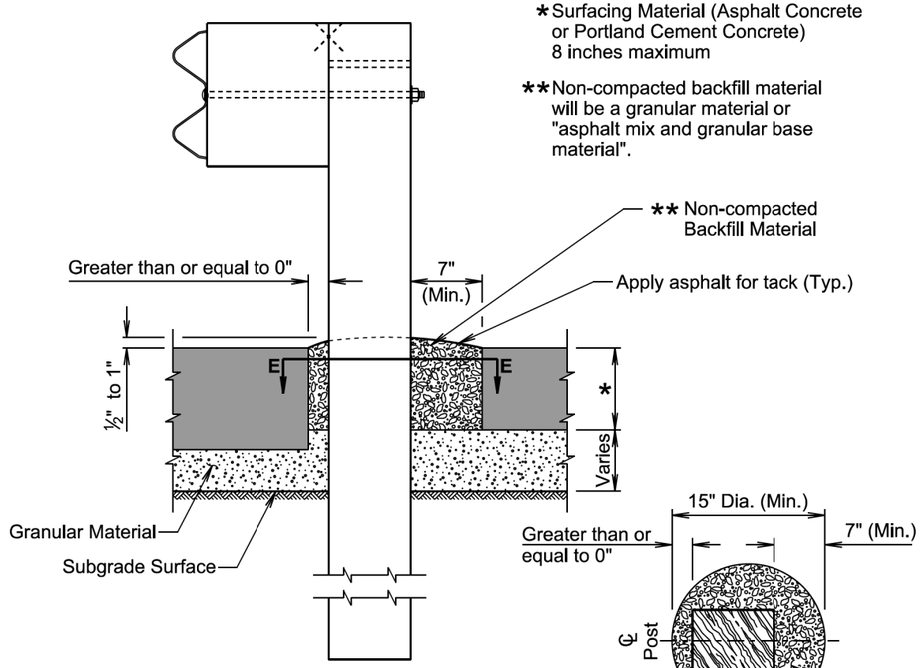
April 8, 2025

Published Date: 2026	SDDOT	GUARDRAIL ATTACHMENT TO BRIDGE ENDBLOCKS	PLATE NUMBER 630.93 Sheet 1 of 1

Plot Scale - 1:200

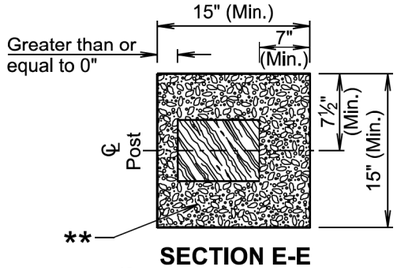
Plotted From - TRSF12139

File - ...\minn05\V6\StdPlatesSectionB.dgn



TRANSVERSE SECTION
(Wood post shown for illustrative purpose only)

SECTION E-E
(Round option for leave-out and backfill limits)
(Wood post shown for illustrative purpose only)



SECTION E-E
(Square option for leave-out and backfill limits)
(Wood post shown for illustrative purpose only)

GENERAL NOTES:

The leave-out limits may be increased to accommodate construction equipment and tolerances.

When posts are installed in augured or dug holes, the backfill material will be compacted to the bottom of the pavement surfacing material to the satisfaction of the Engineer. The backfill material for the thickness of the pavement surfacing material will be non-compacted.

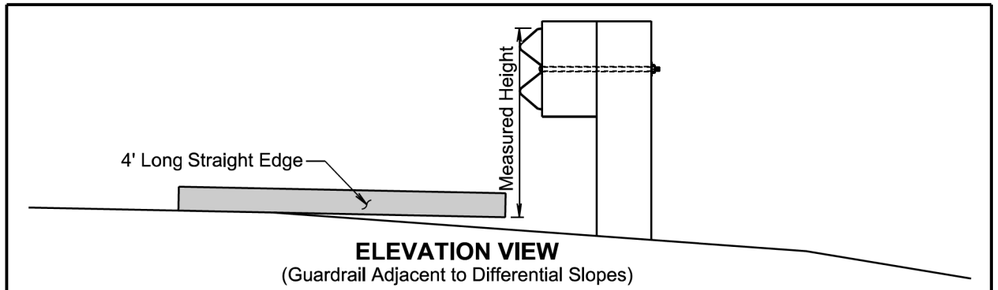
The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

Asphalt for tack will be applied to the surface of the backfill material at the rate of 0.15 to 0.20 gallons per square yard.

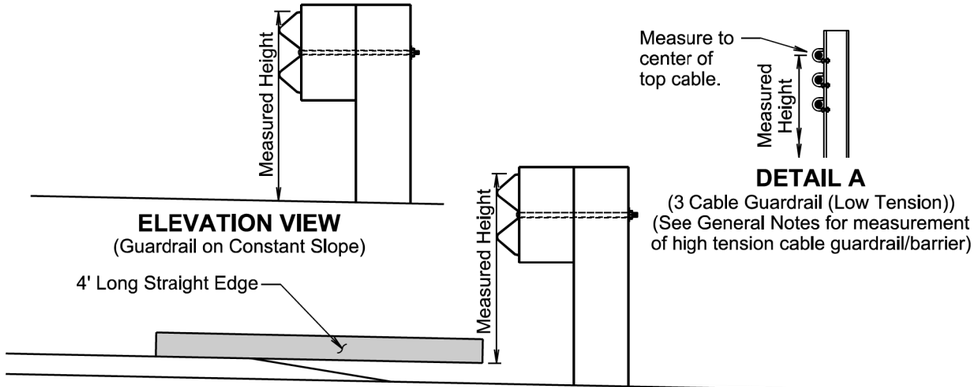
All costs for constructing the leave-out including labor, equipment, and materials which includes the backfill material and tack coat will be incidental to the contract unit price for the respective guardrail contract item.

