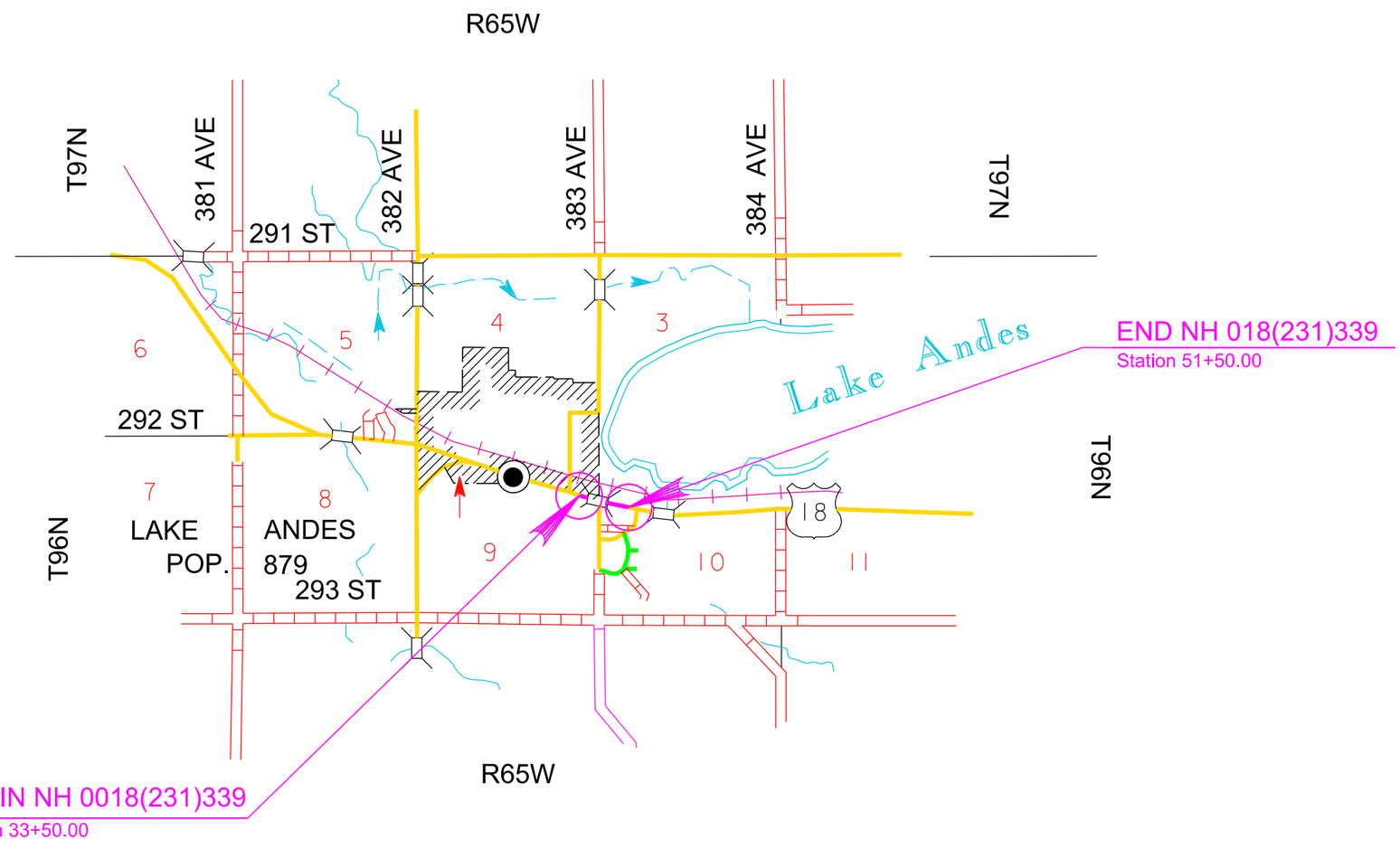
SECTION B: GRADING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B1	B18

Plotting Date: 12/19/2024

INDEX OF SHEETS



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SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.592	Mile
009E3250	Miscellaneous Staking	0.592	Mile
009E3280	Slope Staking	0.592	Mile
009E3290	Structure Staking	1	Each
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
100E0100	Clearing	Lump Sum	LS
110E0707	Remove High Tension 4 Cable Guardrail	3,787	Ft
110E1010	Remove Asphalt Concrete Pavement	868.0	SqYd
110E1140	Remove Concrete Sidewalk	266.7	SqYd
120E0010	Unclassified Excavation	1,392	CuYd
120E0600	Contractor Furnished Borrow Excavation	9,256	CuYd
120E6200	Water for Granular Material	5.1	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	424.0	Ton
260E2010	Gravel Cushion	194.0	Ton
260E6010	Granular Material	158.0	Ton
320E1200	Asphalt Concrete Composite	428.0	Ton
421E0100	Pipe Culvert Undercut	83	CuYd
450E0122	18" RCP Class 2, Furnish	162	Ft
450E0130	18" RCP, Install	162	Ft
450E0142	24" RCP Class 2, Furnish	158	Ft
450E0150	24" RCP, Install	158	Ft
450E2200	24" RCP Sloped End, Furnish	2	Each
450E2201	24" RCP Sloped End, Install	2	Each
450E2304	18" RCP Safety End, Furnish	4	Each
450E2307	18" RCP Safety End, Install	4	Each
600E0200	Type II Field Laboratory	1	Each
651E0060	6" Concrete Sidewalk	11,092	SqFt
651E7000	Type 1 Detectable Warnings	60	SqFt
671E7010	Adjust Manhole	2	Each
700E0210	Class B Riprap	934.4	Ton
831E0110	Type B Drainage Fabric	667	SqYd
900E1080	Orange Plastic Safety Fence	1,000	Ft

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 96 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of “Unclassified Excavation”.

The estimated excavation required for placing the Granular Bridge End Backfill and Bridge End are listed in the Table of Unclassified Excavation.

MAINLINE INSLOPE CONSTRUCTION

Special construction techniques will be required to flatten the inslopes adjacent to the existing reinforced grade. The existing grade was raised due to flooding in the area. The grade was constructed utilizing reinforced select granular material. The existing inslopes are reinforced with a series of geogrid wraps and armored with riprap. The existing reinforced grade will not be disturbed during construction. The proposed embankment will not be benched into the existing grade. Soil will be placed over the non-salvaged riprap and reinforced section then compacted to the satisfaction of the Engineer.

SHARED USE PATH

The existing railroad grade was completely inundated by flood waters for a long duration. The condition of the existing path may very along its length. Scarify and recompact the top of the grade prior to placement of any fill or path surfacing. Place soil over existing riprap where applicable. Compaction of the soil embankment will be to the satisfaction of the Engineer.

