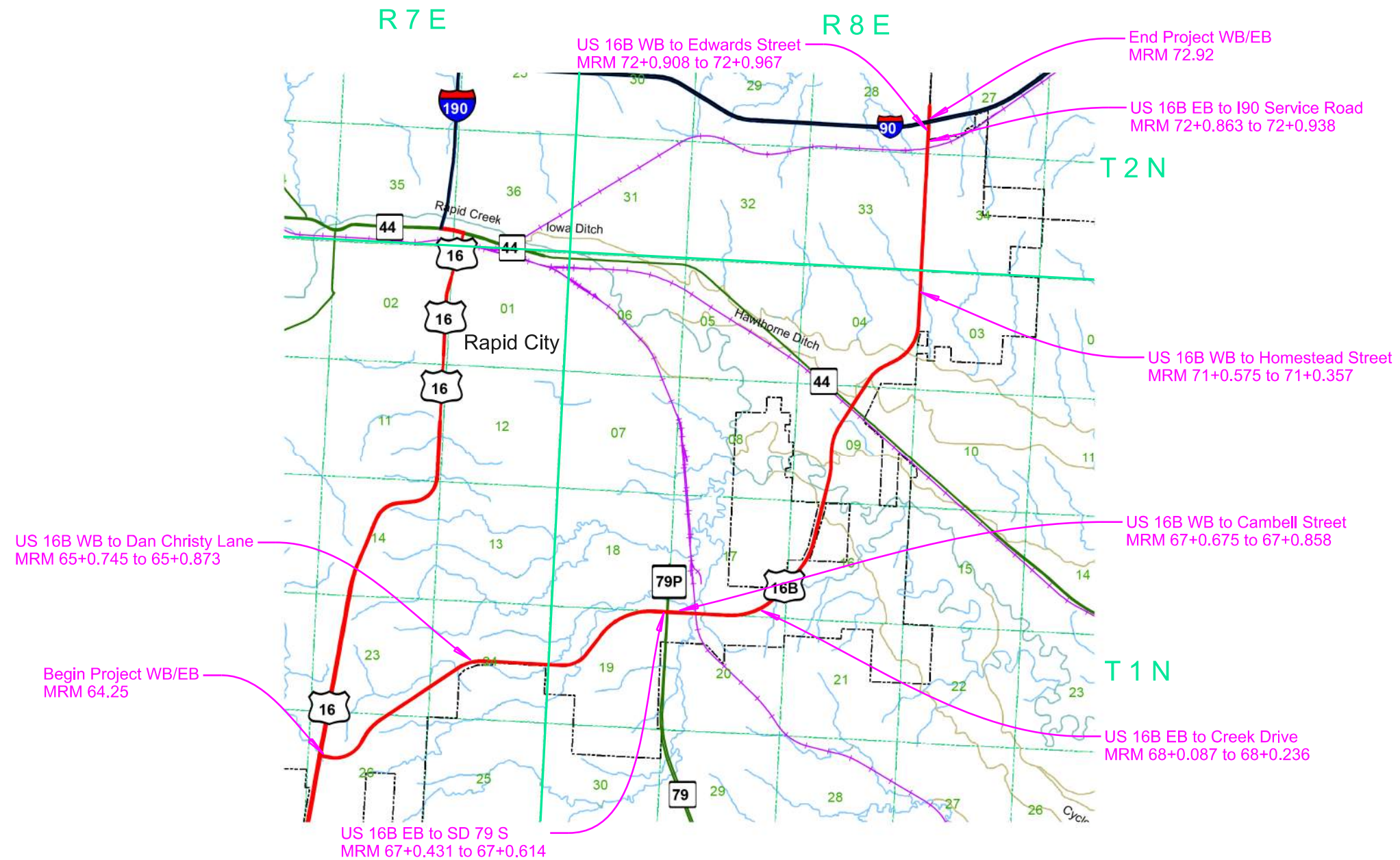


SECTION B: GRADING PLANS

INDEX OF SHEETS

B1	General Layout with Index
B2-B7	Estimate With General Notes & Tables
B8-B10	Typical Grading Sections
B11	Horizontal Alignment and Control Data
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SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	1.426	Mile
009E3245	Final Cross Section Survey	0.632	Mile
009E3250	Miscellaneous Staking	0.632	Mile
009E3280	Slope Staking	0.632	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	930	Ft
110E1010	Remove Asphalt Concrete Pavement	3,136.7	SqYd
110E1100	Remove Concrete Pavement	783.3	SqYd
110E1120	Remove Concrete Median Pavement	590.0	SqYd
110E7510	Remove Pipe End Section for Reset	1	Each
110E7802	Remove Fence for Reset	50	Ft
120E0010	Unclassified Excavation	16,520	CuYd
120E0600	Contractor Furnished Borrow Excavation	14,285	CuYd
120E1000	Muck Excavation	616	CuYd
120E2000	Undercutting	5,587	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E6010	Granular Material	8.0	Ton
380E1120	Miscellaneous PCC Pavement	23.6	SqYd
421E0100	Pipe Culvert Undercut	4	CuYd
450E0182	36" RCP Class 2, Furnish	16	Ft
450E0190	36" RCP, Install	16	Ft
450E2016	24" RCP Flared End, Furnish	1	Each
450E2017	24" RCP Flared End, Install	1	Each
450E3012	24" RCP Arch Class 2, Furnish	80	Ft
450E3020	24" RCP Arch, Install	80	Ft
450E4600	24" RCP Arch Sloped End, Furnish	2	Each
450E4601	24" RCP Arch Sloped End, Install	2	Each
450E9001	Reset Pipe End Section	1	Each
620E4100	Reset Fence	50	Ft
650E0095	Type B69.5 Concrete Curb and Gutter	106	Ft
650E1095	Type F69.5 Concrete Curb and Gutter	334	Ft
650E1395	Type FL69.5 Concrete Curb and Gutter	431	Ft
650E4120	Type C12 Concrete Gutter	102	Ft
650E4385	Type D48.5 Concrete Curb and Gutter	35	Ft
650E4694	Modified Type P9.5 Concrete Gutter	68	Ft
700E0210	Class B Riprap	1,104.3	Ton
831E0110	Type B Drainage Fabric	1,424	SqYd

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

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

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

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

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

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.

GENERAL GEOLOGY

The project is underlain by Quaternary Alluvium and Cretaceous deposits. Cretaceous deposits include Pierre Shale, Greenhorn Formation, Belle Fourche Shale, and Mowry Shale. The South Dakota Geologic Survey describes these deposits as outlined below:

Quaternary Alluvium deposits consist of clay to boulder sized clasts with locally abundant organic material. Alluvial material may be encountered within stream channels and adjacent flood plains.

Pierre Shale consists of blue-gray to dark gray, fissile to blocky shale with persistent beds of bentonite, black organic shale, and light-brown chalky shale. Contains minor sandstone, conglomerate, and abundant carbonate and ferruginous concretions.



PROJECT	SECTION	SHEET
NH 016B(03)64	B	2

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Greenhorn Formation consists of gray shale, mudstone, marl, calcarenite, and shaly limestone grading upward into light-gray to tan, alternating marl and thin-bedded, fossiliferous limestone.

Belle Fourche Shale consists of dark-gray to black bentonitic shale containing minor limestone lenses, bentonite layers, fossiliferous calcarenite, and large, ferruginous, carbonate concretions.

Mowry Shale consists of black to gray, siliceous, fissile shale and siltstone containing bentonite layers and sparse sandstone dikes.

CLASSIFICATION OF EXCAVATION

Most of the materials encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation. Existing embankment at US16B/Cambell Street may contain construction debris/rubble that may require extra effort to remove. Muck Excavation will be required at the areas shown in the plans or as directed by the Engineer.

CONTINUOUS BENCHING

Embankment at US16B/Cambell Street will be continuously benched at locations shown on the cross sections. Equipment will be sized appropriately to construct benches in accordance with Section 120 of the Specifications without impacting mainline pavement. Excavation required for benching will be classified as Unstable Excavation. A quantity of 4276 cubic yards Unstable Excavation has been included in the Table of Unstable Material Excavation.

SHRINKAGE FACTOR:

Location	Shrinkage (%)
US16B/Dan Christy Lane	+30
US16B/79S	+40
US16B/Cambell Street	+40
US16B/Creek Drive	+30
US16B/I90 Service Rd	+40
US16B/Edwards Street	+40



TABLE OF EXCAVATION QUANTITIES BY BALANCES

Location	Excavation (CuYd)	* Undercut (CuYd)	* Muck Exc. (CuYd)	* Contractor Furnished Borrow Exc. (CuYd)	Total Excavation (CuYd)	** Waste (CuYd)
US16B/Dan Christy Lane	499	985	616	1801	3901	0
US16B/SD79S	399	1132	0	4434	5965	0
US16B/Cambell Street	344	1090	0	7044	8478	0
US16B/Creek Drive	1427	1247	0	0	2674	514
US16B/Homestead	226	0	0	0	226	226
US16B/I90 Service Road	194	572	0	548	1314	0
US16B/Edwards	201	561	0	458	1220	0
	3290	5587	616	14285	23778	740

Revised: 3/24/26

* 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	3290
Undercut	5587
Unstable Material Excavation	5006
Topsoil	2637
Total:	16520

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

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

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

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

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 451 cubic yards 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.

WASTE EXCAVATION

The quantity of waste in the Table of Excavation Quantities by Balances that is muck excavation or excess excavation material will be disposed of at a Contractor furnished site acceptable to the Engineer.

UNDERCUTTING

The existing embankment will be undercut in a manner that allows 2 feet of new embankment to be constructed below the finished subgrade top. The remaining new embankment will be benched in to the existing inslope as per Section 120.3 B.2 of the Specifications.

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

TABLE OF UNDERCUTTING QUANTITIES

Station	to	Station	Description	Quantity (CuYd)
1+12		7+05	US16B/Dan Christy Lane	985
2+50		8+80	US16B/SD79S	1132
0+74		7+00	US16B/Cambell Street	1090
4+00		10+10	US16B/Creek Drive	1247
0+36		3+66	US16B/I90 Service Road	572
0+33		3+11	US16B/Edwards	561
Total:				5587

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth listed in the Table of Unstable Excavation. The estimated quantity of 5006 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

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

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

TABLE OF UNSTABLE MATERIAL EXCAVATION

Location	L/R	Depth (Ft)	Quantity (CuYd)
US16B/SD79S	R	2	350
US16B/Cambell St	L	3' Benches	4276
US16B/Creek Drive	R	2	380
Total:			5006

MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 616 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for "Muck Excavation".

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

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

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

Revised: 3/24/26

TABLE OF MUCK EXCAVATION

Location	L/R	Depth (Ft)	Quantity (CuYd)
US16B/Dan Christy Lane	L	3	616
Total:			616

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site.

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

The Contractor furnished borrow excavation material will be uniform in texture and free from organic material. The liquid limit will not exceed 45 and the plastic index will be at least 10 but not exceed 25.

The Contractor will be responsible for the following minimum testing prior to use of each borrow site:

A minimum of one test for liquid limit and plastic index for each location and soil type, with samples obtained according to SD201.

The Department will be responsible for the following minimum testing:

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

PIPE EXTENSIONS BACKFILL COMPACTION

For pipe extensions that are outside the new surfaced shoulder as shown in the typical sections, acceptance tests in the lower one-half and upper one-half of pipe 48" or less in diameter may be performed by visual inspection to the satisfaction of the Engineer. All other MSTR pipe density testing requirements will apply.

PIPE CULVERT UNDERCUT

The table includes undercut for 36 inch and larger pipe culverts. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. Pipes listed may or may not require undercutting and pipes not listed may require undercutting. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

Station	Undercut Depth (Ft)	Pipe Culvert Undercut (CuYd)
US16B/SD79S	1	4.26
Total:		4.26

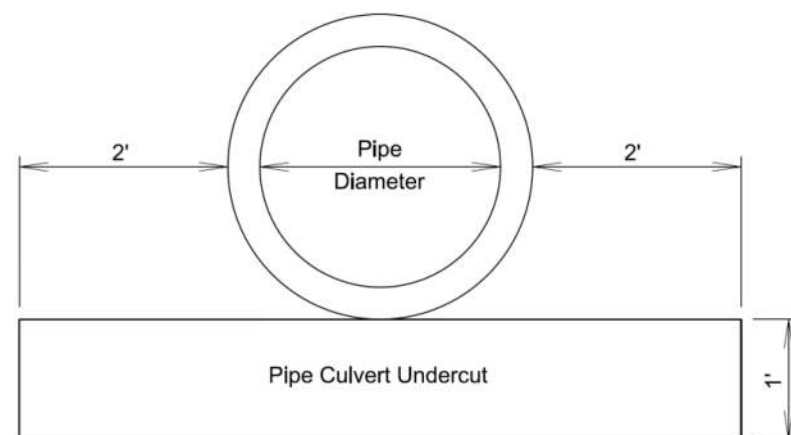
PIPE CULVERT UNDERCUT, CONTINUED

Granular material may be required for backfilling the pipe culvert undercut areas where site conditions warrant. Granular material will conform to the gradation requirements in Section 421.2 A of the Specifications and will be paid for at the contract unit price per ton for "Granular Material". A quantity of 8 tons of granular material is included in the estimate of quantities for use where it is determined to be needed. The quantity will be adjusted or eliminated by construction change order, depending on field conditions.

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

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

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



INCIDENTAL WORK, GRADING

US16B/Dan Christy Lane

Station	L/R	Remarks
0+63 to 1+39	38' L	Take Out 18" - 72' CMP & 2 Flared Ends

US16B/Creek Drive

Station	L/R	Remarks
9+60 to 10+55	46' R to 42' R	Take Out 48"- 92' RCP
10+04	42' R to 56' R	Take Out 13' RCP & 2 Drop Inlets
10+55	44' R to 75' R	Take Out 33' RCP & 4 Drop Inlets

US16B/I90 Service Road

Station	L/R	Remarks
2+39	R	Take Out 24" RCP End Section

TABLE OF RIPRAP AND DRAINAGE FABRIC

US16B/Cambell Street

Station	L/R	Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)
2+70	150' L	24.3	36
4+50 to 8+00	L	1080	1388
Totals:		1104.3	1424

TABLE OF PIPE QUANTITIES

Location	Remove Pipe End Section for Reset	Reset Pipe End Section	Reinforced Concrete			
			Arch Sloped End 24"	Circular Flared 24"	Arch 24"	Circular 36"
			Each	Each	Ft	Ft
US 16B/Dan Christy Lane			2		80	
US 16B/SD 79S	1	1				16
US 16B/I90 Service Road				1		
Total:	1	1	2	1	80	16

TABLE OF FENCE QUANTITIES

Location	Remove for Reset (Ft)	Reset Fence (Ft)
US16B/Cambell Street	50	50

TABLE OF CONCRETE CURB AND/OR GUTTER REMOVAL

Location	Station to	Station	L/R	Quantity (Ft)
US16B/Dan Christy Lane	1+15	1+18	L	31
US16B/79S	8+13	8+73	R	97
US16B/Cambell Street	0+76	1+40	L	97
US16B/Creek Drive	10+06	10+06	R	122
US16B/Creek Drive	10+53	10+53	R	51
US16B/Homestead Street	9+10	13+40	R	431
US16B/I90 Service Road	2+70	3+42	R	101
Total:				930

TABLE OF TYPE B69.5 CONCRETE CURB AND GUTTER

Location	Station to	Station	L/R	Quantity (Ft)
US16B/Creek Drive	9+96	10+06	R	71
US16B/Creek Drive	10+53	10+53	R	35
Total:				106

TABLE OF TYPE C12 GUTTER

Location	Station to	Station	L/R	Quantity (Ft)
US16B/Dan Christy Lane	0+62	0+81	L	33
US16B/Dan Christy Lane	1+33	1+61	L	34
US16B/Creek Drive	9+76	9+85	R	10
US16B/Creek Drive	10+61	10+86	R	25
Total:				102

TABLE OF TYPE D48.5 CONCRETE CURB AND GUTTER

Location	Station to	Station	L/R	Quantity (Ft)
US16B/Dan Christy Lane	1+15	1+21	L	35

TABLE OF TYPE FL69.5 CONCRETE CURB AND GUTTER

Location	Station to	Station	L/R	Quantity (Ft)
US16B/Homestead Street	1+15	1+21	R	431

TABLE OF TYPE F69.5 CONCRETE CURB AND GUTTER

Location	Station to	Station	L/R	Quantity (Ft)
US16B/79S	8+14	8+65	R	86
US16B/Cambell Street	0+82	1+40	L	84
US16B/I90 Service Road	2+56	3+63	R	164
Total:				334

TABLE OF MISCELLANEOUS CONCRETE CURB AND GUTTER

Location	Station to	Station	L/R	Modified Type P9.5 Concrete Gutter (Ft)	Misc. PCC Pavement (SqYd)
US16B/Dan Christy Lane	0+90.50	0+88.55	L	17	5.9
US16B/Dan Christy Lane	1+21.13	1+24.45	L	17	5.9
US16B/Creek Drive	9+89.86	9+96.72	R	17	5.9
US16B/Creek Drive	10+53.85	10+53.37	R	17	5.9
Total:				68	23.6

REMOVE ASPHALT CONCRETE PAVEMENT

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

An estimated 3136.7 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.

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

TABLE OF ASPHALT CONCRETE REMOVAL

Location	Station to	Station	Quantity (SqYd)
US16B/Dan Christy Lane	1+15	1+20	112.1
US16B/Dan Christy Lane	1+70	7+05	585.3
US16B/79S	2+50	8+14	542.9
US16B/Cambell Street	0+76	1+40	561.3
US16B/Creek Drive	4+00	10+10	888.9
US16B/I90 Service Road	0+37	2+56	229.4
US16B/I90 Service Road	2+70	3+66	84.1
US16B/Edwards Street	0+31	0+86	132.7
Total:			3136.7

EXISTING PCC PAVEMENT

The existing concrete at US16B/SD79 South, US16B/Cambell Street, US16B/Edwards Street, and US16B/I90 Service Road is Plain Jointed PCC Pavement. The existing transverse joints are perpendicular and are spaced at 20 feet and the dowel bars are 1 1/4" x 18". The aggregate in the existing Plain Jointed PCC Pavement is Limestone Crushed Ledge Rock.

