

SECTION B: GRADING PLANS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B1	TOTAL SHEETS B52
-----------------------	--------------------------	-----------------	---------------------

Plotting Date: 03/01/2024

INDEX OF SHEETS

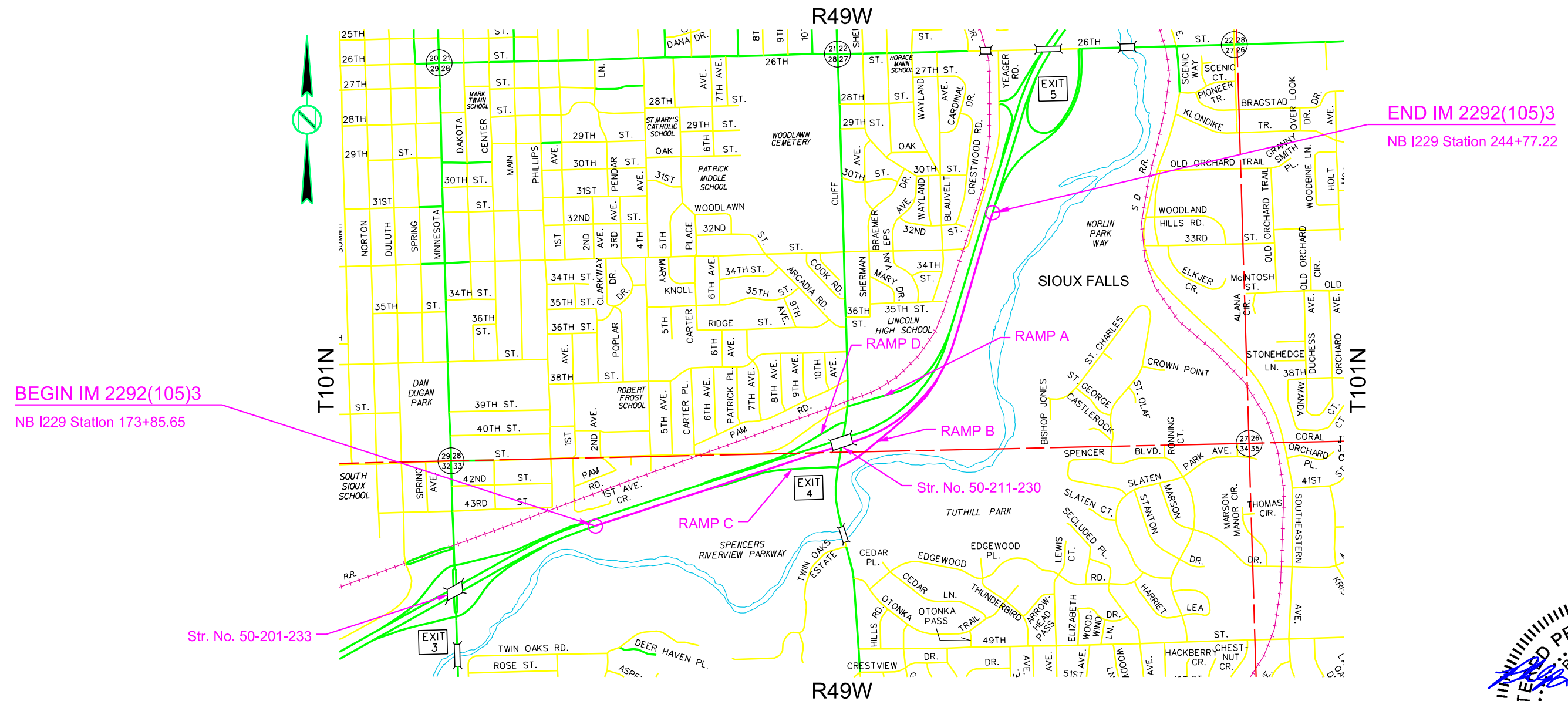
B1	General Layout with Index
B2-B8	Estimate with General Notes and Tables
B9-B10	Borrow Pit Information
B11-B15	Typical Grading Sections
B16-B17	Horizontal Alignment Data
B18	Control Data
B19	Legend
B20-B28	Plan and Profile
B29-B32	Guardrail Layouts
B33-B36	Removals
B37-B52	Standard Plates

Plot Scale - 1:1500

InfrastructureDesignGroup

Plotted From -

File - ...107\Cvs_SectionB_Tile.dgn



SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	1.824	Mile
009E3245	Final Cross Section Survey	1.824	Mile
009E3250	Miscellaneous Staking	1.824	Mile
009E3280	Slope Staking	1.824	Mile
009E3290	Structure Staking	4	Each
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0650	Remove Crossover Closure	311	Ft
110E0700	Remove 3 Cable Guardrail	1,311	Ft
110E0730	Remove Beam Guardrail	79.5	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	7	Each
110E1100	Remove Concrete Pavement	4,016.5	SqYd
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	25,145	CuYd
120E0500	Option Borrow Excavation	56,838	CuYd
120E1000	Muck Excavation	761	CuYd
120E2000	Undercutting	15,903	CuYd
120E6100	Water for Embankment	560.0	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
450E0105	12" RCP Class 5, Furnish	182	Ft
450E0110	12" RCP, Install	182	Ft
450E0143	24" RCP Class 3, Furnish	20	Ft
450E0150	24" RCP, Install	20	Ft
450E4738	12" CMP 14 Gauge, Furnish	106	Ft
450E4740	12" CMP, Install	106	Ft
450E4758	18" CMP 14 Gauge, Furnish	94	Ft
450E4760	18" CMP, Install	94	Ft
450E5000	12" CMP Elbow, Furnish	6	Each
450E5001	12" CMP Elbow, Install	6	Each
450E5203	12" CMP Flared End, Furnish	3	Each
450E5204	12" CMP Flared End, Install	3	Each
450E5406	18" CMP Safety End, Furnish	1	Each
450E5407	18" CMP Safety End, Install	1	Each
450E7999	12" RCP to CMP Transition, Furnish	3	Each
450E8000	12" Pipe Transition, Install	3	Each
450E9001	Reset Pipe End Section	1	Each
462E0100	Class M6 Concrete	6.2	CuYd
480E0100	Reinforcing Steel	899	Lb
629E9000	Crossover Closure	530	Ft
629E9010	Interim Crossover Closure	530	Ft
630E0500	Type 1 MGS	1,512.5	Ft

SECTION B ESTIMATE OF QUANTITIES (cont'd)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
630E0530	Type 3 MGS	150.0	Ft
630E1005	18"-9" Longspan MGS	1	Each
630E2017	MGS MASH Flared End Terminal	5	Each
630E2018	MGS MASH Tangent End Terminal	1	Each
630E2065	MGS Trailing End Terminal	2	Each
670E3300	Type E Frame and Grate	3	Each
670E5400	Precast Drop Inlet Collar	3	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.

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 existing shallow inlet and outlet ditches as noted on the plan sheets are cut with a 20-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.

On superelevated curves the grade referred to on the profile is the centerline grade elevation prior to calculating superelevation.

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.

CLEARING

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

TRAFFIC DIVERSION

The traffic diversion constructed for this project is for passage over Cliff Avenue roadway will be left in place once the project is completed.

RAMP DETOURS

If applicable, any ramp detours will be constructed in the Exit 4 (05HN) construction project according to the layout provided in those plans.

MEDIAN CROSSOVERS

Median crossovers will be constructed at the locations listed in the Table of Median Crossovers. The median crossovers noted with "Retain" are median crossovers at the same location and approximately the same elevation as the existing crossovers; therefore, small quantities of excavation or embankment are required at these locations. The median crossover subgrade will be constructed to conform to the details on standard plate 120.03.

Excavation quantities for the median crossovers are included in the earthwork balance notes on the profile sheets.

TABLE OF MEDIAN CROSSOVERS

Station		Median Width (Ft)	Finished Median Crossover Width (Ft)
177+77	Retain	190	48
244+93	Retain	200	48

INSLOPE TRANSITIONS

Inslope transitions will be required at various drainage structures and pipe locations. Refer to Standard Plate 120.05 for details.

TABLE OF INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

Station	L/R	Type
181+53	R	1
195+20	R	1
197+20	R	1
230+65	R	1



TABLE OF EXCAVATION QUANTITIES BY BALANCES

Name of Road	Station	to	Station	* Excavation (CuYd)	* UnderCut (CuYd)	* Muck Exc. (CuYd)	Out of Balance Excavation (CuYd)	* Option Borrow Exc. (CuYd)	Total Excavation (CuYd)	** Haul (CuYdSta)	** Dead Haul (CuYdSta)	** Option Borrow Haul (CuYdSta)	** Out-of-Balance Haul (CuYdSta)
I229 NB Outside	177+73		197+40	167	2,693	5		1,711	4,576	1,600	236,800	23,200	
I229 NB Outside	216+88		219+75		773			2,288	3,061		316,700	101,400	
I229 NB Outside	219+75		223+50	27	429			593	1,049	100	82,100	28,200	
I229 NB Outside	223+50		231+25		1,390			1,604	2,994		222,000	85,600	
I229 NB Outside	231+25		244+77		1,996			466	2,462		64,500	29,800	
I229 NB Inside	211+08		230+25	310	1,744				2,054	3,000			
I229 NB Diversion	5197+40		5198+75		345	126		500	971		69,200	12,000	
I229 NB Diversion	5198+75		5199+16		62	45		57	164		7,900	1,400	
I229 NB Diversion	5199+16		5208+05	688	2,169	48	406	17,231	20,542	3,100	2,384,800	510,100	5,000
I229 NB Diversion	5209+00		5214+37		1,466	452		23,001	24,919		3,183,300	866,800	
I229 NB Diversion	5214+37		5217+01		629			882	1,511		122,100	36,800	
Exit 4 Ramp B	20+31		22+34		121			434	555		60,100	11,300	
Exit 4 Ramp B	22+34		25+36		419			2,334	2,753		323,000	63,500	
Exit 4 Ramp C	32+82		34+55		293	54		673	1,020		93,100	26,400	
Exit 4 Ramp C	34+55		36+29		760	31		1,764	2,555		244,100	73,300	
Exit 3-4 Crossover	173+86		177+04	80	516				596	100			
Exit 4-5 Crossover	243+69		244+35	16	98				114	0			
Total :				1,288	15,903	761	406	53,538	71,896	7,900	7,409,700	1,869,800	5,000

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

TABLE OF UNCLASSIFIED EXCAVATION

	CuYd
Excavation	1,288
Undercutting	15,903
Topsoil	3,125
Remove Granular Material (from Section F)	463
Waste Material (as directed by the Engineer, from Section F)	4,366
Total:	25,145

SHRINKAGE FACTOR:

Location	Shrinkage (%)
I229 SBL and NBL	+30
I229 Ramps	+30
41st Street	+20
School Entrance	+20
E Pam Rd	+20

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 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

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY (cont'd)

for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The volume of in place concrete 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 concrete surfacing that will be removed.

The quantity of concrete surfacing 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

Station	CuYd
Option Borrow Excavation	53,538
Topsoil in Option Borrow Pits	3,300
Total :	56,838



HAUL

Included in the Table of Excavation Quantities by Balances are Dead Haul, Option Borrow Haul, Out-of-Balance Haul, and Haul. They are not pay items and are for informational purposes only. The mass haul diagram is available as part of the bid package for use in figuring this haul.

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

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

Out-of-Balance Haul: Estimated quantity (CuYdSta) for moving material from an earthwork balance to another 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:

$Average\ Haul = (Haul + Out-of-Balance\ Haul) / Unclassified\ Excavation = (7,900\ CuYdSta + 5,000\ CuYdSta) / 25,145\ CuYd = 0.51\ Sta.$

$Average\ Option\ Borrow\ Haul = (Option\ Borrow\ Haul + Dead\ Haul) / Total\ Option\ Borrow\ Excavation = (1,869,800\ CuYdSta + 7,409,700\ CuYdSta) / 56,838\ CuYd = 163.26\ Sta.$

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 882 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

Alignment	Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
NB229	185+00		187+50	R	2	138
NB229	194+21		195+00	R	2	29
Div197	5202+75		5207+00	R	2	688
NB229	221+36		223+50	R	2	27
Total :						882

UNDERCUTTING

In all cut sections the earthen subgrade will be undercut 1.5 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 1.5 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 1.5-foot height of earth embankment for the entire width of roadbed. The upper 4 inches of undercut material that consists of topsoil with a high humus content 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 4 inches) will then be replaced and compacted to the density specified for the section being constructed.

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

TABLE OF UNDERCUTTING

Name of Road	Station	to	Station	Quantity (CuYd)
I229 NB Outside	177+73		197+40	2,693
I229 NB Outside	216+88		219+75	773
I229 NB Outside	219+75		223+50	429
I229 NB Outside	223+50		231+25	1,390
I229 NB Outside	231+25		244+77	1,996
I229 NB Inside	211+08		230+25	1,744
I229 NB Diversion	5197+40		5198+75	345
I229 NB Diversion	5198+75		5199+16	62
I229 NB Diversion	5199+16		5208+05	2,169
I229 NB Diversion	5209+00		5214+37	1,466
I229 NB Diversion	5214+37		5217+01	629
Exit 4 Ramp B	20+31		22+34	121
Exit 4 Ramp B	22+34		25+36	419
Exit 4 Ramp C	32+82		34+55	293
Exit 4 Ramp C	34+55		36+29	760
Exit 3-4 Crossover	173+86		177+04	516
Exit 4-5 Crossover	243+69		244+35	98
Total :				15,903

MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 761 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for "Muck Excavation".

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified excavation, the material will be measured and paid for as "Unclassified Excavation".

TABLE OF MUCK EXCAVATION

Alignment	Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
NB229	197+15		197+40	R	3	5
Div197	5197+40		5198+75	R	3	126
Div197	5198+75		5199+16	R	3	45
Div197	5199+16		5199+64	R	3	48
RampC	32+82		34+55	R	3	54
RampC	34+55		35+41	R	3	31
Div197	5210+00		5211+16	R	3	452
Total :						761



BORROW PITS

General

Borrow Pit "1" is owned by the State of South Dakota. The material removed will be available royalty free. This area of borrow has been previously distributed from PCN 0511 and PCN 01QS. Most recently it was proposed to be used for PCN 0214 in 2019 but was not used.

Access

The Contractor will access the pit from the NB I229 On-ramp. Construction Traffic will enter and exit the pit while traveling the same direction as traffic.

Sediment Control

The Contractor will provide inlet protection for culverts draining the borrow pit. Included in the estimate of quantities is 50 Ft of Low Flow Silt Fence.

Topsoil

A minimum of 4 inches of topsoil will be removed and stockpiles from the borrow pit. At the completion of the borrow operations the topsoil will be respread on the borrow pit.

Seeding

Quantities for Type B Permanent Seed Mixture, Fertilizing and Mulch have been estimated at 6.20 Acres to cover the borrow pit.

TABLE OF BORROW LOCATIONS IN EARTHWORK BALANCE

Site	Station (NB I229)	L/R	Dead Haul Distance (Sta)	Option Borrow Exc. (CuYd)	Dead Haul (CuYdSta)
1	35+60	R	138+40	53,538	7,409,700
Total :				53,538	7,409,700

The Station in the above table are pit locations relative to the alignment on Northbound I299 Alignment.

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

PIPE CULVERT UNDERCUT

Pipe culvert undercut may be required for this project. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

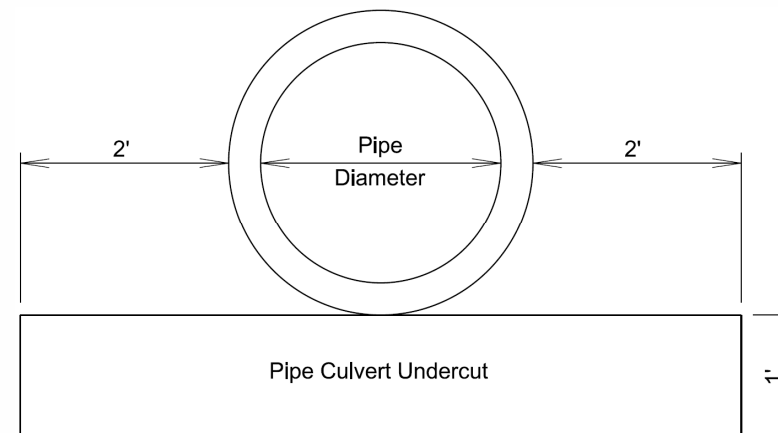
If pipe culvert undercut is required, the table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual

amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1' Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1' Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



INCIDENTAL WORK, GRADING

Station	L/R	Remarks
176+85	30' L	Remove 18" - Flared End Section
181+52.98	73' R	Remove 18" - Flared End Section
207+32	38' R	Remove 12" - 75' CMP & Remove 1 End Section
209+82	35' R	Remove 12" - 75' CMP & Remove 1 End Section
243+00	30' L	Remove 18" - Flared End Section
246+78	30' L	Remove 18" - Flared End Section

REMOVAL OF EXISTING CONCRETE PAVEMENT

I-229 Outside Shoulder STA 217+36.40 to 291+81.71

NB Diversion STA 5197+40.24 to 5198+64.78

The existing 10.5 inch dowel jointed P.C.C. Pavement on I229 Mainline. The locations where the mainline pavement is removed are near the On/Off Ramps which caused the length and contraction joints to vary.

I-229 Outside Shoulder STA 223+48.27 to 231+26.17

NB Diversion STA 5198+64.78 to 5199+28.83

NB Diversion STA 5214+36.12 to 5217+50.50

The existing 8 inch dowel jointed P.C.C. Pavement on I229 Shoulder. The width of the existing shoulder is typically 10 feet, and the contraction joints are spaced at approximately 12.6 feet.

Ramp B STA 22+33.66 to 25+87.12

Ramp C STA 32+71.33 to 34+55.56

The existing 9 inch dowel jointed P.C.C. Pavement on Cliff Avenue Ramps. The width of the existing Ramps are typically 25 feet, and the contraction joints are spaced at approximately 20 feet.

Existing asphalt concrete and/or existing asphalt concrete patch work that was placed above the existing concrete pavement is included in the quantity for "Remove Concrete Pavement". The Contractor will dispose of the concrete pavement and asphalt concrete at a site approved by the Engineer.

TABLE OF CONCRETE PAVEMENT REMOVAL

Station	to Station	Quantity (SqYd)	Volume (CuYds)	Weight (Tons)
I-229 Outside Shoulder				
217+36.40	219+81.71	815.0	237.7	378.7
223+48.27	231+26.17	868.2	192.9	307.4
NB Diversion				
5197+40.24	5198+64.78	405.8	118.4	188.6
5198+64.78	5199+28.83	76.3	17.0	27.0
5214+36.12	5217+50.50	355.2	78.9	125.7
Ramp B				
22+33.66	25+87.12	984.1	246.0	391.9
Ramp C				
32+71.33	34+55.56	511.8	127.9	203.8
		4,016.5	1,018.9	1,623.1



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.

PIPE COVER

The earthen subgrade cover for some pipe installations is less than one foot. The Contractor will take the necessary precautions to ensure the structural properties of the pipes are not damaged after installation and prior to the placement of final surfacing. Any additional costs for preventing damage to these pipes will be incidental to the contract unit price per foot for the corresponding pipe installation contract item.

STORM SEWER

Reinforced concrete pipe may be bell and spigot. The pipe sections will be adjoined such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Lift holes in the reinforced concrete pipe will not be allowed. The Contractor will be responsible for developing and utilizing procedures and equipment for handling and installing storm drainage pipe or culvert without penetrations through the wall. The Contractor is allowed to utilize lifting devices which are incorporated or cast into the pipe or culvert upon shop drawing approval by the Engineer.

Watertight joints are required for reinforced concrete pipe, drop inlets, manholes, and junction boxes where storm sewers run parallel to and within 10 feet horizontally from existing or proposed water mains.

Watertight joints are required where reinforced concrete pipes, drop inlets, manholes, or junction boxes cross water mains and are separated a distance of 18 inches or less, above or below, the water main.

If watertight joints are required then the watertight joints will extend for a distance of 10 feet beyond the water main. This measurement will be from the sealed concrete joint to the outer most surface of the water main.

Watertight joint seals will conform to the following requirements:

- Reinforced Concrete Pipe (Circular):** Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe will be sealed with a mastic joint seal conforming to the requirements of

ASTM C990 and encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

- Reinforced Concrete Pipe (Arch):** Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe joints will be sealed with a hydrophilic flexible water stop seal and wrapped with a 1-foot wide strip of fabric above the cradle. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.
- Drop Inlets, Manholes, and Junction Boxes:** Joints will be sealed with one of the following methods:
 - A flexible strip seal placed in the joints conforming to the requirements of ASTM C990 and the perimeter encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.
 - A hydrophilic flexible water stop seal placed in the joints and a 1-foot wide strip of fabric wrapped around the perimeter of the pipe. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.

A self-adhesive external joint seal wrap. The seal wrap will be from the list below.

Approved List of Self-adhesive Joint Wrap

Product	Manufacturer
Mar Mac Seal Wrap	Mar Mac Construction Products McBee, SC 843-335-5909 www.marmac.com
ConWrap CS-212	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com

Approved List of Hydrophilic Flexible Water Stop Seal:

Product	Manufacturer
Waterstop RX	Cetco Hoffman Estates, IL 800-527-9948 www.cetco.com
Conseal CS-231	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com

Gaskets and seals (mastic, waterstop, and seal wraps) will be installed in accordance with the Manufacturer's recommendations.

The cost for furnishing and installing all gaskets, mastic joint seal, water stop seal, seal wrap, concrete collars, and for plugging the lift holes will be incidental to the contract unit price per foot for the corresponding pipe contract item.

CORRUGATED METAL PIPE

Areas within the project have soils that are highly corrosive to steel. Corrugated metal pipe in these areas will be polymer coated 14 gauge steel as specific 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.



DROP INLETS

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, Type E 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)	Reinforcement Steel (Lb)	Precast Drop Inlet Collar (Each)
207+32	R	3.0'x4.0'x4.74'	B	2.08	304.25	1
209+82	R	3.0'x4.0'x4.69'	B	2.07	302.42	1
211+97	R	3.0'x4.0'x4.40'	B	2.01	291.83	1
Totals:				6.16	898.5	3

Total Type E Frame and Grate 3

TABLE OF SUPERELEVATION

Station	to Station	
NB I229 Mainline		
177+72.86	197+40.24	Normal Crown Section
216+87.83	228+75.00	1939.86' Radius Curve Left 0.034 'f' Superelevation Rate Point of Rotation 12' Right of NB1229 Centerline
228+75.00	232+37.14	Superelevation Transition
232+37.14	244+77.22	Normal Crown Section
I229 NB Diversion		
5197+40.22	5198+39.22	Superelevation Transition
5198+39.22	5209+31.86	Normal Crown Section
5209+33.77	5212+19.86	Superelevation Transition
5212+19.86	5217+01.32	1939.86' Radius Curve Left 0.034 'f' Superelevation Rate Point of Rotation at NB Diversion Centerline
Ramp B		
20+30.63	22+47.87	Normal Crown Section
22+47.87	25+35.87	Superelevation Transition 0.034 'f' Superelevation Rate Point of Rotation at Ramp B Centerline
Ramp C		
32+83.83	36+29.11	Normal Crown Section

TABLE OF GUARDRAIL

Location	Remove 3 Cable Guardrail Anchor Assembly (Each)	Remove 3 Cable Guardrail (Ft)	Remove Beam Guardrail (Ft)	Remove Crossover Closure (Ft)	Crossover Closure (Ft)	Interim Crossover Closure	Type 1 MGS (Ft)	Type 3 MGS (Ft)	18'-9" Longspan (Each)	MGS MASH Flared End Terminal (Each)	MGS MASH Tangent End Terminal (Each)	MGS Trailing End Terminal (Each)
175+90 - 33' L to 178+80 - 33' L					290	290						
176+75 - 32' L to 177+63 - 63' L				88								
178+09 - 32' L to 178+81 - 32' L				72								
192+68 - 51' R to 197+59 - 57' R							375		1	1		1
193+15 - 50' R to 195+96 - 48' R	2	281										
204+44 - 40' R to 207+70 - 49' R							237.5	37.5		1		
205+31 - 77' R to 207+70 - 79' R							150	37.5		1		
204+60 - 38' R to 207+50 - 28' R	1	290										
206+89 - 32' R to 207+69 - 28' R			79.5									
209+33 - 49' R to 211+83 - 52' R							162.5	37.5			1	
209+47 - 29' R to 214+08 - 37' R	1	461										
209+64 - 4' L to 213+66 - 10' L							312.5	37.5		1		
213+34 - 86' R to 216+62 - 50' R							275			1		1
223+69 - 50' R to 226+47 - 49' R	3	279										
243+60 - 33' L to 246+00 - 33' L					240	240						
244+04 - 32' L to 244+71 - 33' L				68								
245+17 - 33' L to 246+00 - 34' L				83								
Totals :	7	1311	79.5	311	530	530	1512.5	150.0	1	5	1	2



TABLE OF CONSTRUCTION STAKING FOR PROJECT IM 2292(105)3
(See Special Provision for Contractor Staking)

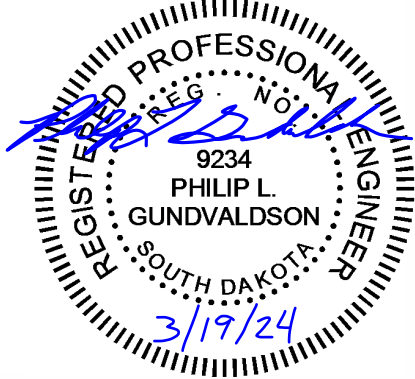
Roadway and Description	Grade Staking											
	Begin	End	Number	Length	Length	Lane	*Sets	**Grade Staking	Miscellaneous	Slope	Final Cross Section	Structure Staking
	Station	Station	of Lanes	(Ft)	(Mile)	Factor	of Stakes	Quantity (Mile)	Staking Quantity (Mile)	Staking Quantity (Mile)	Survey Quantity (Mile)	Quantity (Each)
I229 NB (South Crossover Extension ACP)	173+86	176+62	2	276	0.052	1	1	0.052	0.052	0.052	0.052	
I229 NB (Shoulder Widening ACP)	177+73	197+40	2	1,967	0.373	1	1	0.373	0.373	0.373	0.373	
I229 Ramp C (1 Lane ACP)	32+84	34+55	2	171	0.032	1	1	0.032	0.032	0.032	0.032	
I229 Ramp C (Shoulder ACP)	34+55	36+29	2	174	0.033	1	1	0.033	0.033	0.033	0.033	
I229 NB Diversion (2 Lane ACP)	5197+40	5207+65	2	1,025	0.194	1	1	0.194	0.194	0.194	0.194	
I229 NB Diversion (Temporary Bridge)	5207+65	5209+26										1
Cliff Avenue (Retaining Wall B)	113+41	114+26										1
Cliff Avenue (Retaining Wall C)	114+70	115+29										1
I229 NB Diversion (2 Lane ACP)	5209+26	5217+01	2	775	0.147	1	1	0.147	0.147	0.147	0.147	
I229 Ramp B (Shoulder ACP)	20+31	22+34	2	203	0.038	1	1	0.038	0.038	0.038	0.038	
I229 Ramp B (1 Lane ACP)	22+34	25+36	2	302	0.057	1	1	0.057	0.057	0.057	0.057	
Cliff Avenue (Retaining Wall A)	22+14	24+65										1
I229 NB (Inside Shoulder Widening Gravel)	211+08	230+25	2	1,917	0.363	1	1	0.363	0.363	0.363	0.363	
I229 NB (2 Lane and Shoulder Widening ACP)	216+88	219+75	2	287	0.054	1	1	0.054	0.054	0.054	0.054	
I229 NB (Shoulder Widening ACP)	219+75	223+50	2	375	0.071	1	1	0.071	0.071	0.071	0.071	
I229 NB (Shoulder Replacment and Widening ACP)	223+50	231+25	2	775	0.147	1	1	0.147	0.147	0.147	0.147	
I229 NB (Shoulder Widening ACP)	231+25	244+77	2	1,352	0.256	1	1	0.256	0.256	0.256	0.256	
I229 NB (North Crossover Extension ACP)	243+69	243+98	2	35	0.007	1	1	0.007	0.007	0.007	0.007	
							Totals:	1.824	1.824	1.824	1.824	4

* 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)

TABLE OF PIPE QUANTITIES

Station - Offset (L/R)	Corrugated Metal				Reinforced Concrete		Reset Sloped End Section	RCP to CMP Outlet Transition	
	Circular (Polymer Coated)		30 Deg Elbow (Polymer Coated)	Flared End	Safety End	Circular			
	12" Ft	18" Ft	12" Each	12" Each	18" Each	12" Ft			24" Ft
175+89 - 30' L		94			1				
181+53 - 70' R						20	1		
207+32 - 38' R	36		2	1		56		1	
209+82 - 35' R	48		2	1		58		1	
211+97 - 39' R	22		2	1		68		1	
Totals:	106	94	6	3	1	182	20	3	



PIT INFORMATION SHEET BORROW Sheet 1 OF 2

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET B9	TOTAL SHEETS B52
Plotting Date: 03/09/2023			

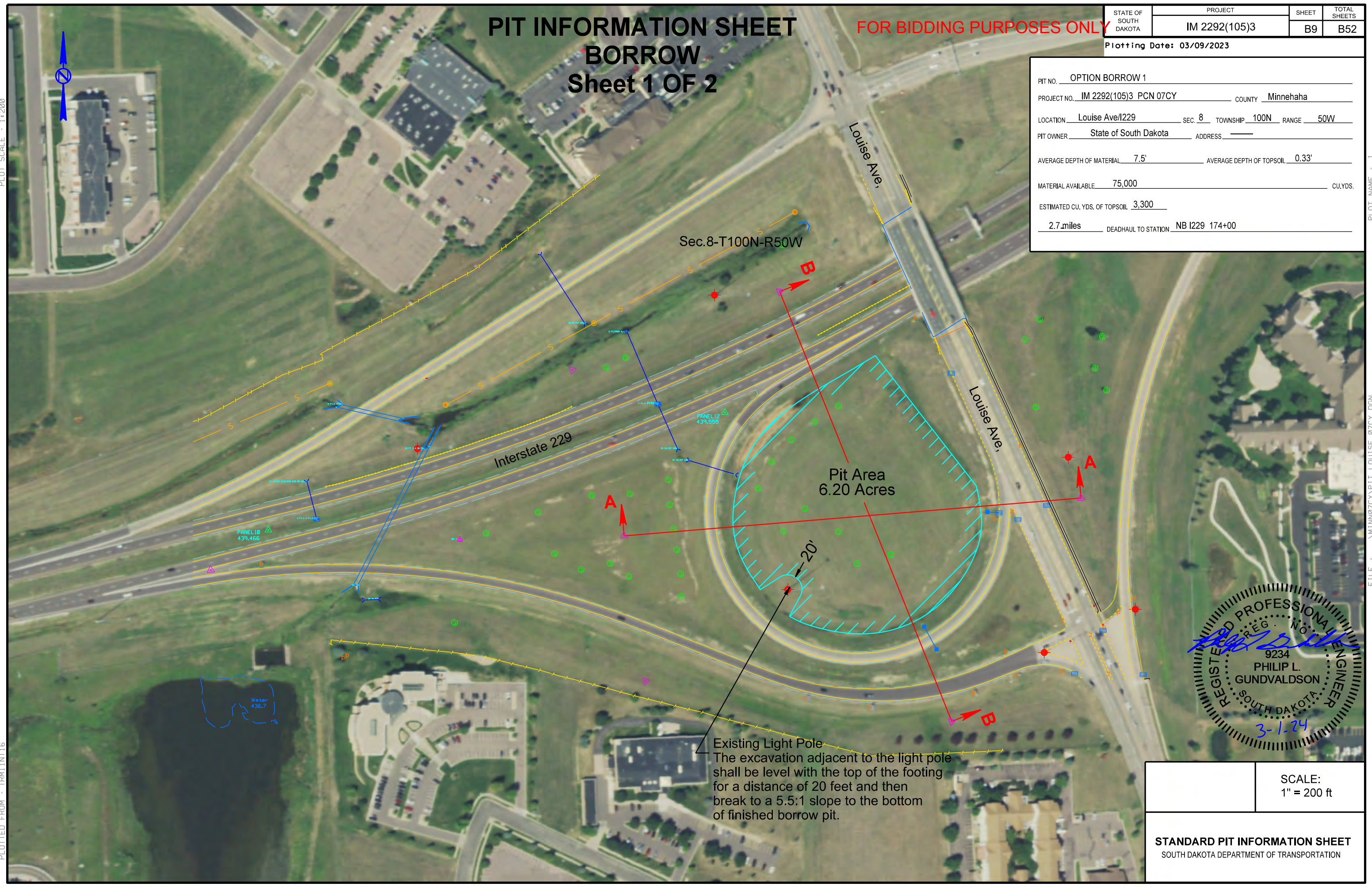
PIT NO. <u>OPTION BORROW 1</u>	
PROJECT NO. <u>IM 2292(105)3 PCN 07CY</u>	COUNTY <u>Minnehaha</u>
LOCATION <u>Louise Ave/I229</u>	SEC. <u>8</u> TOWNSHIP <u>100N</u> RANGE <u>50W</u>
PIT OWNER <u>State of South Dakota</u>	ADDRESS _____
AVERAGE DEPTH OF MATERIAL <u>7.5'</u>	AVERAGE DEPTH OF TOPSOIL <u>0.33'</u>
MATERIAL AVAILABLE <u>75,000</u>	CU.YDS.
ESTIMATED CU. YDS. OF TOPSOIL <u>3,300</u>	
<u>2.7</u> miles	DEADHAUL TO STATION <u>NB I229 174+00</u>

PLOT SCALE - 1"=200'

PLOT NAME - 1

FILE - ... \MINN07CY\PIT_LOUISE_07CY.DGN

PLOTTED FROM - TRMLINT16



Existing Light Pole
The excavation adjacent to the light pole shall be level with the top of the footing for a distance of 20 feet and then break to a 5.5:1 slope to the bottom of finished borrow pit.



