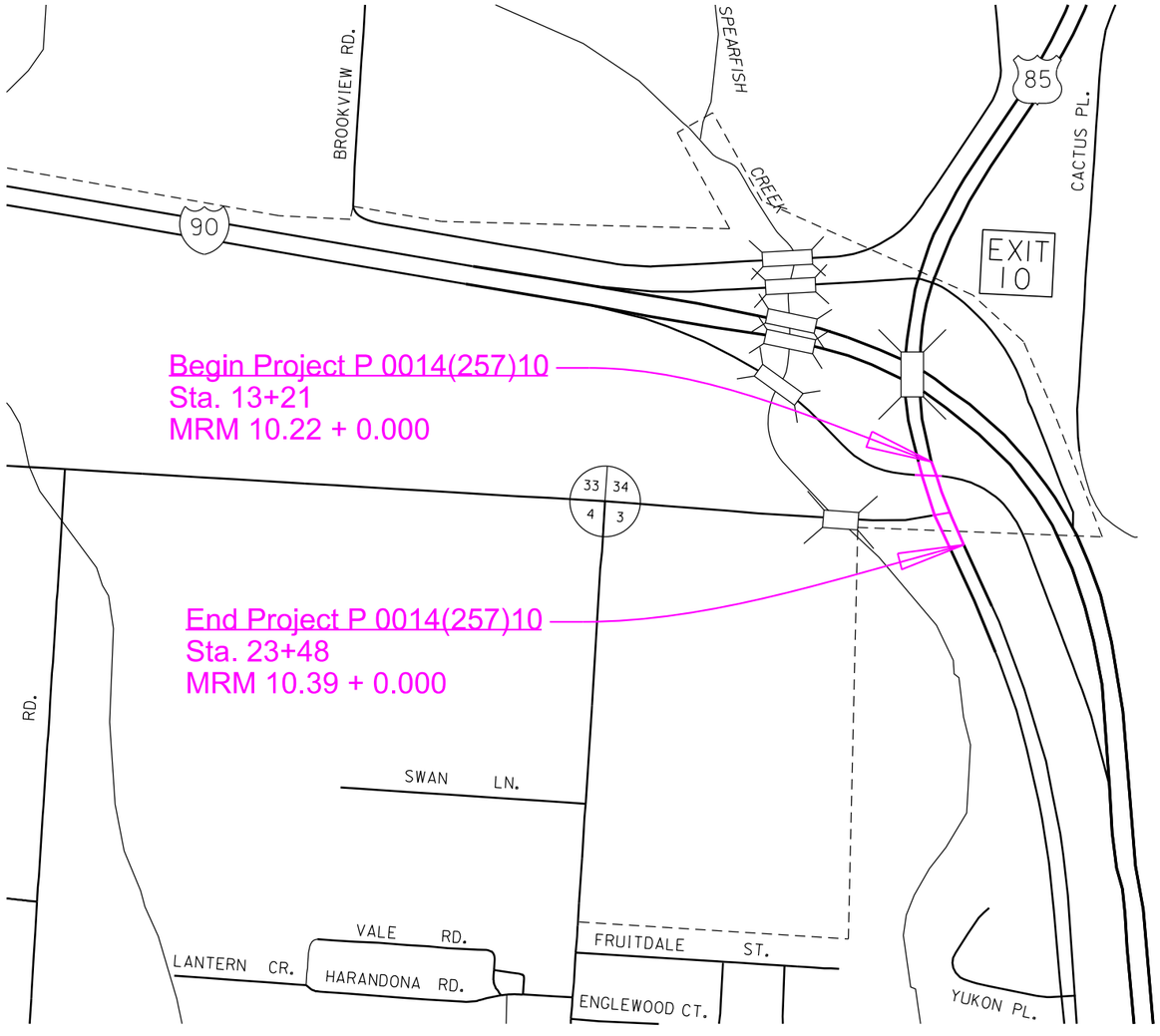
SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	1/21

Plotting Date: 3/11/2026

SECTION B: GRADING PLANS

INDEX OF SHEETS:



SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.660	Mile
009E3245	Final Cross Section Survey	0.330	Mile
009E3250	Miscellaneous Staking	0.330	Mile
009E3280	Slope Staking	0.330	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	242	Ft
110E0400	Remove Drop Inlet	1	Each
110E1010	Remove Asphalt Concrete Pavement	3,184.0	SqYd
110E1100	Remove Concrete Pavement	206.4	SqYd
110E1120	Remove Concrete Median Pavement	137.1	SqYd
110E7500	Remove Pipe for Reset	8	Ft
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	7,539	CuYd
120E2000	Undercutting	5,090	CuYd
120E6100	Water for Embankment	75.0	MGal
230E0010	Placing Topsoil	500	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
380E2554	4" Barrier Type Median PCC Pavement	988.4	SqYd
421E0100	Pipe Culvert Undercut	38	CuYd
450E0122	18" RCP Class 2, Furnish	16	Ft
450E0130	18" RCP, Install	16	Ft
450E3012	24" RCP Arch Class 2, Furnish	158	Ft
450E3020	24" RCP Arch, Install	158	Ft
450E4504	24" RCP Arch Flared End, Furnish	1	Each
450E4505	24" RCP Arch Flared End, Install	1	Each
450E9000	Reset Pipe	8	Ft
450E9001	Reset Pipe End Section	1	Each
462E0100	Class M6 Concrete	4.0	CuYd
600E0200	Type II Field Laboratory	1	Each
650E1090	Type F69 Concrete Curb and Gutter	1,343	Ft
670E1010	2' x 3' Type B Drop Inlet	1	Each
670E3300	Type E Frame and Grate	1	Each
700E0310	Class C Riprap	10.0	Ton
831E0110	Type B Drainage Fabric	7	SqYd
900E1080	Orange Plastic Safety Fence	1,085	Ft

MACHINE CONTROL GRADING & MODEL INFORMATION

Electronic design files are made available by the SDDOT Bid Letting Office through the SDDOT's SharePoint Directory for Contractors.

These files are provided for informational purposes only. The information shown in the plans will govern over the provided electronic information. The Contractor assumes the risk of error if the information is used for any purposes for which the information was not intended. The Contractor assumes all risk of any assumptions or manipulations made of the electronic information.

GRADING OPERATIONS

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

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

WATER FOR COMPACTION

Water for compaction of earth embankments will be applied at the rate of 10 gallons per cubic yard of Unclassified Excavation. The cost of the water will be paid for at the contract unit price per MGal.

TYPE II FIELD LABORATORY

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

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

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.

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.

Revised – 03/10/2026 - TJL

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.

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

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

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

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

GENERAL GEOLOGY

Soils within the project area consist of or are derived from the Spearfish Formation. The South Dakota Geologic Survey describes the Spearfish Formation as outlined below:

The Spearfish Formation Consists of red sandy shale, siltstone, sandstone, and minor limestone. Interbedded with abundant gypsum.

CLASSIFICATION OF EXCAVATION

Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation. In place gypsum is not anticipated to be encountered.

WASTE EXCAVATION

The quantity of waste in the Table of Excavation Quantities by Balances that is excess excavation material will be disposed of at a Contractor furnished site acceptable to the Engineer. Waste material should be used as Out-of-Balance Excavation where specified in the plans.

Revised – 03/10/2026 - TJL

UNDERCUTTING

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

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2 feet height of earth embankment for the entire width of roadbed.

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.

SHRINKAGE FACTOR: Embankment +35%

TABLE OF UNDERCUTTING LOCATIONS

Location	Station to	Station	Quantity (CuYd)
14 WL Right Turn Lane	13+24	17+52	803
14 WL Left Turn Lane	14+06	15+79	238
14 EL U-turn Lane	18+02	23+04	1508
14 WL	19+75	23+01	885
14 EL	21+79	23+01	984
14 WL U-turn	19+75	22+88	672
		Totals	5090

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	1949
Undercut	5090
Topsoil	500
Total:	7539

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Location	Station to	Station	Excavation (CuYd)	** Embankment (CuYd)	* Undercut (CuYd)	** Waste (CuYd)
14 WL Right Turn Lane	13+24	17+52	353	344	803	9
14 WL Left Turn Lane	14+06	15+79	31	0	238	31
14 EL U-turn Lane	18+02	23+04	563	60	1508	503
14 WL	19+75	23+01	147	0	885	147
14 EL	21+79	23+01	75	0	984	75
14 WL U-turn	19+75	22+88	780	80.0	672	700
		Totals	1949	484	5090	1465

* 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.

INCIDENTAL WORK, GRADING

Station	L/R	Remarks
20+38	R	Remove 18” CMP Pipe
20+20	R	Remove Pipe End Sections
20+56	R	Remove Pipe End Sections
20+38	R	Remove Median Crossover

REINFORCED CONCRETE PIPE

High sulfate levels will be encountered on this project. The type of cement will be either a type V or a type II with 20% to 25% Class F Modified Fly Ash substituted for cement in accordance with section 605. The Water/Cementitious material ratio will not exceed 0.45 as defined in section 460.3 C. The mix will be as per fabricators design; however minimum compressive strength will not be less than 4500 psi at 28 days. The pipe must be marked in acceptable way to designate meeting the requirements for sulfate resistance.