TABLE OF CONCRETE PAVEMENT REMOVAL

Location	Station to	Station	Quantity (SqYd)
US16B/Dan Christy Lane	1+17	1+70	106.1
US 16B/79S	2+50	8+14	136.4
US16B/Cambell Street	1+40	7+00	127.5
US16B/I90 Service Road	0+37	3+21	121.1
US16B/Edwards Street	0+49	3+11	292.2
Total:			783.3

TABLE OF CONCRETE MEDIAN PAVEMENT REMOVAL

Location	Station to	Station	Quantity (SqYd)
US16B/Homestead Street	9+10	13+40	590

TABLE OF CONSTRUCTION STAKING
(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking			Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Final Cross Section Survey Quantity (Mile)
					Length (Mile)	Lane Factor	*Sets of Stakes			
US16B/Dan Christy Lane	0+84	7+06	2	622	0.118	1	2	0.236	0.118	0.118
US16B/SD79S	2+50	8+73	2	623	0.118	1	2	0.236	0.118	0.118
US16B/Cambell Street	0+74	8+50	2	776	0.147	1	2	0.294	0.147	0.147
US16B/Creek Drive	3+50	10+57	2	707	0.134	1	2	0.268	0.134	0.134
US16B/Homestead	9+10	13+40	2	430	0.081	1	2	0.162		
US16B/I90 Service Road	0+36	3+64	2	328	0.062	1	2	0.124	0.062	0.062
US16B/Edwards	0+31	3+11	2	280	0.053	1	2	0.106	0.053	0.053
Totals:								1.426	0.632	0.632

* 1 = Top of Subgrade Blue Top Stakes Only (AC Pavement)
 2 = Blue Top and Paving Hub Stakes (PCC Pavement) or Top of Subgrade Blue Top and Top of Granular Material Blue Top Stakes (AC Pavement in Curb & Gutter Sections)

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

TYPICAL GRADING SECTION



PROJECT	SECTION	SHEET
NH 016B(03)64	B	8

Plotting Date: 3/3/2026

US 16B Westbound (US 16B/Dan Christy Ln)
Sta. 1+12 to 7+05

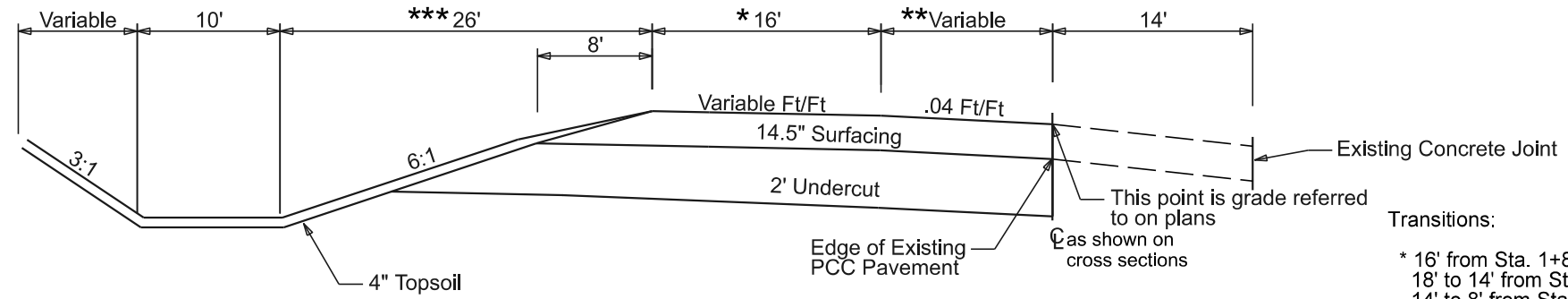


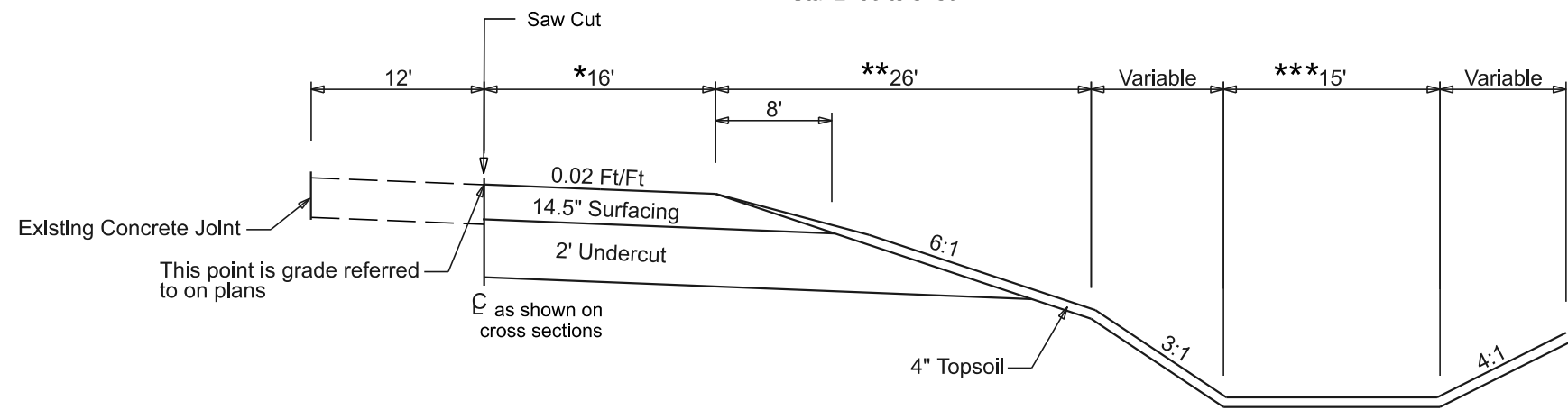
TABLE OF SUPERELEVATION (US 16B/Dan Christy Ln)

- Sta. 1+17 - 0.02 Superelevation Rate
Point of Rotation 12' L
- Sta. 1+17 to 4+60 - Superelevation Transition
- Sta. 4+60 - 0.04 Superelevation Rate
Point of Rotation 0' L

Transitions:

- * 16' from Sta. 1+85 to 4+60
- 18' to 14' from Sta. 4+60 to 5+85
- 14' to 8' from Sta. 5+85 to 7+05
- ** 14' to 2' from Sta. 1+85 to 4+60
- 0' from Sta. 4+60 to 7+05
- *** 20' to 26' from Sta. 1+85 to 2+15

US 16B Eastbound (US 16B/SD 79S)
Sta. 2+50 to 8+80



Transitions:

- * 10' to 16' from Sta. 2+50 to 3+70
- ** 20' to 26' from Sta. 2+50 to 3+70
- *** 0' from Sta. 6+75 to 8+80 (Match Existing)

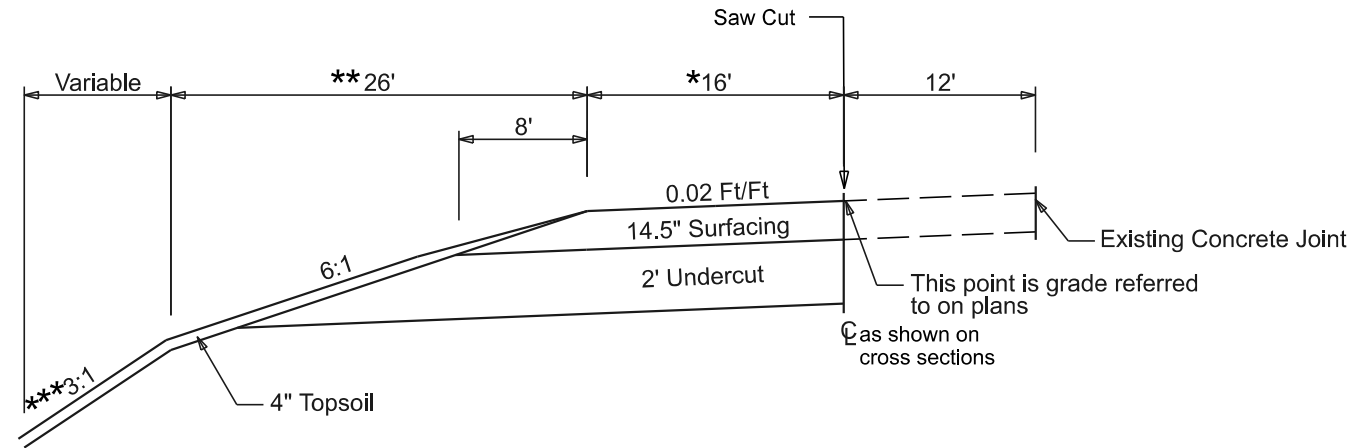
TYPICAL GRADING SECTION

SD DOT	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	9
Plotting Date: 3/3/2026			

US 16B Westbound (US 16B/Cambell St)
Sta. 0+74 to 4+50

US 16B Westbound (US 16B/Edwards St)
Sta. 0+33 to 3+11

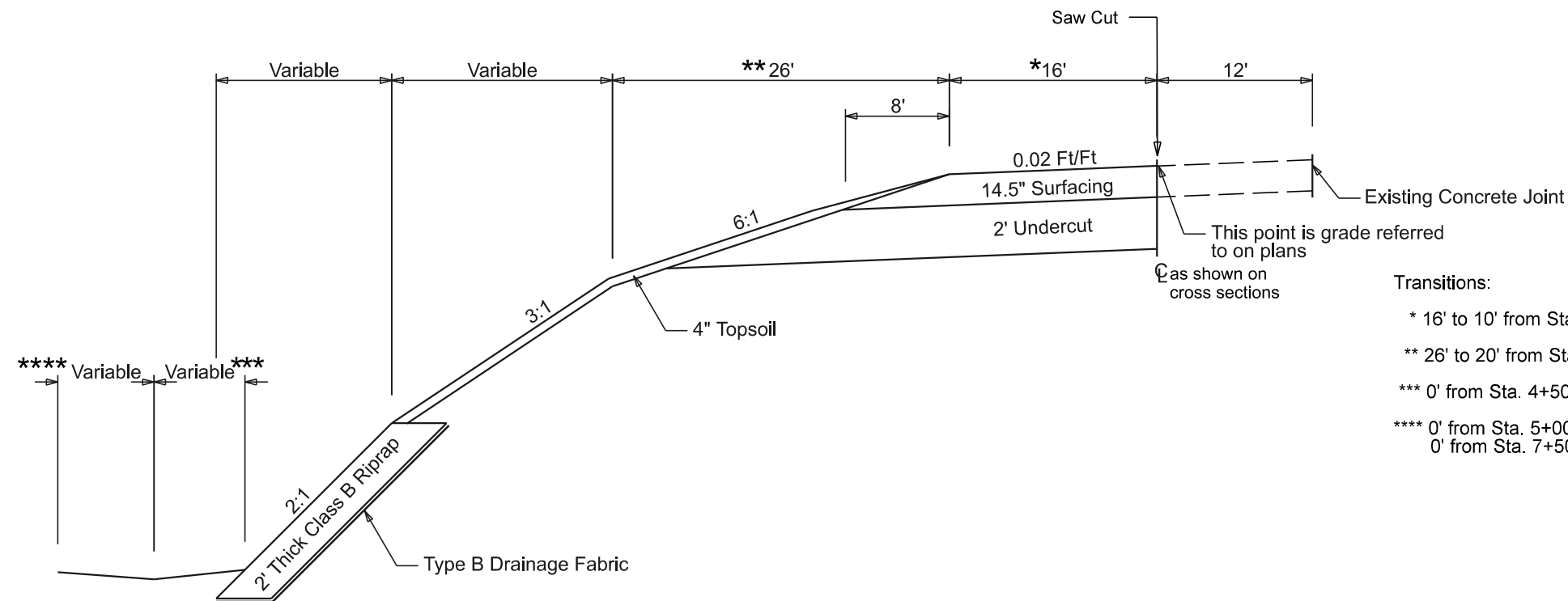
(Reversed) US 16B Eastbound (US16B/I90 Service Rd)
Sta. 0+36 to 3+66



Transitions:

- US 16B/Edwards St
 - * 16' to 10' from Sta. 2+51 to 3+11
 - ** 26' to 20' from Sta. 2+51 to 3+11
- US 16B/I90 Service Rd
 - * 10' to 16' from Sta. 0+36 to 0+96
 - ** 18' to 26' from Sta. 0+36 to 0+96
 - 26' to 10' from Sta. 2+00 to 2+90
- US 16B/Cambell St
 - *** 3:1 to 2.4:1 from Sta. 2+45 to 2+95
 - *** 2.4:1 to 3:1 from Sta. 3+25 to 3+75

US 16B Westbound (US 16B/Cambell St)
Sta. 4+50 to 7+00



Transitions:

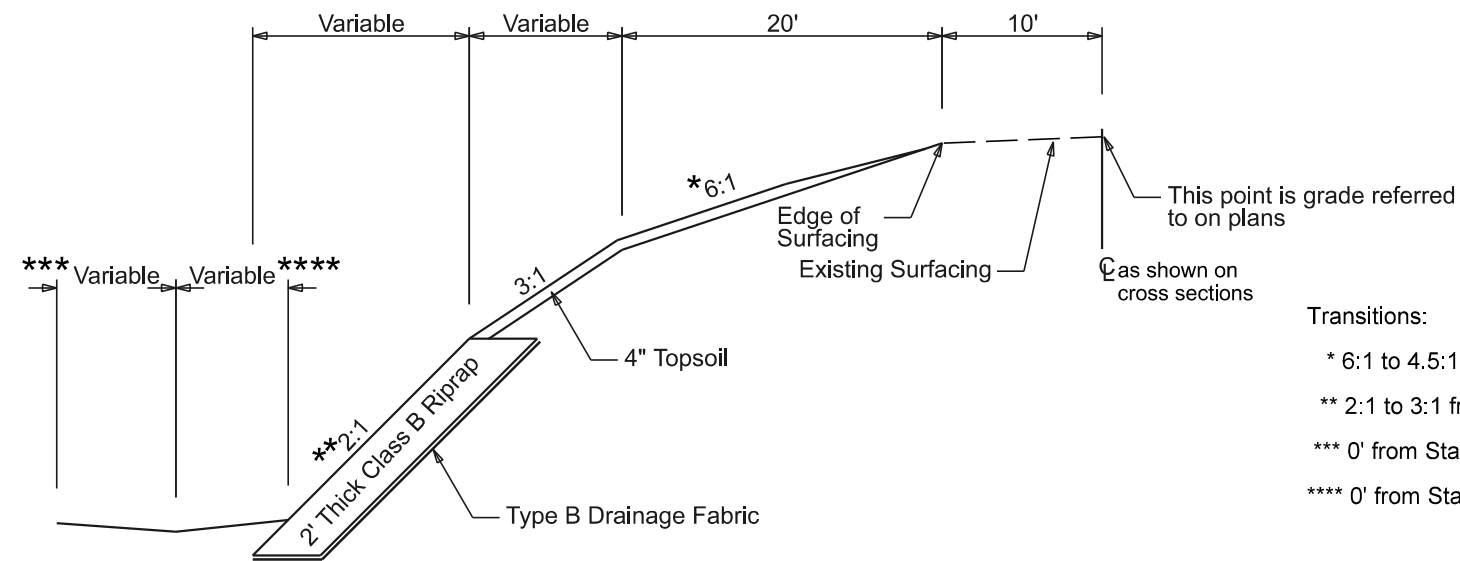
- * 16' to 10' from Sta. 5+80 to 7+00
- ** 26' to 20' from Sta. 5+80 to 7+00
- *** 0' from Sta. 4+50 to 5+00
- **** 0' from Sta. 5+00 to 5+50
- 0' from Sta. 7+50 to 8+00

TYPICAL GRADING SECTION

SD DOT	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	10

Plotting Date: 3/3/2026

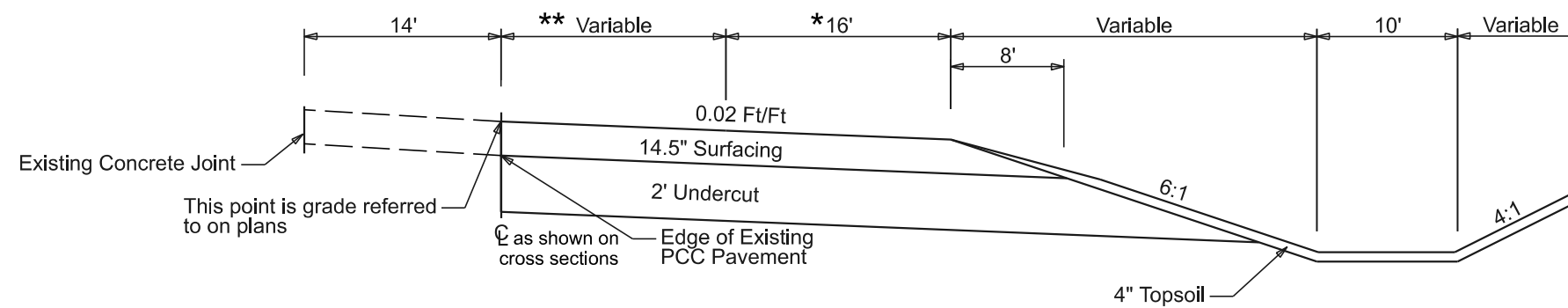
US 16B Westbound (US 16B/Cambell St)
Sta. 7+00 to 8+50



Transitions:

- * 6:1 to 4.5:1 from Sta. 7+00 to 8+50 (Match Existing Inslope)
- ** 2:1 to 3:1 from Sta. 8+00 to 8+50 (Match Existing Inslope)
- *** 0' from Sta. 7+50 to 8+50
- **** 0' from Sta. 8+00 to 8+50

US 16B Eastbound (US 16B/Creek Dr)
Sta. 4+00 to 10+10



Transitions:

- * 8' to 14' from Sta. 4+00 to 5+20
- 14' to 18' from Sta. 5+20 to 6+40
- 16' from Sta. 6+40 to 9+25
- ** 0' from Sta. 4+00 to 6+40
- 2' to 14' from Sta. 6+40 to 9+25

HORIZONTAL ALIGNMENT AND CONTROL DATA



PROJECT	SECTION	SHEET
NH 016B(03)64	B	11

Alignment Name: US 16B/Dan Christy Ln

Type	Station			Northing	Easting
PC	0+00.000			631913.244	1207860.090
PI	4+80.898	R = 1938.551	Delta = 27°51'52" R	632120.745	1208293.917
PT	9+42.765			632101.425	1208774.427
		TL= 224.547	N87°42'08"W		
POE	11+67.311			632092.422	1208998.793

Alignment Name: US 16B/SD 79S

Type	Station			Northing	Easting
PC	0.000			634380.102	1215921.846
PI	223.916	R = 3096.640	Delta = 8.272° R	634403.284	1216144.559
PT	447.053			634394.183	1216368.289
		TL= 483.335	S87.938°E		
POE	930.388			634376.793	1216851.311

Alignment Name: US 16B/Cambell St

Type	Station			Northing	Easting
POB	0.000			634444.621	1217133.958
		TL= 140.217	S88.746°E		
PC	140.217			634441.554	1217274.142
PI	360.333	R = 25582.182	Delta = 0.986° R	634434.814	1217494.154
PT	580.438			634424.289	1217714.018
		TL= 168.853	S86.750°E		
PC	749.291			634414.717	1217882.600
PI	797.302	R = 3924.055	Delta = 1.402° L	634411.779	1217930.521
PT	845.309			634410.013	1217978.501
		TL= 154.857	S87.932°E		
POE	1000.166			634404.424	1218133.257

Alignment Name: US 16B/Creek Dr

Type	Station			Northing	Easting
POB	0+00.000			634300.976	1219049.962
		TL= 639.770	N87°54'00"W		
PC	6+39.770			634277.534	1219689.302
PI	9+13.461	R = 3029.361	Delta = 10°19'30" L	634264.525	1219962.684
PT	11+85.670			634300.724	1220233.971

Alignment Name: US 16B/I90 Service Rd

Type	Station			Northing	Easting
POB	0.000			655587.125	1228402.944
		TL= 466.898	N3.088°E		
POE	466.898			656053.345	1228428.094

Alignment Name: US 16B/Edwards St

Type	Station			Northing	Easting
POB	0.000			655858.534	1228348.697
		TL= 336.829	N1.025°E		
POE	336.829			656195.309	1228354.722

Alignment Name: US 16B/Homestead St

Type	Station			Northing	Easting
POB	0+00.000			647486.569	1228065.653
		TL= 1435.598	N02°05'17"E		
PI	14+35.598			648921.214	1228117.963
		TL= 1284.398	N02°04'12"E		
PI	27+19.996			650204.774	1228164.354
		TL= 180.654	N02°52'43"E		
PI	29+00.651			650385.201	1228173.427
		TL= 4811.051	N01°57'13"E		
POE	77+11.702			655193.456	1228337.433

Control Data - US 16B/Dan Christy Ln, Cambell St, Edwards St				
POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
SDRC	REFMRK - RAPID CITY BASE	650865.404	1208665.174	3277.426

Control Data - US 16B/SD 79S, Creek Dr				
POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
67.6-1	REFMRK - REBAR SE COR BRIDGE/SWALK	634351.093	1217102.475	3258.017
67.6-2A	REFMRK - PK SW COR BRIDG IN SWALK	634362.672	1216899.911	3259.309
67.6-3	REFMRK - PK NW COR BRIDG IN SWALK	634470.980	1216900.618	3259.572
67.6-4	REFMRK - PK NE COR BRIDG IN SWALK	634460.519	1217101.135	3257.766
67.6-5	REFMRK - BRASS CAP SW WINGWALL	634332.101	1216938.076	3258.325
SDRC	REFMRK - RAPID CITY BASE	650865.404	1208665.174	3277.426

Control Data - US 16B/I90 Service Rd				
POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
SDRC	REFMRK - RAPID CITY BASE	650865.404	1208665.174	3277.426
RC2029	REFMRK - RAPID CITY COMPLETE CONC.	626304.704	1201050.974	3828.636

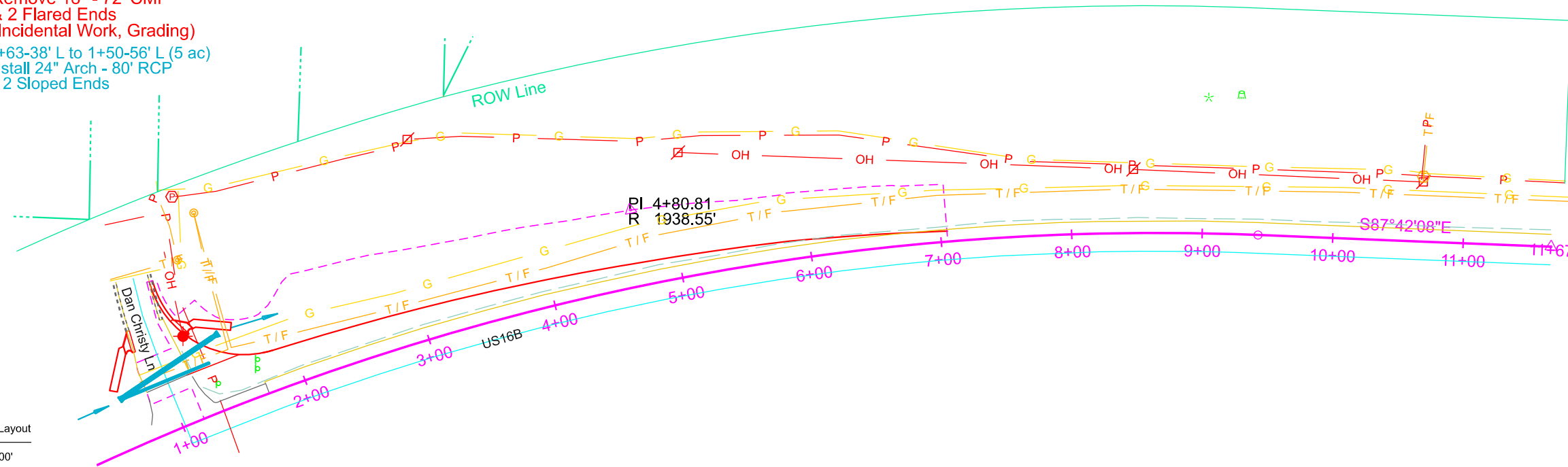
The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00; Geoid 12AUS; SF = 0.99995741.