	SCALE: 1" = 200 ft
STANDARD PIT INFORMATION SHEET SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION	

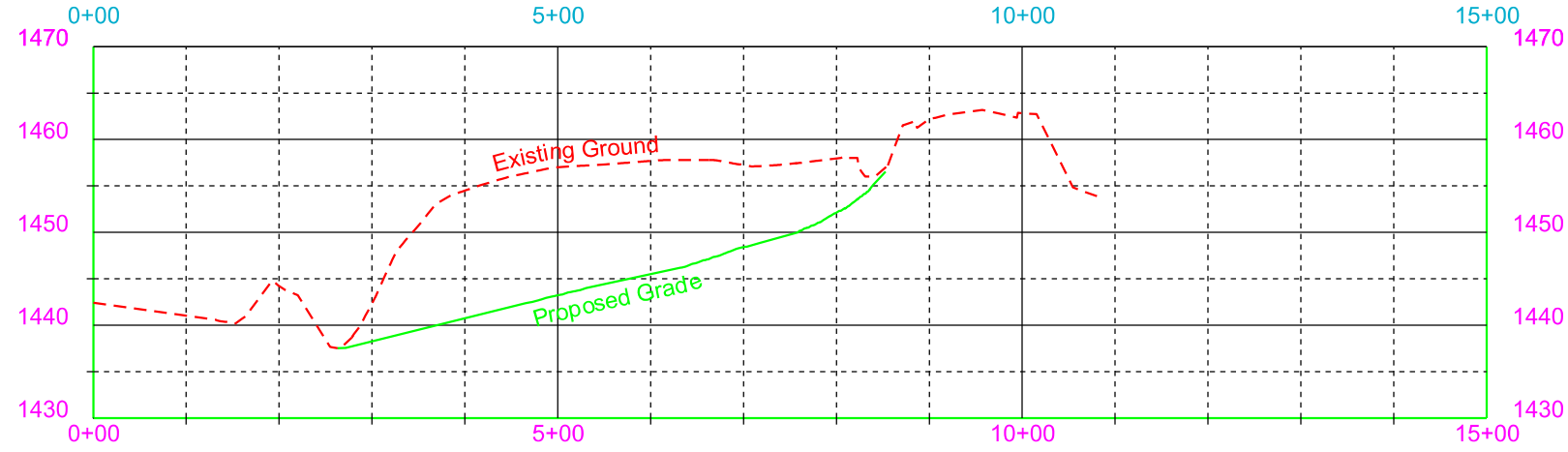
PIT INFORMATION SHEET BORROW Sheet 2 OF 2

FOR BIDDING PURPOSES ONLY

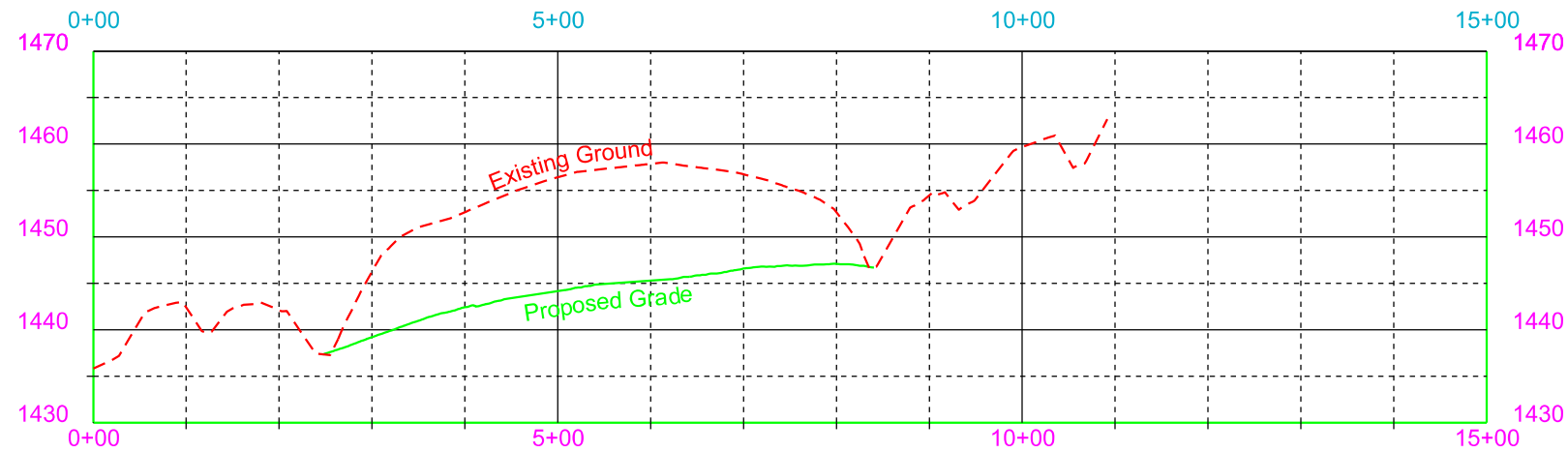
STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET B10	TOTAL SHEETS B52
-----------------------------	--------------------------	--------------	------------------------

Plotting Date: 03/09/2023

SECTION A-A



SECTION B-B



PLOT SCALE - 1:200

PLOTTED FROM - IRMLINT16

PLOT NAME - 2

FILE - ... \MINN07CY\PIT_LOUISE_07CY.DGN

TYPICAL SURFACING AND GRADING SECTIONS

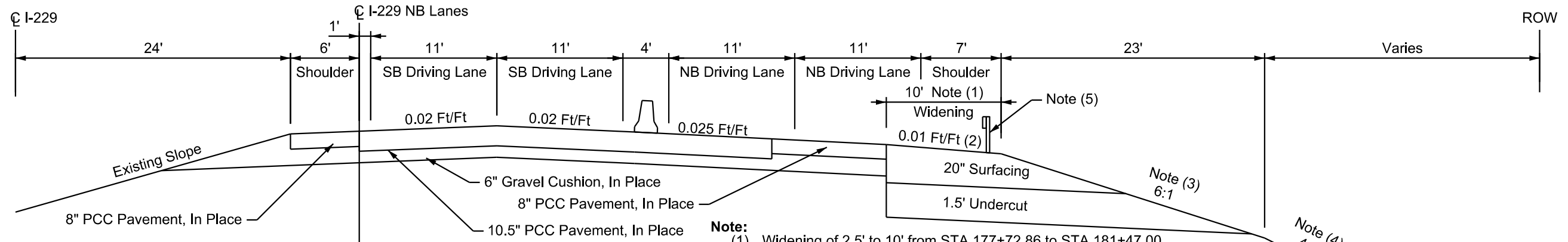
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B11	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

I-229 NB Lanes (PCN 05HN)

Sta. 177+72.86 to Sta. 197+40.24
Sta. 231+26.14 to Sta. 244+77.22



Note:

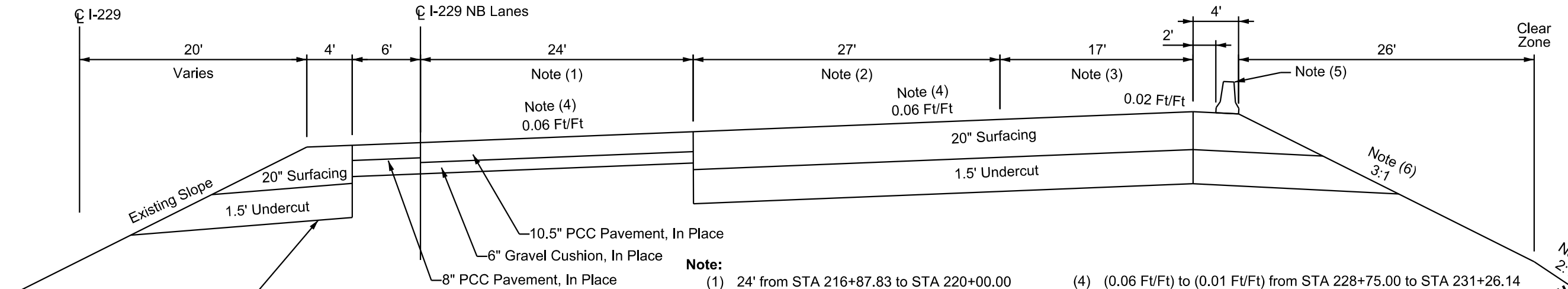
- (1) Widening of 2.5' to 10' from STA 177+72.86 to STA 181+47.00
Widening of 10' to 3.6' from STA 241+48.21 to STA 244+77.22
- (2) Varying cross-slope of (0.01 Ft/Ft) to (0.04 Ft/Ft) from STA 231+26.14 to 232+37.14
- (3) (6:1) to (3:1) from STA 194+75.00 to STA 195+00.00
(3:1) from STA 195+00.00 to STA 197+40.24
(3:1) from STA 231+26.14 to STA 244+77.22
- (4) (4:1) to (2:1) from STA 194+75.00 to STA 195+00.00
(2:1) from STA 195+00.00 to STA 196+40.24
(2:1) from STA 231+26.14 to STA 244+77.22
- (5) Guardrail STA 192+63.00 to STA 196+40.24
Concrete Barrier from STA 231+26.14 to STA 242+00.00

NOTE:

Lane configuration shown represents PCN 05HN. Refer to PCN 05HN for construction schedule and layout.

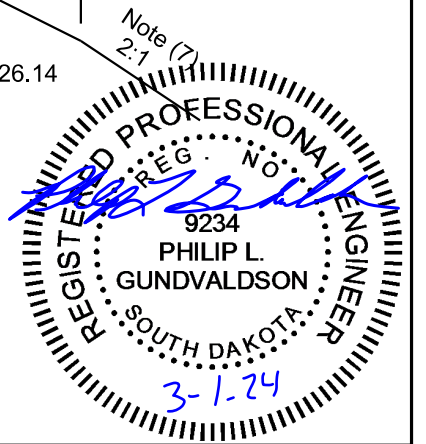
I-229 NB Lanes

Sta. 216+87.83 to Sta. 231+26.14



Note:

- (1) 24' from STA 216+87.83 to STA 220+00.00
46' from STA 220+00.00 to STA 223+50.00
36' from STA 223+50.00 to STA 231+26.14
- (2) 27' to 21' from STA 216+87.83 to STA 217+74.70
21' from STA 217+74.70 to STA 220+00.00
2' from STA 220+00.00 to STA 223+50.00
12' from STA 223+50.00 to STA 231+26.14
- (3) 17' from STA 216+87.83 to STA 217+74.70
17' to 0' from STA 217+74.70 to STA 221+53.93
- (4) (0.06 Ft/Ft) to (0.01 Ft/Ft) from STA 228+75.00 to STA 231+26.14
- (5) Concrete Barrier from STA 217+00 to STA 231+26.14
- (6) (3:1) to (4:1) from STA 221+53.93 to STA 221+75.00
(4:1) from STA 221+75.00 to STA 230+26.14
(4:1) to (3:1) from STA 230+25.00 to STA 230+50.00
(3:1) from STA 230+50.00 to STA 230+75.00
(3:1) to (4:1) from STA 230+75.00 to STA 231+00.00
(4:1) from STA 231+00.00 to STA 231+26.14
- (7) (2:1) to (4:1) from STA 221+53.93 to STA 221+75.00
(2:1) from STA 221+75.00 to STA 231+26.14



Plot Scale - 1:10

InfrastructureDesignGroup

Plotted From -

File - ...107\Cvs_SectionB_Typicals.dgn

TYPICAL SURFACING AND GRADING SECTIONS

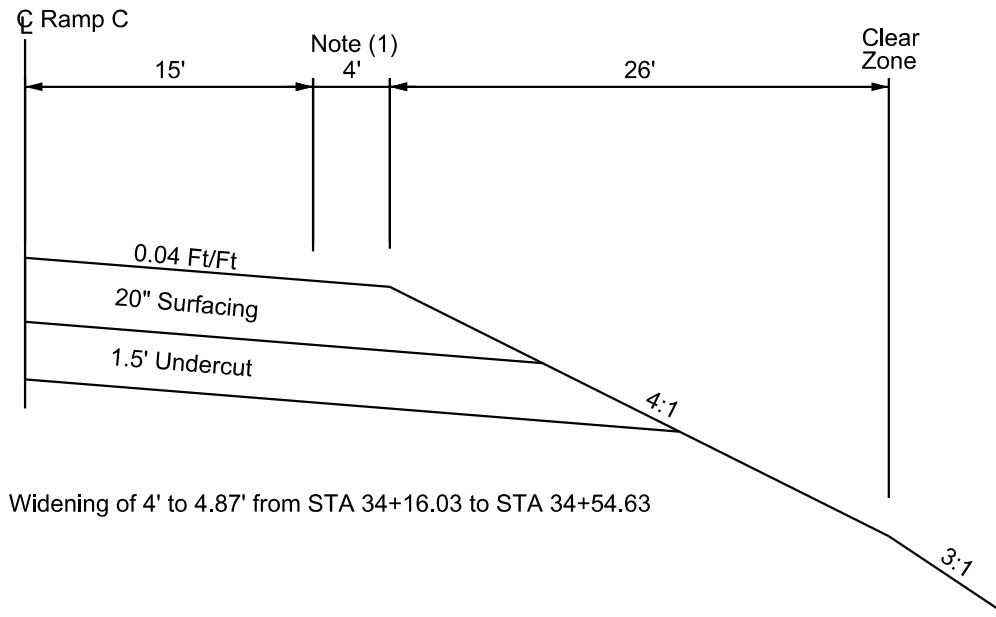
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B12	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

I229 RAMP C

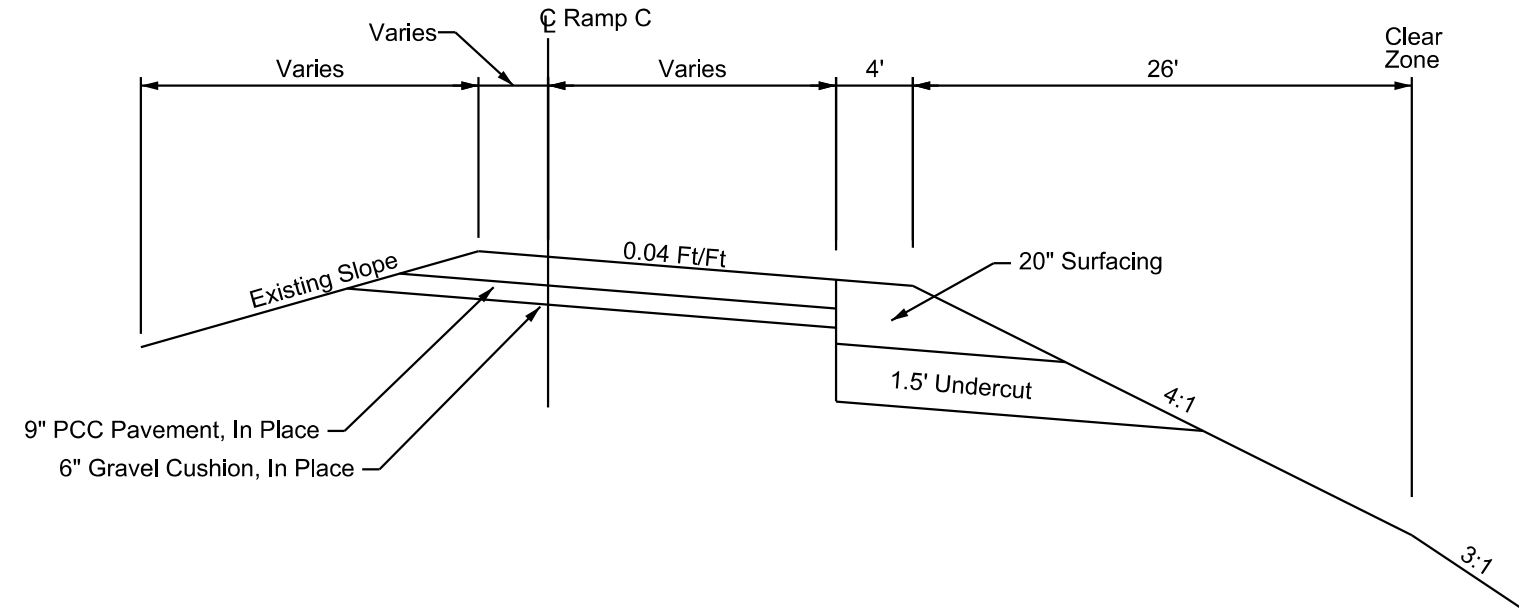
Sta. 32+83.83 to Sta. 34+54.63



Note:
(1) Widening of 4' to 4.87' from STA 34+16.03 to STA 34+54.63

I229 RAMP C

Sta. 32+83.83 to Sta. 36+29.11



Plot Scale - 1:10

InfrastructureDesignGroup

Plotted From -

File - ...107CYS_SectionB_Typicals.dgn

TYPICAL SURFACING AND GRADING SECTIONS

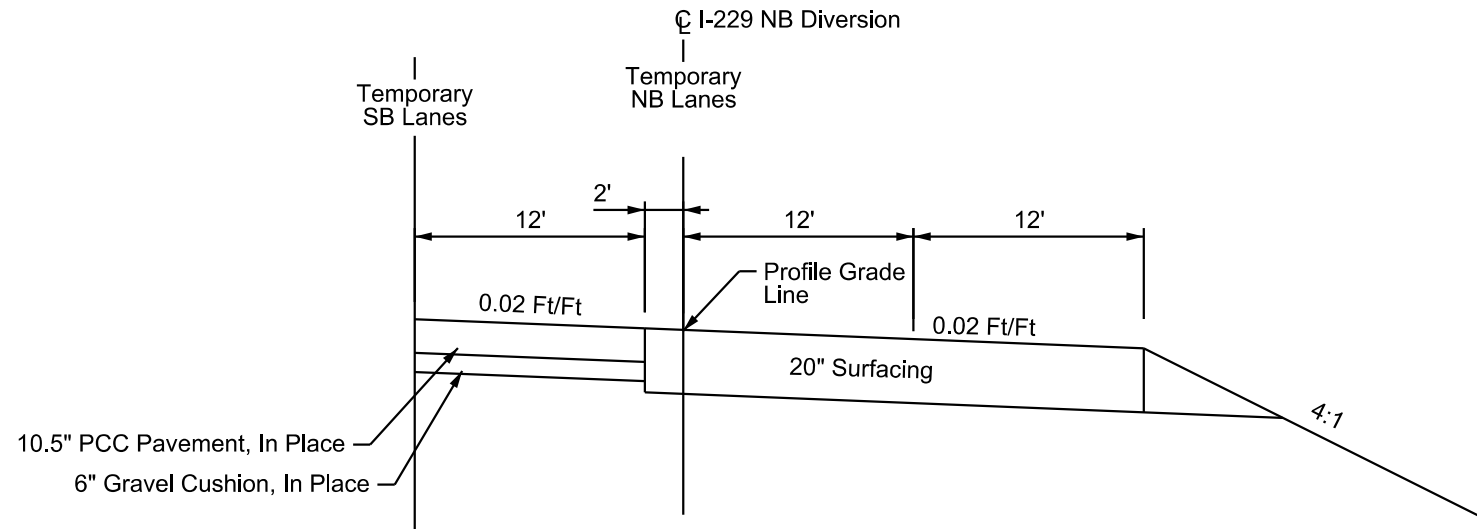
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B13	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

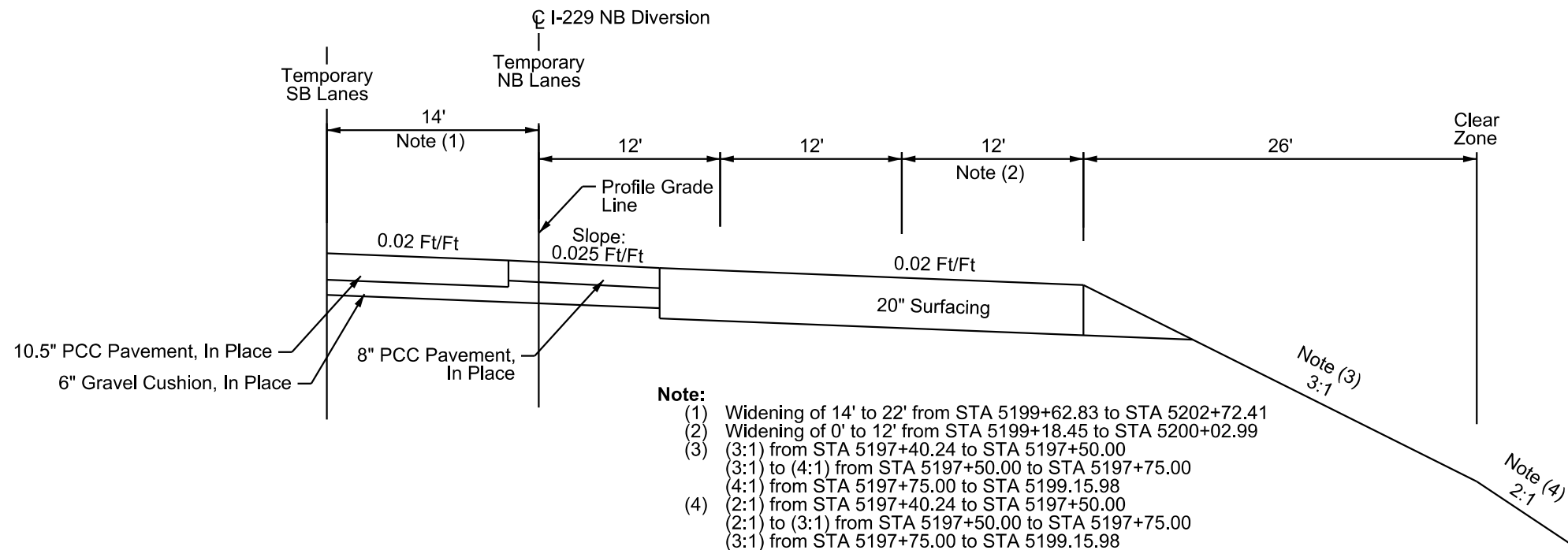
I229 NB DIVERSION

Sta. 5197+40.24 to Sta. 5199+15.98



I229 NB DIVERSION

Sta. 5199+15.98 to Sta. 5202+72.41



Note:

- (1) Widening of 14' to 22' from STA 5199+62.83 to STA 5202+72.41
- (2) Widening of 0' to 12' from STA 5199+18.45 to STA 5200+02.99
- (3) (3:1) from STA 5197+40.24 to STA 5197+50.00
(3:1) to (4:1) from STA 5197+50.00 to STA 5197+75.00
(4:1) from STA 5197+75.00 to STA 5199.15.98
- (4) (2:1) from STA 5197+40.24 to STA 5197+50.00
(2:1) to (3:1) from STA 5197+50.00 to STA 5197+75.00
(3:1) from STA 5197+75.00 to STA 5199.15.98



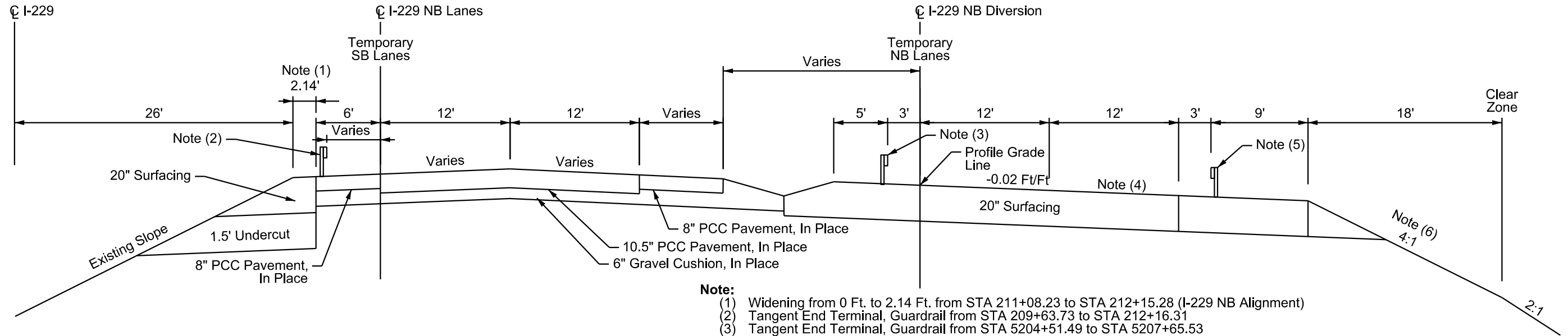
TYPICAL SURFACING AND GRADING SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B14	TOTAL SHEETS B52
Plotting Date: 03/25/2024		Rev 03/25/2024 PLG	

I229 NB DIVERSION

Sta. 5202+72.41 to Sta. 5212+19.86
NB 229 Lane Sta. 202+72.28 to Sta. 212+15.60

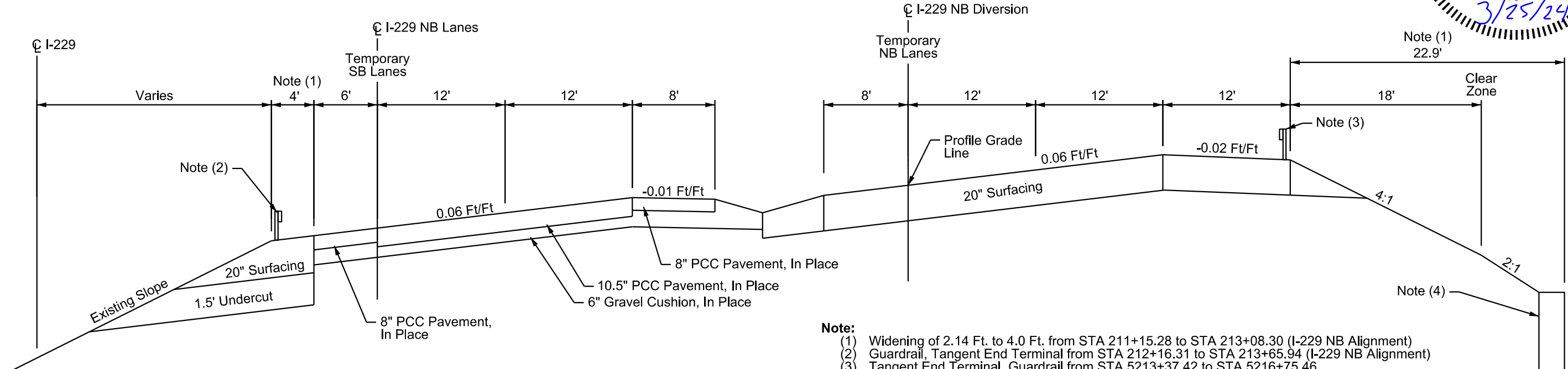


Note:

- (1) Widening from 0 Ft. to 2.14 Ft. from STA 211+08.23 to STA 212+15.28 (I-229 NB Alignment)
- (2) Tangent End Terminal, Guardrail from STA 209+63.73 to STA 212+16.31
- (3) Tangent End Terminal, Guardrail from STA 5204+51.49 to STA 5207+65.53
Guardrail, Tangent End Terminal from STA 5209+28.68 to STA 5211+80.17
- (4) Varying cross-slope of (- 0.02 Ft/Ft) to (0.06 Ft/Ft) from STA 5209+31.86 to STA 5212+13.86
- (5) Tangent End Terminal, Guardrail from STA 5205+27.69 to STA 5207+65.53
- (6) (4:1) to (2:1) from STA 5207+25.00 to STA 5207+50.00
(2:1) from STA 5207+50.00 to STA 5207+66.85
(2:1) from STA 5209+30.00 to STA 5208+31.85
(2:1) to (4:1) from STA 5209+31.85 to 5209+75.00

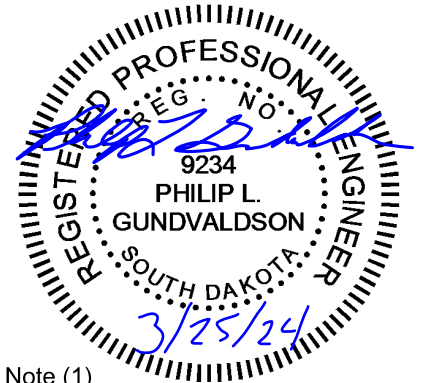
I229 NB DIVERSION

Sta. 5212+19.86 to Sta. 5217+01.32
NB 229 Lane Sta. 212+15.60 to Sta. 216+87.83



Note:

- (1) Widening of 2.14 Ft. to 4.0 Ft. from STA 211+15.28 to STA 213+08.30 (I-229 NB Alignment)
- (2) Guardrail, Tangent End Terminal from STA 212+16.31 to STA 213+65.94 (I-229 NB Alignment)
- (3) Tangent End Terminal, Guardrail from STA 5213+37.42 to STA 5216+75.46
- (4) Retaining Wall A. See Section E.



Plot Scale - 1:10

InfrastructureDesignGroup

Plotted From -

File - ...107\CVs_SectionB_Typicals.dgn

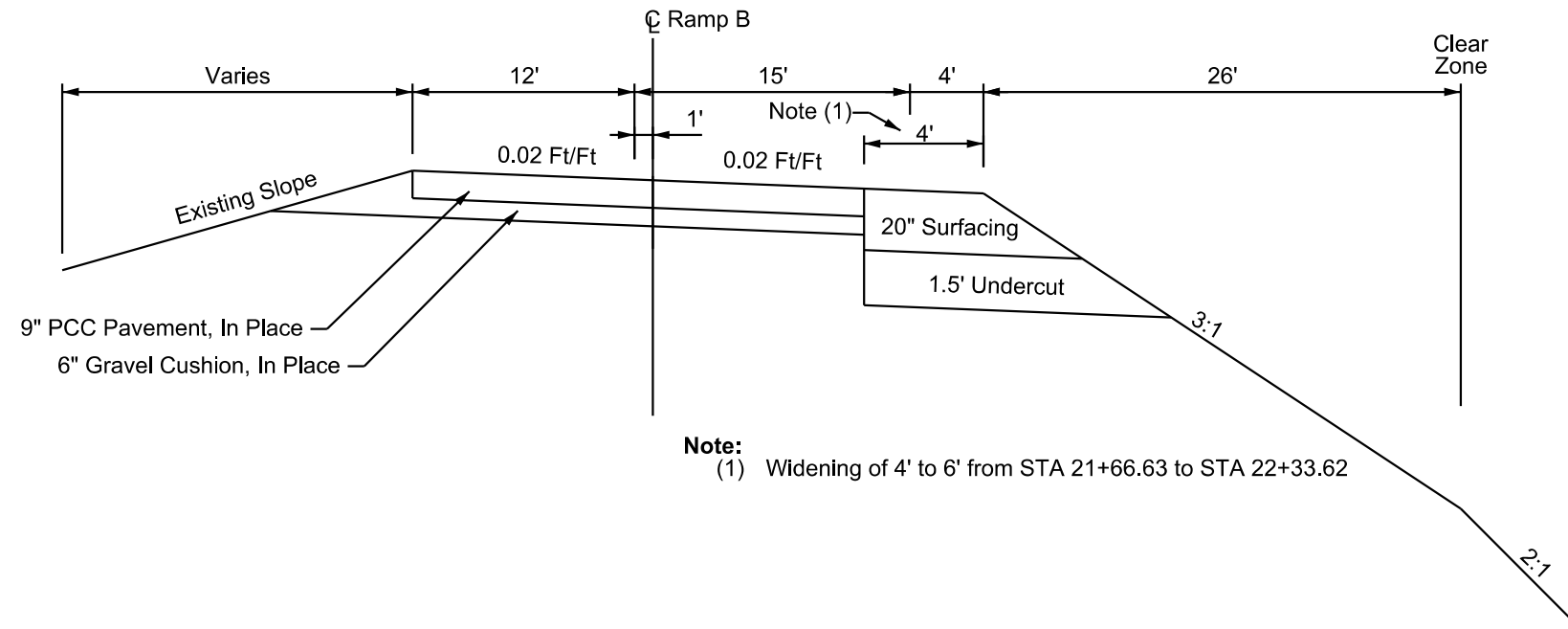
TYPICAL SURFACING AND GRADING SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B15	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

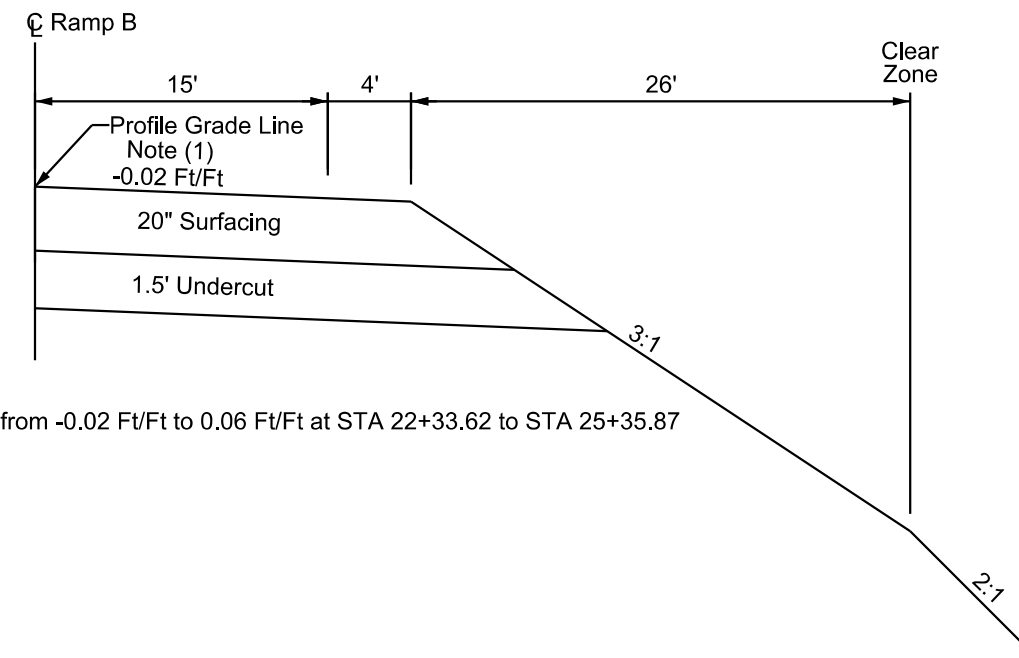
Plotting Date: 03/01/2024

I229 RAMP B Sta. 20+30.63 to Sta. 22+33.62



Note:
(1) Widening of 4' to 6' from STA 21+66.63 to STA 22+33.62

I229 RAMP B Sta. 22+33.62 to Sta. 25+35.87



Note:
(1) Cross-slope varies from -0.02 Ft/Ft to 0.06 Ft/Ft at STA 22+33.62 to STA 25+35.87



HORIZONTAL ALIGNMENT DATA FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B16	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

MAINLINE – NB I-229

RAMP B (CLIFF AVENUE TO I-229 NB)

Type	Station		Northing	Easting
POB	100+00.00		446914.137	2912124.150
		TL= 6311.23 N 59°58'19" E		
PC	163+11.23		450072.420	2924588.294
PI	168+60.19	R = 5699.58 Delta = 11°00'11" R	450347.132	2925063.575
PT	174+05.78		450526.082	2925582.550
		TL= 3702.53 N 70°58'30" E		
PC	211+08.30		451733.028	2929082.834
PI	211+18.10	R = 1939.86 Delta = 54°59'55" L	452062.201	2930037.473
PT	229+70.39		453032.994	2930315.412
		TL= 3175.21 N 15°58'35" E		
POE	261+45.60		456085.559	2930315.412