INSLOPE REPAIR STATION 51+75 to 60+75 L

The existing inslope from approximately 51+75 to 60+75 L has sluffed causing a drop off of 1’ to 2’. The Contractor will work with the Engineer to restore the inslope back to a 4:1 or flatter slope. Inslope will be repaired by stripping the topsoil, reshaping the inslope with Contractor furnished borrow if needed and replace the Topsoil. All costs associated with reshaping the inslope and stripping the topsoil will be incidental to the contract unit price per cubic yard of “Unclassified Excavation” and “Contractor Furnished Borrow.”

SURFACING INTERSECTING ROAD AT 53+40 R

The existing intersecting road from approximately 49’ R to 314’ R will be surfaced with 3” Asphalt Concrete Composite. The estimated quantity for Asphalt Concrete Composite for this section is 154 Tons. Prior to the asphalt surfacing the existing gravel will be prepped for surfacing to the satisfaction of the Engineer. All cost associated to prep the grade for surfacing will be incidental to the contract unit price per Ton of “Asphalt Concrete Composite.”

The existing intersecting road from approximately 314’ R to 480’ R (in place PCC Pavement) will be surfaced with 2” Base Course and 3” Asphalt Concrete Composite. The estimated quantity for Base Course is 64 tons and 0.8 Mgal of Water for Granular Material. Asphalt Concrete Composite for this section is estimated at 102 Tons. All cost associated will be incidental to the contract unit price per Ton of “Base Course” and “Asphalt Concrete Composite” and MGal of “Water for Granular Material”.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will include MC-70 Asphalt for Prime placed at the rate of 0.30 gallons per square yard. The Asphalt for Prime will be applied to the Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

LOCATION	WATER FOR GRANULAR MATERIAL	BASE COURSE	ASPHALT CONCRETE COMPOSITE	
			1st Lift	2nd Lift
Station to Station	(MGal)	(Ton)	(Ton)	(Ton)
XR 41R				
0+25 to 2+55	4.3	360	86	86
Intersecting Road @ 53+40 R				
0+49 to 3+14			154	
3+14 to 4+80	.8	64	102	
Totals:	5.1	424	428	

TYPE II FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 10 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router’s technical data to the Area Office to check for compatibility with the state’s computer equipment. The internet connection is intended for state personnel usage only. The Contractor’s personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for “Type II Field Laboratory”.

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.

SHRINKAGE FACTOR: Embankment +30%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Contractor Furnished Borrow Exc. (CuYd)	Total Excavation (CuYd)
Mainline				
34+00	51+50	69	5726	5795
Inslope Repair			200	200
Path33L		17	2255	2272
XR41R		215	397	612
Path42R		0	879	879
	Totals:	301	9256	9557

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

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	301
Topsoil	997
Exc. for Granular Bridge End Backfill and Bridge End Embankment	31
Total	1392

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

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

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

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

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for “Contractor Furnished Borrow Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item.

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

PIPE CULVERT UNDERCUT

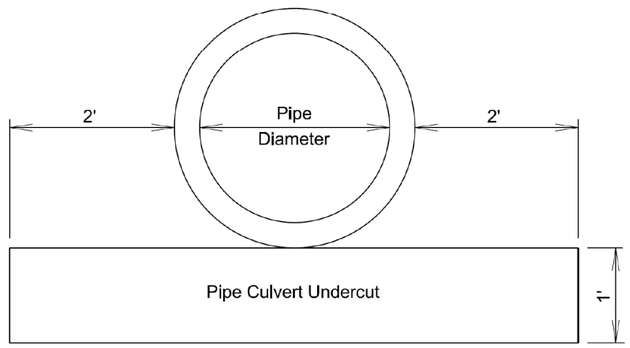
Pipe culvert undercut is required for this project in accordance with Section 421 of the Specifications.

Station	Undercut Depth (Ft)	Pipe Culvert Undercut (CuYd)	Granular Material (Ton)
1+25 (XR41R)	1	20	38
2+06 (XR41R)	1	41	78
40+87 to 41+86 – 60’ L	1	22	42
	Total:	83	158

The table specifies locations where granular material is required for backfilling the pipe culvert undercut area. Granular material will conform to the gradation requirements in Section 421.2.A of the Specifications and will be paid for at the contract unit price per ton for “Granular Material”.

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.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1’ Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1’ Depth (CuYd/Ft)
18	0.2191	
24	0.2407	0.2577
30	0.2623	0.2847



INCIDENTAL WORK, GRADING

Station	L/R	Remarks
41+22	L	Take Out 18”-42’ CMP
41+33	R	Take Out 24”-130’ CMP

REMOVE ASPHALT CONCRETE PAVEMENT

An estimated 868 Square Yards of the in-place asphalt concrete surfacing will be removed from the existing (Path 33L) and wasted as directed by the Engineer.

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

TABLE OF SIDEWALK REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
0+00 (Path 42R)		2+40	CL	266.7
			Total:	266.7

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.

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station	L/R	Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)
Path 33L		934.4	667.4
	Totals:	934.4	667.4

ADJUSTMENT OF MANHOLES

The Contractor will adjust manholes to the extent necessary on this project. Adjusting the manholes may consist of removing the upper course of brick or removing the concrete walls, replacing the removed materials with brick or Class M6 concrete, placing adjusting rings if necessary, and resetting the manhole frame and lid. The elevation of the lid will be set at the same elevation of the adjacent new pavement or surrounding ground. All manhole frames, lids, and rings that are cracked or broken due to carelessness of the Contractor will be replaced with new manhole frames, lids, and rings that conform with the Specifications at the Contractor’s expense. Manholes will be adjusted to the satisfaction of the Engineer. All costs involved in adjusting the manholes will be incidental to the contract unit price per each for “Adjust Manhole”.

The Engineer may direct adjustment of manholes that were not included in these plans. Payment for adjusting manholes that were not included in the plans will be at the contract unit price per each for “Adjust Manhole”.

TABLE OF ADJUST MANHOLES

Station	L/R	Type of Adjustment
53+41	260’ R	Raise 5”
53+41	400’ R	Raise 5”

TYPE 1 DETECTABLE WARNINGS

Detectable warnings will be in compliance with the Americans with Disabilities Act regulations.

The detectable warnings will be installed according to the manufacturer’s installation instructions.

A concrete thickness equal to the adjacent concrete sidewalk thickness and 2 inches of granular cushion material will be placed below the Type 1 Detectable Warnings. When concrete is placed below the detectable warnings then the concrete thickness will be transitioned at the rate of 1” per foot to match the adjacent concrete sidewalk thickness.

The detectable warnings will be a brick red color for application in concrete curb ramps.