LEGEND

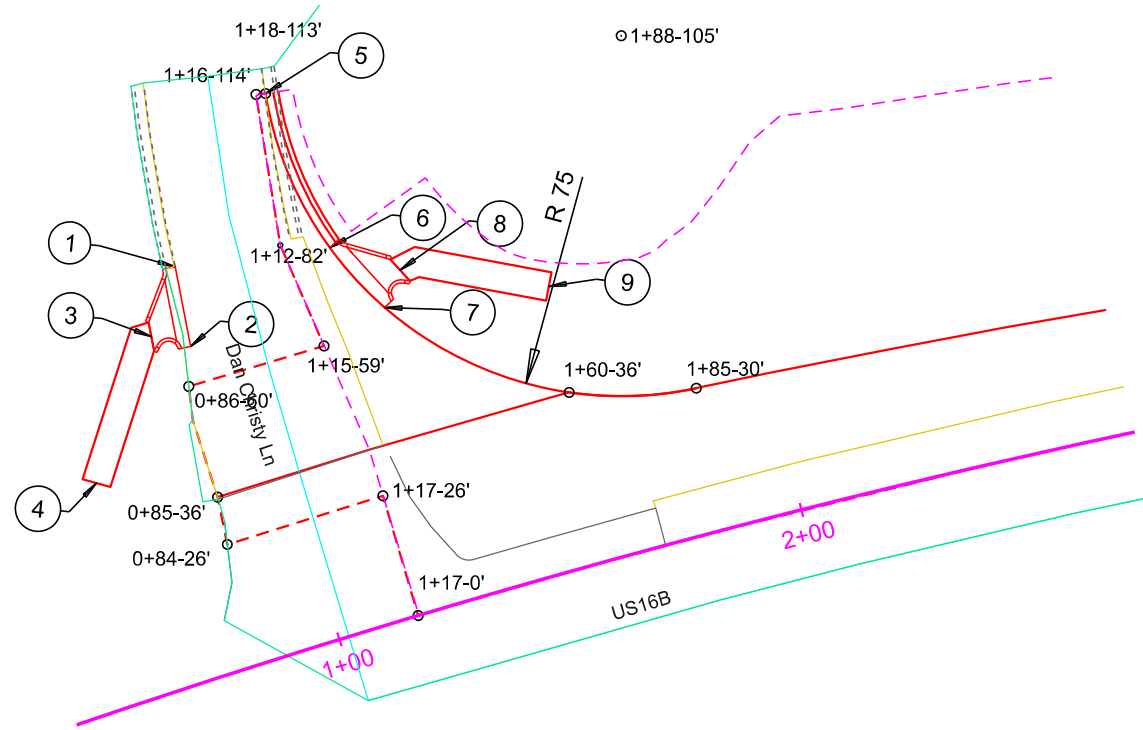
Anchor		Hedge		Septic Tank		State and National Line	
Antenna		Highway ROW Marker		Shrub Tree		County Line	
Approach		Interstate Close Gate		Sidewalk		Section Line	
Assumed Corner		Iron Pin		Sign Face		Quarter Line	
Azimuth Marker		Irrigation Ditch		Sign Post		Sixteenth Line	
BBQ Grill/ Fireplace		Lake 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 Misc		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		Misc. Line		Trash Barrel			
Control Point		Misc. Property Corner		Tree Belt			
Commercial Sign Double Face		Misc. Post		Tree Coniferous		Remove Concrete Pavement	
Commercial Sign One Post		Overhang Or Encroachment		Tree Deciduous		Remove Concrete Driveway Pavement	
Commercial Sign Overhead		Overhead Utility Line		Tree Stumps		Remove Asphalt Concrete Pavement	
Commercial Sign Two Post		Parking Meter		Triangulation Station		Remove Concrete Sidewalk	
Concrete Symbol		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		Detectable Warning	
Edge Of Other		Property Pipe		Water Meter		Pedestrian Push Button Pole	
Edge Of Shoulder		Property Pipe With Cap		Water Tower		and 30" x 48" Clear Space	
Elec. Trans./Power Jct. Box		Property Stone		Water Valve		with 1.5% slope	
Fence Barbwire		Public Telephone		Water Well			
Fence Chainlink		Railroad Crossing Signal		Weir Rock			
Fence Electric		Railroad Milepost Marker		Windmill			
Fence Misc.		Railroad Profile		Wingwall			
Fence Rock		Railroad R.O.W. 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					

US16B/Dan Christy Lane

0+63-38' L to 1+39-38' L
 Remove 18" - 72' CMP
 & 2 Flared Ends
 (Incidental Work, Grading)
 0+63-38' L to 1+50-56' L (5 ac)
 Install 24" Arch - 80' RCP
 & 2 Sloped Ends



Dan Christy Lane
 US 16B
 Site Layout
 1"=100'



Dan Christy Lane
 US 16B
 Intersection Layout
 1"=40'

- 1 0+90.59-84.41' L
 Begin Curb Opening
 TC 3475.12'
 (Match Existing)
- 2 0+88.76-67.49' L
 End Curb Opening
 TC 3474.89'
- 3 0+81.80-71.94' L
 Begin Type C12 Gutter
- 4 0+62.12-46.43' L
 End Type C12 Gutter
- 5 1+17.78-113.33' L
 Begin Type D C&G
 TC 3476.84'
 (Match Existing)
- 6 1+21.25-78.74' L
 End Type D C&G
 Begin Curb Opening
 TC 3474.95'
- 7 1+28.43-63.53' L
 End Curb Opening
 TC 3473.91'
- 8 1+33.53-70.11' L
 Begin Type C12 Gutter
- 9 1+61.53-58.43' L
 End Type C12 Gutter

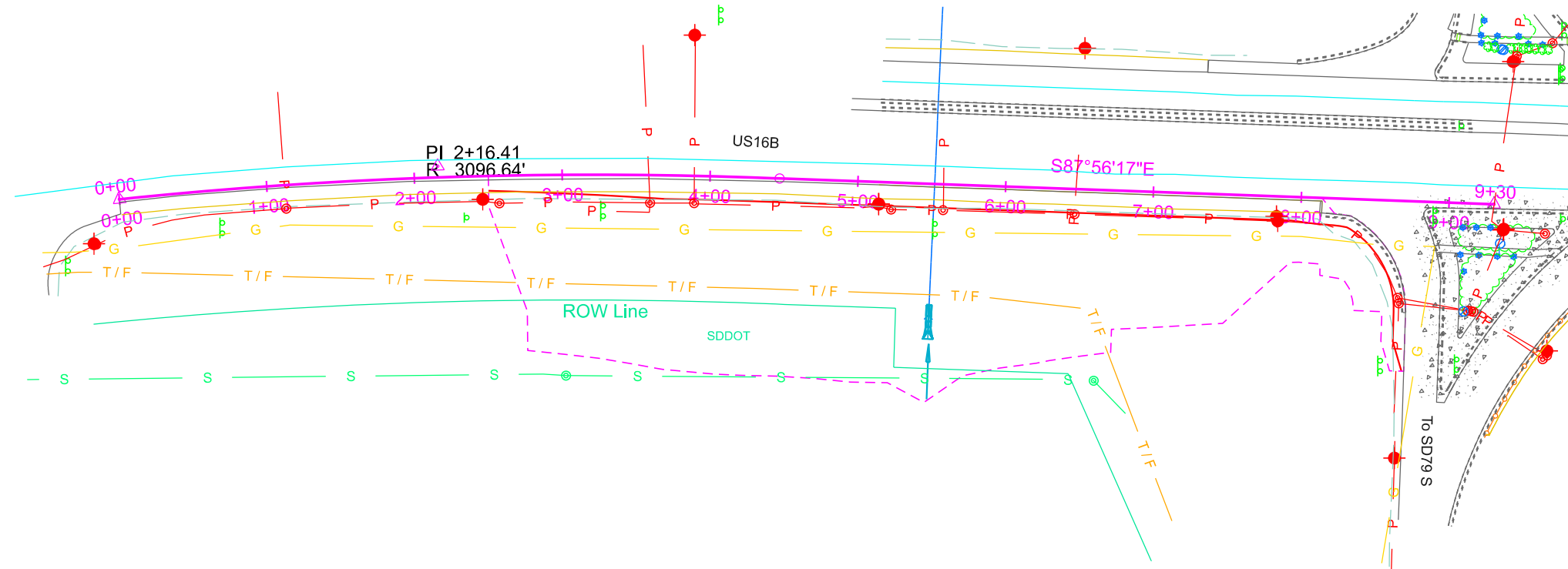
US16B/SD 79 S

SD DOT	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	14

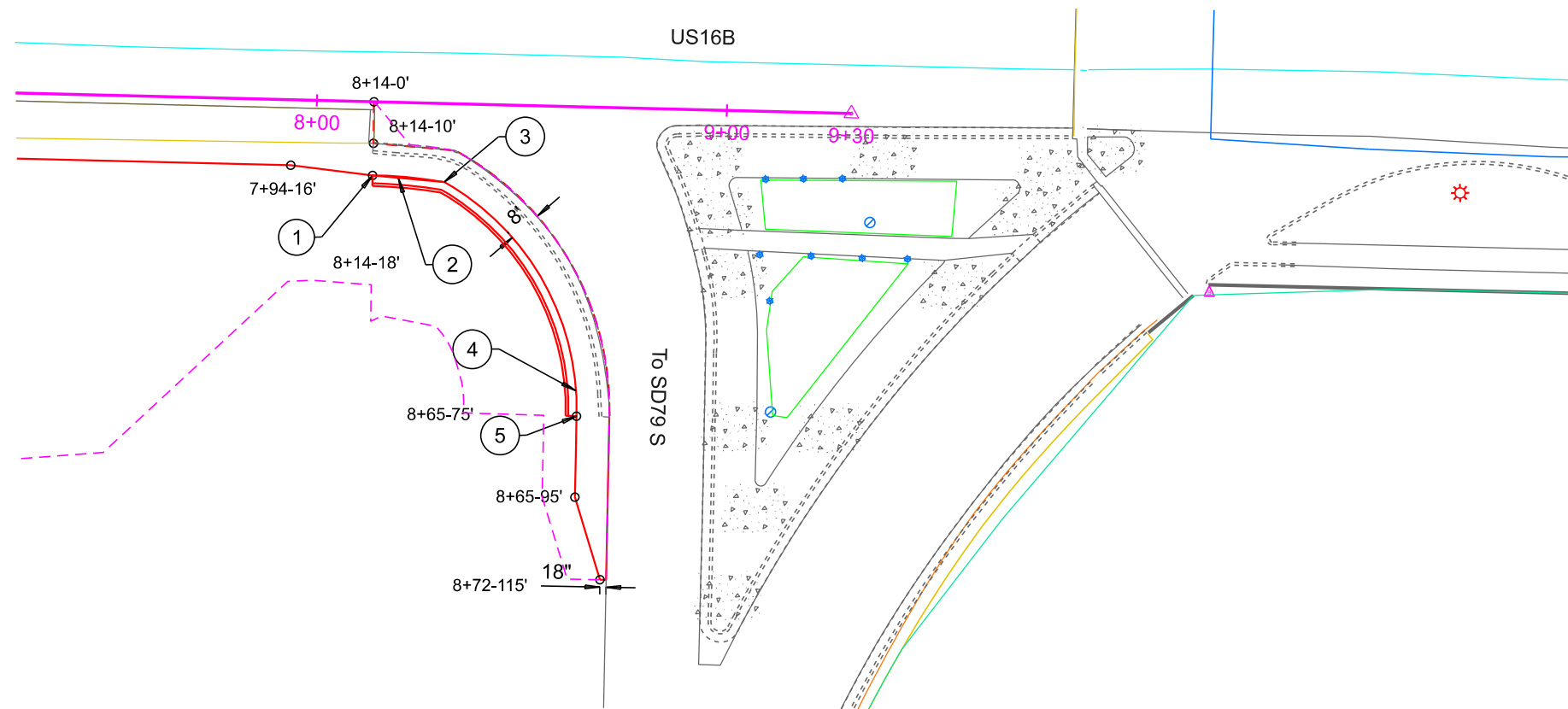
Plotting Date: 3/24/2026

5+52 R
Remove for Reset 1 RCP Flared End
5+52 R (70 ac)
Install 36" - 16' RCP
Reset 1 RCP Flared End

SD 79S Site Layout
US 16B 1"=100'



SD 79S Intersection Layout
US 16B 1"=40'



- 1 8+14.00-18.00' R
Begin Straight Type F C&G Taper
TC 3259.81'
- 2 8+20.00-18.10' R
End Straight Type F C&G Taper
Begin Straight Type F C&G
TC 3260.16'
- 3 8+31.52-19.15' R
End Straight Type F C&G
Begin 63.79' Rad Type F C&G
TC 3260.07'
- 4 8+64.89-69.40' R
End 63.79' Rad Type F C&G
Begin 63.79' Rad Type F C&G Taper
TC 3258.14'
- 5 8+65.20-75.45' R
End 63.79' Rad Type F C&G Taper
TC 3257.53'

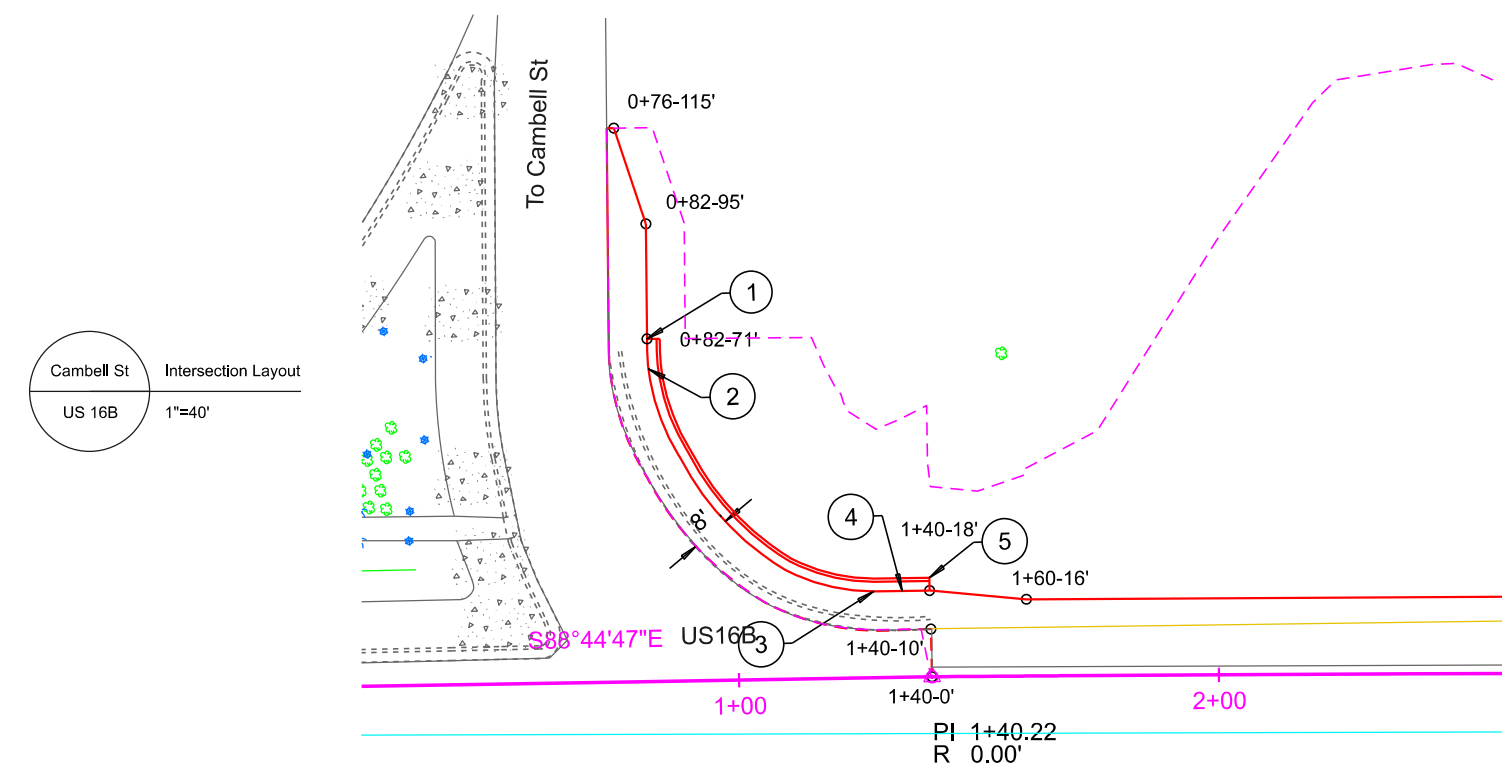
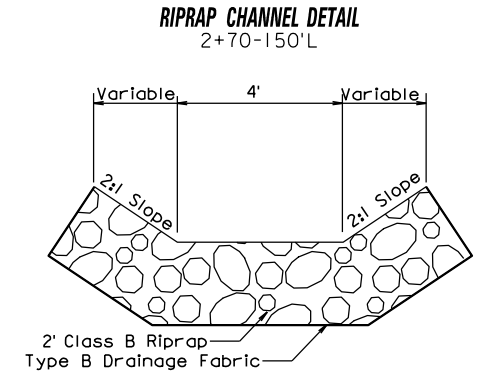
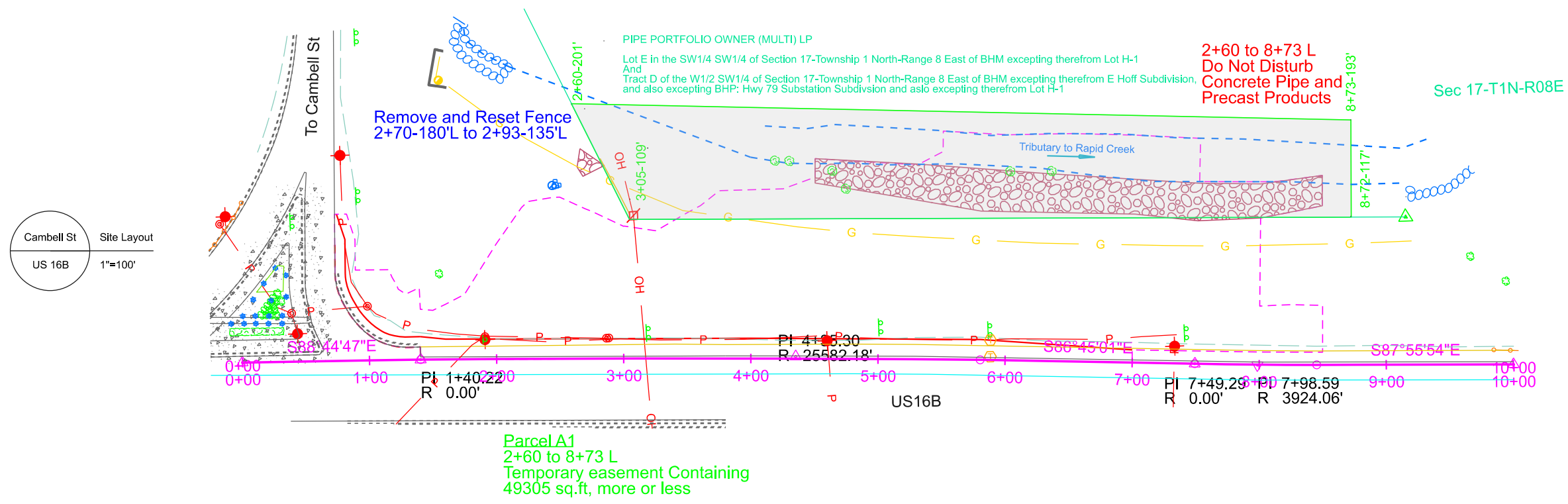
US16B/Cambell Street