November 19, 2021

Published Date: 2026	SDDOT	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96
			Sheet 1 of 1



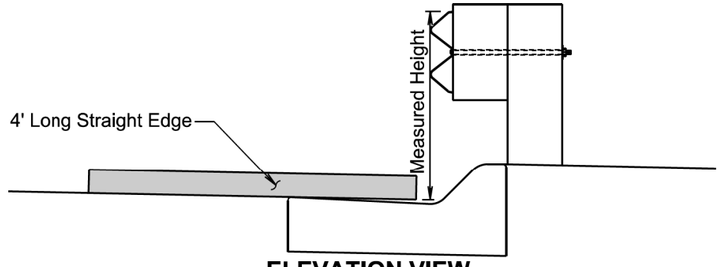
ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)



ELEVATION VIEW
(Guardrail on Constant Slope)

DETAIL A
(3 Cable Guardrail (Low Tension))
(See General Notes for measurement of high tension cable guardrail/barrier)

ELEVATION VIEW
(Guardrail Adjacent to Differential Surfacing Elevations)



ELEVATION VIEW
(Guardrail at Curb and Gutter)

GENERAL NOTES:

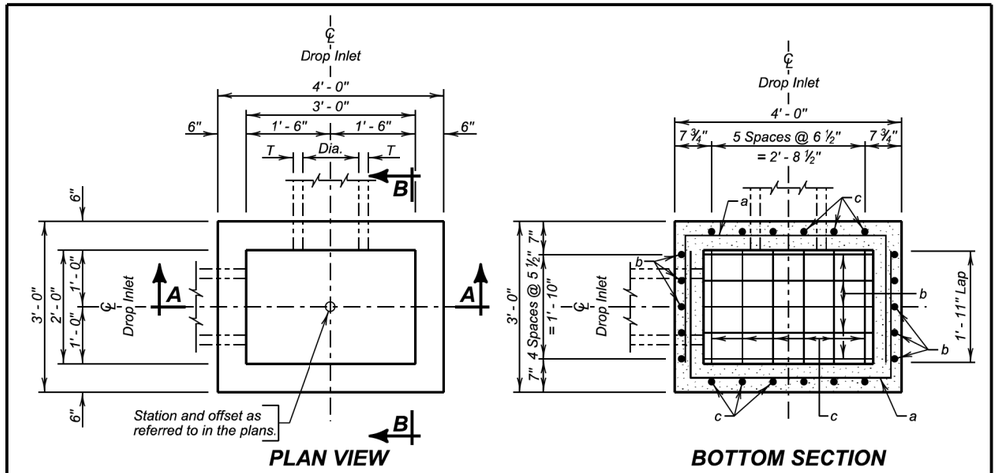
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

When measuring height of 3 cable guardrail (low tension) the height will be measured to the center of the top cable. See Detail A.

The height of high tension cable guardrail/barrier will be measured in accordance with the Manufacturer's installation instructions.

September 14, 2019

Published Date: 2026	SDDOT	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.99
			Sheet 1 of 1



ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
✳ Class M6 Concrete	Cu. Yd.	0.26	0.22H
Reinforcing Steel	Lb.	51.19	28.97H
Frame and Grate Assembly	Each	1	———

DROP INLETS FOR 12" TO 24" DIAMETER PIPE

SPECIFICATIONS

Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition.

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES:

Design Live Load: HL-93. No construction loading in excess of legal load was considered.

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

Drop inlet may be precast. If precast drop inlet details differ from this standard plate, submit a checked design done by a SD registered P.E. and shop plans to the Office of Bridge Design for approval.

✳ Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). 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 inlet shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering drop inlet must fit between the inside face of walls and shall not enter through the corners.

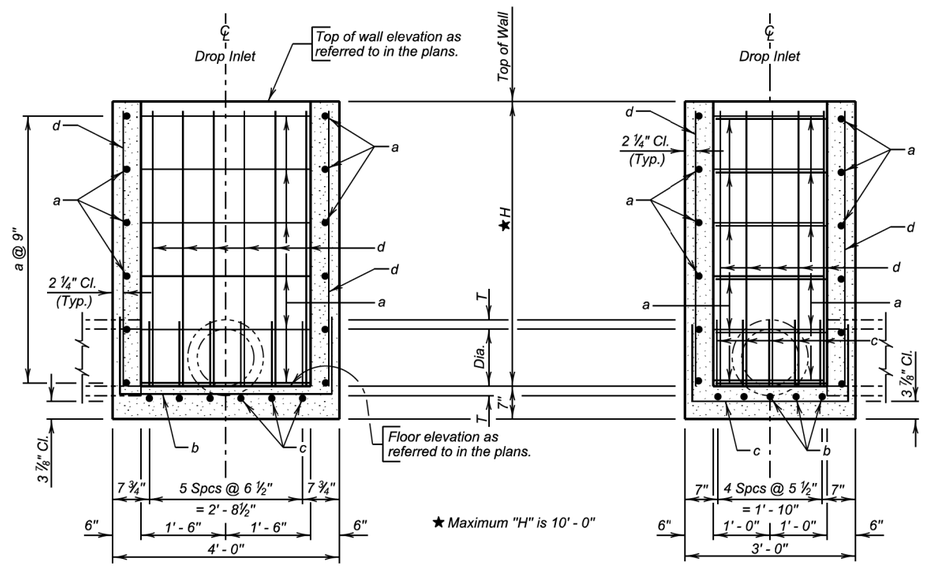
Maximum R.C.P. diameter shall not exceed 18 inches on the 2-foot wide side and shall not exceed 24 inches (24 inches for R.C. arch) on the 3-foot wide side of the drop inlet.