Type 1 Detectable Warning Panels will be one of the following products:

Type 1 Detectable Warnings

Product	Manufacturer
Detectable Warning Plate Cast Iron Plate	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate	Deeter Foundry Lincoln, NE 800-234-7466 http://www.deeter.com/
Detectable Warning Plate Cast Iron Plate(No Coating)	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.ejiw.com
Iron Dome Cast Iron Detectable Warning Tile	ADA Solutions, Inc. 323 Andover Street Suite 3 Wilmington, MA 01887 800-372-0519 https://adatile.com

TABLE OF TYPE 1 DETECTABLE WARNINGS

Station	L/R	Quantity (SqFt)
(Path 33L)		
0+00.00	CL	20
9+12.77	CL	20
(Path 42R)		
2+41.39	CL	20
	Total:	60

CONCRETE SIDEWALK

The Concrete Sidewalk will be constructed in accordance with Section 651.

Due to the extra depth required, the granular cushion material required, as per the typical sections, will be paid for separately at the contract unit price per ton for “Gravel Cushion.” The gravel cushion will meet the requirements of Section 882. Compaction will be to the satisfaction of the Engineer.

TABLE OF 6” CONCRETE SIDEWALK AND GRAVEL CUSHION

Station	to		L/R	Concrete Sidewalk (SqFt)	Gravel Cusion (TON)
0+00.00	(Path 33L)	5+84.66	CL	5846.6	102.3
6+29.66	(Path 33L)	9+12.77	CL	2831.1	49.5
0+00.00	(Path 42R)	2+41.39	CL	2413.9	42.2
			Total:	11091.6	194.0

TABLE OF GUARDRAIL

Location	Remove High Tension 4 Cable Guardrail (Ft)
33+37 to 53+43 - L	2006
33+37 to 40+44 - R	707
41+69 to 52+43 - R	1074
Totals:	3787

REMOVE HIGH TENSION 4 CABLE GUARDRAIL

The cables, posts, anchor assemblies, and hardware items will become the property of the Contractor and will be removed from the project limits.

TABLE OF PIPE QUANTITIES

	Reinforced Concrete			
	Circular		Safety End	Sloped End
Station Offset (L/R)	18” (Ft)	24” (Ft)	18” (Each)	24” (Each)
1+25 (XR41R)	76		2	
2+06 (XR41R)		158		2
40+87 to 41+86 – 60’ L	86		2	
Total:	162	158	4	2

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

					Grade Staking						
Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Lane Factor	*Sets of Stakes	**Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
Path 33L	0+00	9+13	1	913	0.173	1	1	0.173	0.173	0.173	1
Mainline	34+00	51+50	1	1750	0.331	1	1	0.331	0.331	0.663	
XR41R	0+25	2+55.61	2	230.6	0.044	1	1	0.044	0.044	0.044	
Path 43R	0+00	2+41.39	1	241.39	0.046	1	1	0.046	0.046	0.046	
							Totals:	0.592	0.592	0.592	1

* 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)

TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B6	B18

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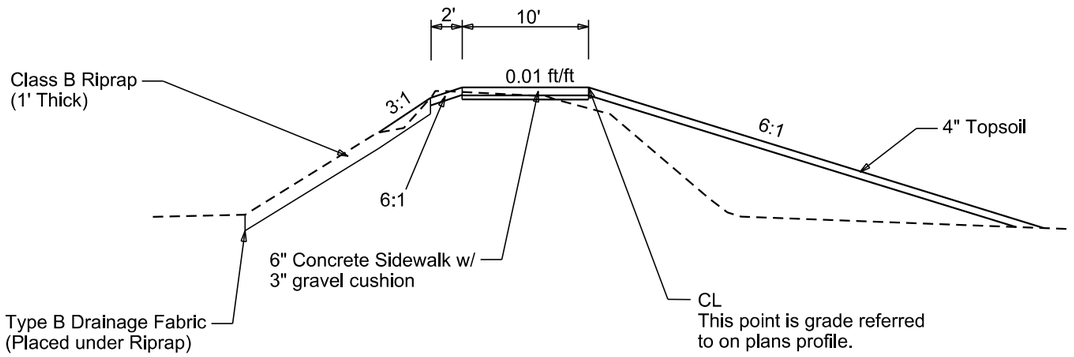
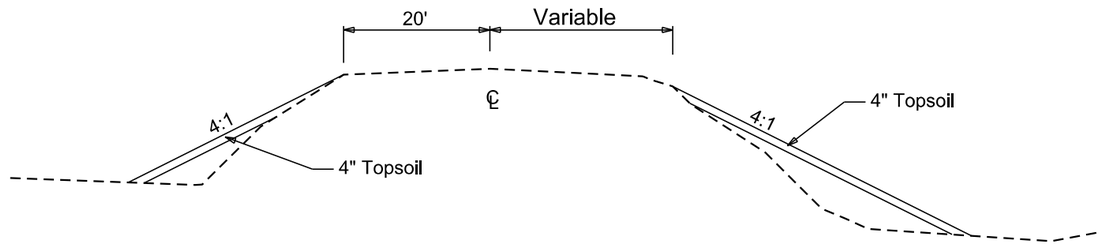
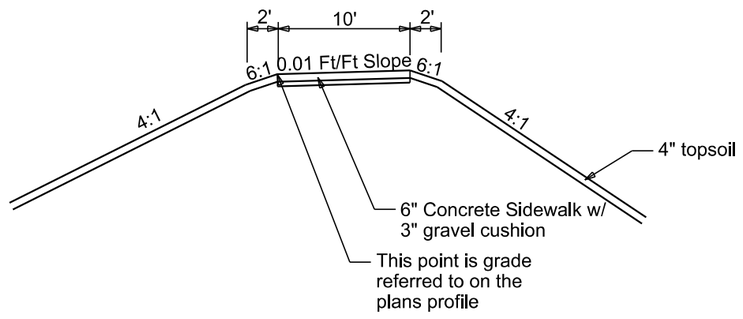
Path33L
0+00 to 5+84.66
6+29.66 to 9+12.77