SD DOT	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	15

Plotting Date: 3/24/2026

Install Class B Riprap and Drainage Fabric at the following locations:

- 2+70-150'L, In eroded channel (24.3 Tons)
- 4+50 to 8+00-L, Along Inslope (1080 tons)



- 1 0+82.01-71.39' R
Begin 52.37' Rad Type F C&G Taper
TC 3254.99'
- 2 0+82.18-65.49' R
End 52.37' Rad Type F C&G Taper
Begin 52.37' Rad Type F C&G
TC 3255.57'
- 3 1+28.38-18' R
End 52.37' Rad Type F C&G
Begin Straight Type F C&G
TC 3256.11'
- 4 1+34.00-18' R
End Straight Type F G&G Taper
Begin Straight Type F G&G Taper
TC 3256.15'
- 5 1+40.00-18' R
End Straight Type F C&G Taper
TC 3255.70'

US16B/Creek Drive

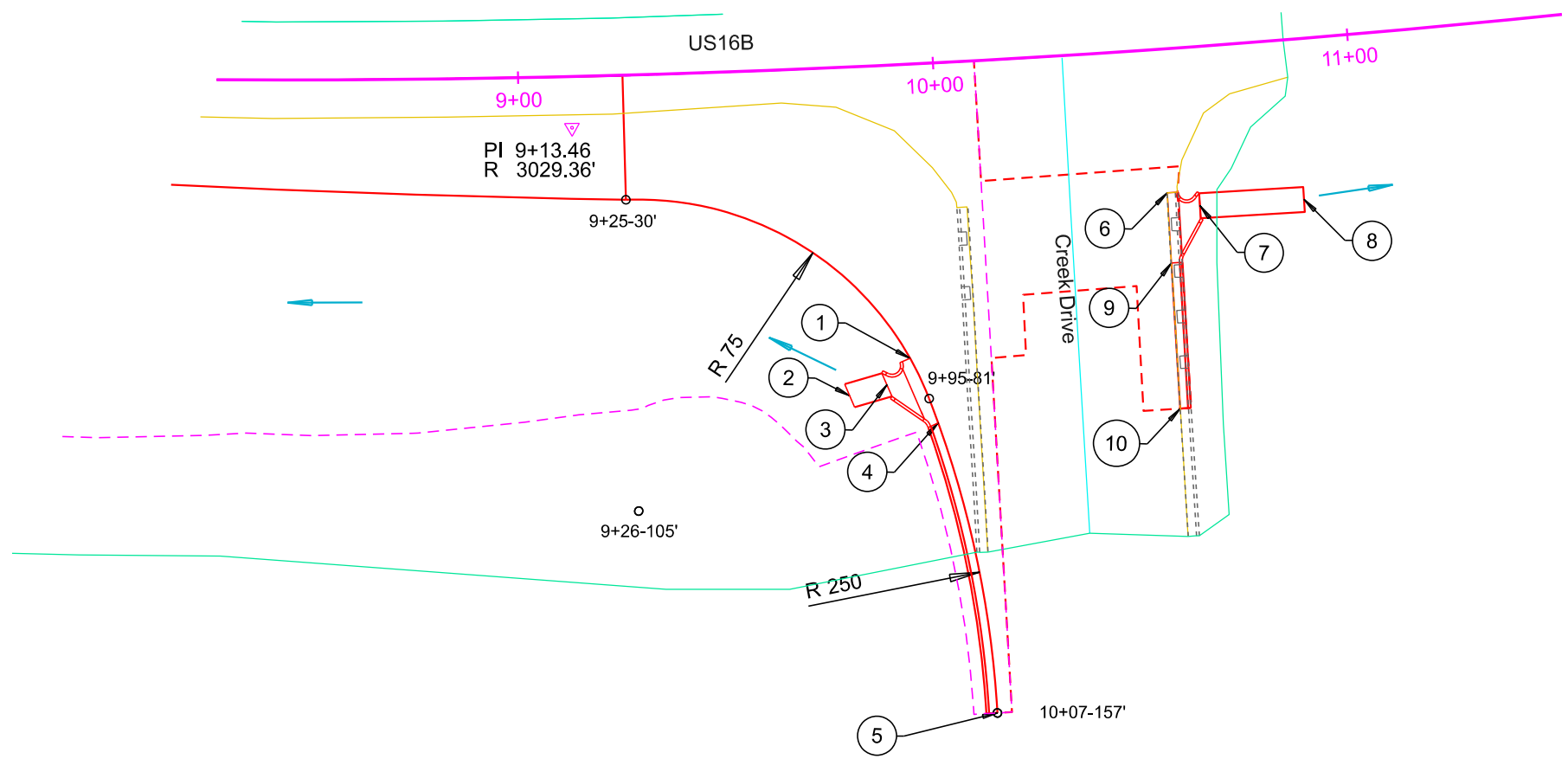
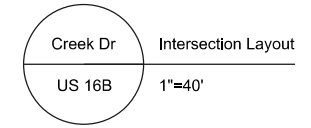
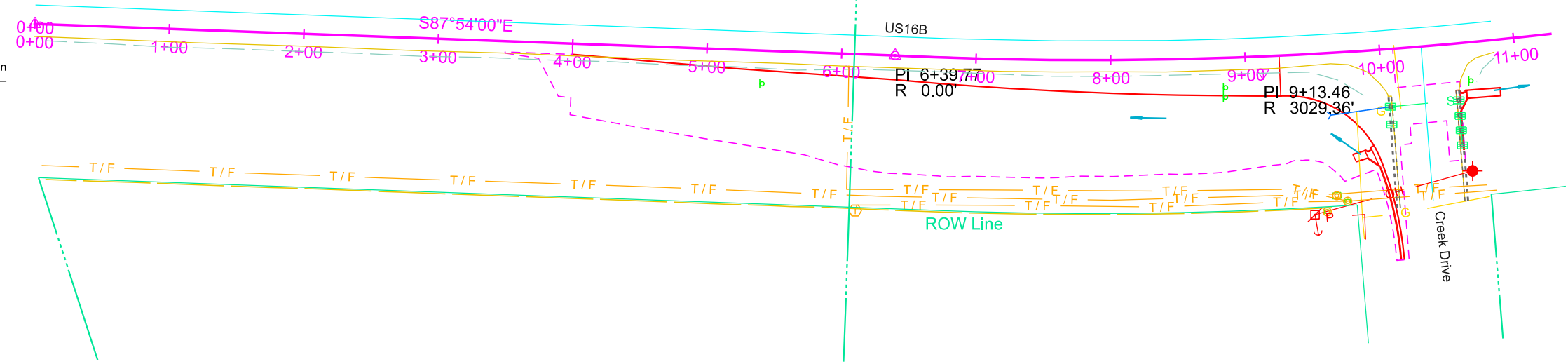
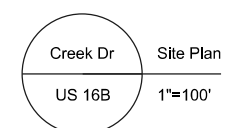
SD DOT	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	16

Plotting Date: 3/24/2026

9+60-46' R to 10+55-42' R
Take Out 48"- 92' RCP
(Incidental Work, Grading)

10+04-42' R to 56' R
Take Out 13' RCP & 2 Drop Inlets
(Incidental Work, Grading)

10+55-44' R to 75' R
Take Out 33' RCP & 4 Drop Inlets
(Incidental Work, Grading)



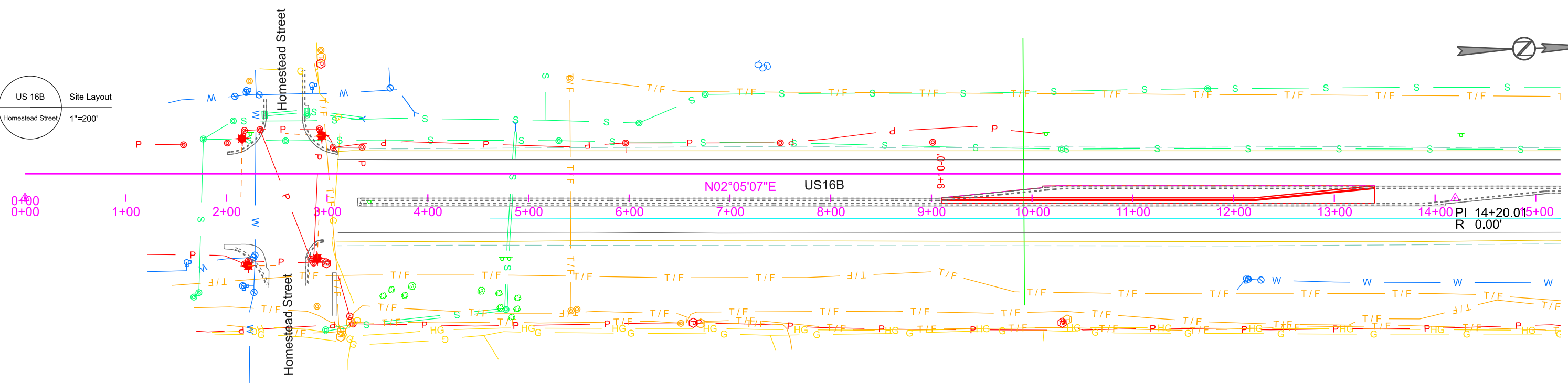
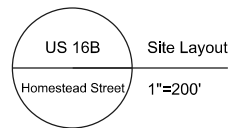
- 1 9+91.00-70.73' R
Begin Curb Opening
TC 3254.29'
- 2 9+76.13-79.14' R
End Type C12 Gutter
- 3 9+85.26-76.85' R
Begin Type C12 Gutter
- 4 9+96.85-86.61' R
End Curb Opening
Begin 250' Rad Type B C&G
TC 3254.48'
- 5 10+07.02-157.02' R
End 250' Rad Type B C&G
TC 3255.47'
(Match Existing)
- 6 10+54.10-34.62' R
Begin Curb Opening
TC 3253.96'
- 7 10+61.64-38.31' R
Begin Type C12 Gutter
- 8 10+86.43-38.72' R
End Type C12 Gutter
- 9 10+53.93-51.55' R
End Curb Opening
Begin Type B C&G
TC 3254.39'
- 10 10+53.69-86.74' R
End Type B C&G
TC 3254.62'
(Match Existing)

7+70-168'

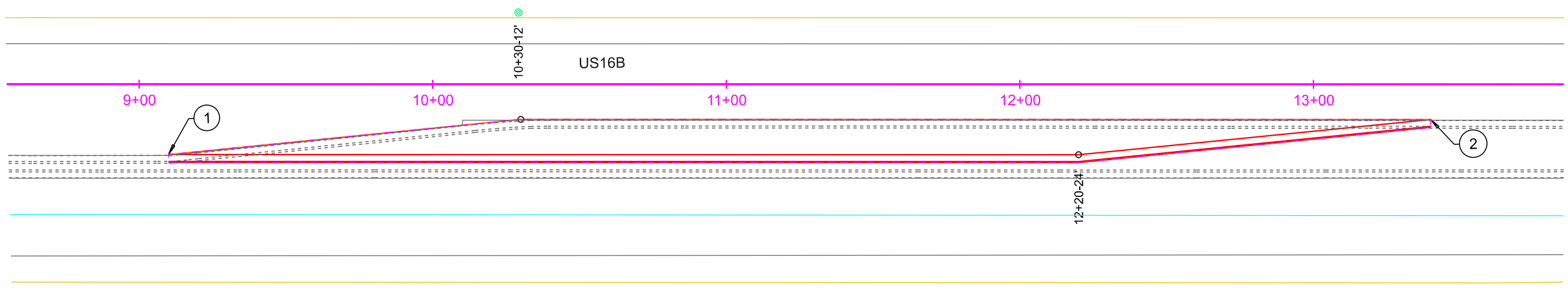
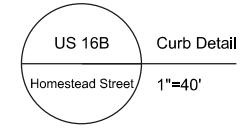
US16B/Homestead Street

	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	17

Plotting Date: 2/13/2026

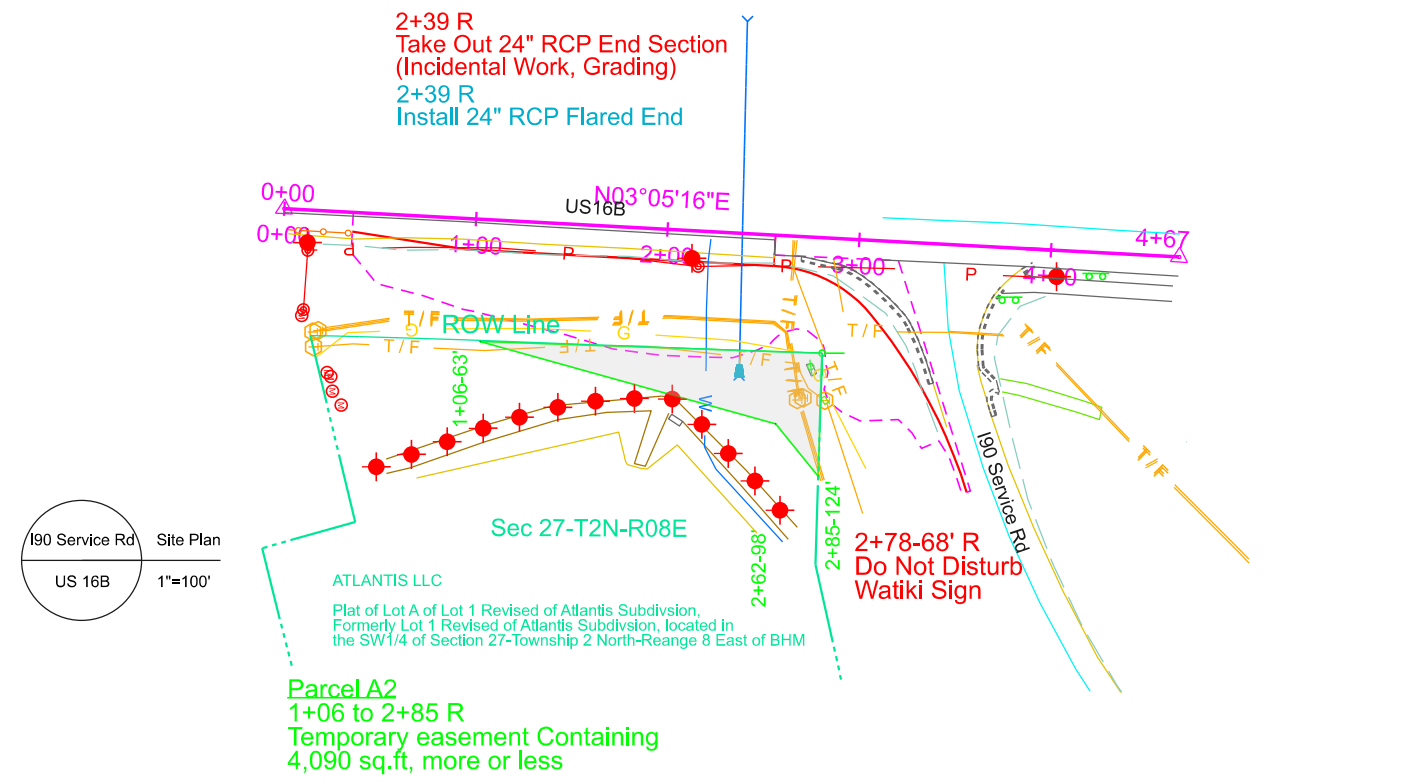


- 1 9+10-24' R
Begin Type FL69.5 C&G
TC 3261.85'
(Match Existing)
- 2 13+40-12' R
End Type FL69.5 C&G
TC 3262.38'
(Match Existing)