The dimension of H is in feet. Maximum H is 10 feet.

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
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09

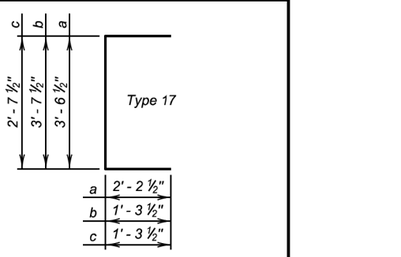
March 31, 2024

Published Date: 2026	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 1 of 2



REINFORCING SCHEDULE					
Mk.	No.	Size	Length	Type	Bending Details
a	2.67H	4	8' - 0"	17	
b	5	5	6' - 3"	17	
c	6	4	5' - 3"	17	
d	22	4	H - 2"	Str.	

NOTE:
All dimensions are out to out of bars.

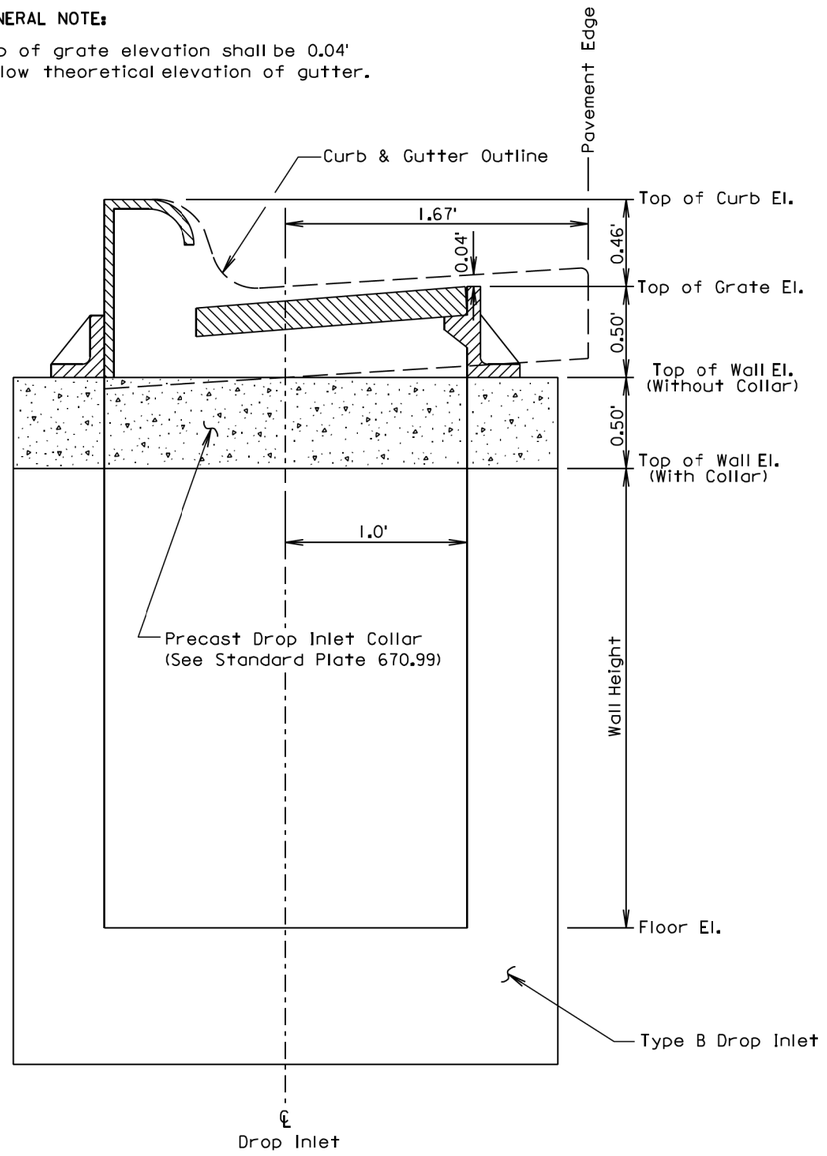


March 31, 2024

Published Date: 2026	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 2 of 2

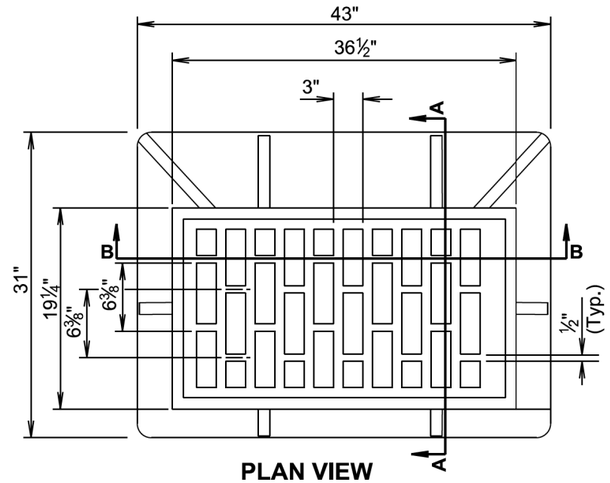
GENERAL NOTE:

Top of grate elevation shall be 0.04' below theoretical elevation of gutter.