Type	Station		Northing	Easting
POB	20+00.00		451604.32	2929223.12
		TL= 134.02 N 48°49'09" E		
POE	27+14.17		452072.31	2929759.97

RAMP C (I-229 NB TO CLIFF AVENUE)

Type	Station		Northing	Easting
POB	30+00.00		451206.64	2927660.55
		TL= 10.00 N 70°58'30" E		
PC	30+10.00		451209.90	2927670.01
PI	33+21.42	R = 2315.00 Delta = 15°19'23" R	451311.42	2927964.41
PT	36+29.11		451331.52	2928275.18
		TL= 10.00 N 86°17'53" E		
POE	36+39.11		451332.17	2928285.16

I-229 NB DIVERSION

NB – CLIFF AVENUE

Type	Station		Northing	Easting
POB	5197+00.00		451249.37	2927759.93
		TL= 262.83 N 70°58'30" E		
PC	5199+62.81		451335.04	2928008.38
PI	5201+61.79	R = 6024.00 Delta = 3°47'02" R	451399.91	2928196.50
PT	5203+60.63		451452.22	2928388.48
		TL= 1.82 N 74°45'31" E		
PC	5203+62.45		451452.70	2928390.24
PI	5205+60.62	R = 6000.00 Delta = 3°47'00" L	451504.79	2928581.44
PT	5207+58.65		451569.39	2928768.79
		TL= 403.60 N 70°58'30" E		
PC	5211+62.25		451700.96	2929150.34
PI	5212+79.53	R = 833.00 Delta = 16°01'40" L	451739.19	2929261.21
PT	5213+95.27		451806.54	2929357.22
		TL= 268.76 N 54°56'51" E		
POE	5216+64.03		451960.90	2929577.23

Type	Station		Northing	Easting
POB	100+00.00		450161.24	2929002.60
		TL= 180.10 N 17°00'05" W		
PI	101+80.10		450333.47	2928949.94
		TL = 382.76 N 15°05'32" W		
PC	105+62.86		450703.03	2928850.28
PI	107+08.54	R = 1400.00 Delta = 11°52'51" R	450843.68	2928812.35
PCC	108+53.17		450989.12	2928804.19
PI	109+68.52	R = 1156.00 Delta = 11°23'48" R	451104.29	2928797.73
PT	110+83.11		451218.47	2928814.16
		TL= 843.24 N 8°11'07" E		
PC	119+26.35		452053.12	2928934.21
PI	120+97.09	R = 1800.00 Delta = 10°50'15" L	452222.12	2928958.52
PT	122+66.82		452392.68	2928950.62
		TL = 618.55 N 2°29'07" W		
POE	128+85.37		453010.58	2928922.00



Plotted From - InfrastructureDesignGroup

File - 070Y_Exit4_Horizontal-Alignment

HORIZONTAL ALIGNMENT DATA FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B17	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

RETAINING WALL A

<u>Type</u>	<u>Station</u>		<u>Northing</u>	<u>Easting</u>
POB	1000+00.00		451682.492	2929307.002
		TL= 316.51 N 48°47'44" E		
PI	1003+16.51		451890.995	2929545.134
		TL = 33.49 N 51°00'24" E		
POE	1003+50.00		451912.066	2929571.162

RETAINING WALL B

<u>Type</u>	<u>Station</u>		<u>Northing</u>	<u>Easting</u>
POB	2000+00.00		451486.195	2928764.620
		TL= 54.00 N 53°07'37" E		
PI	2000+54.00		451518.597	2928807.818
		TL = 96.00 N 8°07'37" E		
POE	2001+50.00		451613.633	2928821.389

RETAINING WALL C

<u>Type</u>	<u>Station</u>		<u>Northing</u>	<u>Easting</u>
POB	3000+00.00		451540.024	2928890.916
		TL= 200.00 N 7°51'57" E		
POE	3002+00.00		451738.142	2928918.286



Plotted From: InfrastructureDesignGroup

File - 07CY_Exit4_Horizontal-Alignment

CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B18	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	ALIGNMENT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP200	MAINLINE - NB 229	225+13	1311' L	Rebar with Aluminum Cap	453257.581	2928997.459	1428.44
CP201	MAINLINE - NB 229	217+86	1150' L	Rebar with Aluminum Cap	452953.106	2928948.25	1416.31
CP202	MAINLINE - NB 229	213+80	794' L	Rebar with Aluminum Cap	452546	2928971.599	1405.86
CP203	MAINLINE - NB 229	212+18	512' L	Rebar with Aluminum Cap	452245.451	2928991.279	1401.45
CP204	MAINLINE - NB 229	209+43	214' L	Rebar with Aluminum Cap	451881.624	2928856.34	1402.7
CP205	MAINLINE - NB 229	208+27	192' R	Rebar with Aluminum Cap	451459.832	2928879.769	1403.36
CP206	MAINLINE - NB 229	205+60	574' R	Rebar with Aluminum Cap	451011.267	2928751.943	1403.39
CP207	MAINLINE - NB 229	205+09	905' R	Rebar with Aluminum Cap	450681.723	2928811.263	1405.32
CP208	MAINLINE - NB 229	205+49	1265' R	Rebar with Aluminum Cap	450354.493	2928966.709	1413.2
CP209	MAINLINE - NB 229	210+15	785' L	Rebar with Aluminum Cap	452444.927	2928738.39	1405.89
CP210	MAINLINE - NB 229	207+22	703' L	Rebar with Aluminum Cap	452271.814	2928488.751	1404.38
CP211	MAINLINE - NB 229	204+86	705' L	Rebar with Aluminum Cap	452197.008	2928264.923	1405.14
CP212	MAINLINE - NB 229	202+36	629' L	Rebar with Aluminum Cap	452043.284	2928053.019	1406.18
CP213	MAINLINE - NB 229	200+35	653' L	Rebar with Aluminum Cap	452000.688	2927854.823	1407.14
CP214	MAINLINE - NB 229	198+21	198' L	Rebar with Aluminum Cap	451500.487	2927801.456	1399.58
CP215	MAINLINE - NB 229	204+13	271' L	Rebar with Aluminum Cap	451762.118	2928337.089	1399.99
CP216	MAINLINE - NB 229	207+74	446' L	Rebar with Aluminum Cap	452046.011	2928621.785	1401.36
CP217	MAINLINE - NB 229	199+24	115' L	Rebar with Aluminum Cap	451455.553	2927925.66	1407.42
CP218	MAINLINE - NB 229	189+08	112' L	Rebar with Aluminum Cap	451121.845	2926966.566	1404.86
CP219	MAINLINE - NB 229	178+78	116' L	Rebar with Aluminum Cap	450789.897	2925991.307	1405.46
CP220	MAINLINE - NB 229	184+61	55' R	Rebar with Aluminum Cap	450817.86	2926597.757	1405.49
CP221	MAINLINE - NB 229	193+21	55' R	Rebar with Aluminum Cap	451098.163	2927410.879	1404.64
CP222	MAINLINE - NB 229	204+82	44' R	Rebar with Aluminum Cap	451487.356	2928504.982	1420.43
CP223	MAINLINE - NB 229	213+90	39' R	Rebar with Aluminum Cap	451809.247	2929359.831	1421.04
CP224	MAINLINE - NB 229	223+62	55' R	Rebar with Aluminum Cap	452453.671	2930105.44	1407.47
CP225	MAINLINE - NB 229	233+75	58' R	Rebar with Aluminum Cap	453405.477	2930482.892	1401.91
CP226	MAINLINE - NB 229	238+25	112' L	Rebar with Aluminum Cap	453885.423	2930442.795	1402.1
CP227	MAINLINE - NB 229	227+46	128' L	Rebar with Aluminum Cap	452870.496	2930123.296	1399.37
CP228	MAINLINE - NB 229	218+83	337' L	Rebar with Aluminum Cap	452373.869	2929520.959	1399.3
CP229	MAINLINE - NB 229	210+56	486' L	NGS: C 449	452176.07	2928875.237	1400.71

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System, South Zone (NAD 83 CONUS); Geoid 12B; SF = 0.99984555956.
The elevations shown on this sheet are based on NAVD 88.



Plot Scale - NA

InfrastructureDesignGroup

Plotted From -

File - ...107\CVs_SectionB_ControlPoints.dgn

EXISTING TOPOGRAPHY SYMBOLOLOGY AND LEGEND

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B19	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

Plot Scale - NA

InfrastructureDesignGroup

Plotted From -

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



File - ...107/CVs_SectionB_Layout.dgn

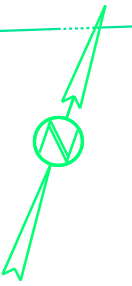
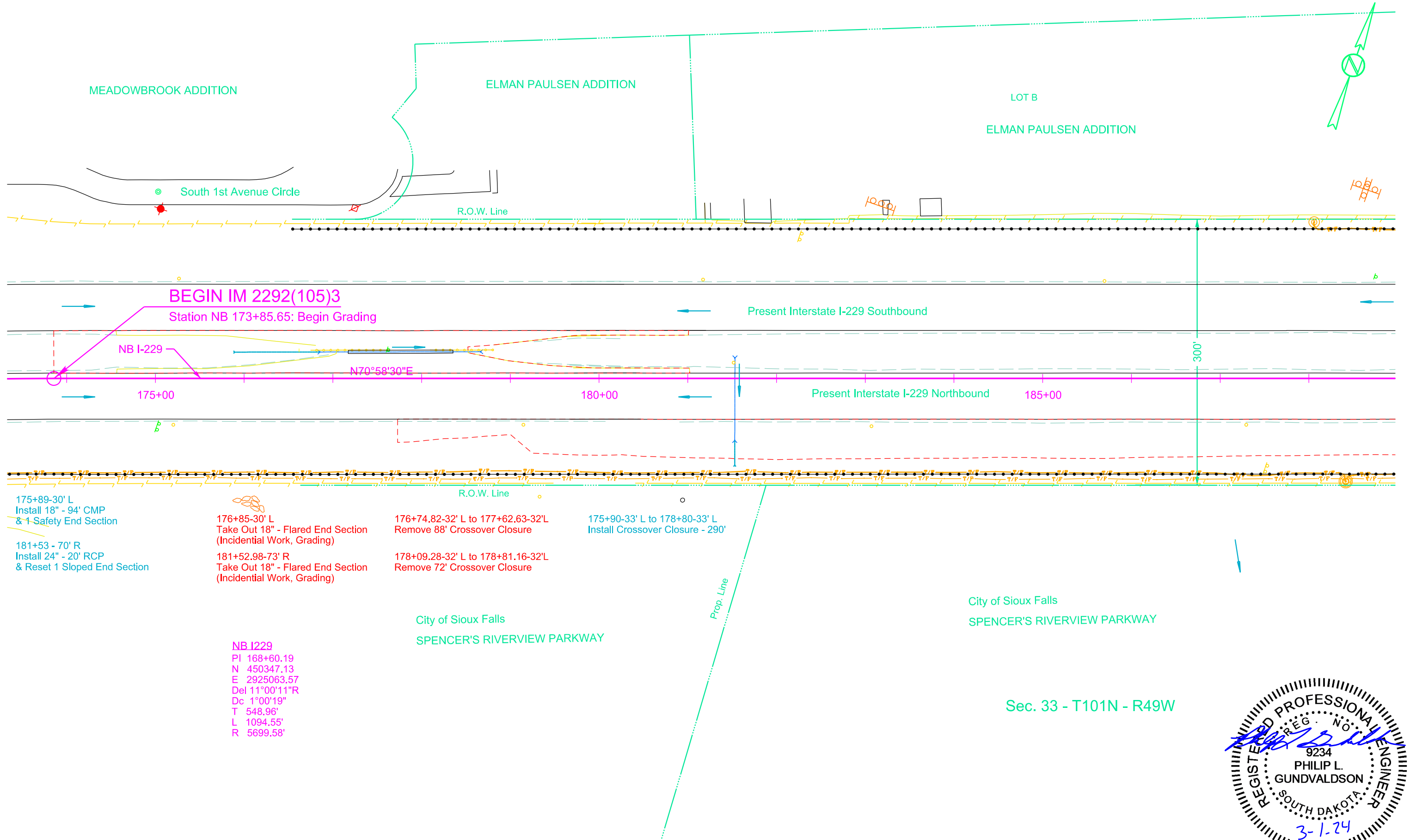
I229 NB & SB

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B20	B52

Plotting Date: 03/01/2024

Plot Scale - 1:100



NB I-229
 PI 168+60.19
 N 450347.13
 E 2925063.57
 Del 11°00'11"R
 Dc 1°00'19"
 T 548.96'
 L 1094.55'
 R 5699.58'

City of Sioux Falls
 SPENCER'S RIVERVIEW PARKWAY

City of Sioux Falls
 SPENCER'S RIVERVIEW PARKWAY

Sec. 33 - T101N - R49W



InfrastructureDesignGroup

Plotted From -

File - ...107CVs_SectionB_UFP.dgn

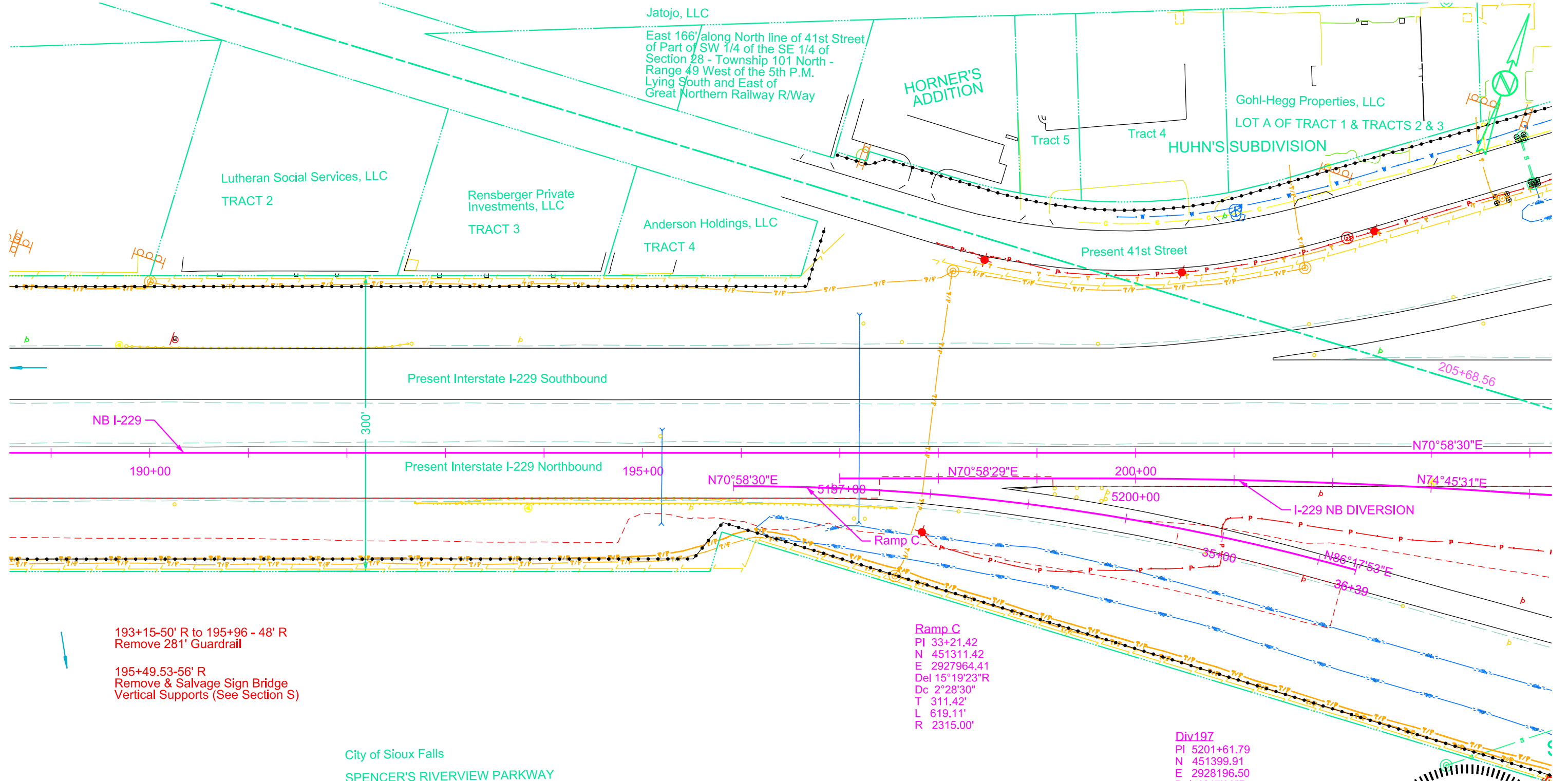
I229 NB & SB

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B21	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

Plot Scale - 1:100

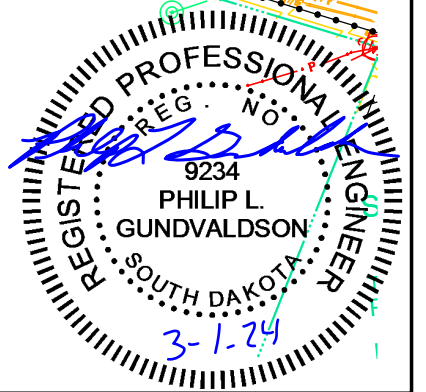


193+15-50' R to 195+96 - 48' R
Remove 281' Guardrail

195+49.53-56' R
Remove & Salvage Sign Bridge
Vertical Supports (See Section S)

Ramp C
PI 33+21.42
N 451311.42
E 2927964.41
Del 15°19'23"R
Dc 2°28'30"
T 311.42'
L 619.11'
R 2315.00'

Div197
PI 5201+61.79
N 451399.91
E 2928196.50
Del 3°47'02"R
Dc 0°57'04"
T 198.98'
L 397.82'
R 6024.00'



InfrastructureDesignGroup

Plotted From -

File - ...107C\ys_SectionB_UPPP.dgn

I229 NB DIVERSION

FOR BIDDING PURPOSES ONLY

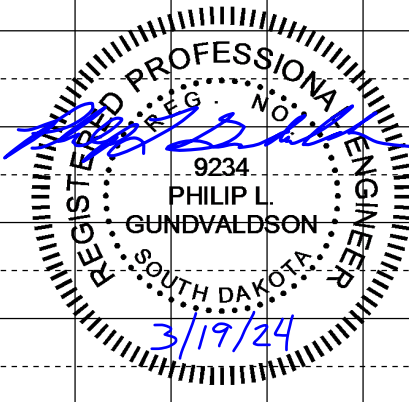
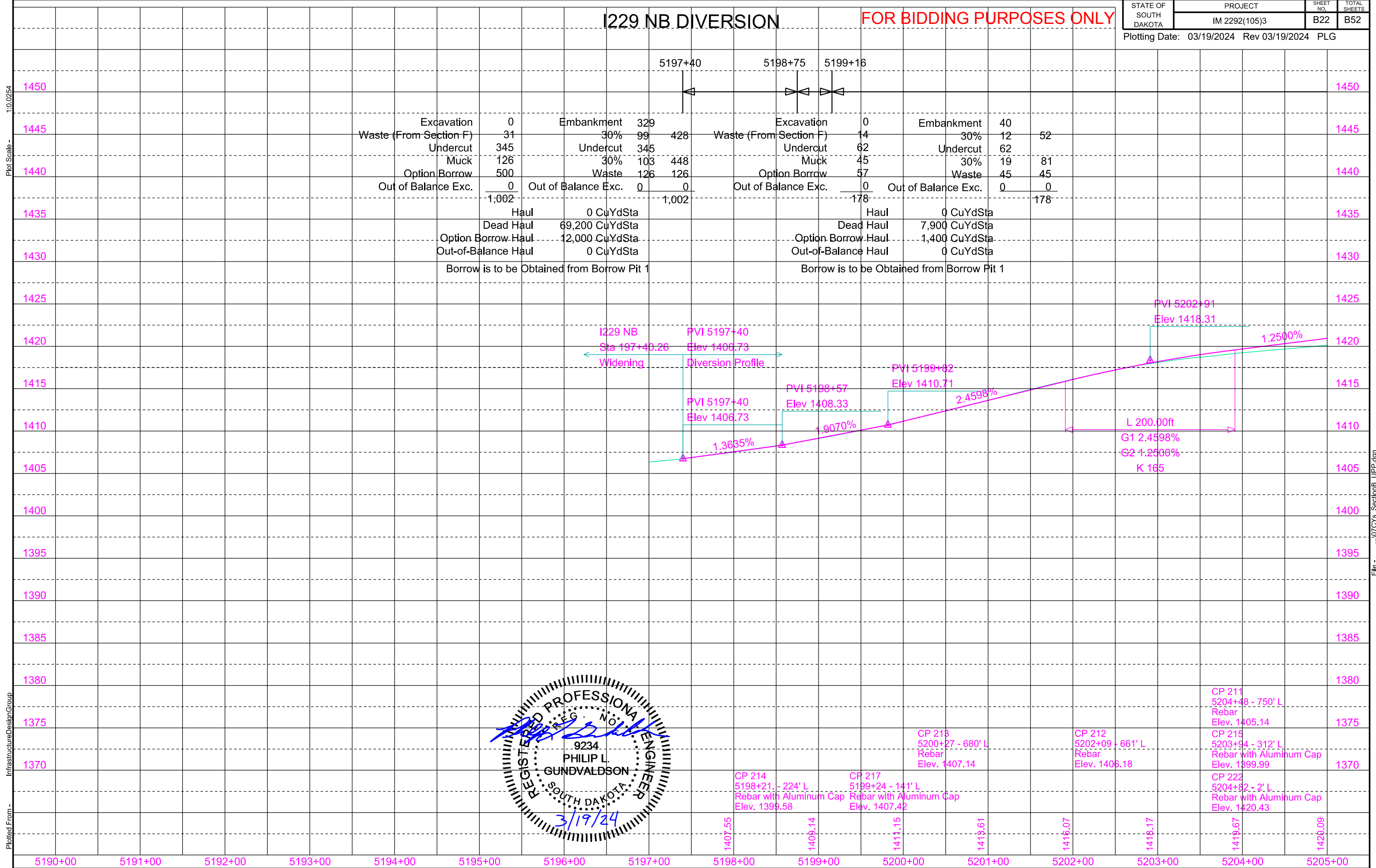
STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B22	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/19/2024 Rev 03/19/2024 PLG

Plot Scale - 1:0.0254

InfrastructureDesignGroup

Plotted From -



File - ...107Cys_SectionB_UPP.dgn

1229 RAMP C DIVERSION

FOR BIDDING PURPOSES ONLY

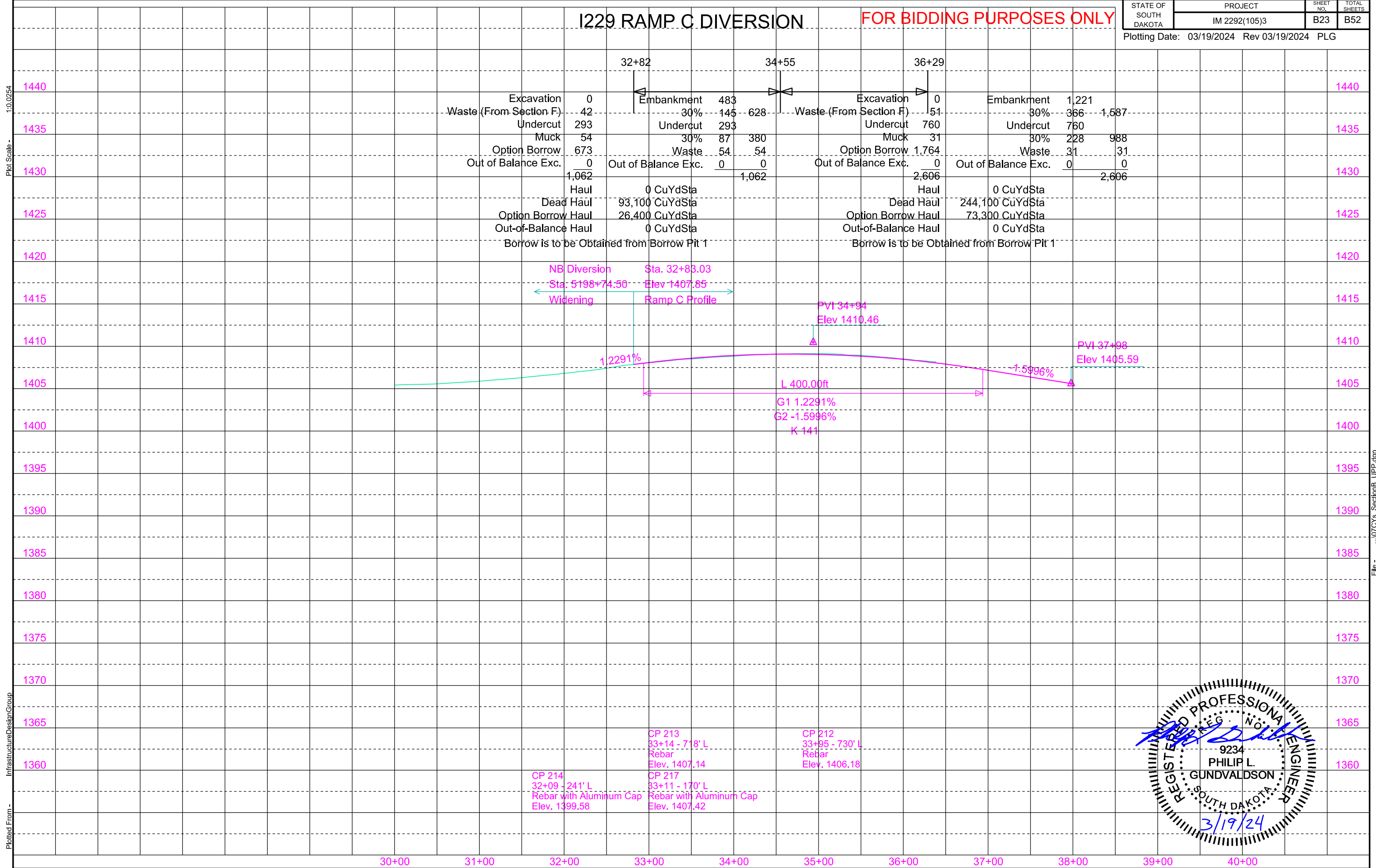
STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B23	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/19/2024 Rev 03/19/2024 PLG

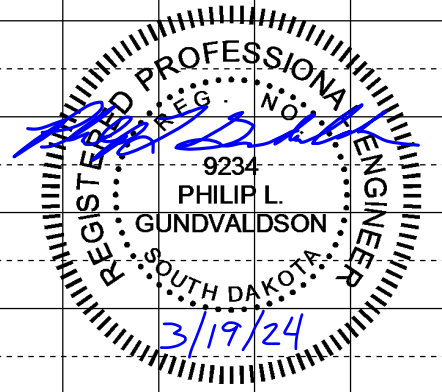
Plot Scale - 1:0.0254

InfrastructureDesignGroup

Plotted From -



File - ...107CVs_SectionB_LUPP.dgn



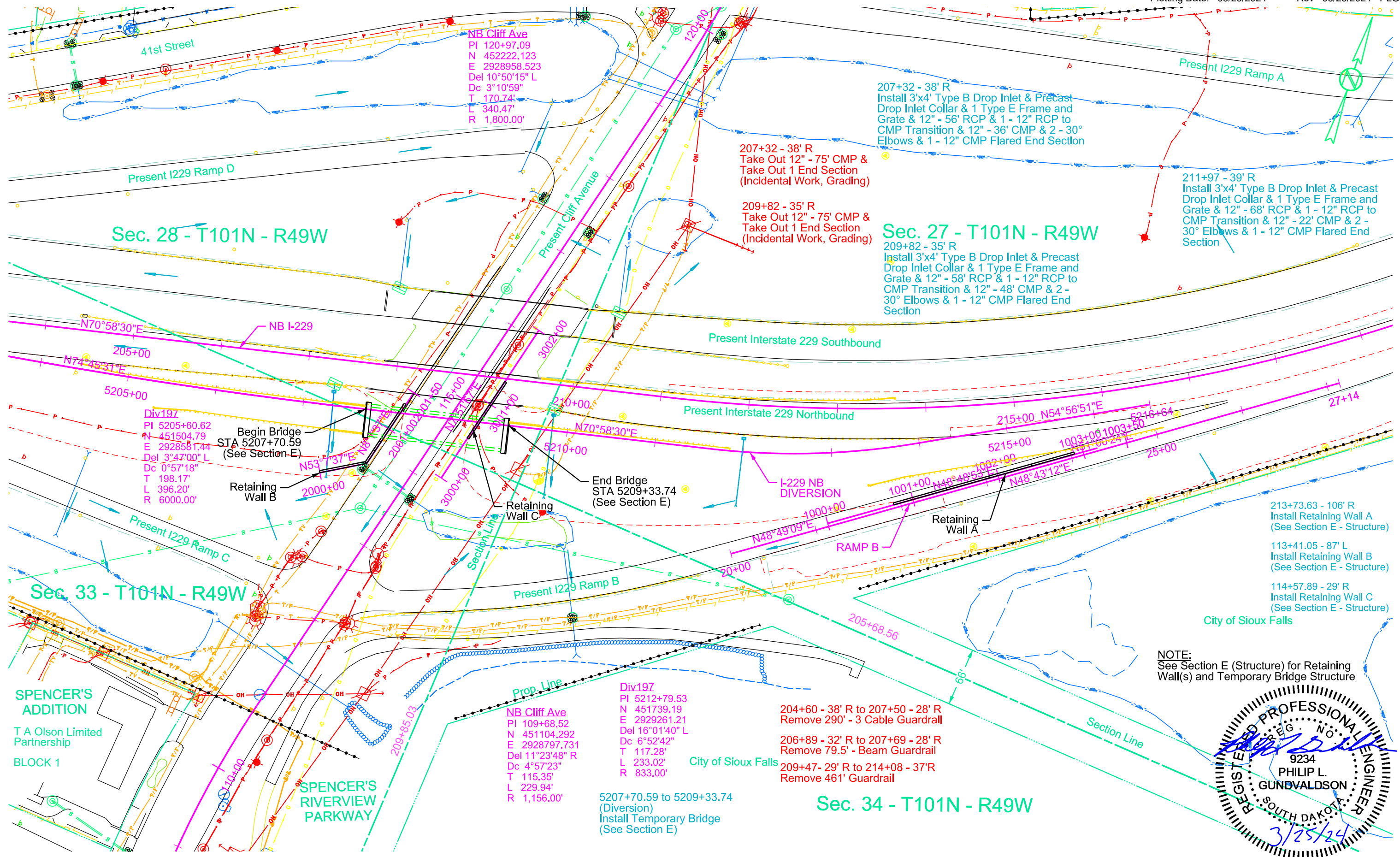
I229 NB & SB

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B24	TOTAL SHEETS B52
Plotting Date: 03/25/2024		Rev 03/25/2024 PLG	

Plot Scale - 1:100

Plotted From - InfrastructureDesignGroup



NB Cliff Ave
 PI 120+97.09
 N 452222.123
 E 2928958.523
 Del 10°50'15" L
 Dc 3°10'59"
 T 170.74'
 L 340.47'
 R 1,800.00'

207+32 - 38' R
 Install 3'x4' Type B Drop Inlet & Precast Drop Inlet Collar & 1 Type E Frame and Grate & 12" - 56' RCP & 1 - 12" RCP to CMP Transition & 12" - 36' CMP & 2 - 30° Elbows & 1 - 12" CMP Flared End Section

207+32 - 38' R
 Take Out 12" - 75' CMP & Take Out 1 End Section (Incidental Work, Grading)

209+82 - 35' R
 Take Out 12" - 75' CMP & Take Out 1 End Section (Incidental Work, Grading)

211+97 - 39' R
 Install 3'x4' Type B Drop Inlet & Precast Drop Inlet Collar & 1 Type E Frame and Grate & 12" - 68' RCP & 1 - 12" RCP to CMP Transition & 12" - 22' CMP & 2 - 30° Elbows & 1 - 12" CMP Flared End Section

Sec. 27 - T101N - R49W
 209+82 - 35' R
 Install 3'x4' Type B Drop Inlet & Precast Drop Inlet Collar & 1 Type E Frame and Grate & 12" - 58' RCP & 1 - 12" RCP to CMP Transition & 12" - 48' CMP & 2 - 30° Elbows & 1 - 12" CMP Flared End Section

Div197
 PI 5205+60.62
 N 451504.79
 E 2928581.44
 Del 3°47'00" L
 Dc 0°57'18"
 T 198.17'
 L 396.20'
 R 6000.00'

Begin Bridge
 STA 5207+70.59
 (See Section E)

End Bridge
 STA 5209+33.74
 (See Section E)

213+73.63 - 106' R
 Install Retaining Wall A (See Section E - Structure)

113+41.05 - 87' L
 Install Retaining Wall B (See Section E - Structure)

114+57.89 - 29' R
 Install Retaining Wall C (See Section E - Structure)

City of Sioux Falls

NOTE:
 See Section E (Structure) for Retaining Wall(s) and Temporary Bridge Structure

NB Cliff Ave
 PI 109+68.52
 N 451104.292
 E 2928797.731
 Del 11°23'48" R
 Dc 4°57'23"
 T 115.35'
 L 229.94'
 R 1,156.00'

Div197
 PI 5212+79.53
 N 451739.19
 E 2929261.21
 Del 16°01'40" L
 Dc 6°52'42"
 T 117.28'
 L 233.02'
 R 833.00'

204+60 - 38' R to 207+50 - 28' R
 Remove 290' - 3 Cable Guardrail

206+89 - 32' R to 207+69 - 28' R
 Remove 79.5' - Beam Guardrail

209+47 - 29' R to 214+08 - 37' R
 Remove 461' Guardrail

5207+70.59 to 5209+33.74
 (Diversion)
 Install Temporary Bridge (See Section E)