PIPE CULVERT UNDERCUT

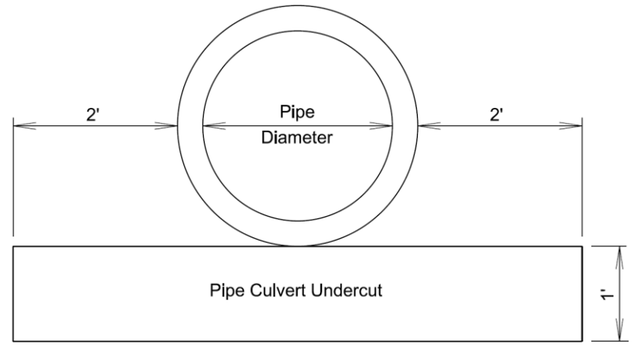
Pipe culvert undercut may be required for this project. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

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

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should b e included in the overall pipe length.

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

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



REMOVE ASPHALT CONCRETE PAVEMENT

An estimated 3,184 Square Yards of the in-place asphalt concrete surfacing will be removed from the existing highway according to the in-place surfacing typical sections and wasted as directed by the Engineer. Care will be taken not to waste the in-place granular material. The remaining in-place granular material will be salvaged and stockpiled.

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

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Location	Remove Concrete Pavement
14 WL & EL	SqYd
Sta. 14+02 to Sta. 17+52 14 WL Right Turn Lane	281.8
Sta. 17+52 to Sta. 23+01 14 WL Mainline/Shoulder	1669.5
Sta. 15+41 to Sta. 23+01 14 EL Mainline/Shoulder	1232.7
Total	3184.0

REMOVE CONCRETE PAVEMENT

All costs to remove existing PCC pavement will be incidental to the contract unit price per square yard for “Remove Concrete Pavement”. The estimated quantity is not included in the unclassified excavation quantities.

TABLE OF CONCRETE PAVEMENT REMOVAL

Location	Remove Concrete Pavement
	SqYd
Sta. 14+15 to Sta. 115+78 Hwy 14 WL Left Turn Lane	206.4
Total	206.4

TABLE OF CONCRETE MEDIAN PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
14+06		15+79	R	74.9
18+02		18+39	R	62.2
			Total:	137.1

TABLE OF CONCRETE CURB AND GUTTER REMOVAL

Station	to	Station	Remarks	L/R	Quantity (Ft)
14+05		14+15	Both sides of Median	R	40
15+18		15+79	Both sides of Median	R	130
18+02		18+39	Both sides of Median	R	72
				Total:	242

TABLE OF DROP INLET REMOVAL

All costs for removal of the frame and grate assembly will be incidental to the contract unit price per each for “Remove Drop Inlet”.

Station	L/R	Quantity (Each)
21+61	R	1
	Total:	1

PIPE COVER

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

STORM SEWER

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

Lift holes in the reinforced concrete pipe will be plugged with grout.

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

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

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

Watertight joint seals will conform to the following requirements:

1. Reinforced Concrete Pipe (Circular): Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe will be sealed with a mastic joint seal conforming to the requirements of ASTM C990 and encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

2. Reinforced Concrete Pipe (Arch): Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe joints will be sealed with a hydrophilic flexible water stop seal and wrapped with a 1-foot wide strip of fabric above the cradle. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.

3. Drop Inlets, Manholes, and Junction Boxes: Joints will be sealed with one of the following methods:

   A. A flexible strip seal placed in the joints conforming to the requirements of ASTM C990 and the perimeter encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.

   B. A hydrophilic flexible water stop seal placed in the joints and a 1-foot wide strip of fabric wrapped around the perimeter of the pipe. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.

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

Approved List of Self-adhesive Joint Wrap

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

Revised – 03/10/2026 - TJL

Approved List of Hydrophilic Flexible Water Stop Seal:

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

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

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

DROP INLETS

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

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

TABLE OF 2’ x 3’ TYPE B DROP INLET

(Quantities shown for Information Only)

Station	L/R	Class M6 Concrete (CuYd)	Reinforcing Steel (Lb)	Type E Frame and Grate Assembly (Each)
21+61	R	1.9	270.8	1
	Totals	1.9	270.8	1

* Drop inlet requires watertight joints in accordance with the STORM SEWER notes.

Revised – 03/10/2026 - TJL

TABLE OF TYPE F69 CONCRETE CURB AND GUTTER

Station	to	Station	L/R	Quantity (Ft)
14+05		15+79	R	328
18+02		23+03	R	1015
			Total:	1343.0

TABLE OF 4" BARRIER TYPE MEDIAN PCC PAVEMENT

Station	to	Station	L/R	Quantity (SqYd)
14+05		15+79	R	84.3
18+02		23+03	R	904.1
			Total:	988.4

			Remove Drop Inlet	Remove Drop Inlet Frame and Grate Assembly	Remove Pipe for Reset	Remove Pipe End Section for Reset	18" RCP Class 2, Furnish	18" RCP Class 2, Install	24" RCP Arch Class 2, Furnish	24" RCP Arch Class 2, Install	24" RCP Arch Flared End, Furnish	24" RCP Arch Flared End, Install	Reset Pipe	Reset Pipe End Section	2' x 3' Type B Drop Inlet	Type E Frame and Grate	Class C Riprap	Type B Drainage Fabric
Section	Sta	to Sta	Each	Each	Ft	Each	Ft	Ft	Ft	Ft	Each	Each	Each	Each	Each	Each	Ton	SqYd
14 WL Right Turn Lane	13+24	17+52				1	16	16						1			10.0	7
14 EL Uturn Lane	18+02	23+01	1	1	8				158	158	1	1	8		1	1		
		Total	1	1	8	1	16	16	158	158	1	1	8	1	1	1	10.0	7

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking Length (Mile)	Grade Staking Lane Factor	Grade Staking *Sets of Stakes	Grade Staking **Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Final Cross Section Survey Quantity (Mile)
US 14 WL (2 Lanes PCCP)	13+21	23+01	2	980	0.186	1	2	0.372	0.186	0.186	0.186
US 14 EL (2 Lanes PCCP)	15+41	23+01	2	760	0.144	1	2	0.288	0.144	0.144	0.144
							Totals:	0.660	0.330	0.330	0.330

* 1 = Top of Subgrade Blue Top Stakes Only (AC Pavement)
2 = Blue Top and Paving Hub Stakes (PCC Pavement)

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

TYPICAL GRADING SECTION

SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	6/21

Plotting Date: 3/11/2026

Remove Asphalt Concrete

Remove Concrete

Unclassified Excavation

Section 1

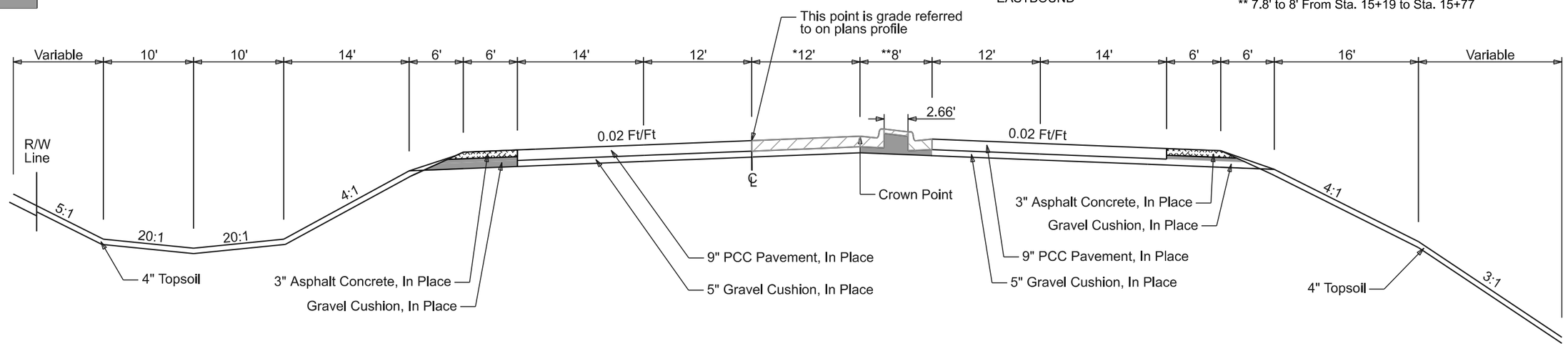
US HWY 14 WL & EL
Sta. 13+00 to Sta. 18+02
In Place Section

WESTBOUND

EASTBOUND

Transitions:
* 12' From Sta. 14+82 to Sta. 18+39
* 12' to 0' From Sta. 18+39 to Sta. 19+76