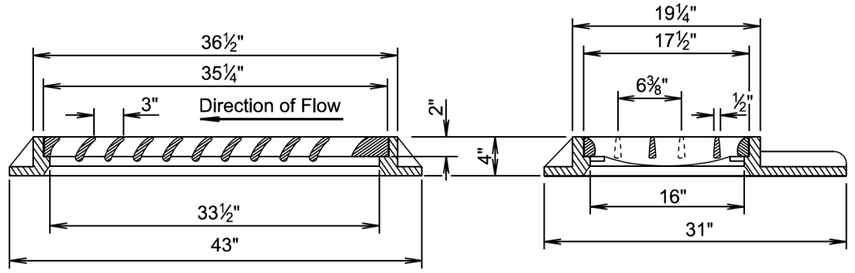


June 26, 2011

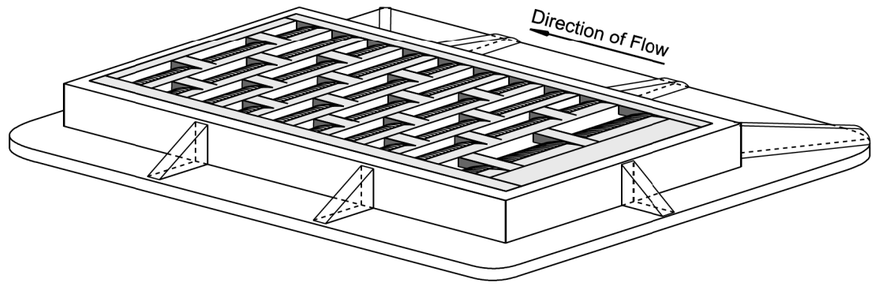
Published Date: 2026	SDDOT	INSTALLATION OF TYPE B DROP INLET	PLATE NUMBER 670.75
			Sheet 1 of 1



PLAN VIEW



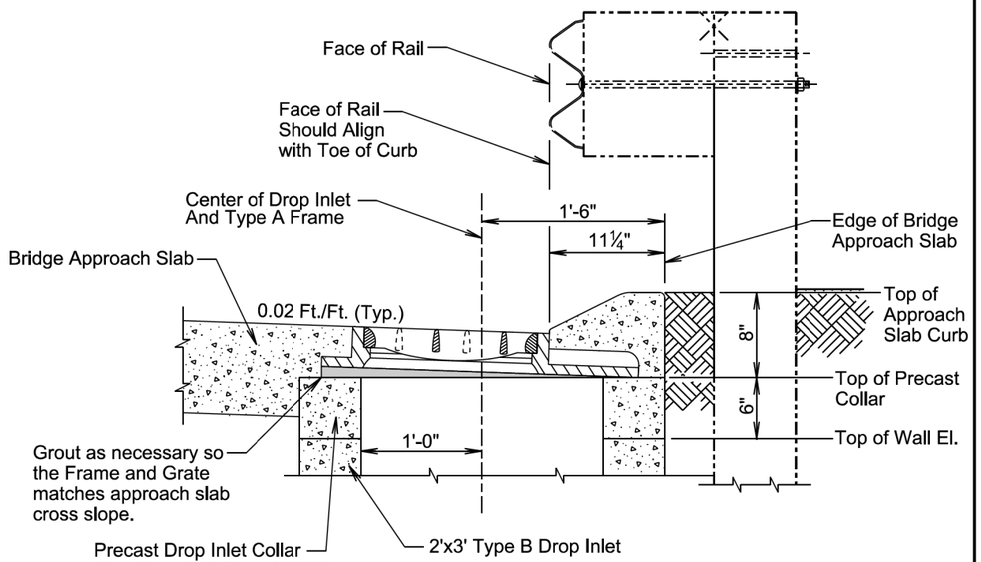
SECTION B-B **SECTION A-A**



ISOMETRIC VIEW

March 31, 2024

Published Date: 2026	SDDOT	TYPE A FRAME AND GRATE	PLATE NUMBER 670.78
			Sheet 1 of 2



ELEVATION VIEW

(Installation of Type A Frame and Grate in Bridge Approach Slab)

GENERAL NOTES:

The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity and bicycle safety. Any variation in dimensions will be approved by the Engineer and the type A frame and grate will be from a manufacturer on the approved products list.

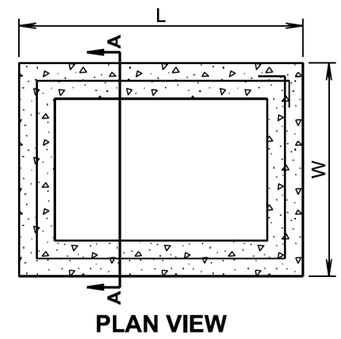
Design load for the grate will meet the requirements of AASHTO HL-93.

The type A frame and grate will be installed on a 2'x3' type B drop inlet.

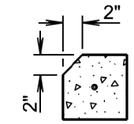
The direction of flow is shown for illustrative purpose only. The grate will be installed to intercept the direction of flow.

March 31, 2024

Published Date: 2026	SDDOT	TYPE A FRAME AND GRATE	PLATE NUMBER 670.78 Sheet 2 of 2

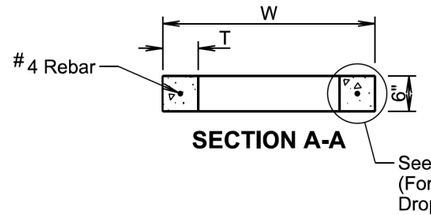


PLAN VIEW



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

DETAIL B



SECTION A-A

INFORMATIONAL QUANTITIES					
FRAME AND GRATE TYPE	L (Ft-in)	W (Ft-in)	T (in)	CLASS M6 CONCRETE (CuYd)	REINFORCING STEEL (Lb)
TYPE A, B, and E	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 will conform to ASTM A615, Grade 60.

