

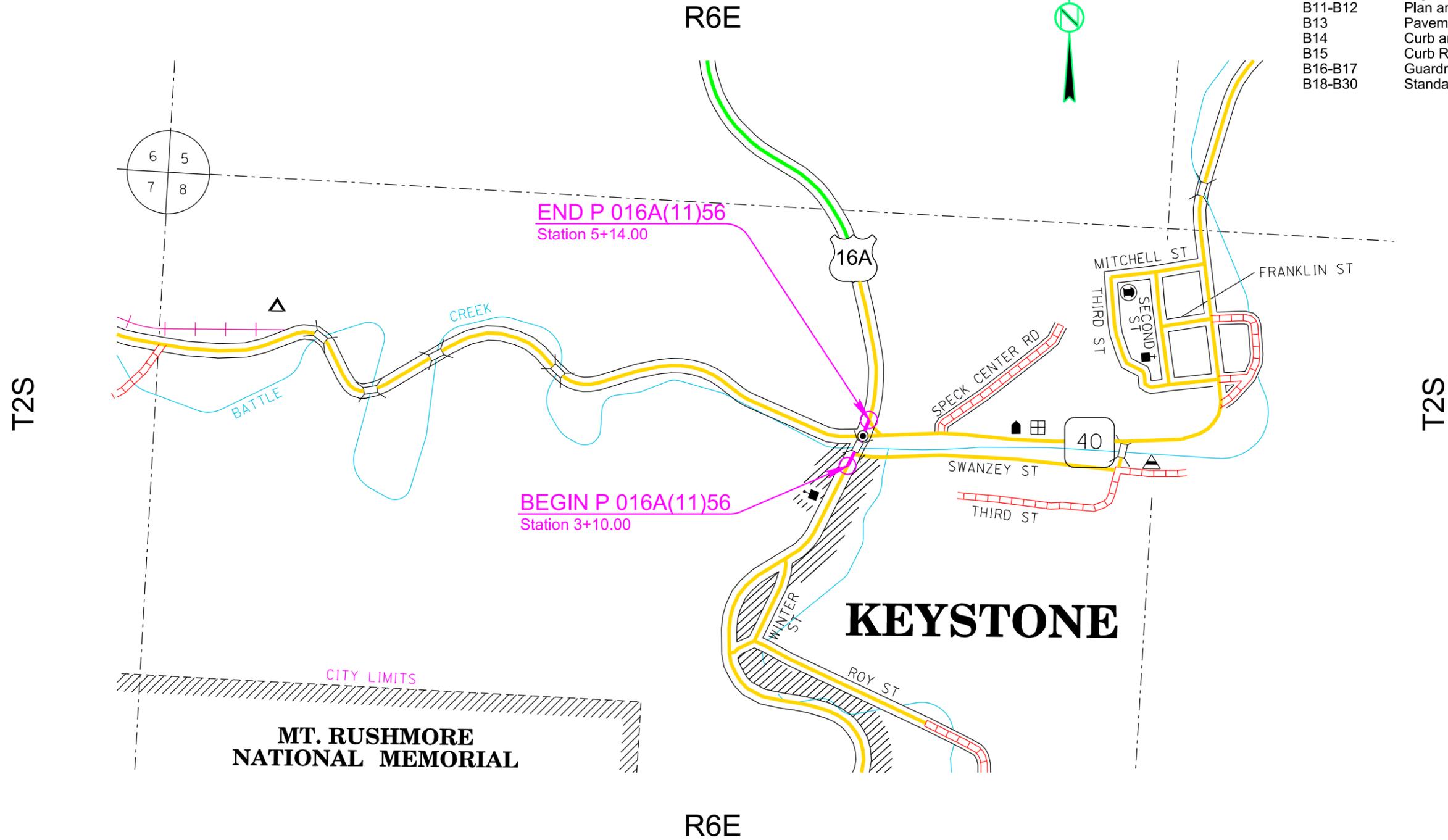
SECTION B: GRADING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 016A(11)56	B1	B30

Plotting Date: 02/26/2026

INDEX OF SHEETS

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Plot Scale - 1:200

Plotted From - trpr14435

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SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	57	Each
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0210	Remove Building(s)	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	357	Ft
110E0730	Remove Beam Guardrail	97.0	Ft
110E1010	Remove Asphalt Concrete Pavement	1,503.0	SqYd
110E1100	Remove Concrete Pavement	60.4	SqYd
110E1140	Remove Concrete Sidewalk	200.6	SqYd
120E0010	Unclassified Excavation	2,962	CuYd
120E2000	Undercutting	501	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
380E3540	8" PCC Approach Pavement	4.4	SqYd
380E4050	8" PCC Fillet Section	35.9	SqYd
450E0122	18" RCP Class 2, Furnish	16	Ft
450E0130	18" RCP, Install	16	Ft
450E0142	24" RCP Class 2, Furnish	26	Ft
450E0150	24" RCP, Install	26	Ft
630E2005	W Beam Guardrail to MGS Transition	1	Each
630E2018	MGS MASH Tangent End Terminal	1	Each
650E0080	Type B68 Concrete Curb and Gutter	478	Ft
650E4680	Type P8 Concrete Gutter	7	Ft
651E0040	4" Concrete Sidewalk	3,321	SqFt
651E5000	Sidewalk Drain	12.0	Ft
651E7000	Type 1 Detectable Warnings	108	SqFt
900E5141	4" Fabric Formed Concrete Mattress	952	SqFt
998E0100	Railroad Protective Insurance	Lump Sum	LS

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 22.4 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 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.

RAILROAD TRACK

In order to accommodate the box culvert construction, it is anticipated that some of the railroad track that is located at 3+00 L – Parcel 1, will need to be temporarily removed and then restored after construction. The owner of the tracks, the Black Hills General Railroad Co., aka '1880 Train', will remove and restore the track. Refer to the Contract Time Provision for specific dates when the track needs to be in-place. The Contractor should anticipate that it will take the track owner 2 weeks to remove the tracks and 2 weeks to restore the tracks.

Prior and during the track removal and during and after the track restoration the Contractor will not perform any activities on this property that impact the 1880 Train operation. All earthwork activity, including excavation and backfilling, will be completed on this property prior to the beginning of the track restoration. The Contractor will coordinate their work with the 1880 Train. Below is 1880 Train contact information:

Meg Warder-President and CEO, 605-574-2300, Warder@1880train.com
 Laurie Wager-Director of Business Operations, 605-574-2300
 Mike Grimm-Director of Railroad Operations, 605-574-2300

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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SHRINKAGE FACTOR: Embankment +20%.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 016A(11)56	B3	B30

Plotting Date: 02/26/2026

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	*Undercut (CuYd)	Total Excavation (CuYd)	**Out-of- Balance Exc. (CuYd)	** Waste (CuYd)	**Out-of- Balance Waste (CuYd)
US 16A							
3+10	5+14	88	501	589	107		
DR 3+66							
0+00		2356		2356		60	107
Totals:		2444	501	2945	107	60	107

* 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	2444
Undercut	501
Topsoil	17
Total:	2962

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

Plan quantities will be used for payment of Unclassified Excavation. This 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 Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place concrete pavement and asphalt pavement that will be removed.

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

WASTE EXCAVATION

The quantity of waste in the Table of Excavation Quantities by Balances will be disposed of at a Contractor furnished site acceptable to the Engineer.

UNDERCUTTING

In all cut sections on US 16A, the earthen subgrade will be undercut 1 foot below the earthen subgrade surface. The distance behind the curb will be based on the paving operation. Shallow embankment sections, fills less than 1 foot in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 1-foot height of earth embankment for the entire width of roadbed. 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.

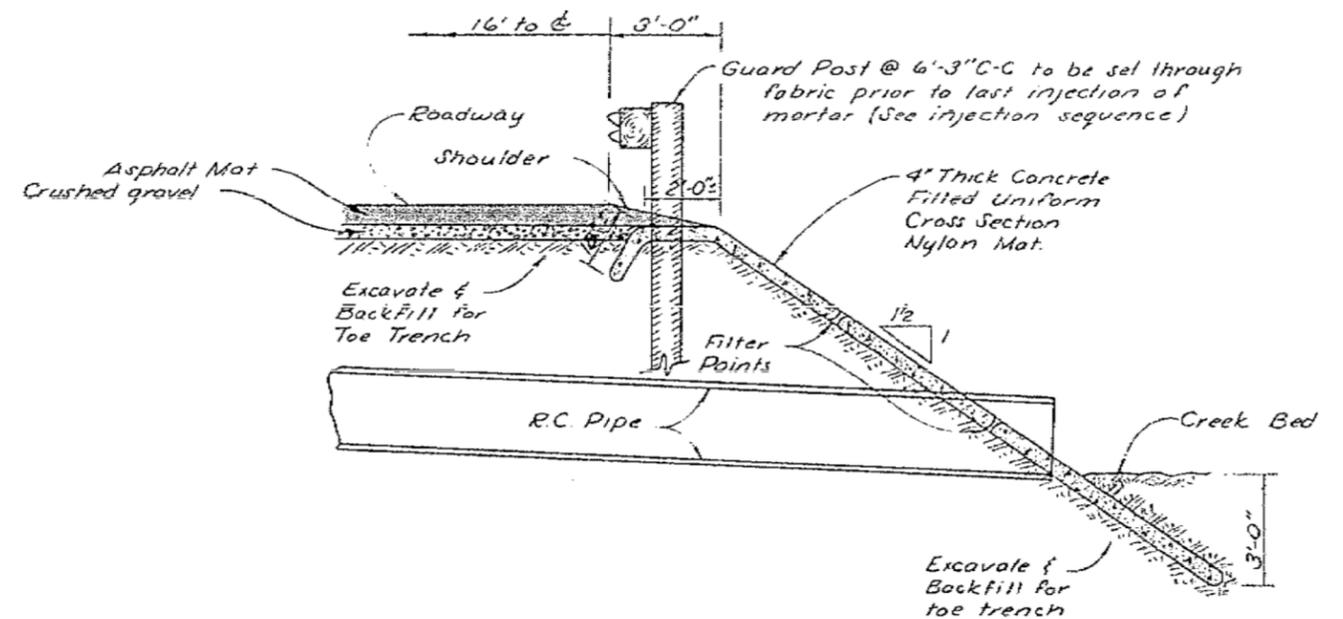
An exception to the undercut requirements will be made in sections that encounter in place rock. Cut sections made through in place rock will be excavated to the top of the subgrade surface only. Shallow embankment sections (as described above) placed over in place rock with less than 1 foot of soil cover will be excavated to the surface of the rock prior to placing any fill.

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.

INCIDENTAL WORK, GRADING

Location	Remarks
2+96 L to 3+18 L	Take Out 5 Bollards and Chain Fence
3+49-36' R to 3+66-37' R	Take Out 18" - 17' RCP
4+01-33' R to 4+26-67' R	*Take Out 4" Fabric Formed Concrete Mattress
104+45-3' R to 104+50-28' R	Take Out 24" - 26' RCP

*Prior to removal of in place 4" fabric formed concrete mattress, the mattress will be sawed full depth with a vertical face. Saw location will be at a joint in the mattress or as determined by the Engineer. All costs to saw joint will be incidental to the contract lump sum price for "Incidental Work, Grading". Per original construction plans the mattress is 4" thick. For informational purposes, it is estimated that approximately 1600 sq ft of mattress will be removed. The image below is from the original construction plans and is intended to aid in determining the extent of work needed to remove the mat. Note that there is no pipe located within the limits of mat removal.



CONCRETE FABRIC MAT CROSS SECTION

REMOVAL OF BUILDING

Included in these plans is the removal and disposal of one building. The location and type of building is as follows

Station	L/R	Type
3+50	R	Public Restroom

The building area is 440 square feet with brick wall. There is a poured concrete slab foundation. It is unknown if spread footings exist.

The building will be removed in accordance with Section 110 of the Specifications and all local codes. The disconnecting and capping of utility services will be the responsibility of the Contractor. The capped utilities will be marked with a method approved by the Engineer. All of the foundation will be removed.

The building has not been inspected for asbestos. The Contractor will be responsible for providing an asbestos inspection and following all local, state, and federal regulations regarding the removal of asbestos, if found. All costs for the inspection will be incidental to the contract lump sum price for "Remove Building(s)". All costs for removal of the asbestos will be handled during construction by CCO.

It is the Contractors responsibility to inspect this building in order to obtain all of the necessary information in order to properly remove the building.

REMOVAL OF EXISTING ASPHALT CONCRETE PAVEMENT

The Contractor will dispose of the asphalt concrete at a site approved by the Engineer.

The existing asphalt pavement is 9.5-inches thick on US 16A and 6.5-inches thick on SD 40. This information is from previous construction plans and actual pavement thickness may vary.

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
3+10		3+46	L&R	272
3+86		5+14	L&R	1231
Total:				1503

TABLE OF CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
3+74		3+92	L	13.0
3+98		4+24	R	14.2
4+05		4+21	L	7.9
4+17		4+42	L	12.0
4+48		4+67	R	13.3
Total:				60.4

TABLE OF CONCRETE CURB AND/OR GUTTER REMOVAL

Station	to	Station	L/R	Quantity (Ft)
2+99		3+35	L	36.1
3+34		3+60	R	48.6
4+10		4+18	L	13.5
4+20		5+14	L	99.4
4+42		5+14	L	69.2
4+73		5+13	R	90.5
Total:				357.3

TABLE OF SIDEWALK REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
2+99		3+33	L	26.2
3+34		3+59	R	52.8
3+68		3+84	L	17.3
4+10		5+14	L	95.6
4+52		4+64	R	8.7
Total:				200.6

CONCRETE PIPE CONNECTIONS

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.

TABLE OF TYPE B68 CONCRETE CURB AND GUTTER

Station	to	Station	L/R	Quantity (Ft)
2+99.20		3+75.00	L	76.54
4+09.02		4+17.79	L	15.06
4+21.57		4+36.15	L	97.73
4+39.42		5+14.00	L	72.08
3+33.12		4+25.26	R	124.15
4+72.02		5+14.00	R	92.77
Total:				478.33

TABLE OF TYPE P8 CONCRETE GUTTER

Station	to	Station	L/R	Quantity (Ft)
2+99.20		3+05.87	L	6.67

8" PCC FILLET SECTIONS

Payment for "8" PCC Fillet Section" will be based on plans quantity. If additions or reductions to the area of PCC fillet sections are ordered by the Engineer, payment will be made in accordance with the contract unit price per square yard for "8" PCC Fillet Section".

TABLE OF 8" PCC FILLET SECTION

Station	to	Station	L/R	Radius (Ft)	Quantity (SqYd)
3+70.69		3+82.04	L	12.67	17.47
4+09.02		4+21.57	L	7.67	8.70
4+17.79		4+39.42	L	25	9.76
Total:					35.93

TABLE OF 8" PCC APPROACH PAVEMENT

Station	L/R	Type	Quantity (SqYd)
3+02.54	L	B	4.4

TABLE OF 4" CONCRETE SIDEWALK

Station	to	Station	L/R	Quantity (SqFt)
3+06		3+80	L	601.0
3+36		4+22	R	1118.6
4+10		5+14	L	836.0
4+74		5+40	R	765.4
Total:				3321.0

SIDEWALK DRAIN

A 12' long sidewalk drain will be installed at an approximately 45-degree angle to mainline at 4+60 L. The sidewalk drain will be constructed in accordance with the details shown on Standard Plate 651.50.

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. Cast iron plates may be a natural patina (weathered steel).

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
TufTile (wet-set) Cast Iron Replaceable Tile	TufTile 1200 Flex Court Lake Zurich, IL 60047 888-960-8897 http://www.tuftile.com/
Advantage Tactile Detectable Warning Cast Iron Plate	Advantage Tactile Systems, Inc. 241 Main Street, Suite 100 Buffalo, NY 14203 800-679-4022 https://advantagetactile.com/

Type 1 Detectable Warnings will be installed along a radius at the locations as shown in the plans. The radius necessary will be as shown in the plans.

Payment for the radius detectable warnings will be at the contract unit price per square foot for "Type 1 Detectable Warnings".

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

Type 1 Detectable Warnings (Radius)

Product	Manufacturer
Detectable Warning Plate Cast Iron Plate 9'-5", 30' Radius	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate (No Coating) 10', 30' Radius	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.ejiw.com
Advantage Tactile Detectable Warning Cast Iron Plate 10', 30' Radius	Advantage Tactile Systems, Inc. 241 Main Street, Suite 100 Buffalo, NY 14203 800-679-4022 https://advantagetactile.com/

TABLE OF TYPE 1 DETECTABLE WARNINGS

Station	L/R	Quantity (SqFt)
3+37.06	44.92' R	10.0
3+79.19	32.40' L	*29.4
4+07.46	29.80' R	**12.0
4+20.75	40.26' R	**10.0
4+18.21	38.67' L	12.0
4+43.68	26.67' L	10.0
4+77.13	50.01' R	25.0
Total:		108.4

* 10' Radius
** 30' Radius

TABLE OF GUARDRAIL

Location	(Ft)	*MGS MASH Tangent End Terminal (Each)	**W Beam Guardrail to MGS Transition (Each)
105+38-30' R to 106+30-16.3' R	97		
105+67-16.3' R to 106+30-16.3' R		1	1

*MGS MASH Tangent End Terminal will be a SoftStop Test Level 2 Terminal with 8" Composite Blockouts, which is manufactured by Valtir, LLC.

**Information on Standard Plate 630.10 applies, with the exception that the "3'-6" Min" dimension will be as specified in the plans.

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

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify public land survey system (PLSS) corners, right of way (ROW) corners, and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 57 ROW and property corners will be set, reestablished, or verified for this project. The Contractor's Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

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

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

4" FABRIC FORMED CONCRETE MATTRESS

Some of the existing 4" Fabric Formed Concrete Mattress will need to be removed to allow for the construction of the box culvert and riprap installation – refer to "Incidental Work, Grading" note. 952 square feet of new 4" Fabric Formed Concrete Mattress (i.e. mattress) will be installed from 201+49.65 L (Box Culvert Trench Alignment) (tie to retaining wall) to 201+82 L (tie to existing fabric formed concrete mattress) as detailed in the image at the bottom of this note. Method of tying the mattress at each end will be as approved by the Engineer.

The fabric forms used for the mattress will be "Hydrotex Uniform Section 4" (US400)" with weep tubes (or an approved equal) as manufactured by:

Synhetex
 5550 Triangle Parkway, Suite 220
 Peachtree Corners, GA 30092
 1-800-253-0561 or 770-399-5051
<https://synhetex.com/hydrotex/uniform-section/>

Weep tubes will be installed at 3' centers in the middle of each mill width.

Fabric dimension is estimated to be 35'W x 27.2'L. The width may vary from this estimate based on the removal limit of the existing mattress.

