

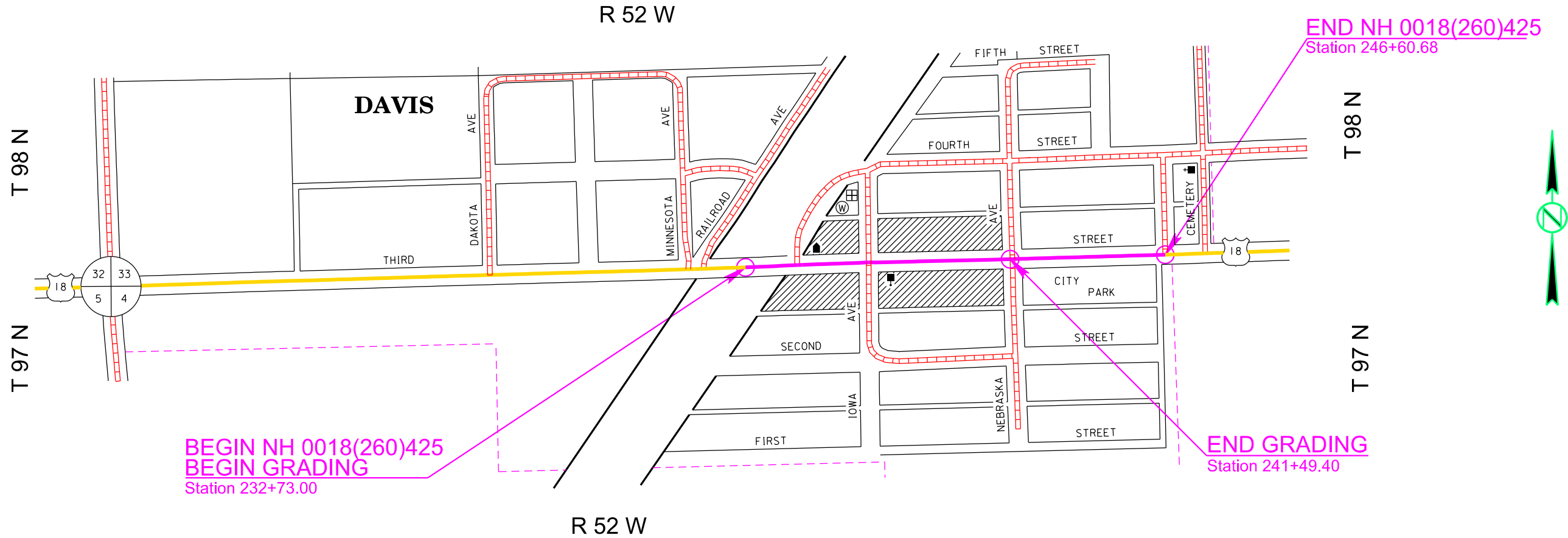
SECTION B: GRADING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	1/51

Plotting Date: 03/31/2026

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TRSE12144

SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	18	Each
009E3225	Reestablish Public Land Survey System Corner	1	Each
009E3230	Grade Staking	0.166	Mile
009E3250	Miscellaneous Staking	0.166	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4300	Construction Schedule, Category III	Lump Sum	LS
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	1,350	Ft
110E0400	Remove Drop Inlet	8	Each
110E1020	Remove Asphalt Concrete Pavement	656.9	CuYd
110E1100	Remove Concrete Pavement	36.5	SqYd
110E1130	Remove Concrete Driveway Pavement	227.1	SqYd
110E1140	Remove Concrete Sidewalk	1,017.3	SqYd
120E0010	Unclassified Excavation	6,376	CuYd
120E2000	Undercutting	3,537	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
270E0110	Salvage and Stockpile Granular Material	3,940.8	Ton
380E3540	8" PCC Approach Pavement	400.5	SqYd
380E4050	8" PCC Fillet Section	77.2	SqYd
450E0126	18" RCP Special, Furnish	236	Ft
450E0130	18" RCP, Install	236	Ft
450E3013	24" RCP Arch Class 3, Furnish	644	Ft
450E3016	24" RCP Arch Special, Furnish	534	Ft
450E3020	24" RCP Arch, Install	1,178	Ft
462E0100	Class M6 Concrete	31.9	CuYd
470E0020	Pipe Handrail	73.0	Ft
480E0100	Reinforcing Steel	2,987	Lb
480E0200	Epoxy Coated Reinforcing Steel	491	Lb
600E0300	Type III Field Laboratory	1	Each
650E0080	Type B68 Concrete Curb and Gutter	1,324	Ft
650E3080	Type B8 Concrete Curb	8	Ft
650E4680	Type P8 Concrete Gutter	226	Ft
651E0040	4" Concrete Sidewalk	4,839	SqFt
651E0060	6" Concrete Sidewalk	2,614	SqFt
651E0540	4" Colored Concrete Sidewalk	3,964	SqFt
651E0560	6" Colored Concrete Sidewalk	1,644	SqFt
651E5000	Sidewalk Drain	14.0	Ft
651E7000	Type 1 Detectable Warnings	120	SqFt
670E1200	Type B Frame and Grate	10	Each
670E5400	Precast Drop Inlet Collar	10	Each
671E4548	48" Manhole Cone Section	4.4	Ft
671E6009	Type A9 Manhole Frame and Lid	2	Each

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 41.9 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of “Unclassified Excavation”.

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

Special ditch grades and other sections of the roadway different than the typical section 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.

A copy of the subsurface investigation for this project is available for review at the Mitchell Region and Sioux Falls Area offices.

TYPE III 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 III Field Laboratory”.

UTILITIES

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

GENERAL GEOLOGY

The project alignment traverses glacial terrain typical of eastern South Dakota. Included within this terrain may be areas of loess, shale, sand, gravel, glacial till and boulder till. As is the case with most glacial terrain, the materials throughout the project can vary greatly in a short distance.

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (CuYd)
232+73		233+13	L&R	27.5
233+13		233+46	L&R	26.6
233+46		241+49	L&R	602.8
Total:				656.9

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CLASSIFICATION OF EXCAVATION

Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation.

EXCESS MATERIAL FROM PIPE AND DROP INLET INSTALLATION

The excess material which will result from installing drop inlets and pipe culverts which are larger than previously existed or where no such features previously existed is not included in the Waste quantity listed in the Table of Excavation Quantities. Disposal of this excess material will be incidental to the corresponding contract pay items which generated the excess material.

IN PLACE SURFACING AND GRANULAR MATERIAL

Test holes were drilled to check the depth of in-place surfacing. A log of these test holes is shown below.

Station	Centerline Offset (ft)	Thickness (in)		
		AC	Base Course (Cement treated)	Base Course
234+50	17.2 RT	2.0	7.0	11.0
238+50	17.4 RT	2.0	7.0	11.0
241+00	16.0 RT	2.0	8.0	8.0

REMOVE ASPHALT CONCRETE PAVEMENT

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 24. This value was obtained from testing during construction of the in-place asphalt concrete.

An estimated 659.0 Cubic 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.

STORM SEWER 241+22 Rt to 246+61 Rt

The storm sewer line between 241+22.40-23.67’ R to 246+60.84-29.33’ R will be replaced. Care will be exercised so the existing surfacing is not disturbed during the removal of the existing storm sewer and installation of new storm sewer and junction boxes. The new storm sewer will tie into the existing manhole junction box at station 246+60.84’ R. Care will be exercised when removing the existing 18” RCP pipe from the junction box. The hole in the manhole junction box will need to be widened to accept the new 24” arch pipe. All costs related to connecting the new storm sewer pipe to the manhole junction box will be incidental to the contract unit price for “24” RCP Arch, Install.”

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SHRINKAGE FACTOR: Embankment +20%

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TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Undercut (CuYd)	Total Excavation (CuYd)	** Waste (CuYd)
		880	3,411	4,291	97
	Totals:	880	3,411	4,291	97

- * 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. Waste is excess excavation material to be disposed of by the Contractor at a site approved by the Engineer.

TABLE OF UNCLASSIFIED EXCAVATION

				(CuYd)
Excavation				880
Undercut				3,411
Salvaged	Granular	Base	Material	2,085
(from fill sections)				
Total				6,376

SOIL BORING INFORMATION

Station	Offset (ft)	Depth (ft)	Description	Initial Water Level (ft)	Final Water Level (ft)*	Time Between Reading (hrs)
234+50	17.2 RT	1.8-3.6	Gray sandy clay	12.0	10.0	21
		3.6-6.0	Brown clay sand			
		6.0-15.0	Brown clay silt			
238+00	17.4 RT	1.8-15.0	Brown clay silt	13.5	10.5	20
241+00	16.6 RT	1.6-15.0	Brown clay silt	Dry	Dry	27

*Water levels as of November-December 2022

At the time of the investigation, free water was encountered in the borings at a depth below the bottom of the proposed storm sewer. However, this may not be the case with seasonal changes in moisture. The contractor is advised to be prepared to dewater any excavations and to use proper safety equipment and techniques during construction.

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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 regarding 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.

Salvaged Granular Base Material will be paid for at the contract unit price per ton and is also included in and paid for once as Unclassified Excavation. As shown in the Table of Unclassified Excavation the estimated quantity of 2,085.1 cubic yards of Salvaged Granular Base from fill sections will be added to the Excavation quantity to determine the Unclassified Excavation quantity. When finaling a project, the quantity of Salvaged Granular Base Material from fill sections will not be adjusted according to field measurements. The quantity of Salvaged Granular Base Material from cut sections will not be added to the Excavation quantity as it is already in the cuts on the final cross sections.

HAUL

There is no defined haul for this project.

SALVAGE AND STOCKPILE GRANULAR BASE MATERIAL

An estimated 3,940.8 tons (2,085.1 Cubic Yards) of granular base material will be salvaged from the existing highway according to the in-place surfacing typical sections and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

Salvaged material will be processed to meet the requirements of Section 884.2 D.8 prior to stockpiling. The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged granular base material.

The salvaged material not used on the project will be stockpiled or disposed of as directed by the Engineer.

The quantity of salvaged granular base material may vary from the plans.

The quantity of salvageable material is estimated from the in-place surfacing typical sections. This estimated quantity was included in the unclassified excavation quantities.

UNDERCUTTING

In all cut sections, the earthen subgrade will be undercut 2 feet below the earthen subgrade surface. The undercut will extend from behind the curb to behind the opposite curb as needed for paving operations. Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2-foot height of earth embankment for the entire width of the roadbed. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and recompactd to the density specified for the section being constructed.

The Contractor will be responsible to determine the condition of the adjacent building foundations and determine construction methods that will not damage the buildings. The Contractor will be responsible for any damage to the buildings resulting from highway construction activities.

Sidewalk placed adjacent to buildings at the locations listed in the "Table of Undercutting" will be undercut 1.0 foot below the bottom of the granular cushion material for the sidewalk. Limits of this undercut are from the edge of the roadway undercut to the outside edge of the sidewalk (edge of building). The undercut material or other suitable material will then be replaced and compacted to the density specified for the adjacent roadway undercut as directed by the Engineer. Quantities are included in the "Table of Undercutting".

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 URBAN

Station	to	Station	Description	Quantity (CuYd)
232+73		241+49	US Hwy 18	3,411
234+36	L	234+54	L Sidewalk	15
234+72	L	234+98	L Sidewalk	13
235+36	L	235+93	L Sidewalk	26
236+66	L		Int. Street	33
236+66	R		Int. Street	39
Total:				3,537

INCIDENTAL WORK, GRADING

Station	Remarks
234+38-26' L to 234+65-27' R	Take Out 18" – 58' RCP
234+65-27' R to 236+39-27' R	Take Out 18" – 174' RCP
236+38-25' L to 236+39-27' R	Take Out 18" – 50' RCP
236+38-25' L to 236+94-26' L	Take Out 18" – 54' RCP
236+94-26' R to 241+28-26' R	Take Out 18" – 436' RCP
236+39-27' R to 236+94-26' R	Take Out 18" – 54' RCP
237+31 R	Removed plugged sidewalk drain
241+28-26' R to 241+28-26' L	Take Out 18" – 52' RCP

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REMOVAL OF EXISTING CONCRETE PAVEMENT

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

TABLE OF CONCRETE PAVEMENT REMOVAL

Station	to	Station	L\R	Description	Quantity (SqYd)
236+44		236+51	L	Concrete Fillets	3.5
236+44		236+50	R	Concrete Fillets	6.0
236+82		236+89	L	Concrete Fillets	3.6
236+82		236+88	R	Concrete Fillets	3.3
241+36		241+50	L	Concrete Fillets	9.8
241+35		241+49	R	Concrete Fillets	10.3
Total:					36.5

TABLE OF CONCRETE CURB AND/OR GUTTER REMOVAL

Station	to	Station	L/R	Quantity (Ft)
234+31		236+48	L	222.4
234+58		236+47	R	195.6
236+85		237+51	L	418.3
236+85		241+33	R	513.3
Total:				1349.6

TABLE OF CONCRETE DRIVEWAY PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
234+03		234+32	L	22.4
237+48		237+68	L	13.0
237+94		238+35	L	35.8
239+29		239+88	R	77.2
239+48		239+88	L	34.9
240+16		240+56	L	43.8
Total:				227.1

TABLE OF SIDEWALK REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
232+56		234+05	R	113.9
234+31		236+48	L	201.7
234+54		236+47	R	133.9
236+85		241+47	L	278.7
236+84		241+46	R	289.1
Total:				1,017.3

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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)
234+38-26'	L	1
234+65-27'	R	1
236+38-25'	L	1
236+39-27'	R	1
236+94-26'	L	1
236+94-26'	R	1
241+28-26'	R	1
241+28-26'	L	1
Total:		8

REMOVAL OF CONCRETE FOOTINGS

Existing concrete footings that were left in place when luminaire poles were previously relocated will be removed. Locations of concrete footings are identified in the "TABLE OF REMOVE COCRETE FOOTINGS" and are listed for information only. All costs to complete this work will be included in the contract unit price for "Remove Concrete Footings."

TABLE OF REMOVE CONCRETE FOOTINGS

Station	L/R	Quantity (Each)
235+00-32'	L	1
236+20-12'	R	1
237+00-31'	R	1
239+30-31'	L	1
Total:		4

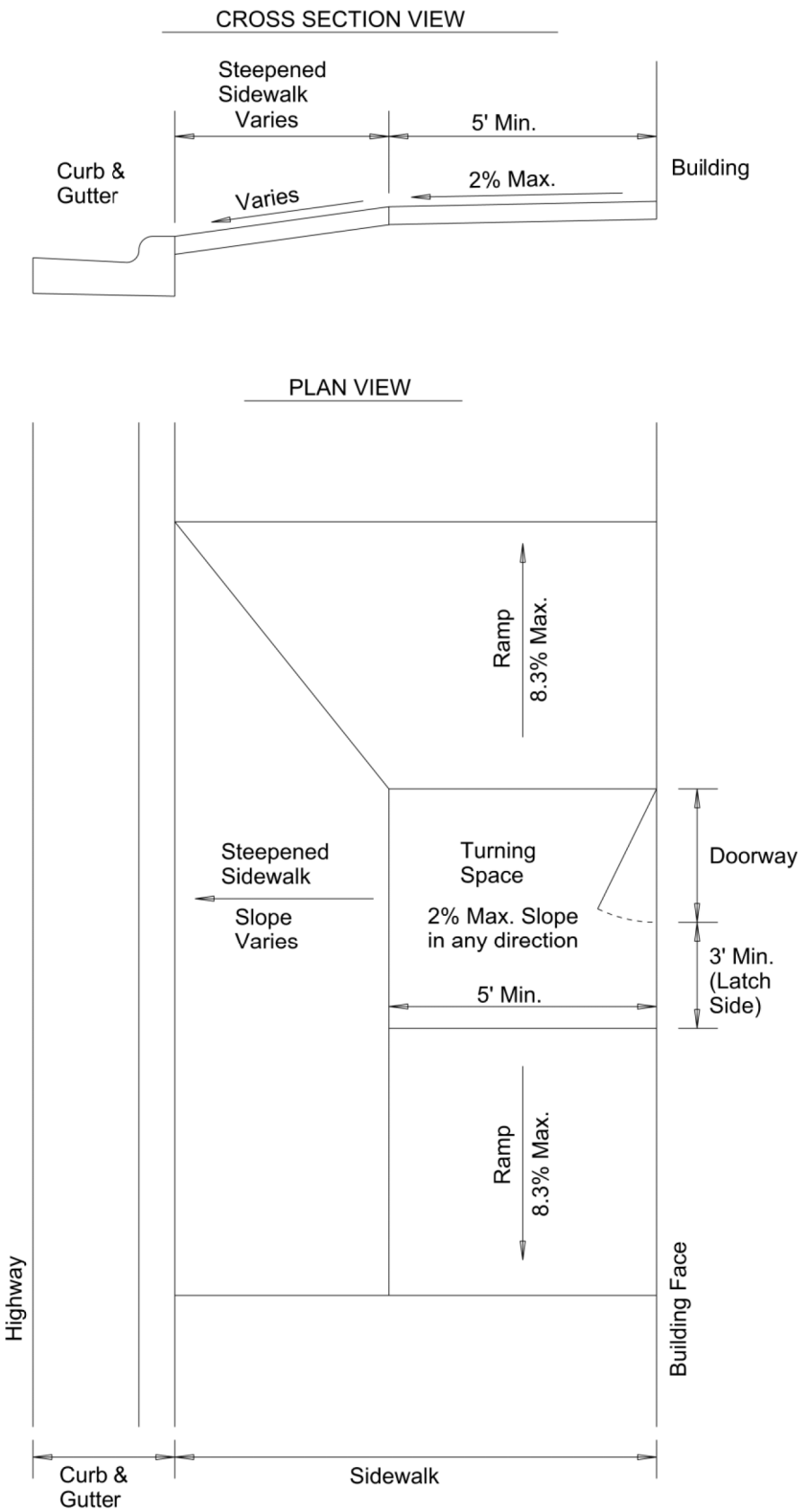
SIDEWALK ADJACENT TO BUILDINGS

When placing sidewalk adjacent to buildings, the elevation of the new sidewalk may be either higher or lower than the existing sidewalk. This may require that modification be made to building exteriors such as: removal of siding, installation of flashing, installation of siding, or other necessary modifications. Building modifications will be approved by the Engineer. All costs associated with modifying the buildings for sidewalk placement will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk contract item.

Sidewalk placed adjacent to building doorways should nearly match the doorway threshold and will have a maximum 1/4-inch vertical rise at the doorway threshold. A sidewalk turning space will be provided at building doorways in accordance with the plans. Sidewalk should ramp or slope down from the turning space to the typical sidewalk as specified in the plans. Additional sidewalk ramp or slope locations may be required. In the plans, the locations without ramps were assumed by the design Engineer as sites that slopes of less than 5 percent could be used from the turning space to the typical sidewalk. The limits of the ramp and steepened sidewalk shown in the plans may need to be adjusted to the actual doorway location and to meet sidewalk slope requirements as specified in the plans.

SIDEWALK ADJACENT TO BUILDING DETAIL

Maximum slopes are shown in the following drawing. As shown in Standard Plate 651.75, the typical sidewalk cross slope is designed to be 1.5%. Ramps are typically designed to have a slope of 7.5%.



CONCRETE PIPE CONNECTIONS

Pipe connections to existing pipes, manholes, junction boxes, and drop inlets will be done by breaking a hole into the existing structure and inserting the pipe. A concrete collar will then be poured around the pipe in the area of the connection.

When it is not possible to use a normal pipe joint (male-female ends), connections to existing pipe will be made by placing a 2' wide by 6" thick M6 concrete collar around the outside of the connection. The concrete collar will be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor will be incidental to the contract unit price per foot for the corresponding pipe contract item.

PIPE COVER

The earthen subgrade cover for some pipe installations is less than one foot and in some cases the top of pipe may be above the subgrade. 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.

CONCRETE PIPE SPECIAL DESIGN

The Special Reinforced Concrete Pipe to be provided for the locations in the following table will be designed in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications. The Special RCP is required for a portion of each pipe installation as shown in Section Z.

Station	Pipe Size	Design Live Load *
234+62-23.67' L to 234+62-23.67' R	18" RCP	HL-93
234+62-23.67' R to 236+25-23.67' R	24" RCP Arch	HL-93
236+25-23.67' L to 236+25-23.67' R	18" RCP	HL-93
236+25-23.67' R to 237+07-23.67' R	24" RCP Arch	HL-93
237+07-23.67' L to 237+07-23.67' R	18" RCP	HL-93
237+07-23.67' R to 240+03-23.67' R	24" RCP Arch	HL-93
240+03-23.67' R to 241+22-23.67' R	24" RCP Arch	HL-93
241+22-23.67' L to 241+22-23.67' R	18" RCP	HL-93

* No construction loading in excess of legal load will be considered.
**Note: The pipes in the table above have less than 1' available cover. Cover is measured from the top of subgrade.

The fabricator will submit shop plans in accordance with the Specifications to the Office of Bridge Design. A copy of the design and check design calculations, prepared by a South Dakota registered Professional Engineer, will be included with the initial submittal.

All costs associated with the preparation and submittal of design calculations and shop plans and furnishing the Special Design Concrete Pipe will be incidental to the contract unit price per foot for "18" RCP Special, Furnish" and "24" RCP Arch Special, Furnish".

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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

ConWrap CS-212

McBee, SC
843-335-5909
www.marmac.com

Concrete Sealants, Inc.
Tipp City, OH
800-332-7325
<http://www.conseal.com>

Approved List of Hydrophilic Flexible Water Stop Seal:

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

8" PCC FILLET SECTIONS

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

SIDEWALK CURB PARALLEL TO INTERSECTING STREETS

The locations and limits of sidewalk curb installed parallel to the intersecting streets may need to be adjusted during construction to best fit the ground surface. The use of sidewalk curb at additional locations will be approved by the Engineer. The height will vary to match the existing ground surface and the maximum height will be 12". Estimated areas of sidewalk curb are included in the Table of Pavement, Curb & Gutter and Sidewalk Quantities. All costs to construct sidewalk curb will be included in the contract unit price per square foot for the corresponding sidewalk bid item.

CONCRETE SIDEWALK JOINT SEALING

The Contractor will install expansion joint material approximately 1/2" lower than the finished concrete sidewalk elevation adjacent to buildings. The Contractor will seal all of these expansion joints between the concrete sidewalk and existing buildings using silicone joint sealer that meets the requirements of Section 879 of the Standard Specification.

All costs to seal these joints will be incidental to the contractor unit price per square foot for "4" Concrete Sidewalk" and "6" Concrete Sidewalk."

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STEEPENED BOULEVARD SIDEWALK

Steepened boulevard sidewalk has a cross slope greater than 2%. Steepened sidewalk is provided between the back of curb and the minimum 5 ft wide pedestrian access route sidewalk raised to meet existing building doorways, sidewalks or other features. See the SIDEWALK ADJACENT TO BUILDING DETAIL. The design elevations have been set to provide a maximum boulevard slope of 10% from Railroad Avenue to Nebraska Avenue. The locations and limits may need to be adjusted during construction. All costs associated with steepened sidewalk will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.

SIDEWALK DRAINS

At the locations noted in the Table of Sidewalk Drains, drainage from adjacent buildings will be carried through the sidewalk to the gutter. The sidewalk drains will be constructed in accordance with the details shown on standard plate 651.50.

TABLE OF SIDEWALK DRAINS

Station	L/R	Length (Ft)
234+72	L	14.0
Totals:		14.0

COLORED CONCRETE FOR COLORED CONCRETE SIDEWALK

Solomon Colors Card can be found at: www.solomoncolors.com

The colored concrete will have the integral color Solomon Brick Red #417 or an equal approved by the Engineer.

ColorFlo Liquid Color
Solomon Brick Red #417
Solomon Colors, Inc.
www.solomoncolors.com

Brick Red requires a rate of 12.50 lbs of Solomon Brick Red #417 per cubic yard of concrete. The colored concrete must be cured according to the manufacturer's recommendations with two coats of a non-yellowing acrylic curing and sealing compound. The curing and sealing compound will meet ASTM C309 specification. The curing and sealing product will produce a glossy or high gloss finish and be (DECRA-SEAL or CS-309-30) or an approved equal.

DECRA-SEAL or CS-309-30
W.R. Meadows, Inc.
1-800-342-5976
www.wrmeadows.com

No white pigmented cure will be used. The Contractor will protect the colored concrete to insure no white pigmented curing compound comes in contact with the colored concrete. All costs for furnishing, handling, and applying the curing and sealing compound, and liquid integral color, including the materials, equipment, labor, and incidentals necessary will be incidental to the contract unit price for the colored concrete bid item.

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Plot Scale -
Plotted From - TRSF12139

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.

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, Type B Frame and Grate, and Precast Drop Inlet Collar, will be the basis of payment for these items.