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

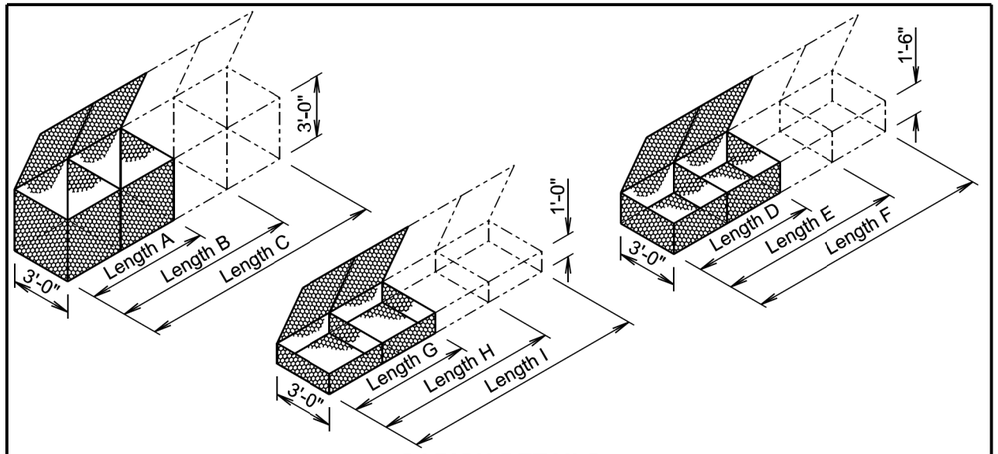
The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals will be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

June 1, 2022

Published Date: 2026	SDDOT	PRECAST DROP INLET COLLAR	PLATE NUMBER 670.99 Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B50	B53

Plotting Date: 06/06/2025



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 will be 0.0866 inch diameter steel wire ASTM A641, Class 3 soft temper measured after galvanizing and for PVC coated gabions will 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 1½ 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.

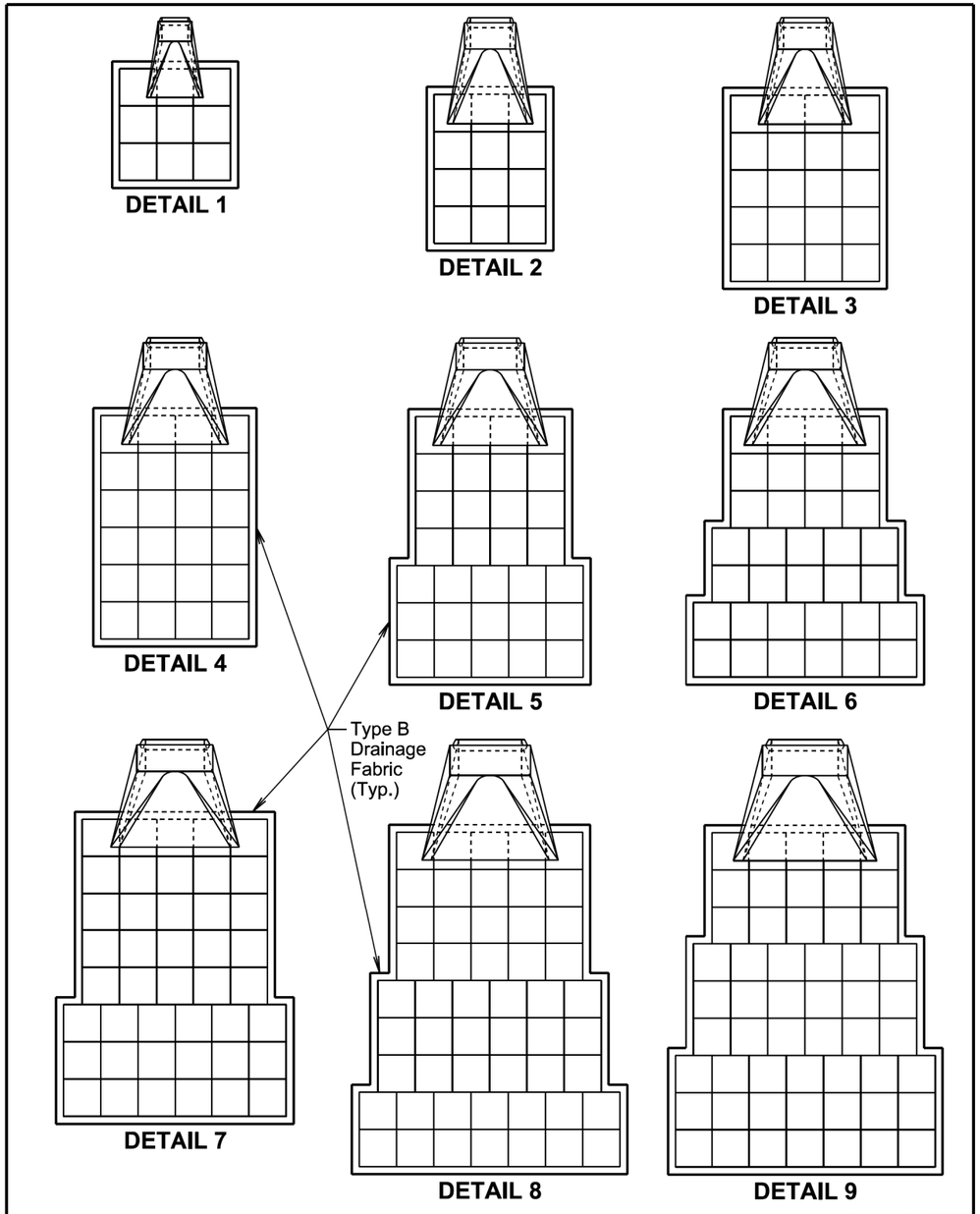
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92,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