** 20' From Sta. 12+93 to Sta. 14+16
** 0' From Sta. 14+16 to Sta. 15+19
** 7.8' to 8' From Sta. 15+19 to Sta. 15+77

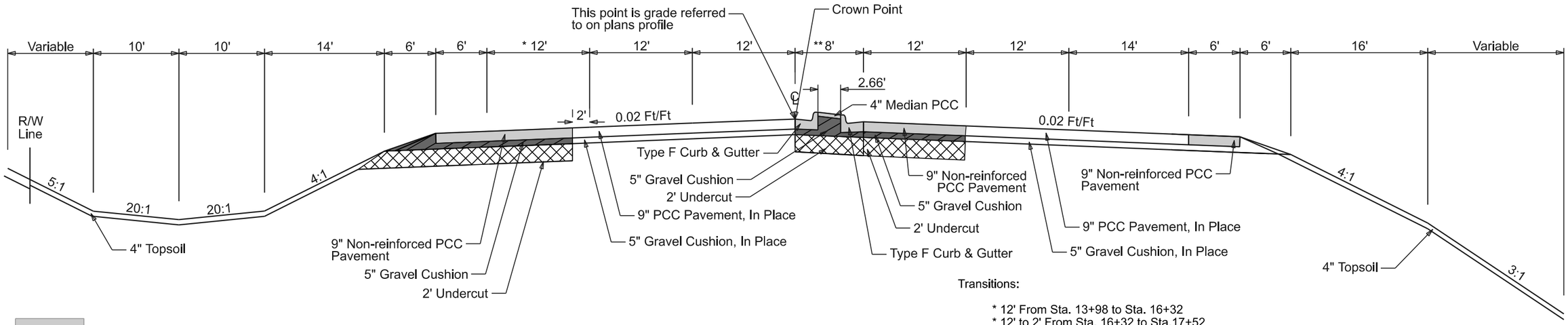


Section 1

US HWY 14 WL & EL
Sta. 13+25 to Sta. 18+02

WESTBOUND

EASTBOUND



Transitions:

* 12' From Sta. 13+98 to Sta. 16+32
* 12' to 2' From Sta. 16+32 to Sta.17+52

** 20' From Sta. 14+05 to Sta. 14+25
** 20' to 8' From Sta. 14+58 to Sta. 15+18
** 8' to 5' From Sta. 15+18 to Sta. 15+43
** 0' From Sta. 15+43 to Sta. 15+51
** 5' to 8' From Sta. 15+51 to Sta. 15+77

Non-reinforced PCC Pavement

Gravel Cushion

Undercut

TYPICAL GRADING SECTION

SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	7/21

Plotting Date: 3/11/2026

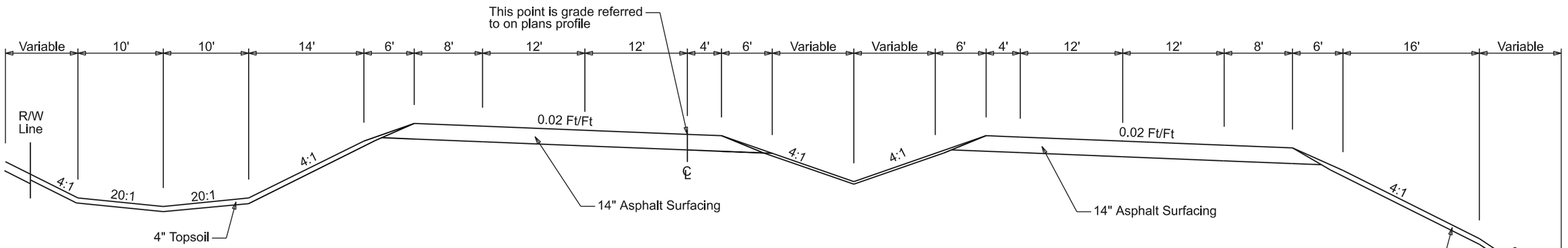
Revised - 03/05/2026 - TJL

Section 2

US HWY 14 WL & EL
Sta. 19+76 to Sta. 23+01
In Place, Section

WESTBOUND

EASTBOUND

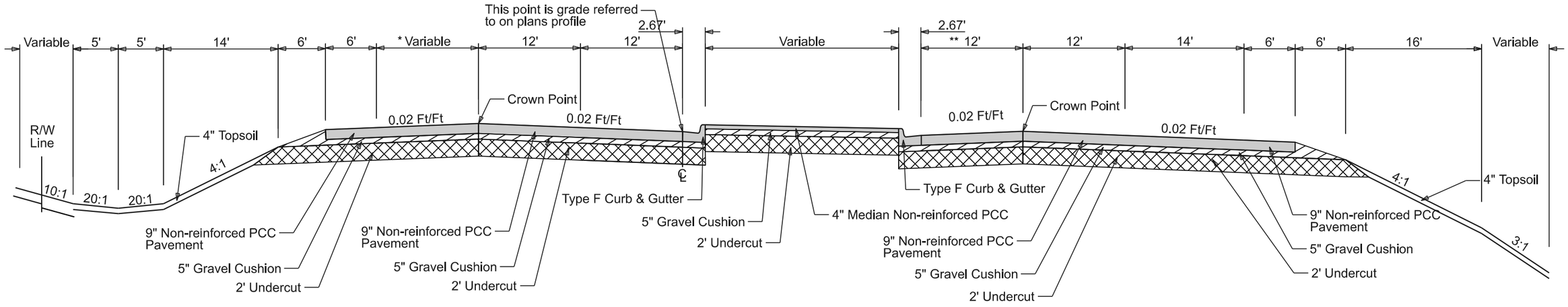


Section 2

US HWY 14 WL & EL
Sta. 19+76 to Sta. 23+01

WESTBOUND

EASTBOUND



Non-reinforced PCC Pavement

Gravel Cushion

Undercut

Transitions:

* 2' From Sta. 19+76 to Sta. 20+07
* 2' to 26.3' From Sta. 20+07 to Sta. 22+29
* 26.3' to 13.3' (55' Radius) From Sta. 22+29 to Sta. 22+73
* 13.3' to 2' (50' Radius) From 22+73 to 23+01

** 0' to 12' From Sta. 18+02 to Sta. 19+24
** 12' From Sta. 19+24 to Sta. 21+80

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(329)48	B	8/21

HORIZONTAL ALIGNMENT DATA

Type	Station			Northing	Easting
POB	10+00.00			274114.888	961017.147
		TL= 5.0	S7.5°E		
PI	10+05.05			274109.882	961017.804
		TL= 33.0	S8.6°E		
PI	10+38.00			274077.305	961022.755
		TL= 27.6	S9.3°E		
PI	10+65.62			274050.051	961027.234
		TL= 49.7	S10.7°E		
PI	11+15.33			274001.207	961036.456
		TL= 37.1	S12.4°E		
PI	11+52.41			273964.991	961044.447
		TL= 31.4	S13.3°E		
PI	11+83.81			273934.440	961051.667
		TL= 6.0	S12.1°E		
PI	11+89.85			273928.532	961052.930
		TL= 17.9	S15.8°E		
PI	12+07.74			273911.307	961057.788
		TL= 59.8	S15.9°E		
PI	12+67.57			273853.757	961074.139
		TL= 25.1	S15.9°E		
PI	12+92.66			273829.627	961081.010
		TL= 10.6	S17.3°E		
PI	13+03.26			273819.506	961084.159
		TL= 31.9	S18.5°E		
PI	13+35.14			273789.264	961094.252
		TL= 33.8	S19.2°E		
PI	13+68.90			273757.382	961105.357
		TL= 36.2	S20.6°E		
PI	14+05.15			273723.441	961118.085
		TL= 3.8	S21.7°E		
PI	14+08.98			273719.884	961119.499
		TL= 46.4	S22.3°E		
PI	14+55.35			273676.976	961137.074
		TL= 61.9	S23.4°E		
PI	15+17.23			273620.164	961161.610
		TL= 25.9	S24.8°E		
PI	15+43.12			273596.661	961172.461
		TL= 34.6	S24.8°E		
PI	15+77.68			273565.287	961186.946
		TL= 59.0	S25.5°E		
PI	16+36.72			273511.980	961212.342
		TL= 58.8	S25.9°E		
PI	16+95.49			273459.111	961237.999
		TL= 62.6	S26.2°E		
PI	17+58.07			273402.984	961265.670
		TL= 61.7	S26.5°E		
PI	18+19.76			273347.759	961293.178
		TL= 59.9	S26.0°E		
PI	18+79.69			273293.913	961319.485
		TL= 63.7	S24.9°E		
PI	19+43.37			273236.163	961346.313
		TL= 15.1	S25.3°E		
PI	19+58.49			273222.494	961352.774
		TL= 17.2	S24.5°E		
PI	19+75.65			273206.876	961359.880
		TL= 23.6	S23.2°E		
PI	19+99.26			273185.169	961369.167
		TL= 57.7	S24.3°E		
PI	20+57.00			273132.544	961392.938
		TL= 58.3	S23.3°E		
PI	21+15.35			273078.969	961416.044
		TL= 57.3	S22.2°E		
PI	21+72.68			273025.884	961437.713
		TL= 59.8	S21.4°E		
PI	22+32.51			272970.182	961459.534
		TL= 58.6	S20.7°E		
PI	22+91.13			272915.335	961480.220
		TL= 58.6	S20.1°E		
PI	23+49.75			272860.291	961500.377
		TL= 59.3	S18.3°E		
POE	24+09.08			272803.971	961519.037

CONTROL DATA

POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
I 90 10.15	REFMRK	274306.558	960556.304	3504.002
CP04	PID 2592	275046.586	961379.831	3571.875
KE1	REBAR	273128.131	961368.862	3534.625
CP01	REFMRK	276263.673	961595.772	3571.15

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone NAD 83/96; GEOIOD Model: 12a; EPOCH 2010; COMBINED SCALE FACTOR = 0.9989787