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

TABLE OF DROP INLETS AND QUANTITIES

Station	L/R	Drop Inlet Size	Drop Inlet Type	Class M6 Concrete (CuYd)	Reinf Steel (Lb)	Precast Drop Inlet Collar (Each)	Frame and Grate/Lid Type	Floor Elev.	Top of Wall Elev.	**H (Ft)
234+62.00	23.67' L	2'x3'	B	0.70	115	1	B	1246.08	1248.29	2.21
*234+62.00	23.67' R	3'x4'	B	1.26	220	1	B	1245.86	1248.29	2.43
236+24.62	23.67' L	2'x3'	B	0.70	116	1	B	1245.70	1247.94	2.24
236+24.62	23.67' R	3'x4'	B	1.23	221	1	B	1245.48	1247.94	2.46
237+07.28	23.67' L	2'x3'	B	0.76	124	1	B	1245.67	1248.17	2.50
237+07.28	23.67' R	3'x4'	B	1.31	230	1	B	1245.45	1248.17	2.72
240+03.00	23.67' L	2'x3'	B	0.85	135	1	B	1245.58	1248.49	2.91
240+03.00	23.67' R	3'x4'	B	1.34	234	1	B	1245.67	1248.49	2.82
241+22.40	23.67' L	2'x3'	B	0.81	131	1	B	1245.50	1248.24	2.74
241+22.40	23.67' R	3'x4'	B	1.38	239	1	B	1245.28	1248.24	2.96
Totals				10.34	1,765	10	10			

Total Type B Frame and Grate 10
* Drop inlet requires watertight joints in accordance with the STORM SEWER notes.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	7/51

Plotting Date: 03/25/2026

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TABLE OF JUNCTION BOXES AND QUANTITIES

Station	L/R	Size L'xW'xH'	Frame and Lid (Type)	Class M6 Concrete (CuYd)	Reinf. Steel (Lb)	** 48" Manhole Cone Section (Ft)
243+00.00	R	5'x5'x2.2'	A9	3.48	611	2.2
244+80.00	R	5'x5'x2.2'	A9	3.48	611	2.2
Totals:				6.96	1,222	4.4

Total Type A9 Manhole Frame and Lid 2

* Junction boxes require watertight joints in accordance with the STORM SEWER notes.

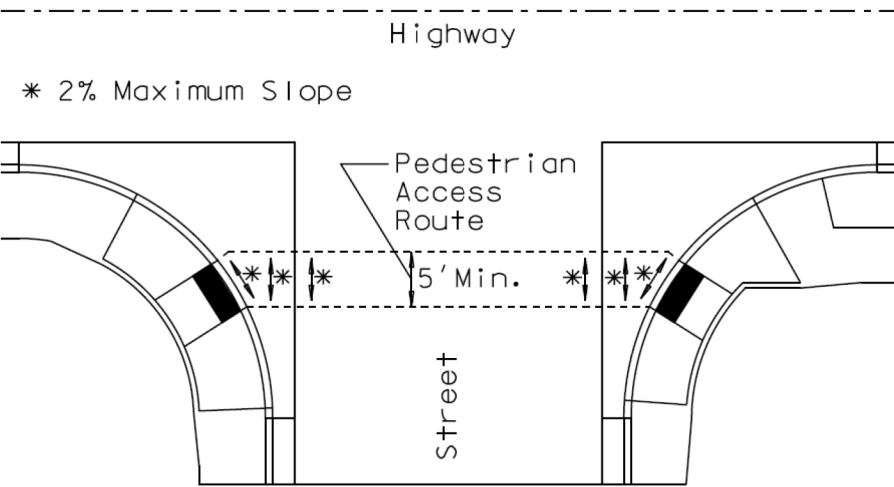
** Eccentric

TABLE OF ACCESS RAMPS

Station	Offset	Class M6 Concrete (CuYd)	Epoxy Coated Reinf.Steel (Lb)	Pipe Handrail (Ft)
234+30.99 to 234+53.93	L	14.6	491	73.0
Totals:		14.6	491	73.0

INTERSECTING STREET AND FILLET SLOPES

The pedestrian access route across intersecting streets between the curb ramps should have a 2% maximum cross slope perpendicular to the direction of travel by pedestrians. This includes the fillets of the intersecting street. The fillets require a 2% maximum slope along the curb ramp opening (along the turning space or bottom of curb ramp). See the following detail. The proposed intersecting street top of curb elevations are set to meet these requirements including additional top of curb elevations (grade breaks) of the fillets. Changes may need to be made during construction to meet these requirements. The intent of the plans is for the intersecting street to have only one break in grade along either the outside or inside edge of the pedestrian access route for streets where grade breaks are needed.



TYPE 1 DETECTABLE WARNINGS

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

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

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

The detectable warnings will be a brick red color for application in concrete curb ramps. Cast iron plates may be a natural patina (weathered steel).

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

Type 1 Detectable Warnings	
Product	Manufacturer
Detectable Warning Plate Cast Iron Plate 14.0	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate	Deeter Foundry Lincoln, NE 800-234-7466 http://www.deeter.com/
Detectable Warning Plate Cast Iron Plate(No Coating)	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.ejiw.com
Iron Dome Cast Iron Detectable Warning Tile	ADA Solutions, Inc. 323 Andover Street Suite 3 Wilmington, MA 01887 800-372-0519 https://adatile.com
TufTile (wet-set) Cast Iron Replaceable Tile	TufTile 1200 Flex Court Lake Zurich, IL 60047 888-960-8897 http://www.tuftile.com/
Advantage Tactile Detectable Warning Cast Iron Plate	Advantage Tactile Systems, Inc. 241 Main Street, Suite 100 Buffalo, NY 14203 800-679-4022 https://advantagetactile.com/

TABLE OF CLASS M6 CONCRETE, REINFORCING STEEL & HANDRAIL

Item	Class M6 Concrete (CuYd)	Reinforcing Steel (Lb)	Epoxy Coated Reinf. Steel (Lb)	Pipe Handrail (Ft)
Drop Inlets	10.34	1,765		
Junction Boxes	6.96	1,222		
Access Ramp	14.6		491	73.0
Totals:	31.9	2,987	491	73.0

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

Curing compounds will not be utilized on concrete stairway treads during the concrete curing process. Curing will be accomplished with a double layer of burlap mats and polyethylene sheeting.

The Contractor will apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.

The slip resistant coating will be a red, tile red, or brick red color. The coating will be a single component epoxy and have a minimum coefficient of friction value of 0.9 when dry and 0.9 when wet as determined by ASTM F 609.

The slip resistant coating will be applied in accordance with the manufacturer's recommendations.

All cost for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials will be incidental to various contract items.

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

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify public land survey system (PLSS) corners, right of way (ROW) corners, and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 1 PLSS corners and 18 ROW and property corners will be set, reestablished, or verified for this project. The Contractor's Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

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

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

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TABLE OF CONSTRUCTION STAKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	9/51

Plotting Date: 03/25/2026

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Lane Factor	Grade Staking		Miscellaneous Staking Quantity (Mile)
							*Sets of Stakes	**Grade Staking Quantity (Mile)	
US Hwy 18 (2 Lanes AC Pavement)	232+73	241+49.40	2	876	0.166	1	1	0.166	0.166
							Totals:	0.166	0.166

- * 1 = Blue Top Stakes Only (Asphalt Concrete Pavement)
2 = Blue Top and Paving Hub Stakes (PCC Pavement)
- ** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

PIPE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	10/51

Plotting Date: 03/25/2026

NH 0018(00)425 PCN 06G3				
			Arch	
		18" (Special)	24" Cl.3	24" (Special)
Station	Offset (L/R)	Ft	Ft	Ft
234+62.00-23.67' L to 234+62.00-23.67' R		46		
234+62.00-23.67' R to 236+24.62-23.67' R				162
236+24.62-23.67' L to 236+24.62-23.67' R		46		
*236+24.62-23.67' R to 237+07.28-23.67' R				80
237+07.28-23.67' L to 237+07.28-23.67' R		48		
237+07.28-23.67' R to 240+03.00-23.67' R				292
240+03.00-23.67' L to 240+03.00-23.67' R		48		
240+03.00-23.67' R to 241+22.40-23.67' R			116	
241+22.40-23.67' L to 241+22.40-23.67' R		48		
*241+22.40-23.67' R to 243+00.00-15.08' R			174	
243+00.00-15.08' R to 244+80.00-15.08' R			176	
244+80.00-15.08' R to 246+60.84-29.33' R			178	
Subtotal:		236	644	534

Pipes denoted with an asterisk (*) indicate that the entire length or a potion of the pipe requires watertight joints in accordance with the STORM SEWER plan note.

Plot Scale - 1:200

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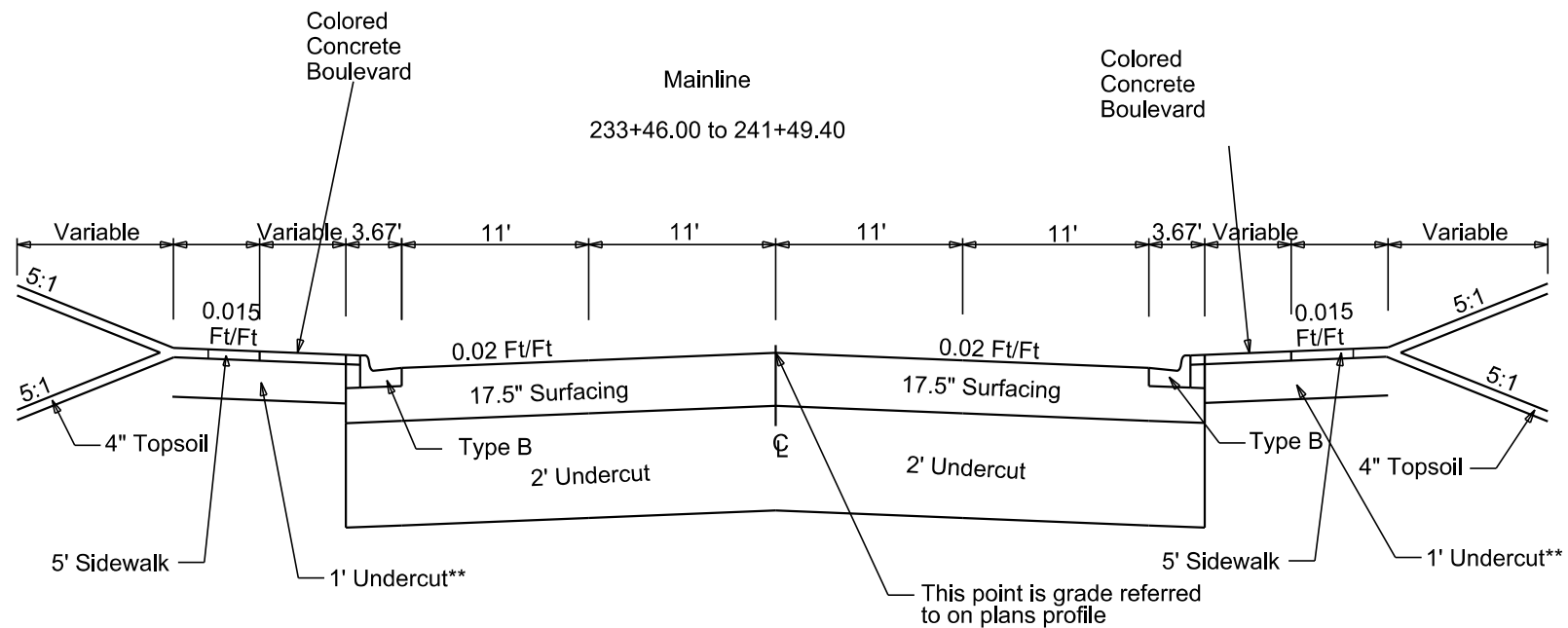
Plotting Date: 03/25/2026

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TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	12/51

Plotting Date: 03/31/2026



** Undercut is applicable in the locations listed in the "Table of Undercutting Quantities" found elsewhere in Section B.

Plot Scale - 1:200

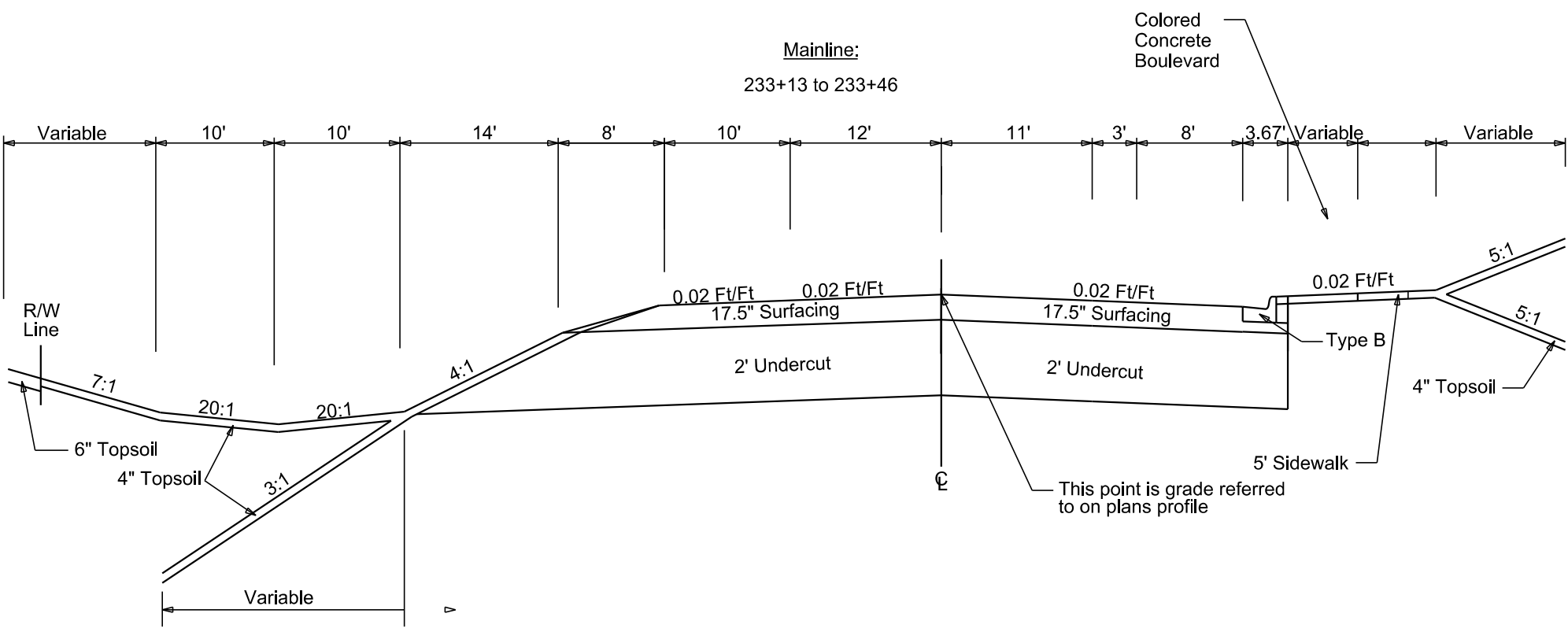
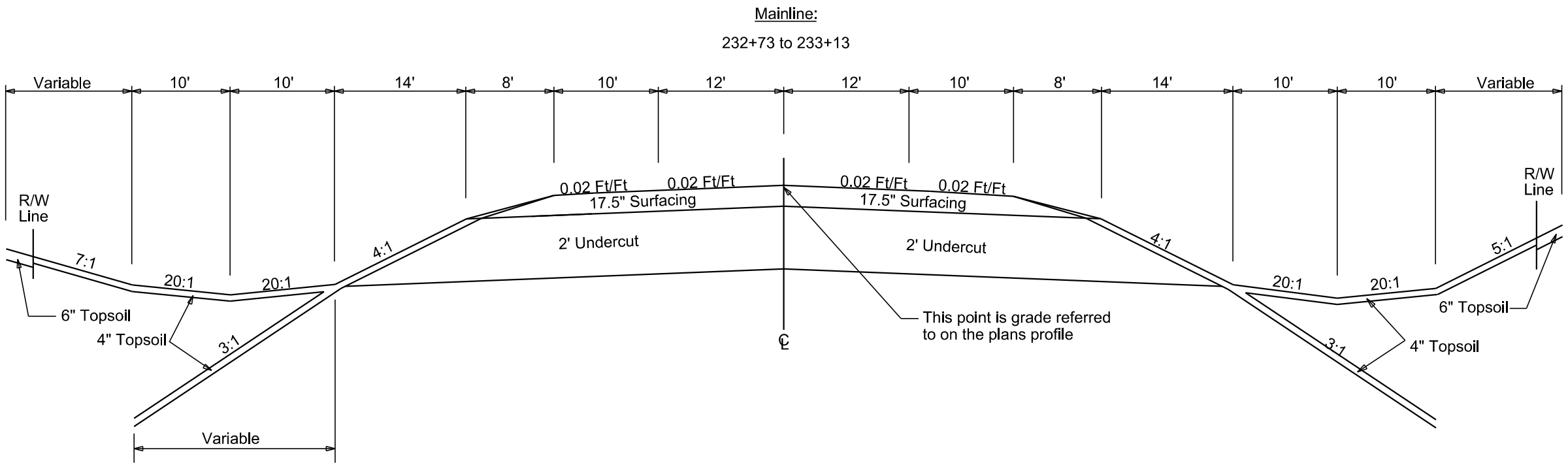
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TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	13/51

Plotting Date: 04/20/2026



Plot Scale - 1:200

Plotted From - TRSF12144

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MAINLINE

Plotting Date: 03/25/2026

Type	Station		Northing	Easting
POB	230+00.00		354708.71	2857125.25
		TL= 698.75 1.52		
PI	236+98.75		354741.71	2857823.22
		TL= 701.25 1.53		
PI	244+00.00		354771.93	2858523.82
		TL= 1928.67 1.53		
POE	263+28.67		354855.04	2860450.69

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2007); epoch 2002.00; Geoid 09; SF = 0.9998677529

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CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	15/51

Plotting Date: 03/25/2026 Revised 1-13-2025 JWF

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1	231+27	52' L	5/8" x 18" REBAR	354809.395	2858416.231	1247.87
CP2	233+26	37' R	CHISELED "X" IN SIDEWALK AT POST OFFICE	354844.832	2858044.045	1250.67
CP3	239+24	93' L	TOP NUT OF FIRE HYDRANT	354598.837	2857821.825	1252.22
BM 1	N/A	N/A	SPIKE IN LIGHT POLE	354771.648	2857628.161	1250.83
CP5	N/A	N/A	TOP NUT OF FIRE HYDRANT	354687.633	2857452.443	1252.95
CP6	N/A	N/A	5/8" x 18" REBAR	354767.116	2857249.58	1251.75

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2007); epoch 2002.00 Geoid 09; SF = 0.9998677529
The elevations shown on this sheet are based on NAVD 88.

Plot Scale - 1:200

Plotted From - TRSF12139

LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	16/51

Plotting Date: 03/25/2026

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

Plot Scale - 1"=40'

Plotted From - TRSF12139

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234+72-24' L to
234+72-38' L
Install 14"
Sidewalk Drain

234+62.00-23.67' L to
234+62.00-23.67' R
Install (Special) 18"- 46' RCP
(Between Drop Inlets)

234+62.00-23.67' R to
236+24.62-23.67' R
Install (Special) 24"-162' RCP Arch
(Between Drop Inlets)

236+24.62-23.67' L to
236+24.62-23.67' R
Install (Special) 18"- 46' RCP
(Between Drop Inlets)

236+24.62-23.67' R to
237+07.28-23.67' R
Install (Special) 24"- 80' RCP Arch
(Between Drop Inlets)

234+38-26' L to 234+65-27' R
Take Out 18"-58' RCP
(Incidental Work, Grading)

234+65-27' R to 236+39-27' R
Take Out 18"-174' RCP
(Incidental Work, Grading)

Install Type B Drop
Inlet with 6" Concrete
Collar and Type B
Frame & Grate
at the following locations:
234+62-23.67' L (2'x3')
234+62-23.67' R (3'x4')
236+24.62-23.67' L (2'x3')
236+24.62-23.67' R (3'x4')

236+38-25' L to 236+39-27' R
Take Out 18"-50' RCP
(Incidental Work, Grading)

236+38-25' L to 236+94-26' L
Take Out 18"-54' RCP
(Incidental Work, Grading)

236+94-26' R to 241+28-26' R
Take Out 18"-436' RCP
(Incidental Work, Grading)

236+39-27' R to 236+94-26' R
Take Out 18"-54' RCP
(Incidental Work, Grading)

235+00-32' L
Remove Concrete
Footings

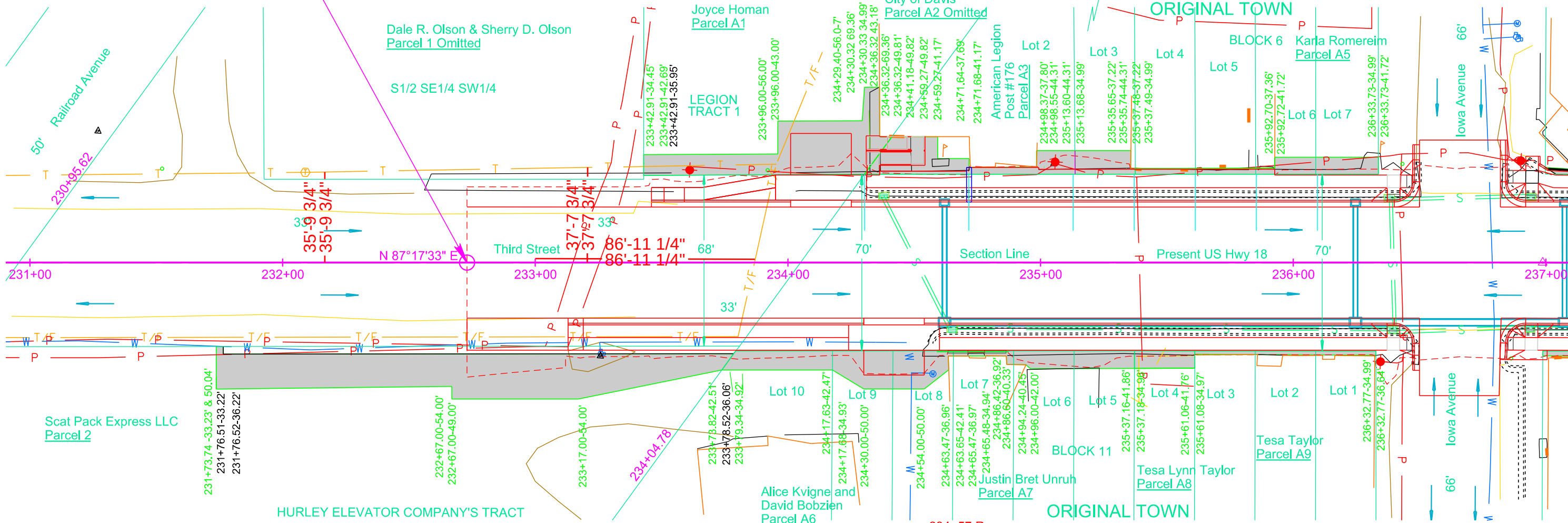
Remove Drop Inlets with Frame
and Grate at the following
locations:
234+38-26' L
234+65-27' R
236+38-25' L
236+39-27' R

DAVIS



BEGIN NH 0018(260)425
BEGIN GRADING
Station 232+73.00

Sec 33 - T98N - R52W



Sec 4 - T97N - R52W

Parcel 2
231+73.74 to 233+80.89 R
Temporary Easement containing
2852 sq ft, more or less

Parcel A6
233+73.82 to 234+65.48 R
Temporary Easement containing
924 sq ft, more or less

Parcel A1
233+42.91 to 234+41.18 L
Temporary Easement containing
1367 sq ft, more or less

Parcel A3
234+30.33 to 235+13.68 L
Temporary Easement containing
641 sq ft, more or less

Parcel A7
234+65.47 to 236+32.77 R
Temporary Easement containing
382 sq ft, more or less

Parcel A4
235+13.60 to 235+37.49 L
Temporary Easement containing
210 sq ft, more or less

Parcel A8
235+37.16 to 235+61.08 R
Temporary Easement containing
164 sq ft, more or less

Parcel A5
235+37.48 to 236+33.73 L
Temporary Easement containing
403 sq ft, more or less

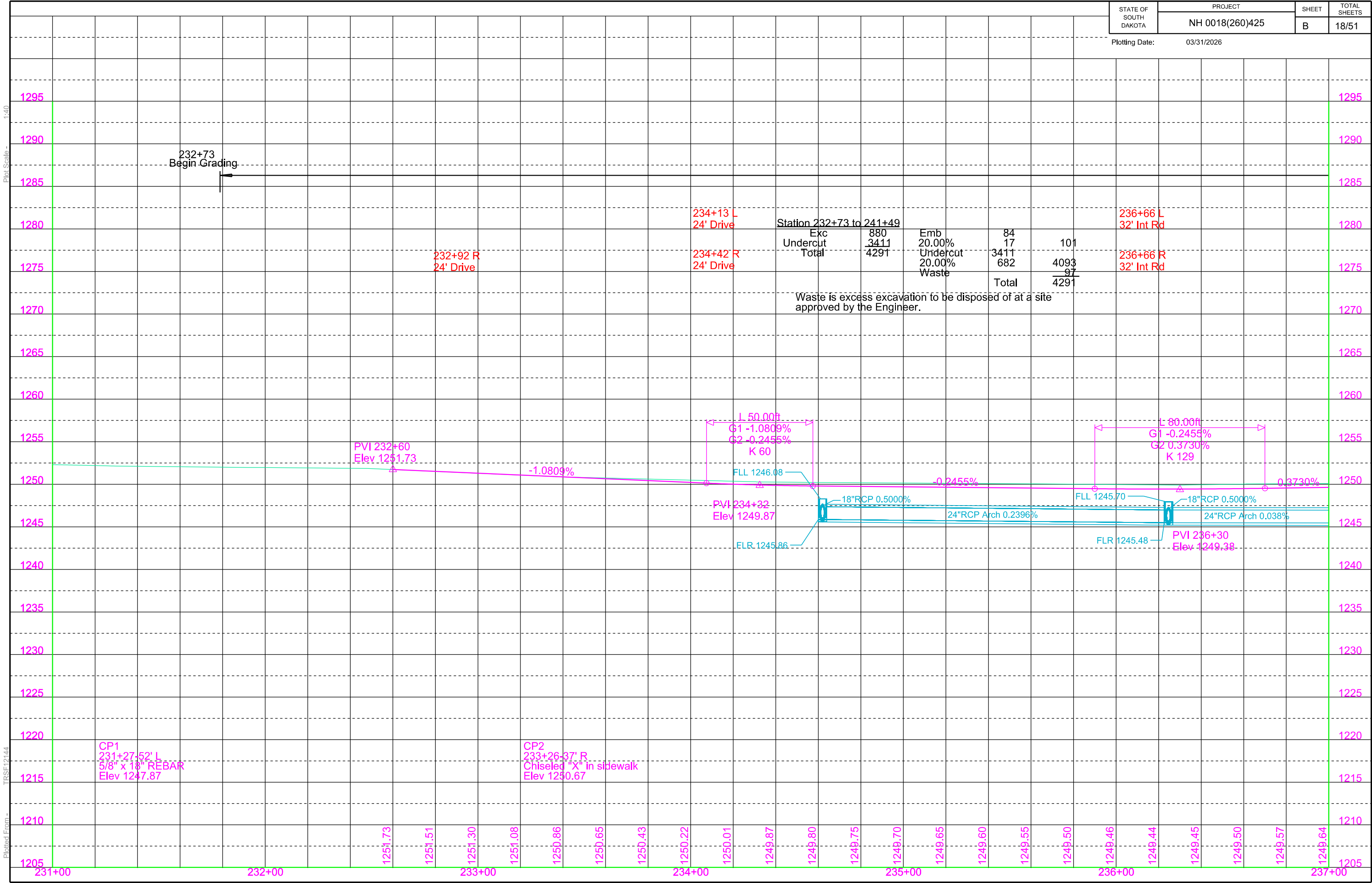
Parcel A9
235+61.06 to 236+32.77 R
Temporary Easement containing
106 sq ft, more or less