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

All fasteners will be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 2

Plot Scale - 1:200

Plotted From - TRSF12144

File - ...\mlnn05V6\StdPlatesSectionB.dgn

	* ESTIMATED QUANTITIES			
	Detail	Pipe Diameter (Inches)	Gabion (Cu. Yd.)	Type B Drainage Fabric (Sq. Yd.)
RCP, RCP Arch, CMP, and CMP Arch	1	12, 18, and 24	4.5	15
	2	30 and 36	6.0	19
	3	42	10.0	29
	4	48 and 54	12.0	34
	5	60	15.5	43
	6	66	17.0	47
	7	72	21.5	57
	8	78	26.0	68
	9	84	27.0	70

GENERAL NOTES:

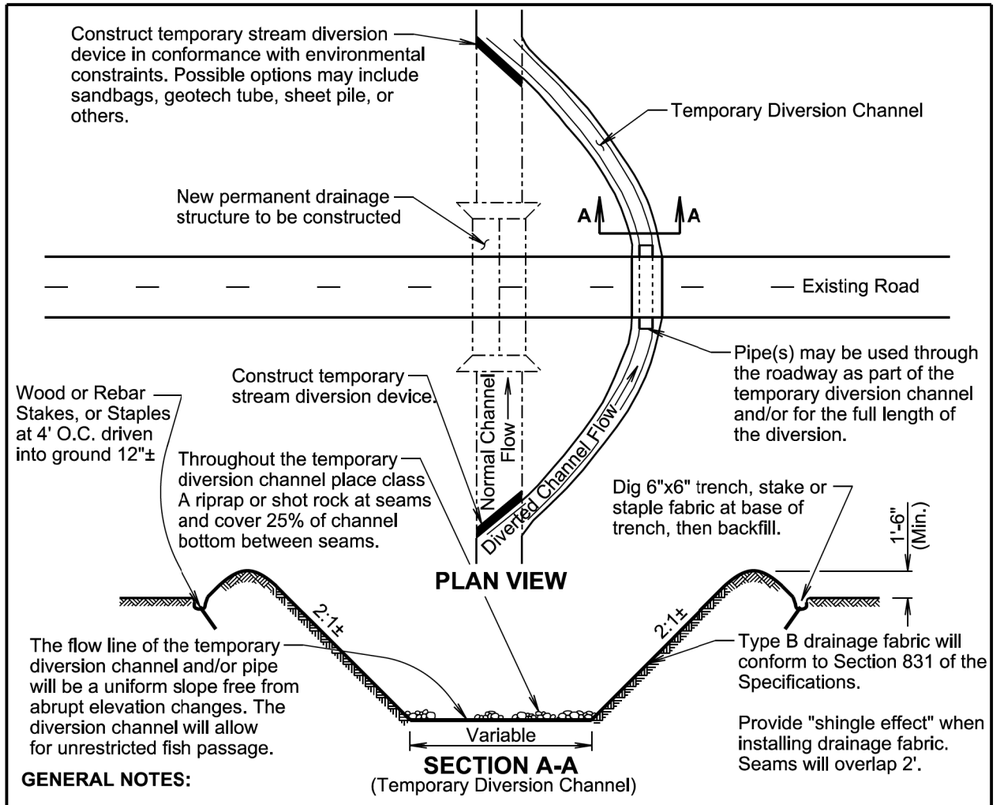
Gabions at outlets of CMP and RCP will be placed under the end section a distance of 2 feet from the outlet end. For CMP end section installations, the upper fabric of the gabions will be modified to accommodate the metal end section as approved by the Engineer.

* Gabion and type B drainage fabric quantities on this standard plate are based on standard gabion sizes D, E, and F as depicted on standard plate 720.01.

Type B drainage fabric will be placed under the gabions and around the exterior sides (perimeter) of the gabions as approved by the Engineer. The type B drainage fabric will be in conformance with Section 831 of the Specifications. Measurement and payment of the type B drainage fabric will be in conformance with Section 720 of the Specifications.

February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03 Sheet 2 of 2



GENERAL NOTES:

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

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

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

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

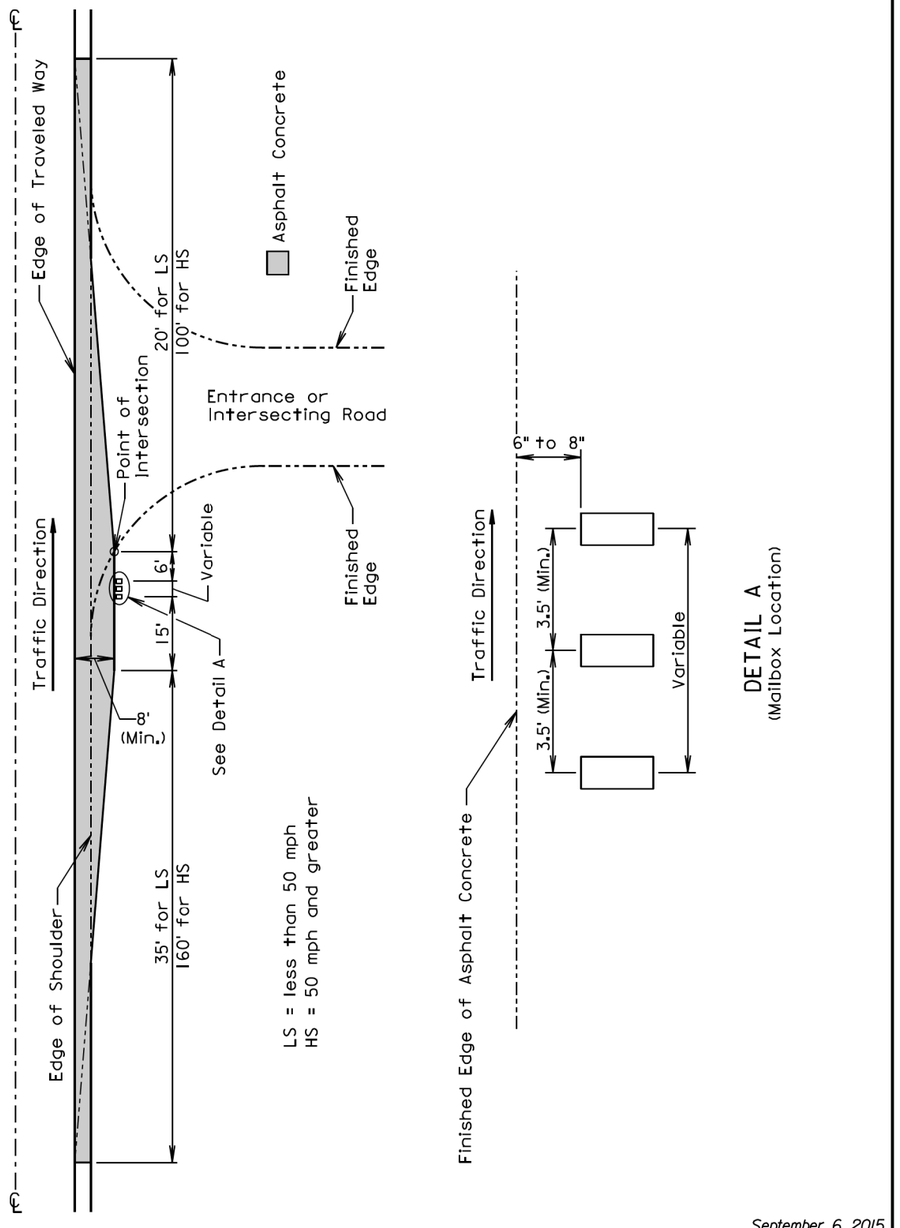
All costs for labor, equipment, materials, and incidentals as indicated on this sheet to complete a satisfactory temporary diversion channel and/or pipe(s) will be incidental to the contract unit price per each for "Temporary Diversion Channel For Fish Passage". "Temporary Diversion Channel For Fish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

February 14, 2020

Published Date: 2026	SDDOT	TEMPORARY DIVERSION CHANNEL FOR FISH PASSAGE	PLATE NUMBER 734.30 Sheet 1 of 1

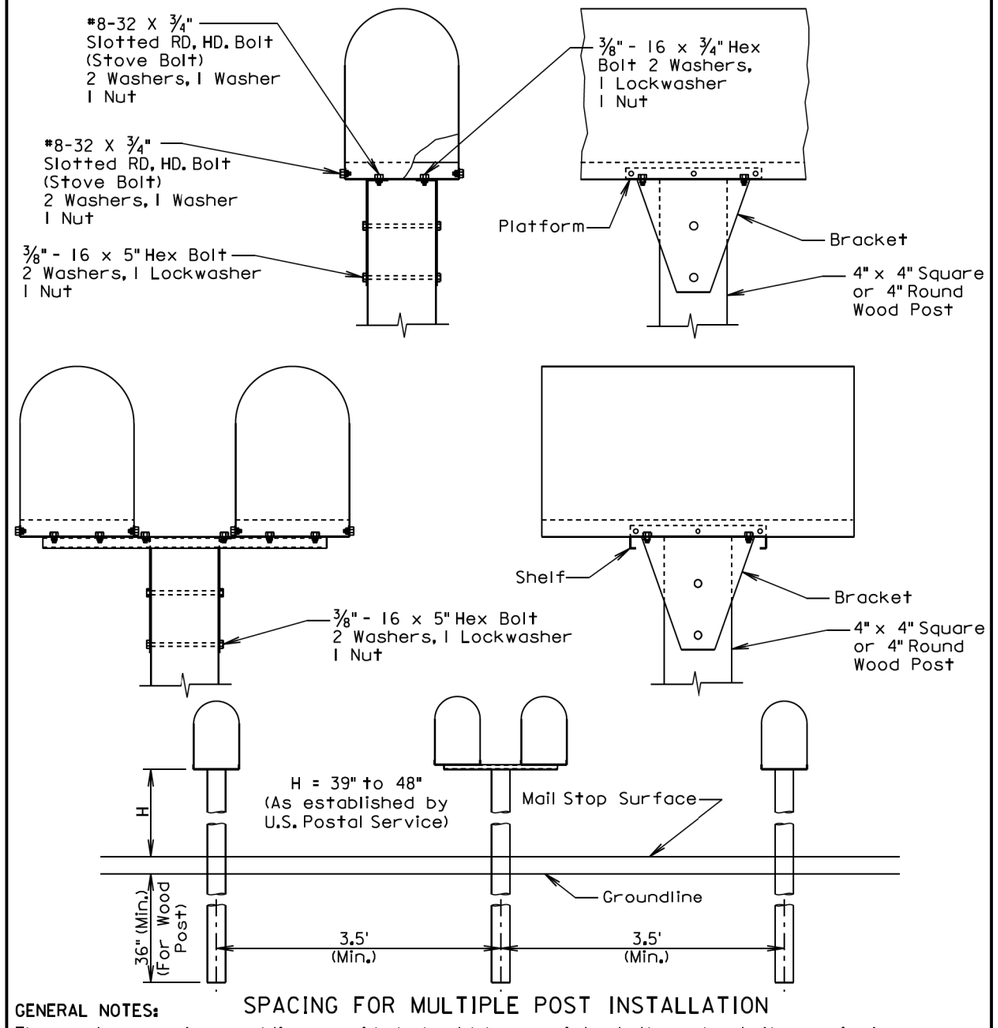
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B52	B53