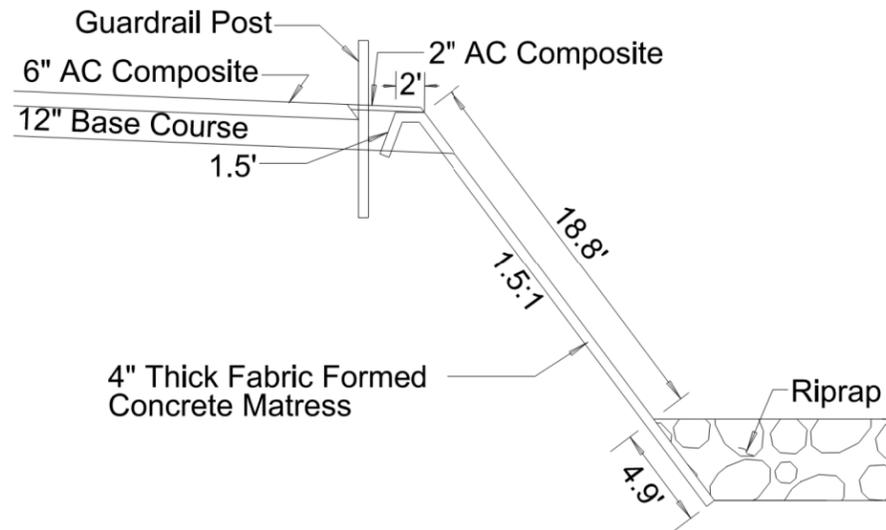
Installation of the mattress will be per manufactures recommendations. All costs associated with furnishing and installing the mattress, including all labor, equipment, underlying surface preparation, and any incidentals, will be incidental to the contract unit price per square foot for "4" Fabric Formed Concrete Mattress".

TABLE OF PIPE

Location	18" RCP Class 2 (Ft)	24" RCP Class 2 (Ft)
3+49-36' R to 3+64-37' R	16	
104+45-3' R to 104+50-28' R		26

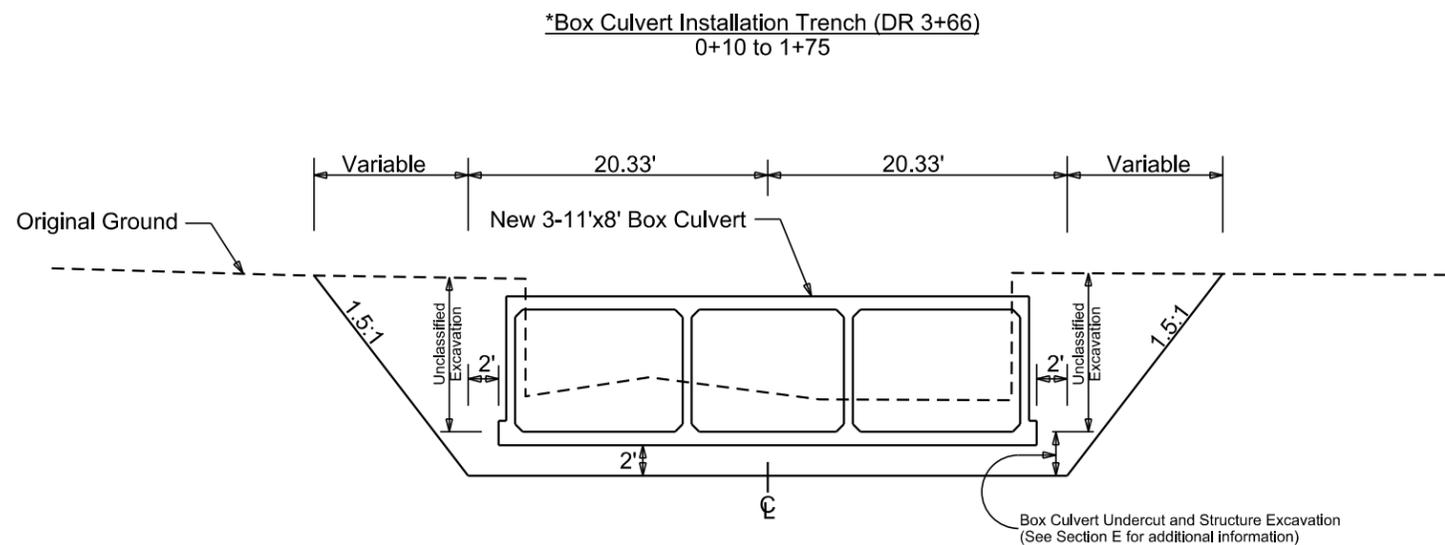
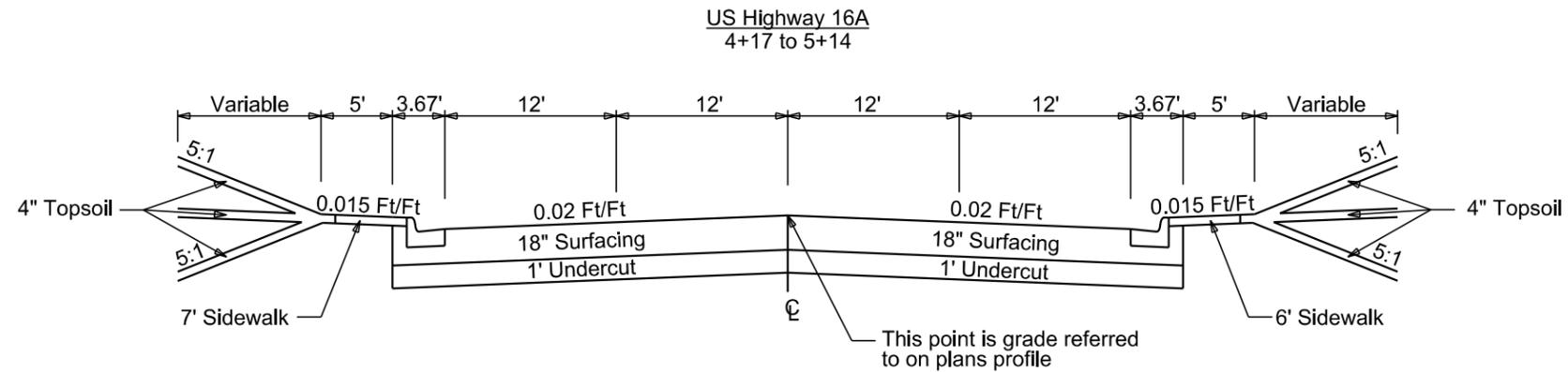
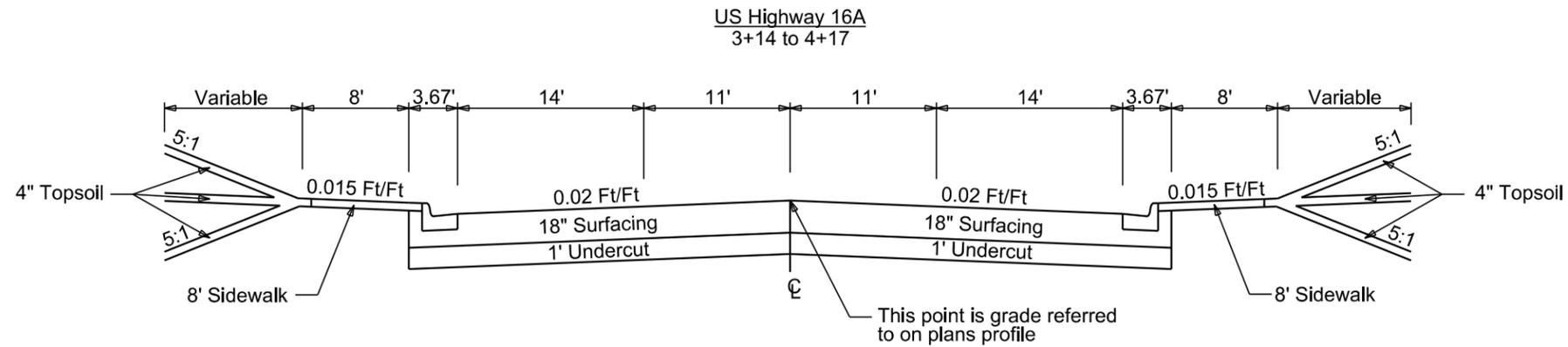
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TYPICAL GRADING SECTION

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*Trench dimensions may be adjusted with approval of the Engineer

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HORIZONTAL ALIGNMENT DATA

STATE OF SOUTH DAKOTA	PROJECT P 016A(11)56	SHEET B8	TOTAL SHEETS B30
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MAINLINE (US Hwy 16A)

<u>Type</u>	<u>Station</u>			<u>Northing</u>	<u>Easting</u>
POB	0+00.00			583473.145	1153468.782
		TL= 200.00	N 27°19'44" E		
PI	2+00.00			583650.823	1153560.601
		TL= 220.35	N 24°00'58" E		
PC	4+20.35			583852.101	1153650.284
PI	6+55.19	R = 716.20	Delta = 36°18'28" L	584066.607	1153745.860
PT	8+74.20			584296.059	1153695.867
		TL= 227.57	N 12°17'30" W		
POE	11+01.78			584518.417	1153647.419

SD Hwy 40

<u>Type</u>	<u>Station</u>			<u>Northing</u>	<u>Easting</u>
POB	100+00.00			583980.084	1153155.826
		TL= 291.35	S 67°40'49" E		
PC	102+91.35			583869.438	1153425.345
PI	103+62.54	R = 325.00	Delta = 24°42'38" L	583842.401	1153491.201
PT	104+31.51			583845.371	1153562.329
		TL= 64.87	N 87°36'33" E		
PI	104+96.38			583848.077	1153627.143
		TL= 44.42	N 85°37'35" E		
PI	105+40.80			583851.465	1153671.435
		TL= 291.46	N 87°25'30" E		
PC	108+32.27			583864.559	1153962.602
PI	109+91.08	R = 2291.83	Delta = 7°55'41" R	583871.694	1154121.258
PT	111+49.39			583856.877	1154279.383

BOX CULVERT INSTALLATION TRENCH (DR 3+66)

<u>Type</u>	<u>Station</u>			<u>Northing</u>	<u>Easting</u>
POB	200+00.00			583801.049	1153546.448
		TL= 200.00	N 89°00'58" E		
PI	202+00.00			583804.483	1153746.419

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00; Geoid 12B; SF = 0.9997126529

1:200 Plot Scale -

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CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT P 016A(11)56	SHEET B9	TOTAL SHEETS B30
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Plotting Date: 02/26/2026

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
16A-56.88	4+22	49' L	Four inch brass disk on northwest wingwall of bridge.	583819.808	1153591.343	4356.66
16A-56.93	3+67	41' L	US Forest Service aluminum disk in concrete median.	583873.505	1153606.566	4356.51
CP 4	5+88	1287' R	"X" chiseled in the northwest corner of concrete slab over a drop inlet.	583758.038	1154961.661	4342.56
CP 12A	9+97	960' L	US Forest Service aluminum pipe & cap. Corner 9 MS 320.	584211.646	1152731.595	4364.73
CP 11	2+82	39' L	PK nail in sidewalk.	583741.411	1153558.198	4355.36
CP 12	4+11	37' R	1/2 inch iron pin.	583827.984	1153680.359	4355.23

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00
 Geoid 12B; SF = 0.9997126529
 The elevations shown on this sheet are based on NAVD 88.

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LEGEND

STATE OF SOUTH DAKOTA	PROJECT P 016A(11)56	SHEET B10	TOTAL SHEETS B30
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Anchor		Hedge		Septic Tank		State and National Line	
Antenna		Highway ROW Marker		Shrub Tree		County Line	
Approach		Interstate Close Gate		Sidewalk		Section Line	
Assumed Corner		Iron Pin		Sign Face		Quarter Line	
Azimuth Marker		Irrigation Ditch		Sign Post		Sixteenth Line	
BBQ Grill/ Fireplace		Lake Edge		Slough Or Marsh		Property Line	
Bearing Tree		Lawn Sprinkler		Spring		Construction Line	
Bench Mark		Mailbox		Stream Gauge		ROW Line	
Box Culvert		Manhole Electric		Street Marker		New ROW Line	
Bridge		Manhole Gas		Subsurface Utility Exploration Test Hole		Cut and Fill Limits	
Brush		Manhole Miscellaneous		Telephone Fiber Optics		Control of Access	
Buildings		Manhole Sanitary Sewer		Telephone Junction Box		New Control of Access	
Bulk Tank		Manhole Storm Sewer		Telephone Pole		Proposed ROW	
Cattle Guard		Manhole Telephone		Television Cable Jct Box		(After Property Disposal)	
Cemetery		Manhole Water		Television Tower			
Centerline		Merry-Go-Round		Test Wells/Bore Holes			
Cistern		Microwave Radio Tower		Traffic Signal		Drainage Arrow	
Clothes Line		Miscellaneous Line		Trash Barrel			
Commercial Sign Double Face		Miscellaneous Property Corner		Tree Belt			
Commercial Sign One Post		Miscellaneous Post		Tree Coniferous		Remove Concrete Pavement	
Commercial Sign Overhead		Overhang Or Encroachment		Tree Deciduous		Remove Concrete Driveway Pavement	
Commercial Sign Two Post		Overhead Utility Line		Tree Stumps		Remove Asphalt Concrete Pavement	
Concrete Symbol		Parking Meter		Triangulation Station		Remove Concrete Sidewalk	
Control Point		Pedestrian Push Button Pole		Underground Electric Line		Remove Concrete Median Pavement	
Creek Edge		Pipe With End Section		Underground Gas Line		Remove Concrete Curb and/or Gutter	
Curb/Gutter		Pipe With Headwall		Underground High Pressure Gas Line			
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		Detectable Warning	
Edge Of Shoulder		Property Pipe With Cap		Water Tower		Pedestrian Push Button Pole	
Electric Transformer/Power Junction Box		Property Stone		Water Valve		and 30" x 48" Clear Space	
Fence Barbwire		Public Telephone		Water Well		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					

File - U:\tr\proj\penm05\06\Legend.dgn

2+96 L to 3+18 L
Take Out 5 Bollards and Chain Fence
(Incidental Work, Grading)

3+49-36' R to 3+66-37' R
Take Out 18" - 17' RCP
(Incidental Work, Grading)

3+53-27' L to 3+80-30' R
Take Out 40' Prestressed Box Girder Bridge
(Incidental Work, Structure)

104+45-3' R to 104+50-28' R
Take Out 24" - 26' RCP
(Incidental Work, Grading)

105+40 R to 105+98 R
Take Out Fabric Formed Concrete Mattress
(Incidental Work, Grading)

STATE OF SOUTH DAKOTA	PROJECT P 016A(11)56	SHEET B11	TOTAL SHEETS B30
-----------------------	-------------------------	--------------	---------------------

Plotting Date: 02/26/2026 Revised: 02/18/2026 JRF

3+66 (14.05 sq mi)
Install 3-11'X8' - 131'-2 7/8" Box Culvert
w/ Riprap @ Outlet
(See Section E)

3+49-36' R to 3+64-37' R
Install 18" - 16' RCP
(Between Existing Pipe and Box Culvert)
(Connect to Box Culvert Wall)

4+60 L
Install 12' Sidewalk Drain

104+45-3' R to 104+50-28' R
Install 24" - 26' RCP
(Between Existing Pipe and Box Culvert)
(Connect to Box Culvert Wall)

105+64 R to 105+98 R
Install 4" Fabric Formed Concrete Mattress
(952 sq ft)

105+38-30' R to 106+30-16' R
Remove 97' Steel Beam Guardrail

3+66 R
Install CIP Retaining Walls "A" & "B"
at outlet end of Box Culvert
(See Section E)

Do Not Disturb Sanitary Sewer
at the following locations:
3+56-84' R
104+20-6' R to 106+00-8' R

PI 6+55.19
N 584066.61
E 1153745.86
Del 36°18'28" L
Dc 8°00'00"
T 234.84'
L 453.85'
R 716.20'

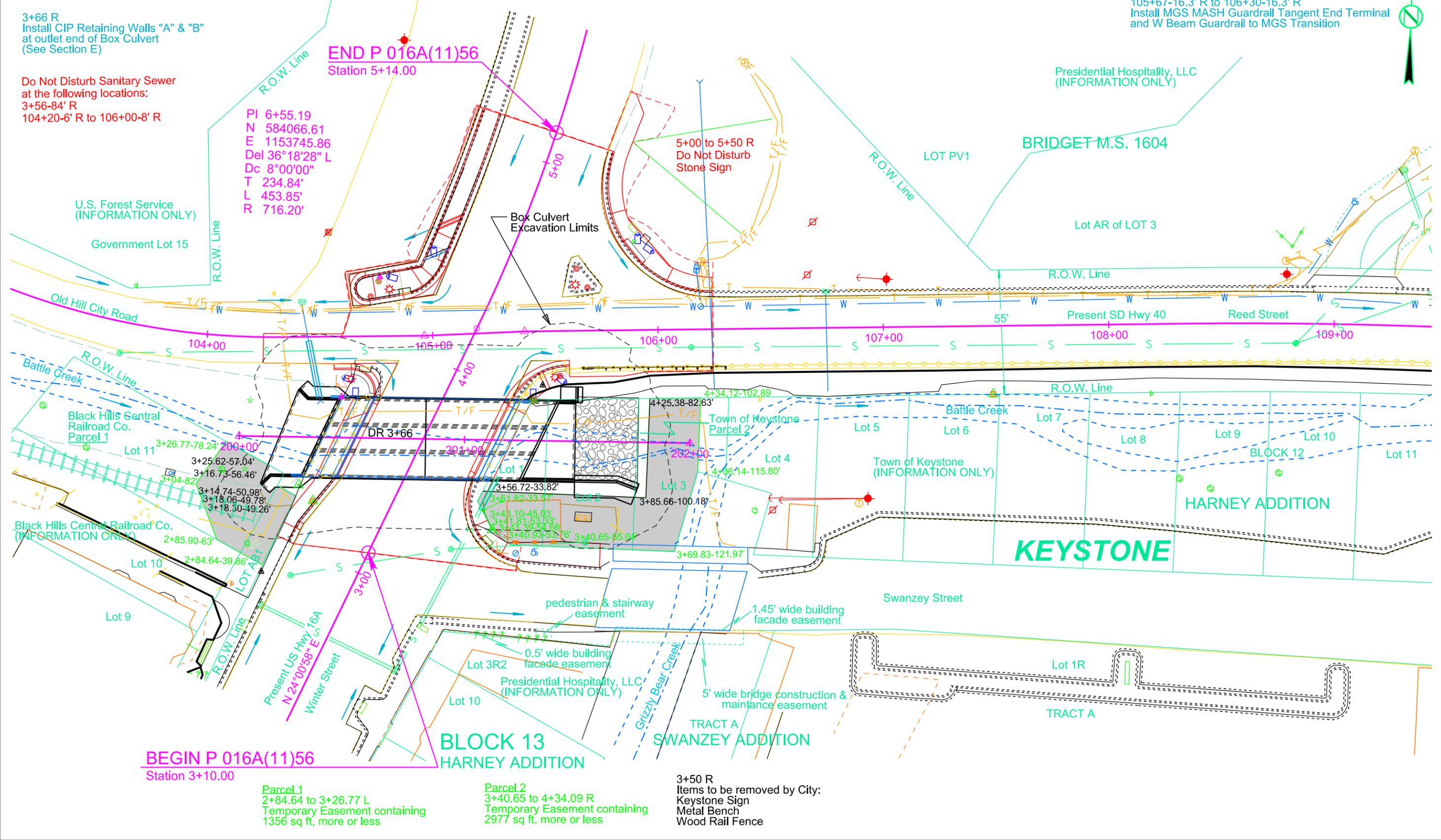
105+67-16.3' R to 106+30-16.3' R
Install MGS MASH Guardrail Tangent End Terminal
and W Beam Guardrail to MGS Transition