LEGEND

SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	9/21

Plotting Date: 3/11/2026

Revised - 03/12/2026 - TJL

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Control Point
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- 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
- Elec. Trans./Power Jct. Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Misc.
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Misc
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Misc. Line
- Misc. Property Corner
- Misc. 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 R.O.W. Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- 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 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 —
- Warning Sign One Post
- Warning Sign Two Post
- 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
- Sixty-Fourth 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
- Orange Plastic Saftey Fence

- 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

SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	10/21

Plotting Date: 3/11/2026

Revised - 03/10/2026 - TJL

14+02 - 70' L
Install 18" - 16' RCP
& Reset Sloped End Section

14+02 - 70' L
Install Type B Drainage Fabric
and 10' x 6' x 3' Class C Riprap

14+03-54' L
Remove for Reset RCP
Sloped End Section

20+39-17' R
Take Out 18"-36' CMP
and 2 End Sections
(Incidental Work, Grading)

20+48 R
Remove Median Crossover
(Incidental Work, Grading)

21+61- 20' R
Remove Median Drain
with Frame and Grate

21+61-23' R
Remove for Reset 24" - 8' RCP Pipe

21+61 - 20' R
Install 2' x 3' Type B Drop Inlet
and Type E Frame and Grate

21+61 - 20' R to 23+27 - 22' R
Install 24" - 158' RCP Arch Pipe
and Arch Flared End Section
(Between Median Drain & New End Section)

21+61-23' R
Reset 24" - 8' RCP Pipe
Tie into Type B Drop Inlet

BEGIN P 0014(257)10
Station 13+21

Sec 34 - T7N - R2E
SW 1/4

Sec 3 - T6N - R2E
NW 1/4

Present SD I90 On Ramp Exit 10

Section Line

Present SD Highway 85 N

Present SD Highway 85 S

Present SD Highway 14WL

Present SD Highway 14EL

Present SD I90 Off Ramp Exit 10

Present Old SD Highway 14

ROW

END P 0014(257)10
Station 23+48

Orange Plastic Safety Fence

SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	11/21

Plotting Date: 3/11/2026

Hwy 14 WL Westbound
Sta. 13+25 to Sta. 23+48

PVI 10+00.00
Elev 3553.40

10+00.00
3553.40

-1.9899%

PVI 16+77.39
Elev 3539.92

-1.8257%

19+76.00
3535.52

PVI 20+23.21
Elev 3533.61
L 500.00
G1 -1.8257%
G2 +0.7385%
K 195

-0.2822%

21+95.70
3534.90

0.8167%

23+01.00
3535.76

+0.7385%

PVI 24+09.08
Elev 3536.46

3585 3580 3575 3570 3565 3560 3555 3550 3545 3540 3535 3530 3525 3520 3515 3510 3505 3500 3495 3490

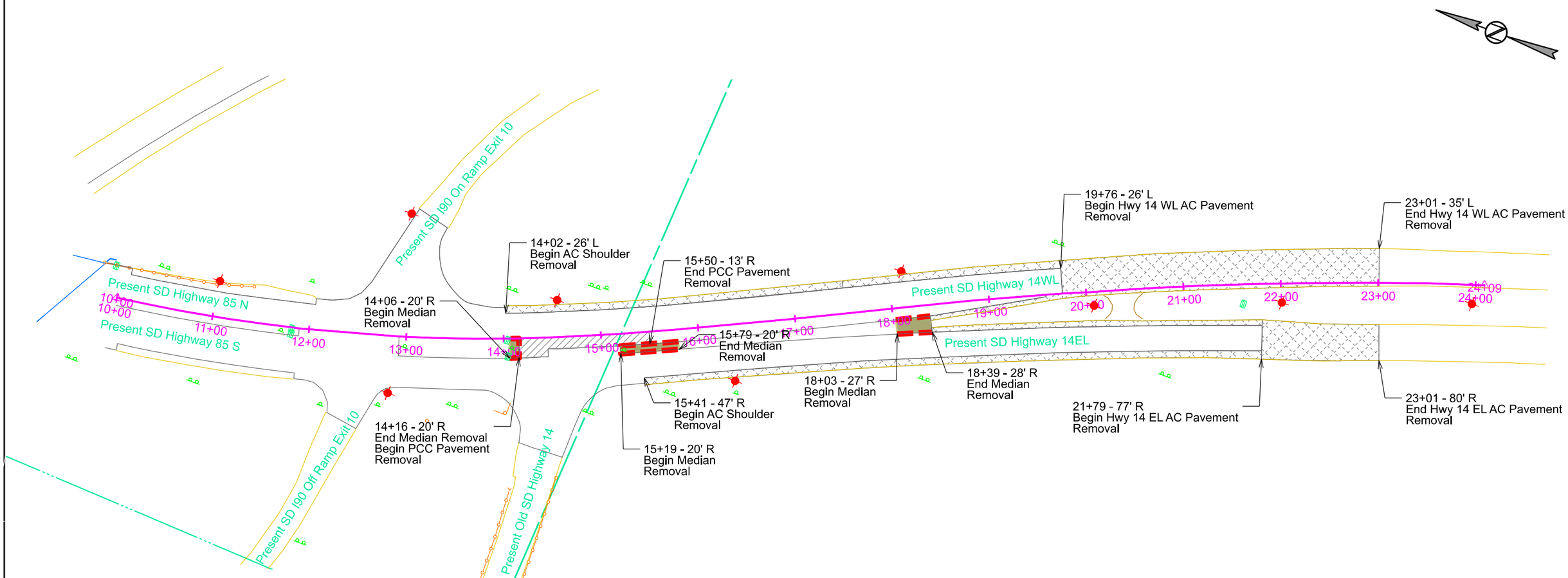
3553.40 3553.01 3552.61 3552.21 3551.81 3551.41 3551.02 3550.62 3550.22 3549.82 3549.42 3549.03 3548.63 3548.23 3547.83 3547.43 3547.04 3546.64 3546.24 3545.84 3545.44 3545.05 3544.65 3544.25 3543.85 3543.45 3543.06 3542.66 3542.26 3541.86 3541.46 3541.07 3540.67 3540.27 3539.88 3539.51 3539.15 3538.78 3538.42 3538.05 3537.70 3537.38 3537.07 3536.78 3536.52 3536.27 3536.05 3535.84 3535.66 3535.50 3535.35 3535.23 3535.13 3535.05 3534.99 3534.95 3534.93 3534.93 3534.95 3534.99 3535.05 3535.14 3535.24 3535.36 3535.51 3535.65 3535.80 3535.95 3536.10 3536.25 3536.39

10+00 15+00 20+00

SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	12/21

Plotting Date: 3/11/2026

PAVEMENT REMOVAL LAYOUT



Plotted From - TRRC10001 File - ...\prj\Lawr08LL\dgn\08LL_PR.dgn

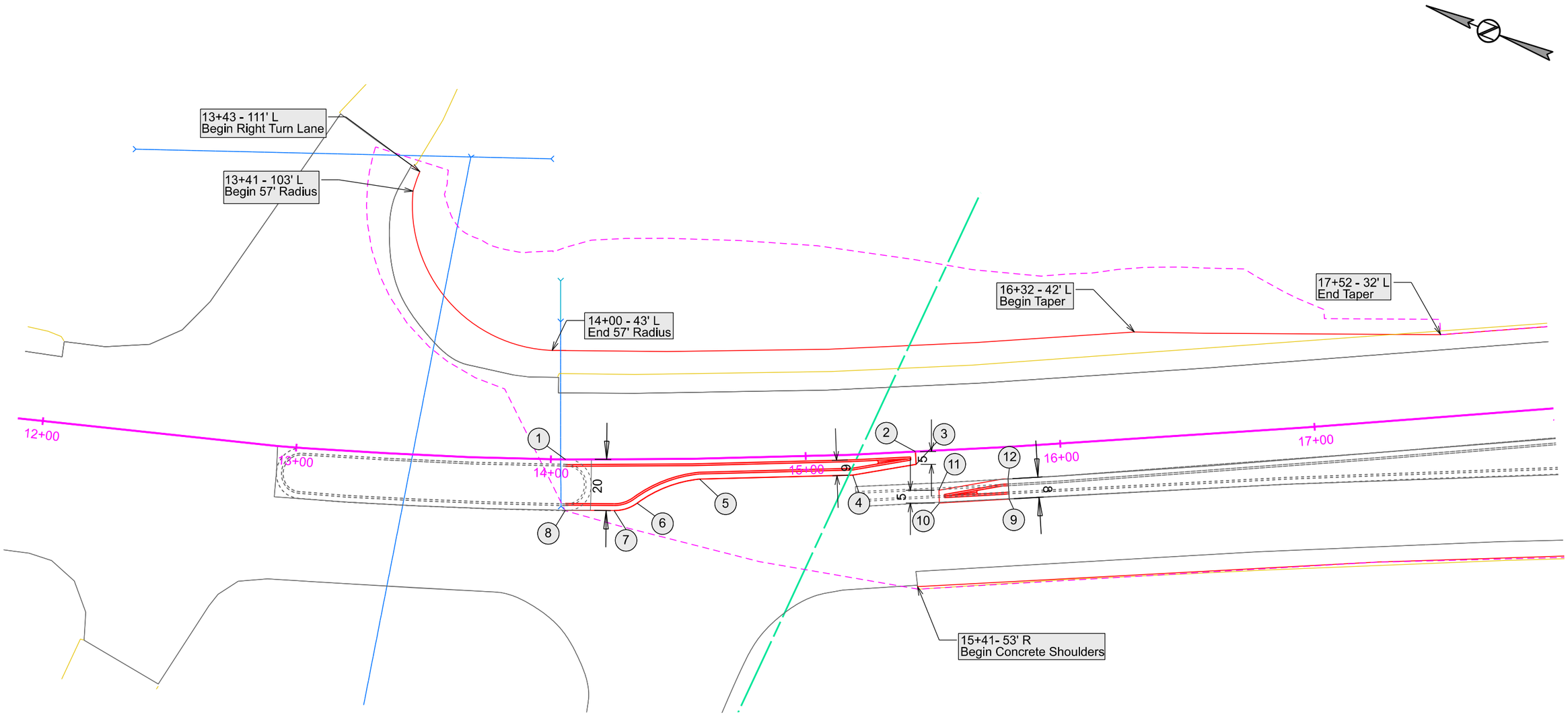
SD DOT	PROJECT	SECTION	SHEET
	P 0014(257)10	B	13/21