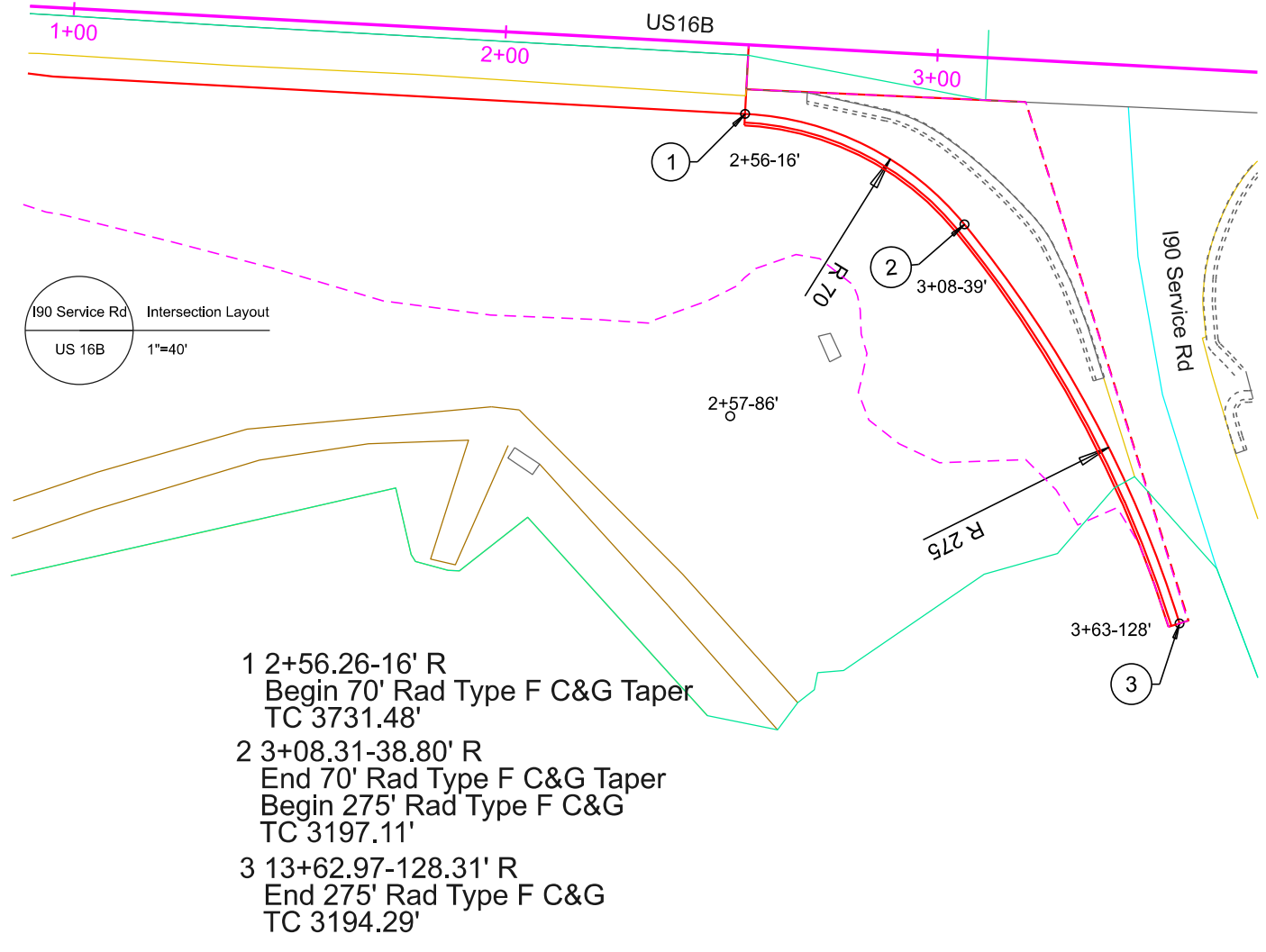
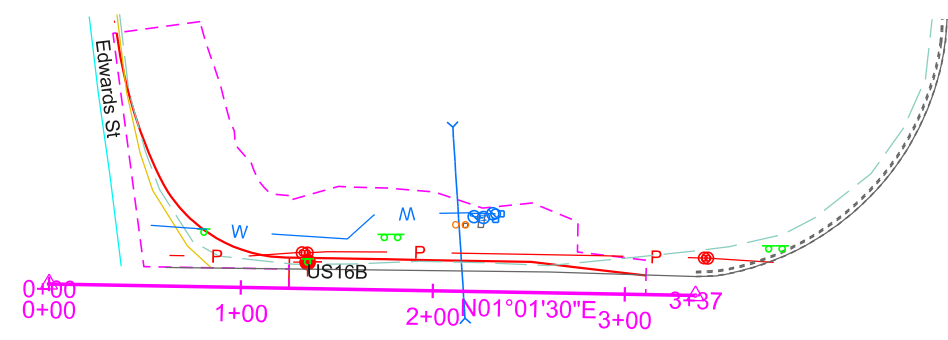
US16B/I90 Service Road

US16B/Edwards Street

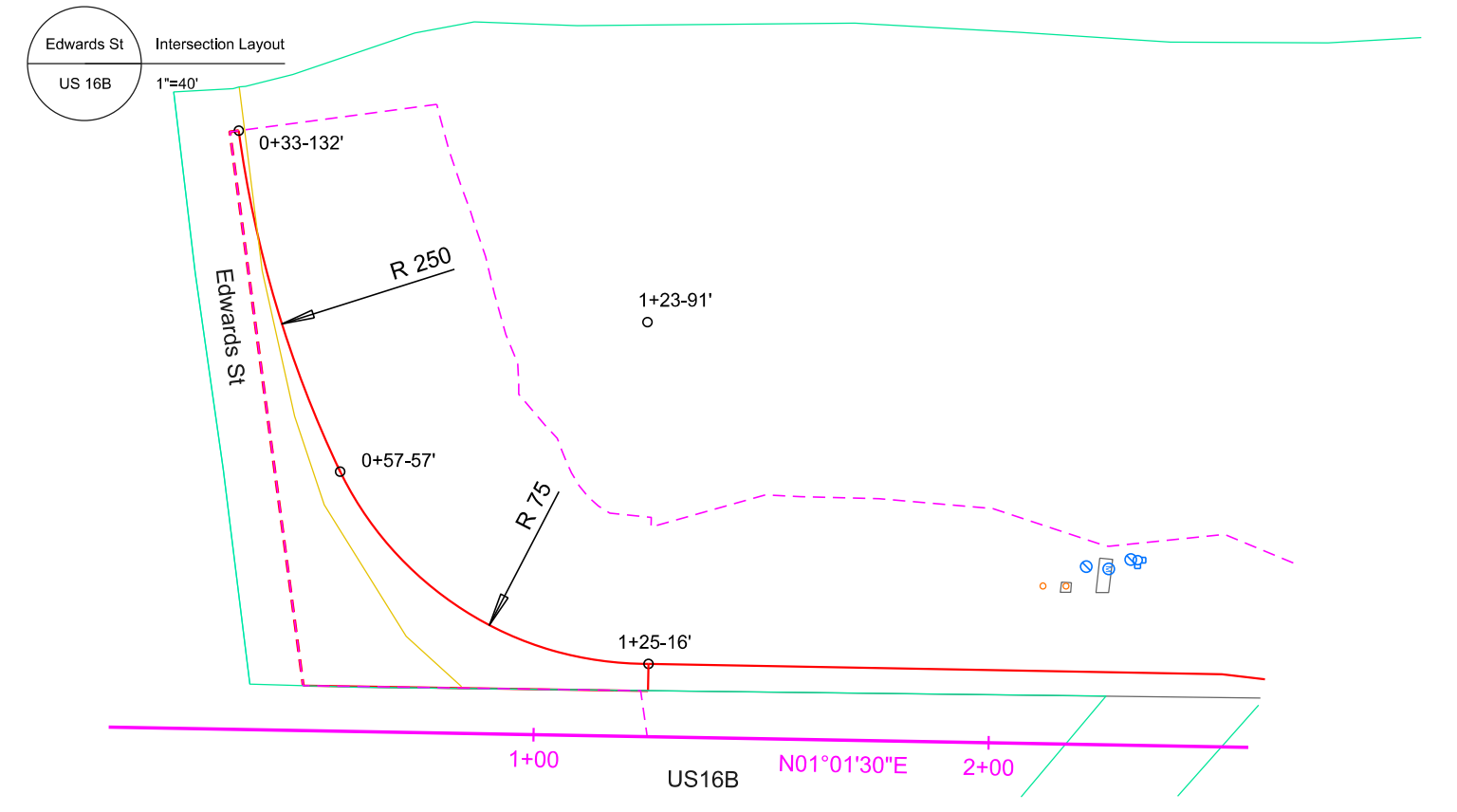


I90 Service Rd Site Plan
US 16B 1"=100'

Edwards St Site Plan
US 16B 1"=100'




I90 Service Rd Intersection Layout
US 16B 1"=40'



Edwards St Intersection Layout
US 16B 1"=40'

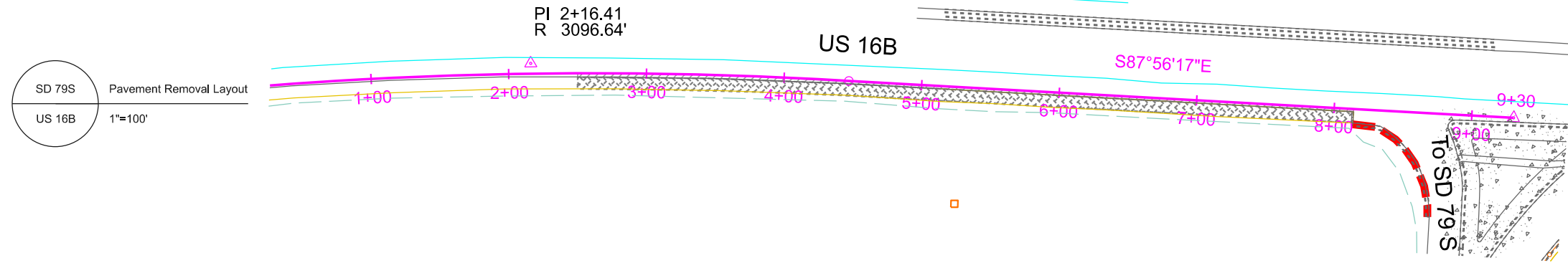
- 1 2+56.26-16' R
Begin 70' Rad Type F C&G Taper
TC 3731.48'
- 2 3+08.31-38.80' R
End 70' Rad Type F C&G Taper
Begin 275' Rad Type F C&G
TC 3197.11'
- 3 13+62.97-128.31' R
End 275' Rad Type F C&G
TC 3194.29'

PAVEMENT REMOVAL LAYOUT

	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	19

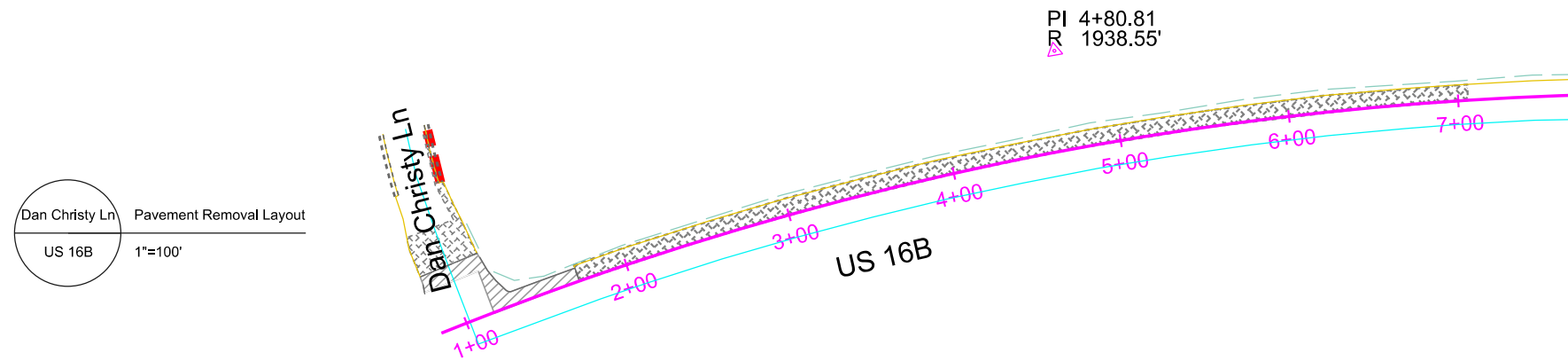
Plotting Date: 2/13/2026

US 16B - SD 79 S







SD 79S
Pavement Removal Layout
US 16B
1"=100'

US 16B - Dan Christy Ln



Dan Christy Ln
Pavement Removal Layout
US 16B
1"=100'

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



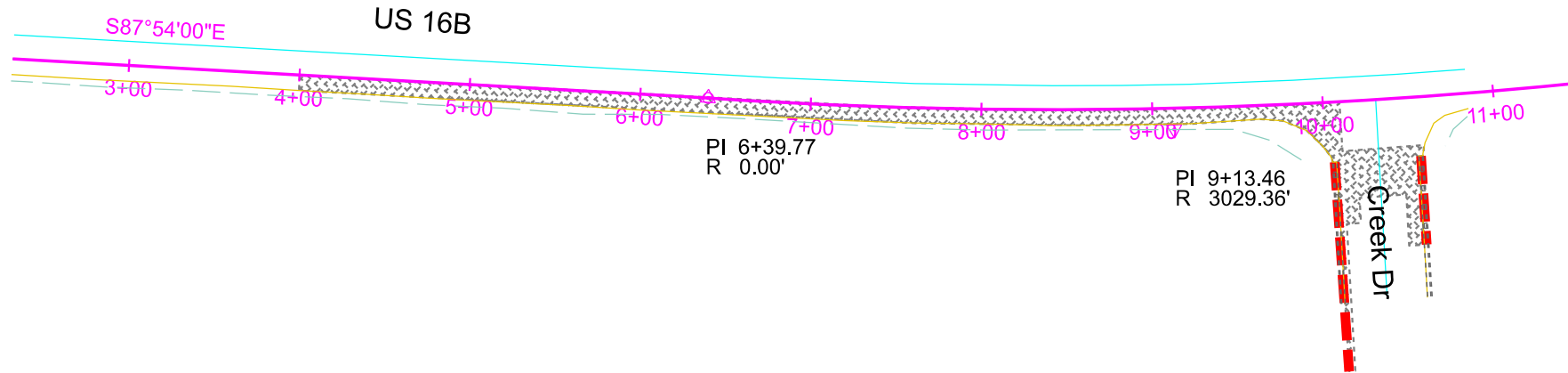
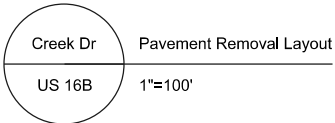
PAVEMENT REMOVAL LAYOUT



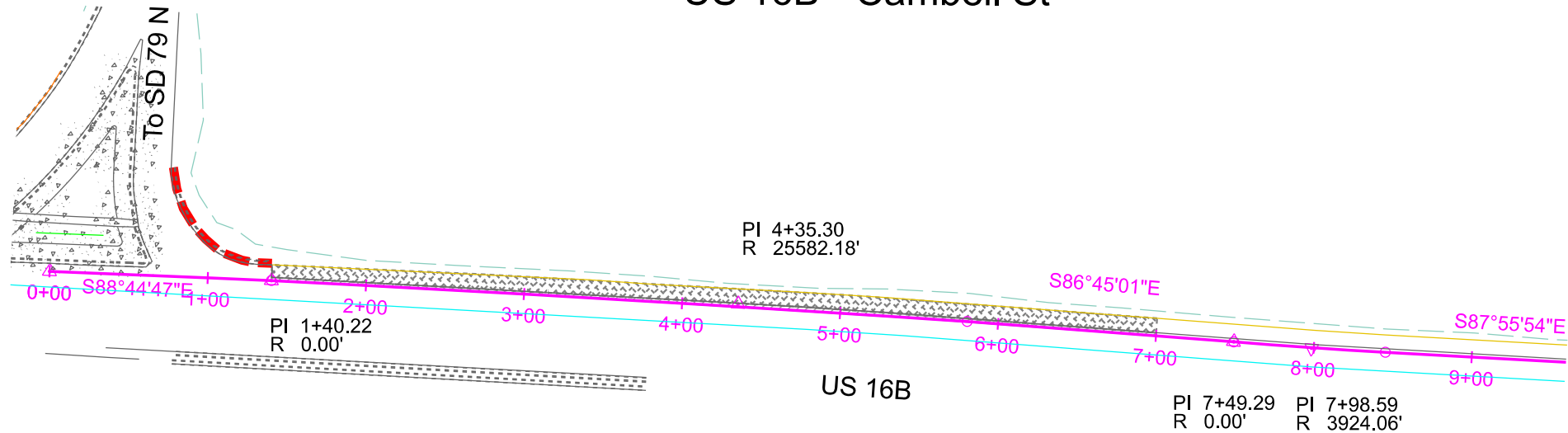
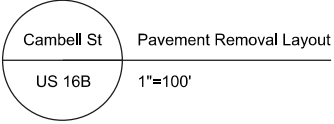
PROJECT	SECTION	SHEET
NH 016B(03)64	B	20





Plotting Date: 2/13/2026

US 16B - Creek Dr



US 16B - Cambell St



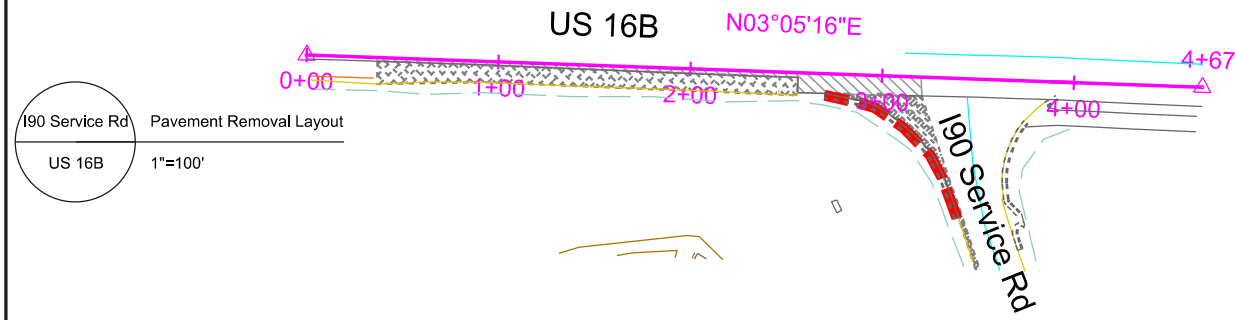
-  Remove Concrete Pavement
-  Remove Asphalt Concrete Pavement
-  Remove Concrete Curb and/or Gutter
-  Remove Median



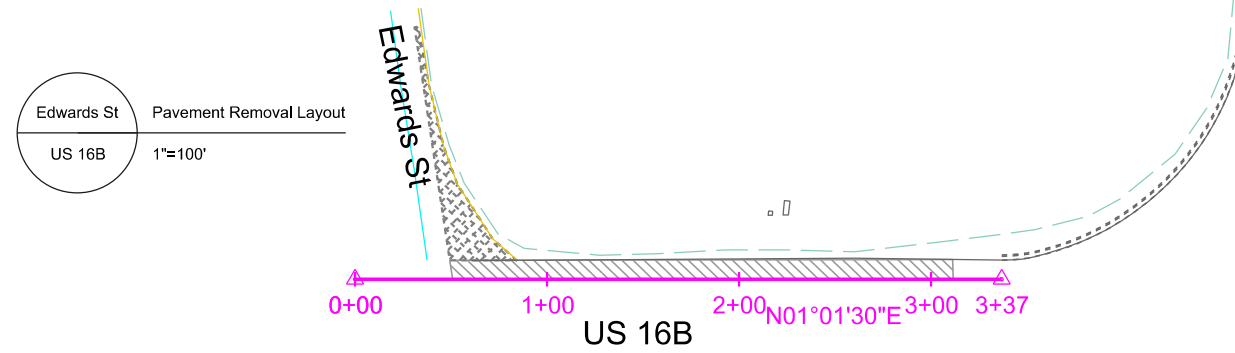
PAVEMENT REMOVAL LAYOUT

SD DOT	PROJECT	SECTION	SHEET
	NH 016B(03)64	B	21
Plotting Date: 2/13/2026			

US 16B - I90 Service Rd







US 16B - Edwards St



US 16B - Homestead St

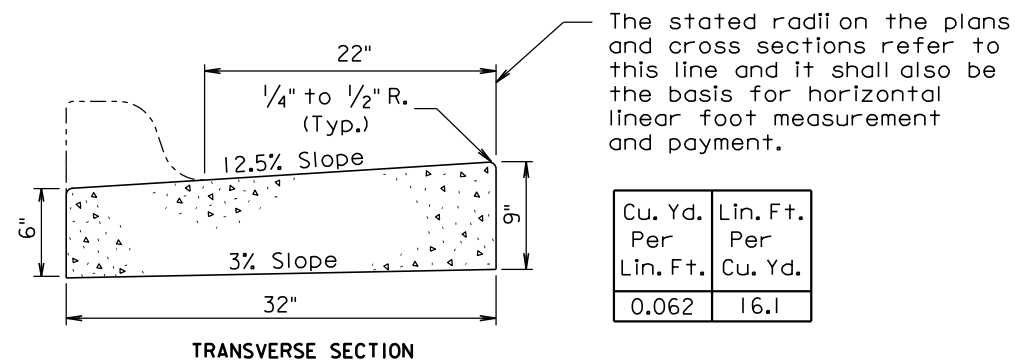


-  Remove Concrete Pavement
-  Remove Asphalt Concrete Pavement
-  Remove Concrete Curb and/or Gutter
-  Remove Median