Plot Scale - 1"=40'

Plotted From - trp14435

File - U:\traj\penn05\0104\rr104.dgn



BEGIN P 016A(11)56
Station 3+10.00

Parcel 1
2+84.64 to 3+26.77 L
Temporary Easement containing
1356 sq ft, more or less

Parcel 2
3+40.65 to 4+34.09 R
Temporary Easement containing
2977 sq ft, more or less

3+50 R
Items to be removed by City:
Keystone Sign
Metal Bench
Wood Rail Fence

KEYSTONE

HARNEY ADDITION

TRACT A SWANZEY ADDITION

BLOCK 13 HARNEY ADDITION

BRIDGET M.S. 1604

Presidential Hospitality, LLC
(INFORMATION ONLY)

U.S. Forest Service
(INFORMATION ONLY)

Government Lot 15

Black Hills Central
Railroad Co.
Parcel 1

Black Hills Central Railroad Co.
(INFORMATION ONLY)

Town of Keystone
Parcel 2

Town of Keystone
(INFORMATION ONLY)

Presidential Hospitality, LLC
(INFORMATION ONLY)

Lot 1R

TRACT A

Swanzey Street

TRACT A SWANZEY ADDITION

BLOCK 13 HARNEY ADDITION

KEYSTONE

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HARNEY ADDITION

TRACT A SWANZEY ADDITION

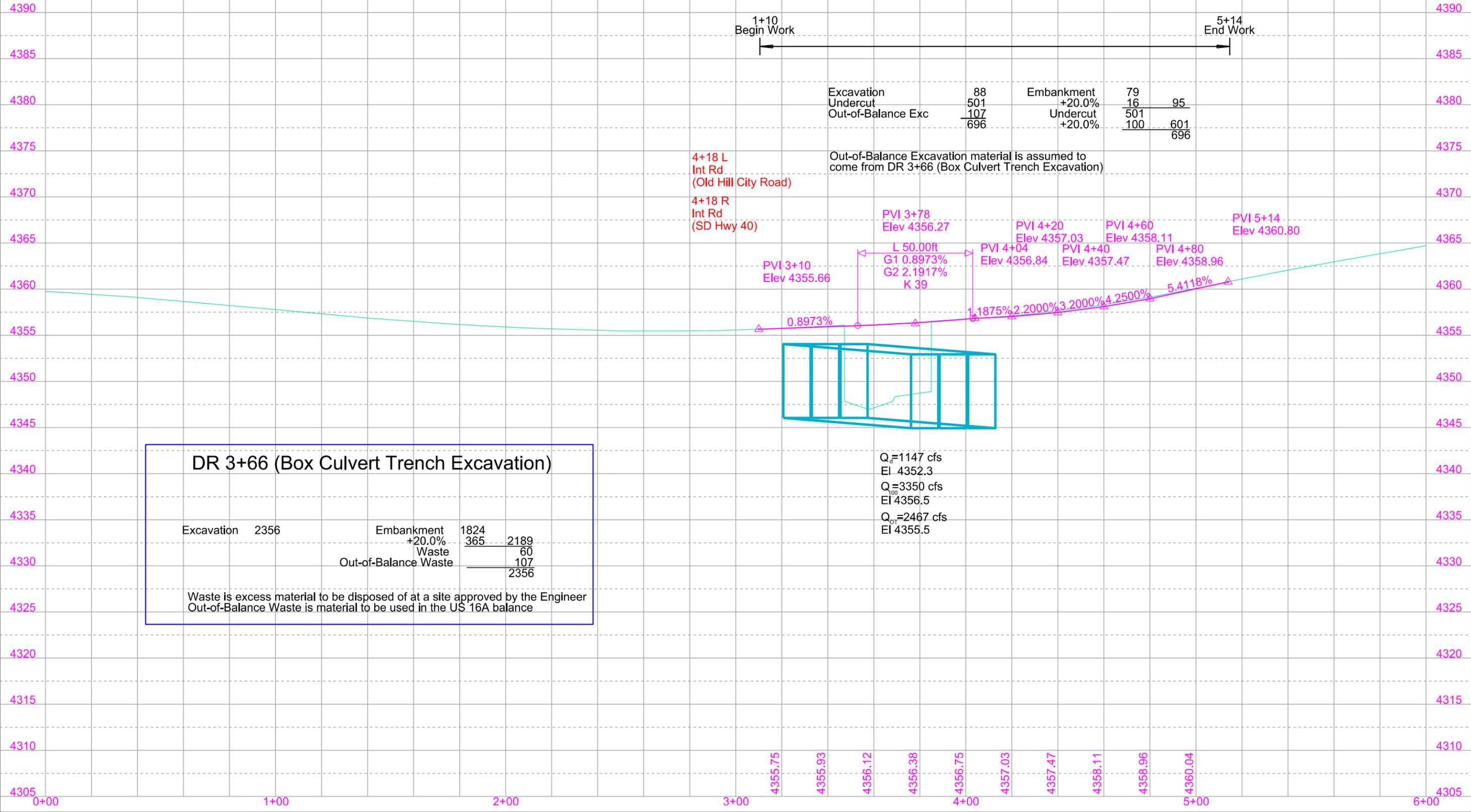
MAINLINE (US 16A)

Plotting Date: 02/26/2026

Plot Scale - 1:40

Plotted From - tpr14495

File - U:\road\proj\penm05\0100\rv.dgn



1+10 Begin Work 5+14 End Work

Excavation	88	Embankment	79
Undercut	501	+20.0%	16
Out-of-Balance Exc	107	Undercut	501
	696	+20.0%	100
			601
			696

Out-of-Balance Excavation material is assumed to come from DR 3+66 (Box Culvert Trench Excavation)

4+18 L
Int Rd
(Old Hill City Road)

4+18 R
Int Rd
(SD Hwy 40)

PVI 3+10 Elev 4355.66

L 50.00ft
G1 0.8973%
G2 2.1917%
K 39

PVI 3+78 Elev 4356.27

PVI 4+04 Elev 4356.84

PVI 4+20 Elev 4357.03

PVI 4+40 Elev 4357.47

PVI 4+60 Elev 4358.11

PVI 4+80 Elev 4358.96

PVI 5+14 Elev 4360.80

0.8973%

1.1875%

2.2000%

3.2000%

4.2500%

5.4118%

DR 3+66 (Box Culvert Trench Excavation)			
Excavation	2356	Embankment	1824
		+20.0%	365
		Waste	60
		Out-of-Balance Waste	107
			2356

Waste is excess material to be disposed of at a site approved by the Engineer
Out-of-Balance Waste is material to be used in the US 16A balance

Q_s = 1147 cfs
EI 4352.3

Q₁₀₀ = 3350 cfs
EI 4356.5

Q_{0.1} = 2467 cfs
EI 4355.5

4355.75

4355.93

4356.12

4356.38

4356.75

4357.03

4357.47

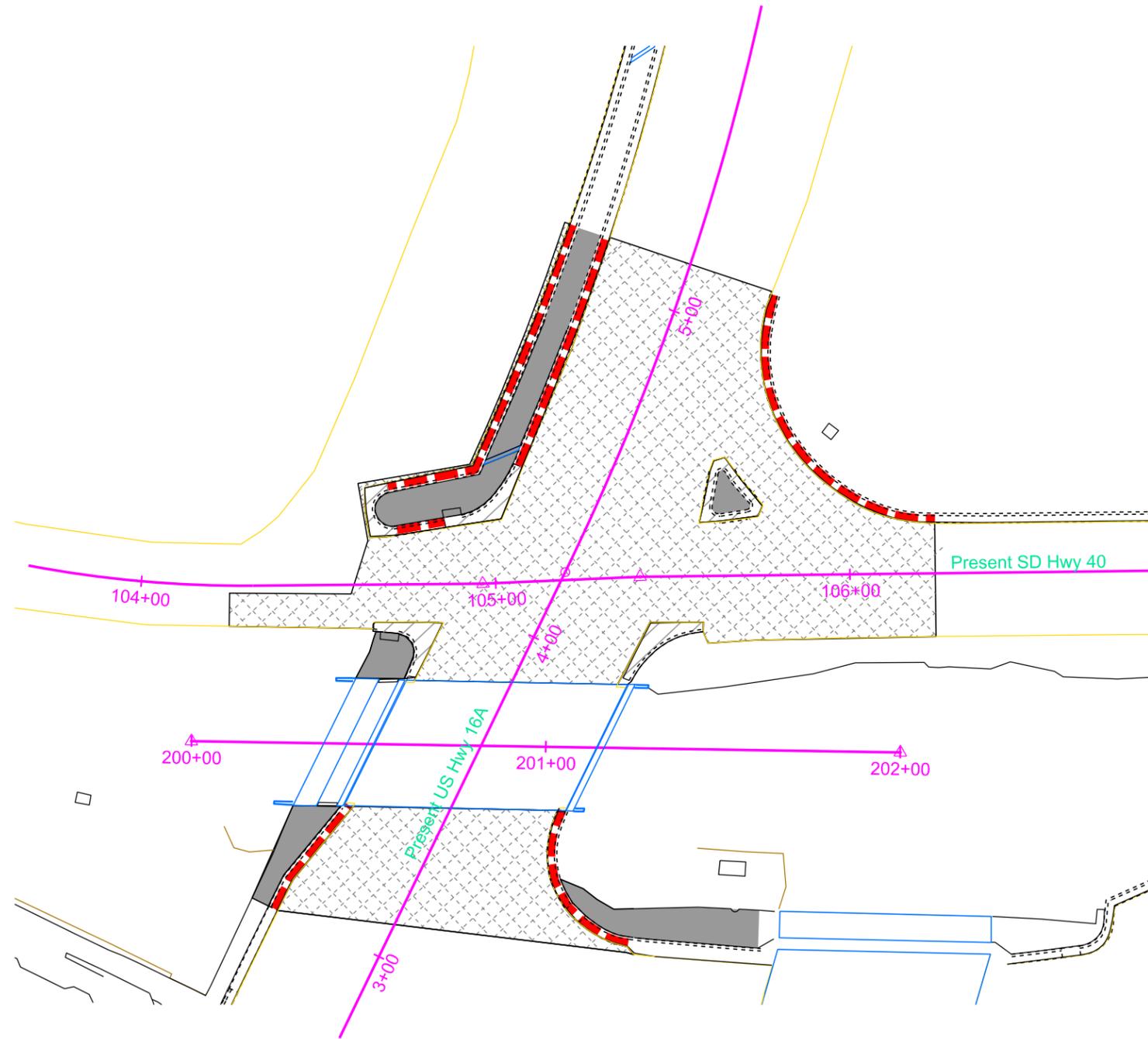
4358.11

4358.96

4360.04

0+00 1+00 2+00 3+00 4+00 5+00 6+00

PAVEMENT REMOVAL LAYOUT



LEGEND

- Remove Concrete Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Curb and/or Gutter

CURB AND GUTTER LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 016A(11)56	B14	B30

Plotting Date: 02/26/2026 Revised: 12/06/2024 JRF

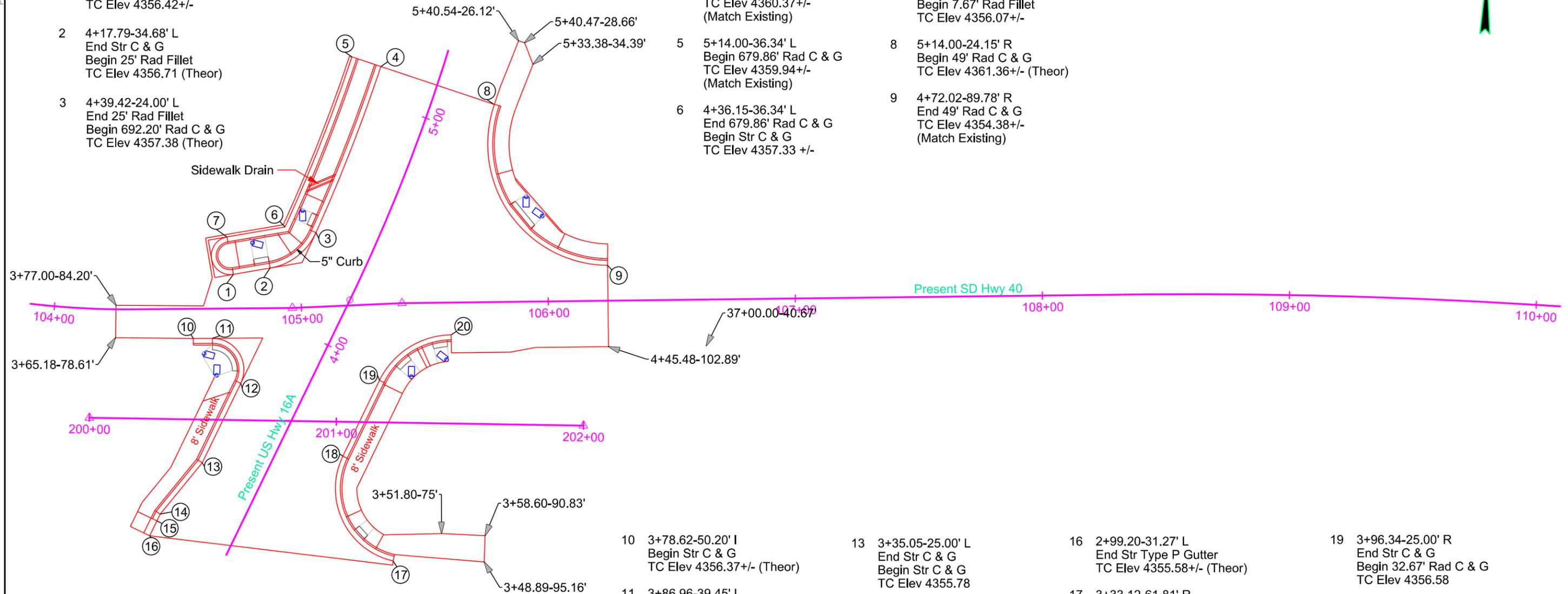
Note: All curb and gutter shown on this sheet is Type B68 and all gutter is Type P8 except as noted.
 All PCC approach pavement shown on this sheet is 8" Type B except as noted.
 All asphalt and gravel pavement quantities are provided in Section F.



- 1 4+09.02-46.93' L
Begin Str C & G
TC Elev 4356.42+/-
- 2 4+17.79-34.68' L
End Str C & G
Begin 25' Rad Fillet
TC Elev 4356.71 (Theor)
- 3 4+39.42-24.00' L
End 25' Rad Fillet
Begin 692.20' Rad C & G
TC Elev 4357.38 (Theor)

- 4 5+14.00-24.00' L
End 692.20' Rad C & G
TC Elev 4360.37+/-
(Match Existing)
- 5 5+14.00-36.34' L
Begin 679.86' Rad C & G
TC Elev 4359.94+/-
(Match Existing)
- 6 4+36.15-36.34' L
End 679.86' Rad C & G
Begin Str C & G
TC Elev 4357.33 +/-

- 7 4+21.57-55.88' L
End Str C & G
Begin 7.67' Rad Fillet
TC Elev 4356.07+/-
- 8 5+14.00-24.15' R
Begin 49' Rad C & G
TC Elev 4361.36+/- (Theor)
- 9 4+72.02-89.78' R
End 49' Rad C & G
TC Elev 4354.38+/-
(Match Existing)



- 10 3+78.62-50.20' I
Begin Str C & G
TC Elev 4356.37+/- (Theor)
- 11 3+86.96-39.45' L
End Str C & G
Begin 12.67' Rad Fillet
TC Elev 4356.45+/- (Theor)
- 12 3+75.00-25.00' L
End 12.67' Rad Fillet
Begin Str C & G
TC Elev 4356.25

- 13 3+35.05-25.00' L
End Str C & G
Begin Str C & G
TC Elev 4355.78
- 14 3+08.99-31.24' L
End Str C & G
Begin Str C & G
TC Elev 4355.65
- 15 3+05.87-31.35' L
End Str C & G
Begin Str Type P Gutter
TC Elev 4355.63+/- (Theor)
(Match Existing)

- 16 2+99.20-31.27' L
End Str Type P Gutter
TC Elev 4355.58+/- (Theor)
- 17 3+33.12-61.81' R
Begin 30' Rad C & G
TC Elev 4354.81+/-
(Match Existing)
- 18 3+63.34-25.00' R
End 30' Rad C & G
Begin Str C & G
TC Elev 4356.04

- 19 3+96.34-25.00' R
End Str C & G
Begin 32.67' Rad C & G
TC Elev 4356.58
- 20 4+25.26-43.06' R
End 32.67' Rad C & G
TC Elev 4356.19+/- (Theor)

Plot Scale - 1:40

Plotted From - tpr14435

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CURB RAMP LAYOUT

* Turning Space with 1.5% Slope
 ** Curb Ramp with 7.5% slope and 1.5% cross slope
 *** 5% Maximum slope and 1.5% cross slope