Plotting Date: 3/11/2026

CURB AND GUTTER AND SURFACING LAYOUT

1	14+06-0' R Begin C & G Match Existing Start at Joint	3	15+43-5' R Begin C & G 5' Width Transition to 8' Width at 15+18	5	14+58-8' L Begin 50' Radius	7	14+25-20' R End 15' Radius Begin C & G	9	15+79-20' R Begin C & G Match Existing Start at Joint	11	15+52-16' R Begin C & G 5' Width Transition to 8' Width at 15+79
2	15+43-0' R End C & G 5' Width	4	15+18-8' R Begin 8' Width	6	14+34-17' R End 50' Radius Begin 15' Radius	8	14+06-20' R End C & G Match Existing End at Joint	10	15+51-21' R End C & G 5' Width	12	15+79-13' R End C & G Match Existing End at Joint 8' Width

Note: All curb and gutter shown on this sheet is Type F 69.
Top of curb Elevations will be set to provide a 2% pavement cross slope.
1.5' Min. width for Median Pavement width to eliminate narrow pavement.



CURB AND GUTTER AND SURFACING LAYOUT

PROJECT	SECTION	SHEET
P 0014(257)10	B	14/21

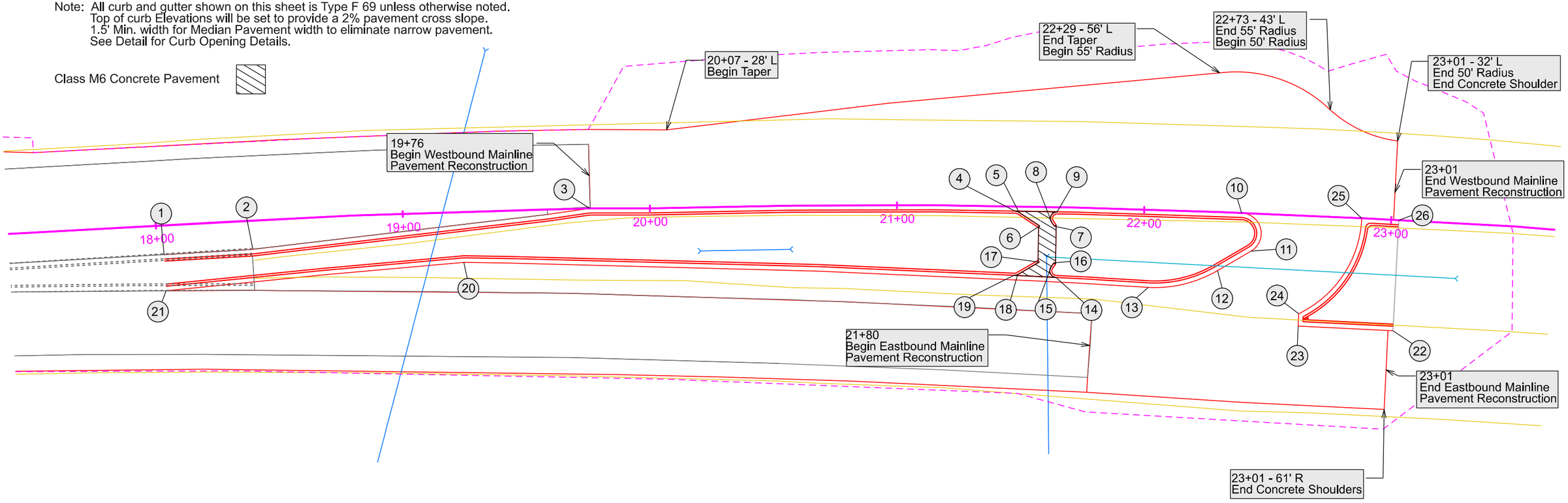
Plotting Date: 3/11/2026

Revised - 03/05/2026 - TJL

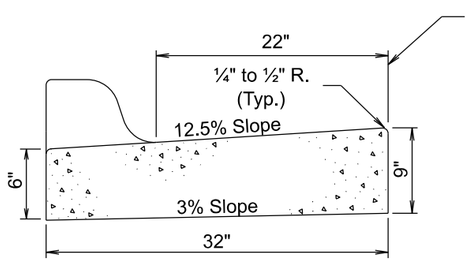
1	18+03-12' R Begin C & G Match Existing Start at Joint	4	21+48-2' R Begin Curb Opening Begin 2' Radius	7	21+64-8' R Begin C & G Taper	10	22+39-0' R End C & G Begin 8.25' Radius	13	22+03-31' R End 50' Radius Begin C & G	16	21+64-23' R End C & G	19	21+48-28' R End 2' Radius Begin C & G	22	23+03-45' R Begin C & G	25	22+88-0' R End 45' Radius Begin C & G							
2	18+39-12' R End C & G Begin C & G	5	21+49-2' R End 2' Radius Begin Taper	8	21+63-6' R End C & G Taper Begin 2.67' Radius	11	22+44-15' R End 8.25' Radius Begin C & G	14	21+61-28' R End C & G Begin 2.67' Radius	17	21+58-22' R Begin C & G Taper	20	19+24-20' R End C & G Begin C & G	23	22+64-45' R End C & G 5' Width	26	23+03-0' R End C & G							
3	19+76-0' R End C & G Begin C & G	6	21+58-8' R End C & G Taper	9	21+65-2' R End 2.67' Radius Begin C&G	12	22+30-24' R End C & G Begin 50' Radius	15	21+63-24' R End 2.67' Radius Begin C & G Taper	18	21+49-27' R End C & G Taper Begin 2' Radius	21	18+03-27' R End C & G Match Existing End at Joint	24	22+64-40' R Begin C & G 5' Width Begin 45' Radius									

Note: All curb and gutter shown on this sheet is Type F 69 unless otherwise noted.
Top of curb Elevations will be set to provide a 2% pavement cross slope.
1.5' Min. width for Median Pavement width to eliminate narrow pavement.
See Detail for Curb Opening Details.

Class M6 Concrete Pavement



MODIFIED TYPE P9 CONCRETE GUTTER



TRANSVERSE SECTION

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

Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
0.062	16.1

GENERAL NOTES:

Use Standard Plate 650.30, Type P Concrete Gutter for additional details.

The concrete for the Modified Type P9 Concrete Gutter will comply with the requirements of Standard Specifications for Class M6 Concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of methods shown on Standard Plate 380.20.

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

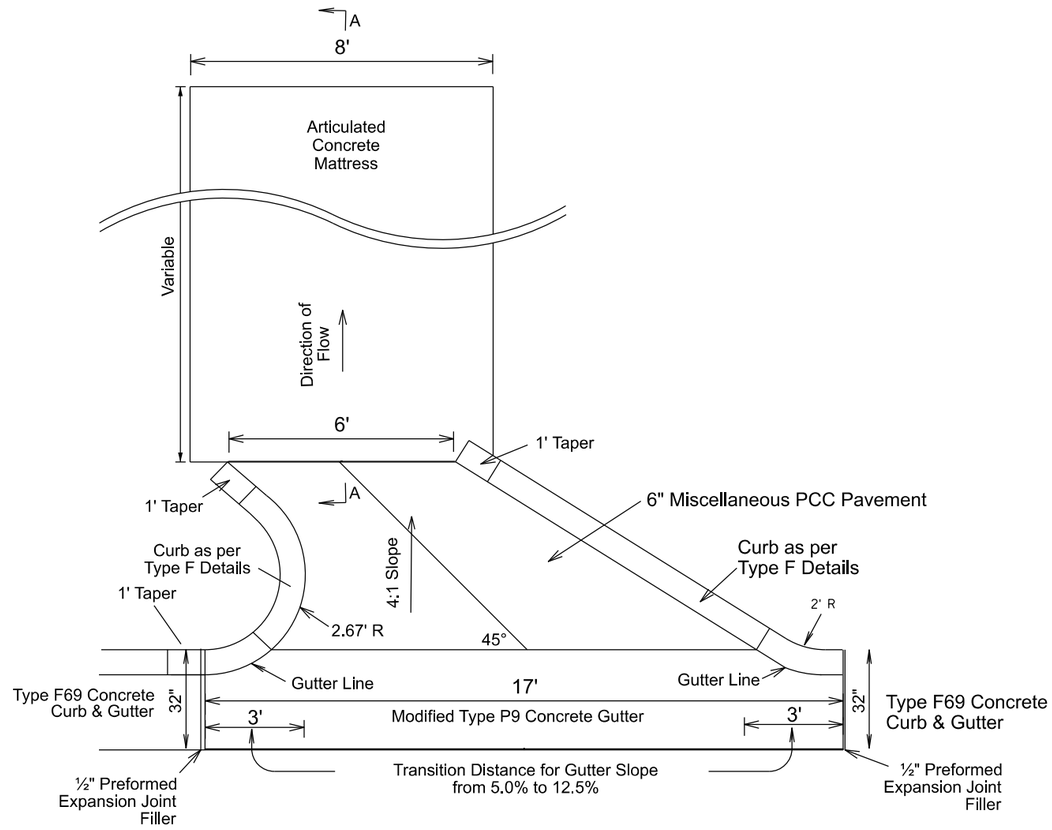
When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter will be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

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 1.5" 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 0.25" the thickness of the concrete.