CURB OPENING DETAILS

MODIFIED TYPE P9 CONCRETE GUTTER

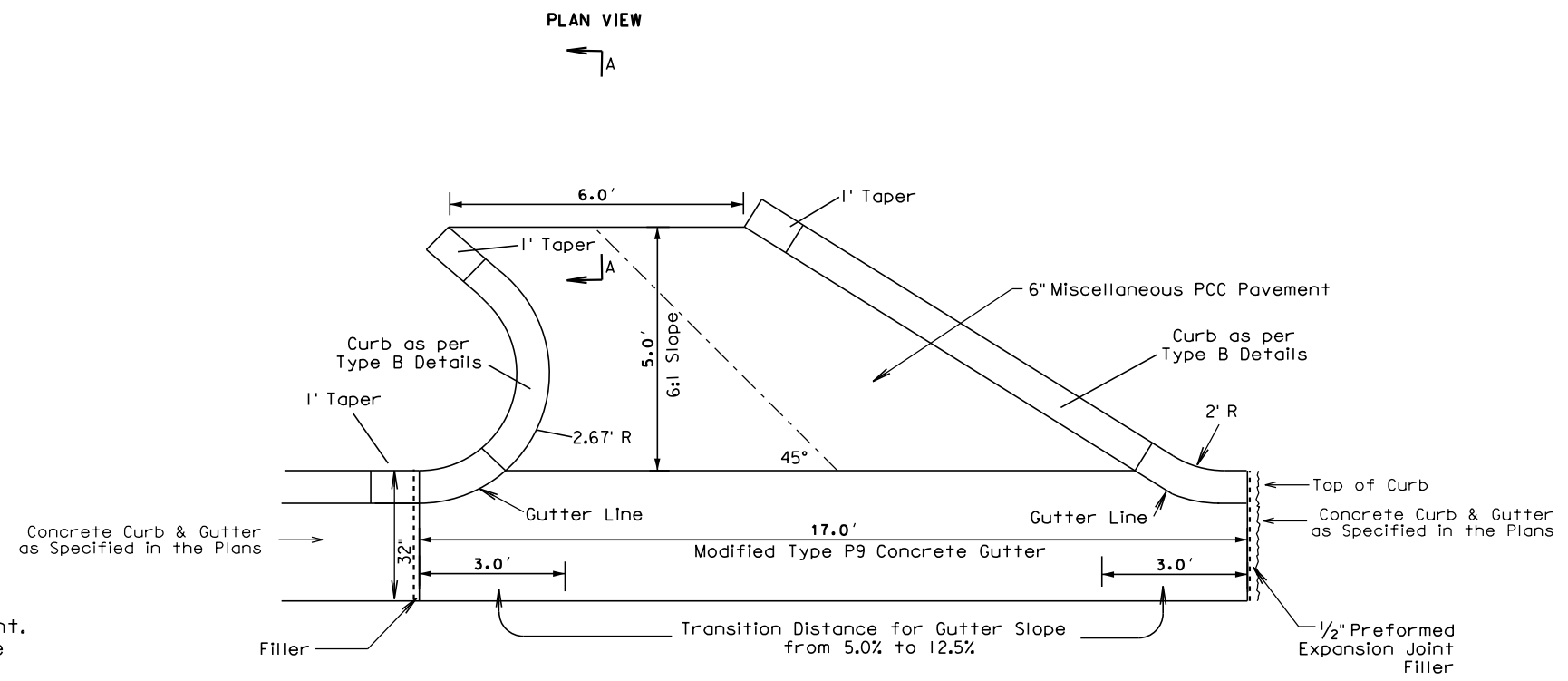


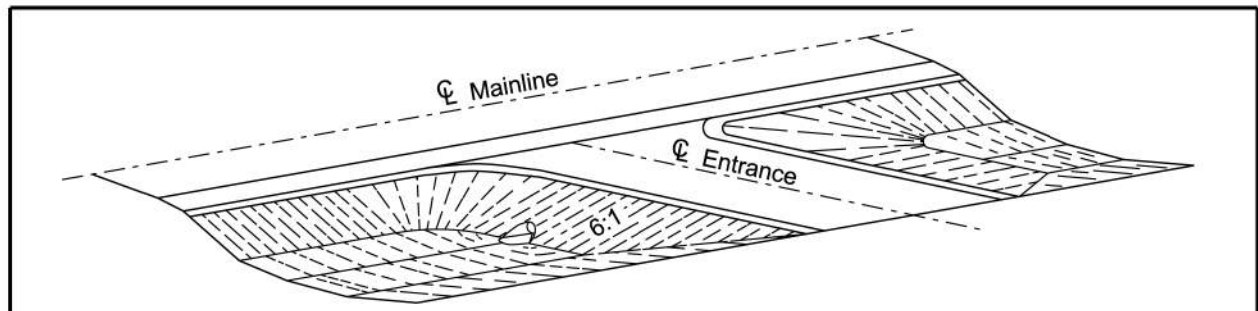
Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
0.062	16.1

TRANSVERSE SECTION

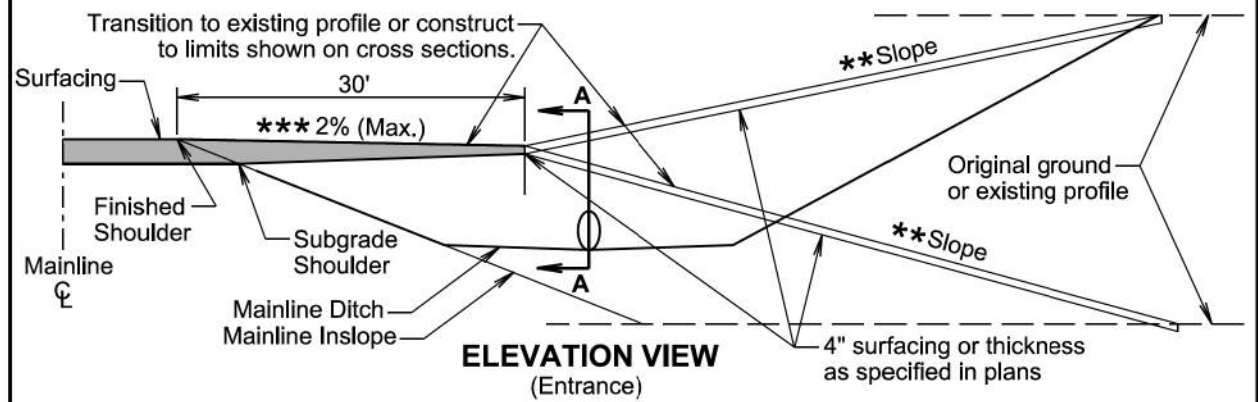
GENERAL NOTES:

- The concrete for the Modified Type P9 Concrete Gutter shall comply with the requirements of the Standard Specifications for Class M6 Concrete.
- When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.20.
- Transverse contraction joints shall 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 shall 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 shall 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 shall 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 shall be at least 1/4 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.





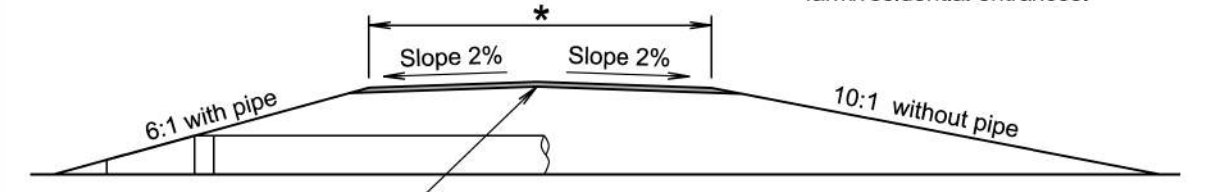
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW (Entrance)

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

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



SECTION A-A (Entrance and Intersecting Road)

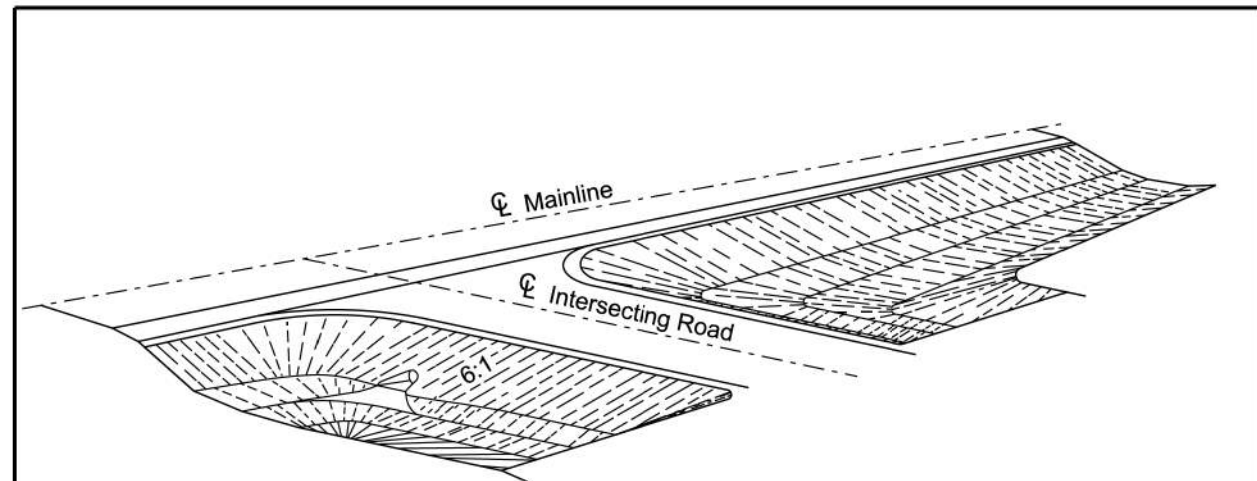
* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

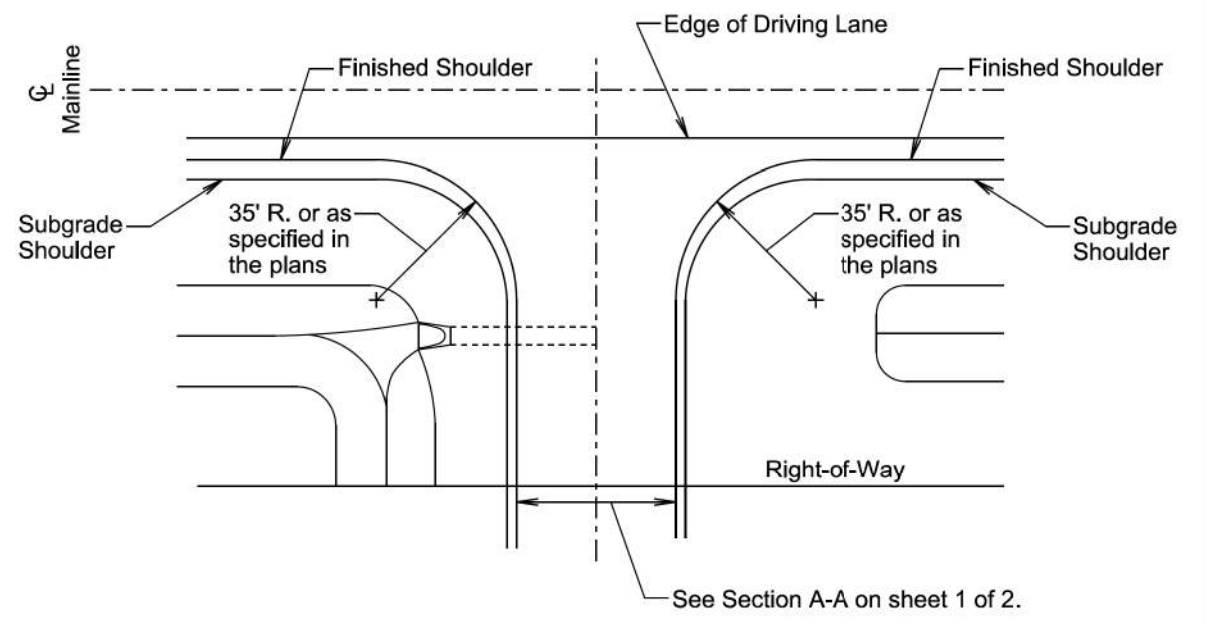
- The ditch section shown above in the perspective view is only for illustrative purpose.
- The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.
- Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.
- The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.
- The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

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			120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

GENERAL NOTES:

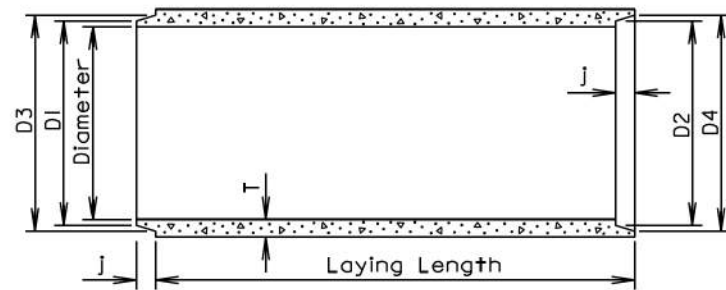
- The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

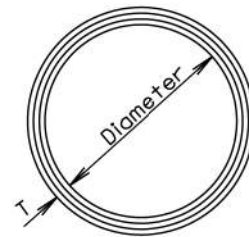
Published Date: 2026	SD DOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER
			120.01
			Sheet 2 of 2

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:

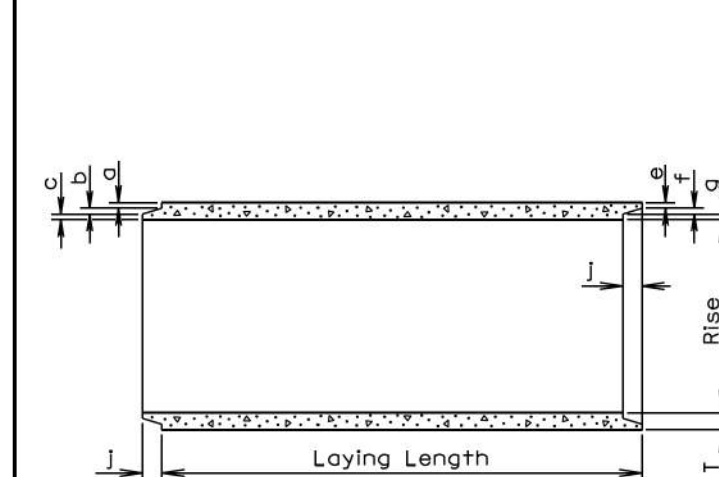
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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.

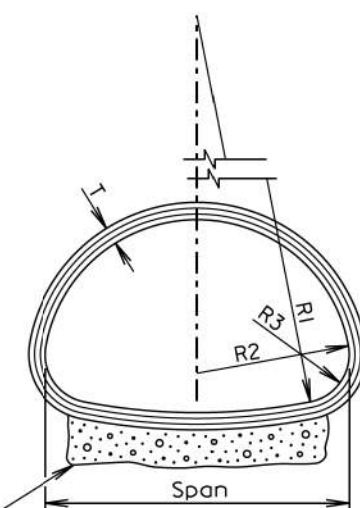
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 3/8	14 1/4
15	127	2 1/4	2	16 1/2	16 3/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 1/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322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

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



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: $\pm \frac{1}{8}$ " for 65" span or less and $\pm \frac{1}{4}$ " for longer spans.
 Rise and Span: $\pm 2\%$ of tabular values.
 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 $\frac{1}{2}$ ".

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 1/16	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 5/16	5	2 3/4	3/4	2 1/2	105	37 1/2	11
72	1900	54	88	7	3 13/16	1	2 3/16	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 1/8

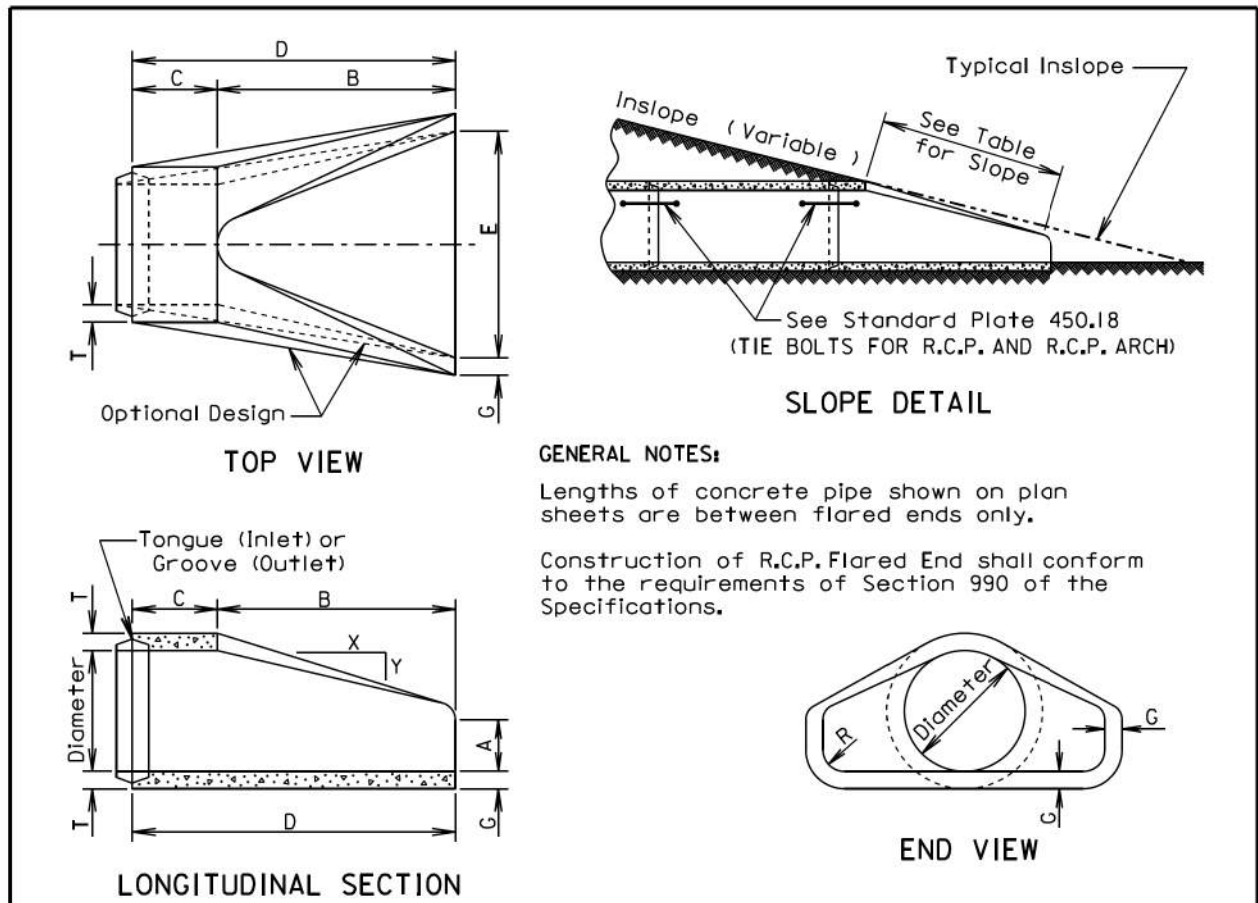
* Equivalent Diameter of Circular R. C. P.