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 016A(11)56	B15	B30

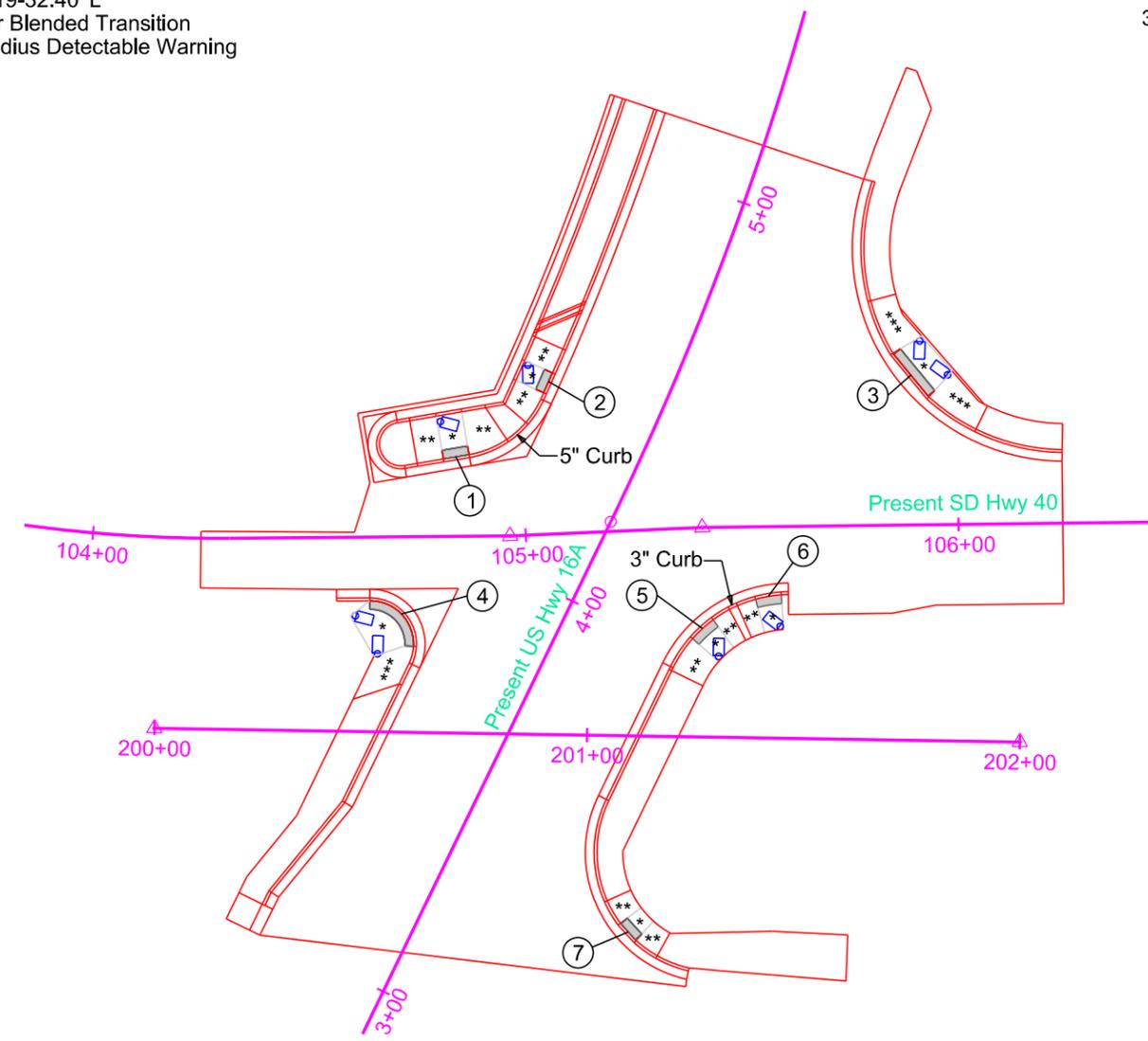
Plotting Date: 02/26/2026



- 1 4+18.21-38.67' L
Center Modified Type 3 Curb Ramp
(Curb Opening on both sides of ramp)
- 2 4+43.68-26.67' L
Center Modified Type 3 Curb Ramp

- 4 3+79.19-32.40' L
Center Blended Transition
10' Radius Detectable Warning

- 3 4+77.13-50.01' R
Center Blended Transition



- 5 4+07.46-29.80' R
Center Modified Type 3 Curb Ramp
30' Radius Detectable Warning
- 6 4+20.75-40.26' R
Center Modified Type 3 Curb Ramp
30' Radius Detectable Warning

- 7 3+37.06-44.92' R
Center Type 3 Curb Ramp

Plot Scale - 1/4" = 1'-0"

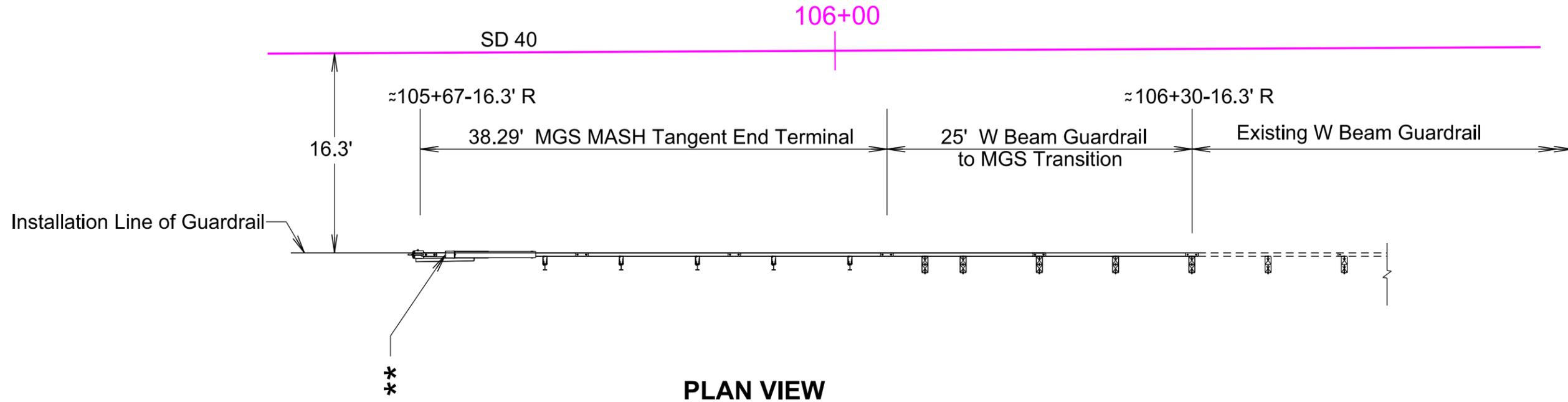
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 016A(11)56	B16	B30

Plotting Date: 02/26/2026 Revised: 02/18/2026 JRF

GUARDRAIL LAYOUT



PLAN VIEW

** See standard plate 632.40 (in Section S) for delineation.

GENERAL NOTES:

The MGS MASH Tangent End Terminal will be a Softstop Test Level 2 Terminal with 8" Composite Blockouts.

Plot Scale - 1:140

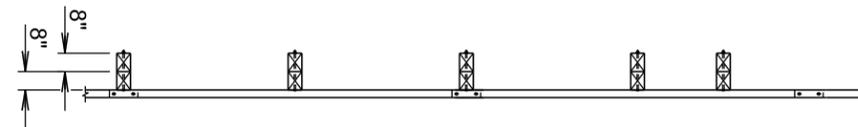
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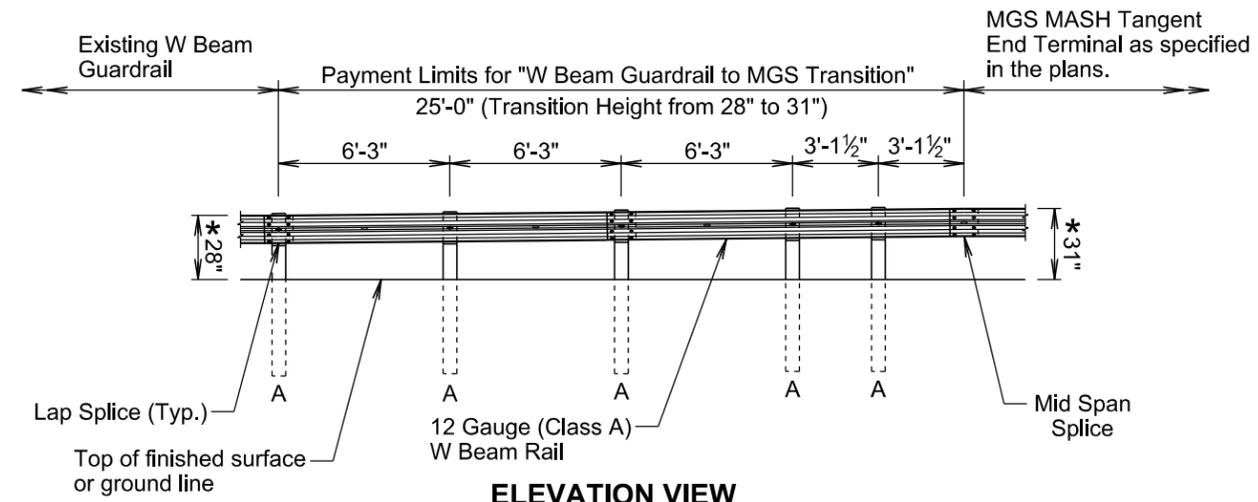
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 016A(11)56	B17	B30

Plotting Date: 02/26/2026

W BEAM GUARDRAIL TO MGS TRANSITION



PLAN VIEW



ELEVATION VIEW

* See standard plate 630.99

A: 6"x8"x 6'-0" Wood Post and 6"x8"x14" Wood Blockout (See standard plate 630.10)

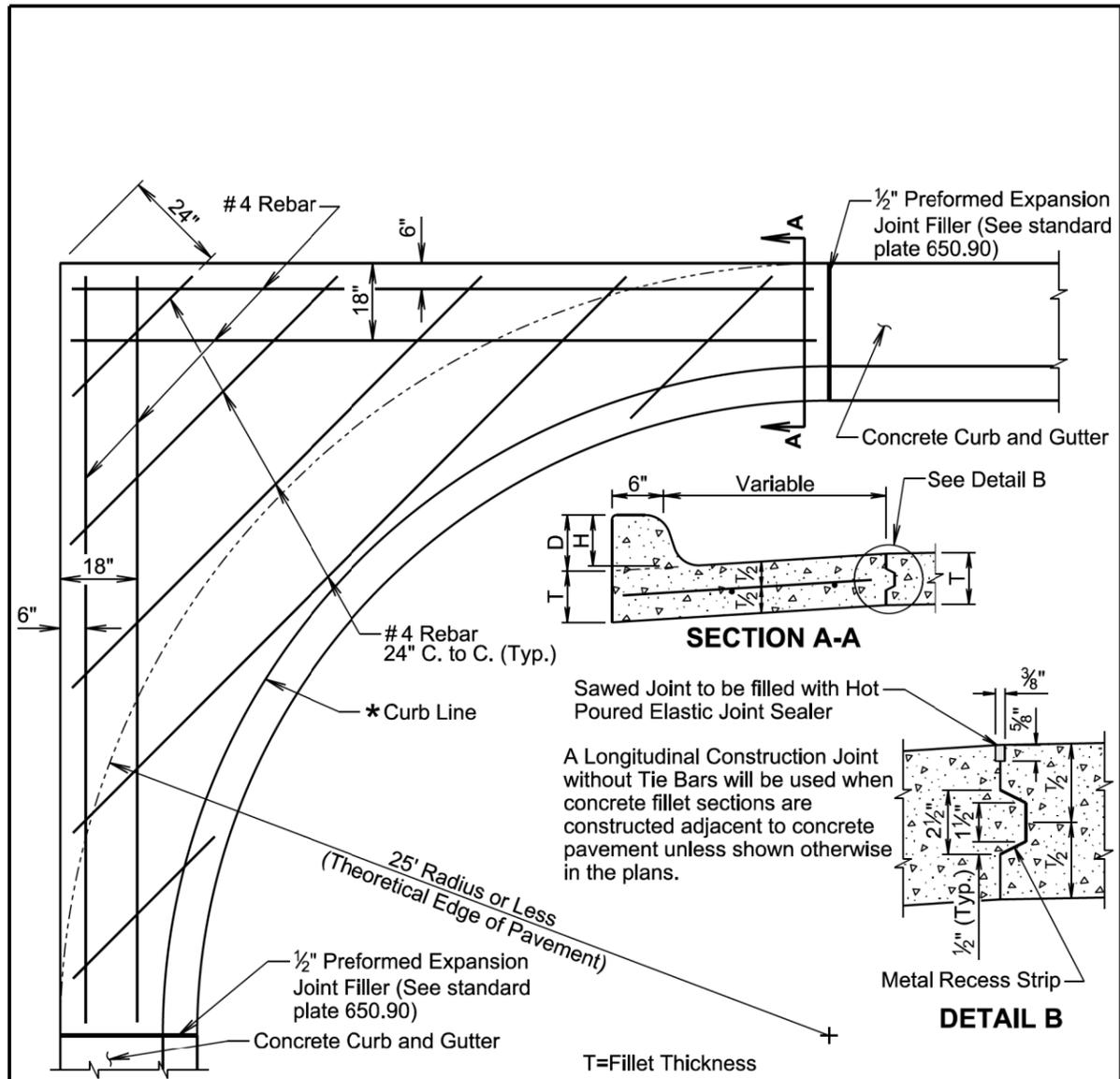
GENERAL NOTES:

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

Plot Scale - 1:200

Plotted From - trpr14435

File - ...\\WBeamGuardrailtoMGS\\MidwestGuardrail\\SystemTransition.dgn



* If a curb ramp is constructed adjacent to a PCC fillet section, the curb will need to be modified. Refer to the corresponding curb ramp standard plate or other special details in the plans for modification of the PCC fillet section.

March 31, 2024

Published Date: 2026	S D D O T	PCC FILLET SECTION WITH TYPE B CURB AND GUTTER	PLATE NUMBER 380.30
			Sheet 1 of 2

GENERAL NOTES:

For fillets with irregular shapes or bump outs:

- 1) The 6" and 18" offset #4 rebar will be included on any side next to pavement or driveways (not along the Curb and Gutter).
- 2) All remaining area will have #4 rebar spaced 24" center to center in a square pattern.

Dimensions D, H, and T will conform to those shown on the appropriate curb and gutter standard plate.

All rebar will be in conformance with Sections 480 and 1010 of the Specifications. All rebar will have a minimum of 3 inches of clear cover.

Class M6 Concrete will be used in construction of the fillets.

The concrete curb will be monolithic with the concrete fillet. No separate payment for this curb will be made as the curb is considered a part of the fillet.

Joints will be constructed at 10-foot intervals except when fillets are constructed adjacent to PCC Pavement. If there is adjacent PCC Pavement the joints will be extended from edge of pavement through the fillet section as directed by the Engineer.

The cost for all materials, labor, and incidentals necessary to construct the PCC fillet section with curb and gutter will be incidental to the contract unit price per square yard for the corresponding PCC fillet section contract item.

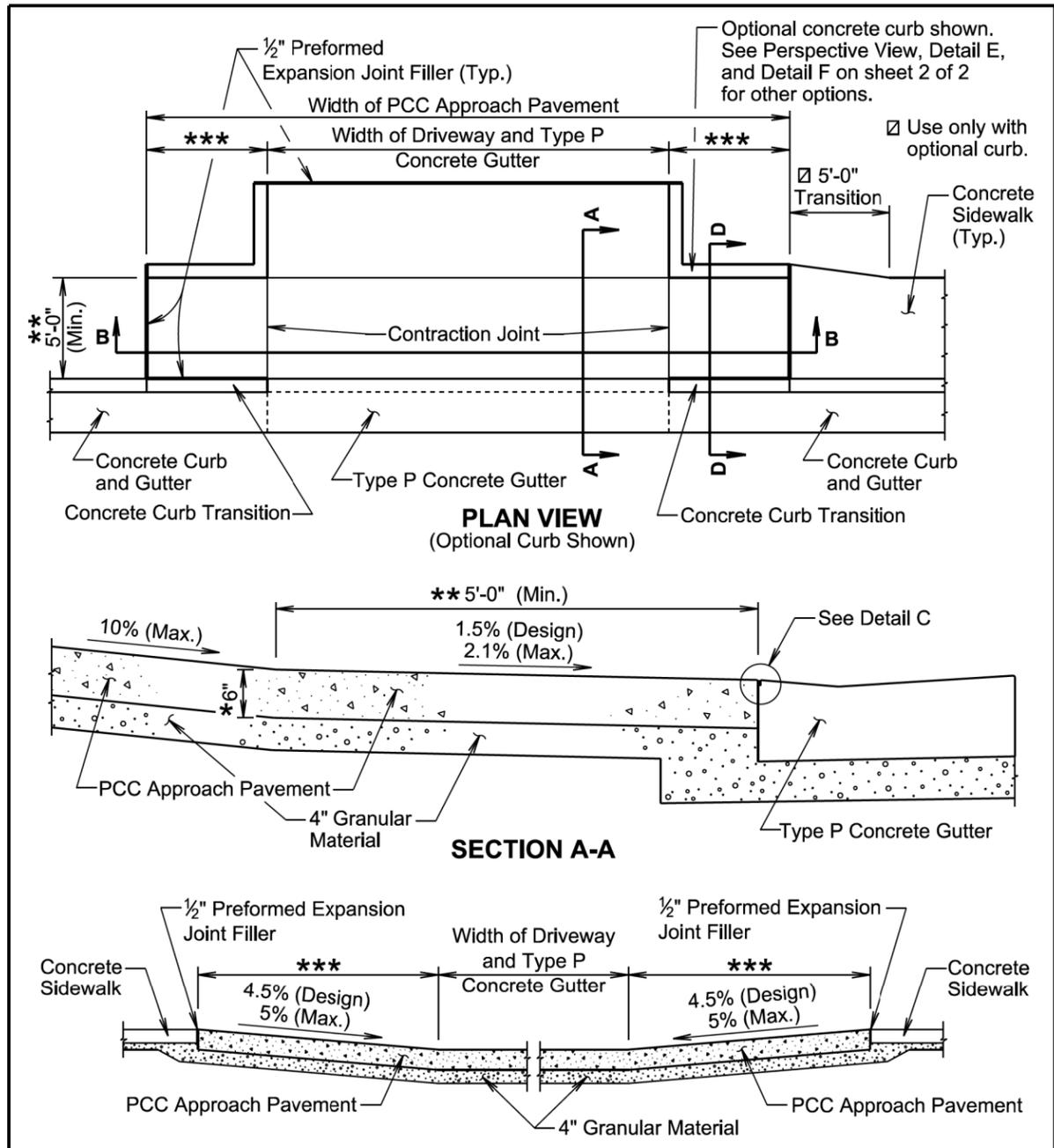
March 31, 2024

Published Date: 2026	S D D O T	PCC FILLET SECTION WITH TYPE B CURB AND GUTTER	PLATE NUMBER 380.30
			Sheet 2 of 2

Plot Scale - 1:200

Plotted From - tpr14435

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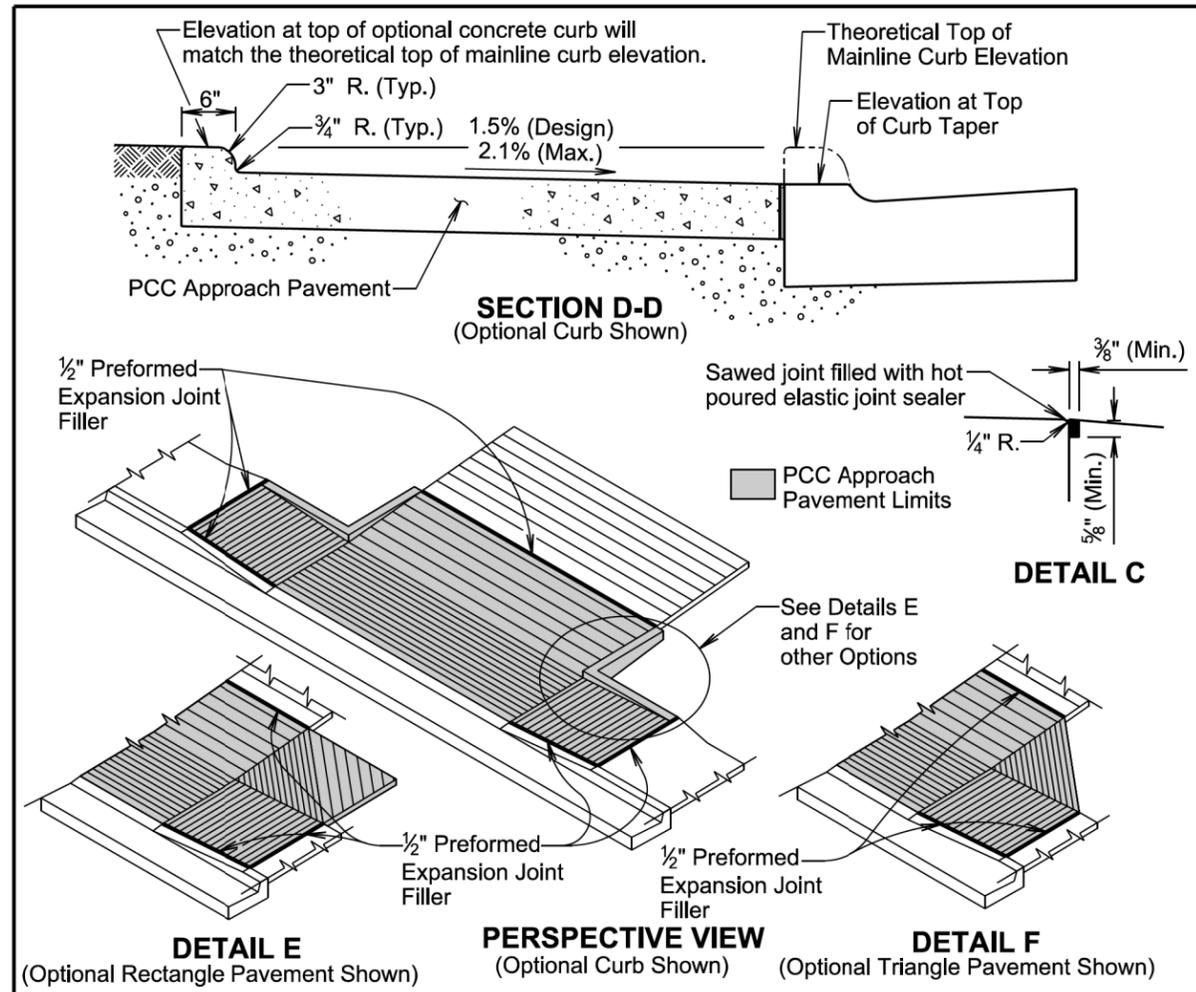
* 8 inches at Commercial Approaches

** Sidewalk width is 5 feet unless specified otherwise in the plans. The cross slope of the sidewalk is designed at 1.5% and will not be steeper than 2.1% unless specified otherwise in the plans.