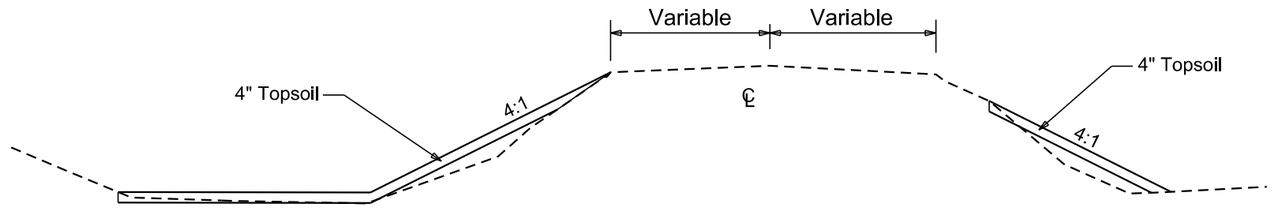
Mainline
33+50 to 40+50



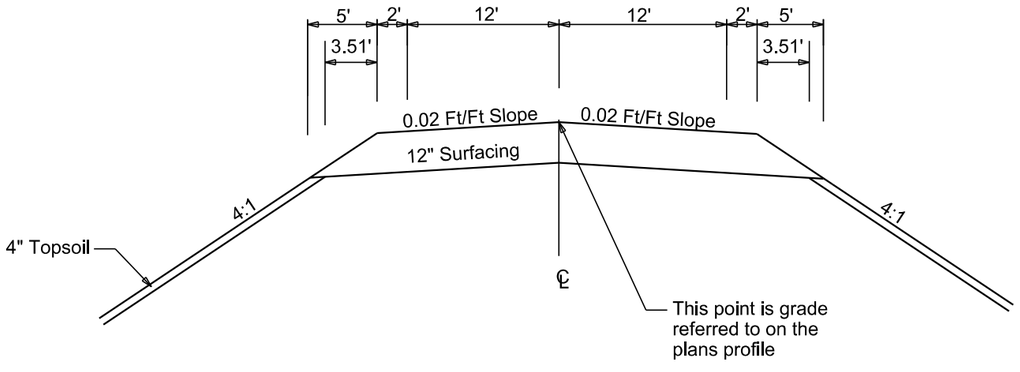
Path42R
0+00 to 2+41.39



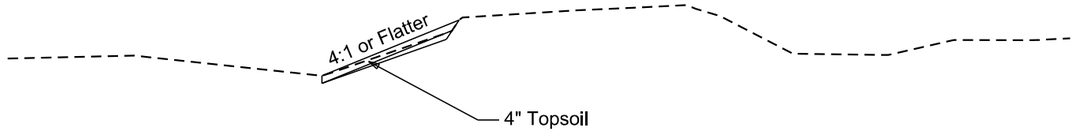
Mainline
40+50 to 50+50



XR41R
0+25 to 2+55



Mainline
51+75 to 60+75



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TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B7	B18

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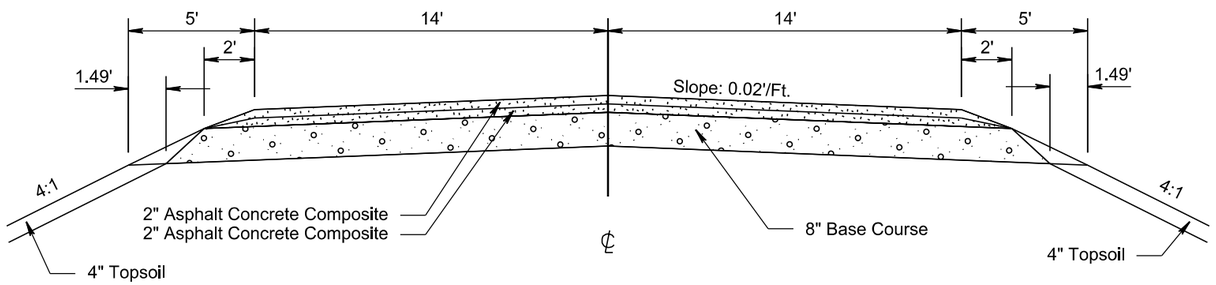
XR 41R
Sta. 0+25 to Sta. 2+55



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PLOT NAME - 7

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HORIZONTAL ALIGNMENT DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B8	B18

Plotting Date: 12/19/2024

MAINLINE

Type	Station			Northing	Easting
POB	10+00.00			303852.428	2447715.791
		TL= 1700.00	S 75°48'39" E		
PI	27+00.00			303435.713	2449363.926
		TL= 401.89	S 75°48'39" E		
PI	31+01.89			303337.200	2449753.553
		TL= 1950.48	S 75°21'28" E		
PC	50+52.36			302844.155	2451640.683
PI	62+60.11	R = 6366.20	Delta = 21°29'03" L	302538.860	2452809.203
PT	74+39.48			302682.738	2454008.344
		TL= 1583.42	N 83°09'29" E		
POE	90+22.90			302871.370	2455580.491

Path33L

Type	Station			Northing	Easting
POB	0+00.00			303383.178	2449945.359
		TL= 107.00	S 74°24'45" E		
PI	1+07.00			303354.426	2450048.428
		TL= 697.65	S 75°59'47" E		
PC	8+04.66			303185.606	2450725.348
PI	8+55.22	R = 50.00	Delta = 90°38'19" R	303173.371	2450774.406
PT	8+83.75			303124.453	2450761.625
		TL= 29.02	S 14°38'32" W		
POE	9+12.78			303096.374	2450754.289

Path42R

Type	Station			Northing	Easting
POB	0+00.00			302814.308	2450802.920
		TL= 26.93	N 0°11'29" E		
PI	0+26.93			302841.236	2450803.010
		TL= 112.62	N 6°42'37" W		
PC	1+39.54			302953.081	2450789.851
PI	1+69.42	R = 150.00	Delta = 22°31'55" L	302982.756	2450786.360
PT	1+98.53			303008.829	2450771.763
		TL= 42.95	N 29°14'31" W		
POE	2+41.48			303046.305	2450750.782

XR41R

Type	Station			Northing	Easting
POB	0+00.00			302807.541	2450718.215
		TL= 174.57	N 0°31'19" W		
PC	1+74.57			302982.101	2450716.625
PI	2+14.50	R = 300.00	Delta = 15°09'51" R	303022.032	2450716.261
PT	2+53.97			303060.668	2450726.356
		TL= 21.64	N 14°38'32" E		
POE	2+75.61			303081.609	2450731.827

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/11); epoch 2010.00; Geoid 18; SF = 0.9998737780

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CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B9	B18

Plotting Date: 12/19/2024

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP01	1093’ W	161’ R	REBAR WITH ALUM. SURVEY CAP	303959.985	2446656.108	1481.75
CP02	24+61	93’ L	REBAR WITH ALUM. SURVEY CAP	303584.360	2449155.308	1455.47
CP01(ZACH)	20+66	111’ L	5/8" REBAR	303698.584	2448776.389	1458.50

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/11); epoch 2010.00
Geoid 18; SF = 0.9998737780
The elevations shown on this sheet are based on NAVD 88.

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LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B10	B18

Plotting Date: 12/19/2024

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

Plot Scale - 1:200

Plotted From - TRPR13418

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B11	B18

Plotting Date: 01/15/2025 Rev 1/15/2025 RG

Remove Cable Guardrail
at the following locations:
33+37 to 53+43 L
33+37 to 40+44 R
41+69 to 52+43 R

38+78
Retain STR. 12-389-243
Twin 10'x10' RCBC

5+83.16 to 6+31.16 (Path 33L)
Install 45'-0" Prefab. Truss Bridge
(See Section E)

41+22-47' L
Take Out 18"-42' CMP
(Incidental Work, Grading)

40+87 to 41+86 - 60' L
Install 18" - 86' RCP
& 2 Safety Ends

1+25 (XR41R)
Install 18" - 76' RCP
& 2 Safety Ends

41+33-60' R
Take Out 24"-130' CMP
(Incidental Work Grading)