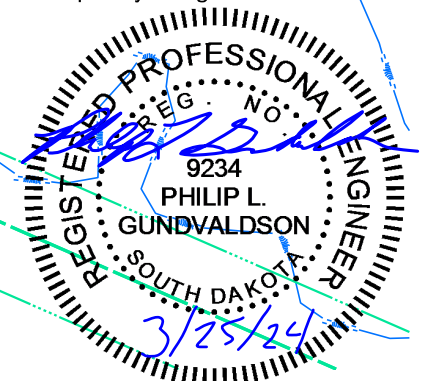
Sec. 34 - T101N - R49W

SPENCER'S ADDITION

T A Olson Limited Partnership

BLOCK 1

SPENCER'S RIVERVIEW PARKWAY



File - ...107CYS_SectionB_UAPP.dgn

I229 NB DIVERSION

FOR BIDDING PURPOSES ONLY

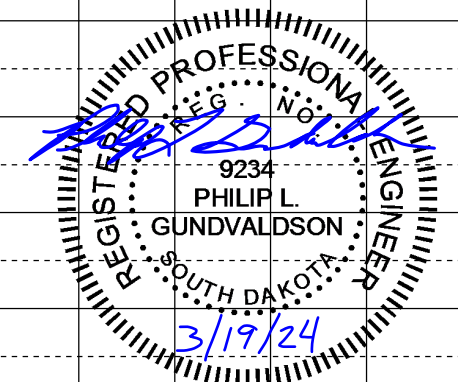
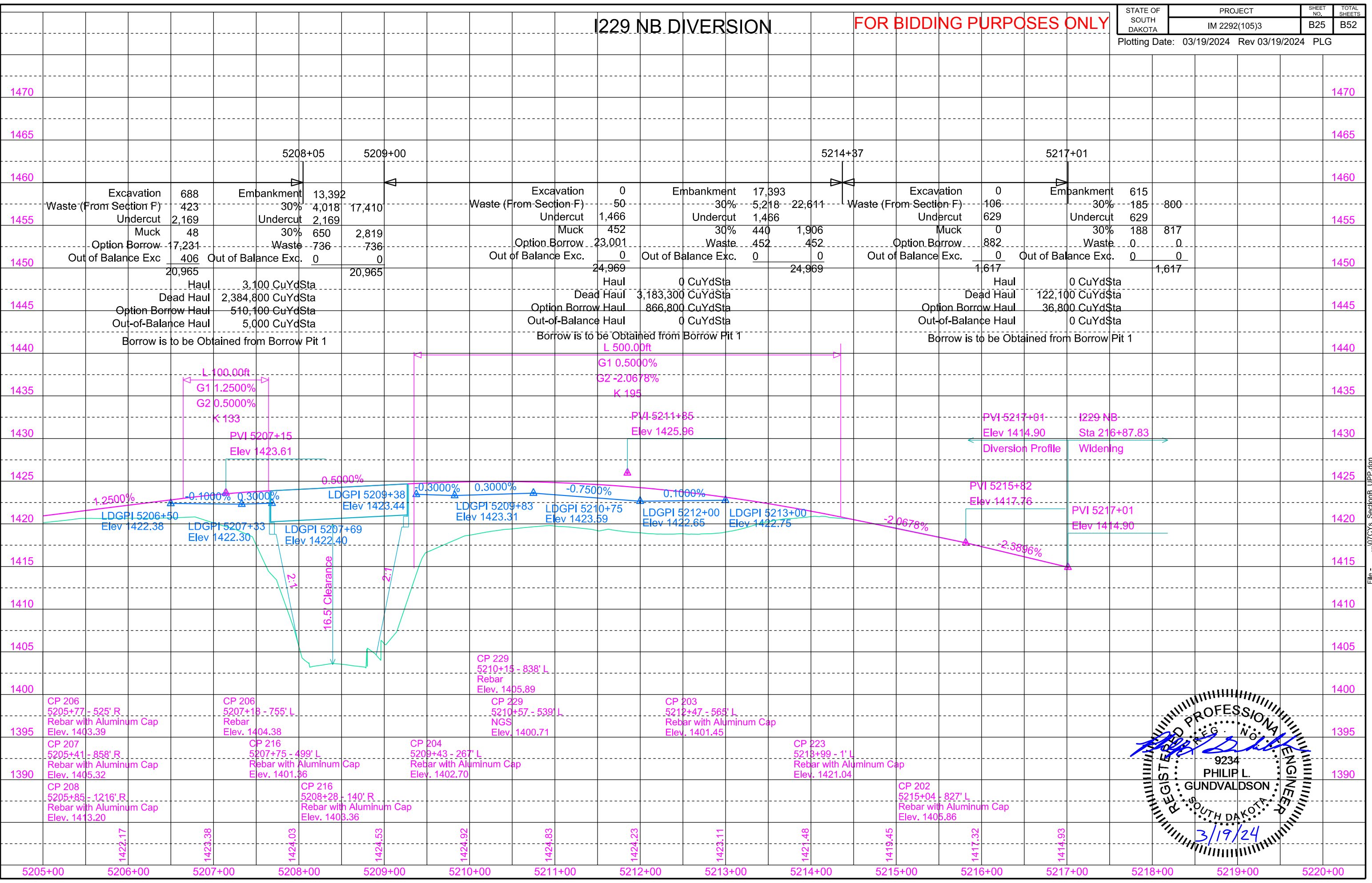
STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B25	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/19/2024 Rev 03/19/2024 PLG

Plot Scale - 1:0.0254

InfrastructureDesignGroup

Plotted From -



File - ...107CVs_SectionB_LUPP.dgn

1229 RAMP B DIVERSION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B26	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/19/2024 Rev 03/19/2024 PLG

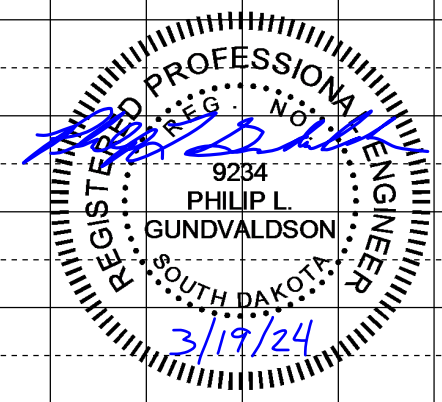
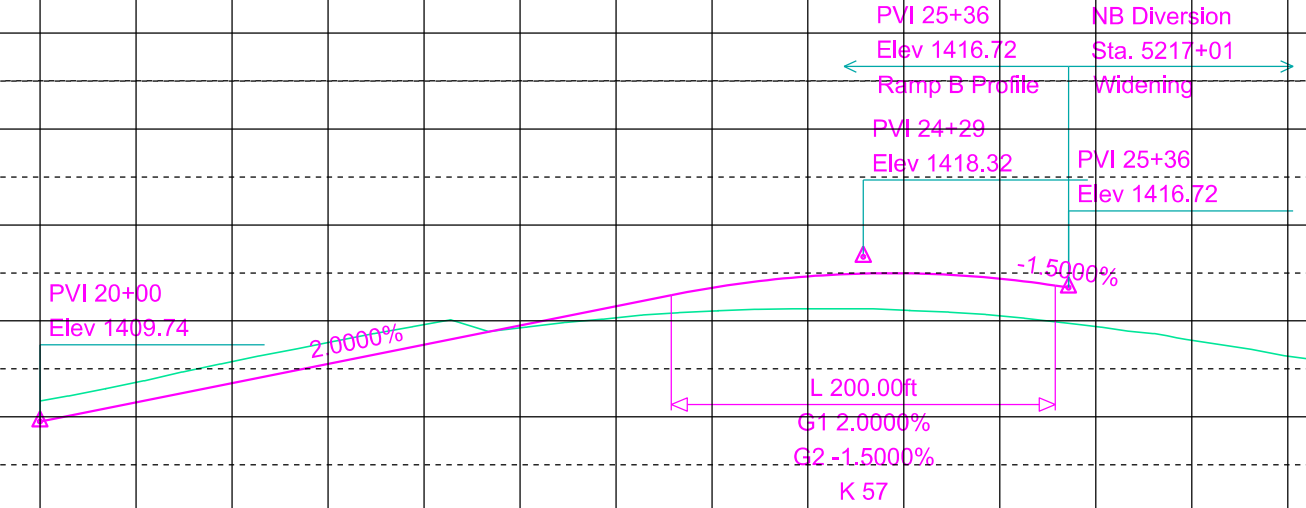
Plot Scale - 1:0.0254

InfrastructureDesignGroup

Plotted From -

Station	Excavation	Embankment	Waste (From Section F)	Undercut	Muck	Option Borrow	Out of Balance Exc.	Haul	Dead Haul	Option Borrow Haul	Out-of-Balance Haul
20+31	0	317	14	121	0	434	0	0	60,100	11,300	0
22+34	412	95	30%	121	36	0	0	569			
25+36	0	1,719	27	419	0	2,334	0	2,780	323,000	63,500	0
			30%	419	126	0	0	2,780			

Borrow is to be Obtained from Borrow Pit 1



- CP 209
21+90 - 952' L
Rebar
Elev. 1405.89
- CP 229
21+15 - 659' L
NGS
Elev. 1400.71
- CP 223
22+49 - 635' L
Rebar with Aluminum Cap
Elev. 1401.45
- CP 223
22+38 - 64' L
Rebar with Aluminum Cap
Elev. 1421.04
- CP 202
24+32 - 874' L
Rebar with Aluminum Cap
Elev. 1405.86
- CP 201
26+83 - 1195' L
Rebar with Aluminum Cap
Elev. 1416.31

18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00

File - ...107CYs_SectionB_UPP.dgn

I229 NB & SB

FOR BIDDING PURPOSES ONLY

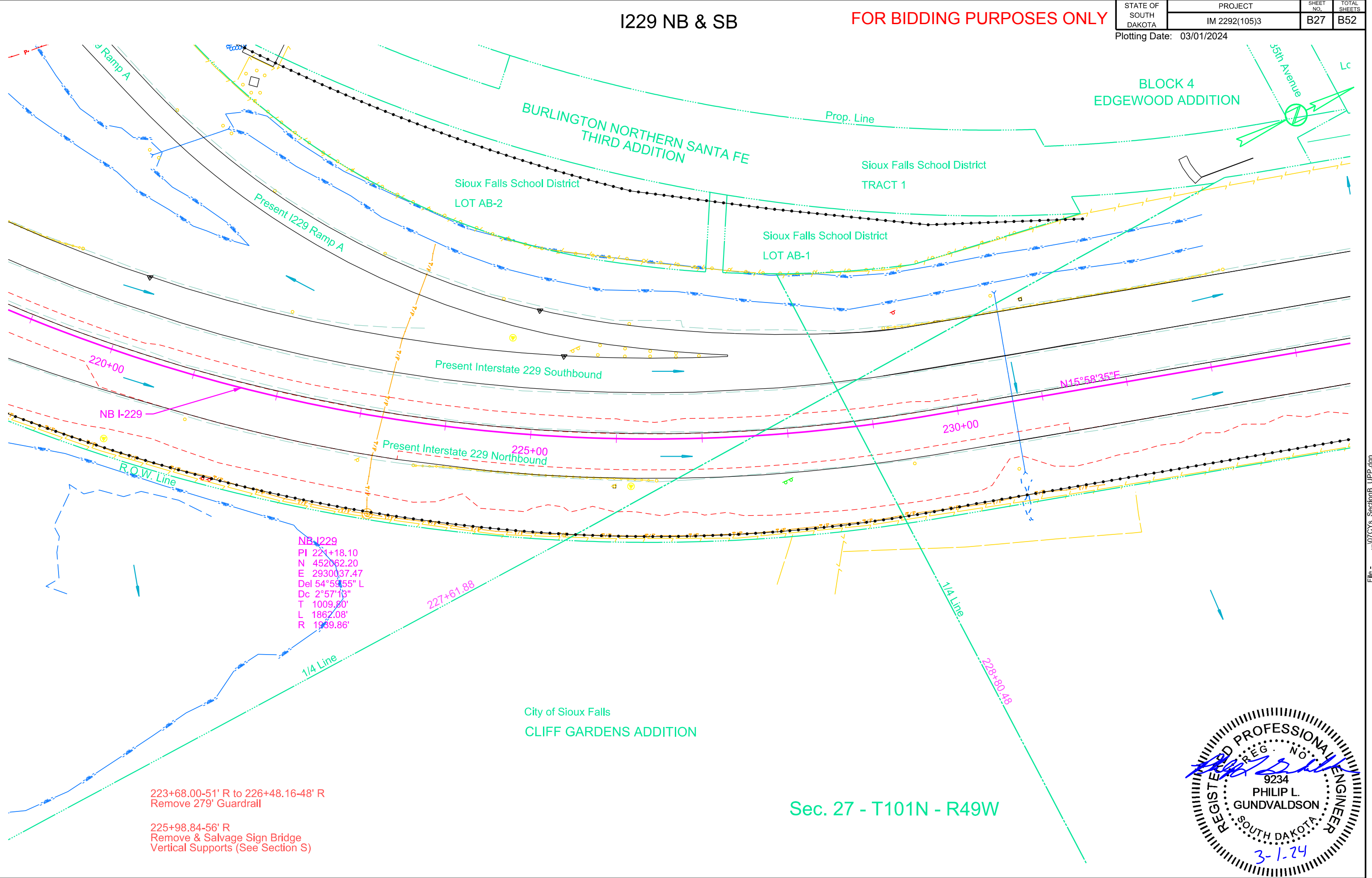
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B27	B52

Plotting Date: 03/01/2024

Plot Scale - 1:100

InfrastructureDesignGroup

Plotted From -



File - ...107CVs_SectionB_LUPP.dgn



Sec. 27 - T101N - R49W

I229 NB & SB

FOR BIDDING PURPOSES ONLY

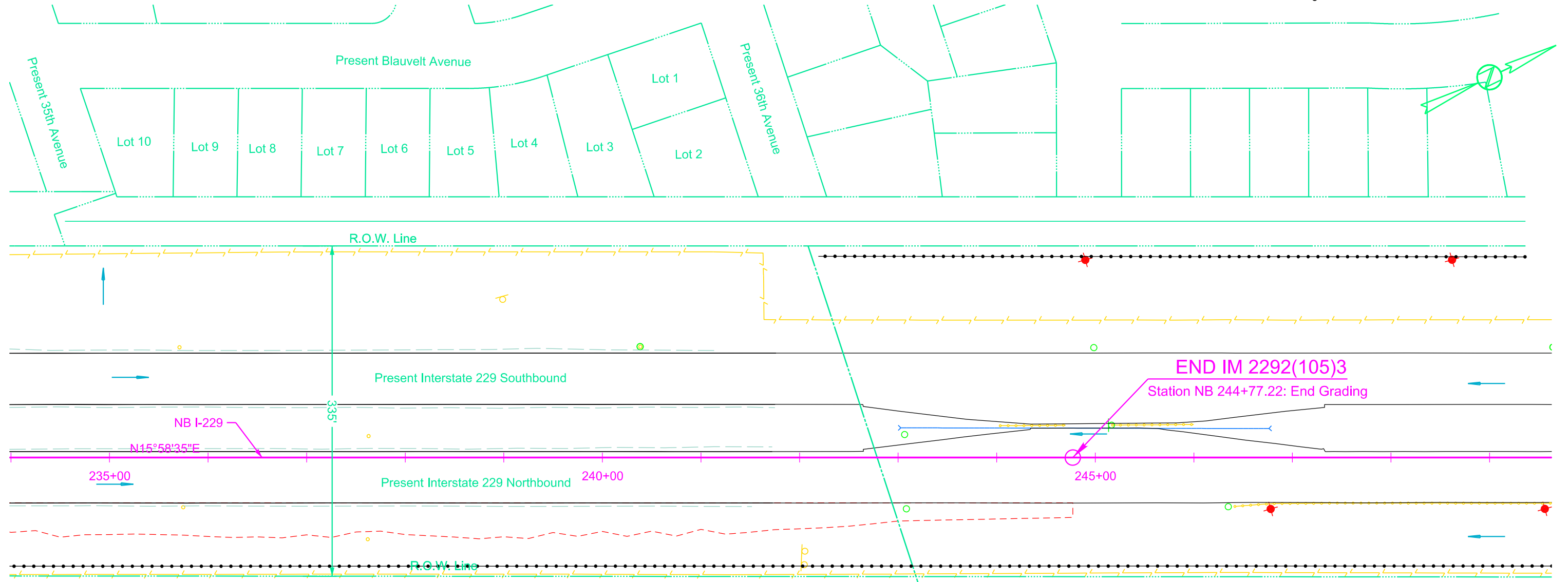
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B28	B52

Plotting Date: 03/01/2024

Plot Scale - 1:100

InfrastructureDesignGroup

Plotted From -



Sec. 27 - T101N - R49W

City of Sioux Falls
CLIFF GARDENS ADDITION

- 243+00-30' L
Take Out 18" - Flared End Section
(Incidental Work, Grading)
- 246+78-30' L
Take Out 18" - Flared End Section
(Incidental Work, Grading)

- 244+02.63-32' L to 244+70.63-33'L
Remove 68' Crossover Closure
- 245+16.57-33' L to 245+99.57-34'L
Remove 83' Crossover Closure

243+60-33' L to 246+00-33' L
Install Crossover Closure - 240'

END IM 2292(105)3
Station NB 244+77.22: End Grading



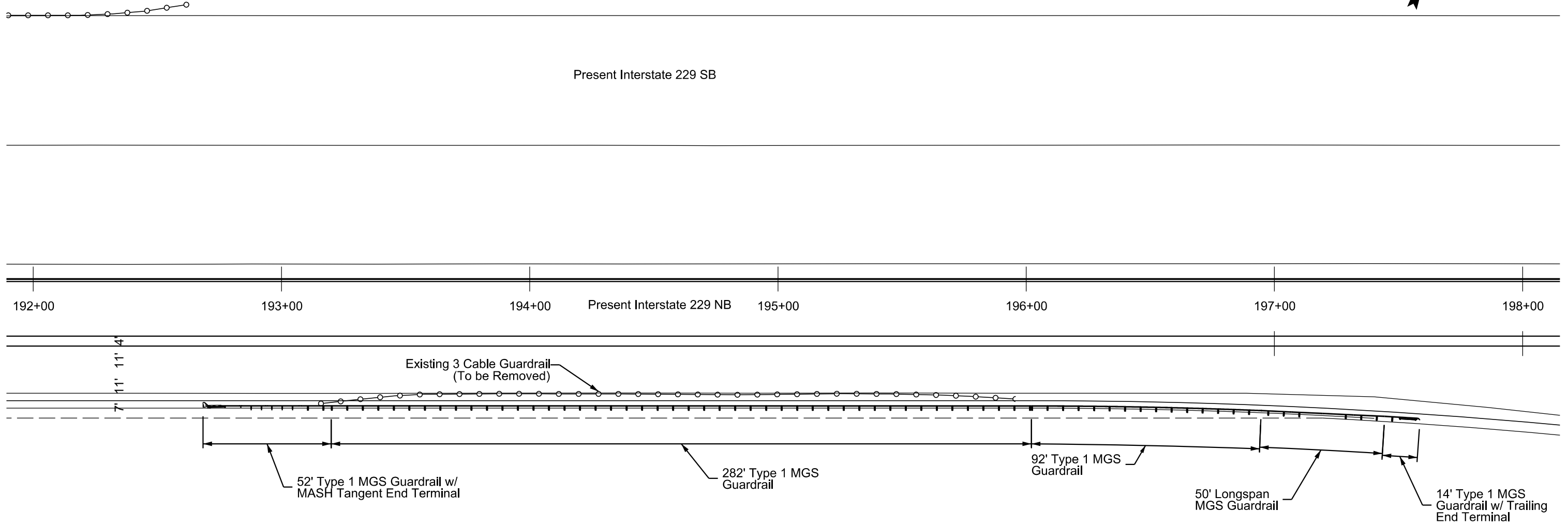
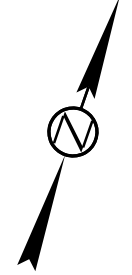
File - ...107CVs_SectionB_UPP.dgn

I229 EXIT 4 NB DIVERSION AND WIDENING GUARDRAIL PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B29	B52

Plotting Date: 03/01/2024

Plot Scale - 1:40



Plotted From - InfrastructureDesignGroup

File - ...107CVs_SectionB_Guardrail.dgn



I229 EXIT 4 NB DIVERSION AND WIDENING GUARDRAIL PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B30	B52

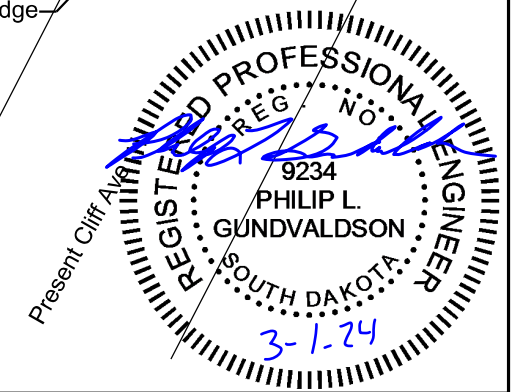
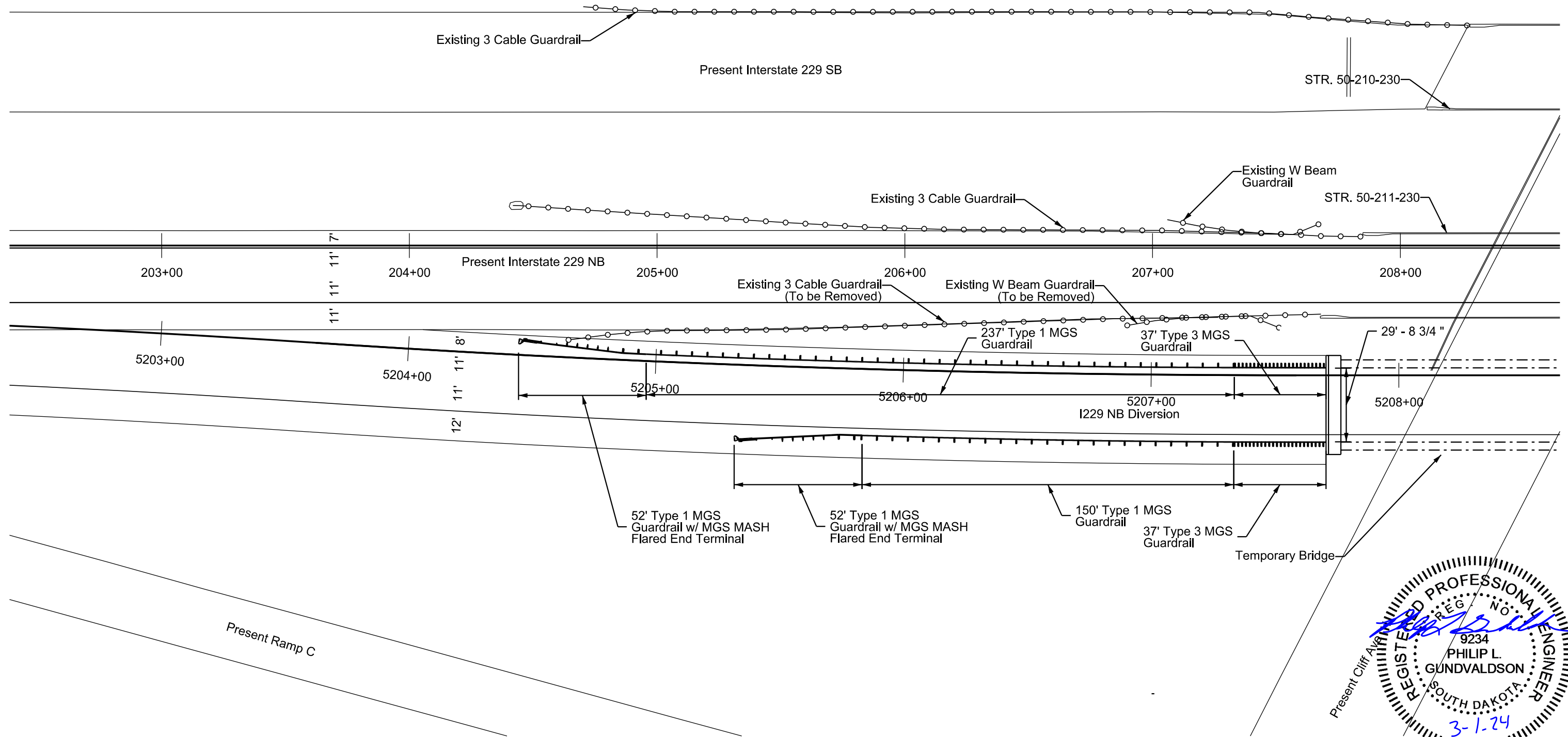
Plotting Date: 03/01/2024



Plot Scale - 1:40

InfrastructureDesignGroup

Plotted From -



File - ...107CVs_SectionB_Guardrail.dgn

I229 EXIT 4 NB DIVERSION AND WIDENING GUARDRAIL PURPOSES ONLY

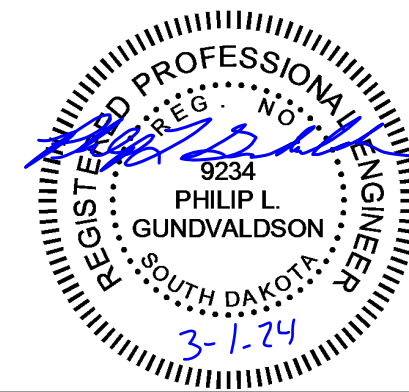
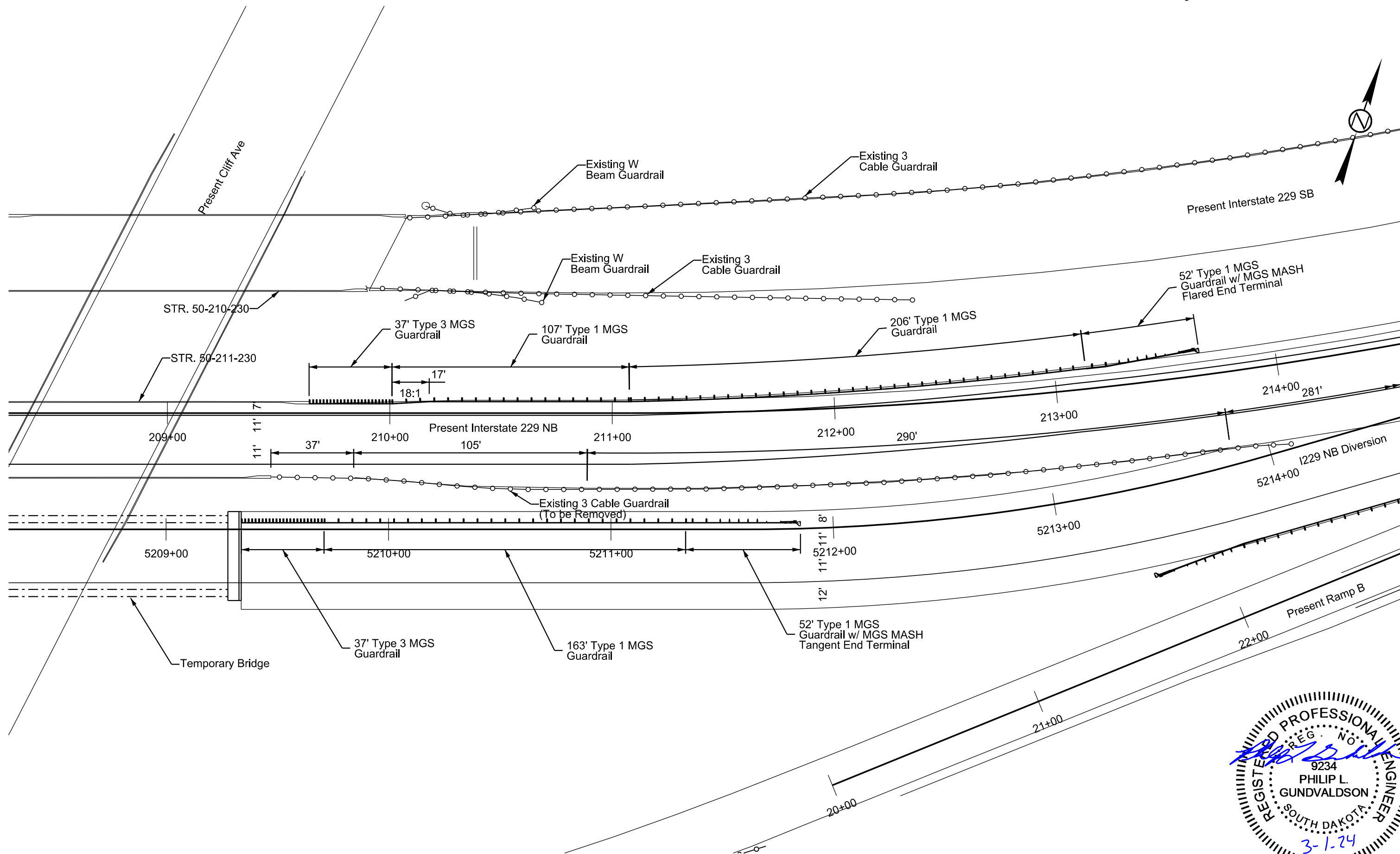
STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B31	TOTAL SHEETS B52
-----------------------	--------------------------	------------------	---------------------

Plotting Date: 03/01/2024

Plot Scale - 1:40

InfrastructureDesignGroup

Plotted From -



File - ...107\CYS_SectionB_Guardrail.dgn

I229 EXIT 4 NB DIVERSION AND WIDENING GUARDRAIL PURPOSES ONLY

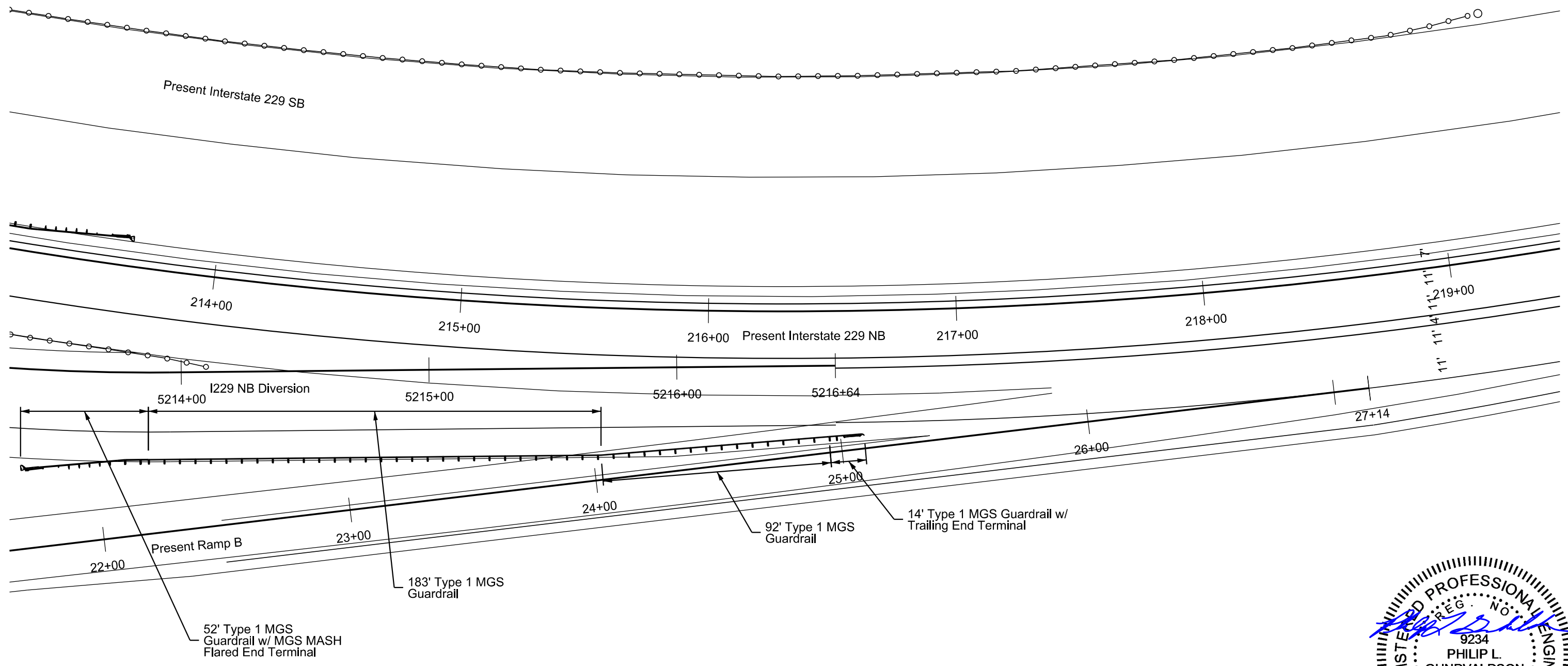
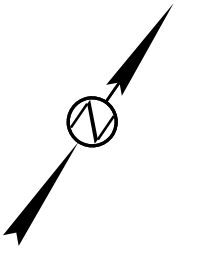
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B32	B52

Plotting Date: 03/01/2024

Plot Scale - 1:40

InfrastructureDesignGroup

Plotted From -

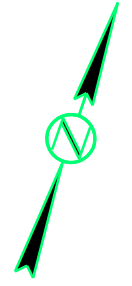


File - ...107CVs_SectionB_Guardrail.dgn

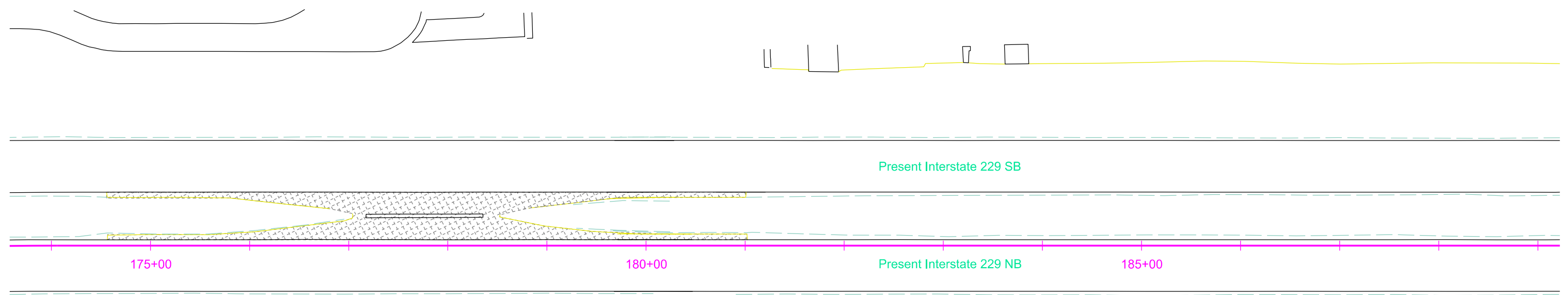
PAVEMENT REMOVAL FOR BIDDING PURPOSES ONLY






I229 NB/SB

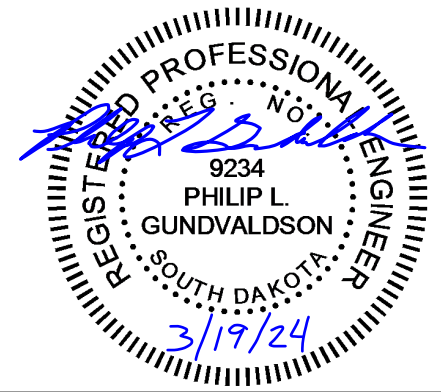
STATE OF SOUTH DAKOTA	PROJECT IM 2292(105)3	SHEET NO. B33	TOTAL SHEETS B52
Plotting Date: 03/19/2024 Rev 03/19/2024 PLG			