233+20 R
Do Not Disturb
Fire Hydrant

234+78-36' R to
234+71-36' R
Do Not Disturb
Concrete Building
Steps & Foundation

234+57 R
Do Not Disturb
Water meter
234+37 R to
235+61 R
Do Not Disturb
Fence

236+20-12' R
Remove Concrete
Footings



Plot Scale - 1"=40'

Plotted From - TRSF12139

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237+07.28-23.67' L to
237+07.28-23.67' R
Install (Special) 18"- 48' RCP
(Between Drop Inlets)

237+07.28-23.67' R to
240+03.00-23.67' R
Install (Special) 24"- 292' RCP Arch
(Between Drop Inlets)

240+03.00-23.67' L to
240+03.00-23.67' R
Install (Special) 18"- 48' RCP
(Between Drop Inlets)

240+03.00-23.67' R
241+22.40-23.67' R
Install Cl. 3 24"-116' RCP Arch
(Between Drop Inlets)

241+22.40-23.67' L to
241+22.40-23.67' R
Install (Special) 18"- 48' RCP
(Between Drop Inlets)

241+22.40-23.67' R to
243+00.00-15.08' R
Install Cl. 3 24"-174' RCP Arch
(Between Drop Inlet &
RC Manhole Junction Box)

241+28-26' R to 241+28-26' L
Take Out 18"-52' RCP
(Incidental Work, Grading)

241+28-26' R to 246+61-29.33' R
Take Out 18"-533' RCP
(Incidental Work, Grading)

Install Type B Drop
Inlet with 6" Concrete
Collar and Type B
Frame & Grate
at the following locations:
237+07.28-23.67' L (2'x3')
237+07.28-23.67' R (3'x4')
240+03.00-23.67' L (2'x3')
240+03.00-23.67' R (3'x4')
241+22.40-23.67' L (2'x3')
241+22.40-23.67' R (3'x4')

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	19/51

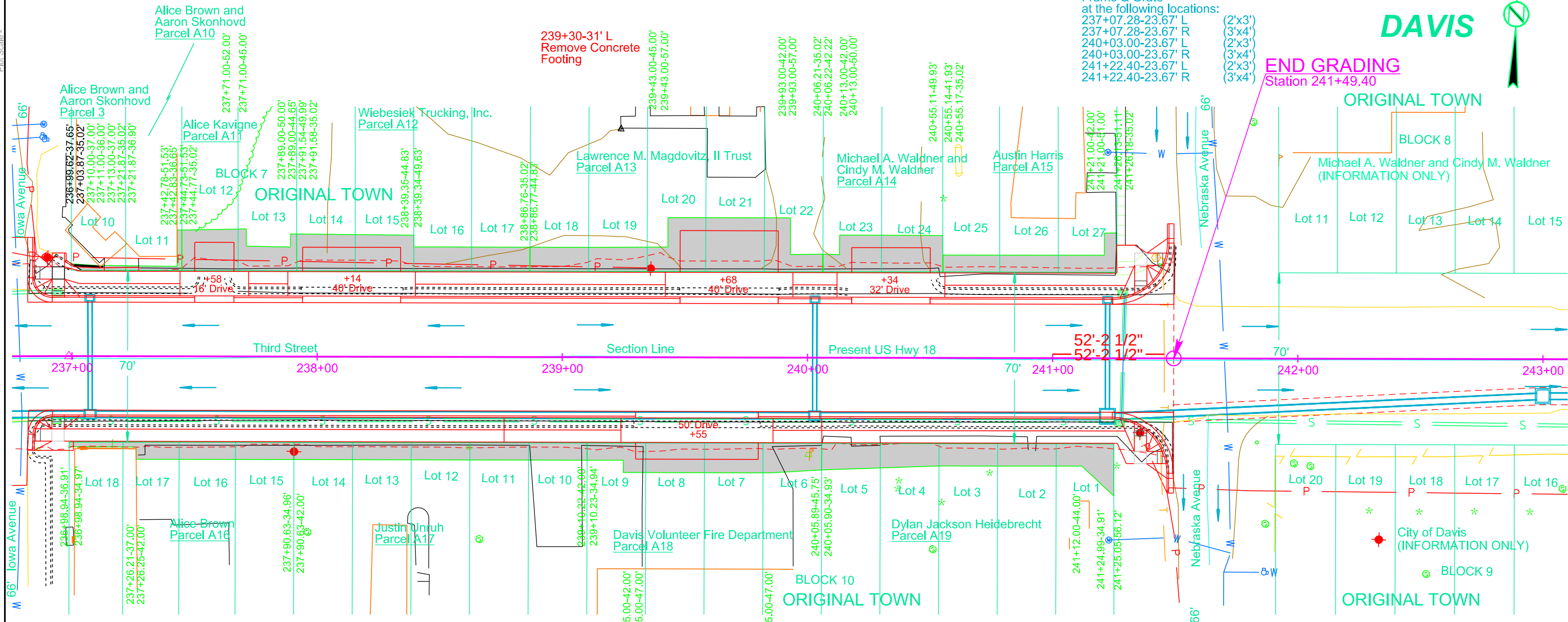
Plotting Date: 03/25/2026 Revised 8-11-2025 JWF

Remove Drop Inlets with Frame
and Grate at the following
locations:
236+94-26' L
236+94-26' R
241+28-26' R
241+28-26' L

DAVIS



END GRADING
Station 241+49.40



237+00-31' R
Remove Concrete
Footing

237+31' R
Remove plugged
sidewalk drain
(Incidental Work,
Grading)

Parcel 3
236+99.62 to 237+21.87 L
Temporary Easement containing
40 sq ft, more or less

Parcel A16
236+98.94 to 237+90.63 R
Temporary Easement containing
507 sq ft, more or less

238+62-37' R
Do Not Disturb
Historical Marker

238+62-37' R
Do Not Disturb
Brick Pillar

Parcel A10
237+21.87 to 237+44.77 L
Temporary Easement containing
69 sq ft, more or less

Parcel A17
237+90.63 to 239+10.23 R
Temporary Easement containing
843 sq ft, more or less

Parcel A11
237+44.73 to 237+91.58 L
Temporary Easement containing
654 sq ft, more or less

Parcel A18
239+10.22 to 240+05.90 R
Temporary Easement containing
1081 sq ft, more or less

Parcel A12
237+91.54 to 238+86.77 L
Temporary Easement containing
1172 sq ft, more or less

240+00-40' R
Do Not Disturb
Brick Pillar

Parcel A13
238+86.76 to 240+06.22 L
Temporary Easement containing
1747 sq ft, more or less

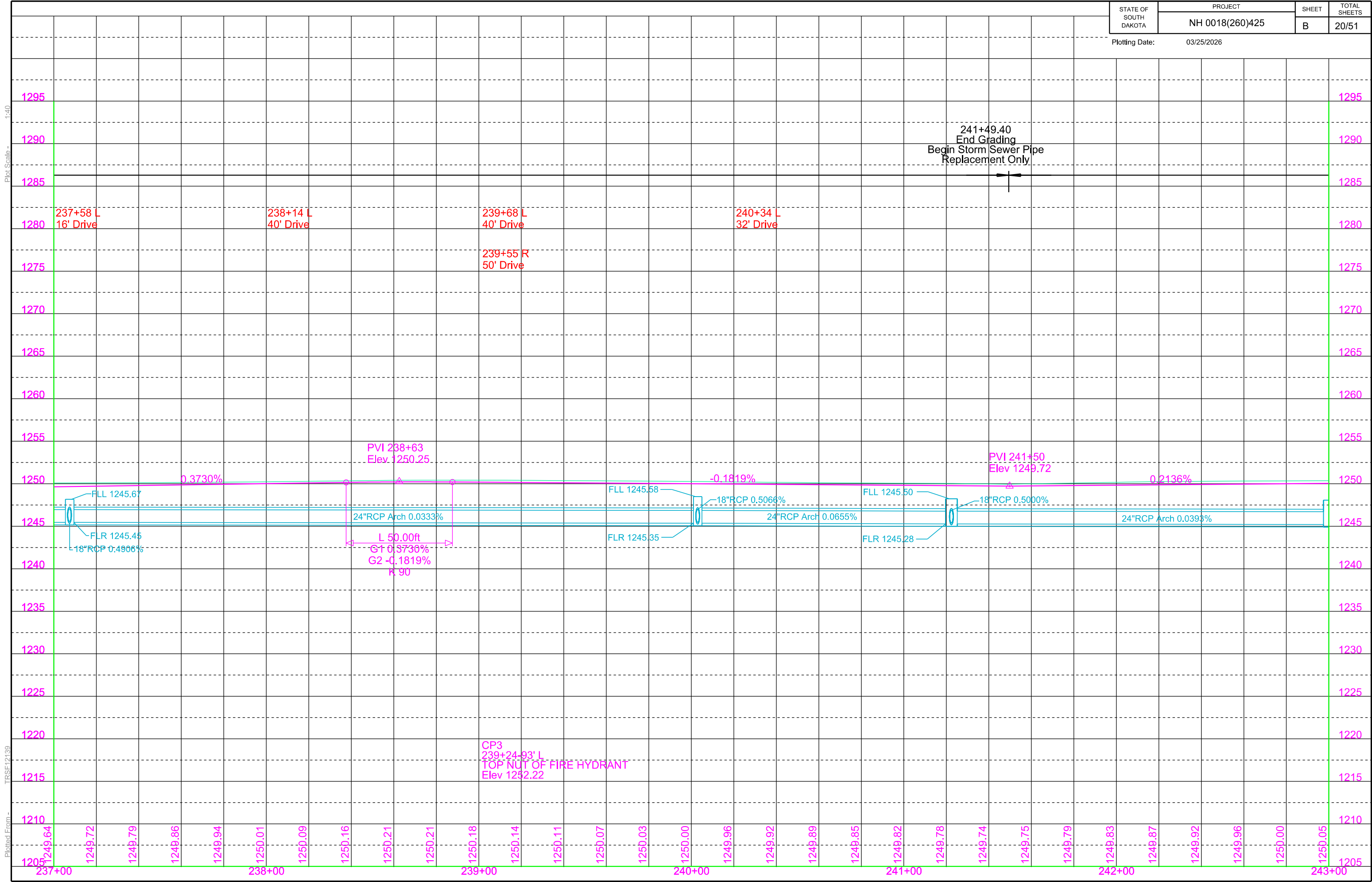
Parcel A19
240+05.89 to 241+25.05 R
Temporary Easement containing
1205 sq ft, more or less

Parcel A14
240+06.21 to 240+55.17 L
Temporary Easement containing
678 sq ft, more or less

241+90-40' R
243+90-40' R
Do Not Disturb
Chain Link Fence

241+22.40-23.67' R to
243+00-15.08' R Do Not
disturb asphalt roadway for
installation of pipe or
manhole junction

Parcel A15
240+55.14 to 241+26.18 L
Temporary Easement containing
540 sq ft, more or less



243+00.00-15.08' R to
244+80.00-15.08' R
Install Cl. 3 24"-176' RCP Arch
(Between RC Manhole Junction Boxes)

244+80.0-15.08' R to
246+60.84-29.33' R
Install Cl. 3 24"-178' RCP Arch
(Between RC Manhole and existing junction box
at station 246+60.84-29.33' R)

243+00.00-15.08' R to
Install 5' x 5' RC Junction Box
Type A9 Manhole Frame & Lid
& 4.0' Eccentric Manhole Cone
(See Special 5'x5' Junction Box Detail Sheet)

244+80.00-20.00' R to
Install 5' x 5' RC Junction Box
Type A9 Manhole Frame & Lid
& 4.0' Eccentric Manhole Cone
(See Special 5'x5' Junction Box Detail Sheet)

246+60.84-29.33' R
Retain Manhole Junction
Box and use caution when
removing the existing 18"
RCP storm sewer from the
manhole junction box

STATE OF
SOUTH
DAKOTA

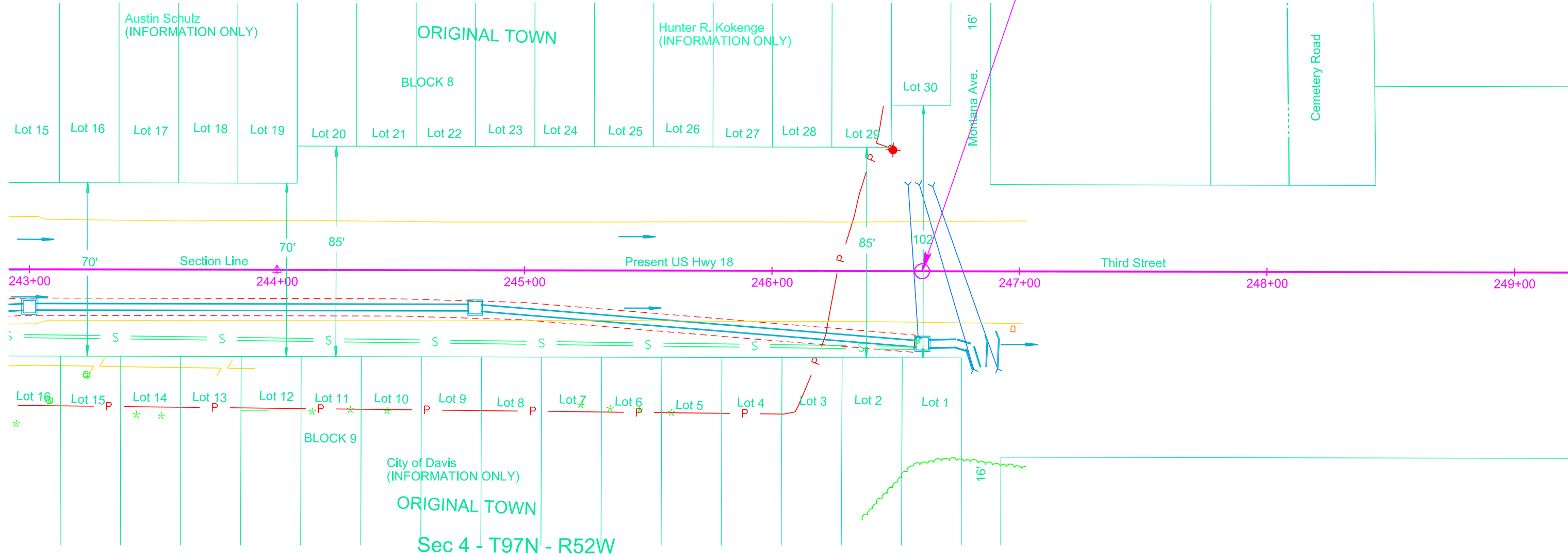
PROJECT
NH 0018(260)425

SHEET
B

TOTAL
SHEETS
21/51

Plotting Date: 03/31/2026

Plot Scale - 1"=40'

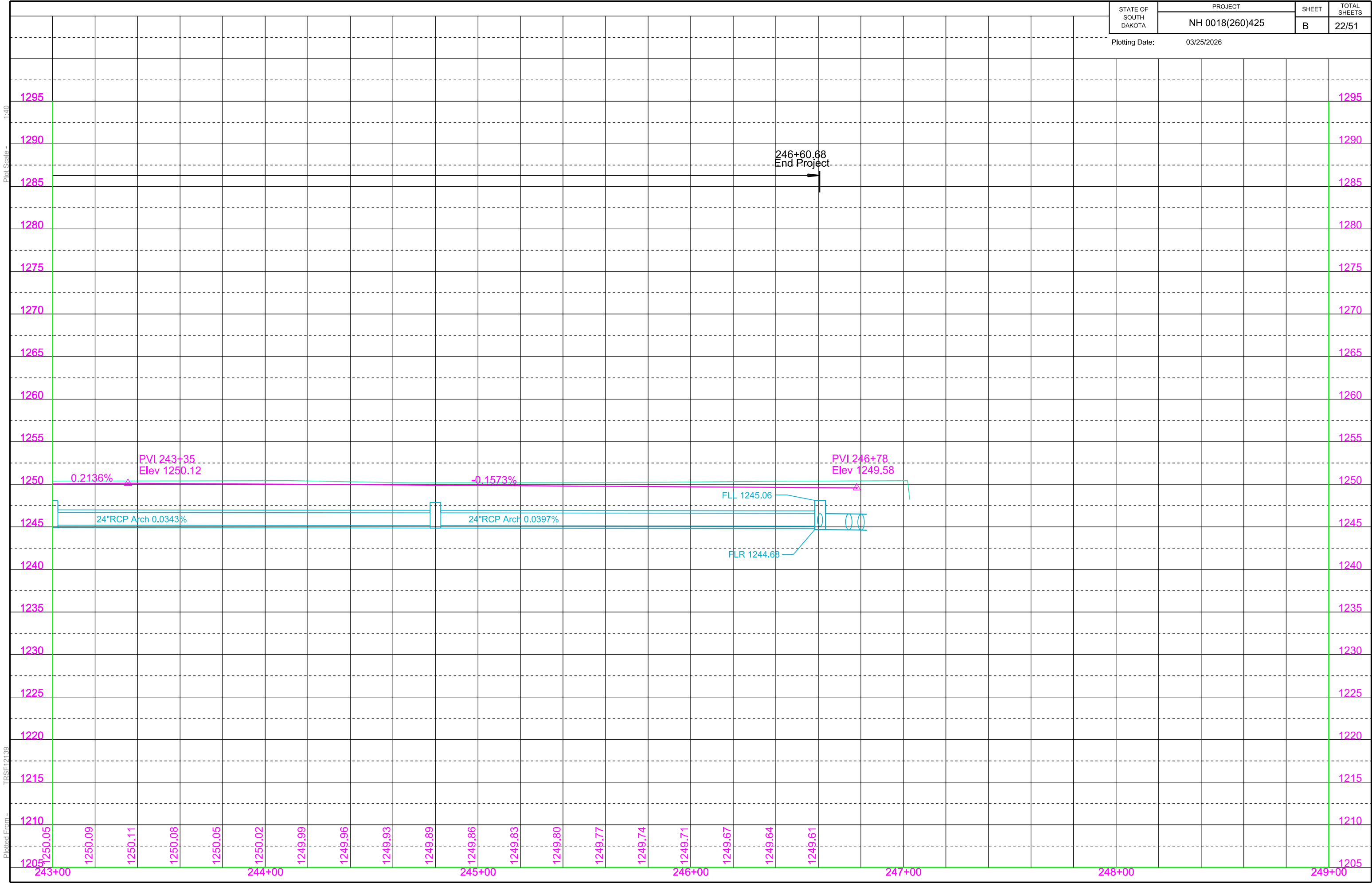


243+00-15.08' R to
244+80-15.08' R
Do Not disturb asphalt
roadway for installation of
pipe or manhole junction

244+80-15.08' R to
246+60.84-29.33' R
Do Not disturb asphalt
roadway for installation of
pipe or manhole junction

Plotted From - TRSF12144

File - Unv0p0jurn0663243.dgn



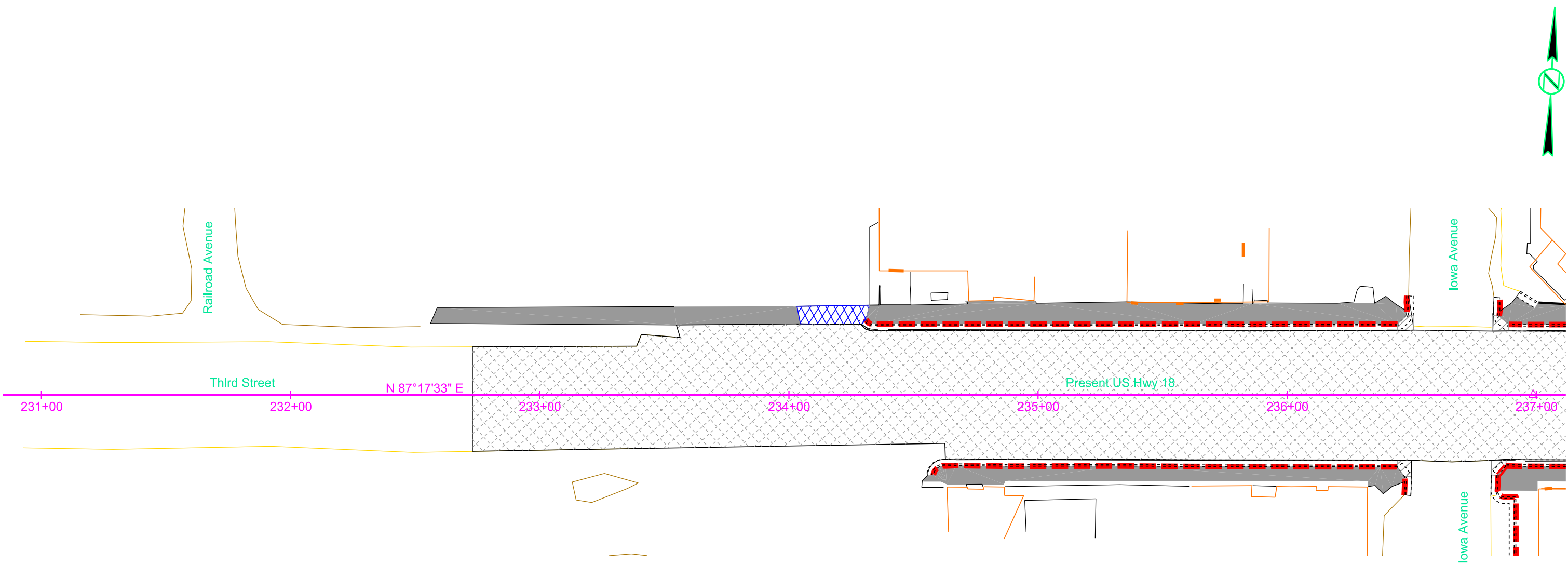
PAVEMENT REMOVAL LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	23/51

Plotting Date: 03/25/2026

Plot Scale - 1"=40'

Plotted From - TRSF12139



PAVEMENT REMOVAL LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	24/51

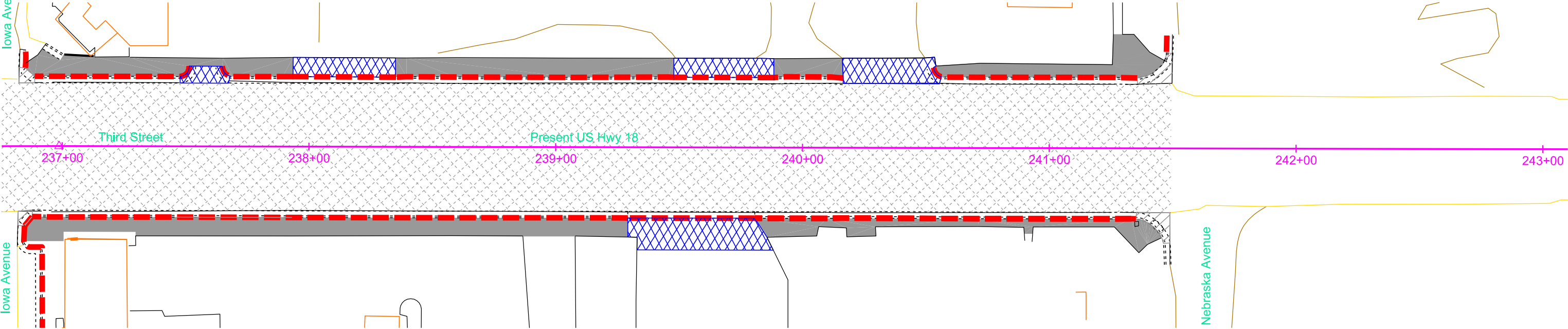
Plotting Date: 03/25/2026



Iowa Avenue

Iowa Avenue

Nebraska Avenue



Plot Scale - 1:40

Plotted From - TRSF12139

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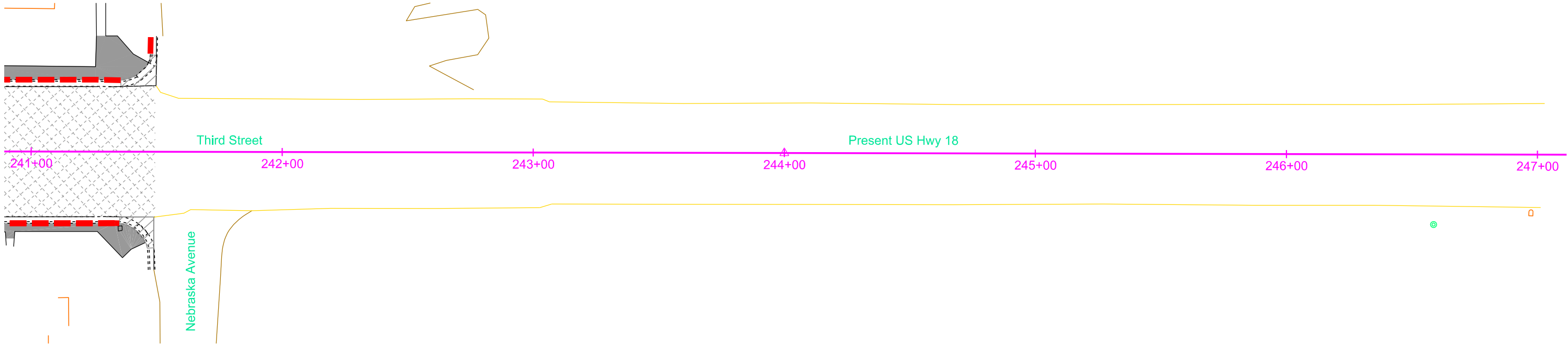
PAVEMENT REMOVAL LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	25/51