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

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



GENERAL NOTES:

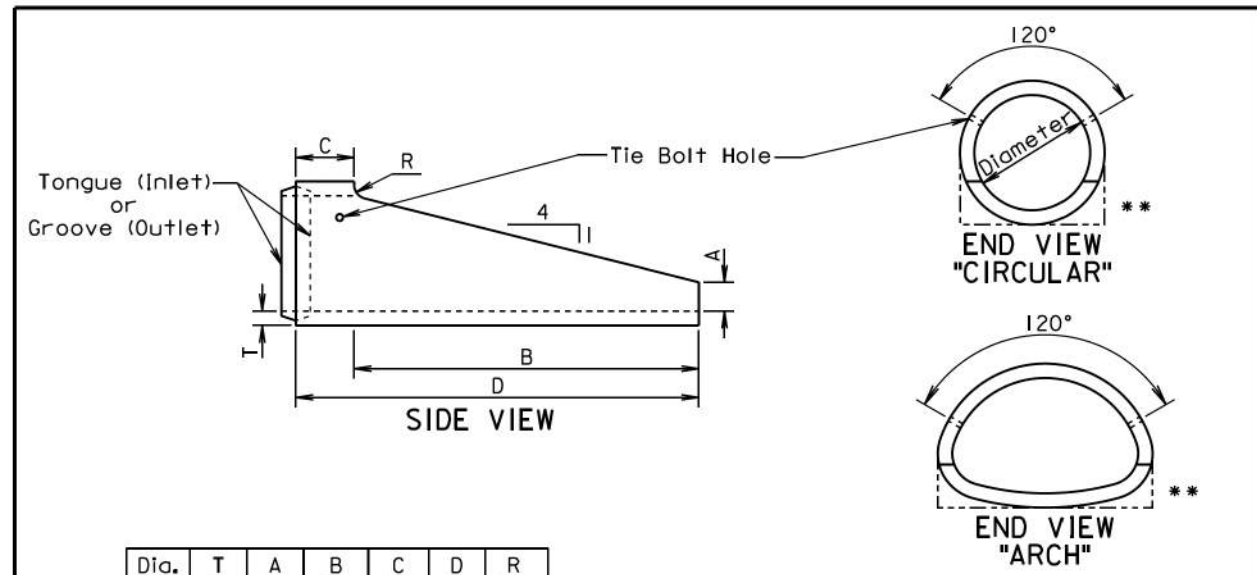
Lengths of concrete pipe shown on plan sheets are between flared ends only.

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

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5:1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5:1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5:1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5:1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5:1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5:1	5	24	72	26	98	84	5	1 1/2
54	8240	2:1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9:1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7:1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8:1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8:1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6:1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5:1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

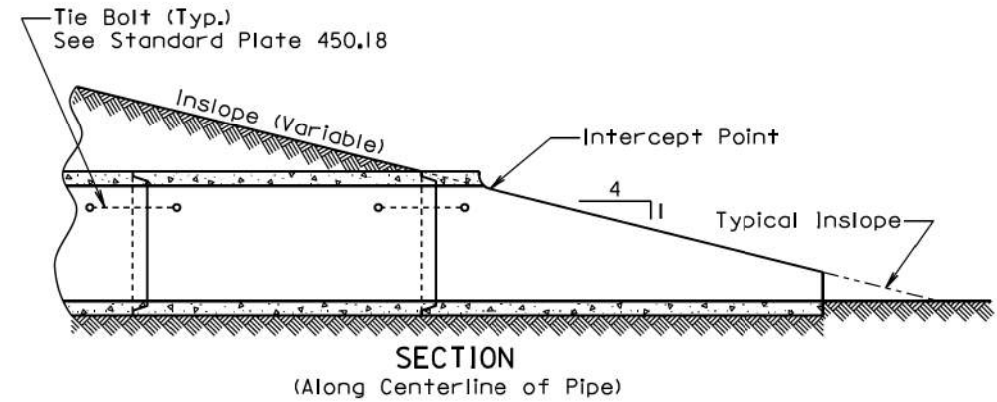
SD DOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
		Sheet 1 of 1
Published Date: 2026		



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

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
ALTERNATE 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.



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

September 22, 2006

SD DOT	R. C. P. SLOPED ENDS	PLATE NUMBER 450.13
		Sheet 1 of 1
Published Date: 2026		

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2-6 1/2	3/4	1
≥ 7	1	1 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.

ASTM F1554, Grade 36 or ASTM A36 Rod with Heavy Hex Nut and Washer

ASTM F1554, Grade 36 or ASTM A36 Tie Bolt with 2 Heavy Hex Nuts and 2 Washers

ADJUSTABLE EYE BOLT TIE

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	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.

ASTM A307 Bolt with Heavy Hex Nut and 2 Washers

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

SD DOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
		Sheet 1 of 1

Published Date: 2026

ALL WOOD POSTS

ALTERNATE WOOD AND STEEL POSTS

TYPE 1 (3 Barbed Wires)

TYPE 2 (4 Barbed Wires)

TYPE 3 (5 Barbed Wires)

TYPE 4 (26" Woven Wire with 2 Barbed Wires)

TYPE 5 (26" Woven Wire with 4 Barbed Wires)

TYPE 6 (32" Woven Wire with 3 Barbed Wires)

TYPE OF FENCE		LINE POST SPACING	WIRE GAGE	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION			NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.	
1	3 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	
2	4 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	
3	5 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12 1/2	2 Point Round	726-6-12 1/2	
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12 1/2	
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12 1/2	

GENERAL NOTES:

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

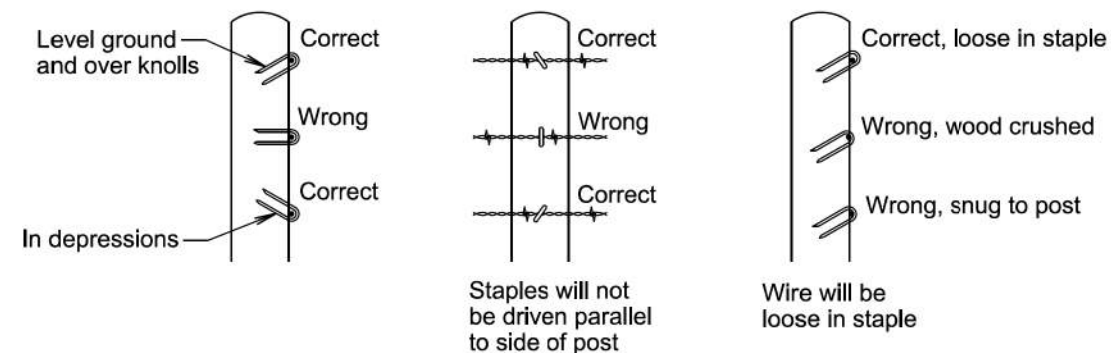
When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

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

April 8, 2025

SD DOT	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
		Sheet 1 of 1

Published Date: 2026



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

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

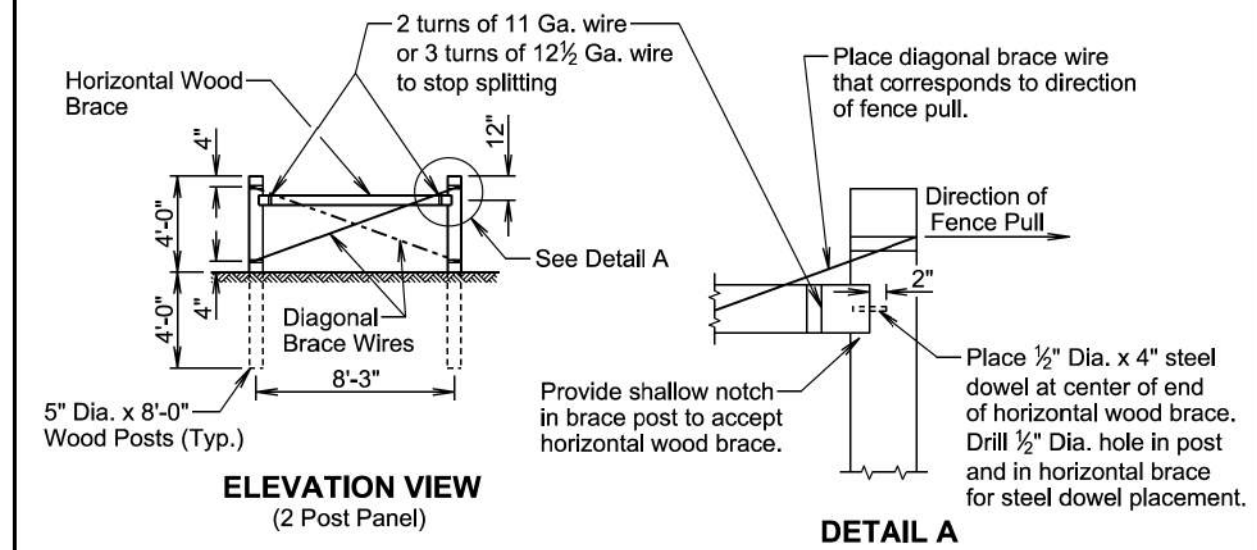
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

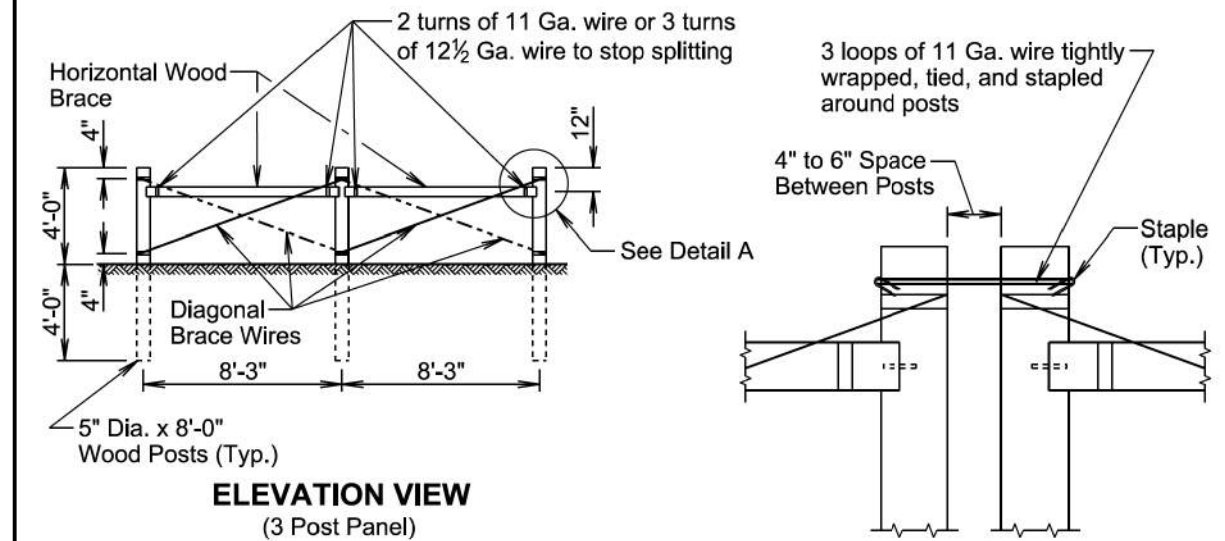
June 26, 2019

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



ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)

DETAIL B

GENERAL NOTES:

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

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

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

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

March 31, 2024

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

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

GENERAL NOTE:

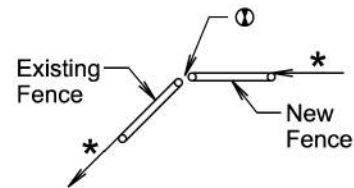
All radius of curvature stated for fence are at centerline of roadway.

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

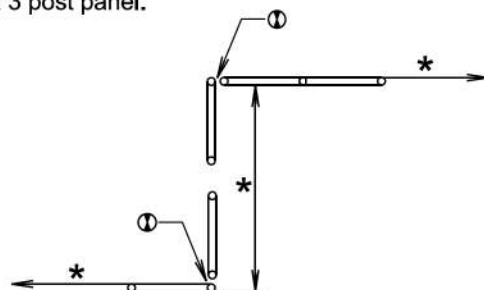
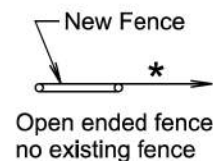
* If fence length is greater than 600' to next corner use a 3 post panel.

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

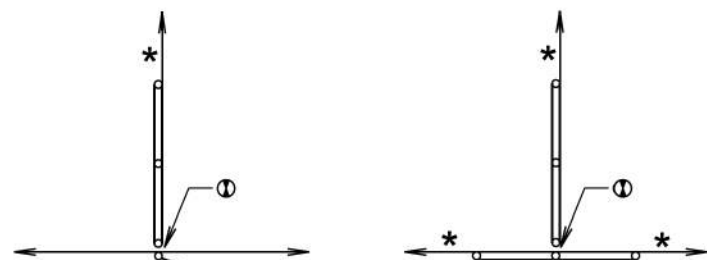
① See Detail B on Sheet 1 of 3.



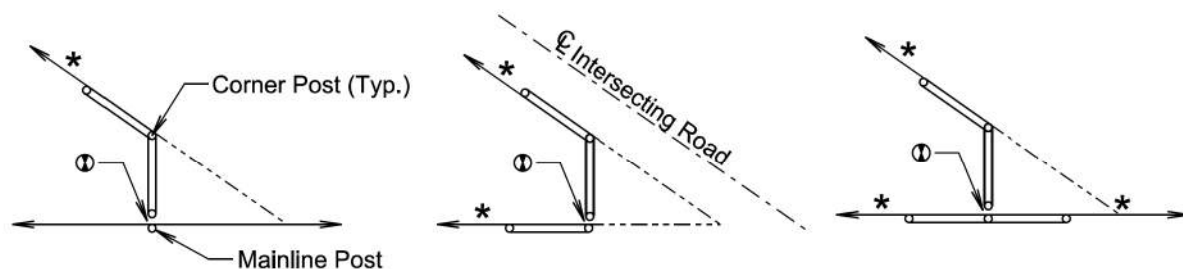
BEGIN OR END FENCE
(Where new fence ties into existing fence)



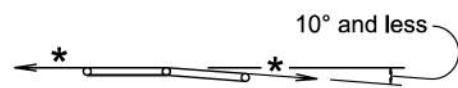
SHORT JOGS IN FENCE



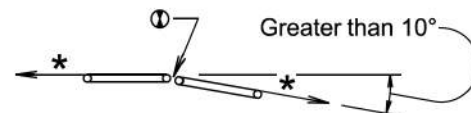
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



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



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

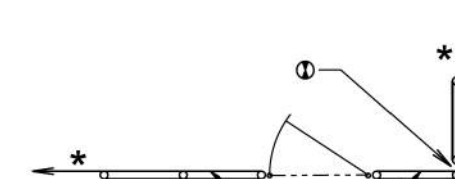
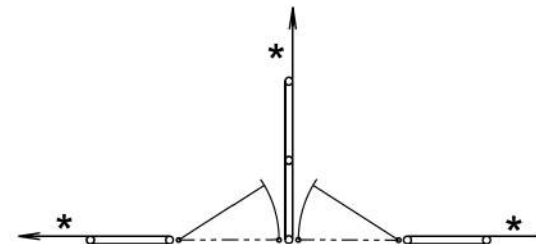
ANGLES IN MAINLINE FENCE

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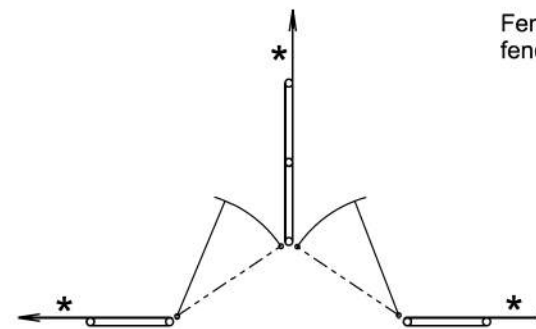
Published Date: 2026	SD DOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
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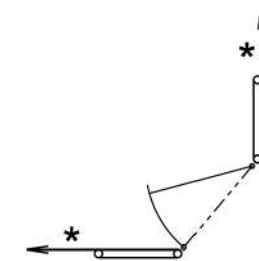
ENTRANCE
(Not on corner)



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

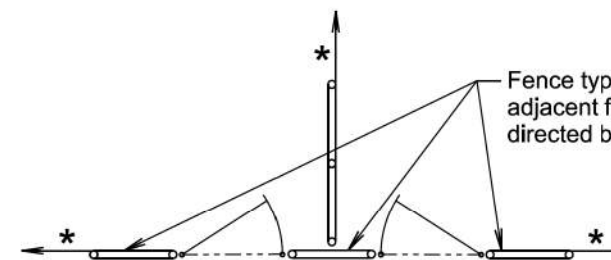


DOUBLE ENTRANCES



ENTRANCES AT CORNERS

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



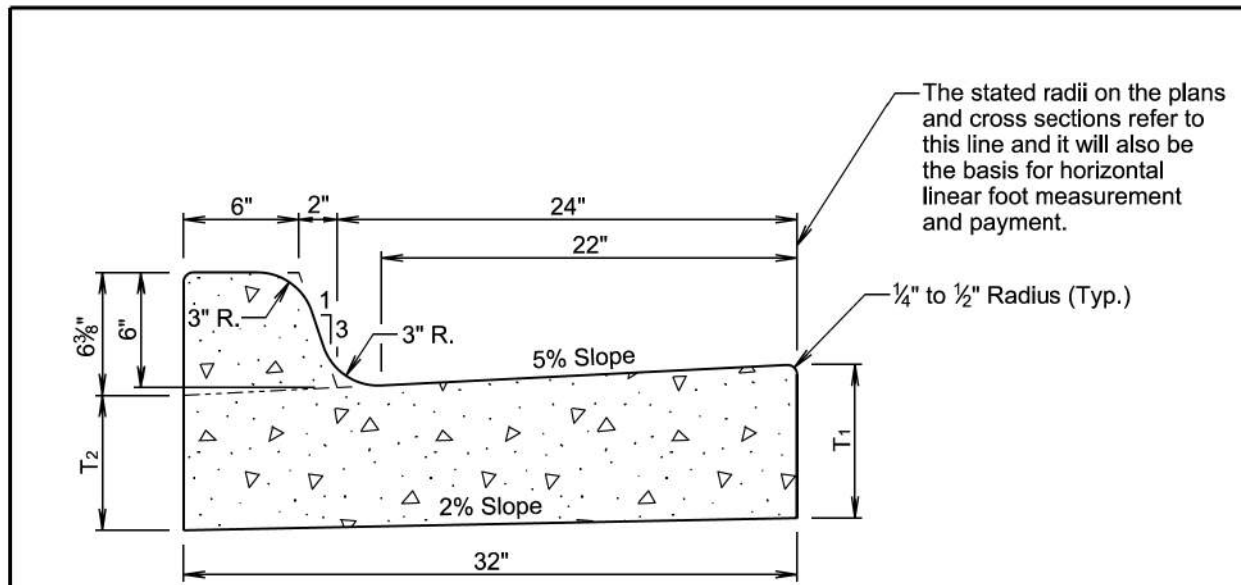
GATES

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

① See Detail B on Sheet 1 of 3.