2+06 (XR41R)
Install 24" - 158' RCP
Skewed 7° LHF
& 2 Sloped Ends

50+40' R
Retain 18"-70' CMP

51+75 to 60+75 L
Repair Inslope

LAKE ANDES

Mainline
PI 62+60.11
N 302538.86
E 2452809.20
Del 21°29'03" L
Dc 0°54'00"
T 1207.74'
L 2387.12'
R 6366.20'

Landowners of Allotment 1383 -F
(INFORMATION ONLY)

Meander Line Oct 29,1885

Section Line

Lake Andes

Meander Line Oct 29,1885

41+27 to 60+75 L
Do Not Disturb
existing Rail Line

41+25 to 51+25 L
Install Orange Safey Fence

Path 33L
PI 8+55.22
N 303173.37
E 2450774.41
Del 90°38'19" R
Dc114°35'30"
T 50.56'
L 79.10'
R 50.00'

State of South Dakota
(Division of Railroads)
(INFORMATION ONLY)

Government Lot 2

1/16 Line

Park Avenue

60'

1/16 Line

State of South Dakota
(Division of Railroads)
(INFORMATION ONLY)

Government Lot 1

Enviromental Site #1

SOUTH DAKOTA OWNED RAIL
BANKED/NAPA-PLATTE LINE

100'

150'

SOUTH DAKOTA OWNED RAIL
BANKED/NAPA-PLATTE LINE

Path 33L

S 74°29'45" E

S 75°59'47" E

0+00

5+00

S 75°48'39" E

S 75°29'28" E

150'

100'

25+00

125'

30+00

35+00

125'

40+00

45+00

50+00

125'

55+00

Present SD Hwy 50 & US Hwys 18 & 281

OH

CITY LIMITS

Mainline
PI 31+01.89
N 303337.20
E 2449753.55
Del 0°27'10" R

Mainline
PI 27+00.00
N 303435.71
E 2449363.93
Del 0°00'00" R

BEGIN NH 0018(231)339
Station 33+50.00

34+00.28

XR41R
PI 2+14.50
N 303022.03
E 2450716.26
Del 15°09'51" R
Dc 19°05'55"
T 39.93'
L 79.40'
R 300.00'

38+79-74.75' & 90'

40+39-132'

XR41R

Path 42R

41+14-200'

0+00

42+63-85'

44+98-75.05'

44+31 - R
Do Not Disturb
Power Pole

END NH 0018(231)339
Station 51+50.00

Government Lot 1

Lot A

Landowners of Allotment 1383 -A
(INFORMATION ONLY)

NW1/4 SE1/4 NE1/4

Sec 9 - T96N - R65W

1/64 Line

Landowners of Allotment 1383 -D

Parcel A1

NE1/4 SE1/4 NE1/4

1/64 Line

41+26-275'

41+68.25-263'

0+00

42+83-254'

40+93.42

383rd Avenue

Path 42R
PI 1+69.42
N 302982.76
E 2450786.36
Del 22°31'55" L
Dc 38°11'50"
T 29.88'
L 58.99'
R 150.00'

Yankton Sioux Tribe Allotment T 2063

Parcel A2

Sec 10 - T96N - R65W

Landowners of Allotment 2095
(INFORMATION ONLY)

33'

Parcel A1
38+79 to 41+68.25 R
Temporary Easement containing
0.5 ac, more or less

Parcel A2
41+14.72 to 44+98 R
Temporary Easement containing
0.6 ac, more or less

Plot Scale - 1:200

Plotted From - TRPR13418

File - U:\rdp\rjlcmlx07M90225.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B12	B18

Plotting Date: 12/19/2024

41+13 R
28' Int Rd
45' Rad Bk
35' Rad Ah

LDGPI 39+00
Elev 1438.35

LDG 0.2875%

RDG 0.4993%

LDGPI 51+00
Elev 1441.80

RDGPI 39+00
Elev 1435.40

RDGPI 40+50
Elev 1436.15

1580 1570 1560 1550 1540 1530 1520 1510 1500 1490 1480 1470 1460 1450 1440 1430 1420 1410 1400

25+00 30+00 35+00 40+00 45+00 50+00 55+00

Plot Scale - 1:200

Plotted From - TRPR13418

File - U:\rdprj\cmix07\M9025v.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(231)339	B13	B18

Plotting Date: 12/19/2024

Plot Scale - 1:200

Plotted From - TRPR13418

File - U:\rdlprj\cmlx07M9\P33LV.dgn

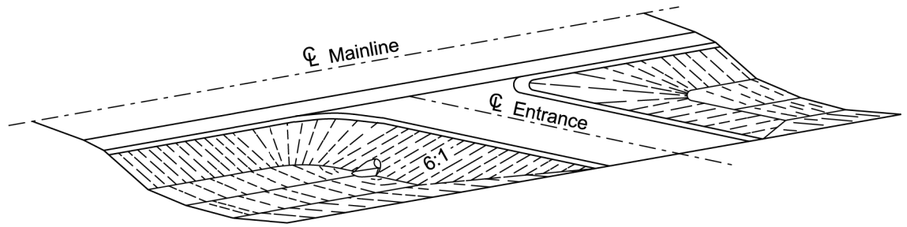
Path33L

Path42R

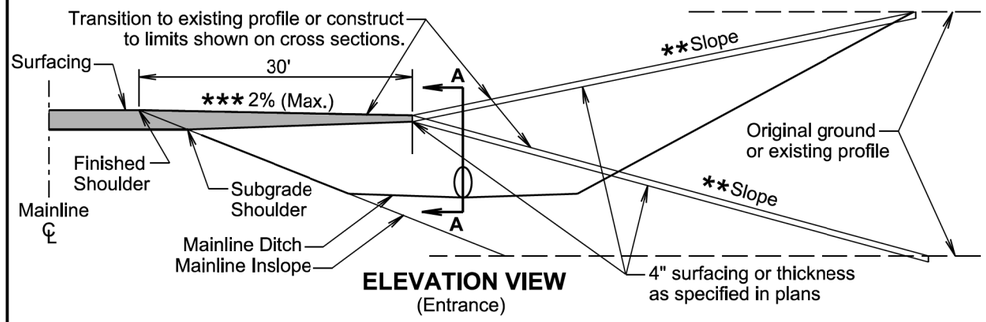
xr41R

PVI 0+00
Elev 1448.28
L 40.00ft
G1 -3.1693%
G2 -0.4400%
K 15
-3.1693%
-0.4400%
PVI 0+50
Elev 1446.70
PVI 3+00
Elev 1445.60
Top of Wall 1445.66
0.0000%
PVI 5+00
Elev 1445.60
Top of Wall 1445.26
-0.3000%
PVI 8+10
Elev 1444.67
PVI 8+65
Elev 1447.20
PVI 9+13
Elev 1447.83
L 60.00ft
G1 -0.3000%
G2 4.6000%
K 12
1.3185%
L 50.00ft
G1 4.6000%
G2 1.3185%
K 15
PVI 0+00
Elev 1442.90
PVI 2+10
Elev 1447.20
PVI 2+41
Elev 1447.54
L 60.00ft
G1 -0.5793%
G2 4.9393%
K 11
-0.5793%
4.9393%
1.0831%
PVI 1+10
Elev 1442.26
L 50.00ft
G1 4.9393%
G2 1.0831%
K 13
PVI 0+00
Elev 1443.57
PVI 1+65
Elev 1447.31
PVI 2+56
Elev 1447.76
L 80.00ft
G1 -0.5887%
G2 4.6397%
K 15
-0.5887%
4.6397%
0.5003%
PVI 0+75
Elev 1443.13
L 80.00ft
G1 4.6397%
G2 0.5003%
K 19