Curb along 6" Miscellaneous PCC Pavement will be poured monolithically and will be measured and paid as 6" Miscellaneous PCC Pavement.

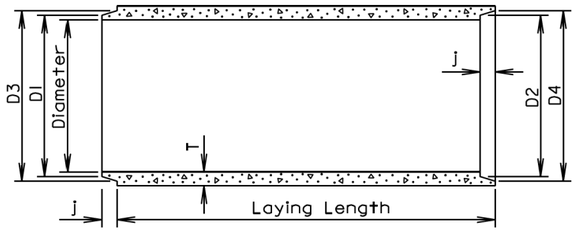
CURB OPENING DETAILS

PLAN VIEW

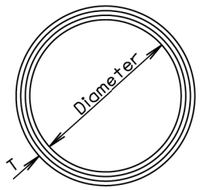


TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

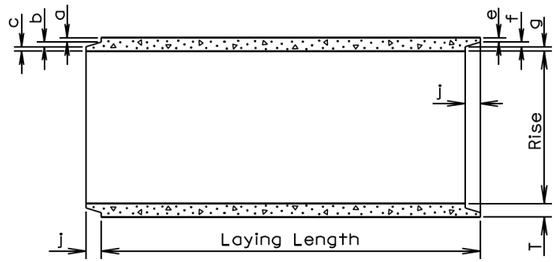
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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

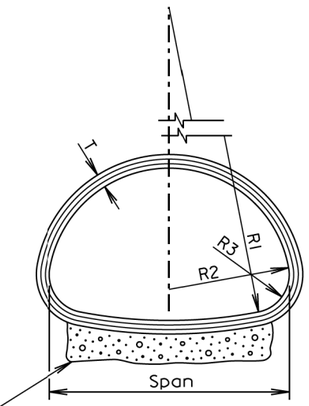
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322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

June 26, 2015

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



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: ± 1/8" for 65" span or less and ± 1/4" for longer spans.
Rise and Span: ±2% of tabular values.
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".

Gravel Bedding Material shall be supplied for 102" to 169" spans. It shall be placed to a thickness of 6" (Min.) x 85% of the Span x Length of culvert and shall conform to the gradation requirements for gravel surfacing except material may be screened or may be plan provided material.

* Size (in.)	Approx. Wt./Ft. (lb.)	Rise (in.)	Span (in.)	T (in.)	a (in.)	b (in.)	c (in.)	j (in.)	e (in.)	f (in.)	g (in.)	R1 (in.)	R2 (in.)	R3 (in.)
18	170	13 1/2	22	2 1/2	1 3/8	3/8	3/4	2	1 1/8	3/8	1	27 1/2	13 3/4	5 1/4
24	320	18	28 1/2	3 1/2	1 5/8	1/2	1 3/8	3	1 3/8	1/2	1 5/8	40 11/16	14 3/4	4 5/8
30	450	22 1/2	36 1/4	4	1 13/16	5/8	1 9/16	3 1/2	1 9/16	5/8	1 13/16	51	18 3/4	6 1/8
36	600	26 5/8	43 3/4	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	62	22 1/2	6 1/2
42	740	31 5/16	51 1/8	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	73	26 1/4	7 3/4
48	890	36	58 1/2	5	2 1/4	3/4	2	5	2	3/4	2 1/4	84	30	8 7/8
54	1100	40	65	5 1/2	2 1/2	3/4	2 1/4	5	2 1/4	3/4	2 1/2	92 1/2	33 3/8	10
60	1400	45	73 1/2	6	3 5/16	3/4	1 15/16	5	2 3/4	3/4	2 1/2	105	37 1/2	11
72	1900	54	88	7	3 13/16	1	2 5/16	6	3 1/4	1	2 3/4	126	45	13 5/16
84	2500	62	102	8	4 1/8	1	2 7/8	6	3 1/2	1	3 1/2	162 1/2	52	14 1/2
96	3300	78	122 3/8	9	4 1/2	1	3 1/2	7	4	1	4	218	62	20
108	4200	88	138 1/2	10	5	1	4	7	4 1/2	1	4 1/2	269	70	22
120	5100	96 7/8	154	11	5 1/2	1	4 1/2	7	5	1	5	301 3/8	78	24
132	5100	106 1/2	168 3/4	10		1	4	7	4 1/2	1	4 1/2	329	85 5/8	26 7/8

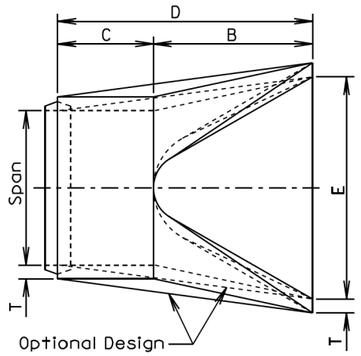
* Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

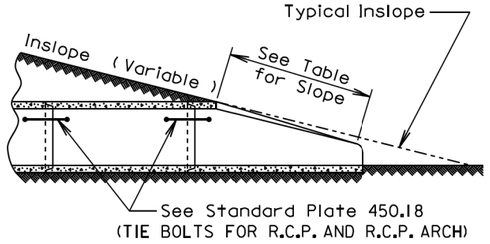
Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Specifications. Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

June 26, 2015

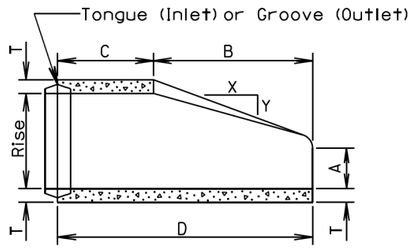
Published Date: 2026	SDDOT	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
			Sheet 1 of 1



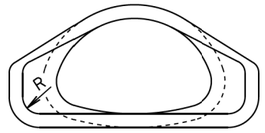
TOP VIEW



SLOPE DETAIL



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

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

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

* Size (in.)	Approximate Weight of Section (lbs.)	Rise (in.)	Span (in.)	Slope (X:Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	R (in.)
18	1100	13 1/2	22	3:1	2 1/2	7	27	45	72	36	2
24	1750	18	28 1/2	3:1	3 1/2	8 1/2	39	33	72	48	3
30	3300	22 1/2	36 1/4	3:1	4	9 1/2	50	46	96	60	3
36	4350	26 5/8	43 3/4	3:1	4 1/2	1 1 1/8	60	36	96	72	6
42	5250	31 5/16	51 1/8	3:1	4 1/2	15 13/16	60	36	96	78	6
48	6400	36	58 1/2	3:1	5	21	60	36	96	84	6
54	7850	40	65	3:1	5 1/2	25 1/2	60	36	96	90	6
60	9500	45	73 1/2	3:1	6	31	60	36	96	96	6
72	13550	54	88	2:1	7	31	60	39	99	120	6
84	17950	62	102	2:1	8	28 1/2	83	19	102	144	6

*Equivalent Diameter of Circular R. C. P.

June 26, 2015

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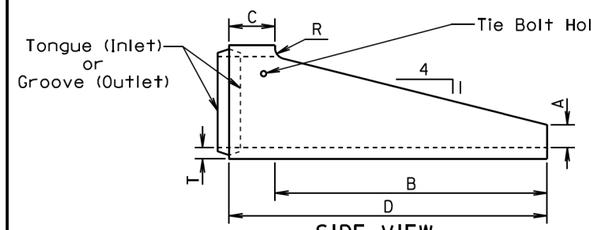
SDDOT

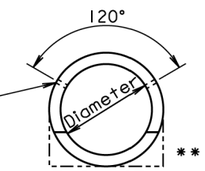
R. C. P. ARCH FLARED ENDS

PLATE NUMBER 450.11

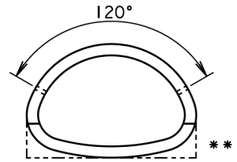
Sheet 1 of 1



SIDE VIEW



END VIEW
"CIRCULAR"



END VIEW
"ARCH"