Plotting Date: 03/25/2026

Plot Scale - 1"=40'

Plotted From - TRSF12139



Plot Scale - 1"=40'

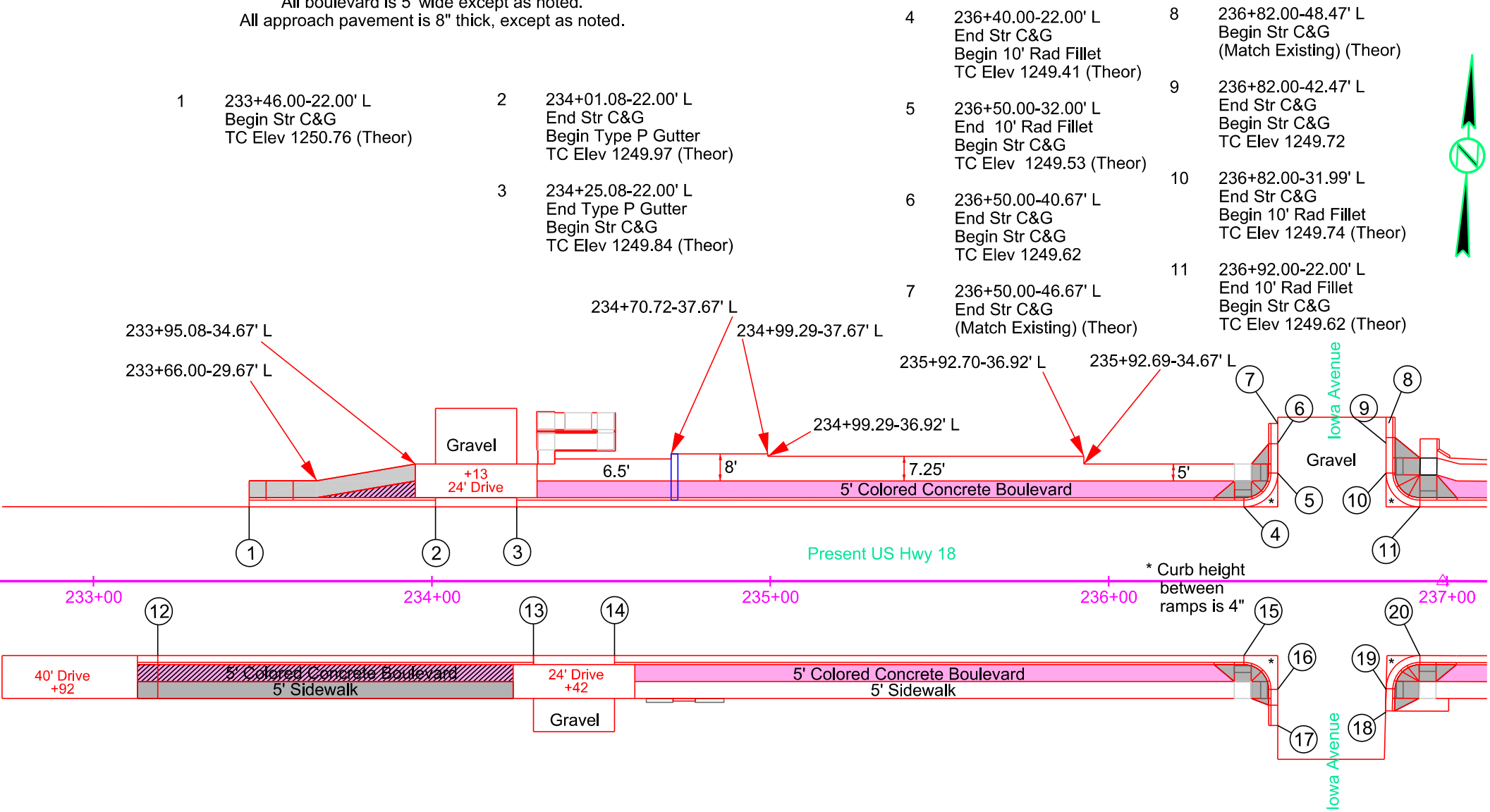
Plotted From - TRSF12144

CURB AND GUTTER LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	26/51

Plotting Date: 03/31/2026 Revised 1-13-2025 JWF

Note: All curb and gutter shown on this sheet is Type B68 and P8 except as noted.
All sidewalk is 5' wide except as noted.
All boulevard is 5' wide except as noted.
All approach pavement is 8" thick, except as noted.



12	233+19.00-22.00' R End Type P Gutter Begin Str C&G TC Elev 1251.03 (Theor)	13	234+30.00-22.00' R End Str C&G Begin Type P Gutter TC Elev 1249.83 (Theor)	15	236+40.00-22.00' R End Str C&G Begin 10' Rad Fillet TC Elev 1249.43 (Theor)	18	236+81.84-38.33' R Begin Str C&G TC Elev 1249.58 (Match Existing)
		14	234+54.00-22.00' R End Type P Gutter Begin Str C&G TC Elev 1249.77 (Theor)	16	236+50.00-32.00' R End 10' Rad Fillet Begin Str C&G TC Elev 1249.46 (Theor)	19	236+82.00-31.75' R End Str C&G Begin 10' Rad Fillet TC Elev 1249.56 (Theor)
				17	236+50.00-42.67' R End Str C&G (Match Existing) (Theor)	20	236+92.00-22.00' R End 10' Rad Fillet Begin Str C&G TC Elev 1249.57 (Theor)

- LEGEND
- 6" Concrete Sidewalk
 - 4" Colored Concrete Sidewalk
 - 6" Colored Concrete Sidewalk

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Plot Scale -
1:40

Plotted From -
TRSF12139

CURB AND GUTTER LAYOUT

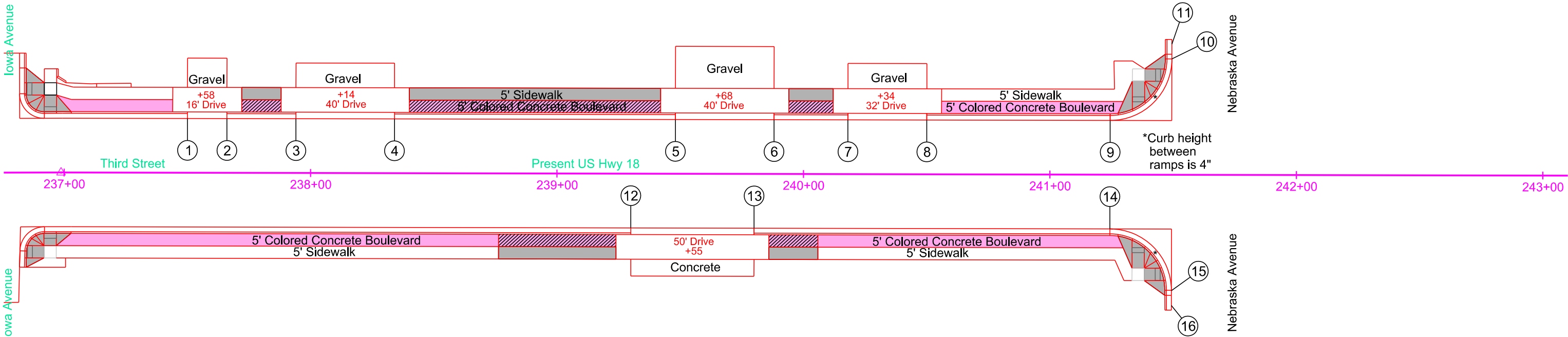
Note: All curb and gutter shown on this sheet is Type B68 and P8 except as noted.
All sidewalk is 5' wide except as noted.
All boulevard is 5' wide except as noted.
All approach pavement is 8" thick, except as noted.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	27/51

Plotting Date: 03/25/2026 Revised 1-13-2025 JWF



1	237+50.00-22.00' L End Str C&G Begin Type P Gutter TC Elev 1249.79 (Theor)	3	237+94.00-22.00' L End Str C&G Begin Type P Gutter TC Elev 1249.95 (Theor)	5	239+48.00-22.00' L End Str C&G Begin Type P Gutter TC Elev 1250.05 (Theor)	7	240+18.00-22.00' L End Str C&G Begin Type P Gutter TC Elev 1249.92 (Theor)	9	241+24.40-22.00' L End Str C&G Begin 25' Rad Fillet TC Elev 1249.73	11	241+49.40-54.90' L End Str C&G (Match Existing) (Theor)
2	237+66.00-22.00' L End Type P Gutter Begin Str C&G TC Elev 1249.85 (Theor)	4	238+34.00-22.00' L End Type P Gutter Begin Str C&G TC Elev 1250.10 (Theor)	6	239+88.00-22.00' L End Type P Gutter Begin Str C&G TC Elev 1249.98 (Theor)	8	240+50.00-22.00' L End Type P Gutter Begin Str C&G TC Elev 1249.87 (Theor)	10	241+49.40-48.90' L End 25' Rad Fillet Begin Str C&G TC Elev 1249.82		



12	239+30.00-22.00' R End Str C&G Begin Type P Gutter TC Elev 1250.08 (Theor)	14	241+24.40-22.00' R End Str C&G Begin 25' Rad Fillet TC Elev 1249.73
13	239+80.00-22.00' R End Type P Gutter Begin Str C&G TC Elev 1249.99 (Theor)	15	241+49.40-46.84' R End 25' Rad Fillet Begin Str C&G TC Elev 1249.35
		16	241+49.40-53.00' R End Str C&G (Match Existing) (Theor)

LEGEND

- 6" Concrete Sidewalk
- 4" Colored Concrete Sidewalk
- 6" Colored Concrete Sidewalk

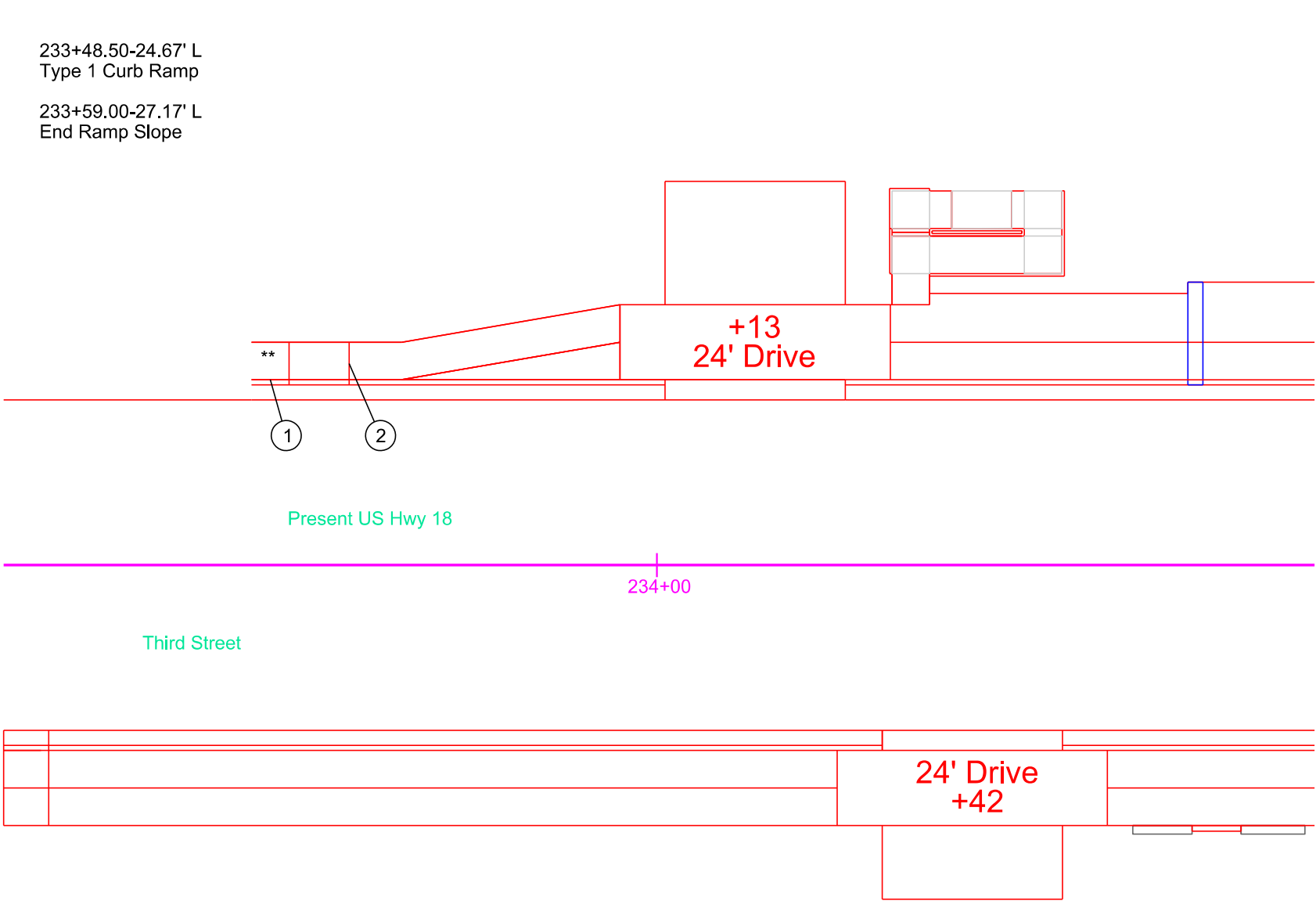
CURB RAMP LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	28/51

Plotting Date: 03/25/2026

* Turning Space with 1.5% slope
** Curb Ramp with 7.5% slope and 1.5% cross slope
Note: All curb and gutter shown on this sheet is Type B66 and P6 except as noted.
All sidewalk is 5' wide except as noted.

- 1 233+48.50-24.67' L
Type 1 Curb Ramp
- 2 233+59.00-27.17' L
End Ramp Slope



Plot Scale - 1:20

Plotted From - TRSF12139

CURB RAMP LAYOUT

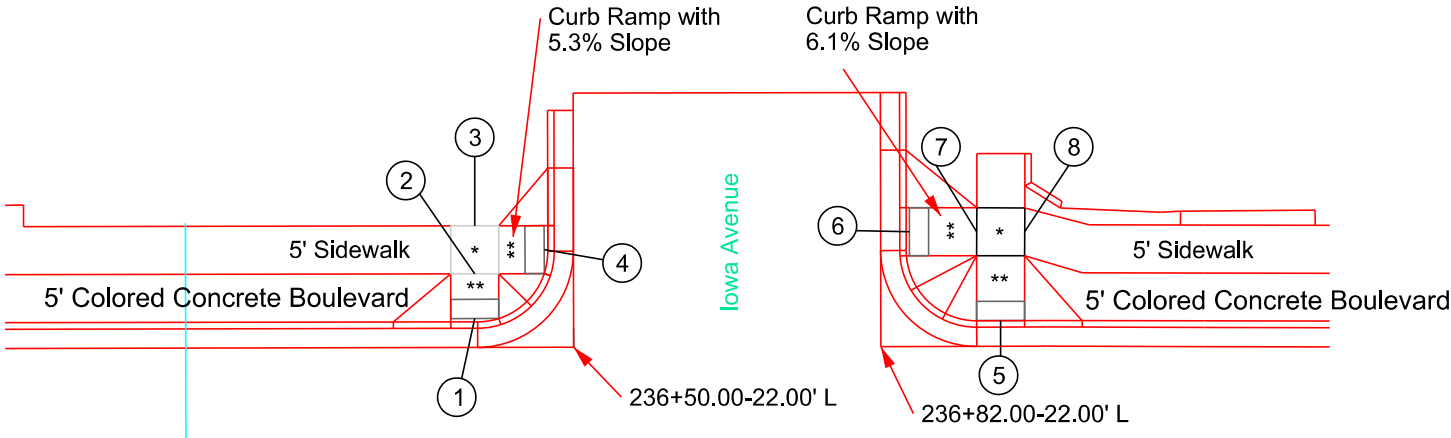
* Turning Space with 1.5% slope
** Curb Ramp with 7.5% slope and 1.5% cross slope

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	29/51

Plotting Date: 03/25/2026 Revised 1-13-2025 JWF

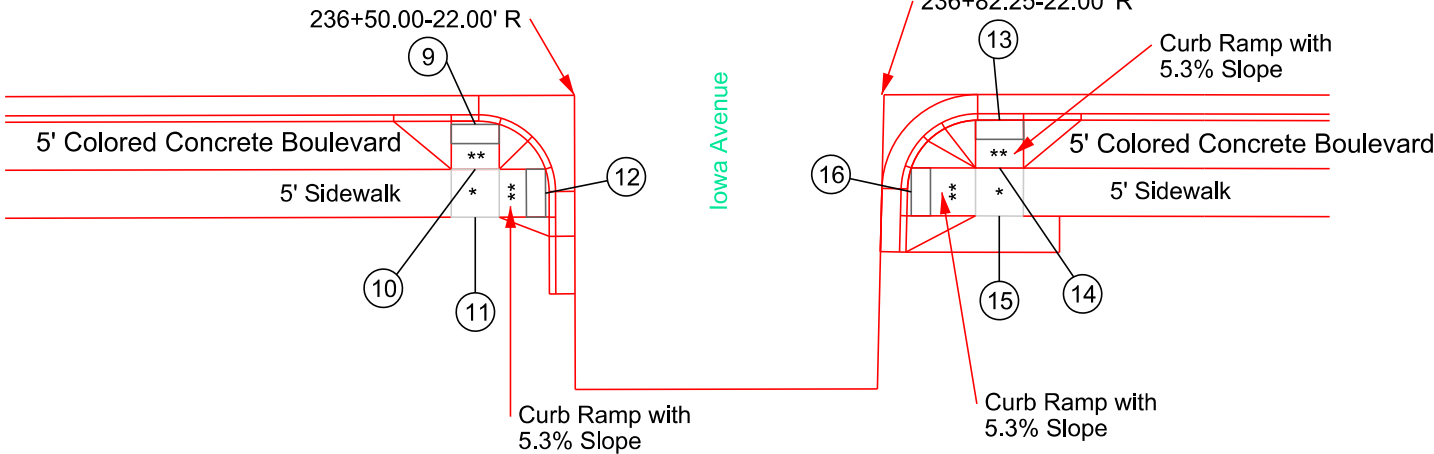


- 1 236+39.71-25.01' L
Center of Detectable Warning
& Type 2 Curb Ramp
- 2 236+39.71-29.67' L
End Ramp Slope
- 3 236+39.71-34.67' L
Back of Turning Space
- 4 236+46.95-32.17' L
Center of Detectable Warning
& Type 2 Curb Ramp



- 5 236+94.48-24.69' L
Center of Detectable Warning
& Type 2 Curb Ramp
- 6 236+85.01-33.97' L
Center of Detectable Warning
& Type 2 Curb Ramp
- 7 236+92.02-33.94' L
End Ramp Slope
- 8 236+97.02-33.92' L
Back of Turning Space

- 9 236+39.64-24.99' R
Center of Detectable Warning
& Type 2 Curb Ramp
- 10 236+39.63-29.67' R
End Ramp Slope
- 11 236+39.63-34.67' R
Back of Turning Space
- 12 236+46.95-32.17' R
Center of Detectable Warning
& Type 2 Curb Ramp



- 13 236+94.27-24.67' R
Center of Detectable Warning
& Type 2 Curb Ramp
- 14 236+94.26-29.65' R
End Ramp Slope
- 15 236+94.24-34.65' R
Back of Turning Space
- 16 236+85.06-32.11' R
Center of Detectable Warning
& Type 2 Curb Ramp

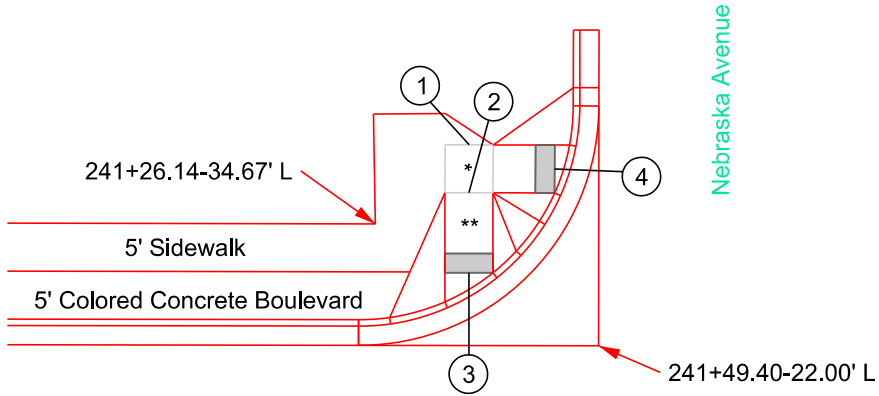
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CURB RAMP LAYOUT

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	30/51

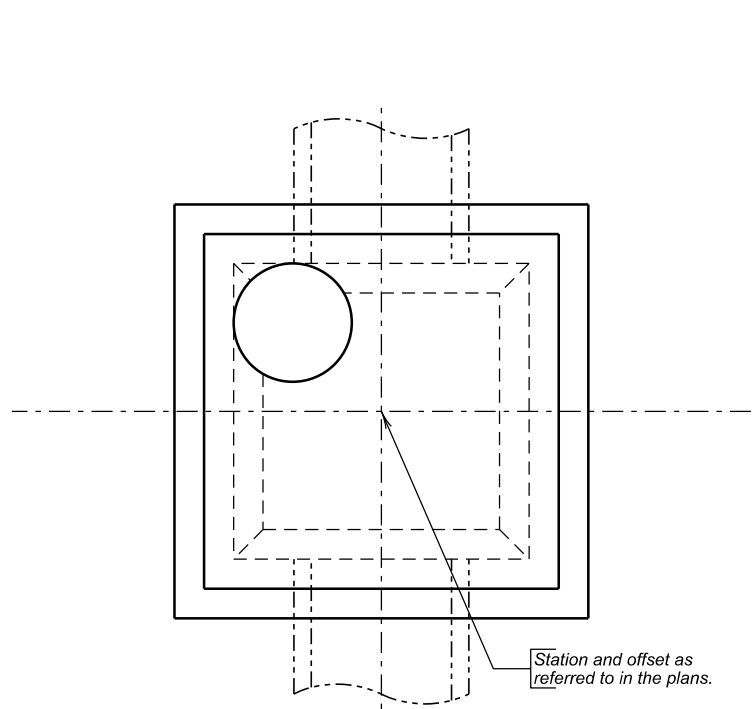
Plotting Date: 03/25/2026 Revised 1-13-2025 JWF



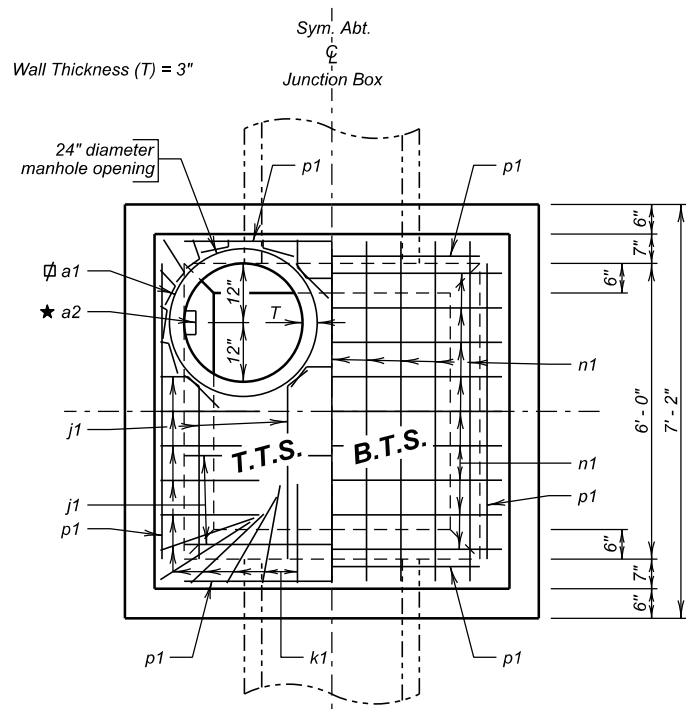
- 1 241+35.88-42.92' L
Back of Turning Space
- 2 241+35.88-37.92' L
End Ramp Slope
- 3 241+35.88-29.59' L
Center of Detectable Warning
& Type 2 Curb Ramp
- 4 241+44.80-40.42' L
Center of Detectable Warning
& Type 2 Curb Ramp