0+00 5+00 9+13 0+00 2+41 0+00 2+76



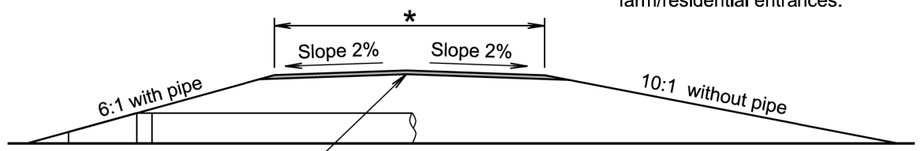
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

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

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



SECTION A-A
(Entrance and Intersecting Road)

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

GENERAL NOTES:

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

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

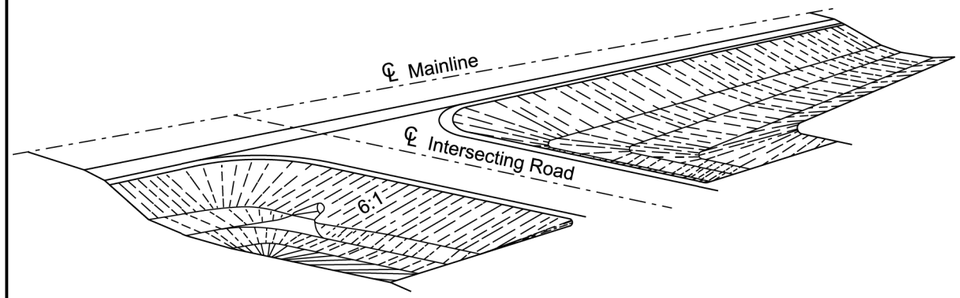
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

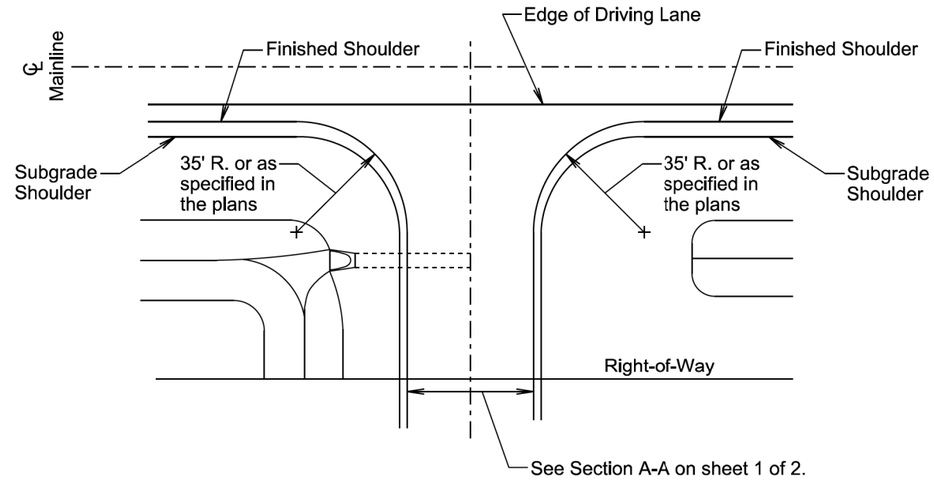
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



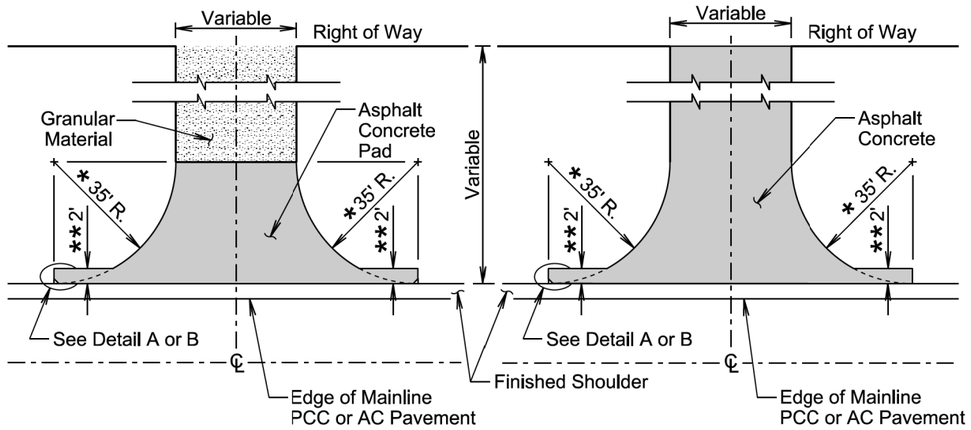
PLAN VIEW

GENERAL NOTES:

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

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2



PLAN VIEW
(Intersecting Road)
(No Asphalt Concrete Surfacing Beyond Right of Way)

PLAN VIEW
(Intersecting Road)
(Asphalt Concrete Surfacing Beyond Right of Way)

GENERAL NOTES:

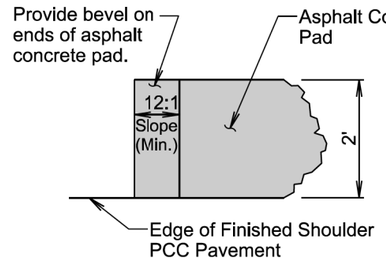
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

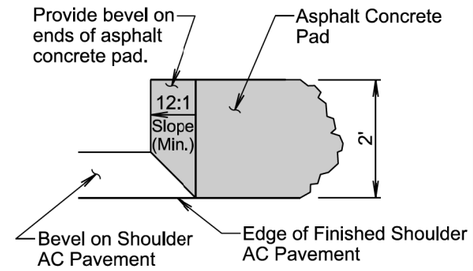
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

August 27, 2020

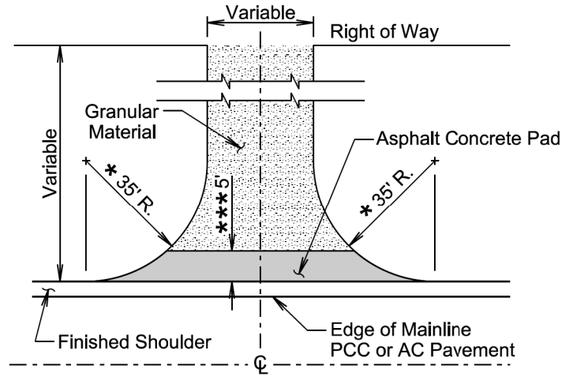
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



DETAIL A
(Typ. for Projects with PCC Pavement on Shoulder)



DETAIL B
(Typ. for Projects with AC Pavement on Shoulder)



PLAN VIEW
(Entrance)

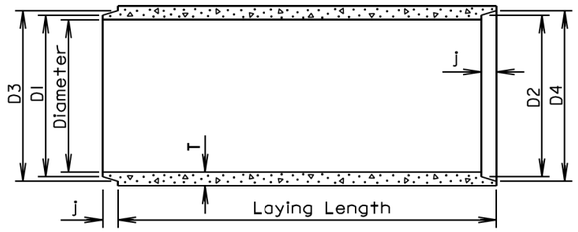
*** Not required if finished shoulder width is 4' or greater.