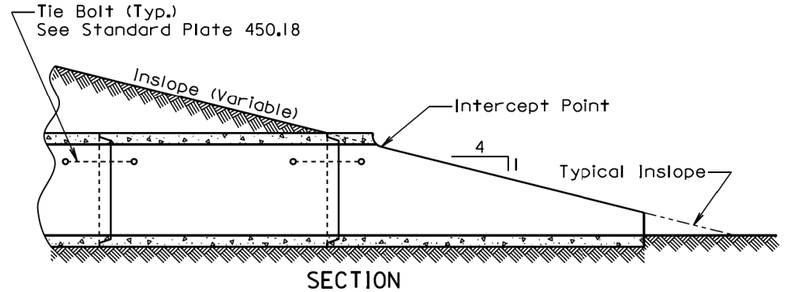
Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3 1/2	7 1/2	90	12	102	3 1/2
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3 1/2	7 1/2	60	12	72	3 1/2
* 36	4 1/2	8 5/8	66	30	96	0
* 42	4 1/2	10	77 1/4	18 3/4	96	0

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	3 1/2	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3 1/2	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: 2026

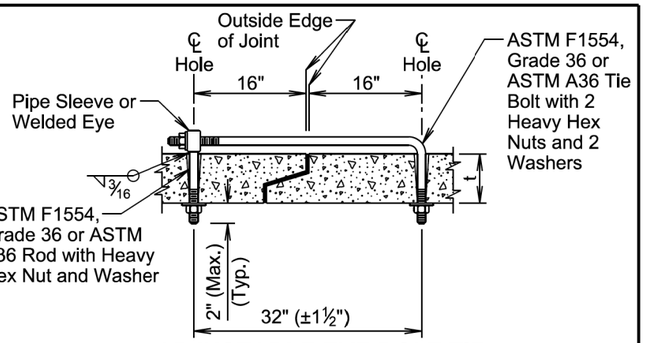
SDDOT

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

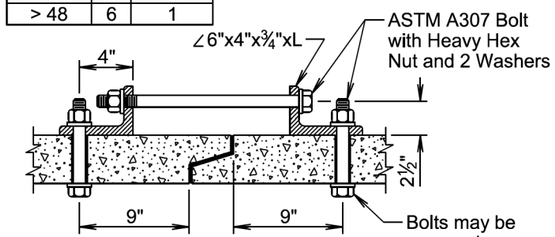
GENERAL NOTES:

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

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

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

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



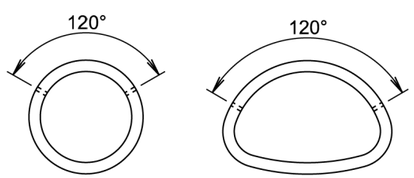
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles will conform to ASTM A36.

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

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



END VIEW (Circular)

END VIEW (Arch)

GENERAL NOTES:

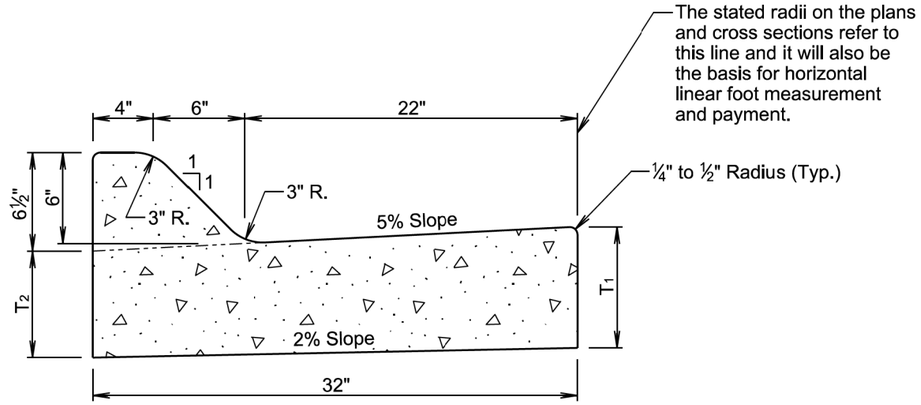
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

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

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

April 8, 2025

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



TYPE F CONCRETE CURB AND GUTTER				
Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
F66	6	5 1/16	0.057	17.6
F67	7	6 1/16	0.065	15.4
F68	8	7 1/16	0.073	13.6
F68.5	8.5	7 9/16	0.077	12.9
F69	9	8 1/16	0.082	12.3
F69.5	9.5	8 9/16	0.086	11.7
F610	10	9 1/16	0.090	11.1
F610.5	10.5	9 9/16	0.094	10.7
F611	11	10 1/16	0.098	10.2
F611.5	11.5	10 9/16	0.102	9.8
F612	12	11 1/16	0.106	9.4

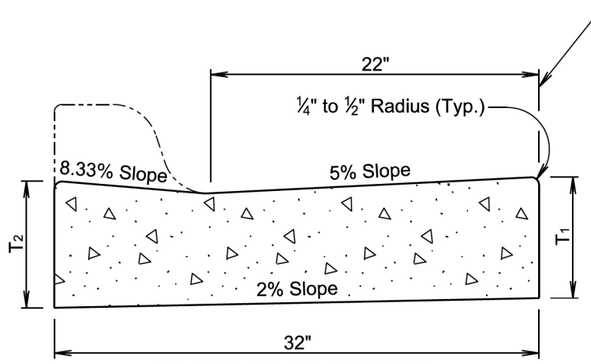
GENERAL NOTES:

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

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

January 22, 2023

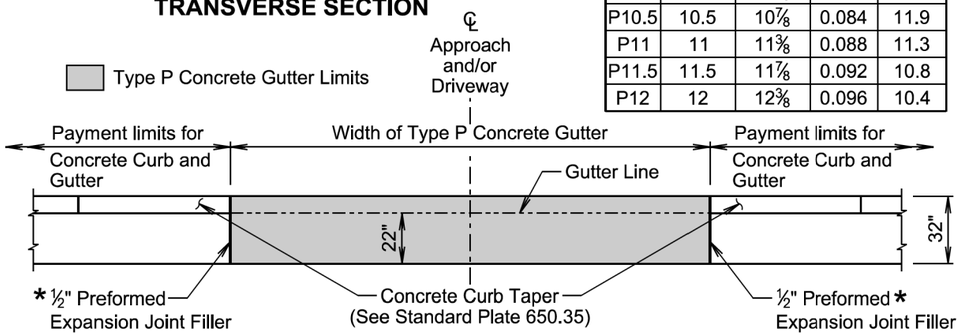
Published Date: 2026 | SDDOT | TYPE F CONCRETE CURB AND GUTTER | PLATE NUMBER 650.20 | Sheet 1 of 1



TRANSVERSE SECTION

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

TYPE P CONCRETE GUTTER				
Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6⅜	0.047	21.2
P7	7	7⅜	0.055	18.1
P8	8	8⅜	0.064	15.7
P8.5	8.5	8⅞	0.068	14.8
P9	9	9⅜	0.072	13.9
P9.5	9.5	9⅞	0.076	13.2
P10	10	10⅜	0.080	12.5
P10.5	10.5	10⅞	0.084	11.9
P11	11	11⅜	0.088	11.3
P11.5	11.5	11⅞	0.092	10.8
P12	12	12⅜	0.096	10.4



PLAN VIEW

* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the ½" 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.

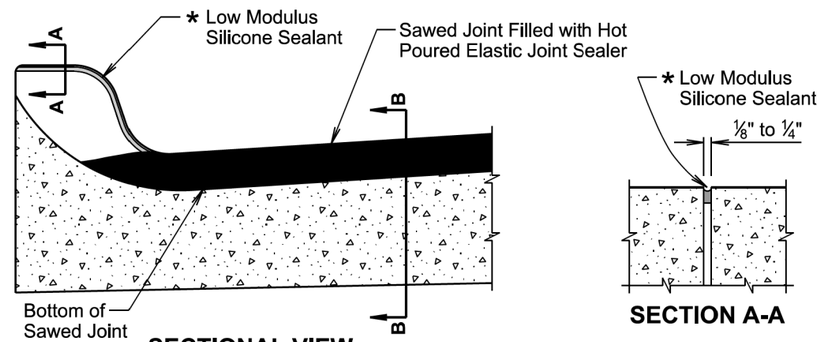
Transverse contraction joints will be constructed at 10-foot intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint will be constructed in the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

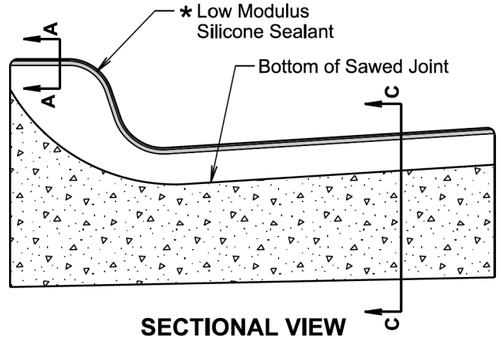
January 22, 2023

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

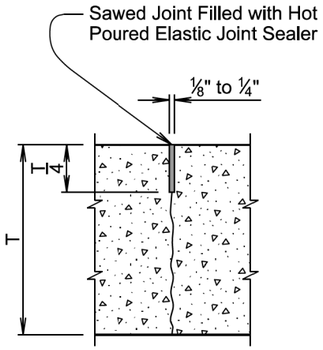


SECTIONAL VIEW
(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

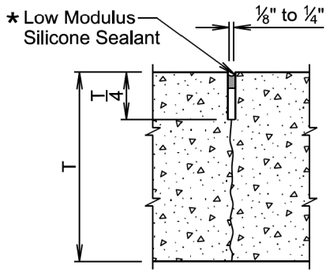
SECTION A-A



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



SECTION B-B

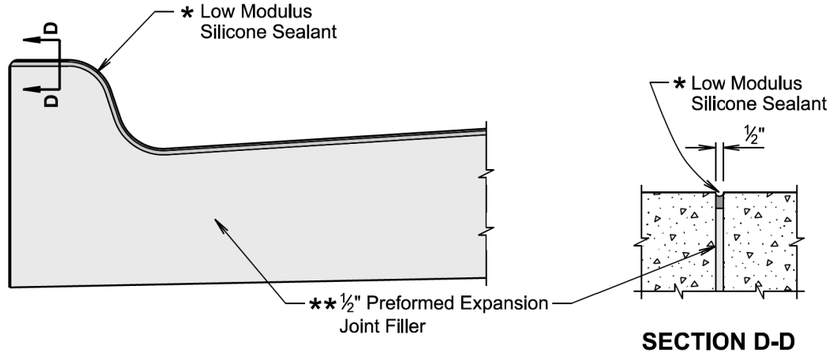


SECTION C-C

* The silicone sealant 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

Published Date: 2026	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90 Sheet 1 of 2



SECTIONAL VIEW
(Curb and Gutter at ½" 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 ½-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.