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TYPE B CONCRETE CURB AND GUTTER				
Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 ¹ / ₁₆	0.057	17.7
B67	7	6 ¹ / ₁₆	0.065	15.4
B68	8	7 ¹ / ₁₆	0.073	13.7
B68.5	8.5	7 ⁹ / ₁₆	0.077	13.0
B69	9	8 ¹ / ₁₆	0.081	12.3
B69.5	9.5	8 ⁹ / ₁₆	0.085	11.7
B610	10	9 ¹ / ₁₆	0.090	11.2
B610.5	10.5	9 ⁹ / ₁₆	0.094	10.7
B611	11	10 ¹ / ₁₆	0.098	10.2
B611.5	11.5	10 ⁹ / ₁₆	0.102	9.8
B612	12	11 ¹ / ₁₆	0.106	9.4

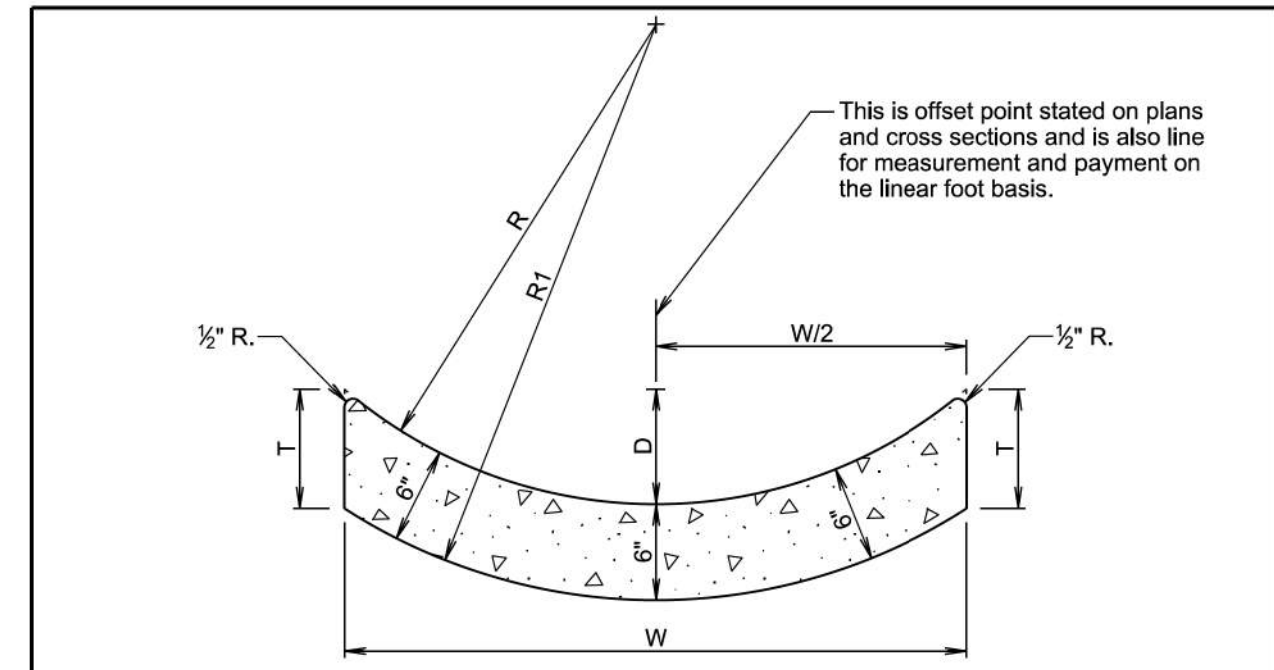
GENERAL NOTES:

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.

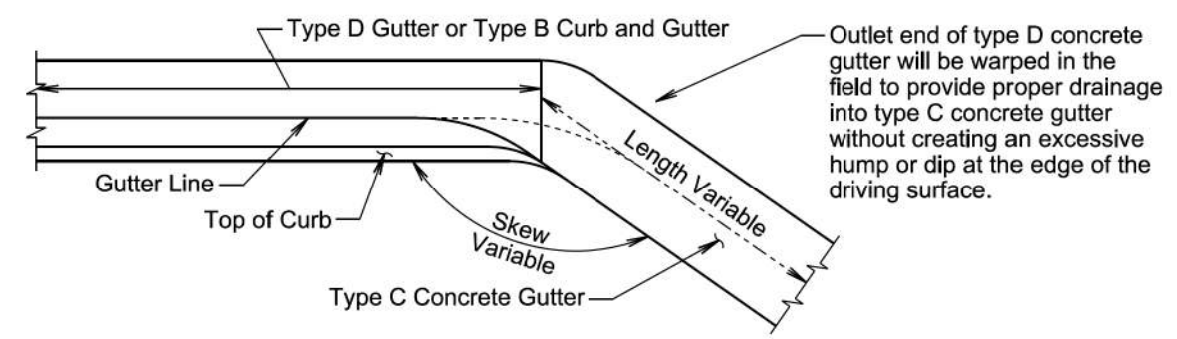
See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

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TYPE C CONCRETE GUTTER							
Type	Gutter Depth D	Gutter Width W	Radius of Top of Gutter R	Radius of Bottom of Gutter R1	Vertical Depth of Concrete at Edges T	Cu. Yd. Per Lin. Foot	Lin. Ft. Per Cu. Yd.
C6	6"	30"	21 ³ / ₄ "	27 ³ / ₄ "	7 ⁵ / ₈ "	0.04982	20.1
C9	9"	48"	36 ¹ / ₂ "	42 ¹ / ₂ "	7 ⁵ / ₈ "	0.07966	12.6
C12	12"	72"	60"	66"	7 ³ / ₈ "	0.11828	8.5



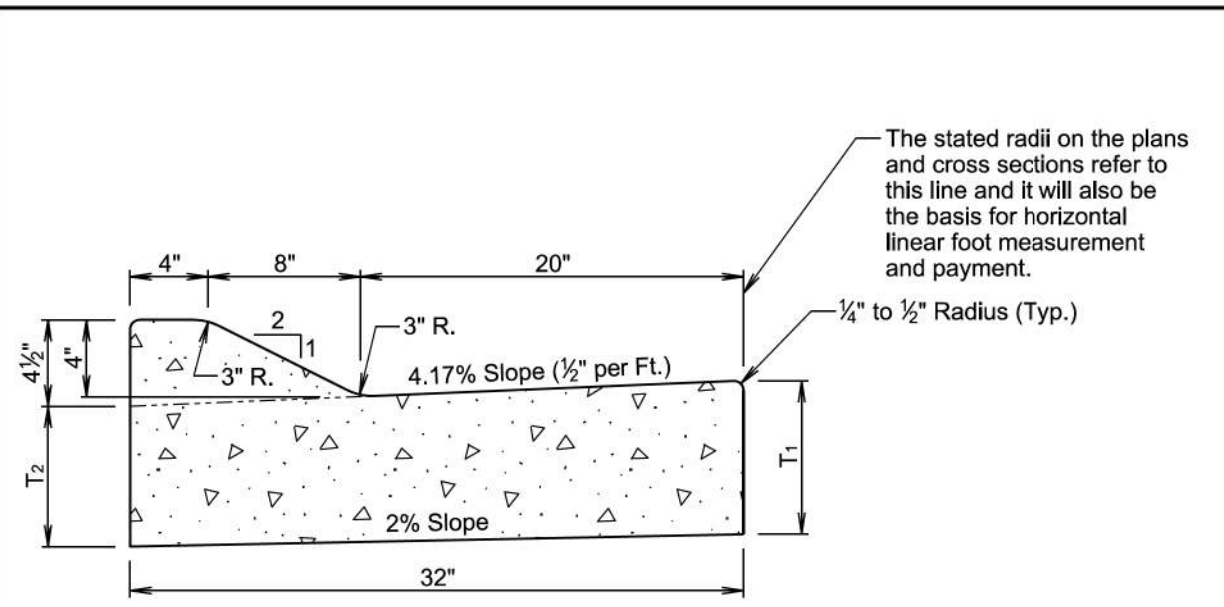
GENERAL NOTE:

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

One-half inch preformed expansion joint filler will be placed transversely in the concrete gutter at intervals of approximately 30 feet.

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TYPE D CONCRETE CURB AND GUTTER

Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
D46	6	5 ⁵ / ₁₆	0.056	18.0
D47	7	6 ⁵ / ₁₆	0.064	15.7
D48	8	7 ⁵ / ₁₆	0.072	13.9
D48.5	8.5	7 ¹³ / ₁₆	0.076	13.1
D49	9	8 ⁵ / ₁₆	0.080	12.5
D49.5	9.5	8 ¹³ / ₁₆	0.084	11.9
D410	10	9 ⁵ / ₁₆	0.088	11.3
D410.5	10.5	9 ¹³ / ₁₆	0.093	10.8
D411	11	10 ⁵ / ₁₆	0.097	10.3
D411.5	11.5	10 ¹³ / ₁₆	0.101	9.9
D412	12	11 ⁵ / ₁₆	0.105	9.5

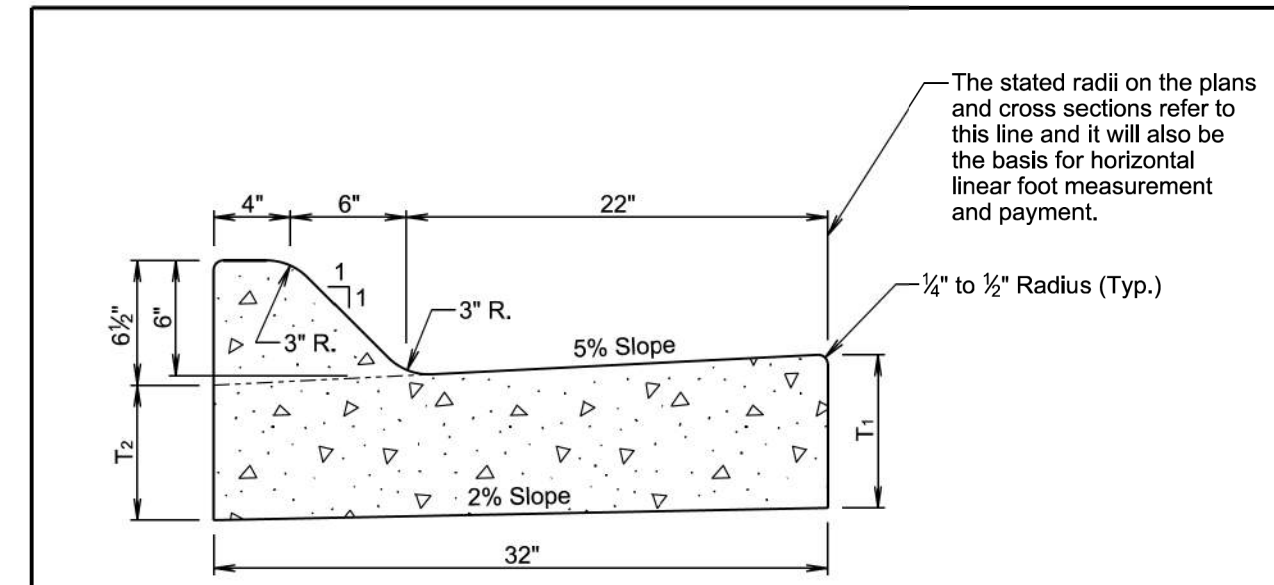
GENERAL NOTES:

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.

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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 ⁵ / ₁₆	0.057	17.6
F67	7	6 ⁵ / ₁₆	0.065	15.4
F68	8	7 ⁵ / ₁₆	0.073	13.6
F68.5	8.5	7 ¹³ / ₁₆	0.077	12.9
F69	9	8 ⁵ / ₁₆	0.082	12.3
F69.5	9.5	8 ¹³ / ₁₆	0.086	11.7
F610	10	9 ⁵ / ₁₆	0.090	11.1
F610.5	10.5	9 ¹³ / ₁₆	0.094	10.7
F611	11	10 ⁵ / ₁₆	0.098	10.2
F611.5	11.5	10 ¹³ / ₁₆	0.102	9.8
F612	12	11 ⁵ / ₁₆	0.106	9.4

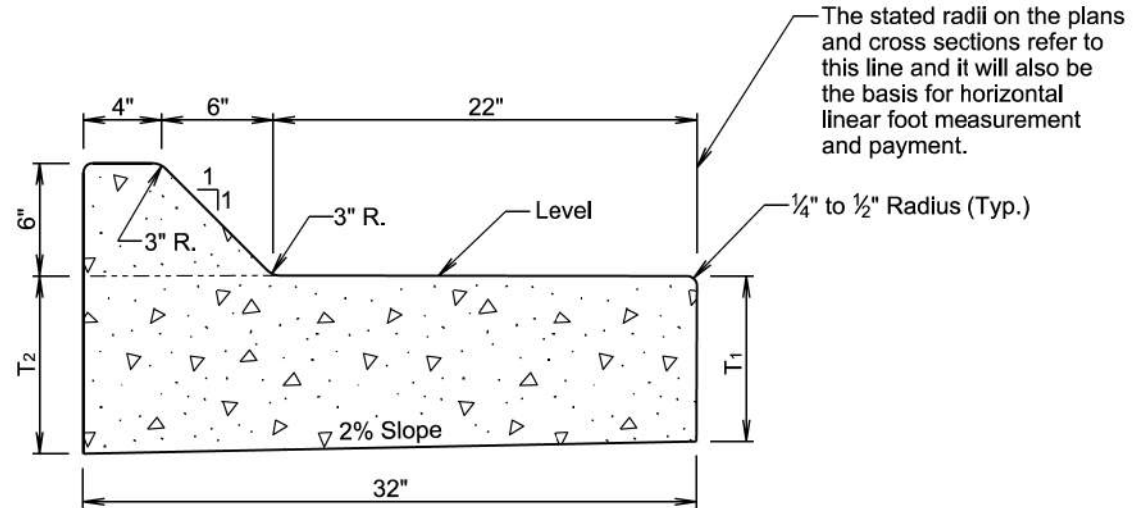
GENERAL NOTES:

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.

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TYPE FL CONCRETE CURB AND GUTTER				
Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
FL66	6	6 ⁵ / ₈	0.062	16.1
FL67	7	7 ⁵ / ₈	0.071	14.1
FL68	8	8 ⁵ / ₈	0.079	12.7
FL68.5	8.5	9 ¹ / ₈	0.084	11.9
FL69	9	9 ⁵ / ₈	0.087	11.5
FL69.5	9.5	10 ¹ / ₈	0.091	11.0
FL610	10	10 ⁵ / ₈	0.095	10.9
FL610.5	10.5	11 ¹ / ₈	0.100	10.0
FL611	11	11 ⁵ / ₈	0.104	9.6
FL611.5	11.5	12 ¹ / ₈	0.108	9.3
FL612	12	12 ⁵ / ₈	0.112	8.9

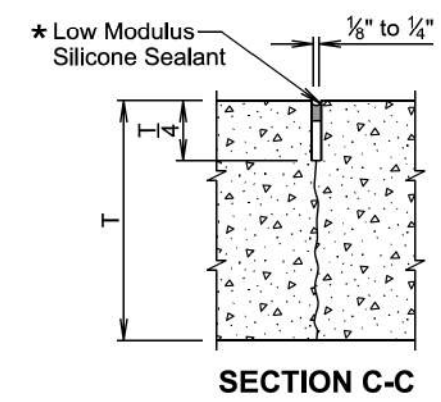
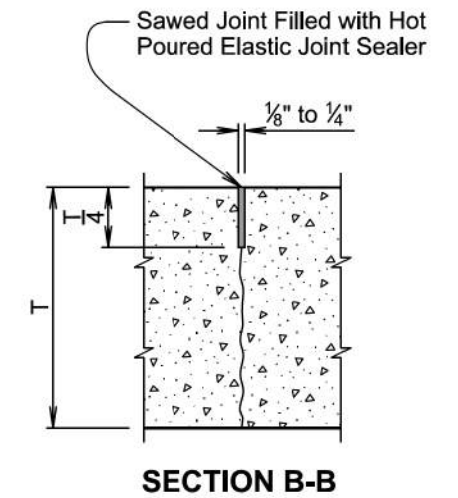
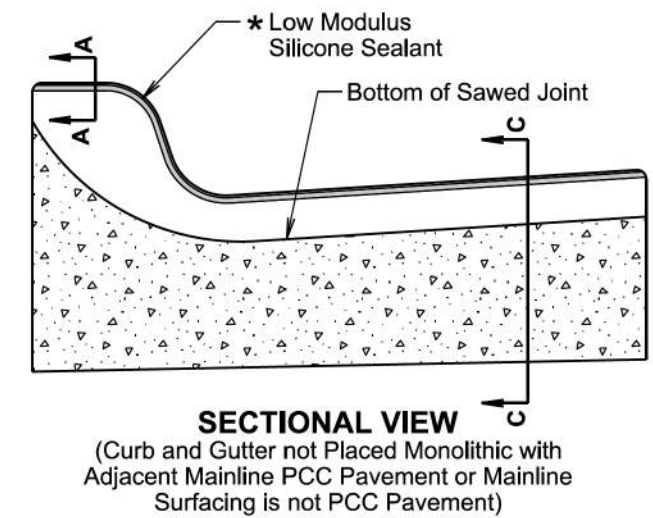
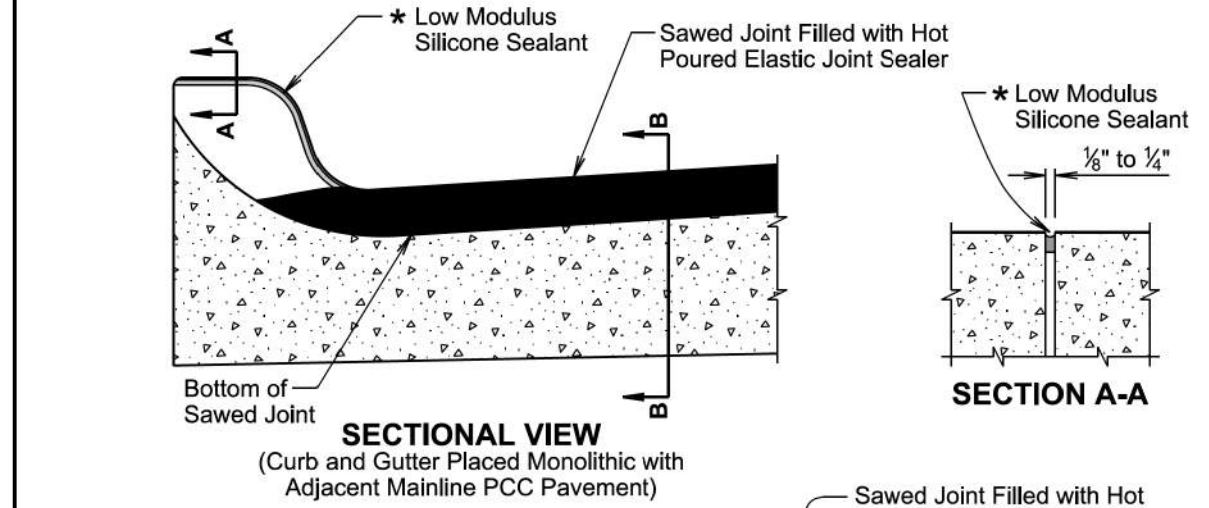
GENERAL NOTES:

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.

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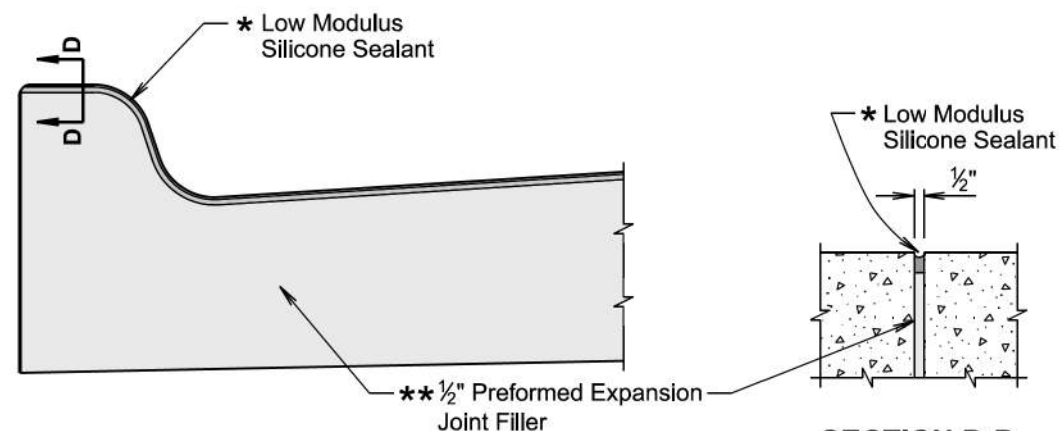
Published Date: 2026	SD DOT	TYPE FL CONCRETE CURB AND GUTTER	PLATE NUMBER 650.25
			Sheet 1 of 1



* 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.

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



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.

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