August 27, 2020

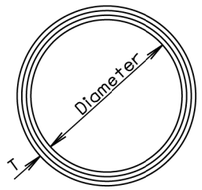
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2

TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

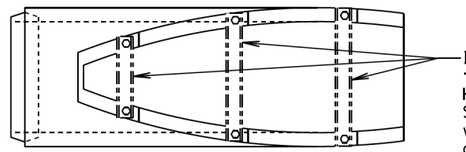
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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

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

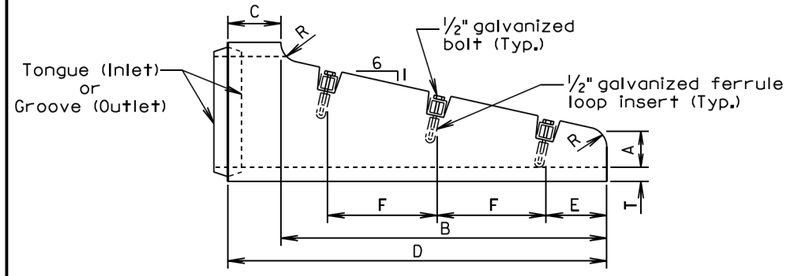
June 26, 2015

Published Date: 2025	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1

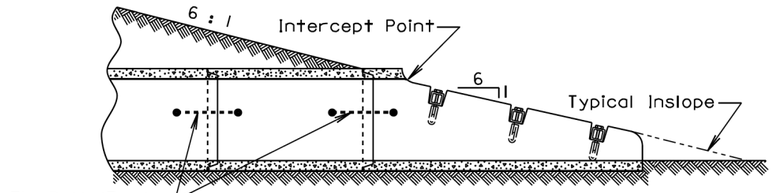


TOP VIEW

If bars are specified in the plans then provide HSS 2.5X2.5X.1875 Structural Steel Tubing in conformance with ASTM A500, Grade B or 3" Diameter Schedule 40 Pipe in conformance with ASTM A53, Grade B.



SIDE VIEW



ELEVATION VIEW

Dia. (in.)	T (in.)	R (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	No. Sections	No. Bars
FOR CIRCULAR PIPE										
15	2 1/4	3	6	48	9	57	6	18	1	3
18	2 1/2	3	6	69	9	78	9	24	1	3
*24	3	3	6	111	9	120	6	24	1 or 2	5
FOR ARCH PIPE										
**18	2 1/2	1	6	39	33	72	6	24	1	2

*The use of 2 sections must be an approved design.
**Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

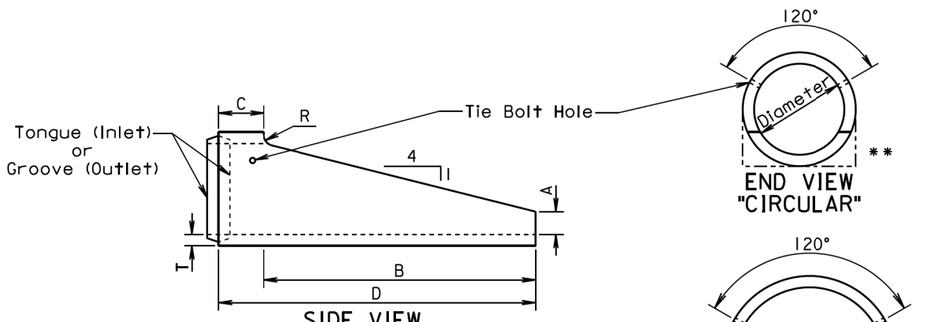
The length of concrete pipe shown on the plans is between safety ends.

Safety ends without bars are acceptable with or without the bar notches.

Bars shall be galvanized after fabrication in accordance with ASTM A123.

August 31, 2013

Published Date: 2025	SDDOT	R. C. P. SAFETY ENDS WITH OR WITHOUT BARS	PLATE NUMBER 450.12
			Sheet 1 of 1



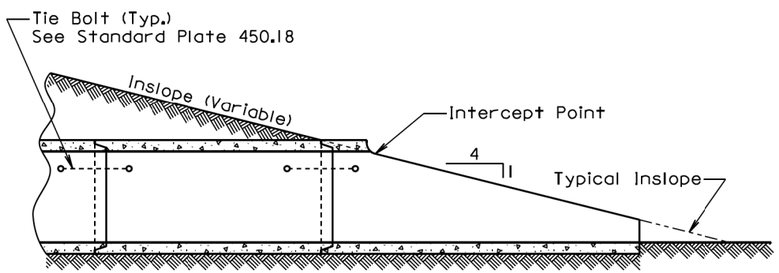
Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3½	7½	90	12	102	3½
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3½	7½	60	12	72	3½
* 36	4½	8⅝	66	30	96	0
* 42	4½	10	77¼	18¾	96	0

ALTERNATE

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	9	72	12	84	0
30	3½	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3½	11	60	12	72	0

* Equivalent Diameter of Circular R.C.P.

** Acceptable Flat Bottom Alternate.



SECTION
(Along Centerline of Pipe)

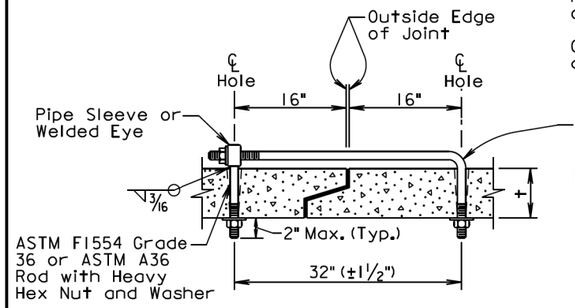
GENERAL NOTE:

The length of concrete pipe shown in the construction plans is between sloped ends.