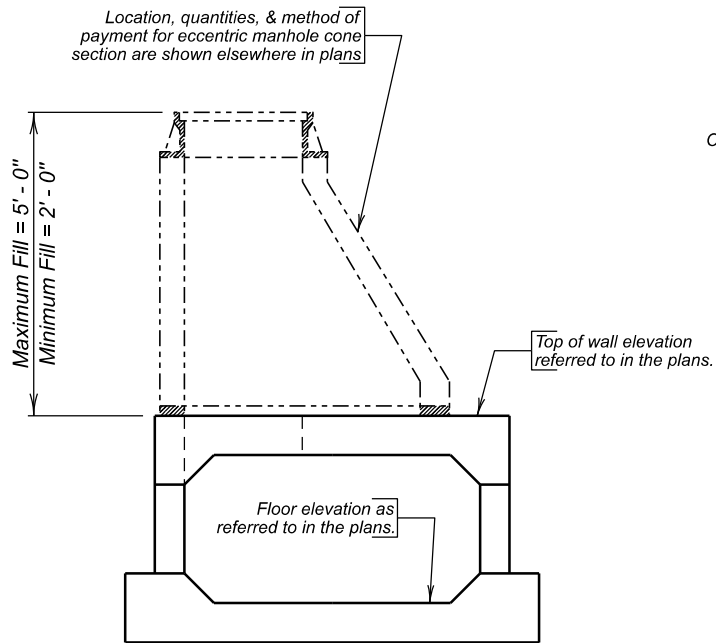
- 5 241+35.88-29.59' R
Center of Detectable Warning
& Type 2 Curb Ramp
- 6 241+35.88-37.92' R
End Ramp Slope
- 7 241+35.88-42.92' R
Back of Turning Space
- 8 241+44.80-40.42' R
Center of Detectable Warning
& Type 2 Curb Ramp



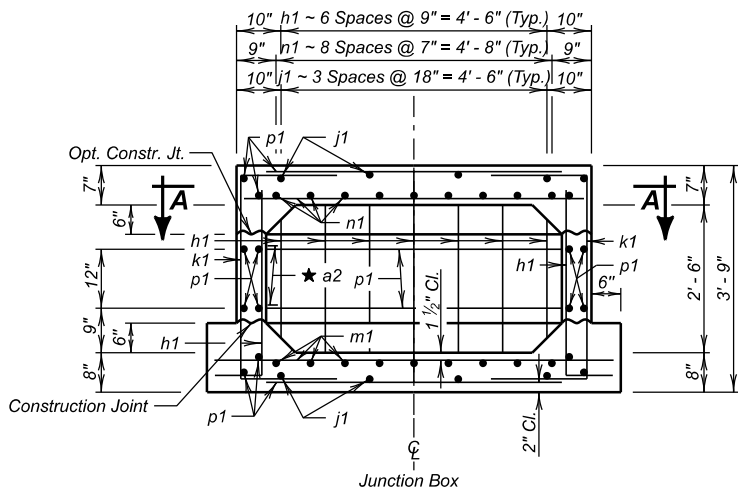
PLAN



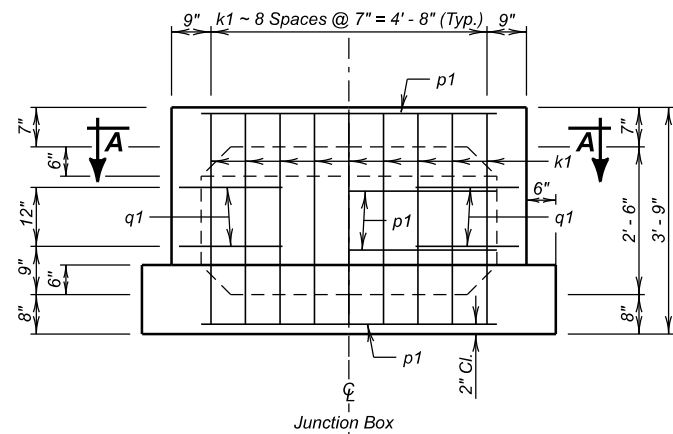
PLAN



ELEVATION



ELEVATION

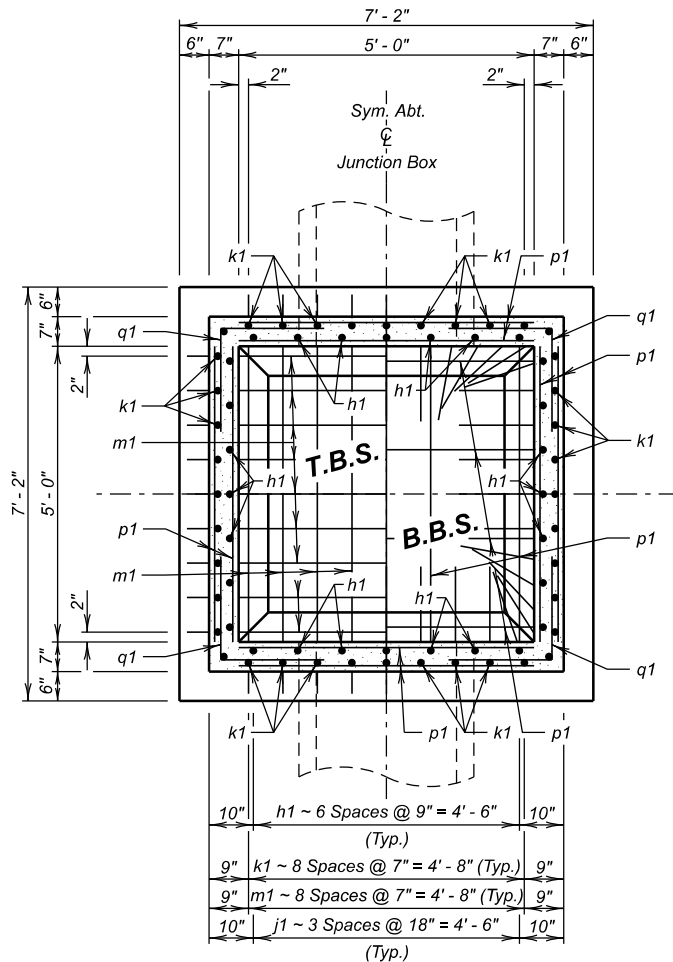


ELEVATION

ESTIMATED QUANTITIES		
ITEM	UNIT	CONSTANT QUANTITY
Class M6 Concrete	Cu. Yd.	3.7
Reinforcing Steel	Lb.	611

* Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). Quantity shown includes reduction for a 24-inch diameter manhole opening. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard.

PIPE DISPLACEMENT REDUCTIONS		
Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
24" R.C.P.A.	3 1/2	0.11



SECTION A - A

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0018(260)425	B	31/51

REINFORCING SCHEDULE

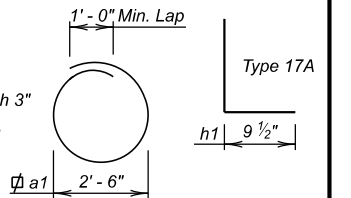
Mk.	No.	Size	Length	Type	Bending Details
a1	1	6	9' - 0"	T3	
a2	2	-	-	-	
h1	28	4	4' - 0"	17A	
j1	16	4	5' - 0"	Str.	
k1	40	4	6' - 9"	17	
m1	18	4	6' - 9"	Str.	
n1	18	4	5' - 9"	Str.	
p1	32	4	5' - 0"	Str.	
q1	38	4	3' - 6"	17A	

NOTES:

All dimensions are out to out of bars.

★ Cast iron Manhole Steps (R - 1980 - C) from Neenah Foundry or equivalent.

⌀ Locate in center of top slab with 3" clearance at manhole opening.



SPECIFICATIONS

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 2024 Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges is available for download and viewing at: <https://dot.sd.gov/doing-business/contractors/standard-specifications>

GENERAL NOTES

- Design Live Load: HL-93. No construction loading in excess of legal load was considered.
- The design of the junction box is based on a maximum fill over the junction box of 5 feet and minimum fill over the junction box of 2 feet.
- Reinforcing steel shall conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) through junction box wall.
- Junction box may be precast. If precast junction box 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.
- Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
- All exposed edges shall be chamfered 3/4 inch.
- Junction box shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering junction box must fit between the inside face of walls and shell not enter through the corners.
- The cost of furnishing and installing the manhole steps shall be incidental to the contract unit price per pound for "Reinforcing Steel".

DETAILS

FOR

SPECIAL 5' X 5' JUNCTION BOX

STA. 243 + 00.00 SEC. 4-T97N-R52W
STA. 244 + 80.00 NH 0018(260)425
PCN 06G3 HL-93

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY BM TURN06G3	CK. DES. BY SD 06G3CK01	DRAFTED BY CK Steve A. Johnson	BRIDGE ENGINEER
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ESTIMATED QUANTITIES		
ITEM	UNIT	CONSTANT QUANTITY
Class M6 Concrete	Cu. Yd.	14.6
Epoxy Coated Reinforcing Steel	Lb.	510
Pipe Handrail	Ft.	73

* Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). Quantity shown includes reduction for a 24-inch diameter manhole opening. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard.

SPECIFICATIONS

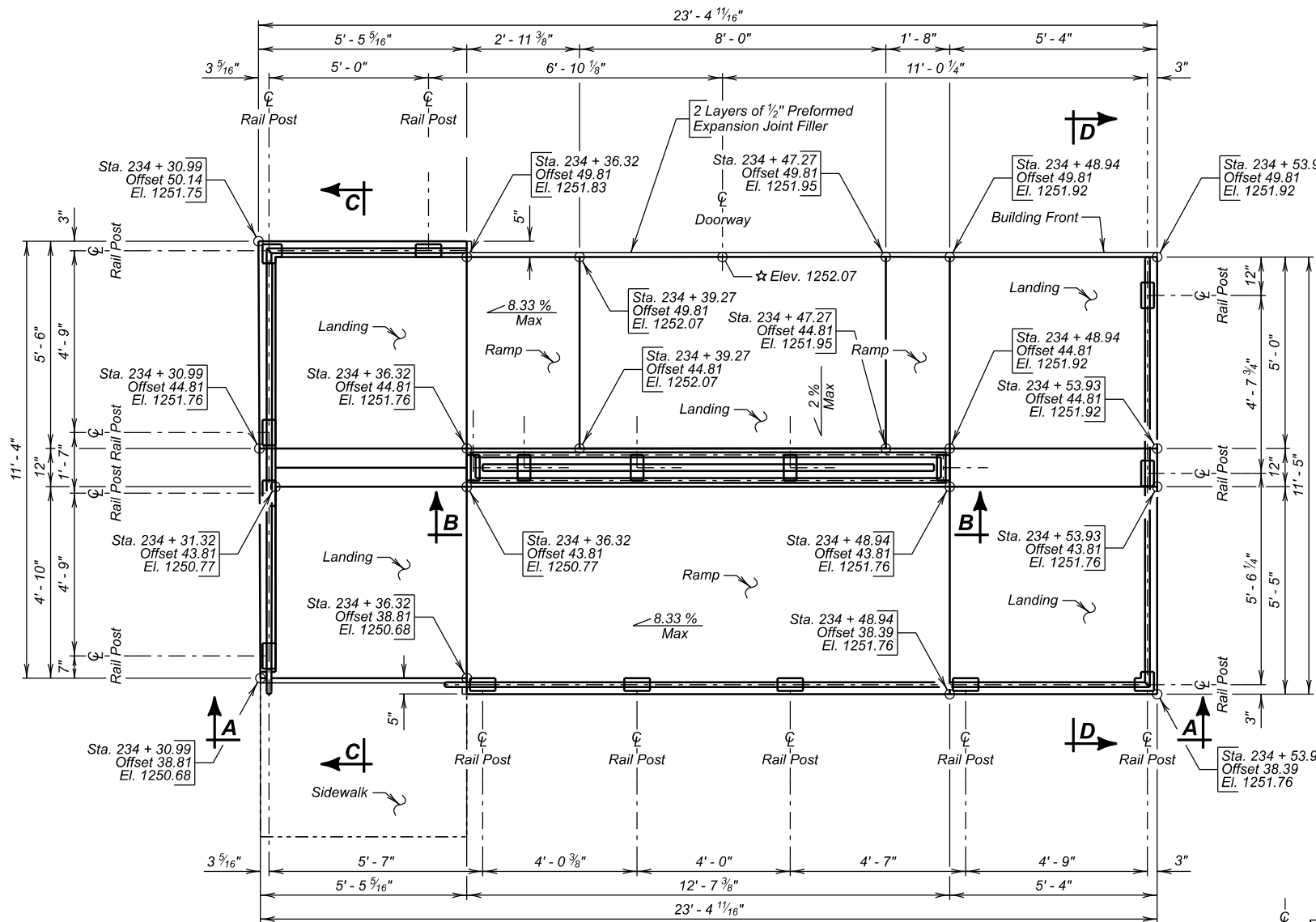
Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at: <https://dot.sd.gov/doing-business/contractors/standard-specifications>

GENERAL NOTES

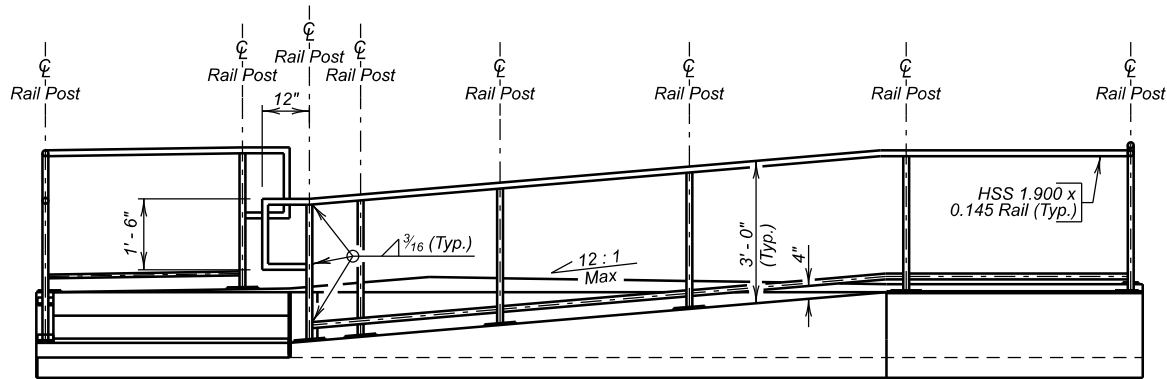
1. The plans elevations and slopes shown to construct the ramp and landings are based on the existing doorway threshold elevation. The doorway threshold elevation will be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
2. All concrete will be Class M6 in accordance with Section 462.
3. All reinforcing steel will be epoxy coated and will conform to ASTM A615, Grade 60.
4. Use 2" clear cover on all reinforcing steel except as shown.
5. All concrete will be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges will be chamfered 3/4" except as shown.
6. Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
7. The concrete sidewalk will be constructed in accordance with Section 651.
8. Cost of the 1/2" Preformed Expansion Joint Filler will be incidental to the contract unit price per cubic yard for Class M6 Concrete.
9. All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work will be included in the Class M6 Concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS

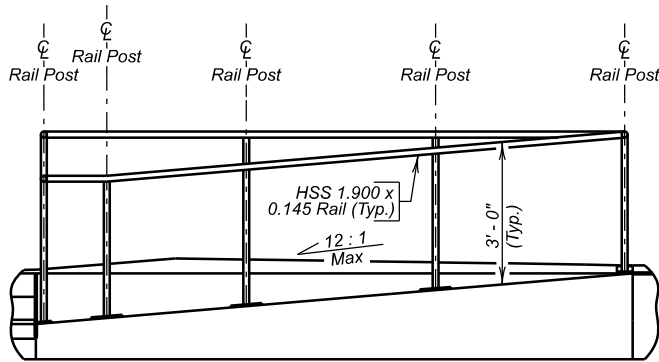
Shop plans will be required as specified by the Construction Specification



PLAN



VIEW A - A



SECTION B - B

DETAILS (A)

FOR

ACCESS RAMP

STA. 234 + 30.99 TO STA. 234 + 53.93
PCN 06G3

SEC. 33-T98N-R52W
NH 0018(260)425
HL-93

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0018(260)425	B	33/51

PIPE HANDRAIL

- Pipe handrail will not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
- All rail posts will be built vertical.
- Steel pipe for railing and posts will conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
- The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor bolts and nuts will conform to ASTM A307. Anchor rods will conform to ASTM 1554, Grade 36. Washers will be in accordance with ASTM F436. Hardware will be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
- All anchor bolts and rods will be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
- Epoxy will be in accordance with ASTM C881 Type IV. Hole size will be as per the epoxy manufacturer's recommendations. Core bits will not be used to drill anchor rod holes.
- Painting of steel railing will be done in accordance with Section 411 of the Specifications. The finished color shall be an approved black.
- Welding and weld inspection will be done in accordance with AWS D2.2 - 2025 Structural Welding Code - Steel.
- The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail will be incidental to the contract unit price per foot for Pipe Handrail.
- Alternate rail designs, including aluminum rail, may be submitted though proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

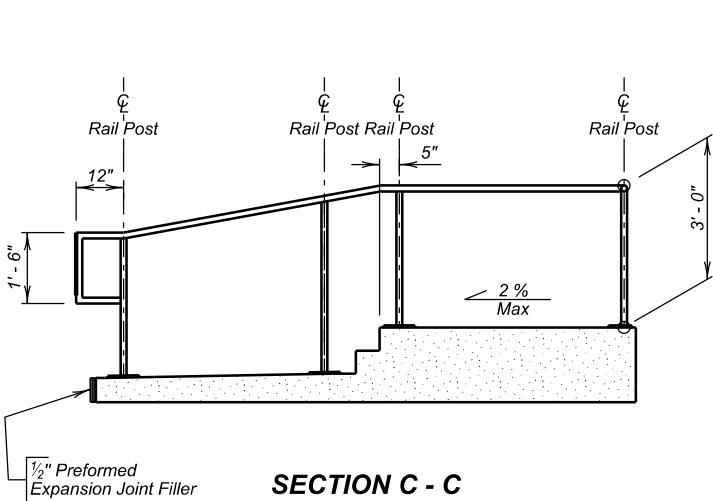
- Curing compounds will not be utilized on concrete stairway treads during the concrete curing process. Curing will be accomplished with a double layer of burlap mats and polyethylene sheeting.
- The Contractor will apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
- The slip resistant coating will be a red, tile red, or brick red color. The coating will be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
- The slip resistant coating will be applied in accordance with the manufacturer's recommendations.
- All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials will be incidental to the various contract items.

DETAILS (B)
FOR
ACCESS RAMP

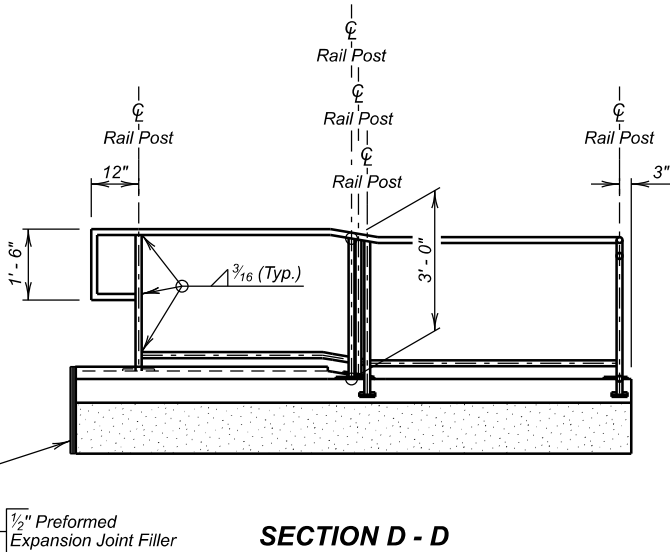
STA. 234 + 30.99 TO STA. 234 + 53.93
SEC. 33-T98N-R52W
NH 0018(260)425
HL-93

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

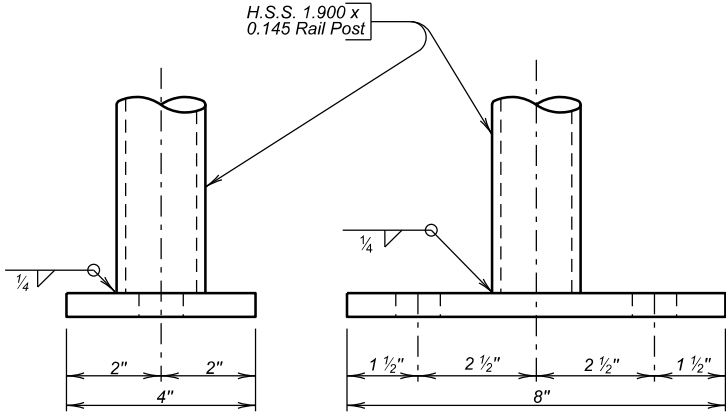
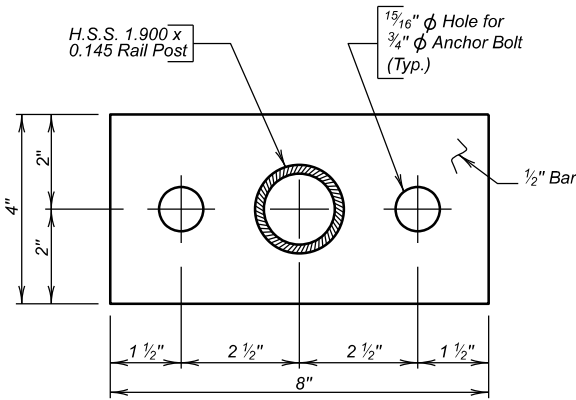
DESIGNED BY BM TURN06G3	CK. DES. BY SD 06G3CK02	DRAFTED BY CK Steve A. Johnson BRIDGE ENGINEER
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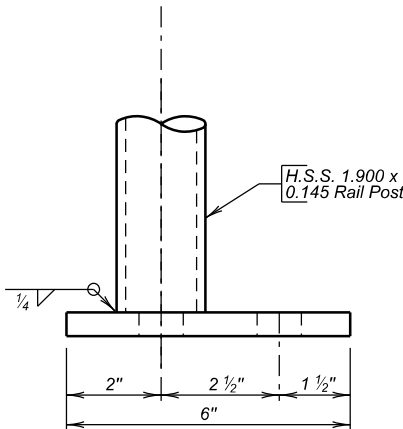
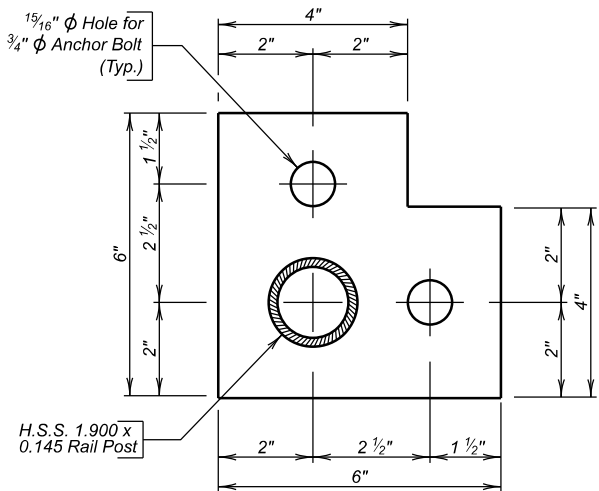
SECTION C - C