*** The slope of the type B PCC approach pavement in these areas will match the slope of the concrete curb transition. The slope is designed at 4.5% and will not be steeper than 5% unless specified otherwise in the plans.

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S D D O T	TYPE B PCC APPROACH PAVEMENT	PLATE NUMBER 380.41
	Published Date: 2026	Sheet 1 of 2



GENERAL NOTES:

Use the plan specified option for the pavement adjacent to the driveway and sidewalk. The options are shown above in the Perspective View, Detail E, and Detail F.

The concrete for the type B PCC approach pavement and adjacent driveway will comply with the requirements of the Specifications for class M6 concrete unless otherwise stated in the plans.

Contraction joints in the type B PCC approach pavement will be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least ¼ the thickness of the approach pavement. Additional contraction joints not shown in the Plan View will be spaced as follows:

One joint at the center of the approach for driveways 16 feet to 24 feet wide.
Two joints spaced at equal intervals for driveways greater than 24 feet to 40 feet wide.

All costs for furnishing and placing the type B PCC approach pavement and constructing the expansion and contraction joints including labor, equipment, excavation, and materials including the earthen backfill and granular material will be incidental to the contract unit price per square yard for the corresponding PCC Approach Pavement contract item.

April 8, 2025

S D D O T	TYPE B PCC APPROACH PAVEMENT	PLATE NUMBER 380.41
	Published Date: 2026	Sheet 2 of 2

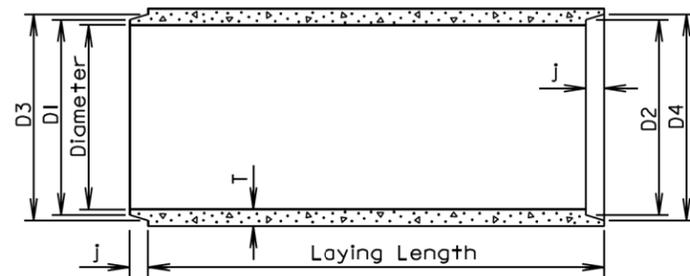
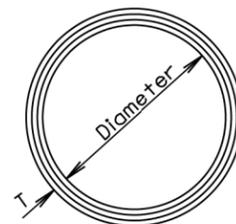
Plot Scale - 1:200

Plotted From - tpr14435

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TOLERANCES IN DIMENSIONS

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


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 1/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 1/8	58 3/8	59 3/8	59 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 7/8	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

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REINFORCED CONCRETE PIPE
**PLATE NUMBER
450.01**

Sheet 1 of 1

Published Date: 2026

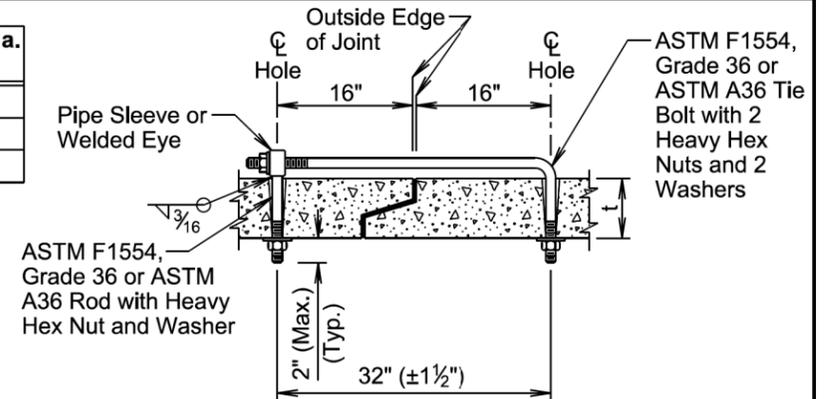
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
$\leq 3\frac{1}{4}$	$\frac{5}{8}$	$\frac{3}{4}$
$3\frac{1}{2}$ - $6\frac{1}{2}$	$\frac{3}{4}$	1
≥ 7	1	$1\frac{1}{4}$

GENERAL NOTES:

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

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

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


ADJUSTABLE EYE BOLT TIE

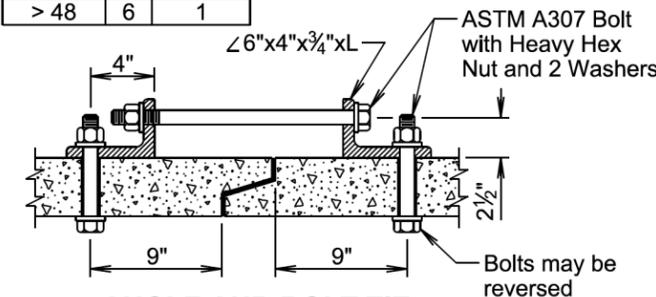
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	$\frac{3}{4}$
> 48	6	1

GENERAL NOTES:

Angles will conform to ASTM A36.

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

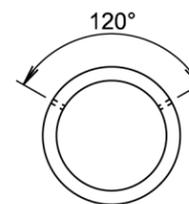
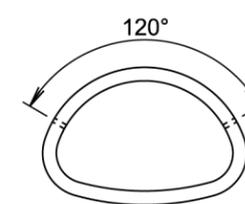
Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.


ANGLE AND BOLT TIE
GENERAL NOTES:

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

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

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

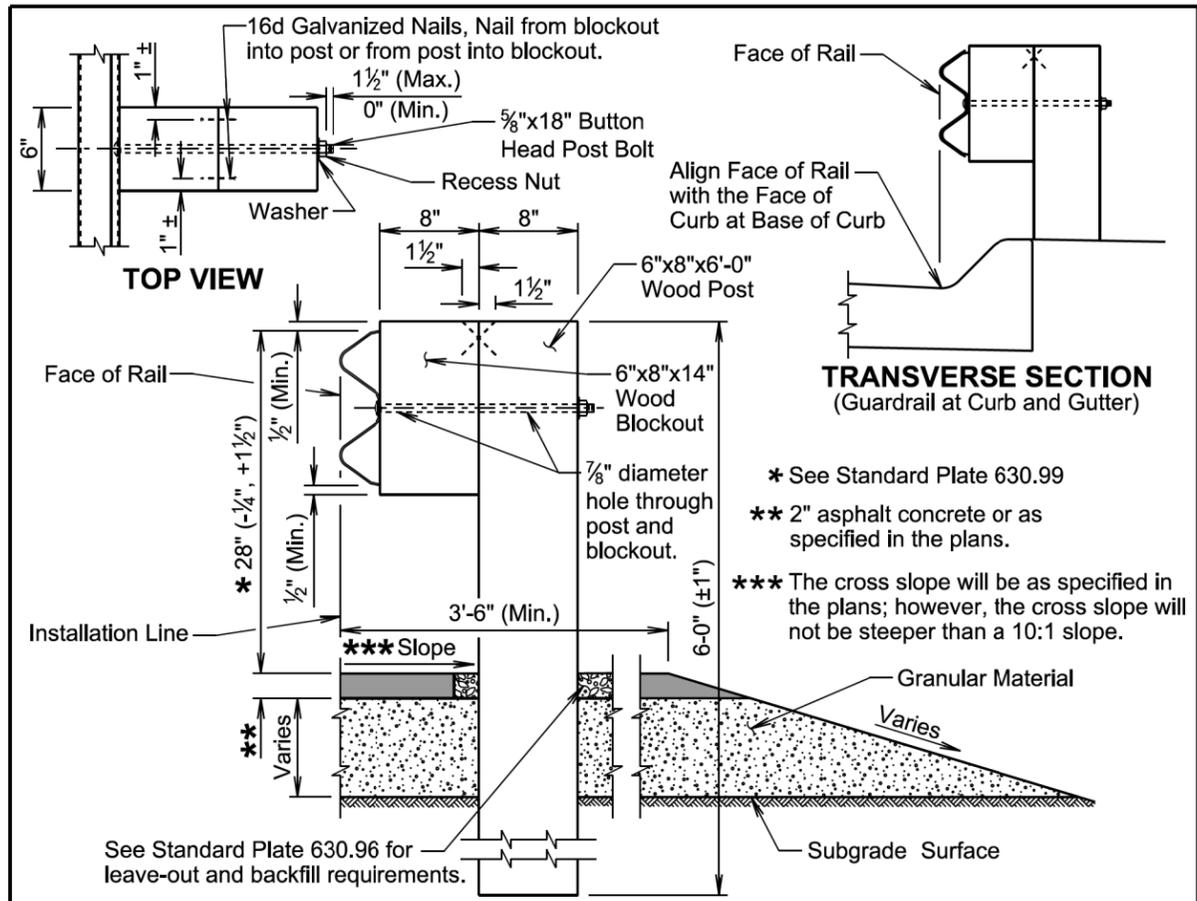

**END VIEW
(Circular)**

**END VIEW
(Arch)**

April 8, 2025

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TIE BOLTS FOR R.C.P. AND R.C.P. ARCH
**PLATE NUMBER
450.18**

Sheet 1 of 1

Published Date: 2026



- * 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.

GENERAL NOTES: TRANSVERSE SECTION

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.

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

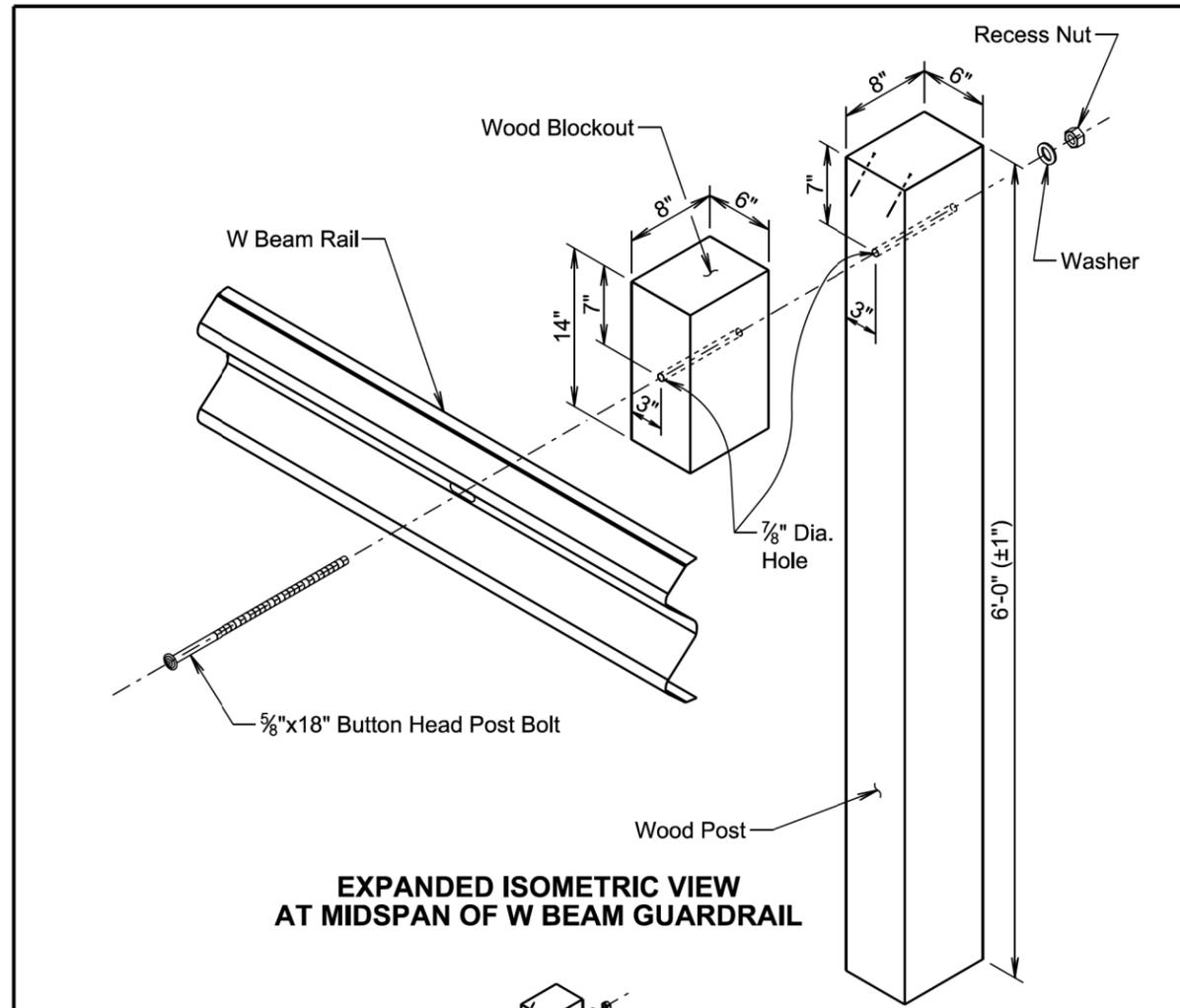
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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.

The top of post and top of block will have a true square cut. The top of block will be a maximum of $\pm \frac{1}{2}$ inch from the top of the post.

September 14, 2019

S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
		Sheet 1 of 5
Published Date: 2026		



EXPANDED ISOMETRIC VIEW AT MIDSPAN OF W BEAM GUARDRAIL

EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) W BEAM GUARDRAIL AT MIDSPAN
(For Information Only, Not to Scale)

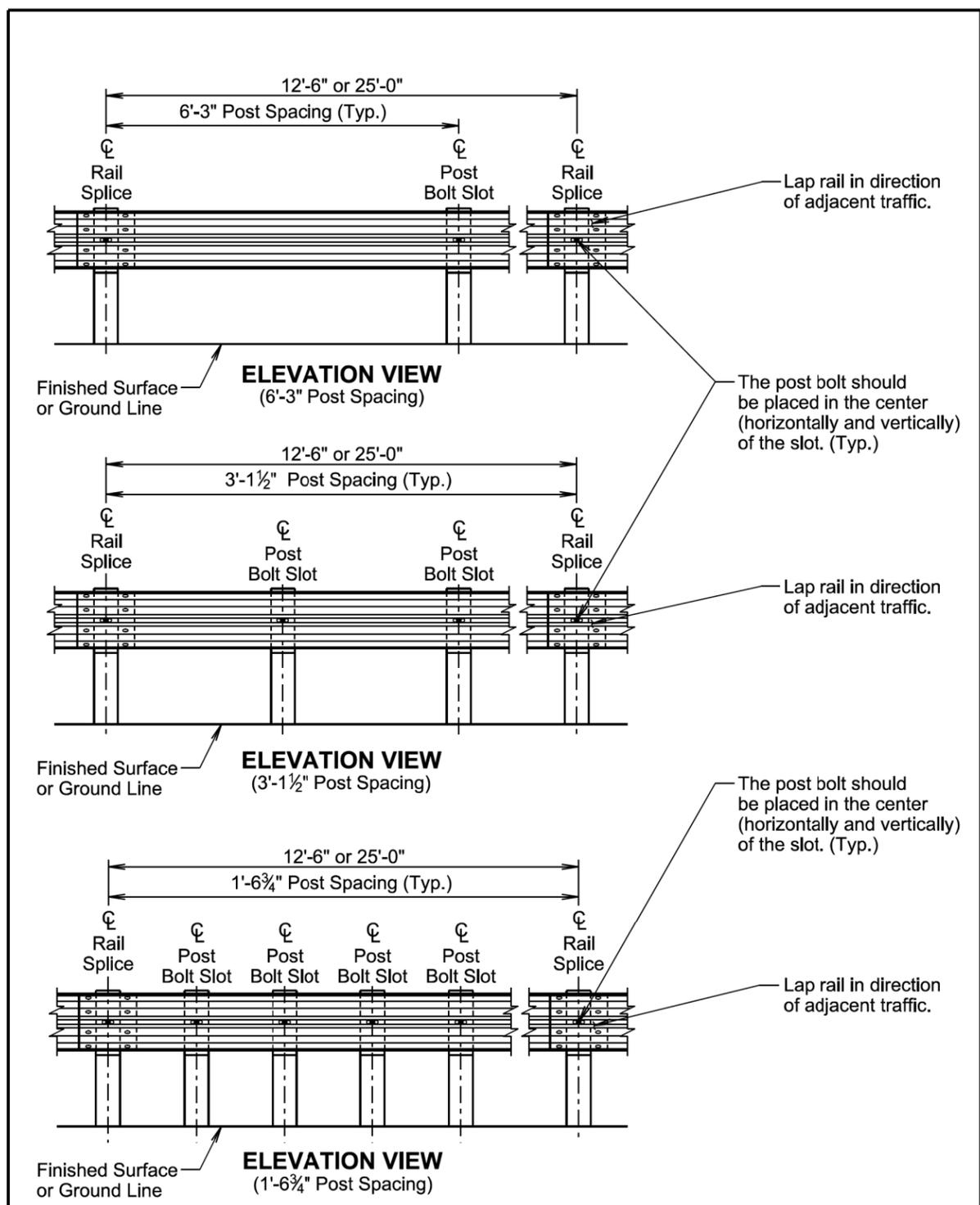
September 14, 2019

S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
		Sheet 2 of 5
Published Date: 2026		