September 22, 2006

Published Date: 2025	SDDOT	**R. C. P. SLOPED ENDS**	PLATE NUMBER 450.13 Sheet 1 of 1

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



ADJUSTABLE EYE BOLT TIE

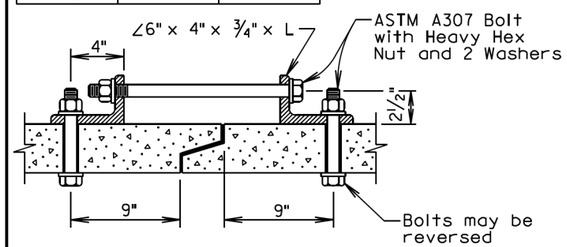
GENERAL NOTES:

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

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

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

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



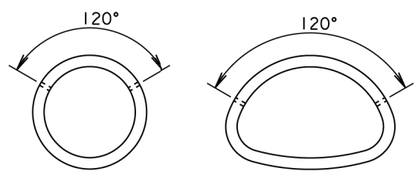
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles shall conform to ASTM A36.

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

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



END VIEW
"CIRCULAR"

END VIEW
"ARCH"

GENERAL NOTES:

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

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

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

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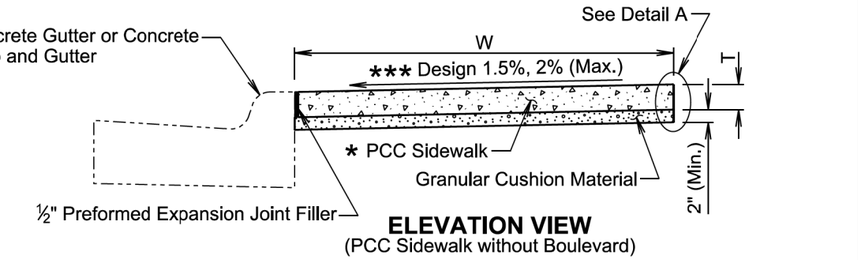
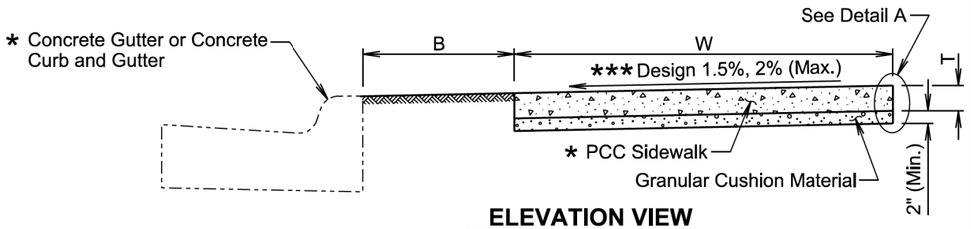


ELEVATION VIEW
(PCC Sidewalk without Boulevard)



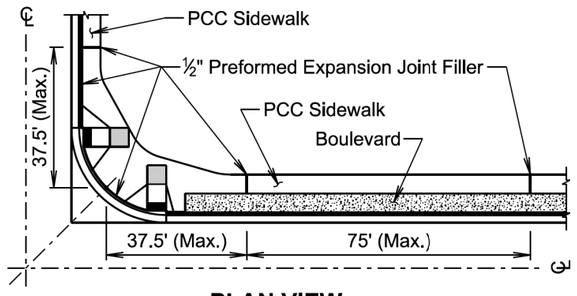
ELEVATION VIEW
(PCC Sidewalk with Boulevard)

B Width of boulevard as specified in the plans.

T Thickness of PCC sidewalk as specified in the plans.

W Width of PCC sidewalk as specified in the plans.

* Type as specified in the plans.



PLAN VIEW

GENERAL NOTES:

The PCC sidewalk will be constructed in accordance with Section 651 of the Specifications.

*** The cross slope of the sidewalk is designed at 1.5% and the maximum slope allowed is 2% unless specified otherwise in the plans.

The maximum length between expansion joints in the PCC sidewalk is 75 feet.

PCC sidewalk placed adjacent to intersection of roadways will have an expansion joint placed transversely a maximum of 37.5 feet from the intersection. See Plan View.

An expansion joint in the PCC sidewalk will consist of a ½ -inch thick preformed expansion joint filler material placed full depth and width of the PCC sidewalk.

** Large areas of PCC pavement adjacent to the PCC sidewalk may require a different joint treatment than shown in the detail. If a different joint detail is necessary, plans will contain the joint detail and the Contractor will construct the joint treatment in accordance with the plans.

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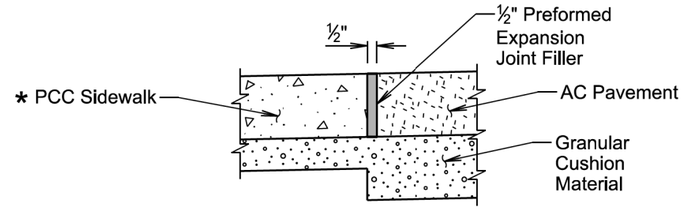
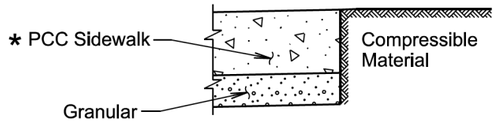
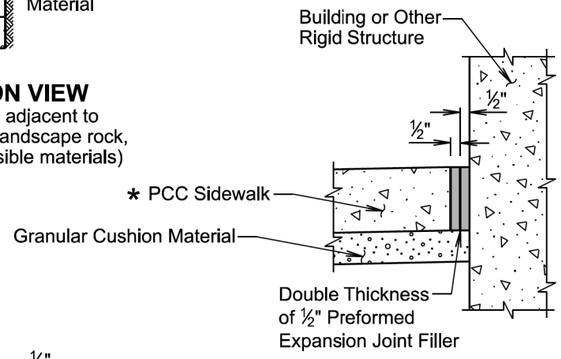


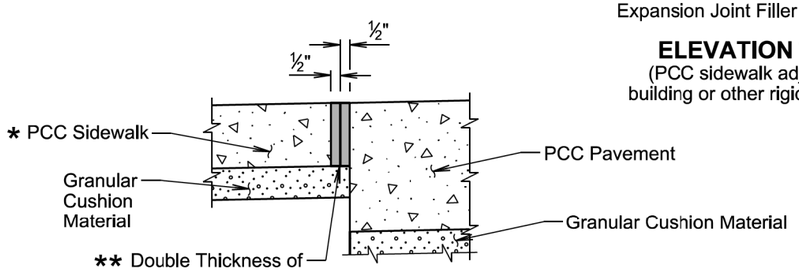
ELEVATION VIEW
(PCC sidewalk adjacent to asphalt concrete pavement)



ELEVATION VIEW
(PCC sidewalk adjacent to earthen material, landscape rock, or other compressible materials)



ELEVATION VIEW
(PCC sidewalk adjacent to building or other rigid structure)



ELEVATION VIEW
(PCC sidewalk adjacent to PCC pavement)

DETAIL A
(Use Appropriate Detail(s))

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			Sheet 2 of 2