Plotting Date: 06/06/2025



September 6, 2015

Published Date: 2026	SDDOT	MAILBOX TURNOUT	PLATE NUMBER 900.01
			Sheet 1 of 1



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: 2026	SDDOT	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - TRSF12144

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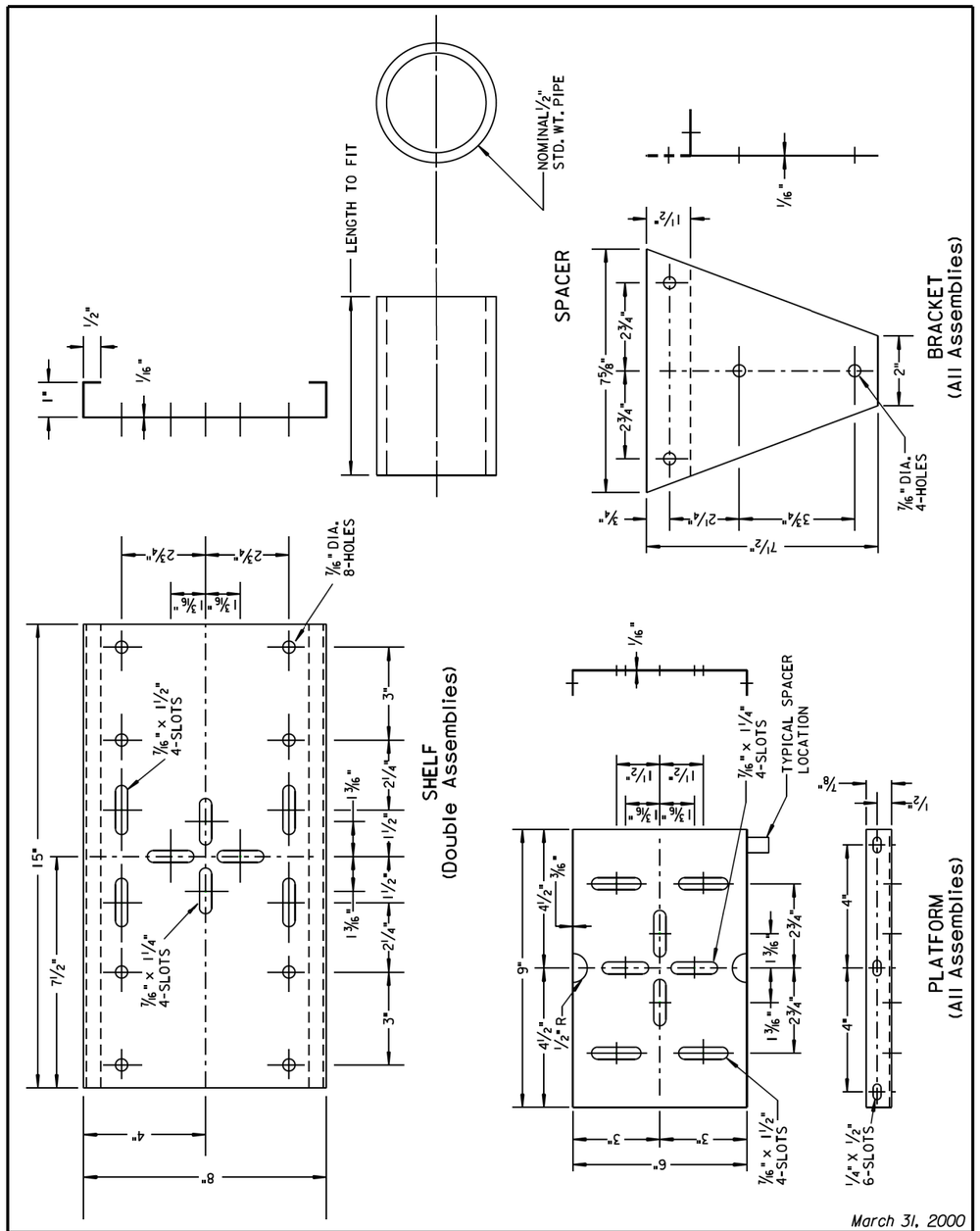
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PT 0011(145)83	B53	B53

Plotting Date: 06/06/2025



March 31, 2000

Published Date: 2026	SDDOT	MAILBOX SUPPORT HARDWARE	PLATE NUMBER 900.03 Sheet 1 of 1

Plot Scale - 1:200

Plotted From - TRSF12144

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