Plot Scale - 1:200

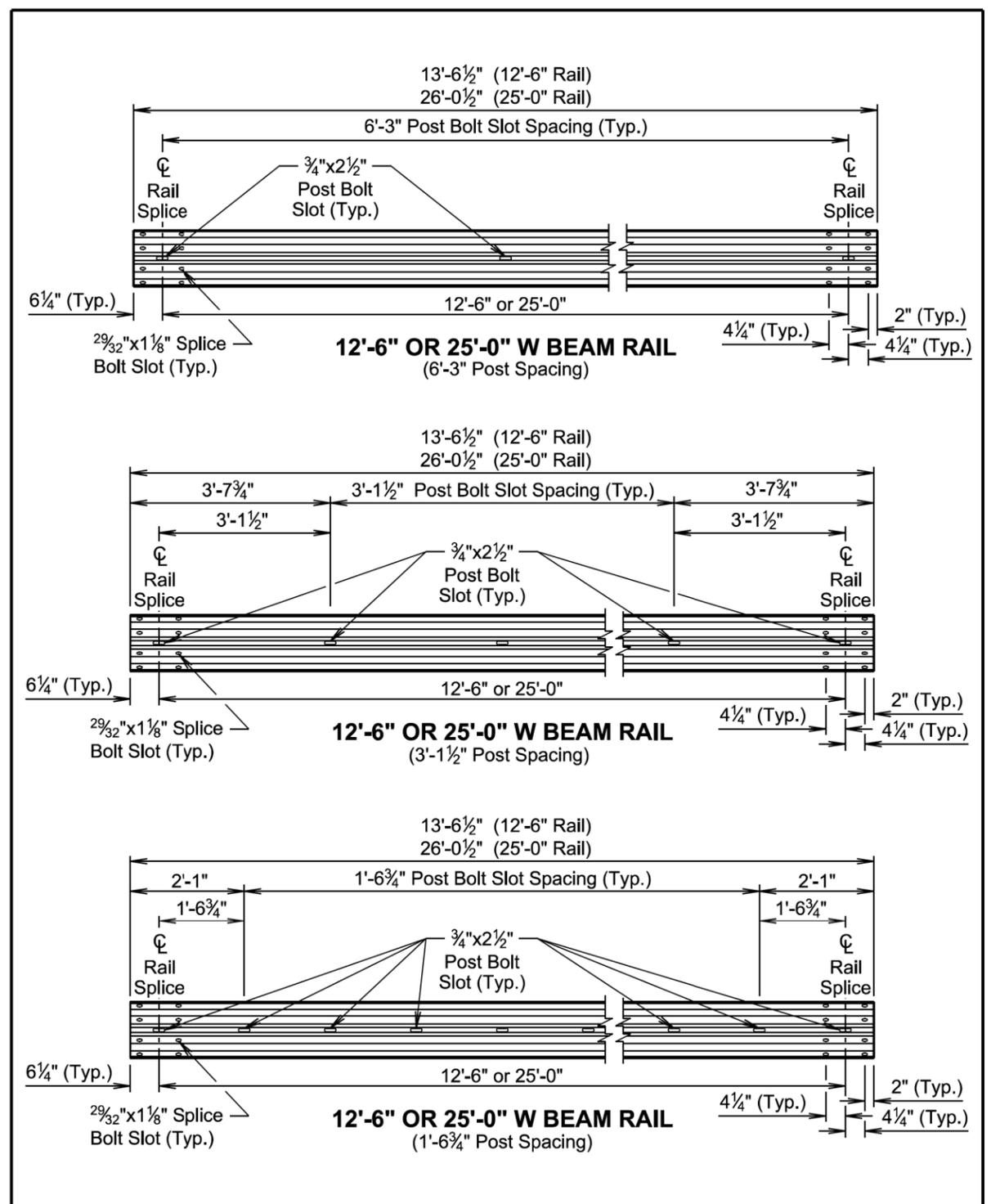
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September 14, 2019

Published Date: 2026	S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
			Sheet 3 of 5



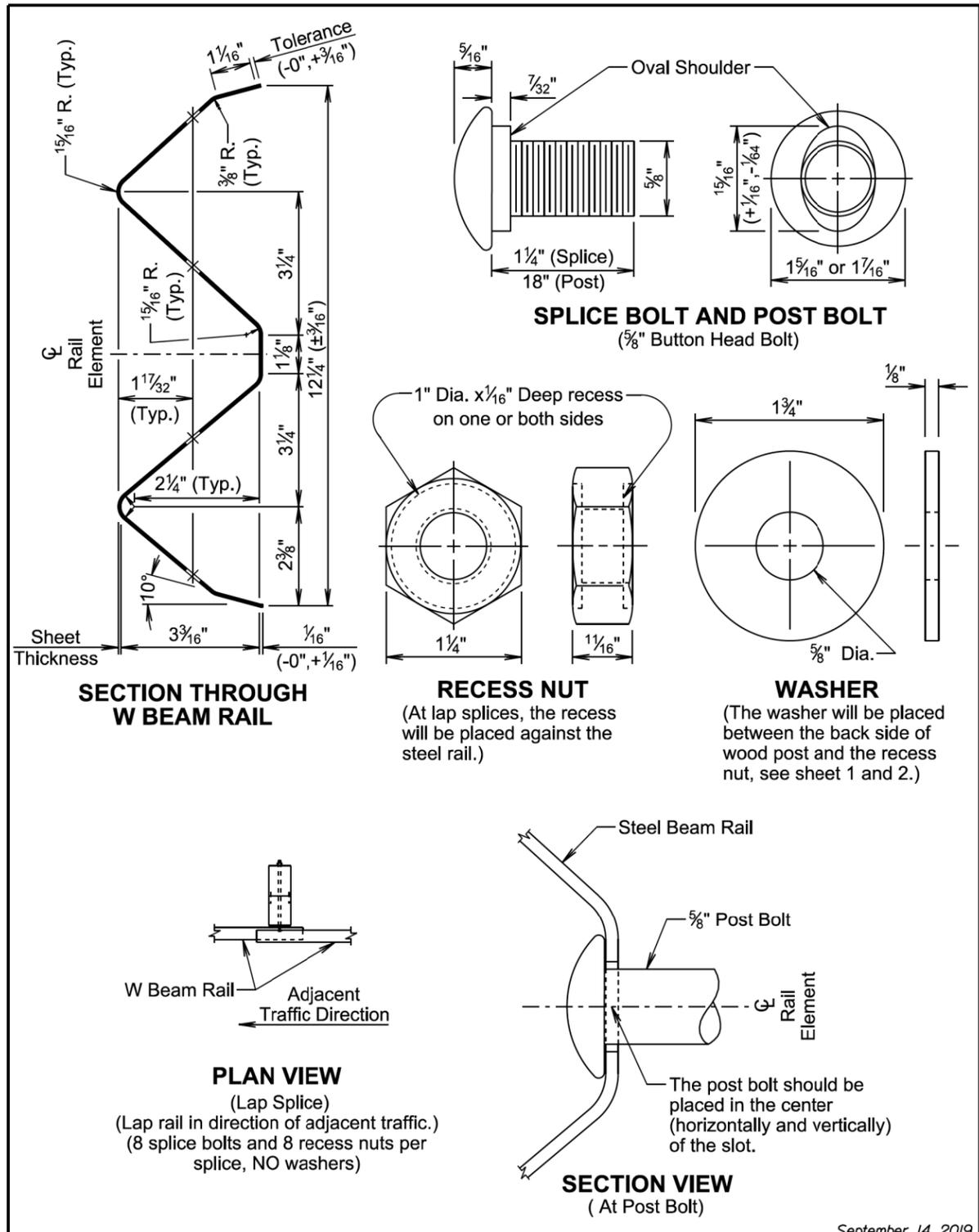
September 14, 2019

Published Date: 2026	S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
			Sheet 4 of 5

Plot Scale - 1:200

Plotted From - tpr14435

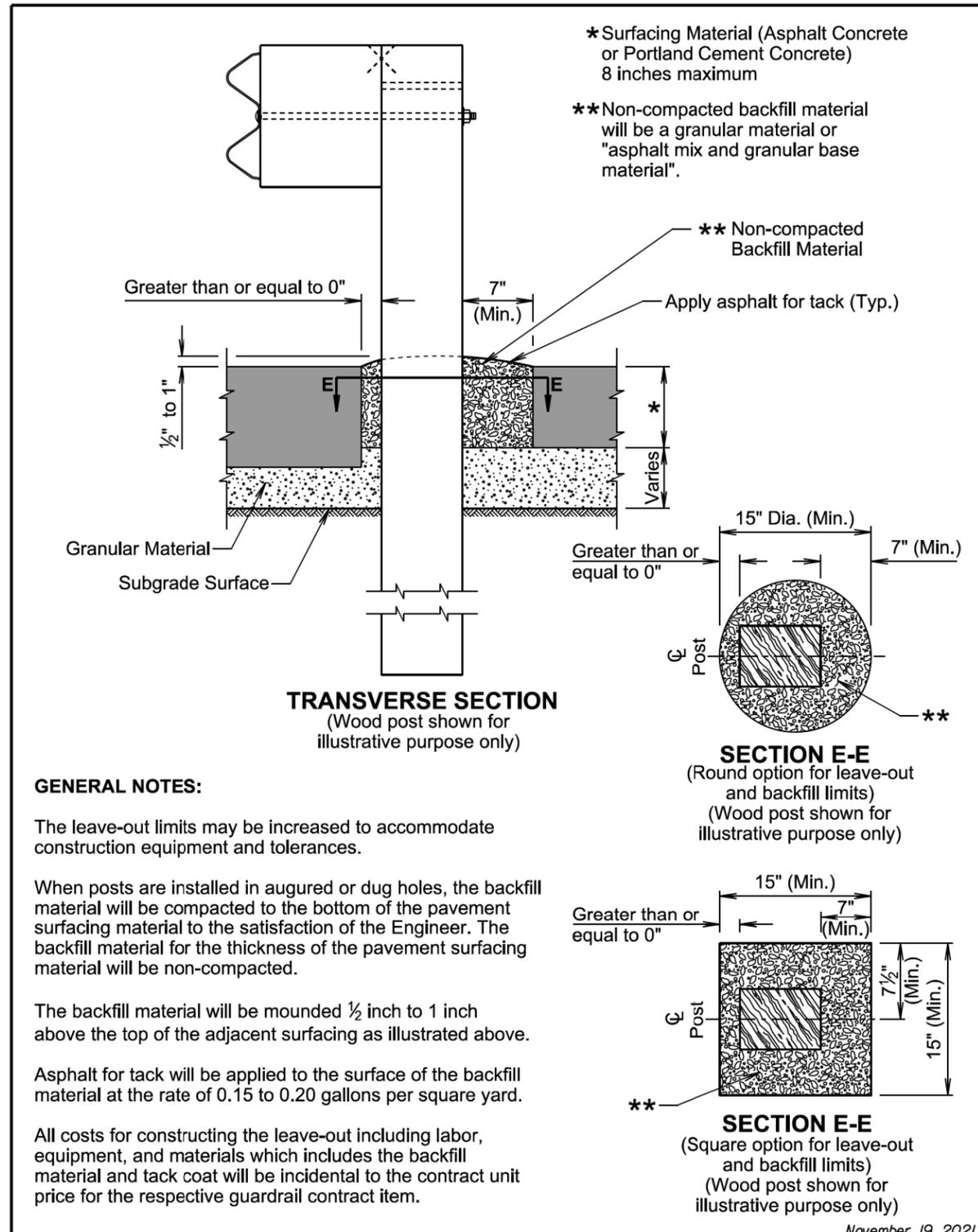
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September 14, 2019

S D D O T	W BEAM GUARDRAIL	PLATE NUMBER 630.10
		Sheet 5 of 5

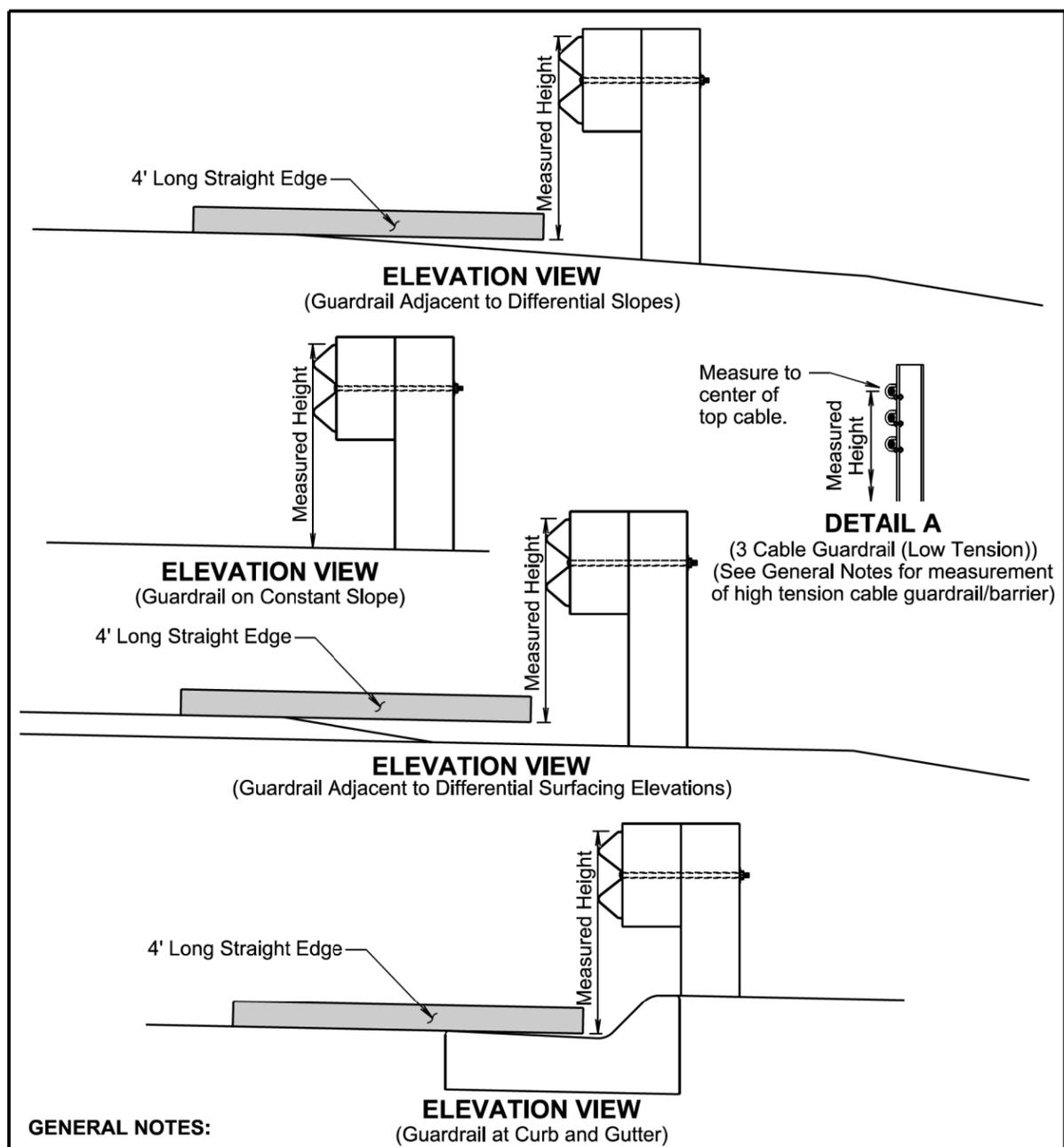
Published Date: 2026



November 19, 2021

S D D O T	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96
		Sheet 1 of 1

Published Date: 2026



GENERAL NOTES:

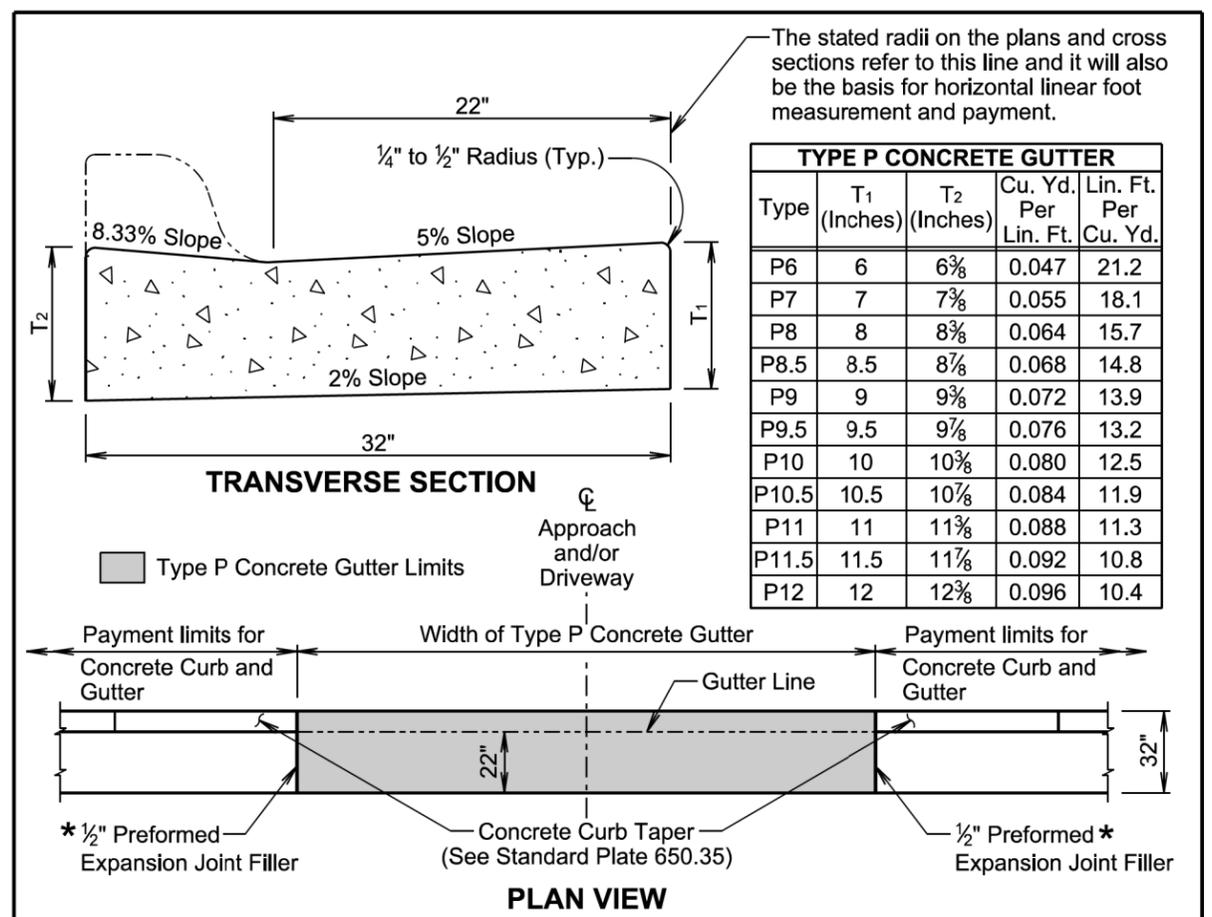
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