SECTION D - D

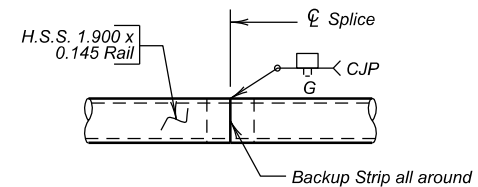
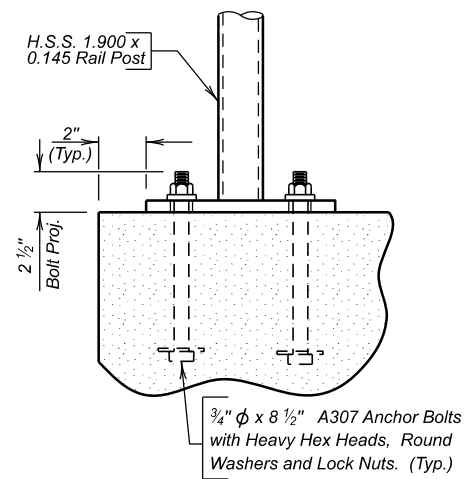
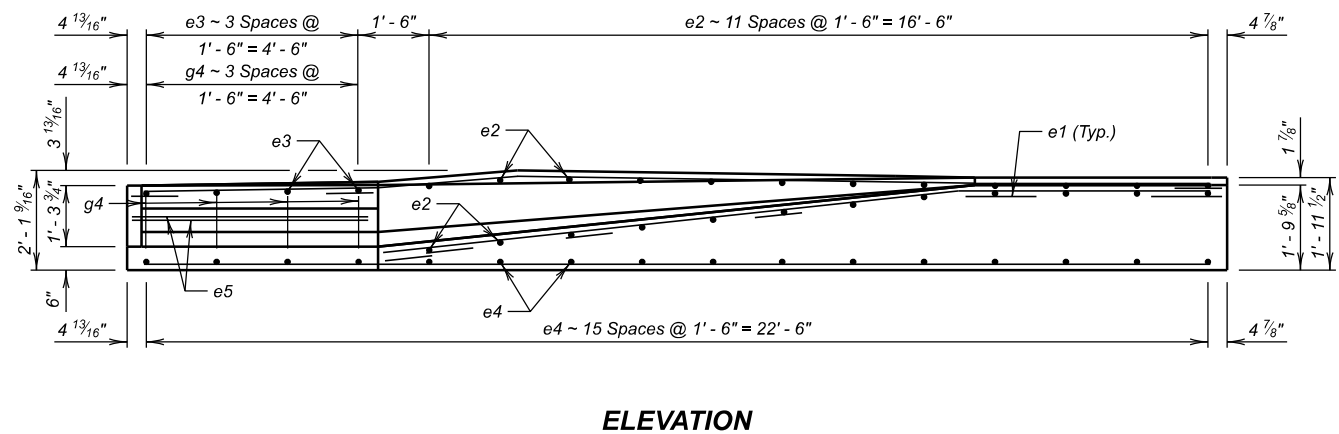
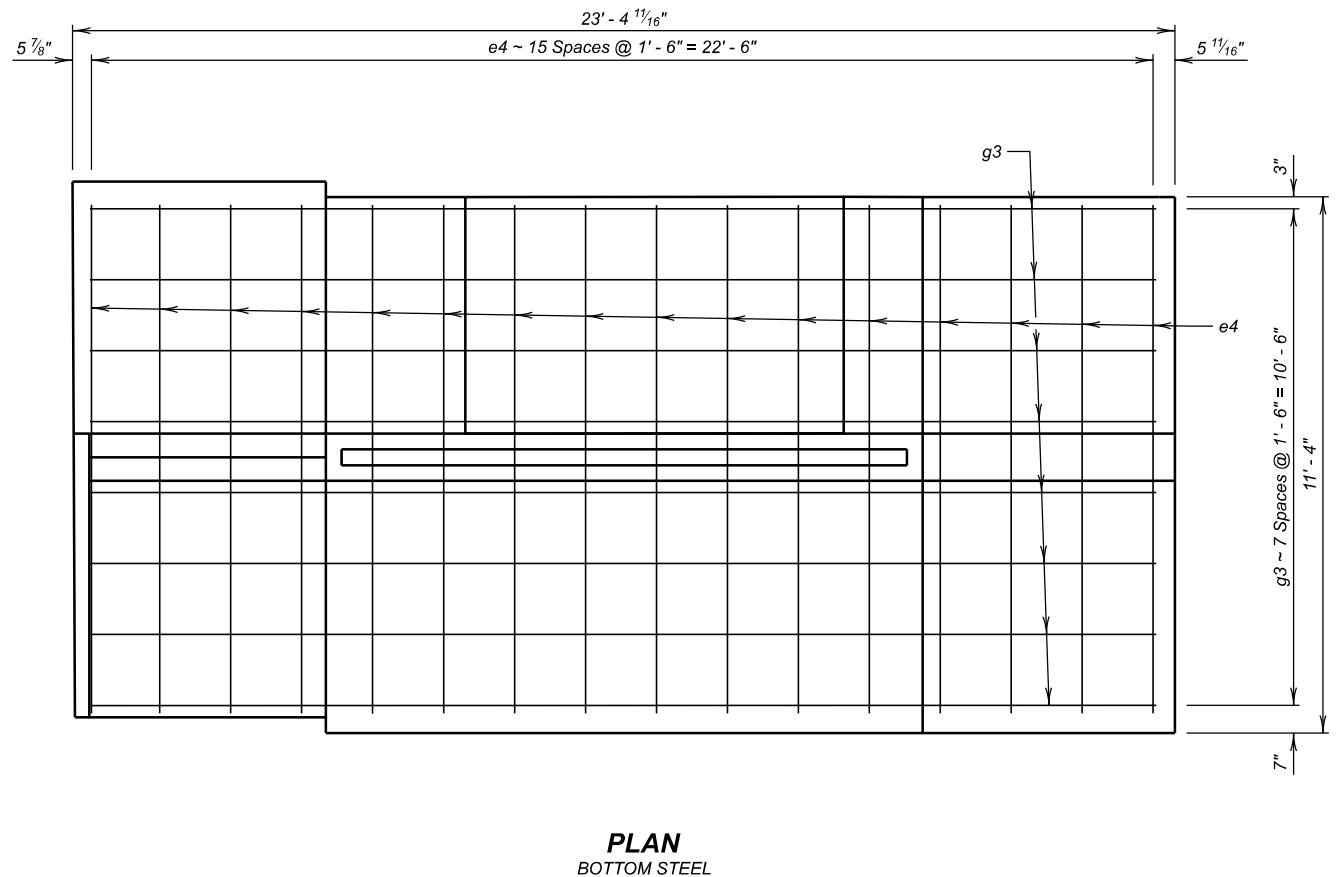
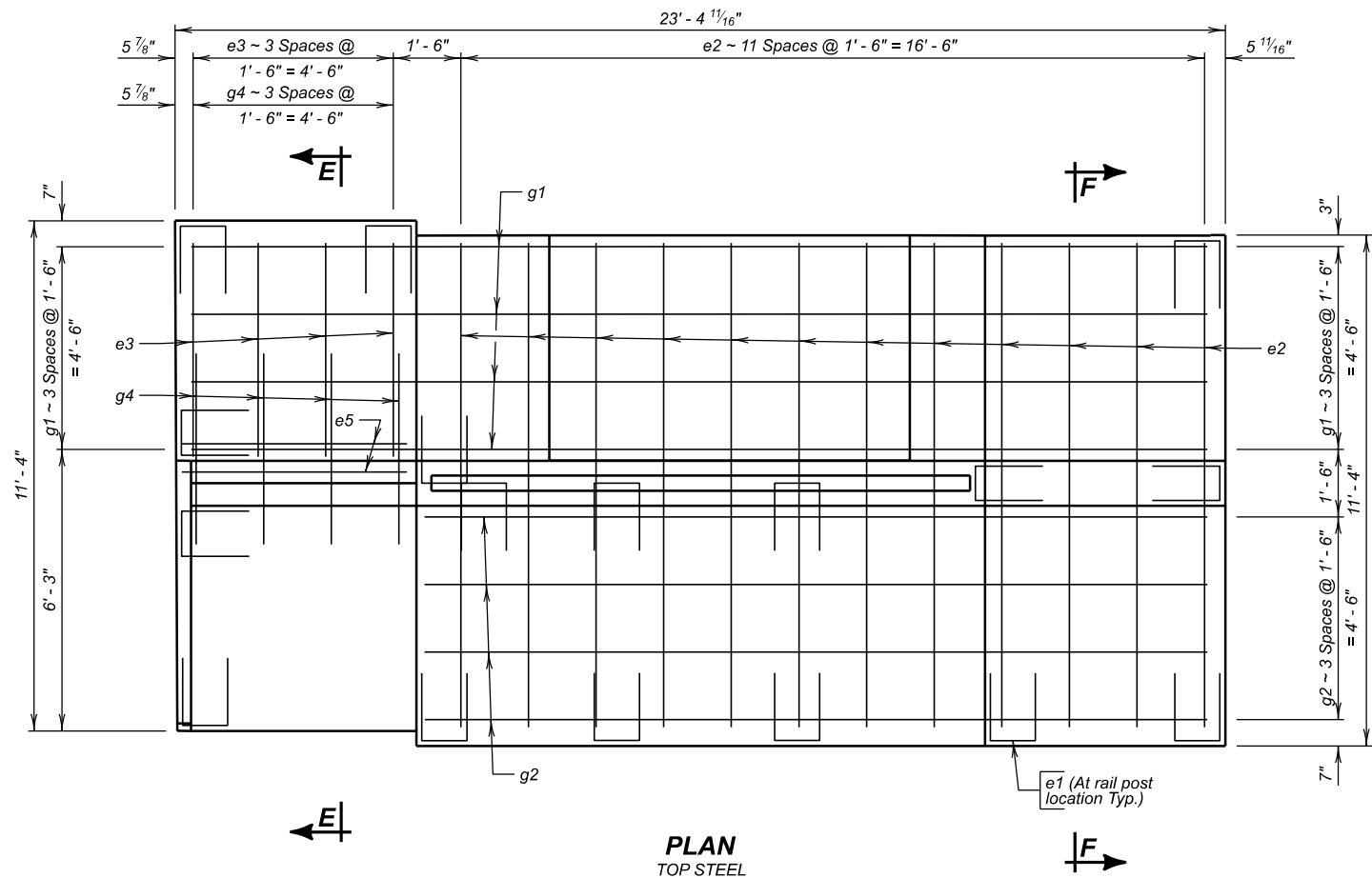


BASE PLATE DETAILS



CORNER BASE PLATE DETAILS

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0018(260)425	B	34/51



DETAILS (C)
FOR
ACCESS RAMP

STA. 234 + 30.99 TO
STA. 234 + 53.93

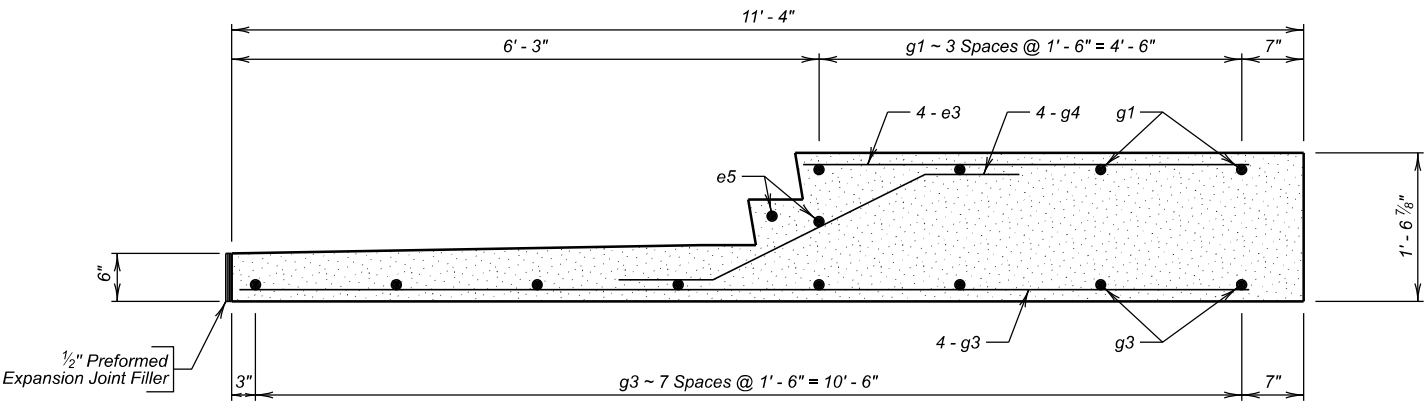
SEC. 33-T98N-R52W
NH 0018(260)425
HL-93

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

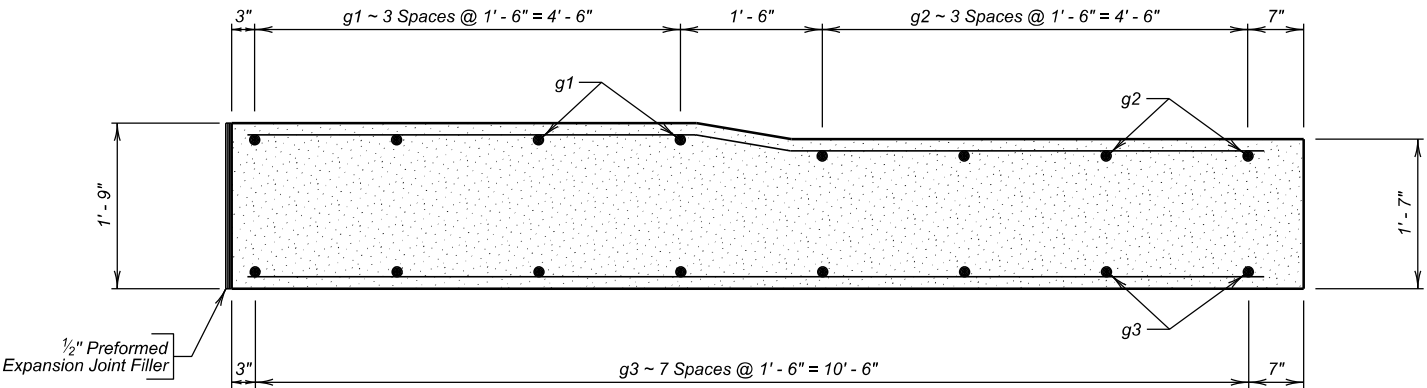
3 OF 4

DESIGNED BY BM TURN06G3	CK. DES. BY SD 06G3CK03	DRAFTED BY CK Steve A. Johnson	BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0018(260)425	B	35/51



SECTION E - E



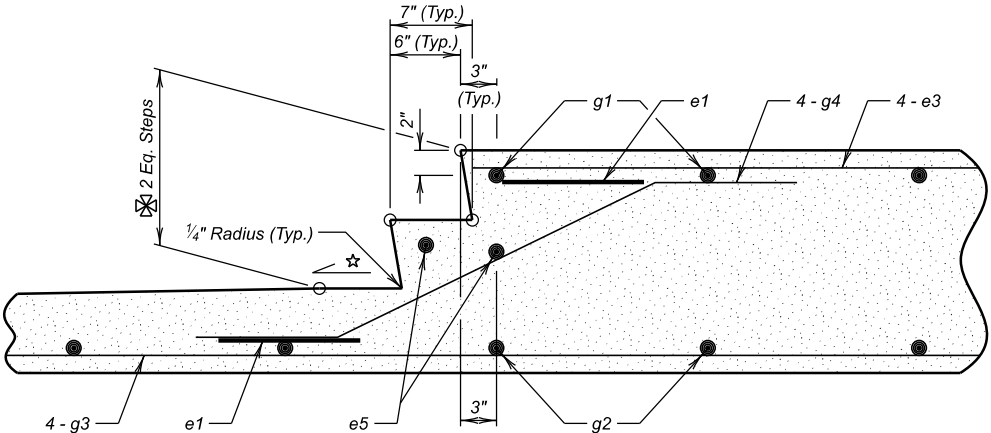
SECTION F - F

REINFORCING SCHEDULE					
Mk.	No.	Size	Length	Type	Bending Details
e1	17	4	4' - 0"	17	
e2	12	4	10' - 9"	Str.	
e3	4	4	4' - 9"	Str.	
e4	16	4	10' - 9"	Str.	
e5	2	4	5' - 0"	Str.	
g1	4	4	22' - 6"	Str.	
g2	4	4	17' - 3"	Str.	
g3	8	4	22' - 6"	Str.	
g4	4	4	4' - 6"	19	

NOTES:
All dimensions are out to out of bars.
✱ Bend in field as necessary to fit.

☆ NOTE: Slope 1/4" per foot max.

✱ Based on elevations and dimensions shown.
See General Drawing and Notes.



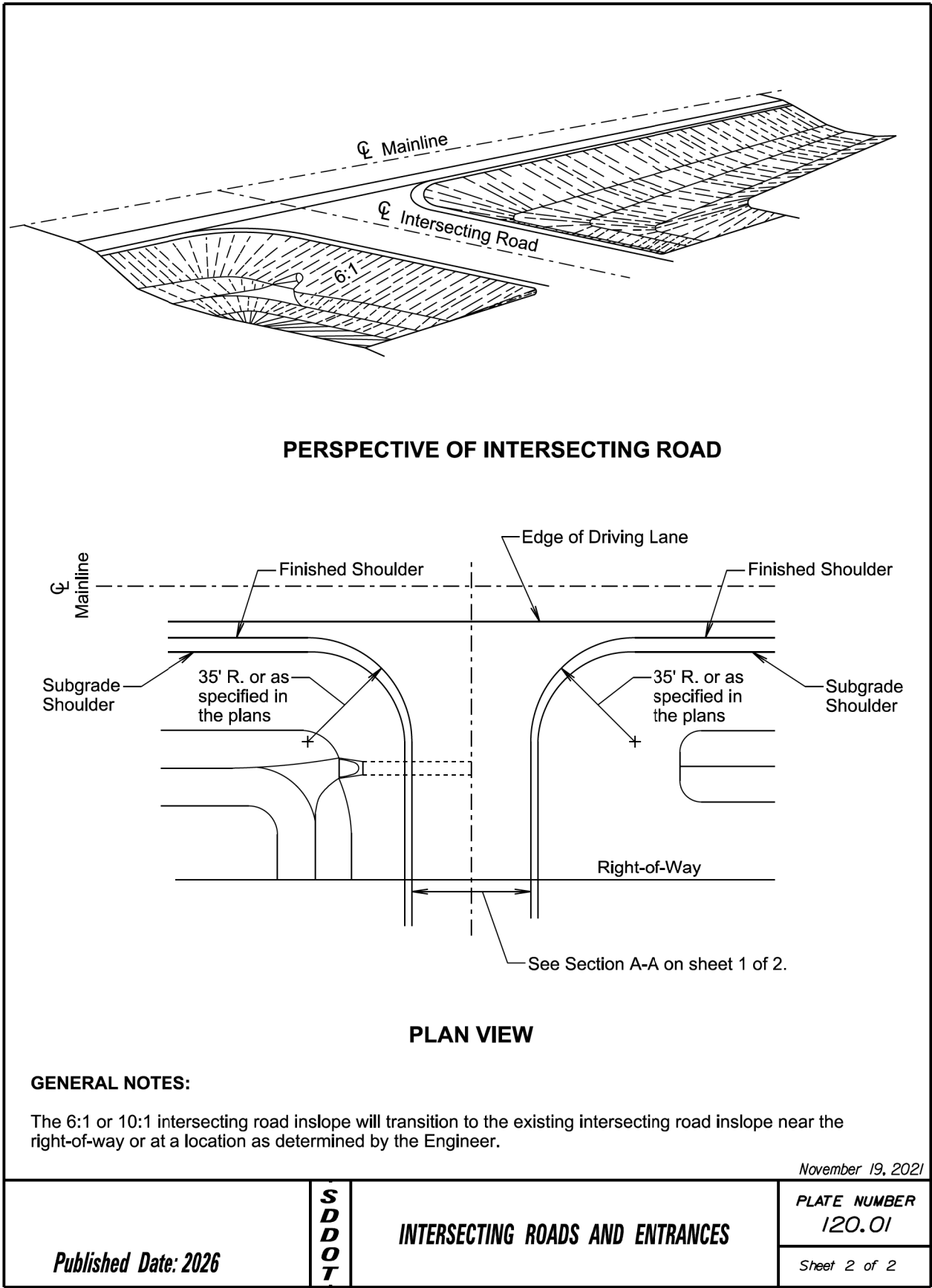
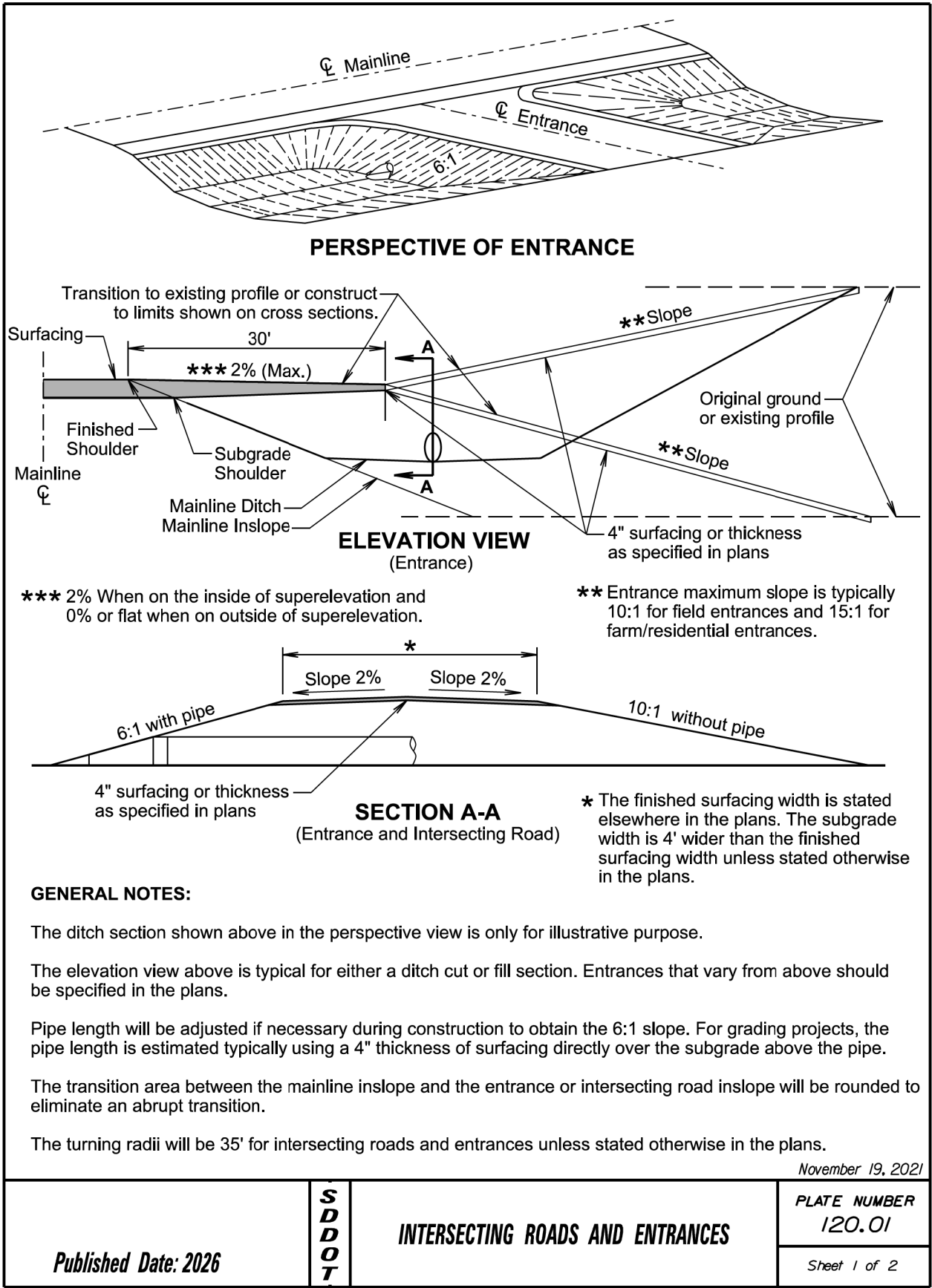
STAIR DETAILS

DETAILS (D)
FOR
ACCESS RAMP

STA. 234 + 30.99 TO SEC. 33-T98N-R52W
STA. 234 + 53.93 NH 0018(260)425
HL-93

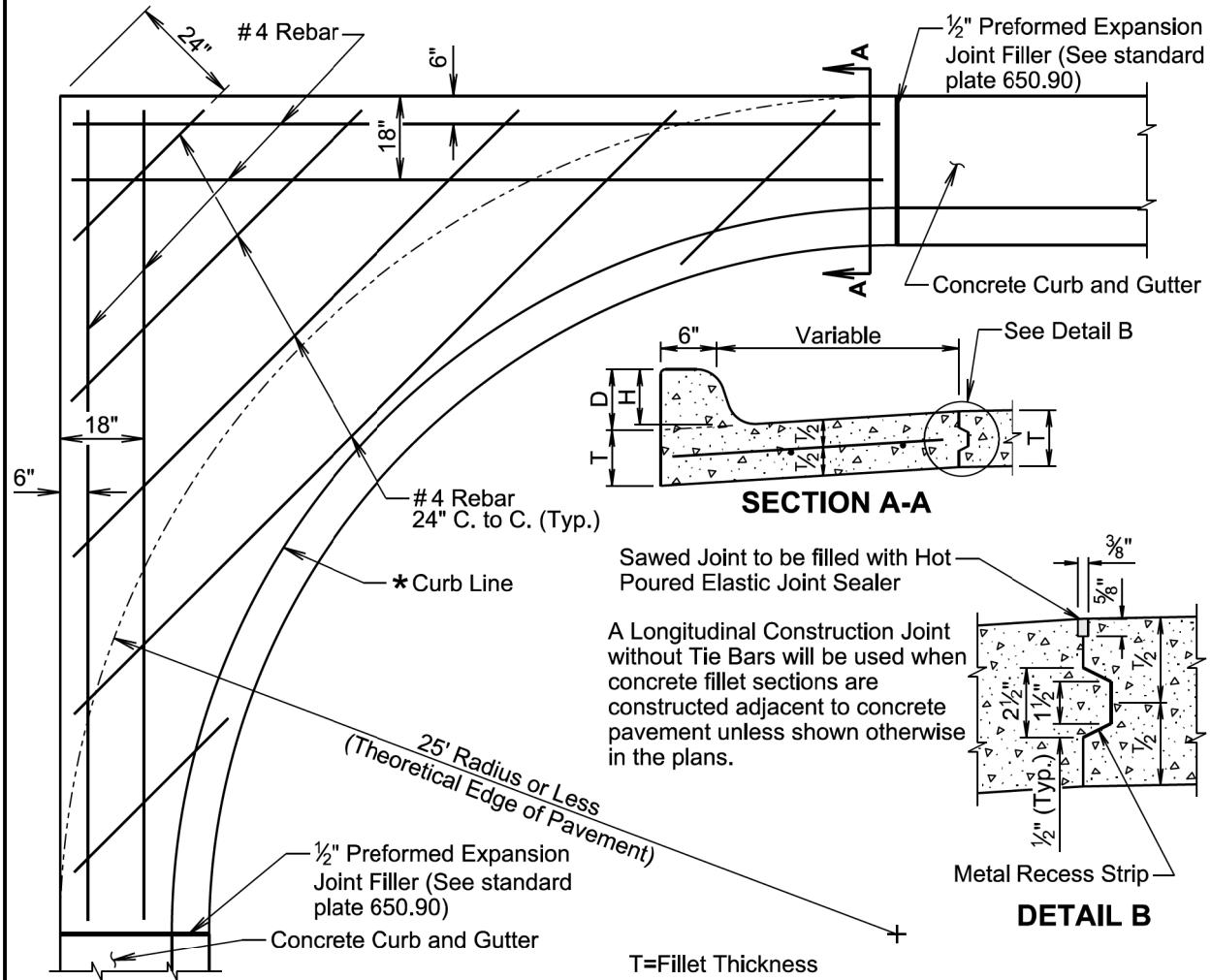
TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY BM TURN06G3	CK. DES. BY SD 06G3CK04	DRAFTED BY CK Steve A. Johnson	BRIDGE ENGINEER
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	37/51

Plotting Date: 03/25/2026



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

March 31, 2024

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

GENERAL NOTES:

For fillets with irregular shapes or bump outs:

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

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

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

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

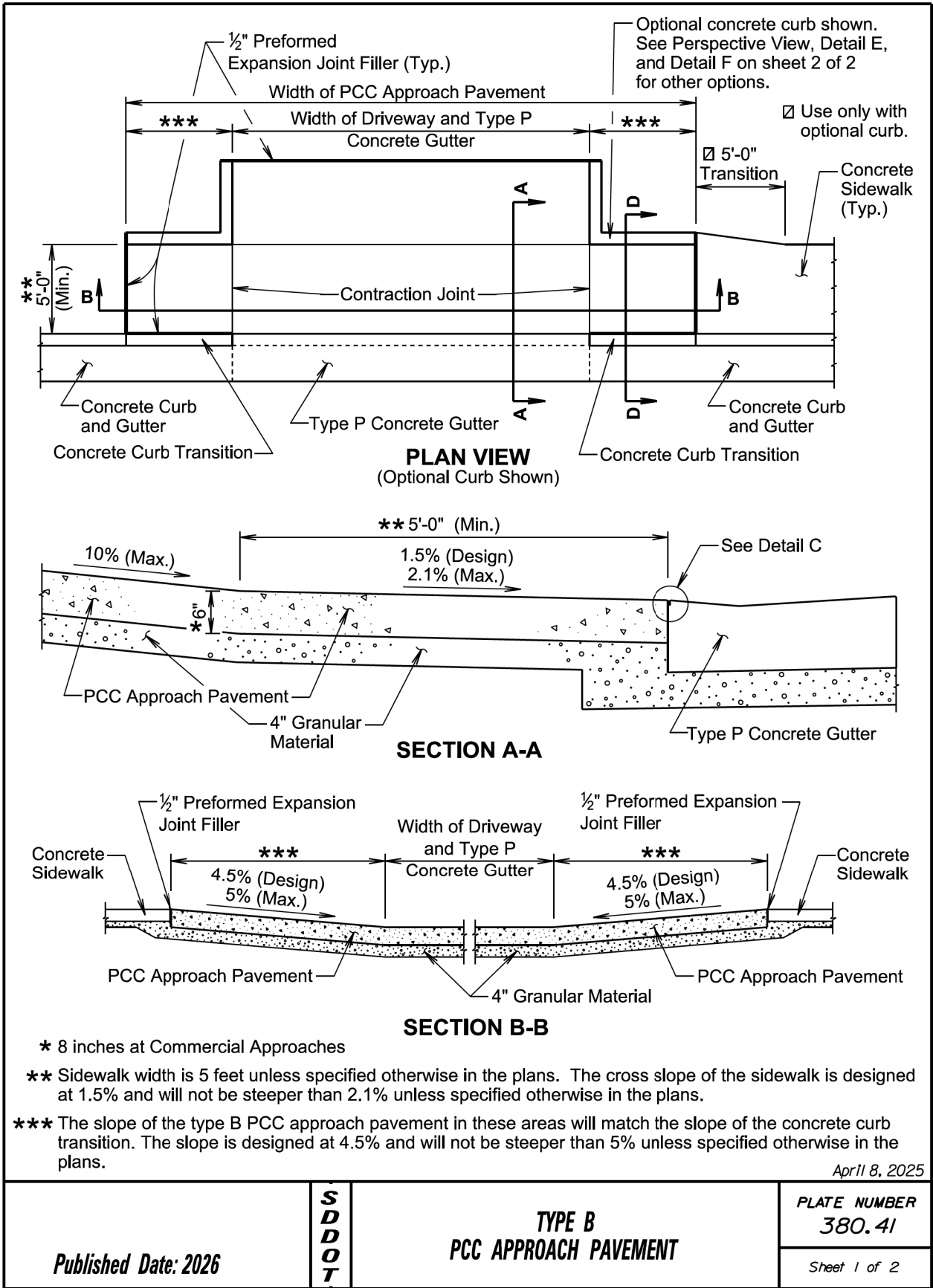
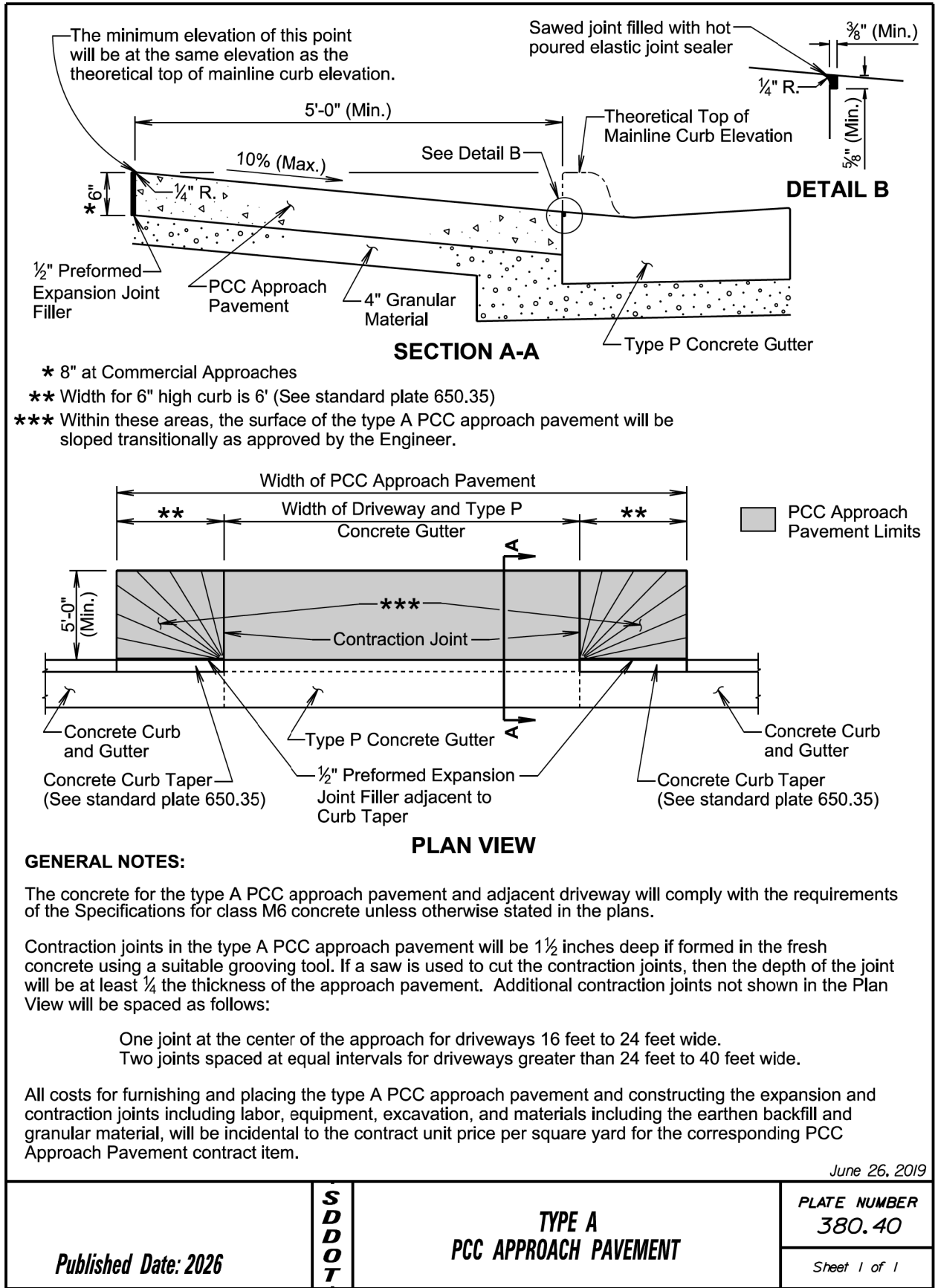
The concrete curb will be monolithic with the concrete fillet. No separate payment for this curb will be made as the curb is considered a part of the fillet.

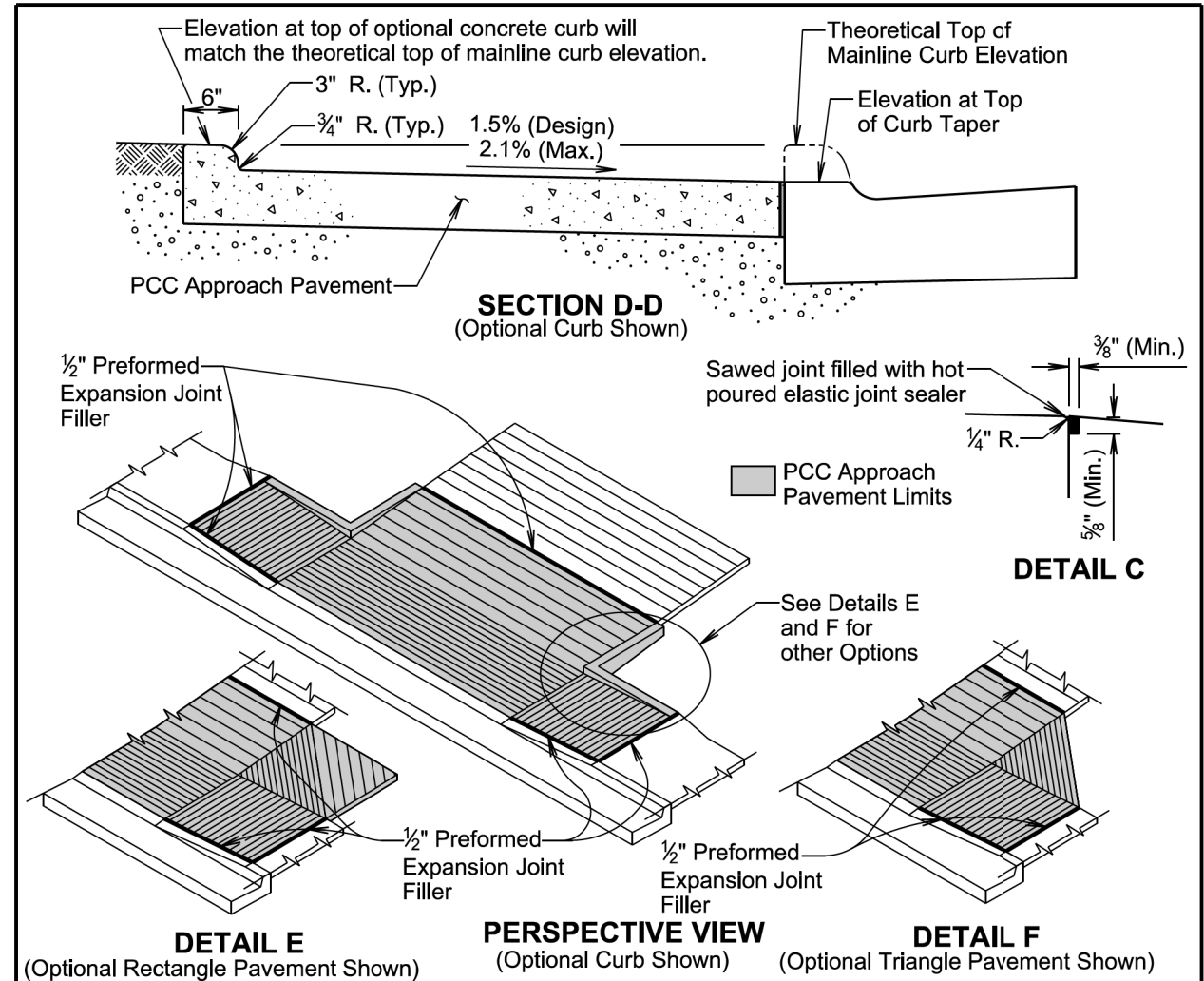
Joints will be constructed at 10-foot intervals except when fillets are constructed adjacent to PCC Pavement. If there is adjacent PCC Pavement the joints will be extended from edge of pavement through the fillet section as directed by the Engineer.

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

March 31, 2024

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





GENERAL NOTES:

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

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

Contraction joints in the type B PCC approach pavement will be 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 approach pavement. Additional contraction joints not shown in the Plan View will be spaced as follows:

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

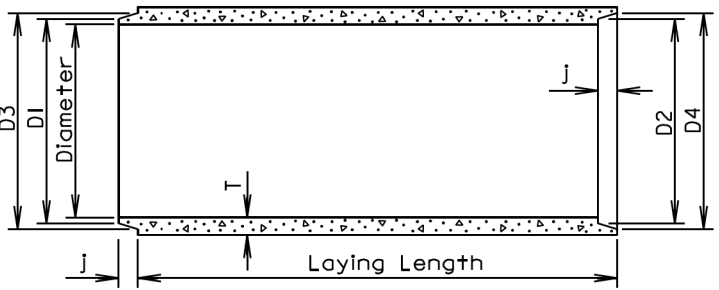
All costs for furnishing and placing the type B PCC approach pavement and constructing the expansion and contraction joints including labor, equipment, excavation, and materials including the earthen backfill and granular material will be incidental to the contract unit price per square yard for the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

April 8, 2025

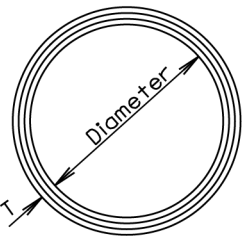
Published Date: 2026	S D D O T	TYPE B PCC APPROACH PAVEMENT	PLATE NUMBER 380.41
			Sheet 2 of 2

TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

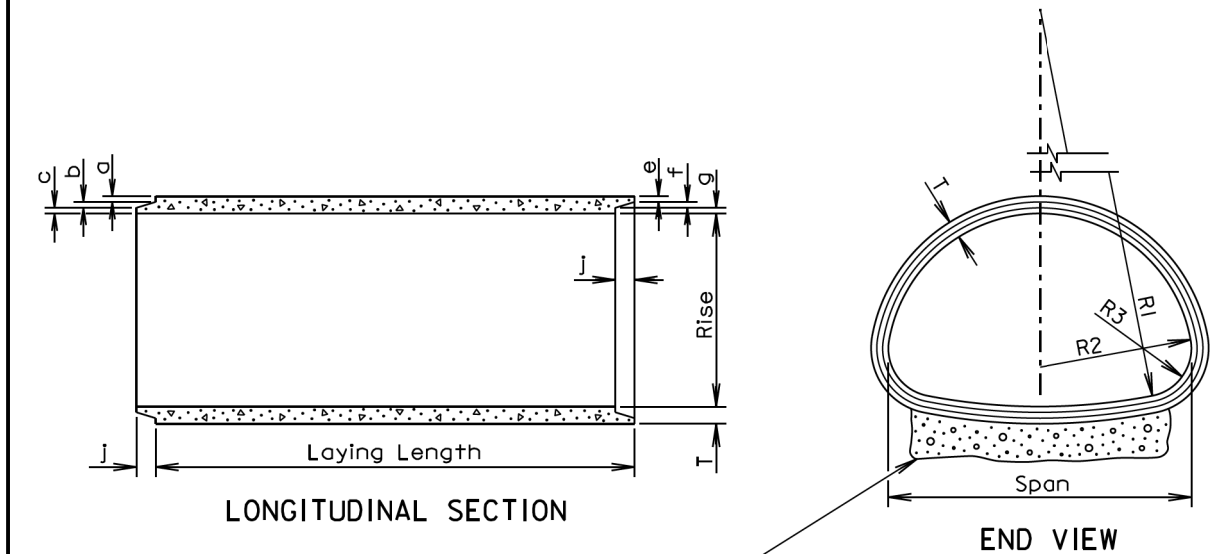
Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

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

Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 3/8	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	S D D O T	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



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 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 3/8	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 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 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	S D D O T	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
			Sheet 1 of 1

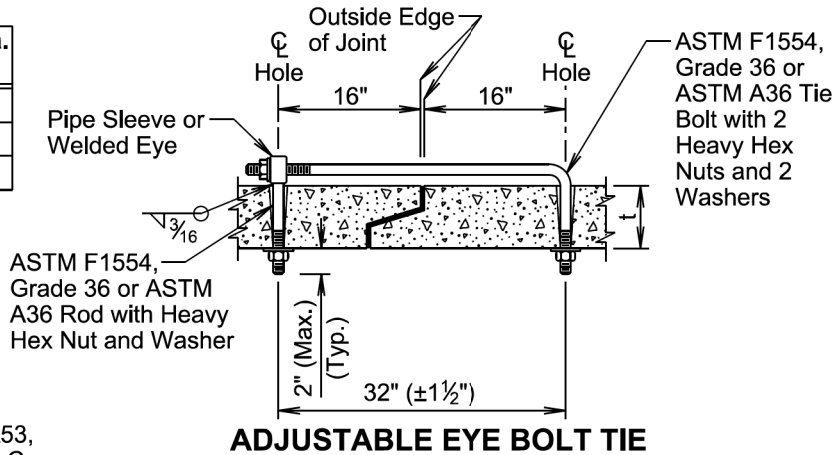
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
$\leq 3 \frac{1}{4}$	$\frac{5}{8}$	$\frac{3}{4}$
$3 \frac{1}{2}$ - $6 \frac{1}{2}$	$\frac{3}{4}$	1
≥ 7	1	$1 \frac{1}{4}$

GENERAL NOTES:

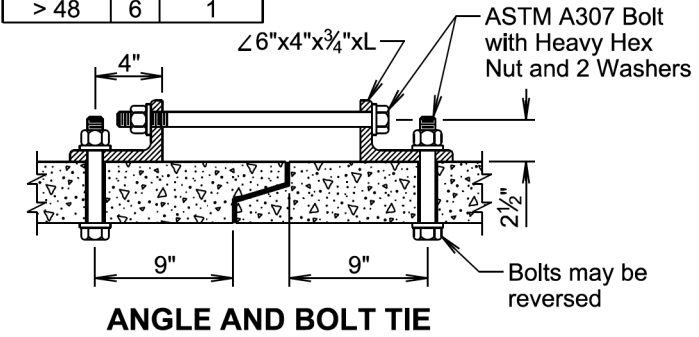
Tie bolts will conform to ASTM F1554, Grade 36 or ASTM A36. Nuts will be heavy hex conforming to ASTM A563. Washers will conform to ASTM F436.

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

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



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



GENERAL NOTES:

Angles will conform to ASTM A36.

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

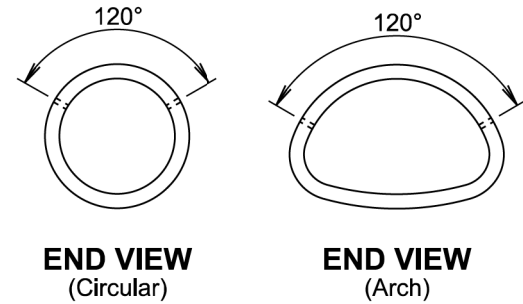
Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.

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	S D D O T	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1



ESTIMATED QUANTITIES			
ITEM	UNIT	Δ QUANTITY	
		2 : 1 STAIRWAY	3 : 1 STAIRWAY
<i>Class M6 Concrete</i>	<i>Cu. Yd.</i>	<i>0.87 + 0.23w</i>	<i>0.83 + 0.19w</i>
<i>Structure Excavation (Misc.)</i>	<i>Cu. Yd.</i>	<i>1.79 + 0.59w</i>	<i>1.65 + 0.46w</i>
<i>Epoxy Coated Reinforcing Steel</i>	<i>Lb.</i>	<i>69.63 + 14.97w</i>	<i>69.63 + 14.55w</i>
<i>Pipe Handrail</i>	<i>Ft.</i>	<i>6.22 + 2.24w</i>	<i>6.10 + 2.10w</i>

Δw = Number of steps NOT including landings (i. e. $w = 9$ in Sec. A-A).

SPECIAL NOTE:

Details for construction of the concrete stairway and handrails shown on this sheet are typical only, and are not intended to depict specific installations. Adjust the length of the stairway as required to fit specific site requirements. Use the formulas given on this sheet to adjust the unit price bid quantities to the required length of the stairway. Refer to project plans for requirements of individual locations. Alternate design details may be submitted through proper channels to the Office of Bridge Design for approval, including aluminum handrail installation.

August 8, 20

August 8, 2014

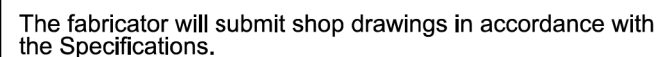
1. All concrete shall be Class M6 in accordance with Section 462.
2. All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60. Epoxy coating shall conform to ASTM A775.
3. Use 2 inch clear cover on all reinforcing steel except as shown.
4. All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. Finish of step treads to be steel troweled and then brush finished with brush strokes on treads at right angles to width. All exposed edges shall be chamfered $\frac{3}{4}$ inch except as shown.
5. Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
6. The concrete sidewalk shall be constructed in accordance with Section 651.
7. Cost of the $\frac{1}{2}$ inch Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".

**S
D
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PLATE NUMBER
460.31

Sheet 1 of 1

Published Date: 2026



BASE PLATE DETAILS

ANCHOR BOLT DETAIL

April 8, 2025

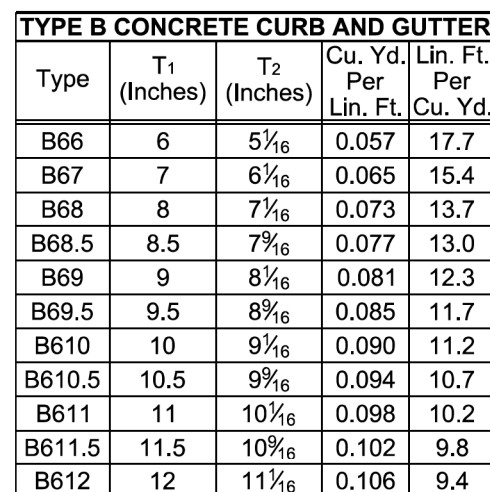
**S
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STAIRWAY HANDRAIL

PLATE NUMBER
470.01

Sheet 1 of 1

Published Date: 2026

Plotting Date: 03/25/2026

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

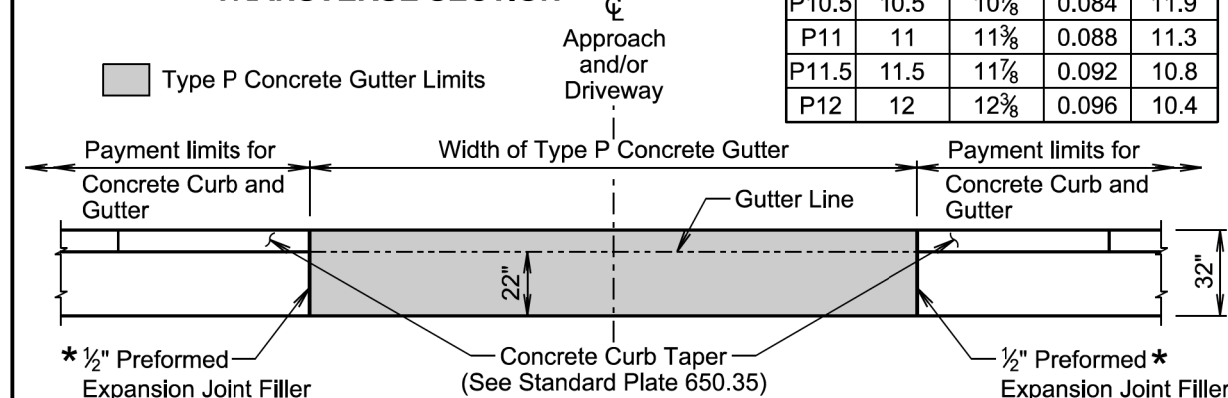
January 22, 2023

The diagram illustrates the cross-section and plan view of a Type P Concrete Gutter. The cross-section shows a 2% slope, a 5% slope, and an 8.33% slope. The plan view shows a 32-inch width and a 22-inch radius. A note states: "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." A table titled "TYPE P CONCRETE GUTTER" provides specifications for various types.