Plot Scale - 1:100



-  Remove Concrete Pavement
-  Cold Milling Asphalt Concrete Pavement (See Section F)
-  Remove Concrete Sidewalk
-  Unclassified Excavation (Waste Material)
-  Remove Concrete Curb and/or Gutter



Plotted From - InfrastructureDesignGroup

File - ...107CYS_SectionB_PavementRemoval.dgn

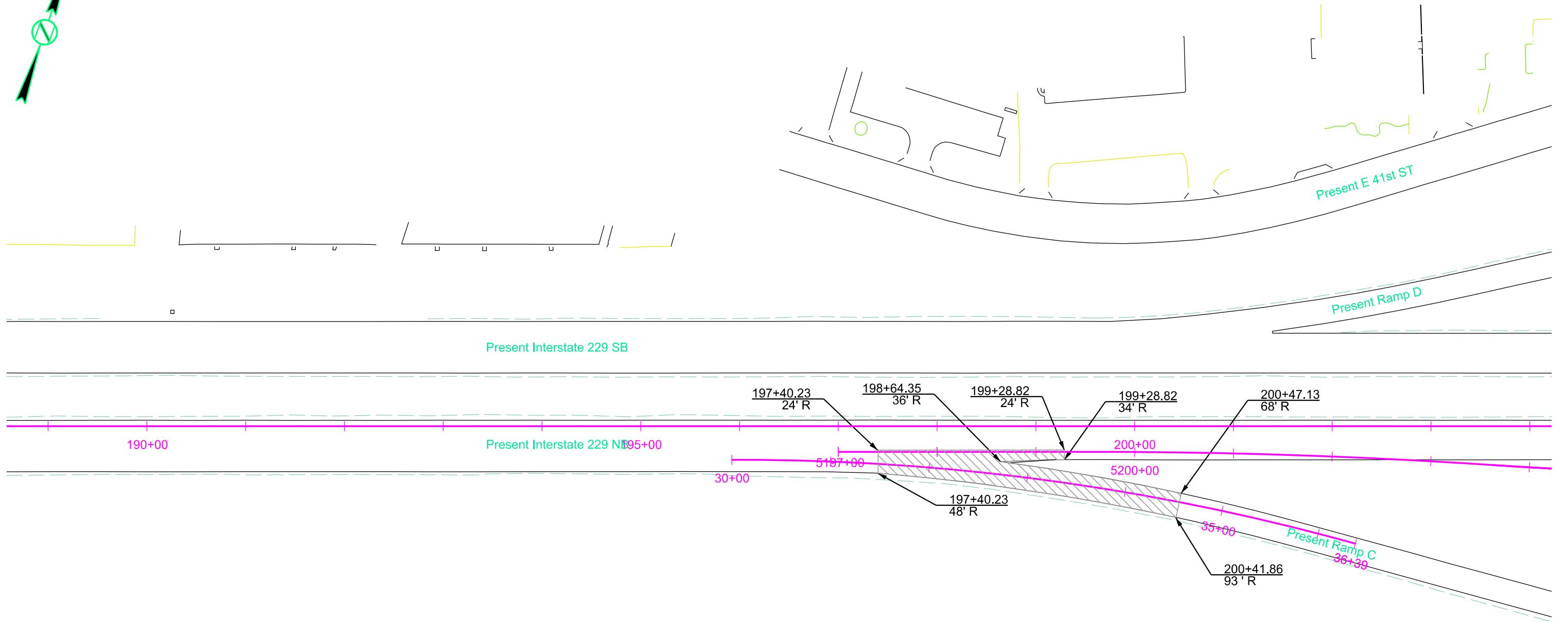
PAVEMENT REMOVAL FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B34	B52

Plotting Date: 03/19/2024 Rev 03/19/2024 PLG

I229 NB/SB

Plot Scale - 1:100



Plotted From - InfrastructureDesignGroup

- Remove Concrete Pavement
- Cold Milling Asphalt Concrete Pavement (See Section F)
- Remove Concrete Sidewalk
- Unclassified Excavation (Waste Material)
- Remove Concrete Curb and/or Gutter



File - ...107CYS_SectionB_PavementRemoval.dgn

PAVEMENT REMOVAL FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B35	B52

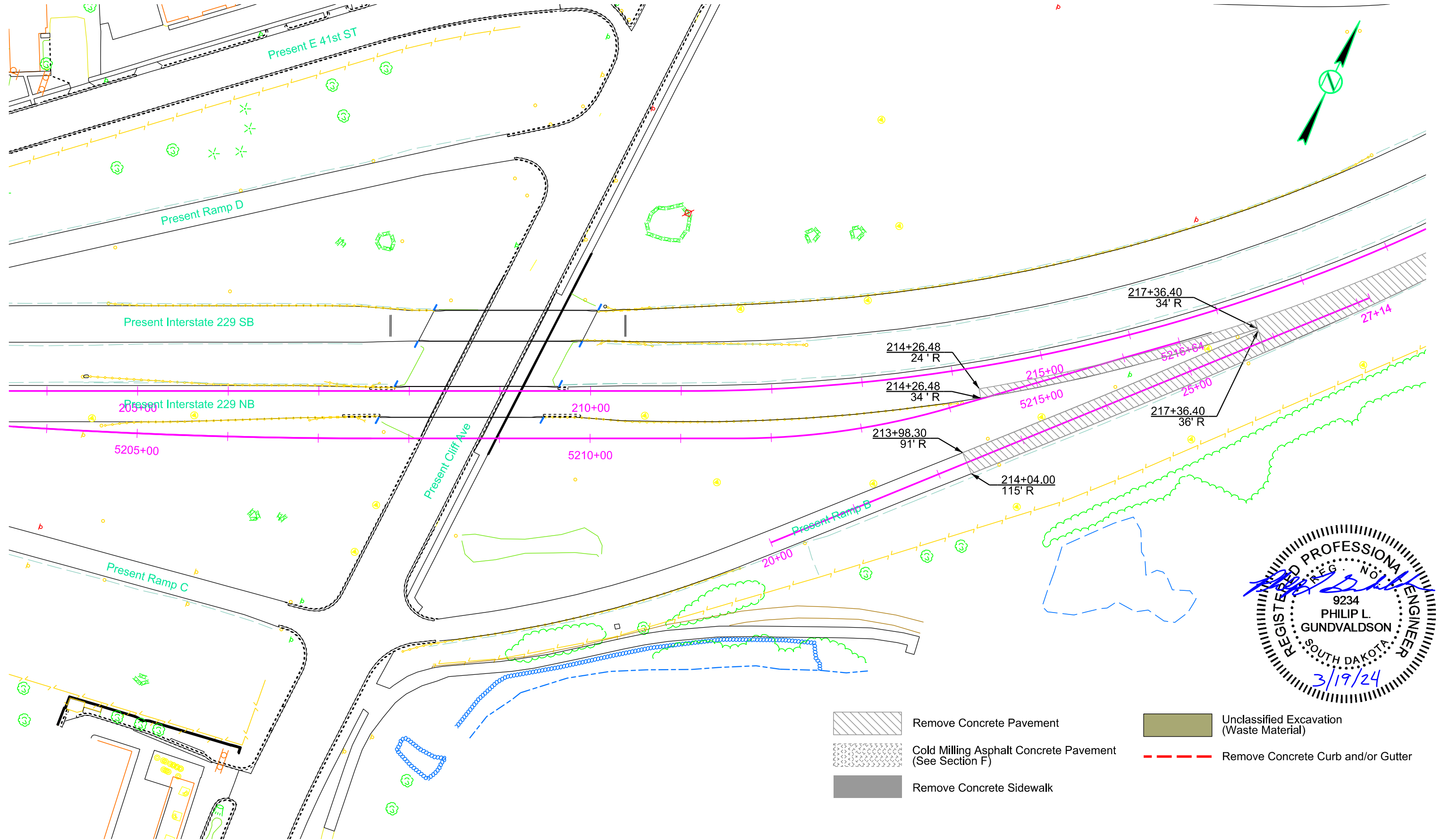
Plotting Date: 03/19/2024 Rev 03/19/2024 PLG

I229 NB/SB

Plot Scale - 1:100

InfrastructureDesignGroup

Plotted From -



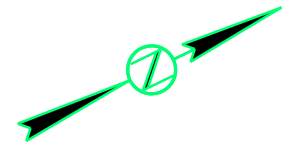
File - ...107\CVs_SectionB_PavementRemoval.dgn

PAVEMENT REMOVAL FOR BIDDING PURPOSES ONLY

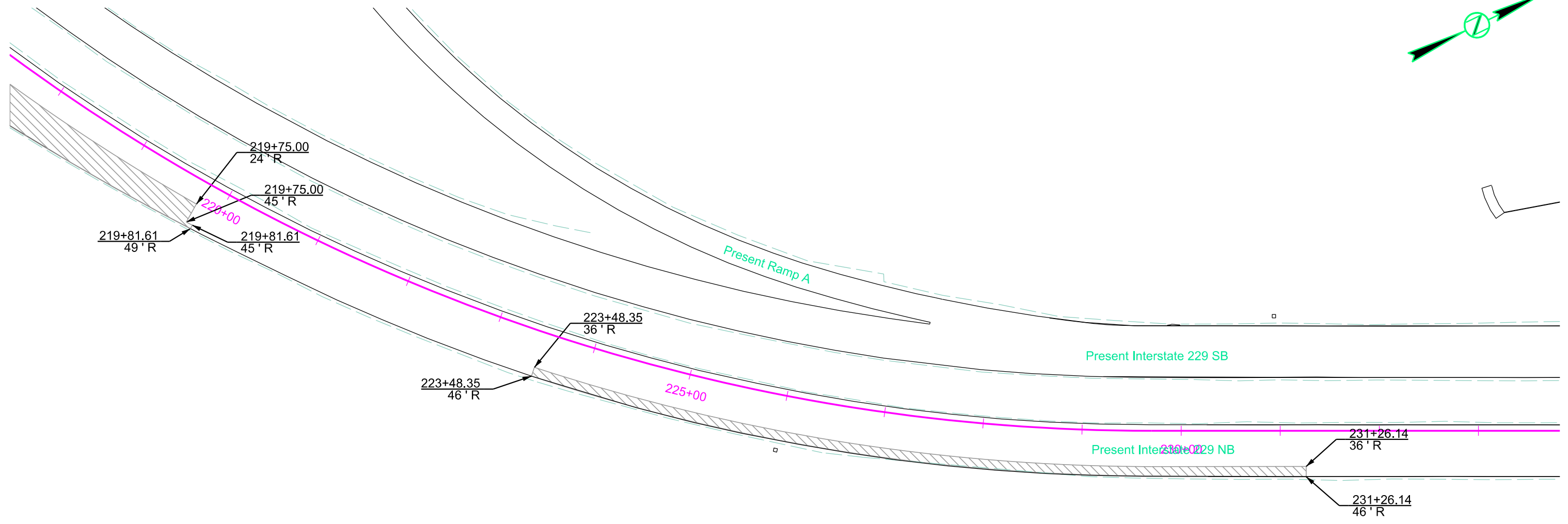
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 2292(105)3	B36	B52

Plotting Date: 03/19/2024 Rev 03/19/2024 PLG

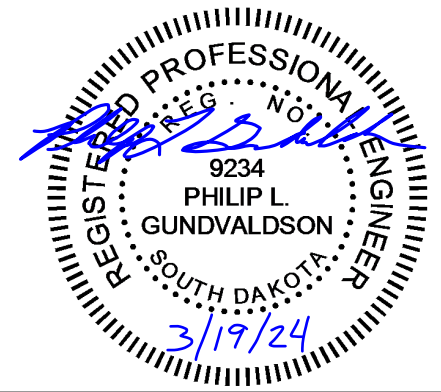
I229 NB/SB



Plot Scale - 1:100

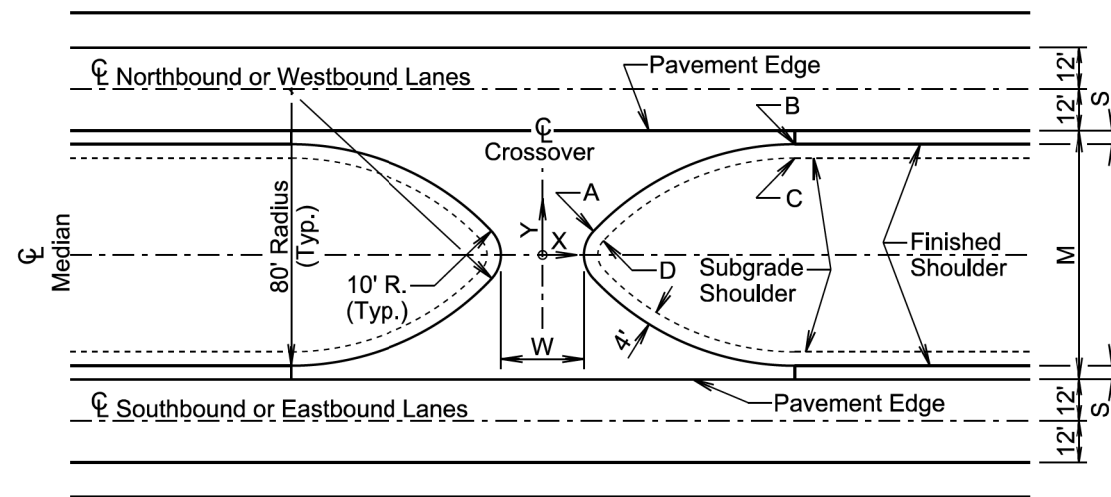


- Remove Concrete Pavement
- Cold Milling Asphalt Concrete Pavement (See Section F)
- Remove Concrete Sidewalk
- Unclassified Excavation (Waste Material)
- Remove Concrete Curb and/or Gutter



Plotted From - InfrastructureDesignGroup

File - ...107CYS_SectionB_PavementRemoval.dgn



PLAN VIEW

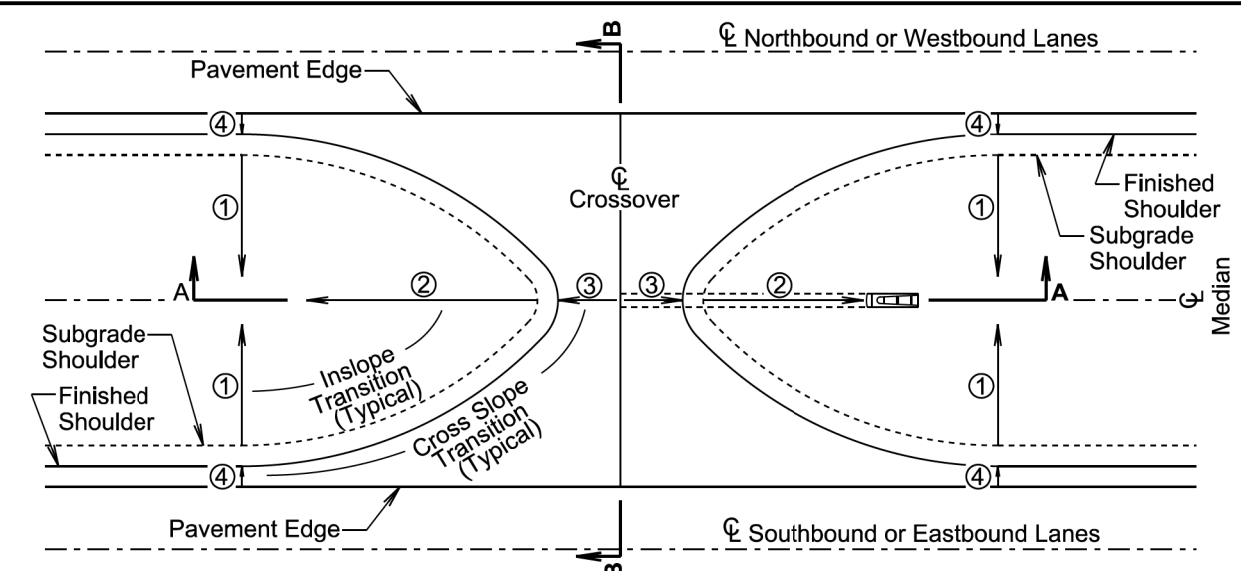
S = Finished Shoulder Width
M = Median Width
W = Finished Median Crossover Width

PUBLIC ACCESS MEDIAN CROSSOVER LAYOUT INFORMATION										
M (Ft)	S (Ft)	W (Ft)	Point A		Point B		Point C		Point D	
			X (Ft)	Y (Ft)	X (Ft)	Y (Ft)	X (Ft)	Y (Ft)	X (Ft)	Y (Ft)
60	4	24	15.7	7.7	66.5	26.0	66.5	22.0	18.2	4.7
60	4	40	23.7	7.7	74.5	26.0	74.5	22.0	26.2	4.7
60	6	24	16.0	8.0	64.0	24.0	64.0	20.0	18.4	4.8
60	6	40	24.0	8.0	72.0	24.0	72.0	20.0	26.4	4.8
66	4	24	15.2	7.3	70.0	29.0	70.0	25.0	17.9	4.4
66	4	40	23.2	7.3	78.0	29.0	78.0	25.0	25.9	4.4
66	6	24	15.5	7.6	67.7	27.0	67.7	23.0	18.1	4.6
66	6	40	23.5	7.6	75.7	27.0	75.7	23.0	26.1	4.6
72	4	24	14.8	6.9	73.0	32.0	73.0	28.0	17.6	4.1
72	4	40	22.8	6.9	81.0	32.0	81.0	28.0	25.6	4.1
72	6	24	15.0	7.1	71.0	30.0	71.0	26.0	17.8	4.3
72	6	40	23.0	7.1	79.0	30.0	79.0	26.0	25.8	4.3
80	4	24	14.2	6.3	76.4	36.0	76.4	32.0	17.3	3.8
80	4	40	22.2	6.3	84.4	36.0	84.4	32.0	25.3	3.8
80	6	24	14.5	6.6	74.8	34.0	74.8	30.0	17.5	4.0
80	6	40	22.5	6.6	82.8	34.0	82.8	30.0	25.5	4.0

The dimensions provided for "X" and "Y" begin from the intersection of the median centerline and the crossover centerline.

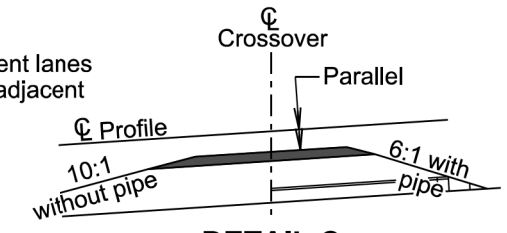
September 14, 2018

Published Date: 2024	S D D O T	PUBLIC ACCESS MEDIAN CROSSOVER	PLATE NUMBER 120.03
			Sheet 1 of 2

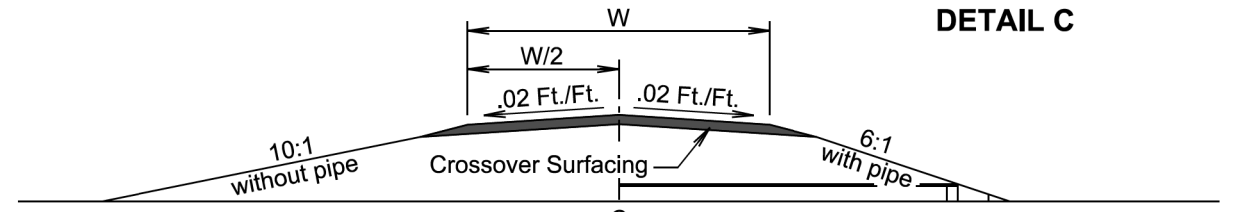


PLAN VIEW

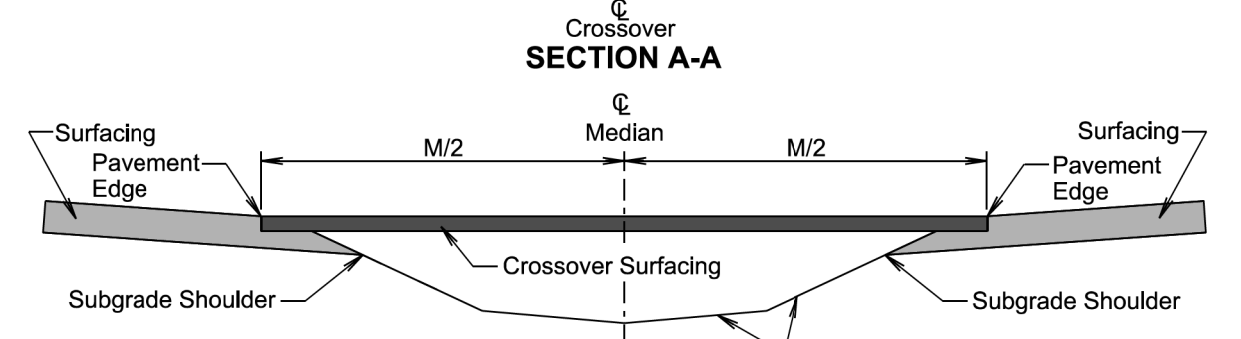
- ① Inslope as specified on the typical sections or cross sections
- ② 10:1 Inslope without pipe, 6:1 with pipe
- ③ Cross slope will be .02 Ft./Ft. when centerline profiles of adjacent lanes are at less than 2% grade. When the centerline profiles of the adjacent lanes are 2% and greater the cross slope will be parallel to the profile or as approved by the Engineer. (See Detail C)
- ④ Cross slope as specified on the typical sections



DETAIL C



SECTION A-A



SECTION B-B

GENERAL NOTE:
The quantities of materials necessary for construction of the public access median crossover are as provided in the plans and will be paid for at their respective contract unit prices for the various materials used.

September 14, 2018

Published Date: 2024	S D D O T	PUBLIC ACCESS MEDIAN CROSSOVER	PLATE NUMBER 120.03
			Sheet 2 of 2

Plot Scale - N/A

Plotted From - InfrastructureDesignGroup

File - ...107/CVs_SectionB_Plates.dgn

Published Date: 2024

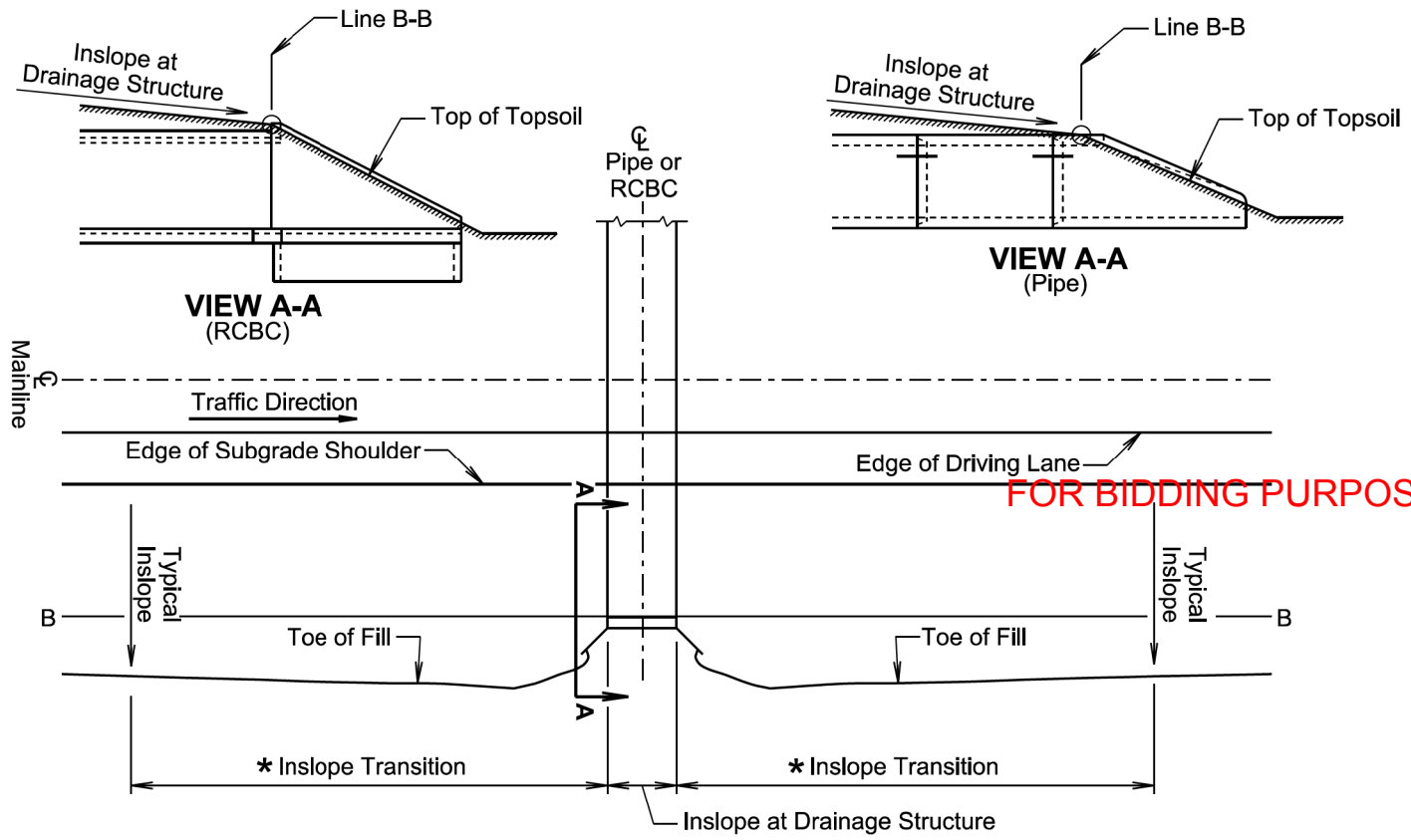
S D D O T

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

September 14, 2018

PLATE NUMBER 120.05

Sheet 1 of 2



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

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

FOR BIDDING PURPOSES ONLY

Published Date: 2024

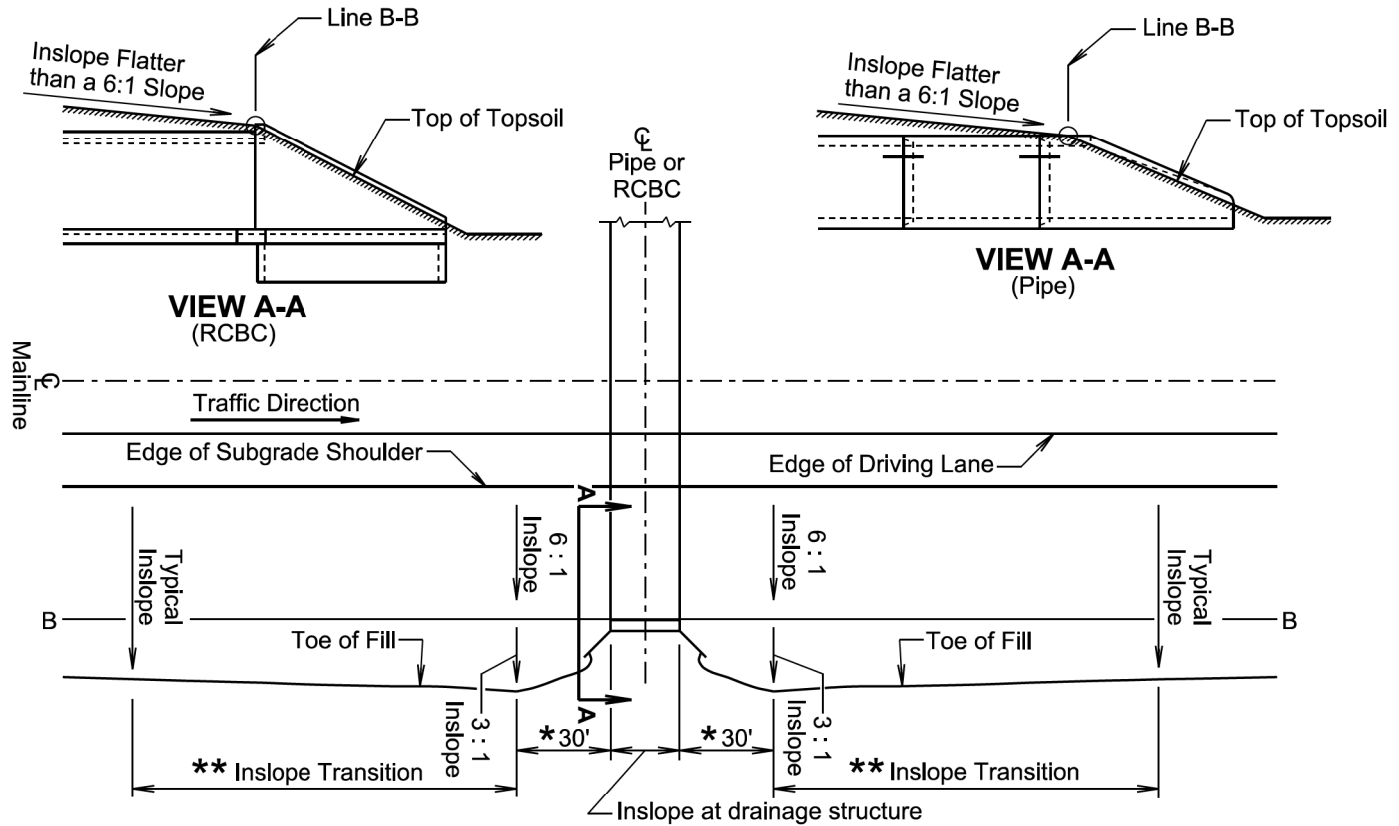
S D D O T

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

September 14, 2018

PLATE NUMBER 120.05

Sheet 2 of 2



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

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

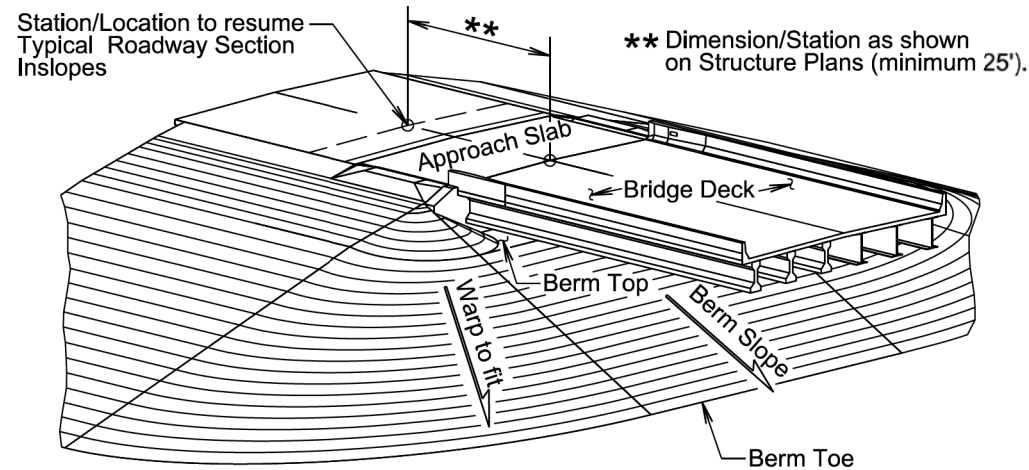
STATE OF SOUTH DAKOTA

PROJECT IM 2292(105)3

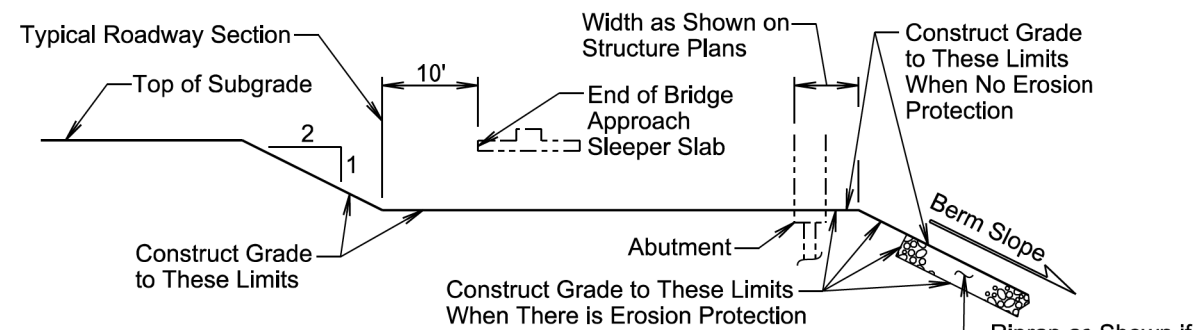
SHEET NO. B38

TOTAL SHEETS B52

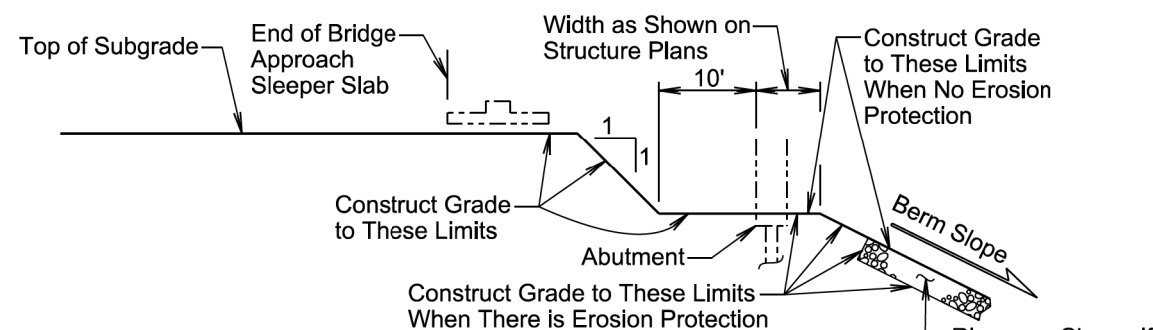
Plotting Date: 03/01/2024



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



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



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

GENERAL NOTES:

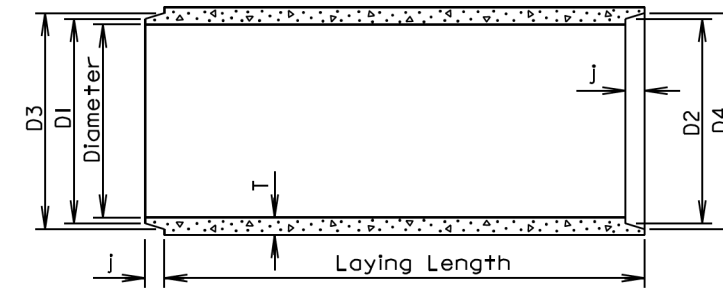
The bridge berm elevation and slope will be as shown in the Structure Plans. See Structure Plans to determine which grading profile to use.