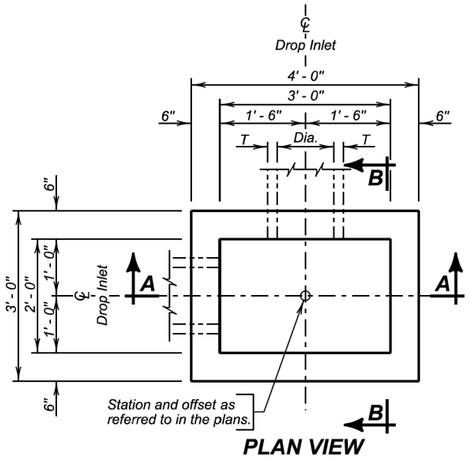
At each junction between new curb and gutter and existing curb and gutter.

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.

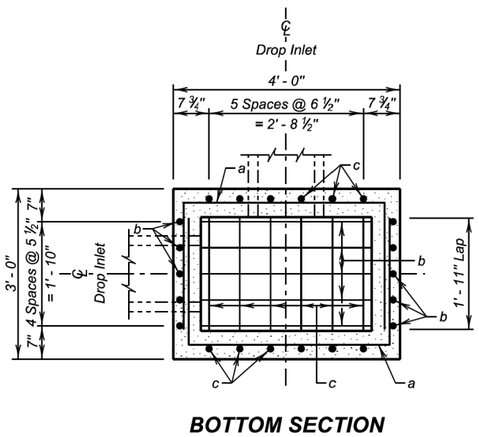
When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter will be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. 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 concrete and the joint will be sealed in accordance with the details shown above.

December 23, 2019

Published Date: 2026	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2



PLAN VIEW



BOTTOM SECTION

ESTIMATED QUANTITIES

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

DROP INLETS FOR 12" TO 24" DIAMETER PIPE

SPECIFICATIONS

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

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

GENERAL NOTES:

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

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

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

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

Drop inlet shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering drop inlet must fit between the inside face of walls and shall not enter through the corners.

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

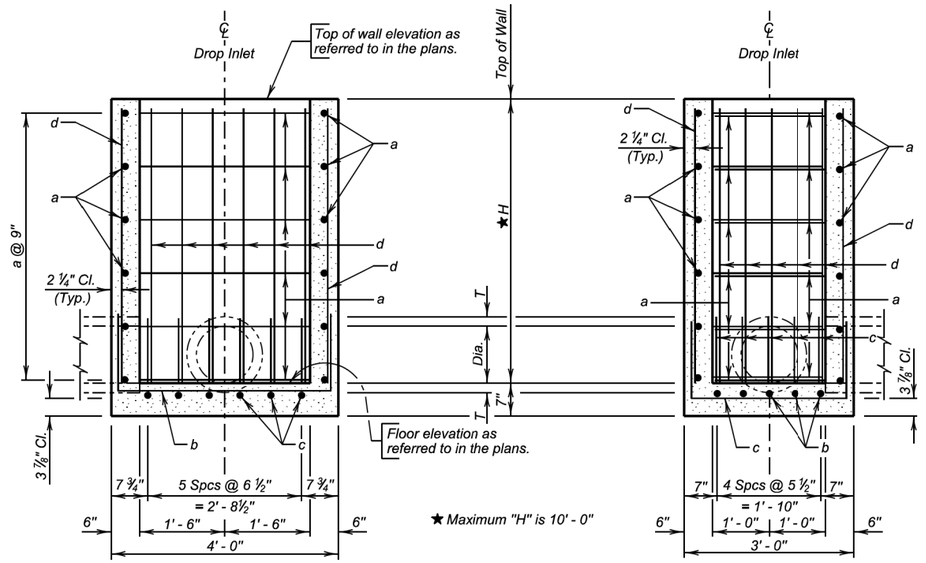
The dimension of H is in feet. Maximum H is 10 feet.

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09

March 31, 2024

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

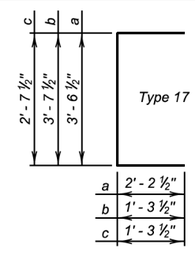


SEC. A - A SEC. B - B

REINFORCING SCHEDULE

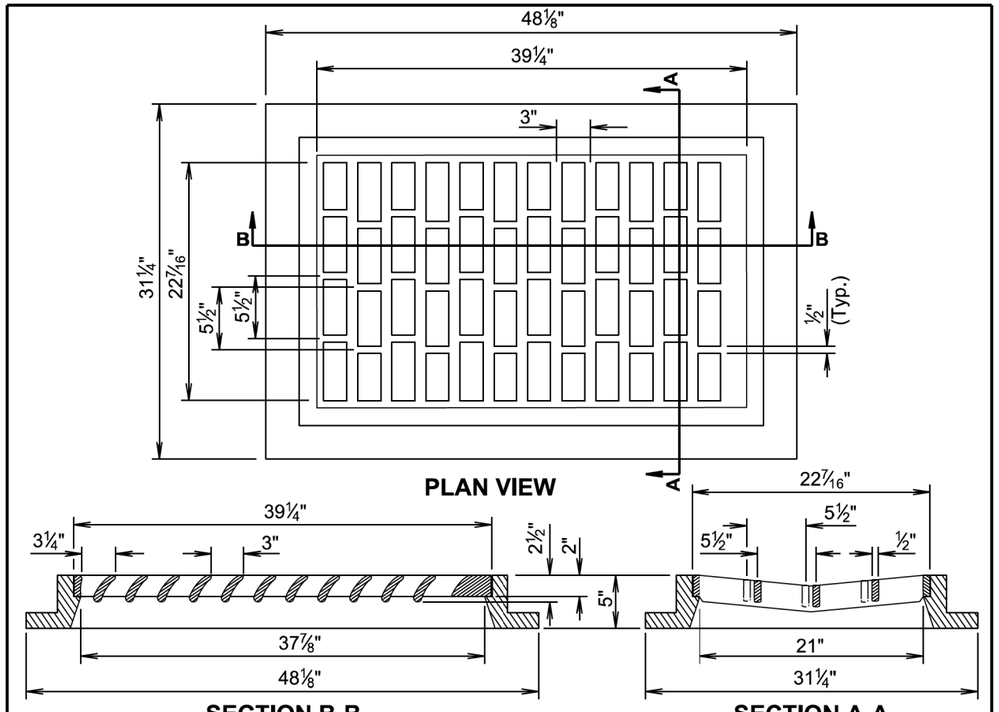
Mk.	No.	Size	Length	Type	Bending Details
a	2.67H	4	8' - 0"	17	
b	5	5	6' - 3"	17	
c	6	4	5' - 3"	17	
d	22	4	H - 2"	Str.	

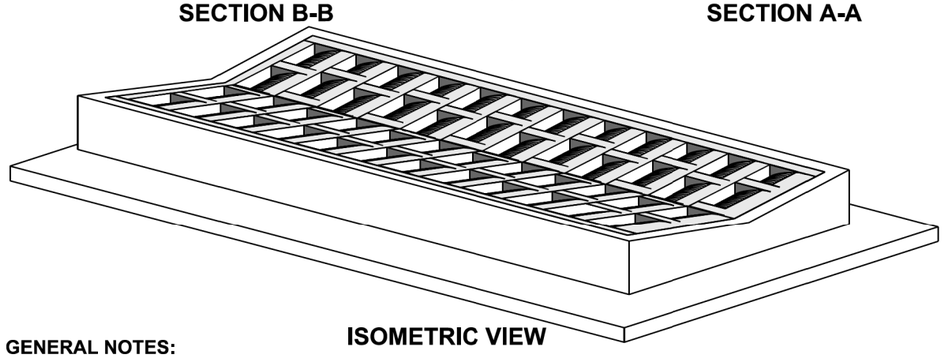
NOTE:
All dimensions are out to out of bars.



March 31, 2024

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





ISOMETRIC VIEW

GENERAL NOTES:

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

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

The type E frame and grate is used typically with valley gutter and type P gutter.

June 1, 2022

Published Date: 2026 | SDDOT | TYPE E FRAME AND GRATE | PLATE NUMBER 670.86 | Sheet 1 of 1