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

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

September 14, 2019

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



TYPE P CONCRETE GUTTER				
Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 ³ / ₈	0.047	21.2
P7	7	7 ³ / ₈	0.055	18.1
P8	8	8 ³ / ₈	0.064	15.7
P8.5	8.5	8 ⁷ / ₈	0.068	14.8
P9	9	9 ³ / ₈	0.072	13.9
P9.5	9.5	9 ⁷ / ₈	0.076	13.2
P10	10	10 ³ / ₈	0.080	12.5
P10.5	10.5	10 ⁷ / ₈	0.084	11.9
P11	11	11 ³ / ₈	0.088	11.3
P11.5	11.5	11 ⁷ / ₈	0.092	10.8
P12	12	12 ³ / ₈	0.096	10.4

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

GENERAL NOTES:

The concrete for the type P concrete gutter will comply with the requirements of the specifications for class M6 concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

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

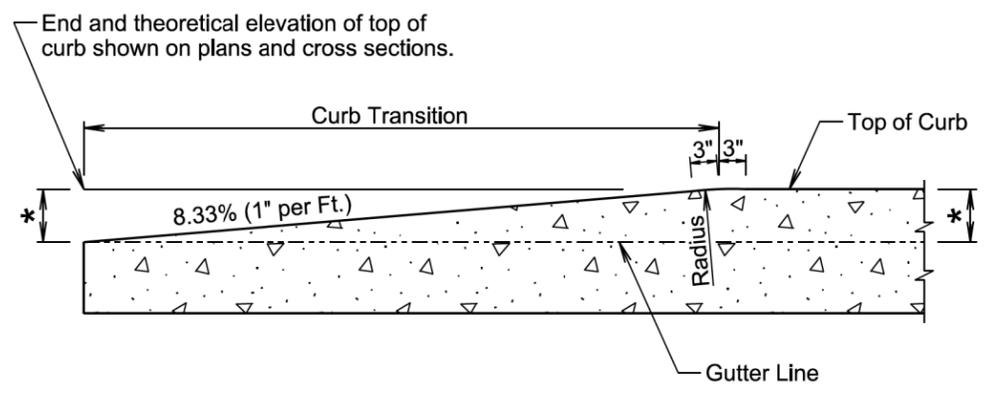
When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter will be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

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

January 22, 2023

SDDOT	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
	Published Date: 2026	Sheet 1 of 1

Plot Scale - 1:200



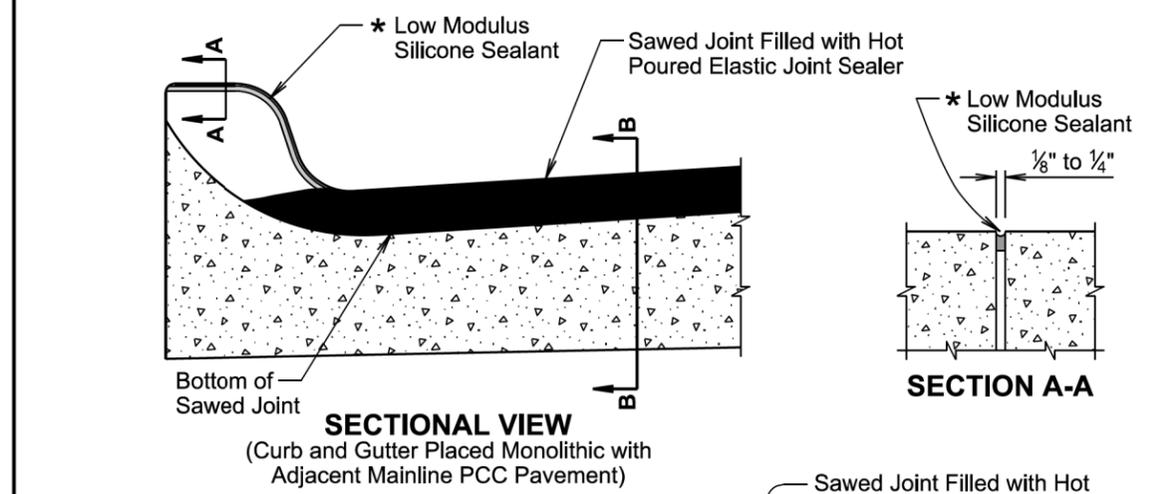
* Height of Curb

LONGITUDINAL SECTION
(Concrete Curb Taper)

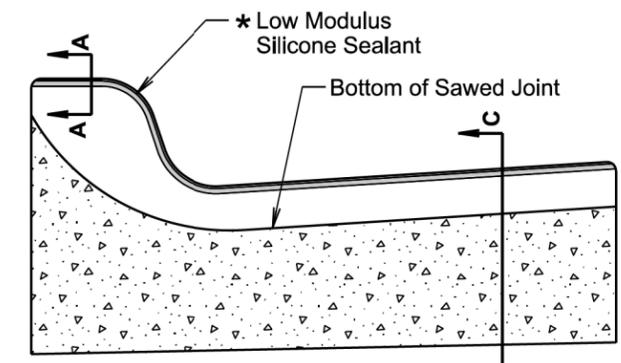
December 23, 2019

S D D O T	CONCRETE CURB TAPER	PLATE NUMBER 650.35
		Sheet 1 of 1

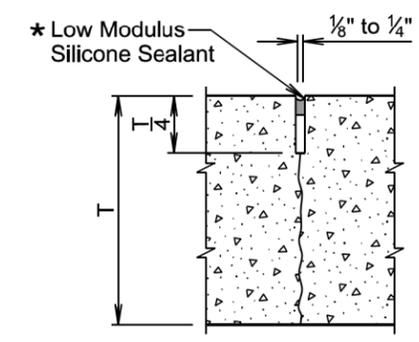
Published Date: 2026



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



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



SECTION C-C

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

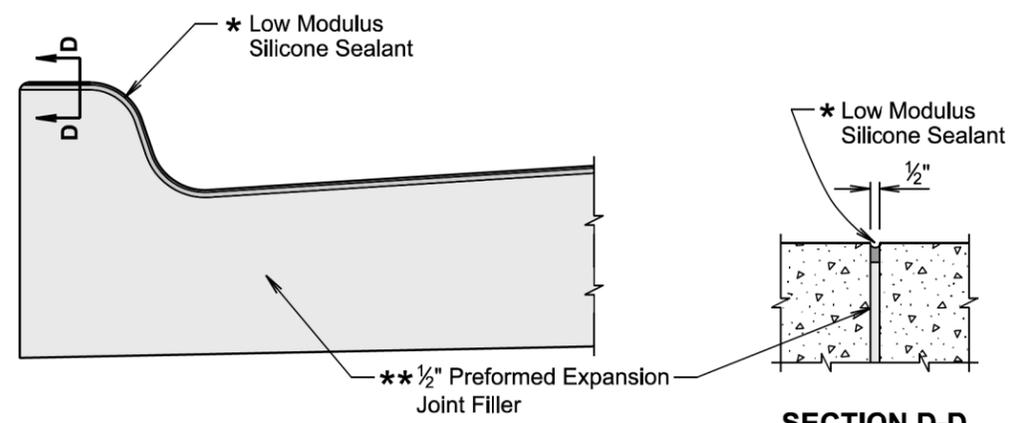
December 23, 2019

S D D O T	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
		Sheet 1 of 2

Published Date: 2026

File - ...apenn05\8\StdPlates\SectionB.dgn

Plotted From - tpr14435



SECTIONAL VIEW
(Curb and Gutter at 1/2" Preformed Expansion Joint Filler Location)

SECTION D-D

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

GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

** A 1/2-inch preformed expansion joint filler will be placed transversely in the curb and gutter at the following locations:

At each junction between the radius return of curb and gutter, and curb and gutter which is parallel to the project centerline.

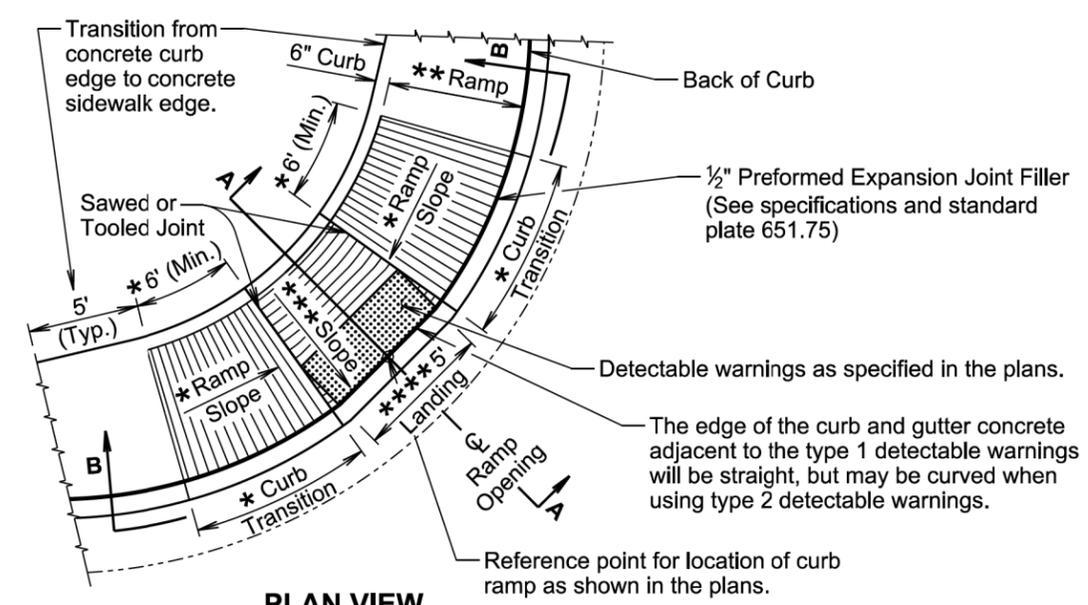
At each junction between new curb and gutter and existing curb and gutter.

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

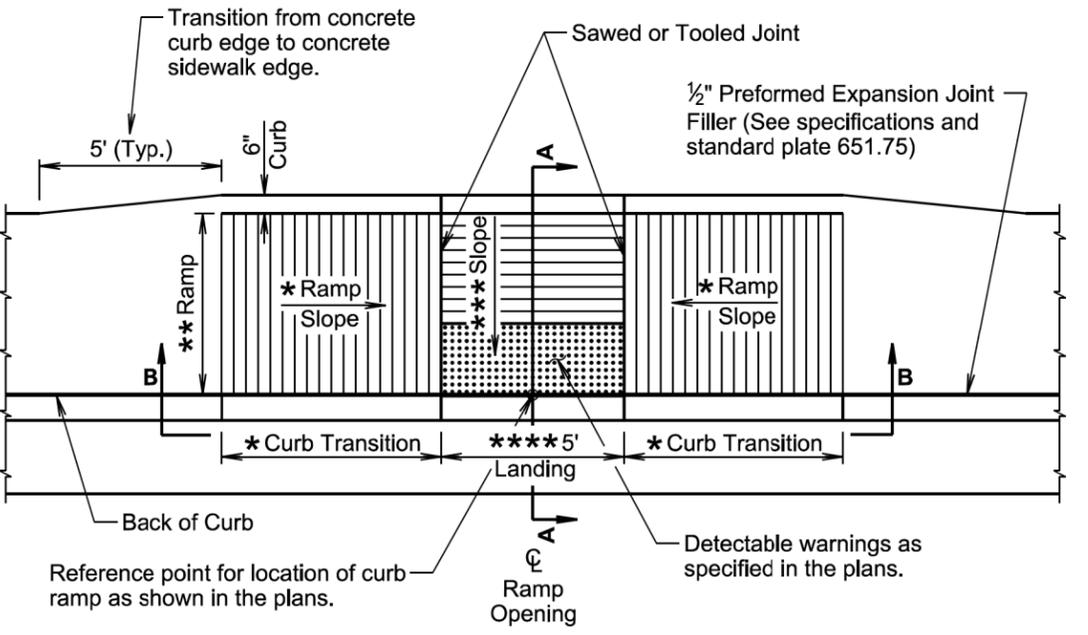
When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter will be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving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

December 23, 2019

Published Date: 2026	S D D O T	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2



PLAN VIEW
(With Curved Curb and Gutter)



PLAN VIEW
(With Straight Curb and Gutter)

Published Date: 2026	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 1 of 3

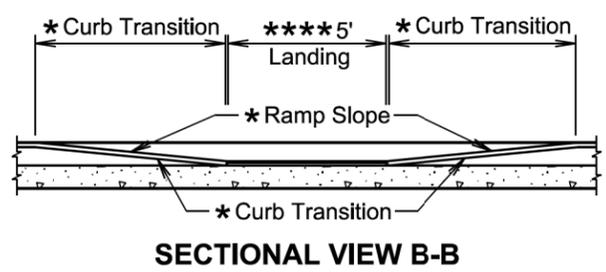
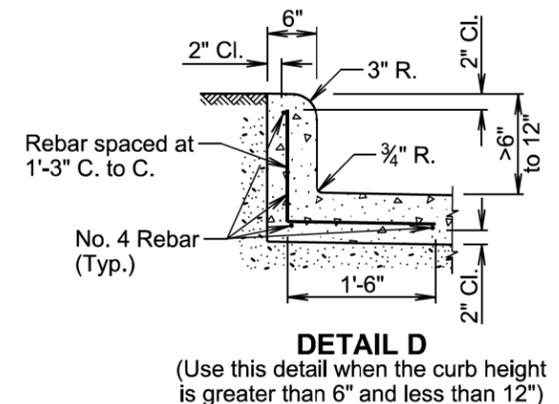
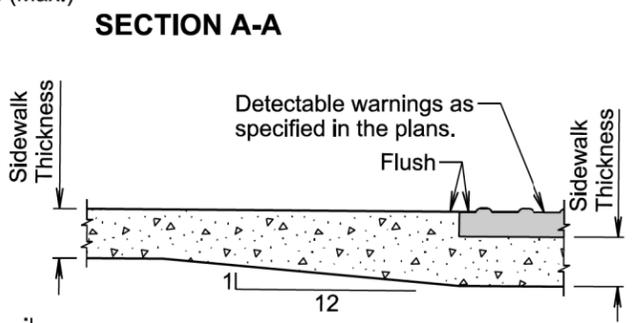
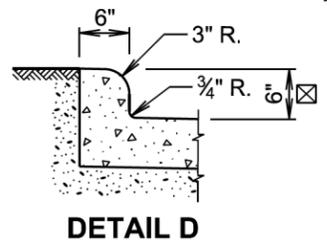
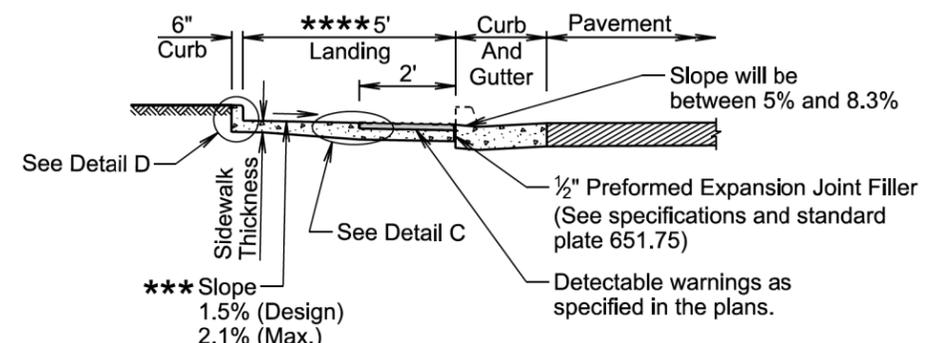
April 8, 2025

Plot Scale - 1:200

Plotted From - tpr14435

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- * The curb transition slope will match the curb ramp slope. Curb ramp slopes are designed at 7.5% unless stated otherwise in the plans. The curb ramp may have a maximum slope of 8.3% at any location of the curb ramp and will not exceed 15' in length unless stated otherwise in the plans. The curb transitions and curb ramp lengths will be adjusted as necessary to meet all slope and length requirements based on field geometrics.
- ** The cross slope of the ramp will not be steeper than 2.1% and the ramp width is 5' unless stated otherwise in the plans. Plans are designed using a 1.5% cross slope for the ramp unless stated otherwise in the plans.
- *** The slope in the landing will not be steeper than 2.1% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.
- **** The landing is 5'x5' unless stated otherwise in the plans.
- ☒ The curb height will be 6" unless stated otherwise in the plans.