January 22, 2021

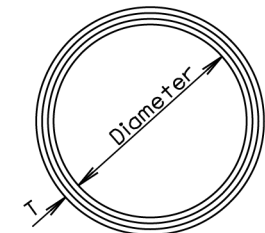
<p>Published Date: 2024</p>	<p>S D D O T</p>	<p>BRIDGE BERM (PROJECTING EMBANKMENT)</p>	<p>PLATE NUMBER 120.11</p>
			<p>Sheet 1 of 1</p>

TOLERANCES IN DIMENSIONS

Diameter: $\pm 1.5\%$ for 24" Dia. or less and $\pm 1\%$ or $3/8"$ whichever is more for 27" Dia. or greater.
 Diameters at joints: $\pm 3/16"$ for 30" Dia. or less and $\pm 1/4"$ for 36" or greater.
 Length of joint (J): $\pm 1/4"$.
 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.

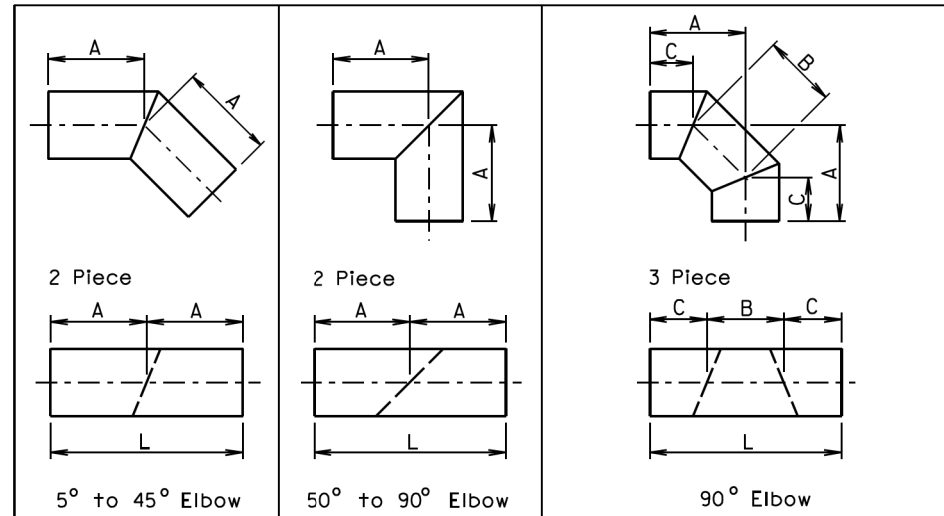
Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

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

<p>Published Date: 2024</p>	<p>S D D O T</p>	<p>REINFORCED CONCRETE PIPE</p>	<p>PLATE NUMBER 450.01</p>
			<p>Sheet 1 of 1</p>

Plotting Date: 03/01/2024



Diameter	A	L	Diameter	A	L	Diameter	A	B	C	L
Inches	Feet	Feet	Inches	Feet	Feet	Inches	Inches			Feet
12	1	2	12	2	4	12	25 1/2	11	18 1/2	4
15	1	2	15	2	4	15	26 1/2	12	18	4
18	1	2	18	2	4	18	27	14	17	4
21	2	4	21	2	4	21	27	15	16 1/2	4
24	2	4	24	2	4	24	27 1/2	16	16	4
27	2	4	27	2	4	27	27 1/2	17	15 1/2	4
30	2	4	30	3	6	30	40	19	26 1/2	6
33	2	4	33	3	6	33	40	20	26	6
36	2	4	36	3	6	36	40 1/2	21	25 1/2	6
42	2	4	42	3	6	42	41	23	24 1/2	6
48	2	4	48	4	8	48	53 1/2	26	35	8
54	3	6	54	4	8	54	54	28	34	8
60	3	6	60	4	8	60	54 1/2	31	32 1/2	8
66	3	6	66	4	8	66	54	33	31 1/2	8
72	3	6	72	5	10	72	67 1/2	36	42	10
78	3	6	78	5	10	78	68	39	40 1/2	10
84	3	6	84	5	10	84	68 1/2	41	39 1/2	10
90	3	6	90	6	12	90	70	46	37	10
96	3	6	96	6	12	96	82	46	49	12

FABRICATED ELBOW LENGTHS FOR ALL CORRUGATIONS

GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

June 26, 2001

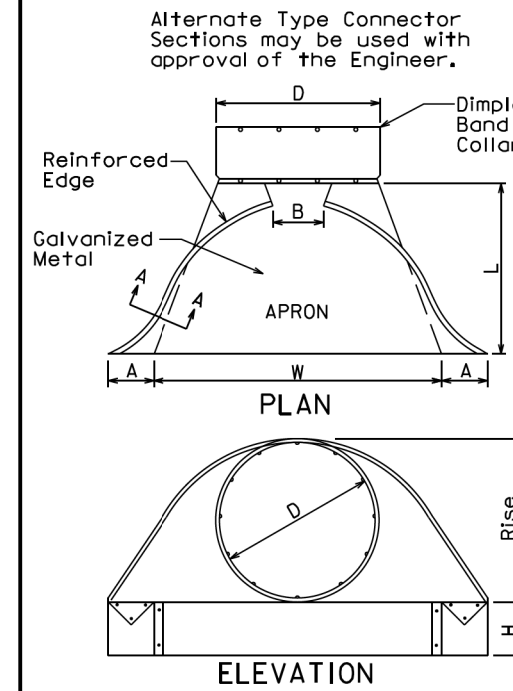
Published Date: 2024

S
D
D
O
T

C.M.P. FABRICATED LENGTHS FOR ELBOWS

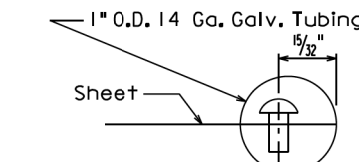
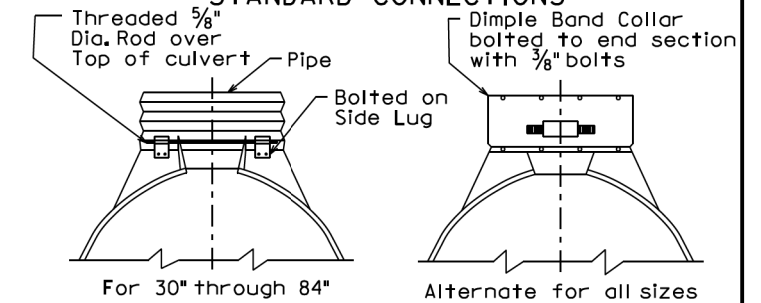
PLATE NUMBER
450.32

Sheet 1 of 1

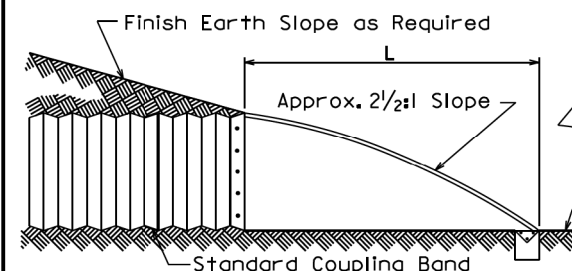


Dia. D (in.)	Ga.	DIMENSIONS (in.)					Approx. Slope	Body
		A	B	H	L	W		
12	16	6	6	6	21	24	2 1/2:1	1 Pc.
15	16	7	8	6	26	30	2 1/2:1	1 Pc.
18	16	8	10	6	31	36	2 1/2:1	1 Pc.
21	16	9	12	6	36	42	2 1/2:1	1 Pc.
24	16	10	13	6	41	48	2 1/2:1	1 Pc.
30	14	12	16	8	46	60	2 1/2:1	1 Pc.
36	14	14	19	9	51	72	2 1/2:1	2 Pc.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

STANDARD CONNECTIONS



TUBING ATTACHMENT DETAILS SECTION A-A



TYPICAL CROSS-SECTION

GENERAL NOTES:

All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by 3/8" Dia. galvanized rivets or bolts.

For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x 1/4" for 60" through 72" diameters and 2 1/2" x 2 1/2" x 1/4" for 78" and 84" diameters. The angles shall be attached by 3/8" diameter galvanized nuts and bolts.

Rivets and Bolts shall be 3/8" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

Published Date: 2024

S
D
D
O
T

C.M.P. FLARED ENDS

PLATE NUMBER
450.35

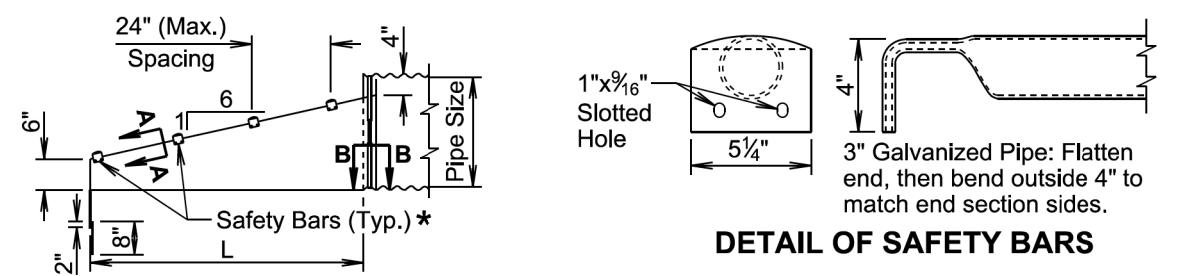
Sheet 1 of 1

Plot Scale - N/A

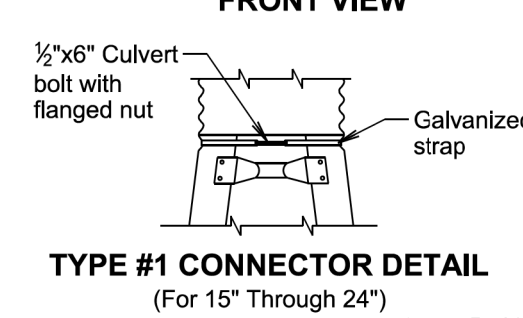
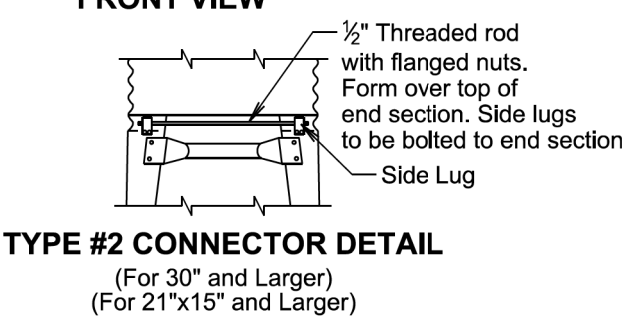
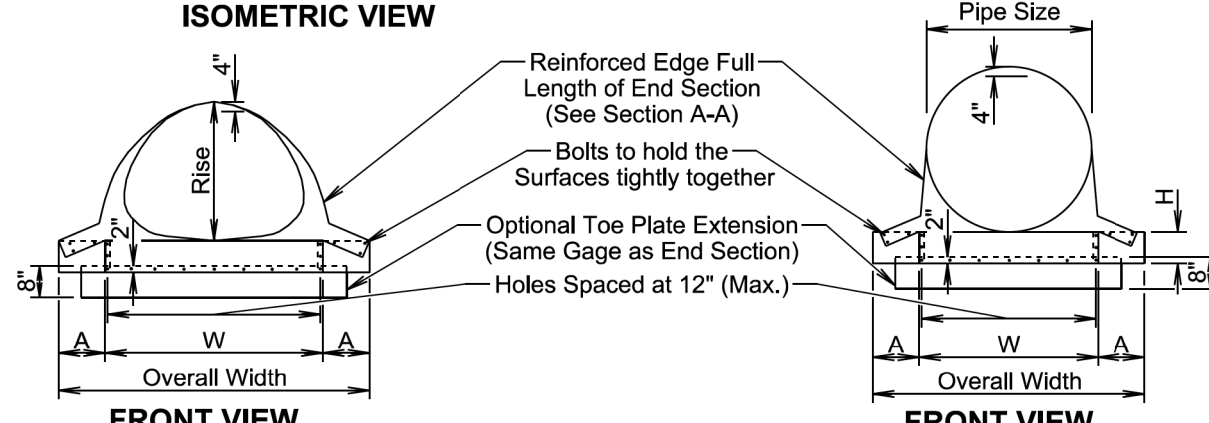
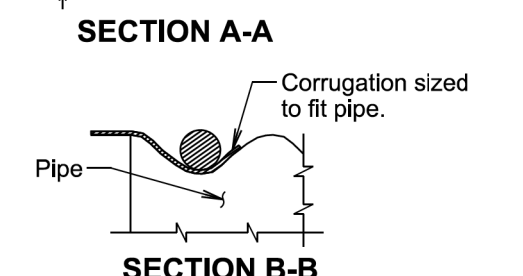
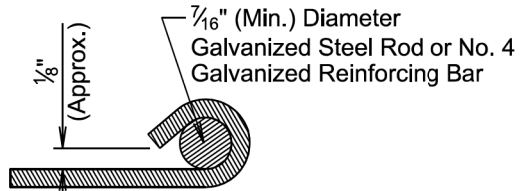
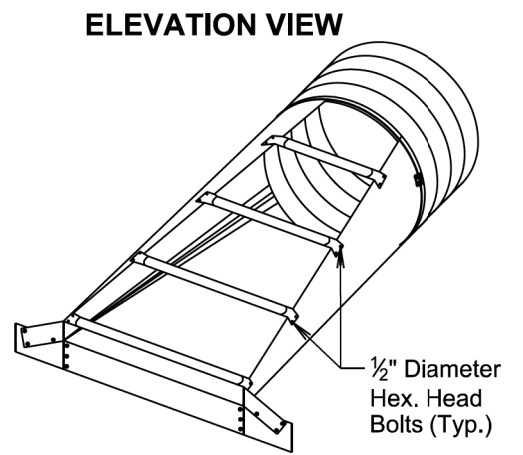
Plotted From - InfrastructureDesignGroup

File - ...107CVs_SectionB_Plates.dgn

Plot Scale - N/A



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



Equiv. Dia. (Inch)	(Inches)		(Min.) Thick. Inch	Dimensions (Inches)			L Dimensions			
	Span	Rise		Inch	Gage	A	H	W	Overall Width	Slope
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

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.
- Slotted holes for safety bar attachment will be provided for all end sections.
- Attachment to circular pipes 15 inch through 24 inch 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 3/8 inch diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6 inch by 8 inch 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.

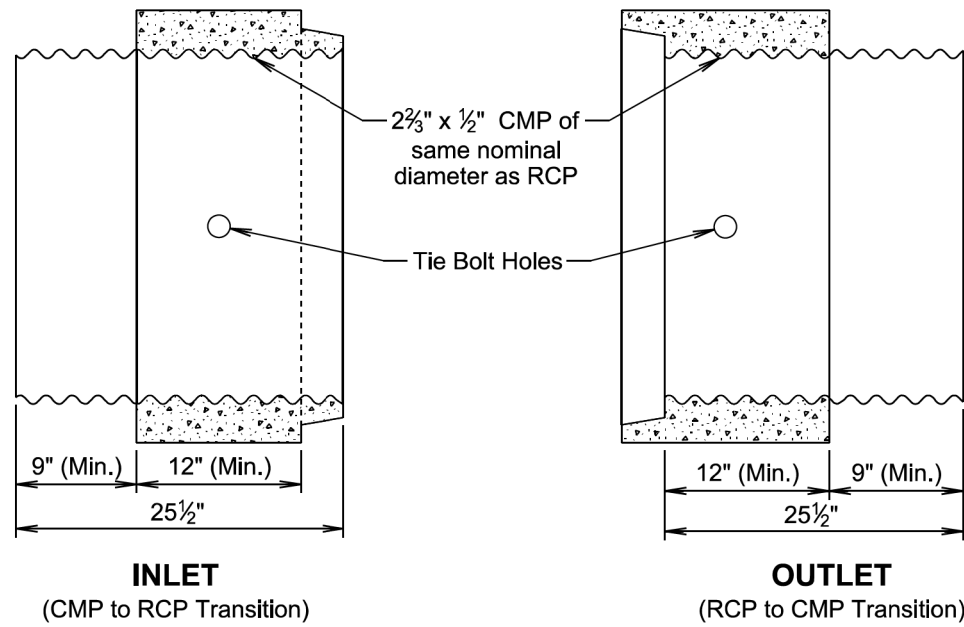
August 31, 2022

Published Date: 2024	S D D O T	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

Published Date: 2024	S D D O T	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2

Plotted From - InfrastructureDesignGroup

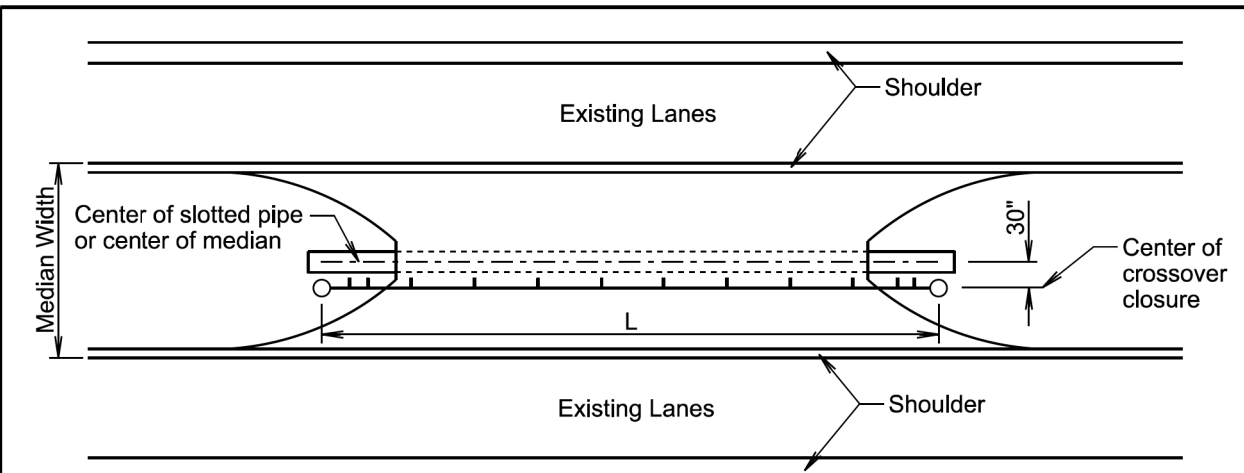
File - ...107/CVs_SectionB_Plates.dgn



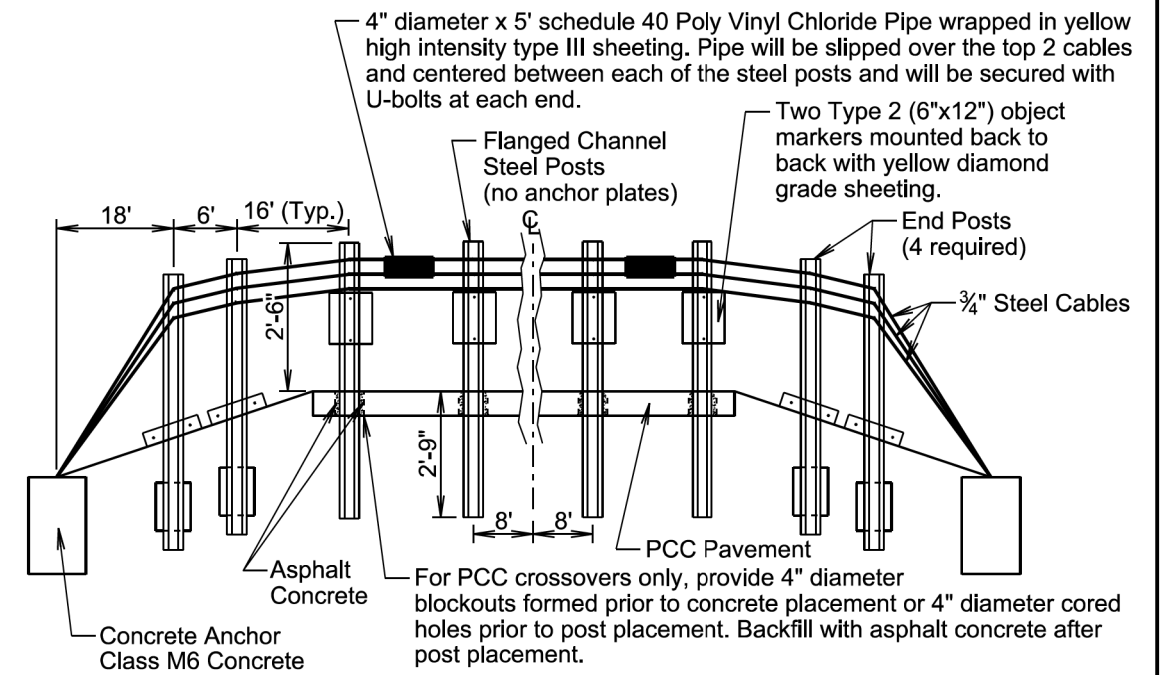
GENERAL NOTE:

Arch pipe transitions will be fabricated similar to the round transition shown above.

All pipe transitions will be precast as shown. Alternate designs other than shown will need to be approved by the Engineer.



PLAN VIEW



SECTIONAL VIEW

MEDIAN WIDTH	NO. OF PVC PIPES	NO. OF U-BOLTS	NO. OF FLANGED CHANNEL STEEL POSTS	NO. OF TYPE 2 OBJECT MARKERS	NO. OF BLOCKOUTS OR CORED HOLES (PCC CROSSOVERS)	PAY LENGTH L
60' and 66'	9	18	10	20	10	224'
80'	7	14	8	16	8	192'

GENERAL NOTES:

All costs for materials, backfilling holes with asphalt concrete, labor, equipment, and incidentals necessary to construct the crossover closure will be incidental to the contract unit price per foot for "Crossover Closure". The costs of coring holes or providing blockouts in the surfacing will be incidental to the surfacing bid item(s).

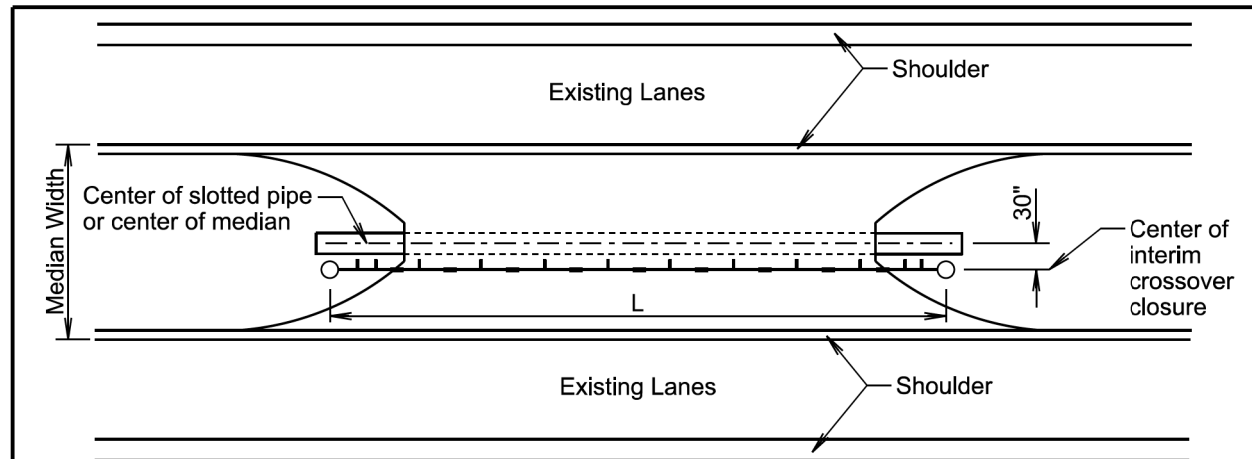
The Crossover Closure will be constructed using 3 cable guardrail hardware. For specific details of the 3 cable guardrail hardware and installation see standard plate 629.01.

November 19, 2022

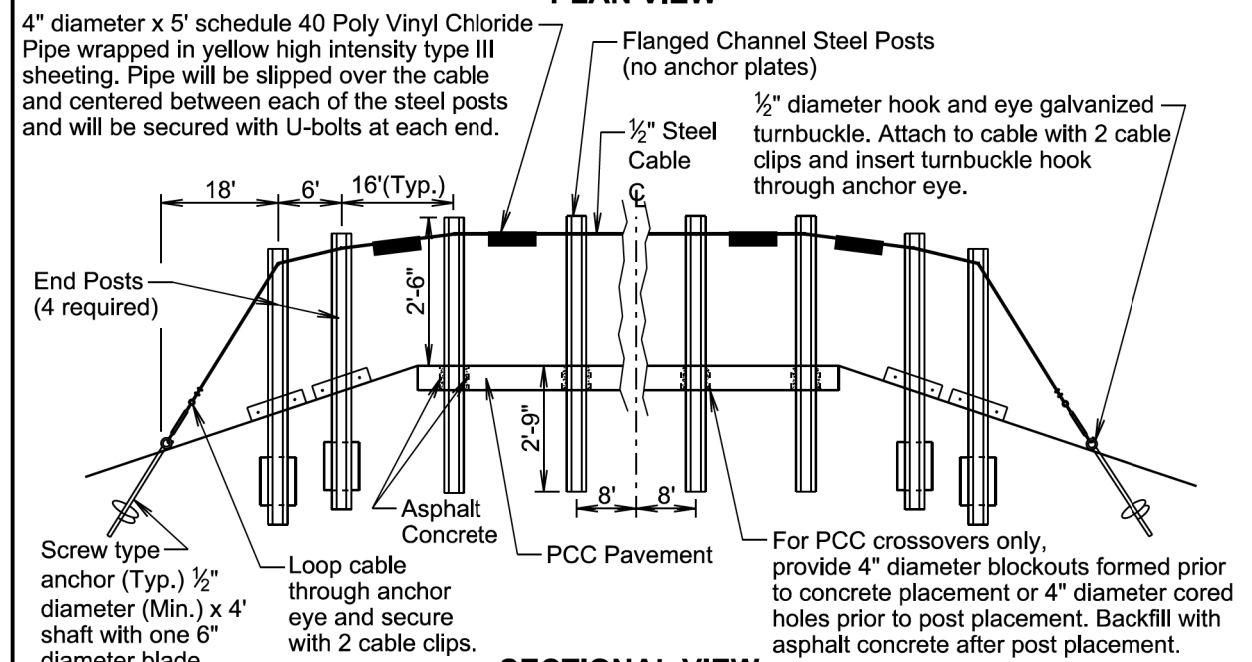
September 14, 2018

Published Date: 2024	S D D O T	C.M.P. TO R.C.P. TRANSITION AND R.C.P. TO C.M.P. TRANSITION	PLATE NUMBER 450.50
			Sheet 1 of 1

Published Date: 2024	S D D O T	CROSSOVER CLOSURE	PLATE NUMBER 629.40
			Sheet 1 of 1



PLAN VIEW



SECTIONAL VIEW

MEDIAN WIDTH	NO. OF PVC PIPES	NO. OF U-BOLTS	NO. OF FLANGED CHANNEL STEEL POSTS	NO. OF BLOCKOUTS OR CORED HOLES (PCC CROSSOVERS)	PAY LENGTH L
60' and 66'	11	18	10	10	224'
80'	9	14	8	8	192'

GENERAL NOTES:

All costs for materials, backfilling holes with asphalt concrete, labor, equipment, and incidentals necessary to construct the interim crossover closure will be incidental to the contract unit price per foot for "Interim Crossover Closure". The costs of coring holes or providing blockouts in the surfacing will be incidental to the surfacing bid item(s).

The Interim Crossover Closure will be constructed using 3 cable guardrail posts with hook bolts. For specific details of the 3 cable guardrail hardware and installation see standard plate 629.01. *September 14, 2018*

Published Date: 2024	S D D O T	INTERIM CROSSOVER CLOSURE	PLATE NUMBER 629.42
			Sheet 1 of 1

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'-1 1/2"
3	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	1'-6 3/4"
4	Double	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"

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.

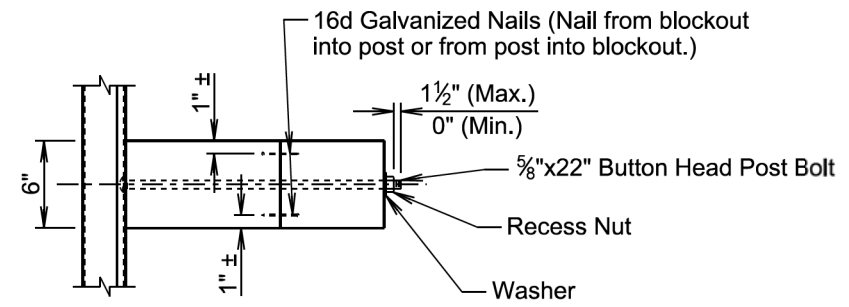
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item. *September 14, 2019*

Published Date: 2024	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 1 of 6

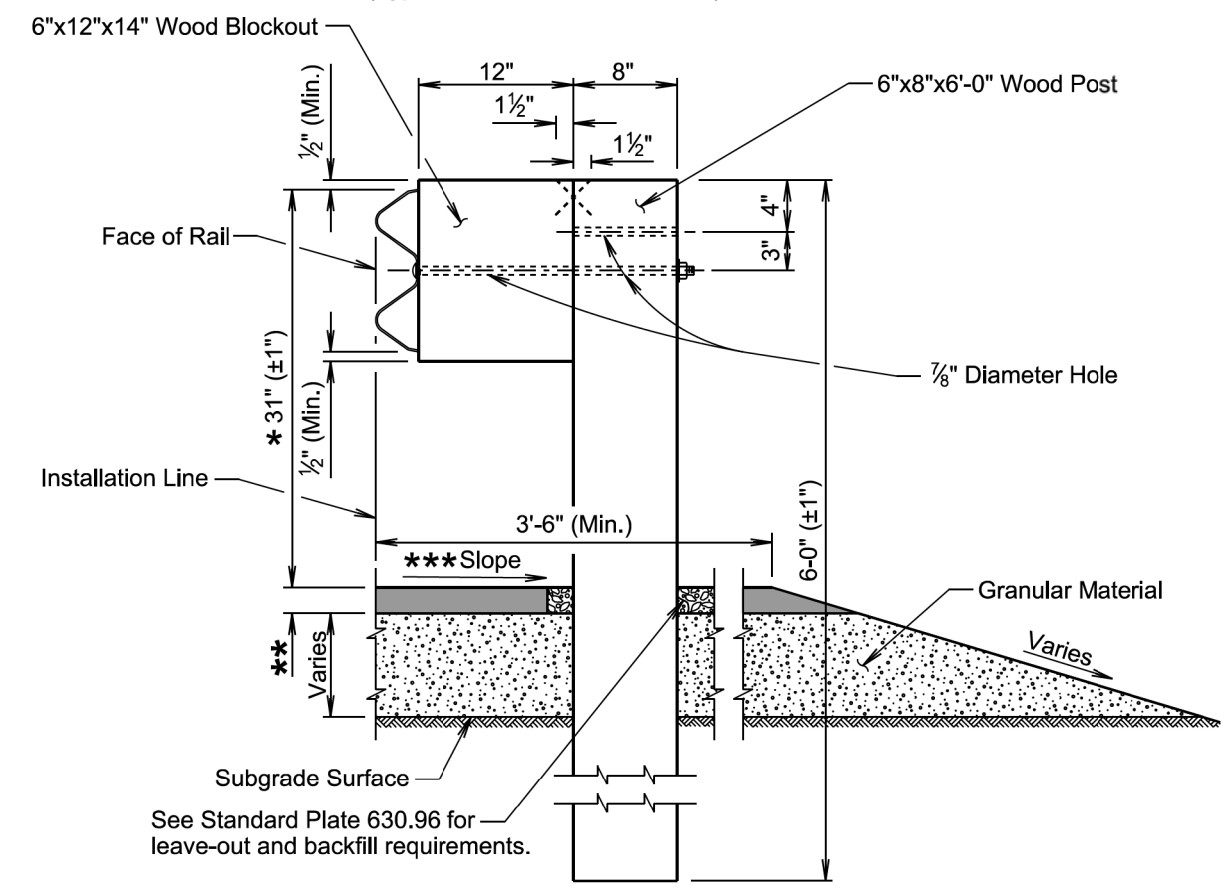
Plot Scale - N/A

Plotted From - InfrastructureDesignGroup

File - ...107CVs_SectionB_Plates.dgn



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

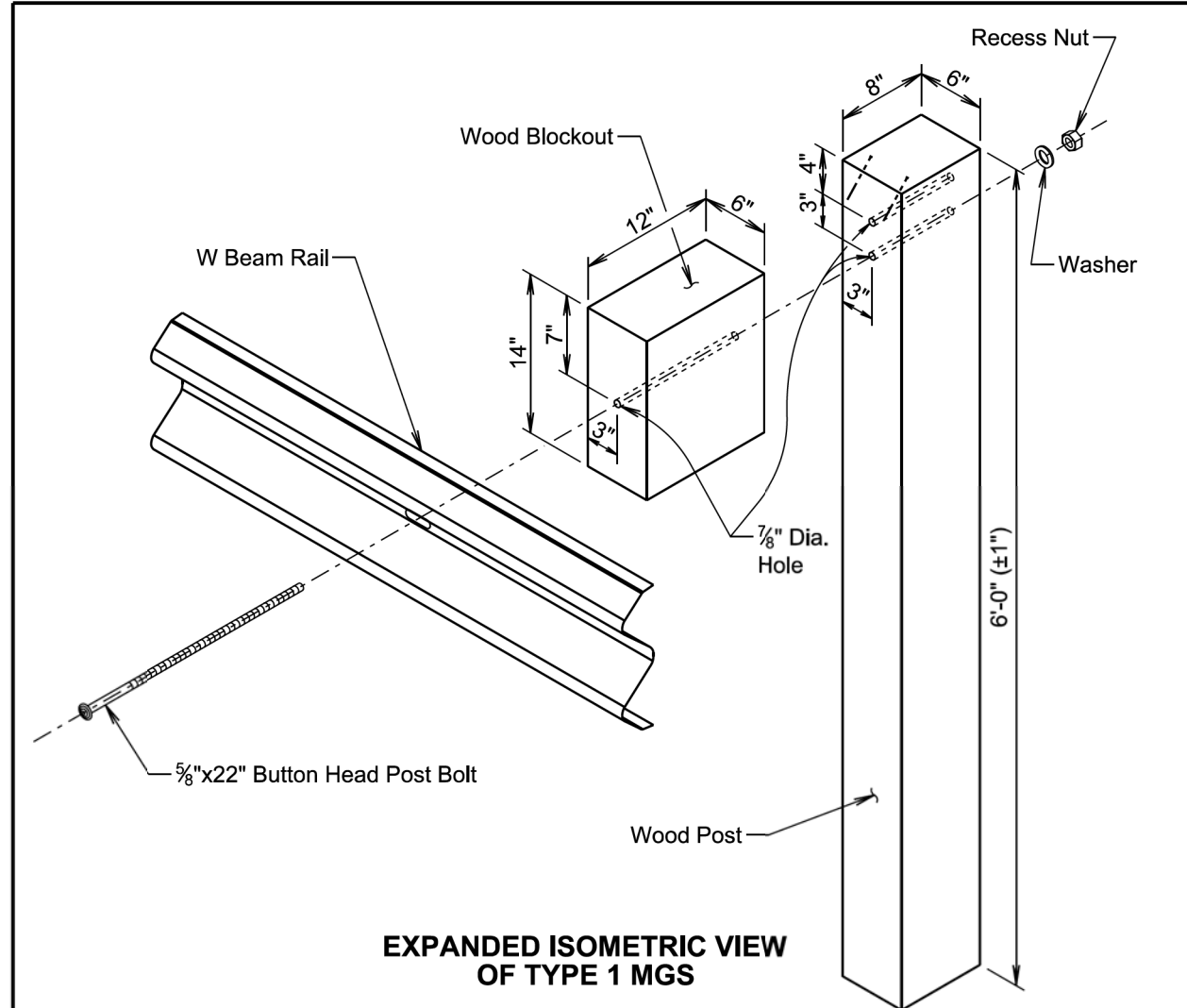


TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

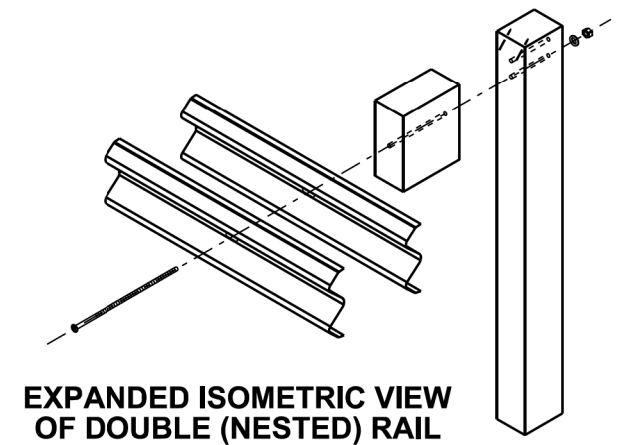
- * See Standard Plate 630.99
- ** 2" asphalt concrete or as specified in the plans.
- *** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

September 14, 2019

Published Date: 2024	S D D O T	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)

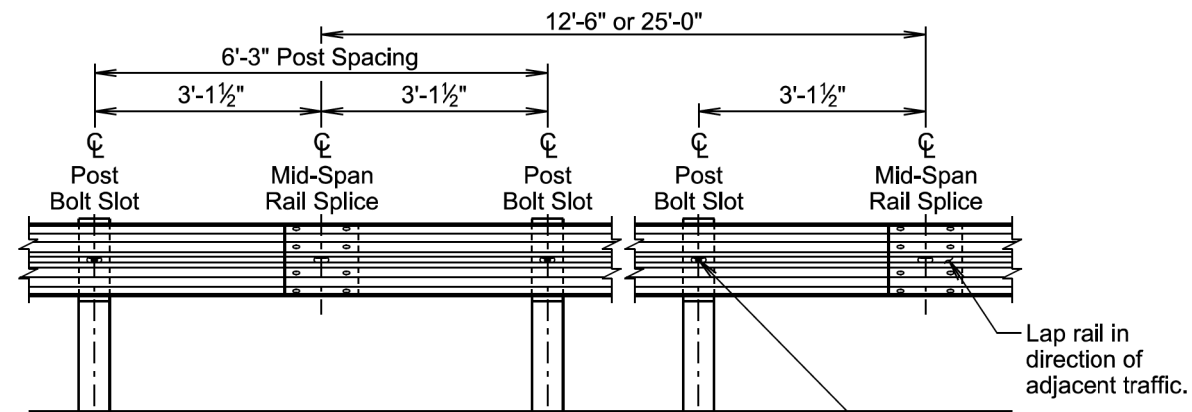
September 14, 2019

Published Date: 2024	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 3 of 6

Plot Scale - N/A

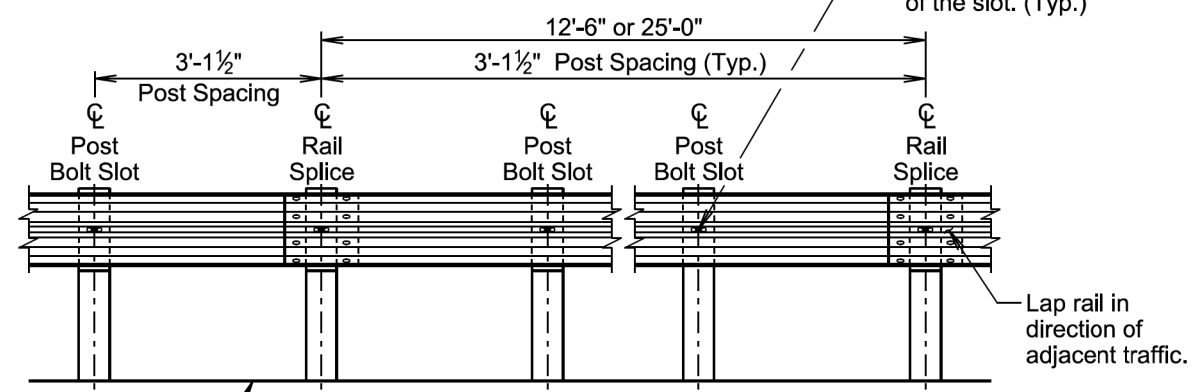
Plotted From - InfrastructureDesignGroup

File - ...107/CVs_SectionB_Plates.dgn



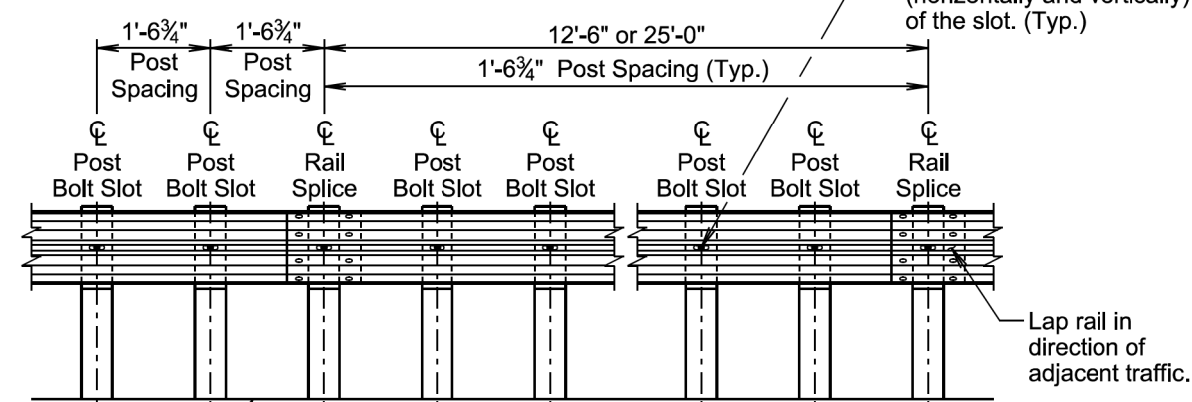
ELEVATION VIEW
(6'-3" Post Spacing)

The post bolt should be placed in the center (horizontally and vertically) of the slot. (Typ.)



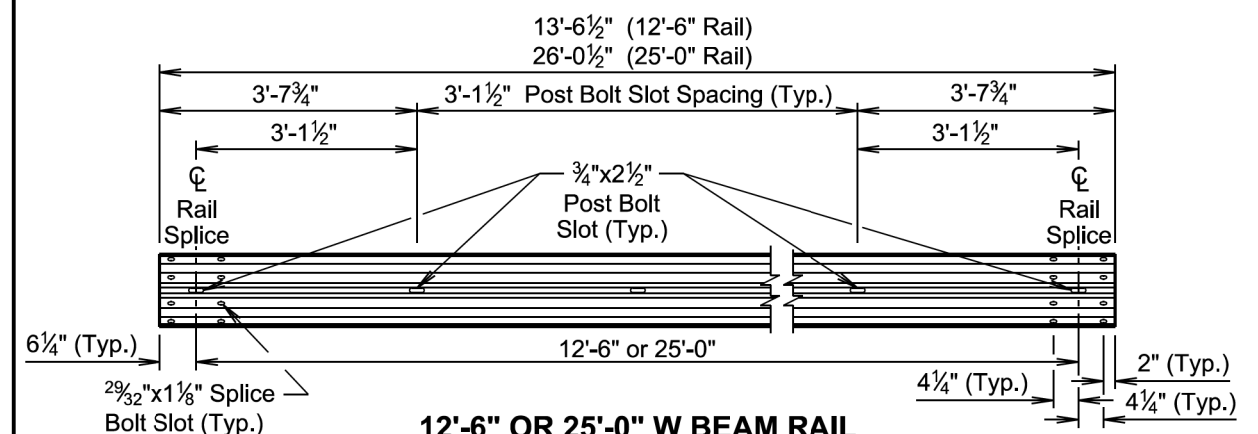
ELEVATION VIEW
(3'-1 1/2" Post Spacing)

The post bolt should be placed in the center (horizontally and vertically) of the slot. (Typ.)

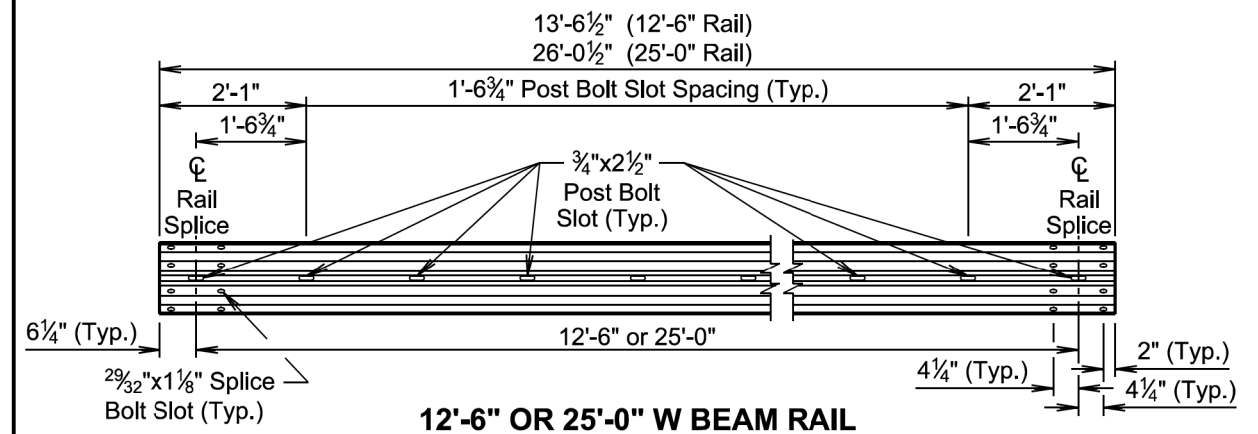


ELEVATION VIEW
(1'-6 3/4" Post Spacing)

The post bolt should be placed in the center (horizontally and vertically) of the slot. (Typ.)



12'-6" OR 25'-0" W BEAM RAIL
(3'-1 1/2" and 6'-3" Post Spacing)



12'-6" OR 25'-0" W BEAM RAIL
(1'-6 3/4" Post Spacing)

September 14, 2019

Published Date: 2024	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 4 of 6

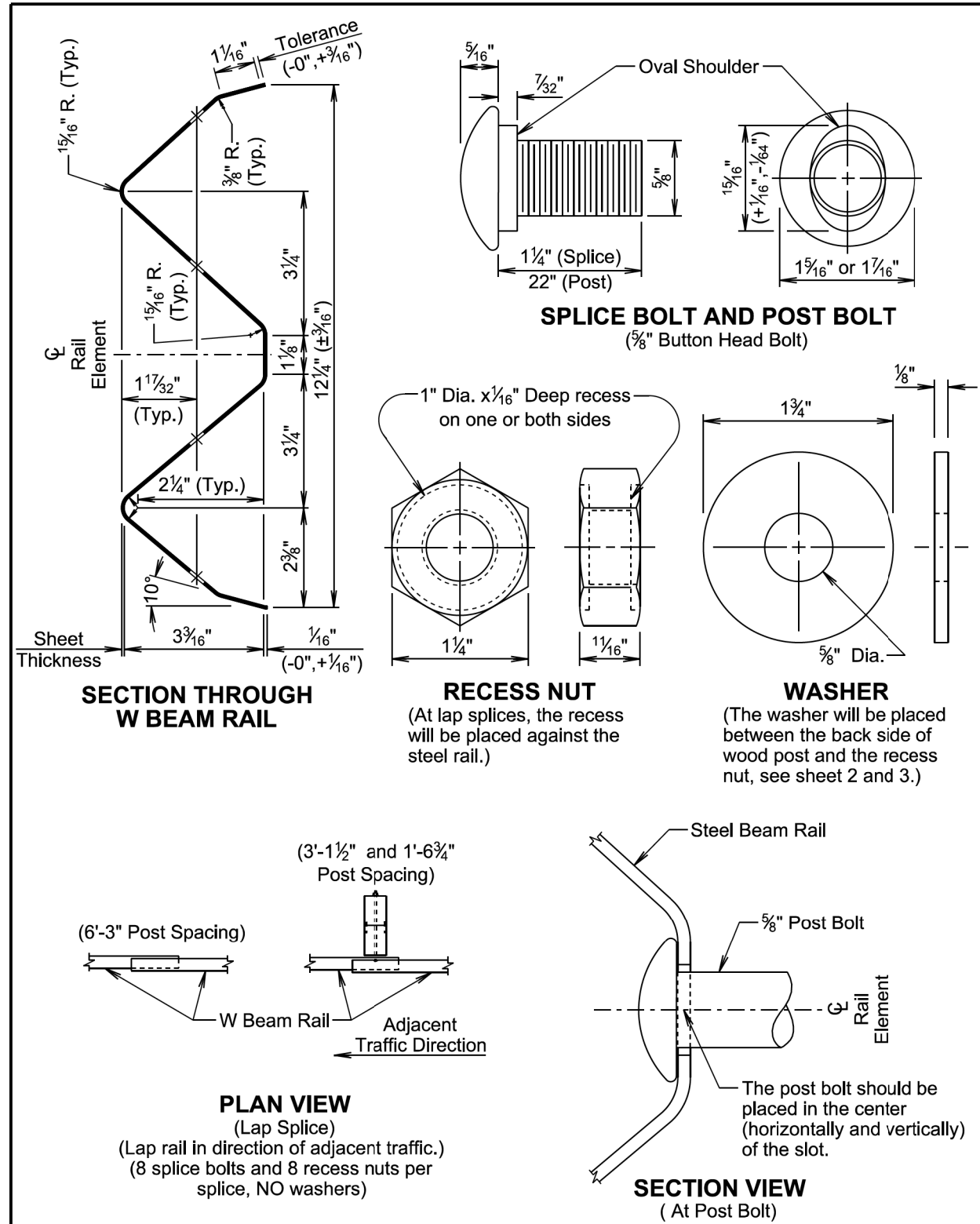
September 14, 2019

Published Date: 2024	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6

Plot Scale - N/A

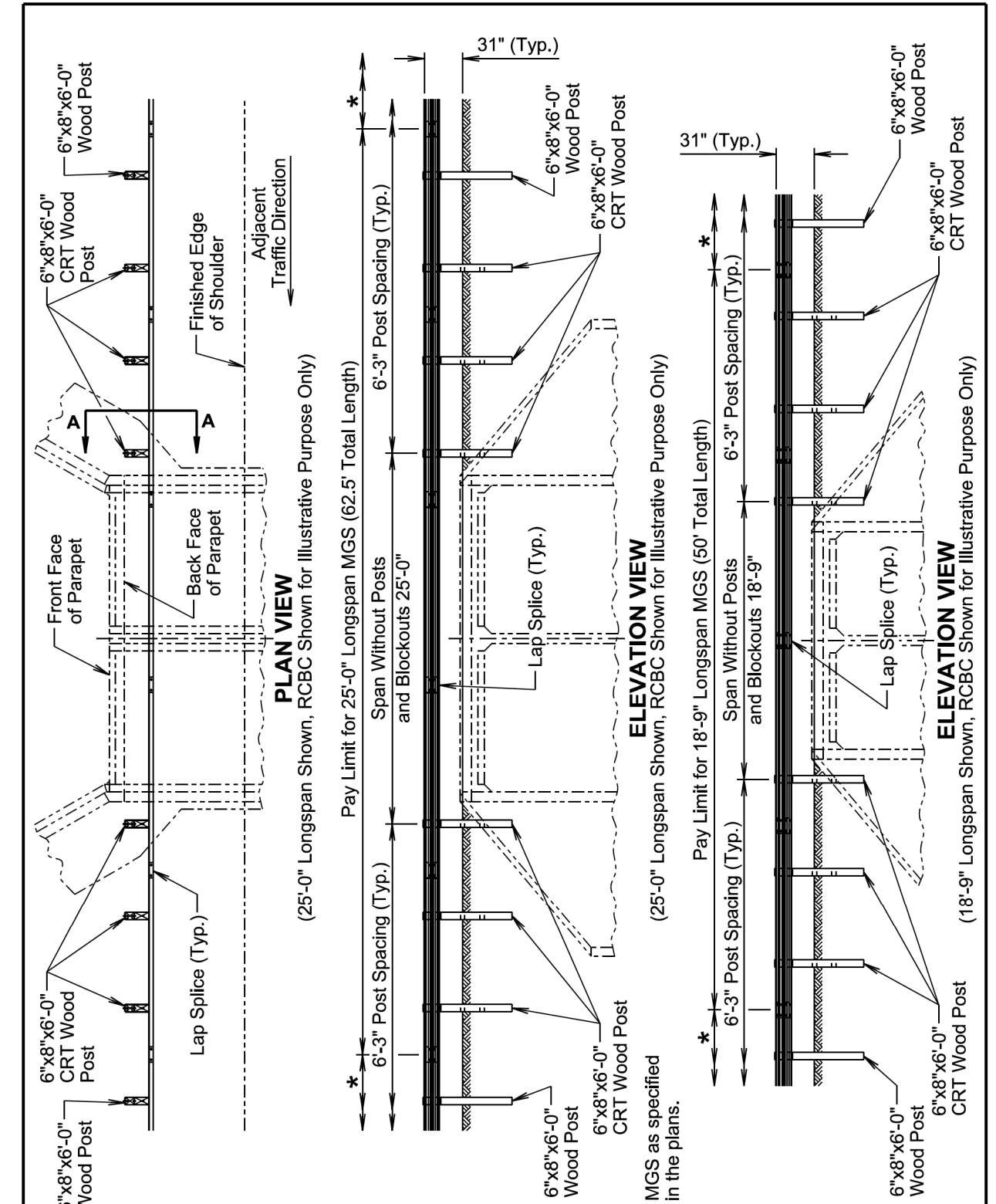
Plotted From - InfrastructureDesignGroup

File - ...107\CVs_SectionB_Plates.dgn



September 14, 2019

Published Date: 2024	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 6 of 6



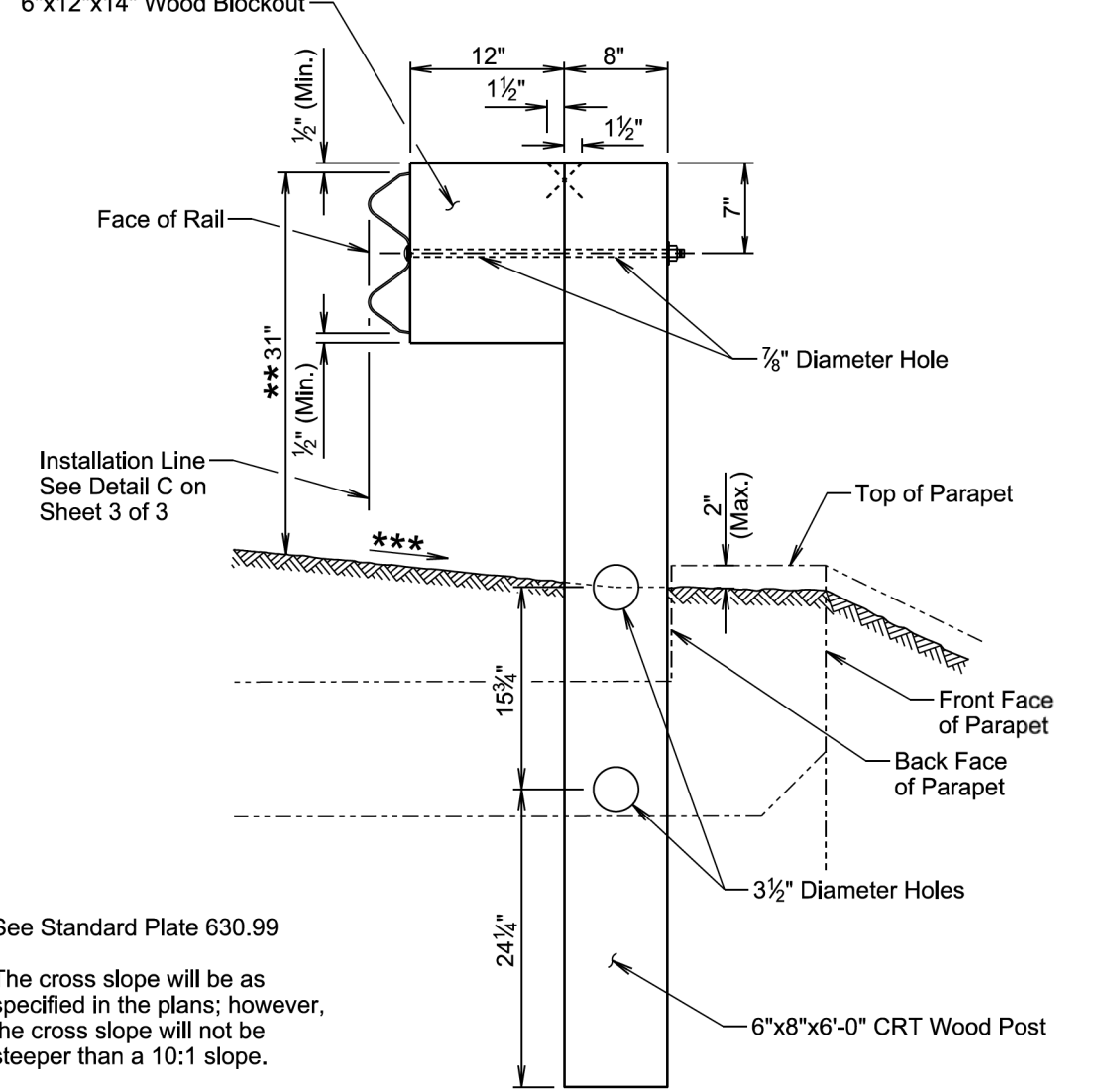
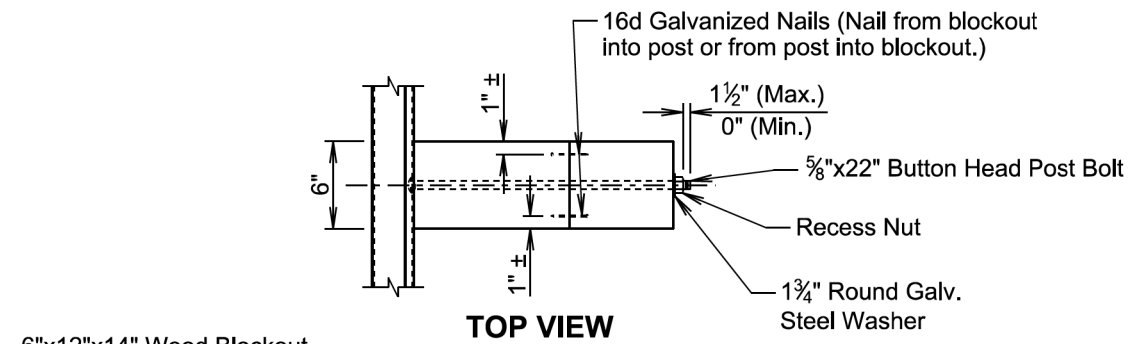
September 14, 2019

Published Date: 2024	S D D O T	LONGSPAN MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.27
			Sheet 1 of 3

Plot Scale - N/A

Plotted From - InfrastructureDesignGroup

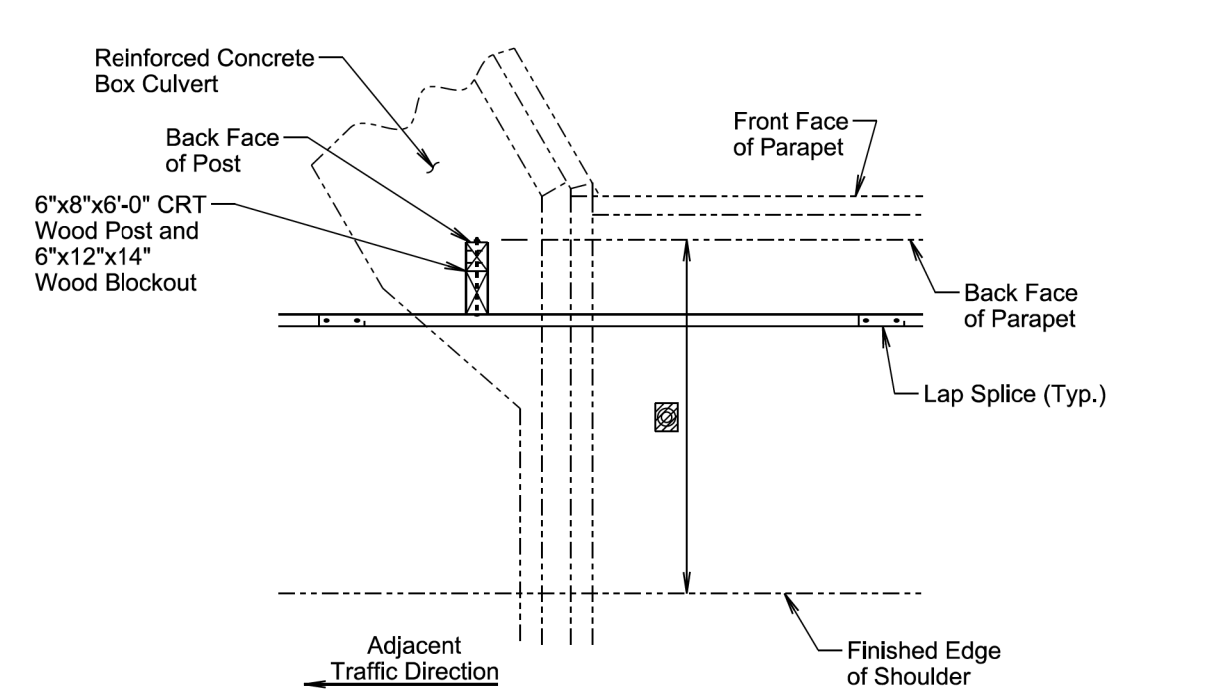
File - ...107\CVs_SectionB_Plates.dgn



VIEW A-A
(Longspan alignment is shown with the back of post aligned with the back face of parapet.)

September 14, 2019

Published Date: 2024	S D D O T	LONGSPAN MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.27
			Sheet 2 of 3



DETAIL C
(Longspan alignment is shown with the back of post aligned with the back face of parapet)

☒ The MGS Longspan alignment will be as specified in the plans; however, the allowable limits of lateral alignment will be such that the back of post will not encroach beyond the back face of the parapet and the front face of the guardrail will not encroach onto the finished shoulder. For other types of culverts that do not have a parapet, the back of post lateral alignment will be a minimum of 1 foot from the opening.

GENERAL NOTES:

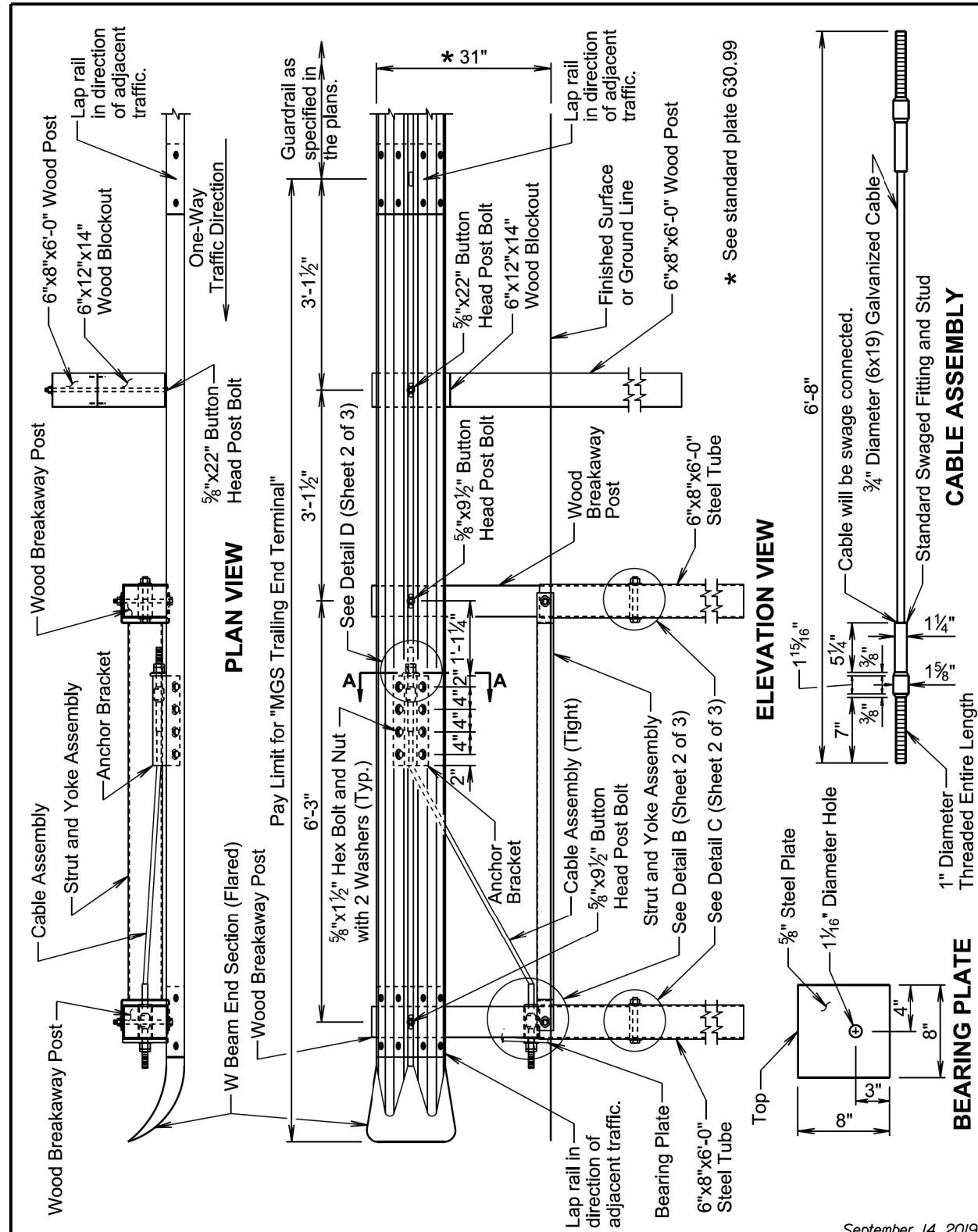
- See standard plate 630.20 for hardware details and specifications.
- The span without posts will be 25' or 18'-9" only, as shown on sheet 1 of 3.
- All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.
- W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.
- When PCC pavement or asphalt concrete pavement is adjacent to the post, see standard plate 630.96 for leave-out and backfill requirements.
- 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 Longspan MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per each for the corresponding Longspan MGS contract item.