April 8, 2025

Published Date: 2026	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 2 of 3

GENERAL NOTES:

- For illustrative purpose only, type 1 detectable warnings are shown in the drawings.
- For illustrative purpose only, a PCC fillet section is shown in one of the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section or with curb and gutter.
- The curb ramp will be placed at the location stated in the plans.
- Sidewalk adjacent to the curb ramp will be as shown in the plans.
- * Care will be taken to ensure a uniform grade on the curb ramp, free of sags and short grade changes.
- Surface texture of the curb ramp will be obtained by coarse brooming transverse to the slope of the curb ramp.
- The normal gutter line profile will be maintained through the area of the ramp opening.
- Joints will be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking (see plan view for joint location).
- Care will be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.
- The detectable warnings will be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings will be incidental to the corresponding detectable warning contract item.
- When curb height is greater than 6" and less than 12", reinforcing steel is required in accordance with the detail on sheet 2 of 3. The reinforcing steel will conform to ASTM A615, Grade 60. Cost for furnishing and installing the reinforcing steel will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk contract item.
- There will be no separate payment for curb ramps. The curb ramp will be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk contract item. The square foot area of the detectable warnings and the curb along the short radius will be included in the measured and paid for quantity of sidewalk.
- The curb transitions and ramp opening will be measured and paid for at the contract unit price per foot for the corresponding curb and gutter contract item when curb and gutter is used. The curb transitions and ramp opening will be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section contract item when a PCC fillet section is used.
- Type 1 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing type 1 detectable warnings including labor, equipment, materials, and incidentals will be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".
- Type 2 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding will be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

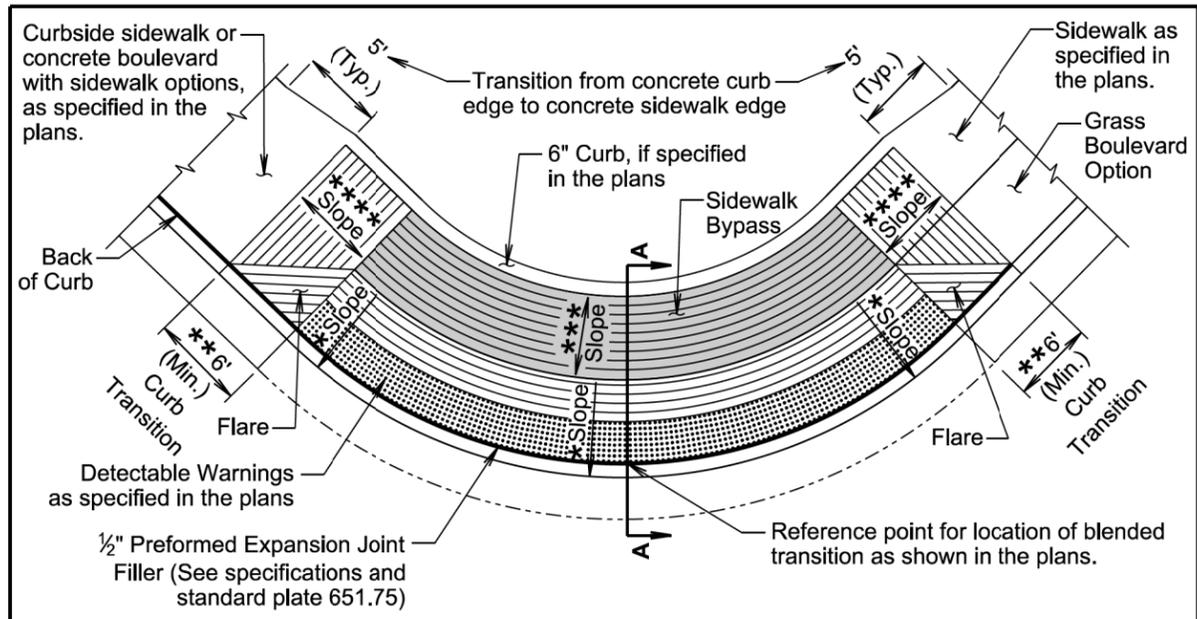
April 8, 2025

Published Date: 2026	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 3 of 3

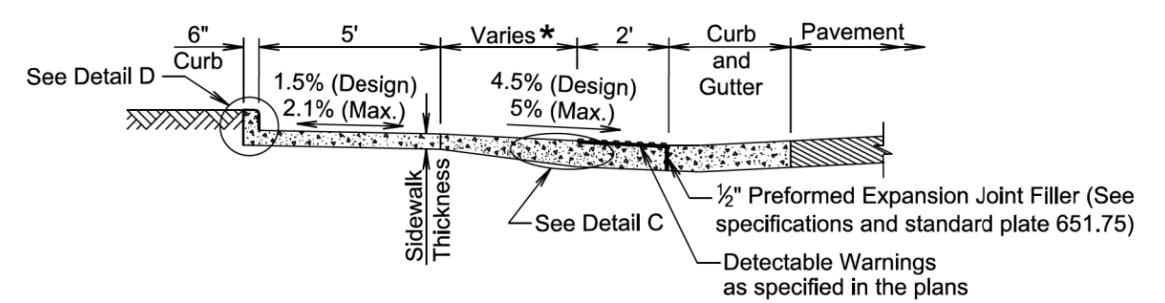
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PLAN VIEW

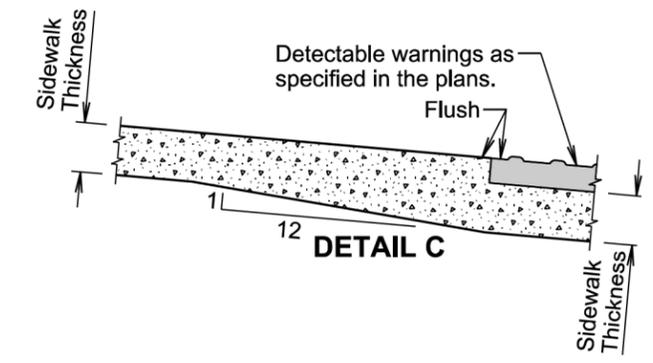


SECTION A-A

- * Blended transition slopes are designed at 4.5% unless stated otherwise in the plans. The blended transition may have a maximum slope of 5%.
- * The blended transition length dimension shown in the plans will be adjusted as necessary to meet all slope and length requirements based on the field geometrics.
The cross slope of the blended transition will not be steeper than 2.1%. Plans are designed using a 1.5% slope unless stated otherwise in the plans.
- ** The curb transition will be a minimum of 6' long, a maximum of 10', long, and the curb transition slope will not be steeper than 10% unless stated otherwise in the plans. The curb transition length will be adjusted as necessary to meet slope and length requirements based on the field geometrics.
- *** The slope of the sidewalk bypass will not be steeper than 2.1% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.
- **** The slope of the sidewalk in these areas will not be steeper than 5%. Plans are designed using a 4.5% slope unless stated otherwise in the plans.

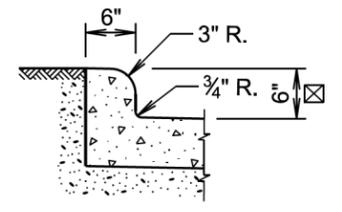
April 8, 2025

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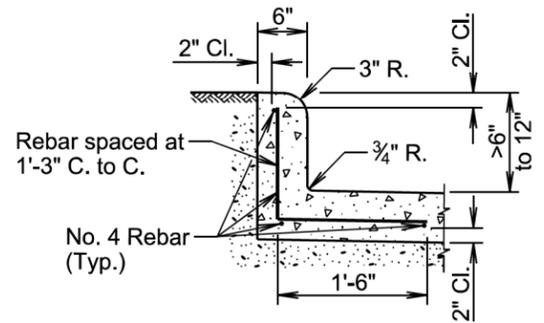


DETAIL C

☒ The curb height will be 6" unless stated otherwise in the plans.



DETAIL D



DETAIL D

(Use this detail when the curb height is greater than 6" and less than 12")

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			Sheet 2 of 3

Plot Scale - 1/2"=10'

Plotted From - tpr14435

File - ...lpenn051\810\Plates\SectionB.dgn

GENERAL NOTES:

The blended transition may be used with a PCC fillet section or curb and gutter.

Sidewalk adjacent to the blended transition will be as shown in the plans.

Care will be taken to ensure a uniform grade on the blended transition, free of sags and short grade changes.

Surface texture of the blended transition will be obtained by coarse brooming transverse to the running slope of the blended transition.

The normal gutter line profile will be maintained through the area of the blended transition opening.

Joints will be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.

Care will be taken to ensure that the surface of the detectable warnings are clean and maintain a uniform color.

The detectable warnings will be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings will be incidental to the corresponding detectable warning contract item.

When curb height is greater than 6" and less than 12", reinforcing steel is required in accordance with the detail on sheet 2 of 3. The reinforcing steel will conform to ASTM A615, Grade 60. Cost for furnishing and installing the reinforcing steel will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk contract item.

There will be no separate payment for blended transition. The blended transition will be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk contract item. The square foot area of the detectable warnings and the curb along the short radius will be included in the measured and paid for quantity of sidewalk.

The curb transitions and blended transition opening will be measured and paid for at the contract unit price per foot for the corresponding curb and gutter contract item when curb and gutter is used. The curb transitions and blended transition opening will be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section contract item when a PCC fillet section is used.

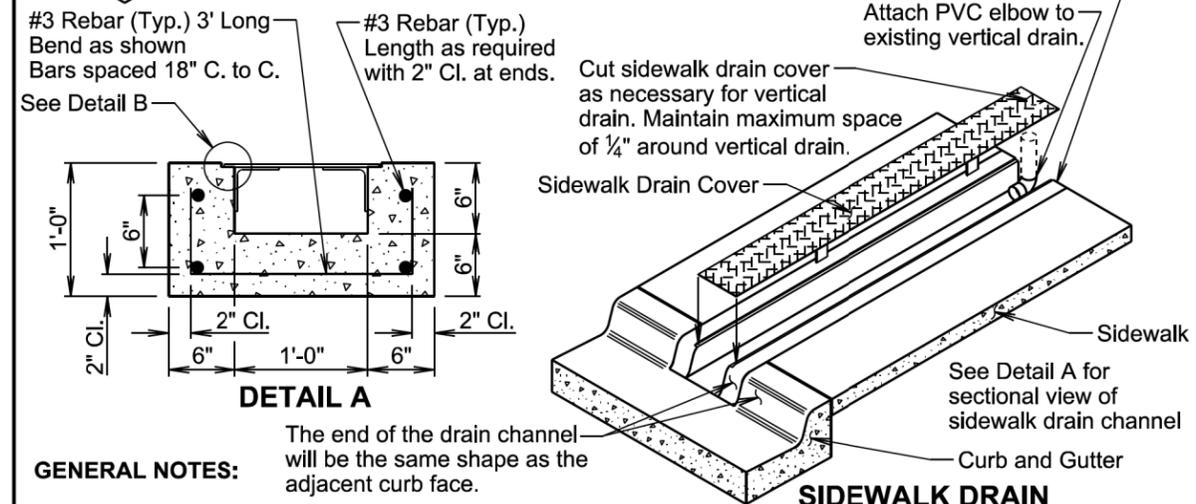
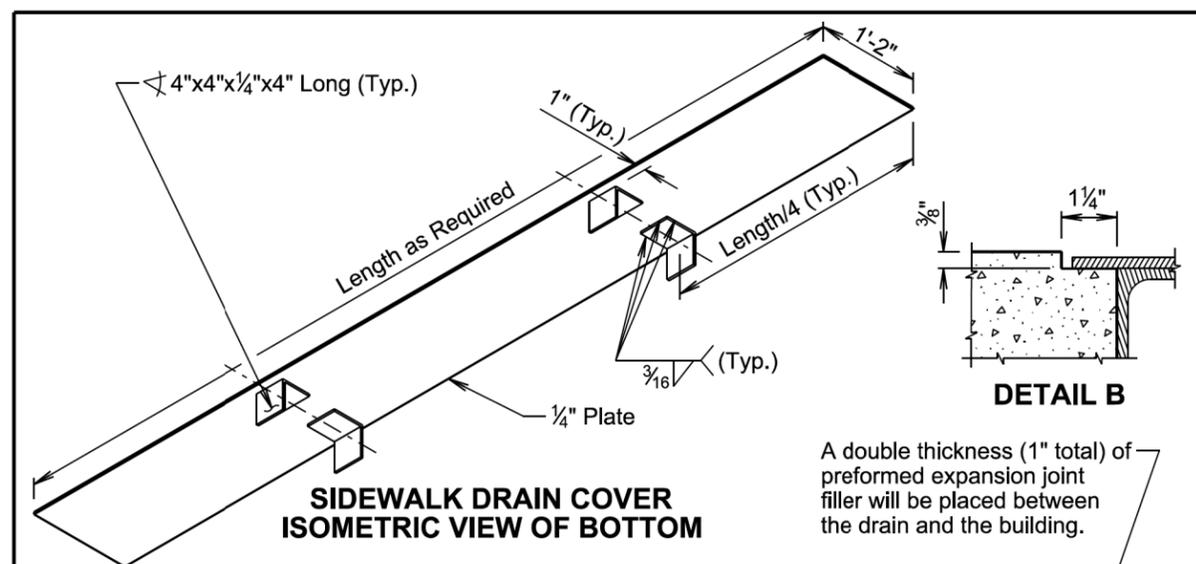
Type 1 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing type 1 detectable warnings including labor, equipment, materials, and incidentals will be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

Type 2 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding will be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

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GENERAL NOTES:

Concrete will be Class M6 in accordance with Section 462 of the Specifications.

Reinforcing steel will conform to ASTM A615, Grade 60.

Structural Steel will conform to ASTM A36. The sidewalk drain cover will conform to ASTM A786.

Welding and weld inspection will be in conformance with the current edition of the AWS D1.1 Structural Welding Code-Steel.

The cover plate assembly will be galvanized after fabrication. Galvanizing will be in accordance with ASTM A123.

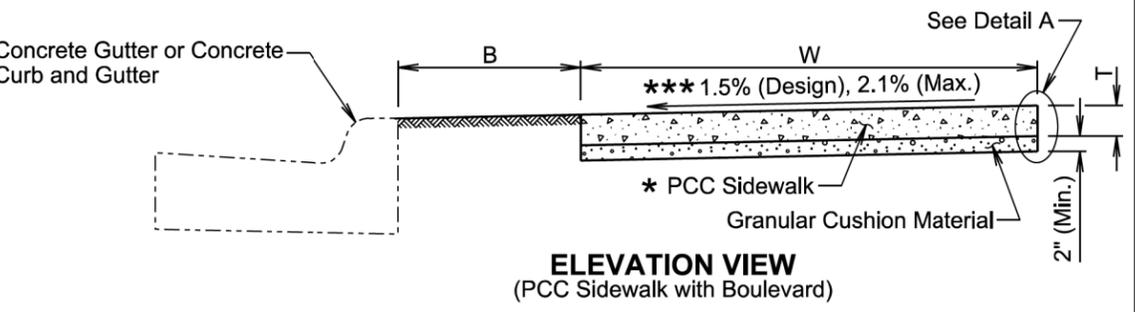
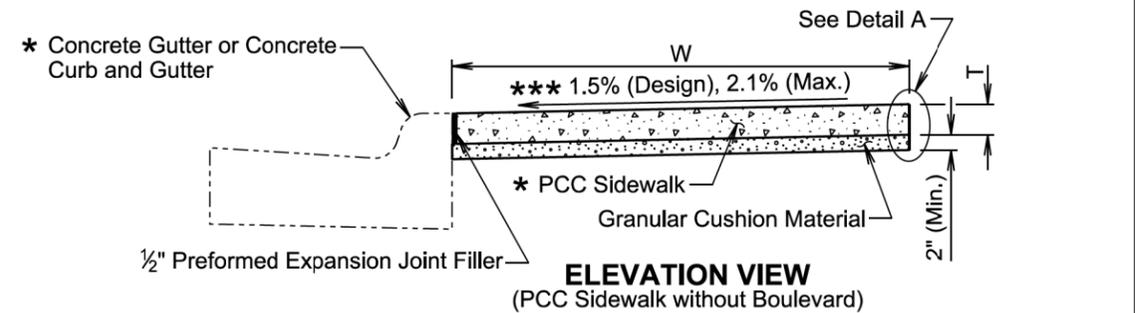
All costs associated for providing the required curb cut will be incidental to the contract unit price per foot for the corresponding curb and gutter contract item.

The sidewalk drain will be measured and paid for to the nearest tenth of a foot. The length of the drain will be measured from the gutter to the necessary end location adjacent to the building. All costs associated with furnishing and installing the sidewalk drain channel and cover including the attachment to the vertical drain will be incidental to the contract unit price per foot for "Sidewalk Drain".

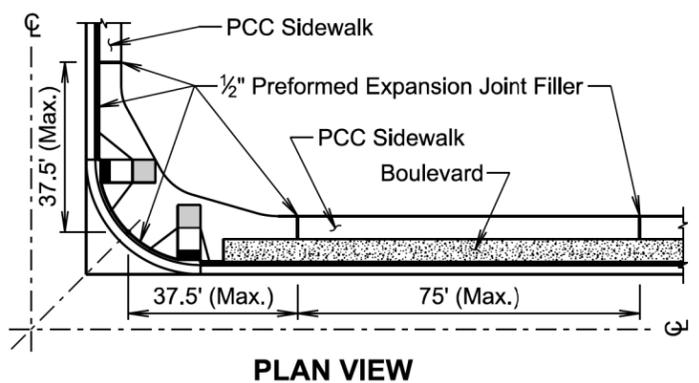
February 14, 2020

S D D O T	SIDWALK DRAIN	PLATE NUMBER 651.50
		Sheet 1 of 1

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- 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.



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 2.1% unless specified otherwise in the plans.

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

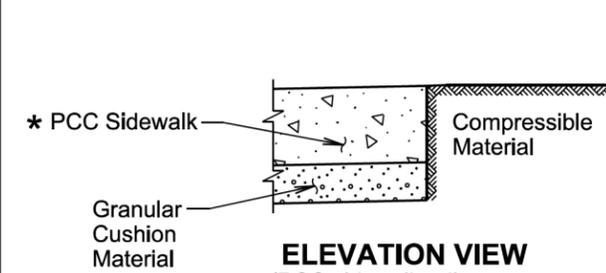
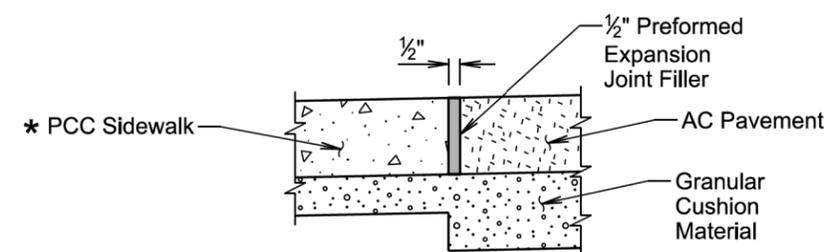
PCC sidewalk placed adjacent to intersection of roadways will have an expansion joint placed transversely a maximum of 37.5 feet from the intersection. See Plan View.

An expansion joint in the PCC sidewalk will consist of a 1/2 -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.

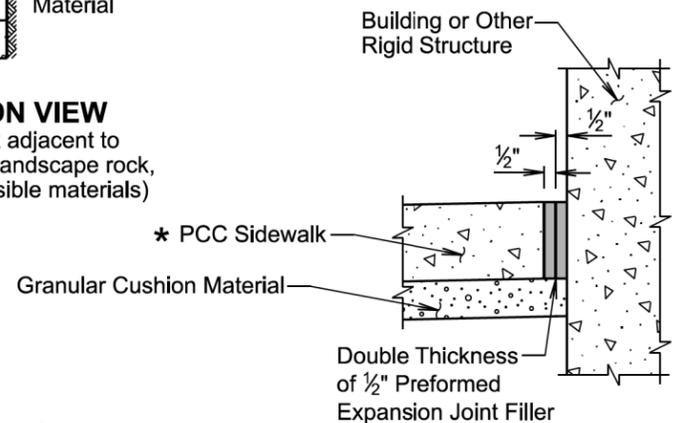
April 8, 2025

Published Date: 2026	S D D O T	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 1 of 2

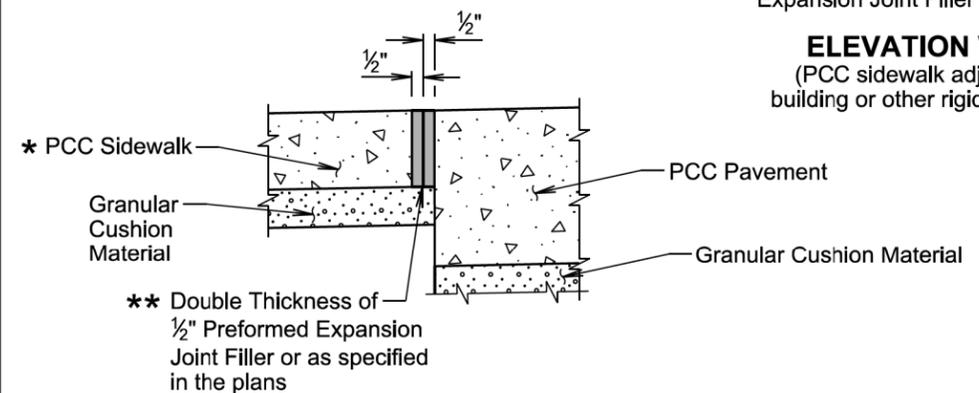


ELEVATION VIEW
(PCC sidewalk adjacent to asphalt concrete pavement)

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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Published Date: 2026	S D D O T	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 2 of 2