September 14, 2019

Published Date: 2024	S D D O T	LONGSPAN MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.27
			Sheet 3 of 3

Plotted From: InfrastructureDesignGroup

File: ...107/CVs_SectionB_Plates.dgn



September 14, 2019

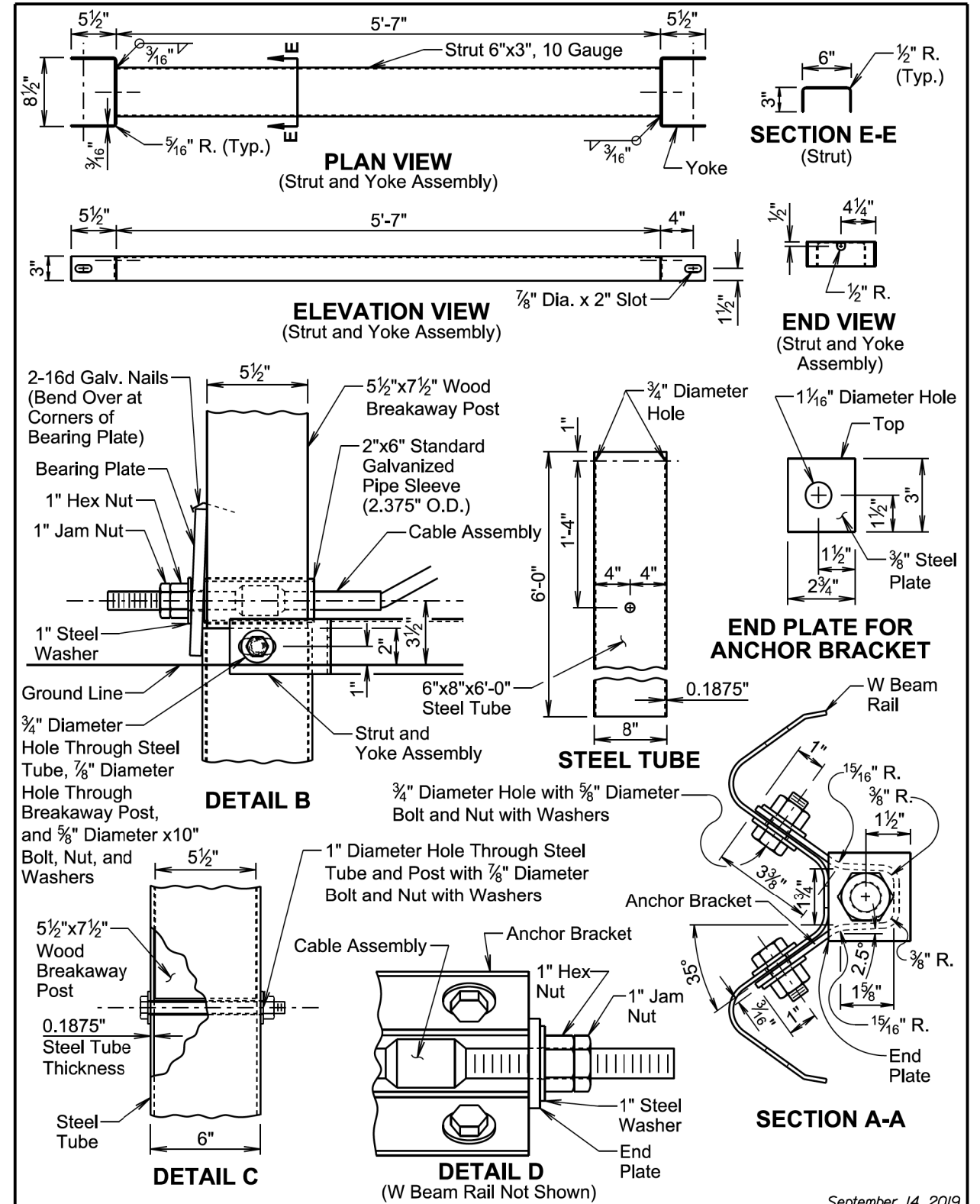
Published Date: 2024

SDDOT

MIDWEST GUARDRAIL SYSTEM (MGS)
TRAILING END TERMINAL

PLATE NUMBER
630.82

Sheet 1 of 3



September 14, 2019

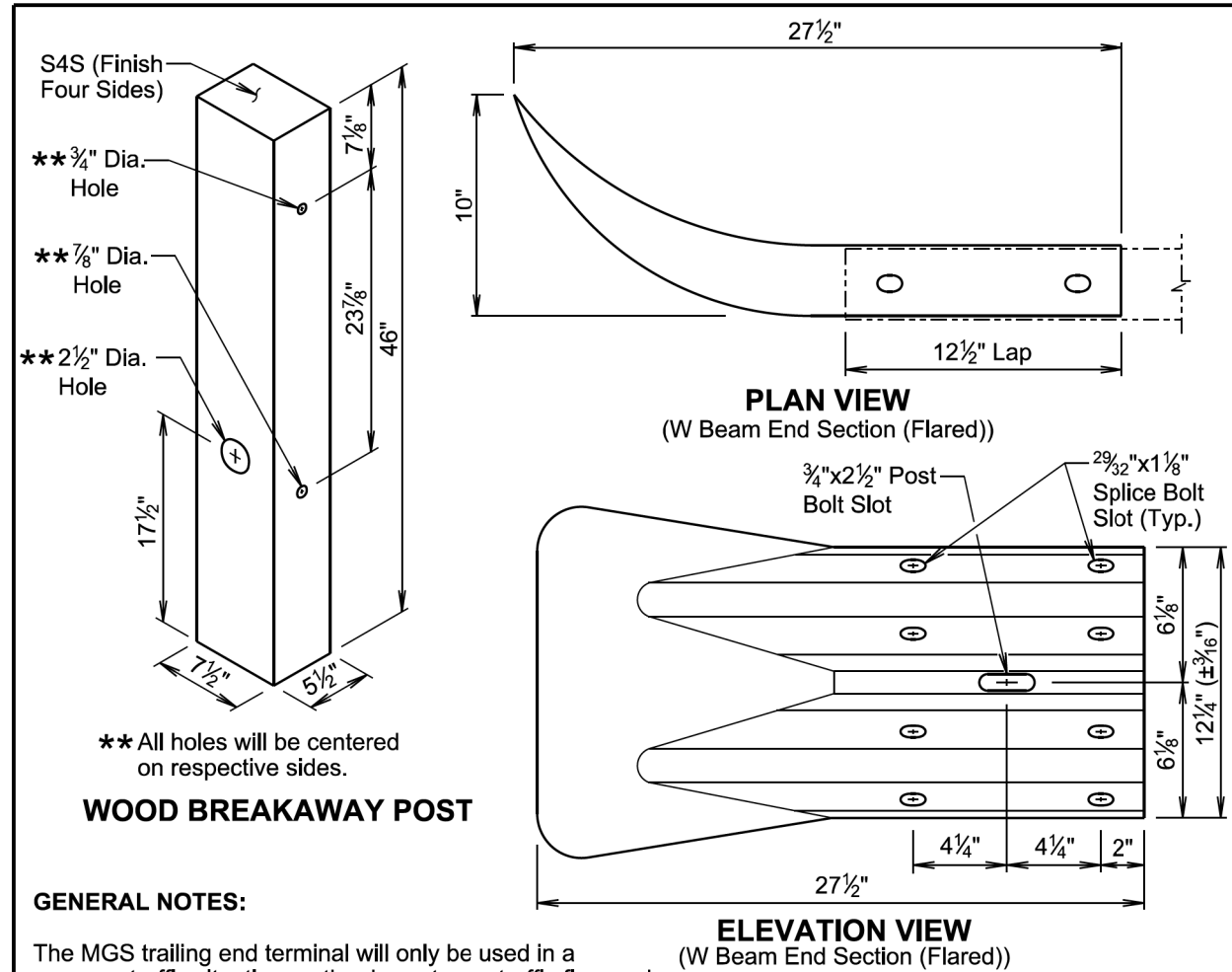
Published Date: 2024

SDDOT

MIDWEST GUARDRAIL SYSTEM (MGS)
TRAILING END TERMINAL

PLATE NUMBER
630.82

Sheet 2 of 3



WOOD BREAKAWAY POST

GENERAL NOTES:

The MGS trailing end terminal will only be used in a one-way traffic situation on the downstream traffic flow end.

W beam end section (flared) will be 12 gauge.

The cable will be 3/4", Type II, with Class A coating in conformance with AASHTO M30.

The steel tube will meet the requirements of ASTM A500, Grade B, and will be galvanized after fabrication in accordance with the requirements of AASHTO M111.

All hardware will be galvanized in accordance with ASTM A153.

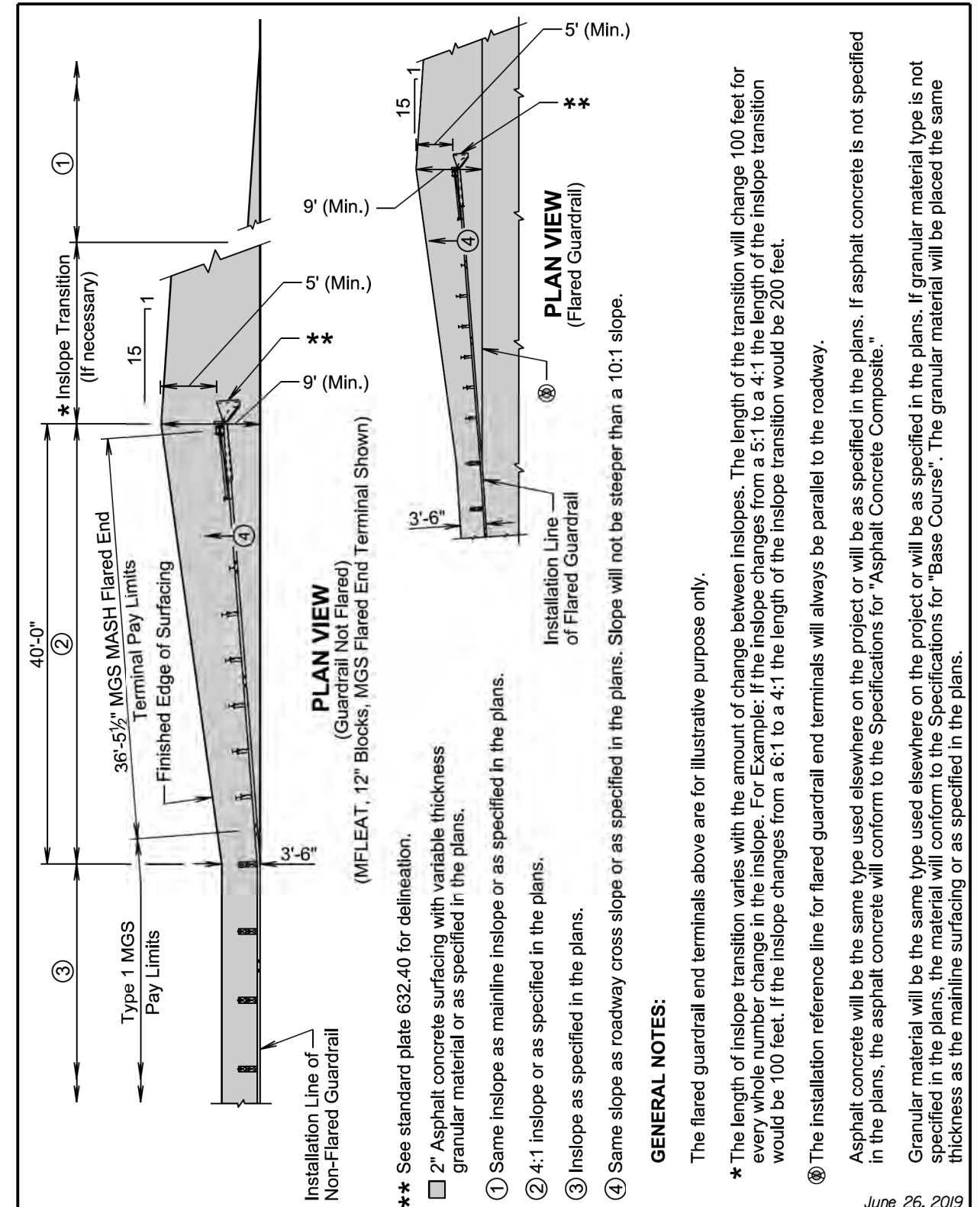
The anchor bracket, strut and yoke assembly, and bearing plate will be fabricated from steel that meets ASTM A36 Specifications. They will be galvanized after fabrication in accordance with ASTM A123.

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 constructing the MGS trailing end terminal including labor, equipment, materials which includes W beam rail section, two wood breakaway posts, steel tubes, strut and yoke assembly, cable assembly, bearing plate, anchor bracket, W beam end section (flared), one MGS wood post and blockout, hardware, and incidentals will be included in the contract unit price per each for "MGS Trailing End Terminal".

September 14, 2019

<p>Published Date: 2024</p>	<p>S D D O T</p>	<p>MIDWEST GUARDRAIL SYSTEM (MGS) TRAILING END TERMINAL</p>	<p>PLATE NUMBER 630.82</p>
			<p>Sheet 3 of 3</p>



- ** 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.

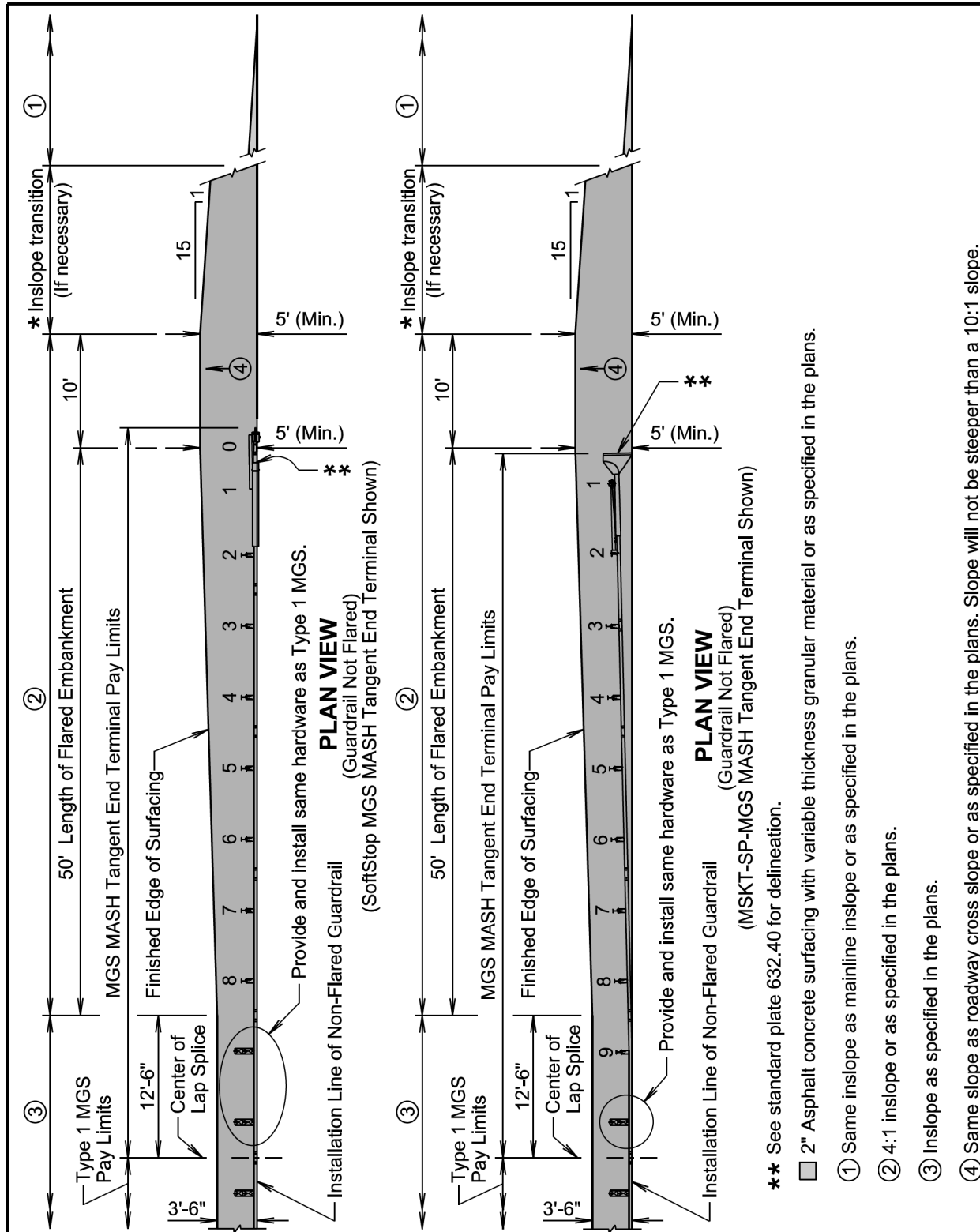
④ The installation reference line for flared guardrail end terminals will always be parallel to the roadway.

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.

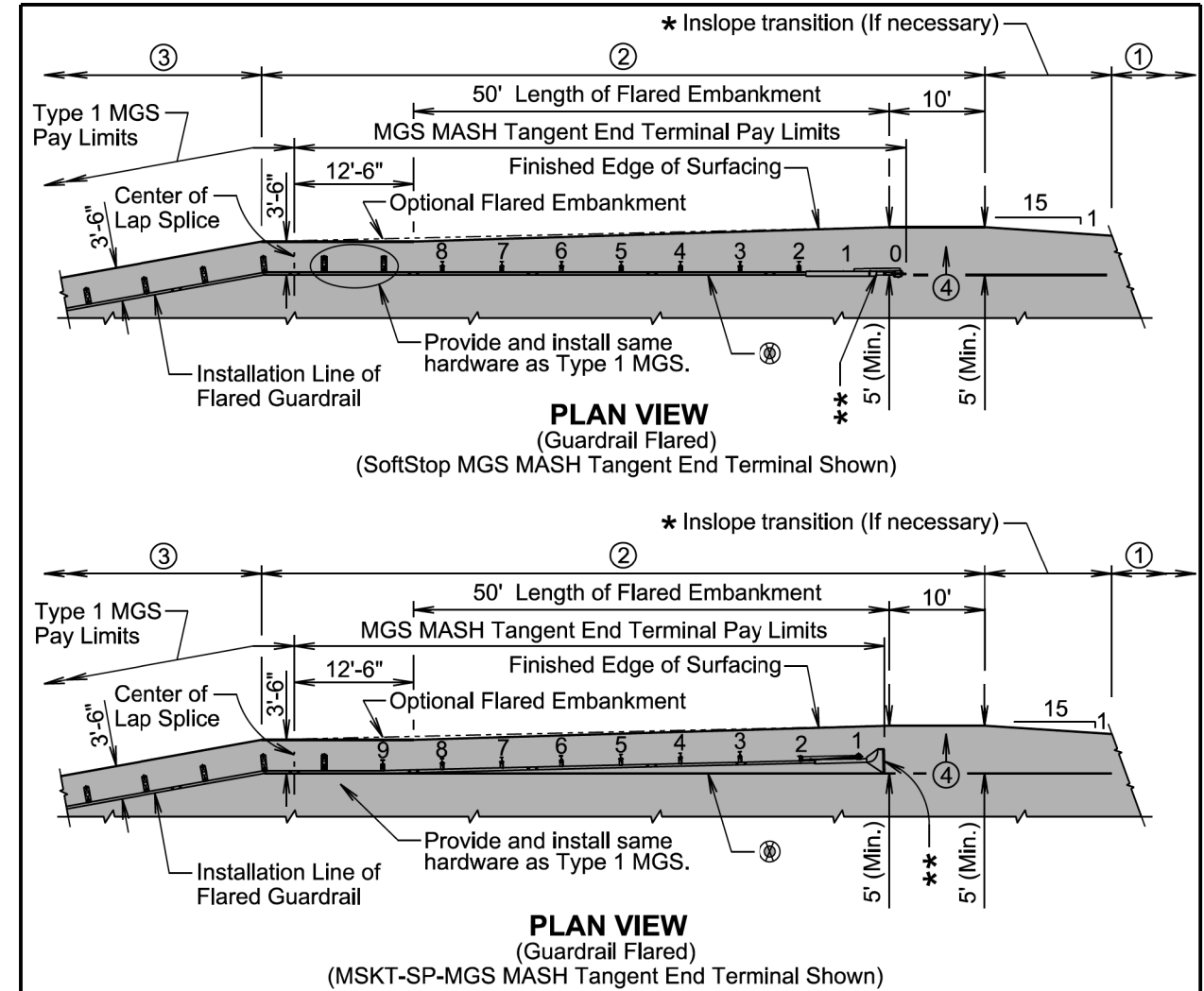
June 26, 2019

<p>Published Date: 2024</p>	<p>S D D O T</p>	<p>EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL</p>	<p>PLATE NUMBER 630.87</p>
			<p>Sheet 1 of 1</p>



November 19, 2021

S D D O T Published Date: 2024	EM BANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
		Sheet 1 of 2



GENERAL NOTES:

The MGS MASH tangent end terminals above are for illustrative purpose only. Pay limit length of the MGS MASH tangent end terminal is 62'-6".

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

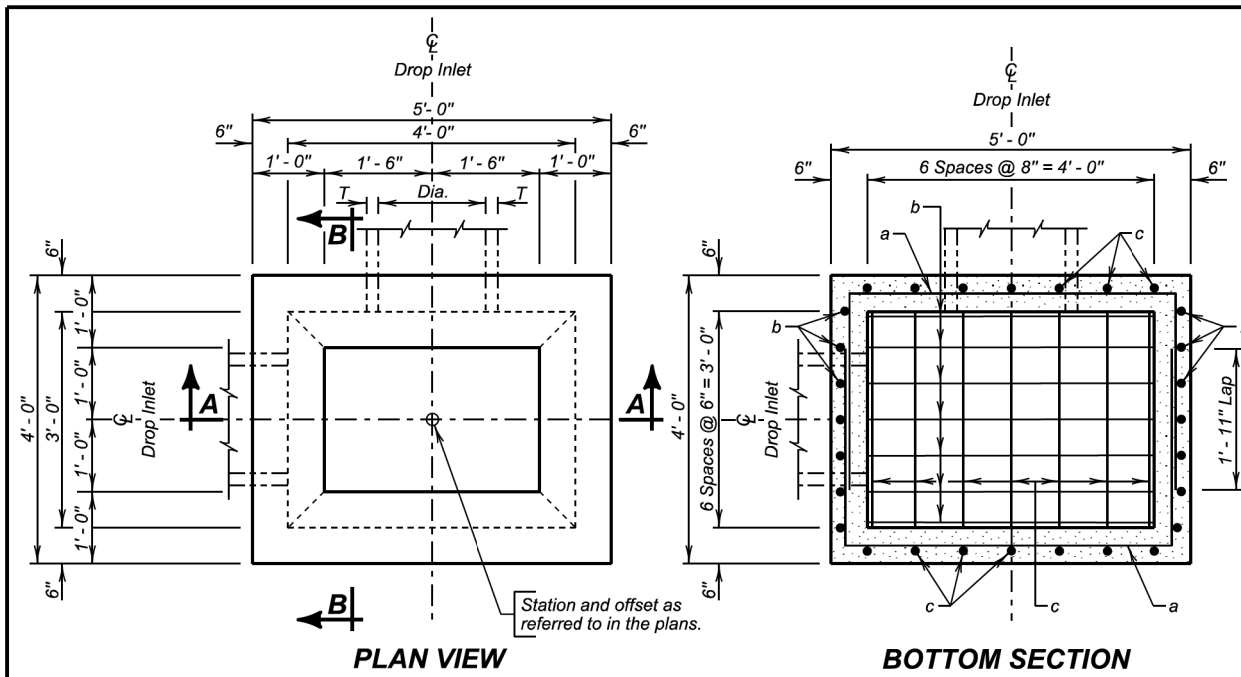
⊗ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

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.

November 19, 2021

S D D O T Published Date: 2024	EM BANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
		Sheet 2 of 2



ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	Cu. Yd.	0.72	0.30H
Reinforcing Steel	Lb.	130.93	36.54H
Frame and Grate Assembly	Each	1	

DROP INLETS FOR 12" TO 36" 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.

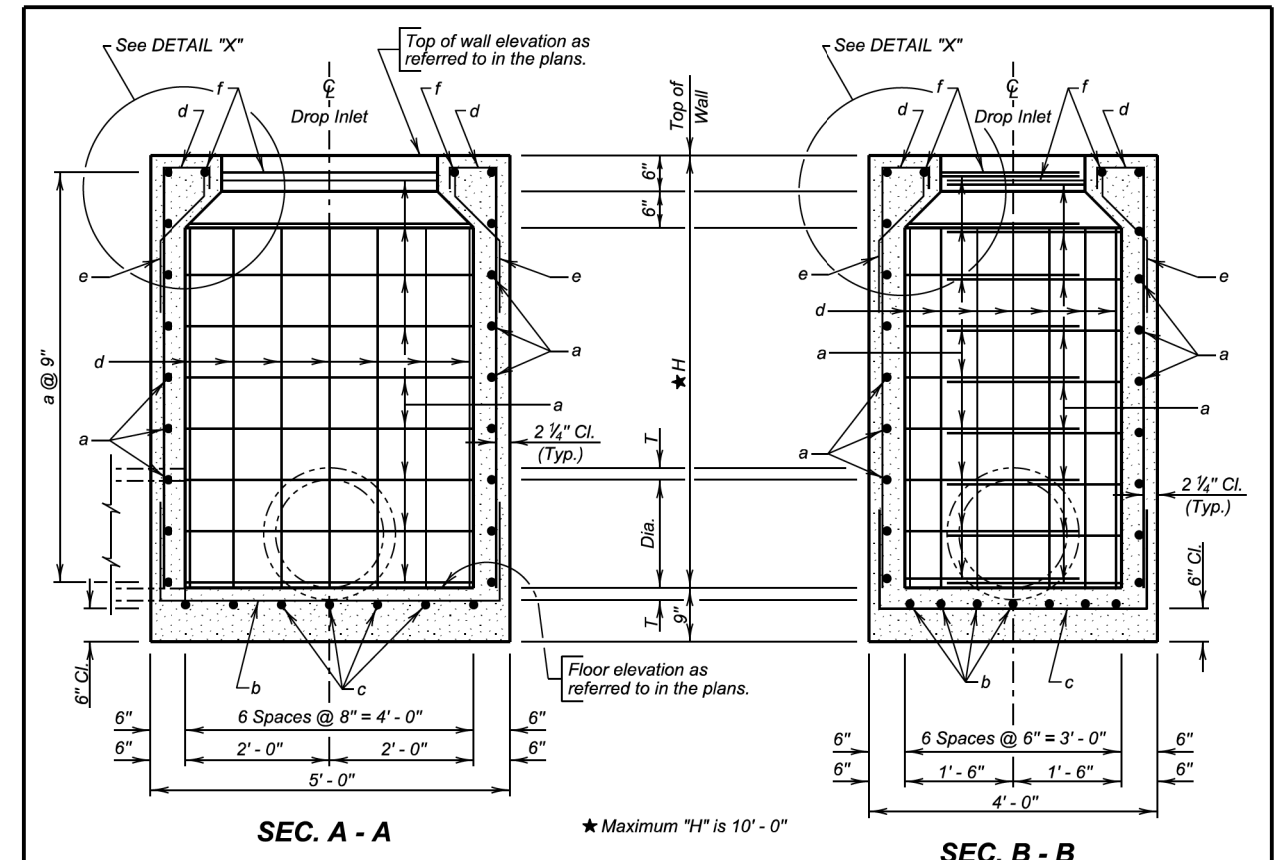
Maximum R.C.P. diameter shall not exceed 24 inches (24 inches for R. C. arch) on the 3-foot wide side and shall not exceed 36 inches (30 inches for R.C. arch) on the 4-foot wide side of the drop inlet.

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.)
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
30	3 1/2	0.14
36	4	0.20
18	2 1/2	0.05
24	3 1/2	0.09
30	4	0.14

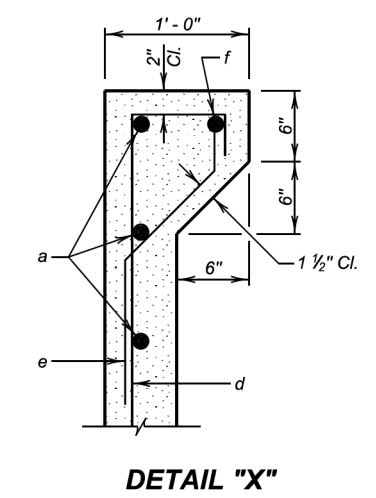
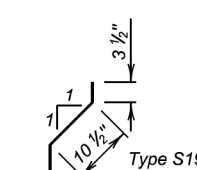
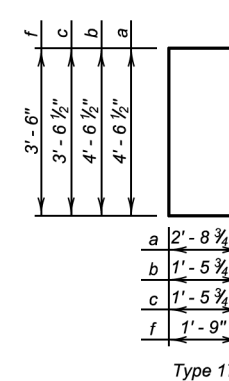
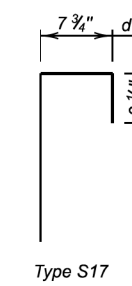
December 16, 2015

S D D O T	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
	Published Date: 2024	Sheet 1 of 2



REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
a	2.67H	4	10' - 0"	17
b	7	4	7' - 6"	17
c	7	4	6' - 6"	17
d	28	4	H + 9"	S17
e	28	4	2' - 3"	S19
f	2	4	7' - 0"	17

NOTE: All dimensions are out to out of bars.



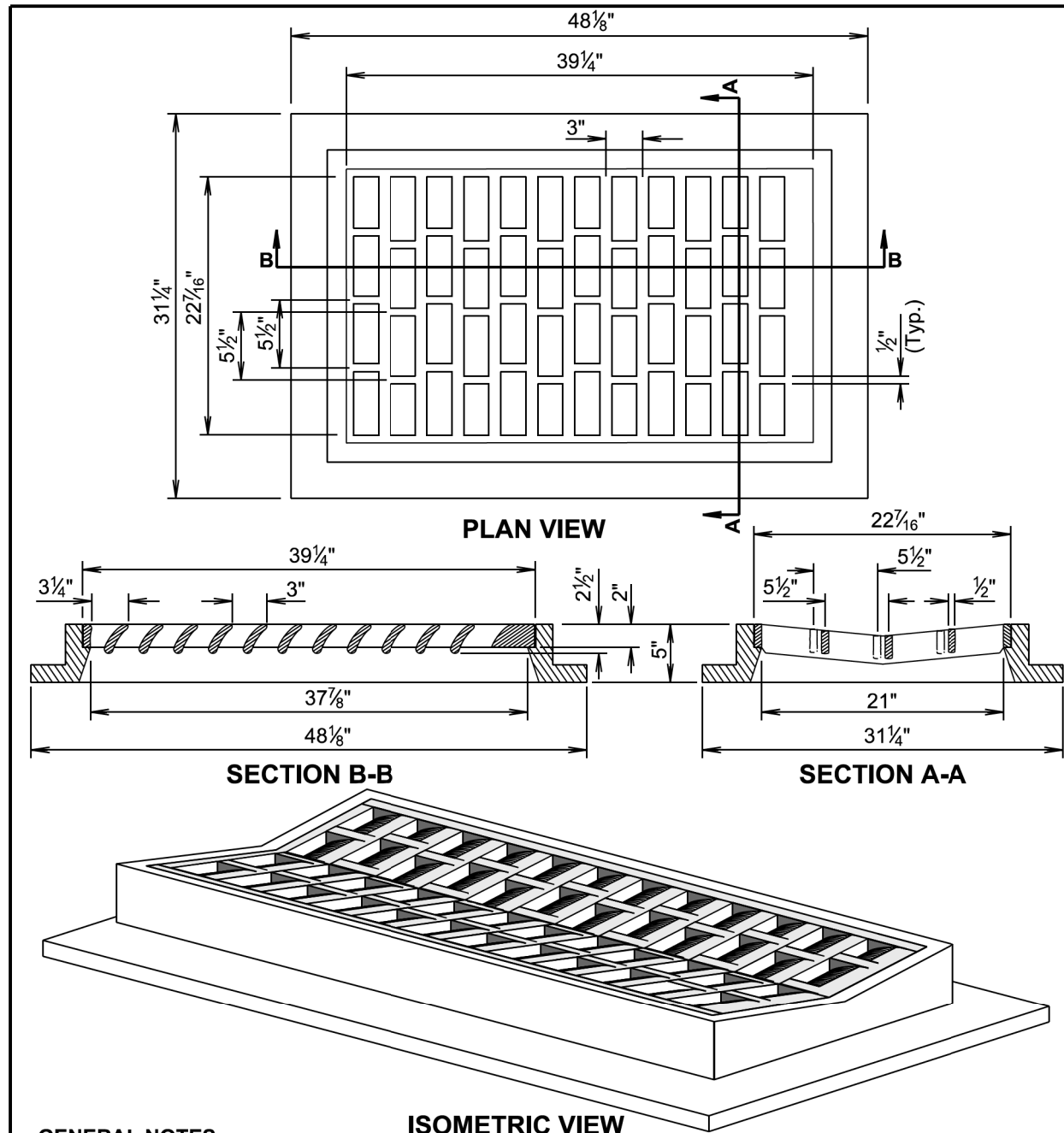
December 16, 2015

S D D O T	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02
	Published Date: 2024	Sheet 2 of 2

Plot Scale - N/A

Plotted From - InfrastructureDesignGroup

File - ...107CVs_SectionB_Plates.dgn



GENERAL NOTES:

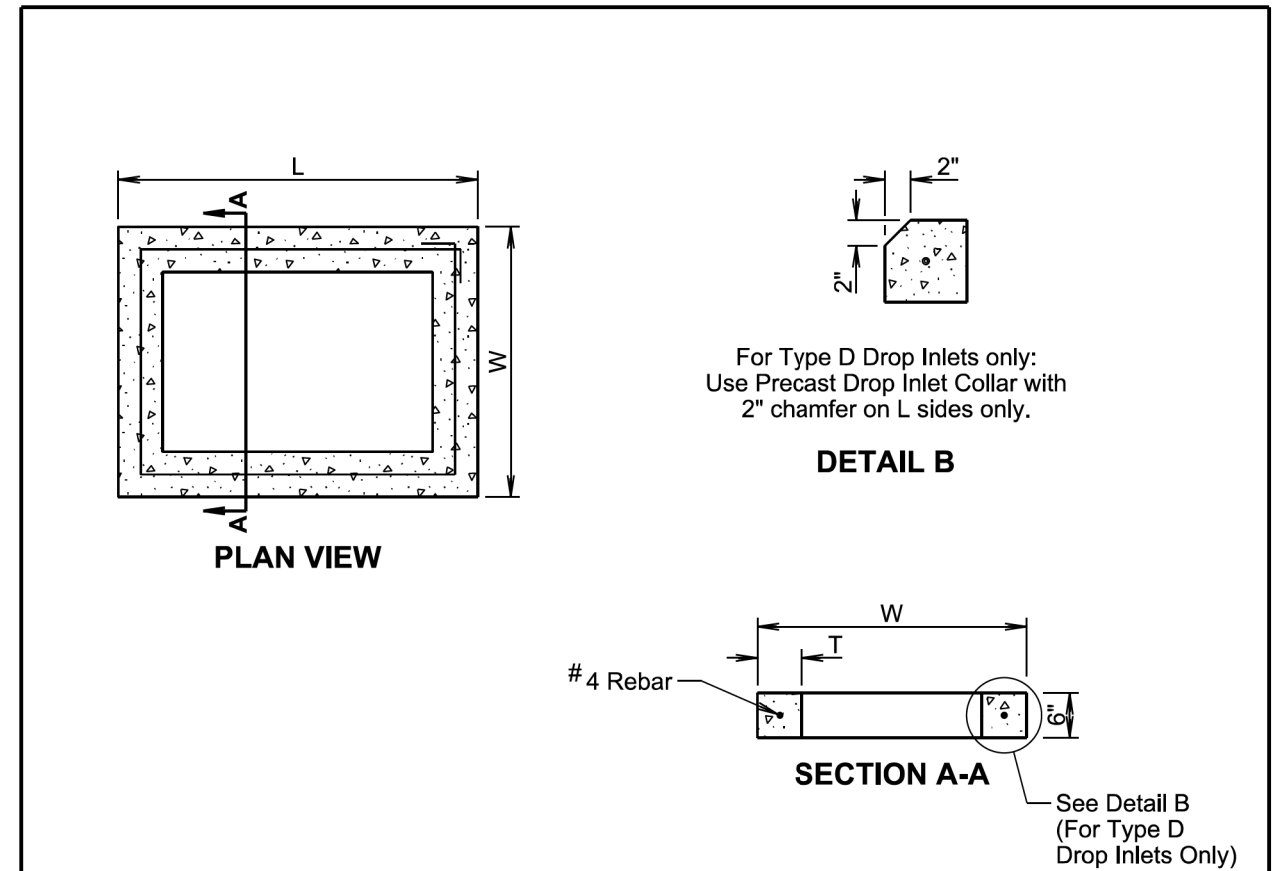
The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity and bicycle safety. Any variation in dimensions will be approved by the Engineer and the type E frame and grate 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 E frame and grate is used typically with valley gutter and type P gutter.

June 1, 2022

Published Date: 2024	S D D O T	TYPE E FRAME AND GRATE	PLATE NUMBER 670.86
			Sheet 1 of 1



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

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 1/2" 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: 2024	S D D O T	PRECAST DROP INLET COLLAR	PLATE NUMBER 670.99
			Sheet 1 of 1