TYPE P CONCRETE GUTTER				
Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 ³ / ₈	0.047	21.2
P7	7	7 ³ / ₈	0.055	18.1
P8	8	8 ³ / ₈	0.064	15.7
P8.5	8.5	8 ⁷ / ₈	0.068	14.8
P9	9	9 ³ / ₈	0.072	13.9
P9.5	9.5	9 ⁷ / ₈	0.076	13.2

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

TRANSVERSE SECTION



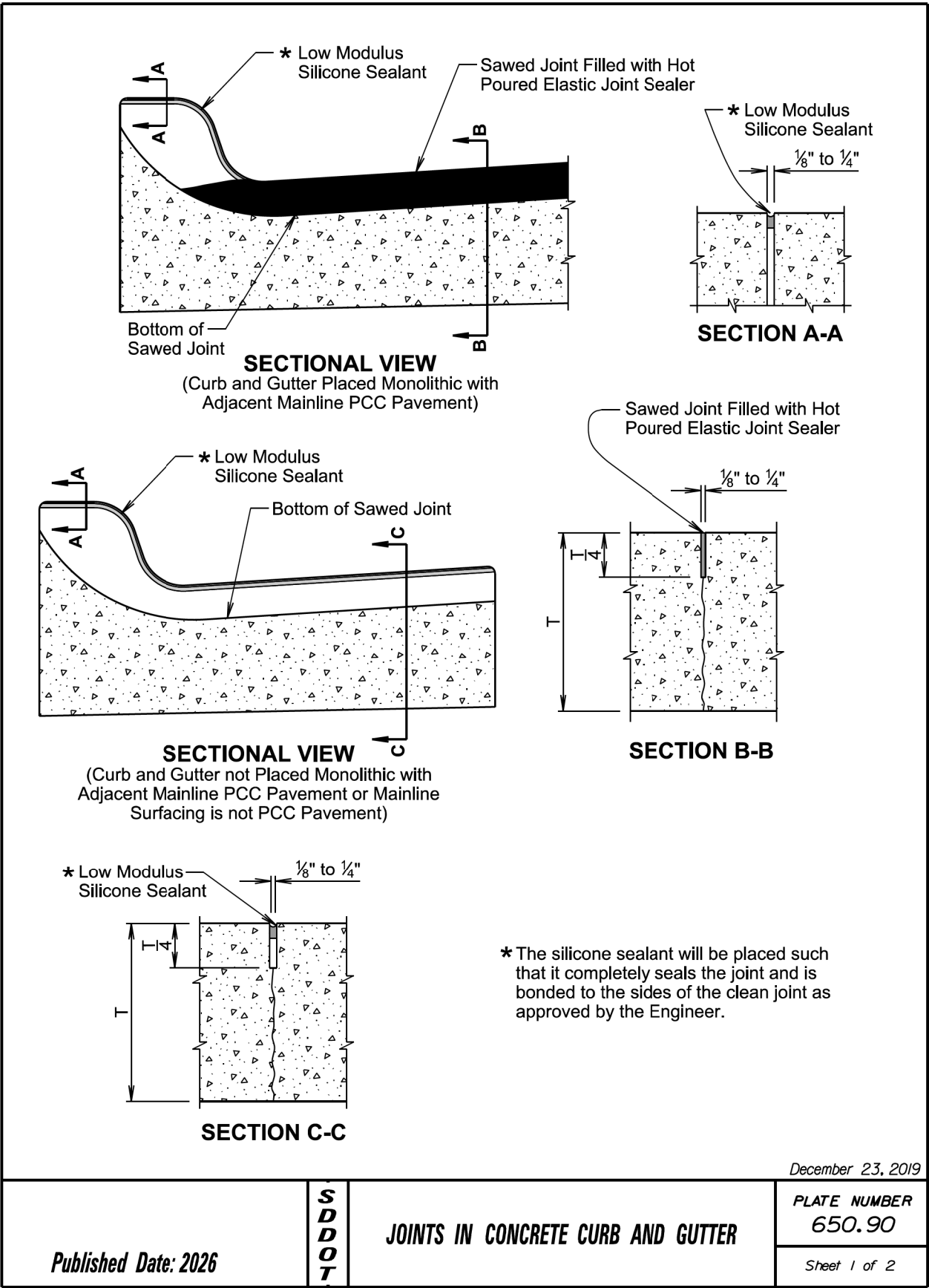
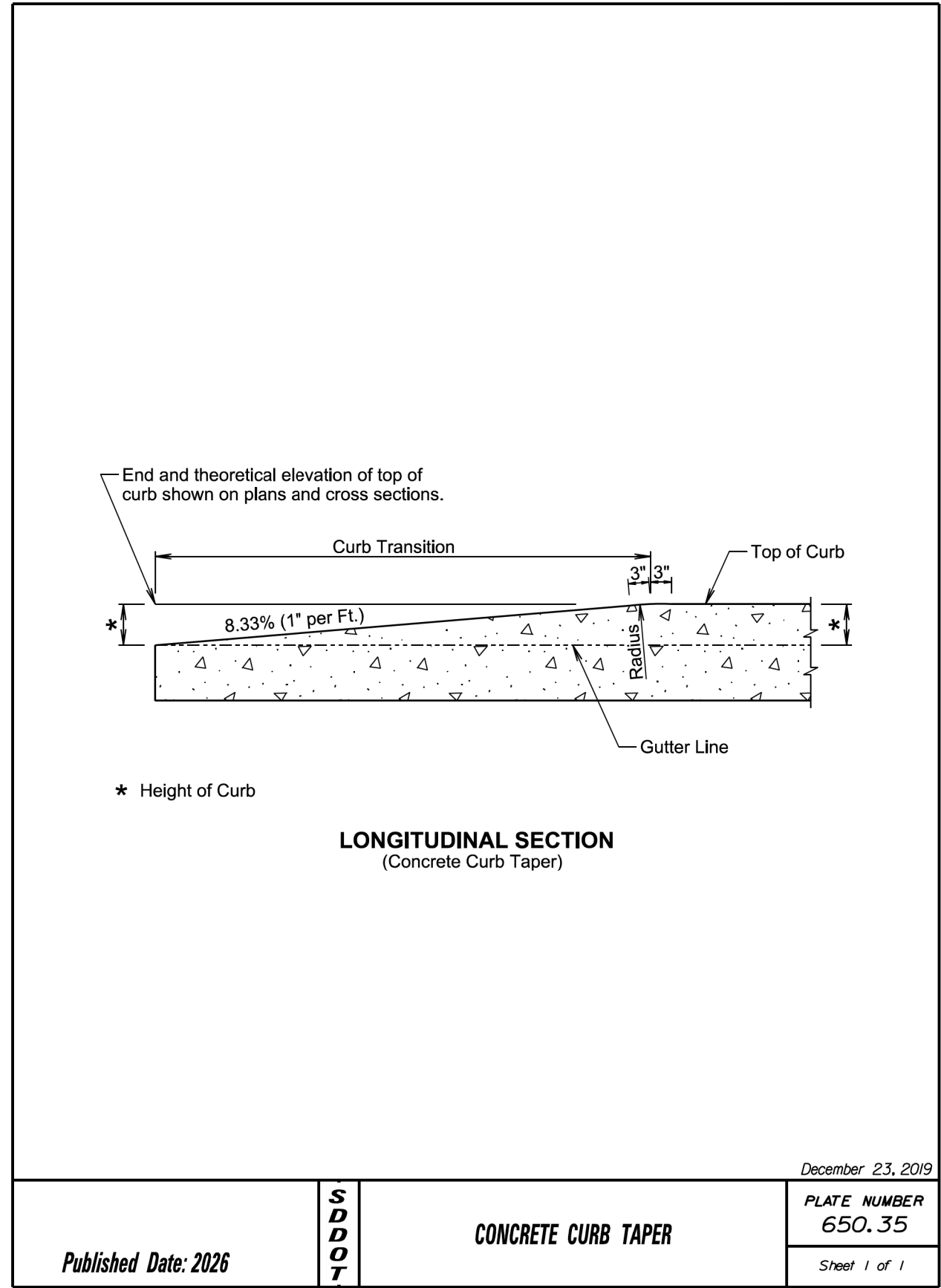
PLAN VIEW

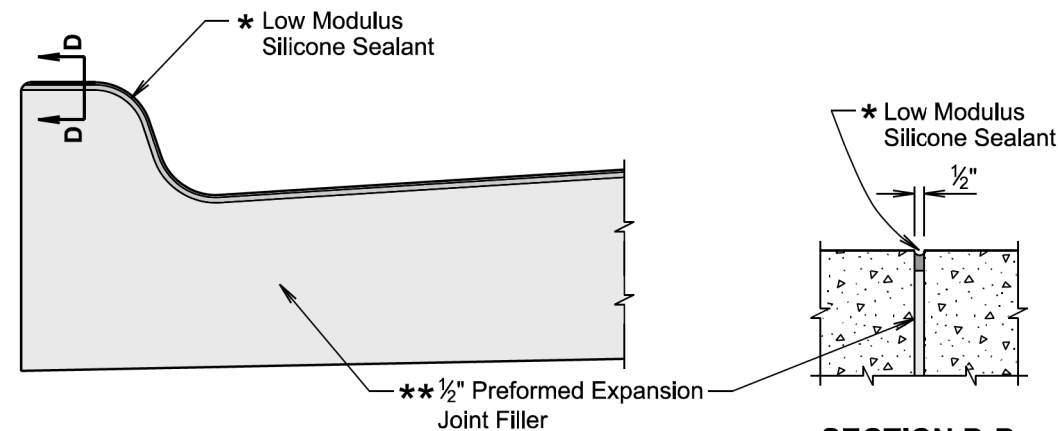
* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the ½" preformed expansion joint filler is provided, then the joint will be sealed in accordance with standard plate 650.90.

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 $1\frac{1}{2}$ 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 $\frac{1}{4}$ the thickness of the concrete.

January 22, 2023

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			Sheet 1 of 1





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

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

GENERAL NOTES:

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

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

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

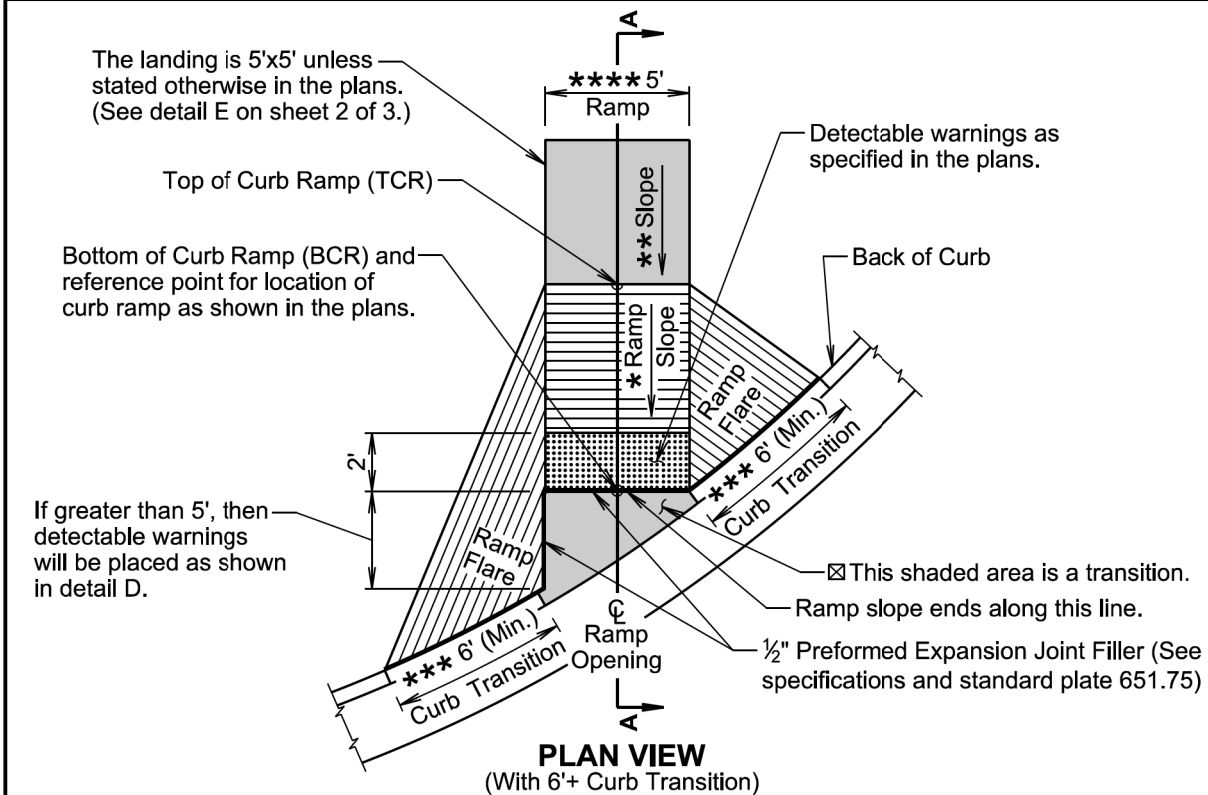
At each junction between new curb and gutter and existing curb and gutter.

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

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

December 23, 2019

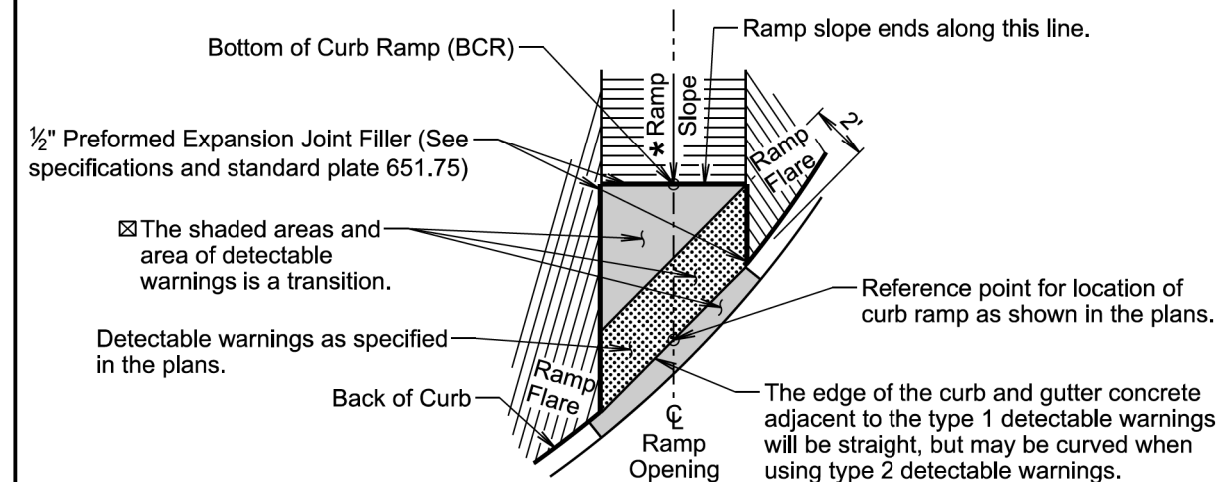
Published Date: 2026	S D D O T	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2



PLAN VIEW
(With 6'+ Curb Transition)

☑ The slope within the transition area will not be steeper than 5%. The concrete within the transition will be placed monolithic with the curb and gutter or fillet section concrete. The concrete thickness within the transition will be the same as the curb and gutter or fillet section concrete thickness.

*** The curb transition will be a minimum of 6' long, a maximum of 10' long, and the curb transition slope will not be steeper than 10% unless stated otherwise in the plans. The curb transition length will be adjusted as necessary to meet slope and length requirements based on field geometrics.



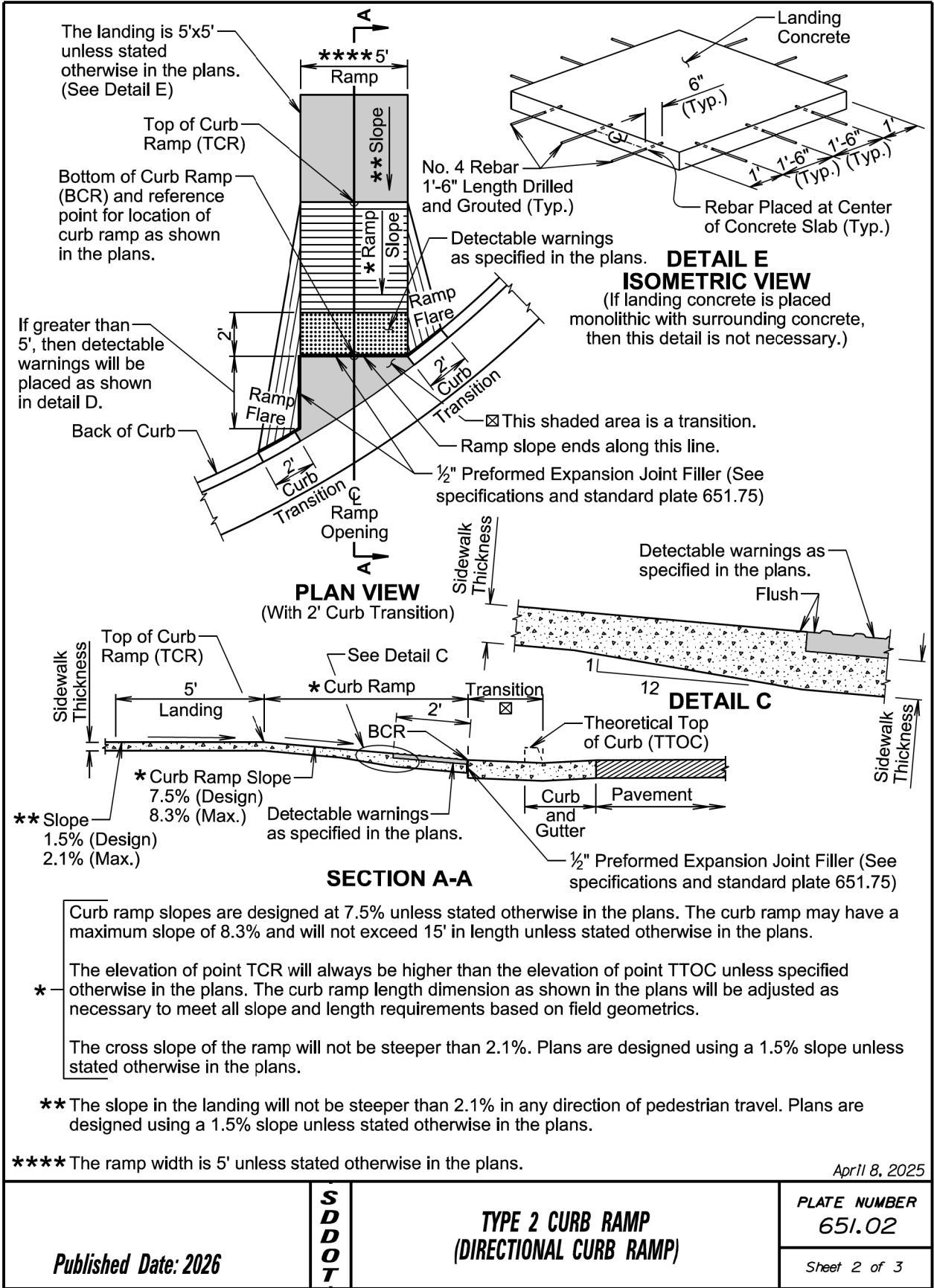
DETAIL D

April 8, 2025

Published Date: 2026	S D D O T	TYPE 2 CURB RAMP (DIRECTIONAL CURB RAMP)	PLATE NUMBER 651.02
			Sheet 1 of 3

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	45/51

Plotting Date: 03/25/2026



GENERAL NOTES:

For illustrative purpose only, type 1 detectable warnings are shown in the drawings.

The curb ramp depicted on this standard plate may be used with a PCC fillet section or curb and gutter. The curb ramp will be placed at the location stated in the plans.

Sidewalk will not be placed adjacent to the curb ramp flares when a 2-foot curb transition is used unless shown otherwise in the plans.

* Care will be taken to ensure a uniform grade on the curb ramp, free of sags and short grade changes.

Surface texture of the curb ramp will be obtained by coarse brooming transverse to the slope of the curb ramp.

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

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

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

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

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

If rebar is placed in the landing as depicted in DETAIL E, the cost of the materials, labor, and equipment to furnish and install the rebar will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk contract item.

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

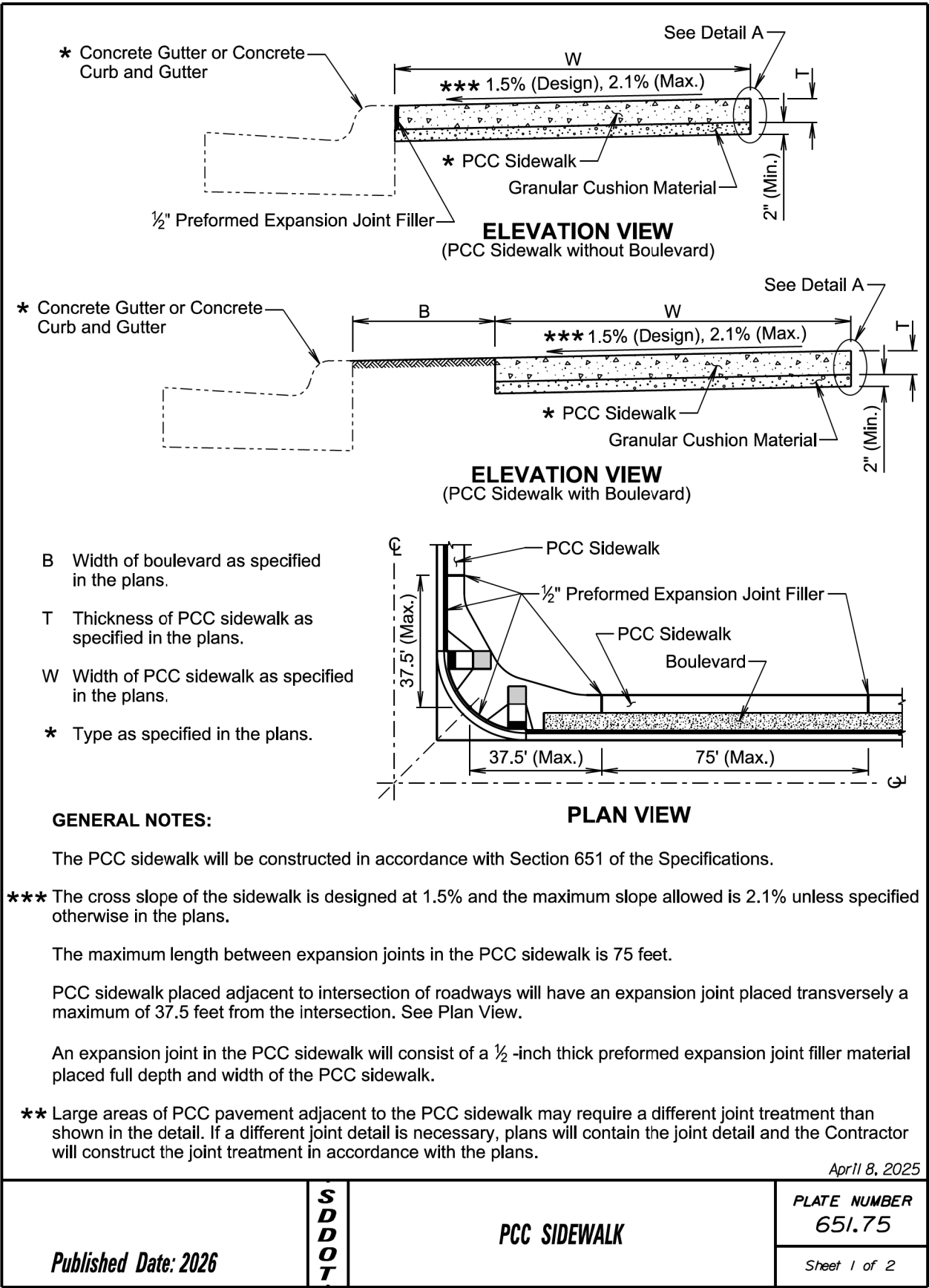
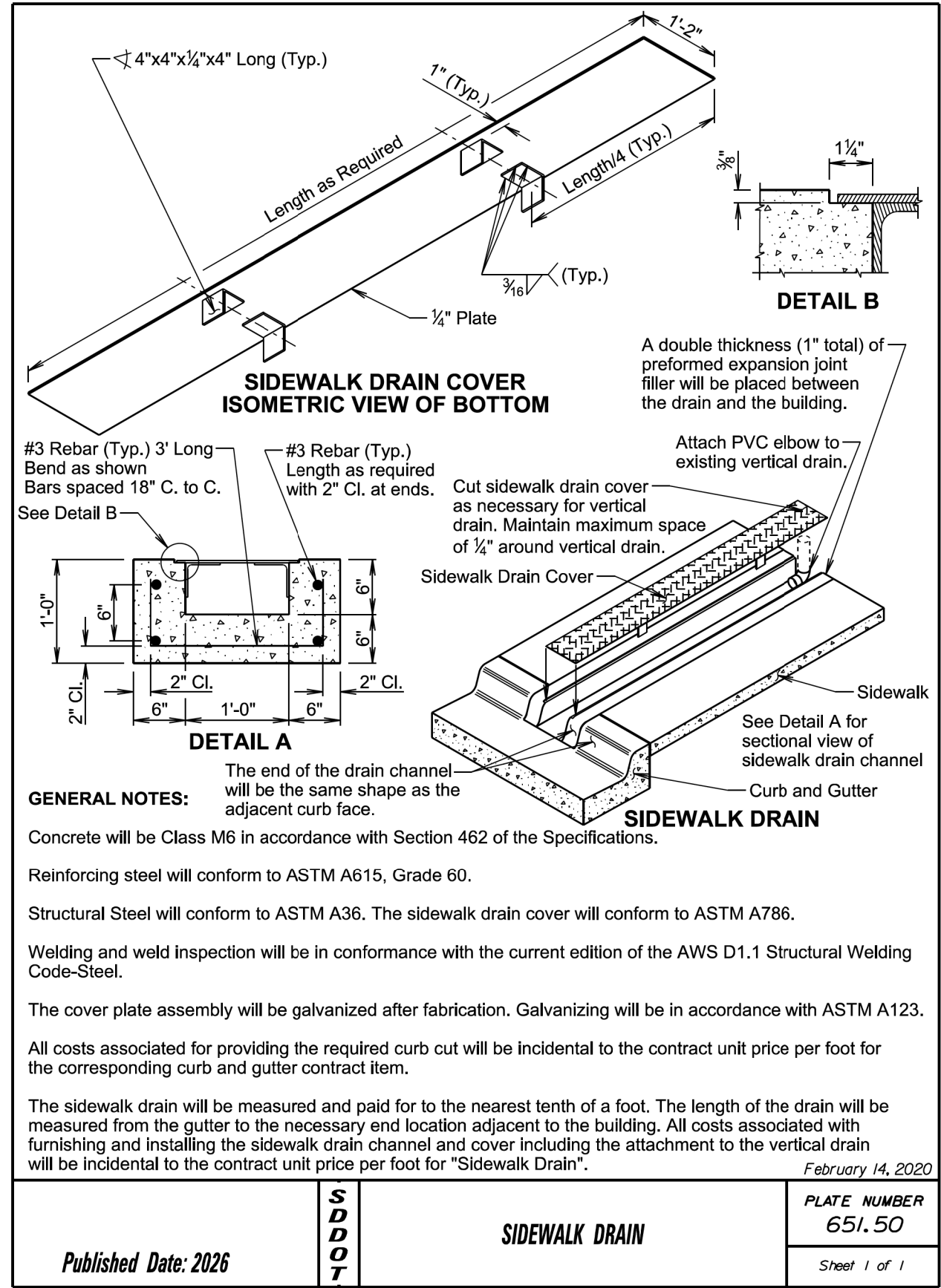
All costs for furnishing and installing the transition area at the base of the curb ramp will be incidental to the contract unit price per foot for the corresponding curb and gutter contract item when curb and gutter is used and will be incidental to the contract unit price per square yard for the corresponding PCC fillet section contract item when a PCC fillet section is used.

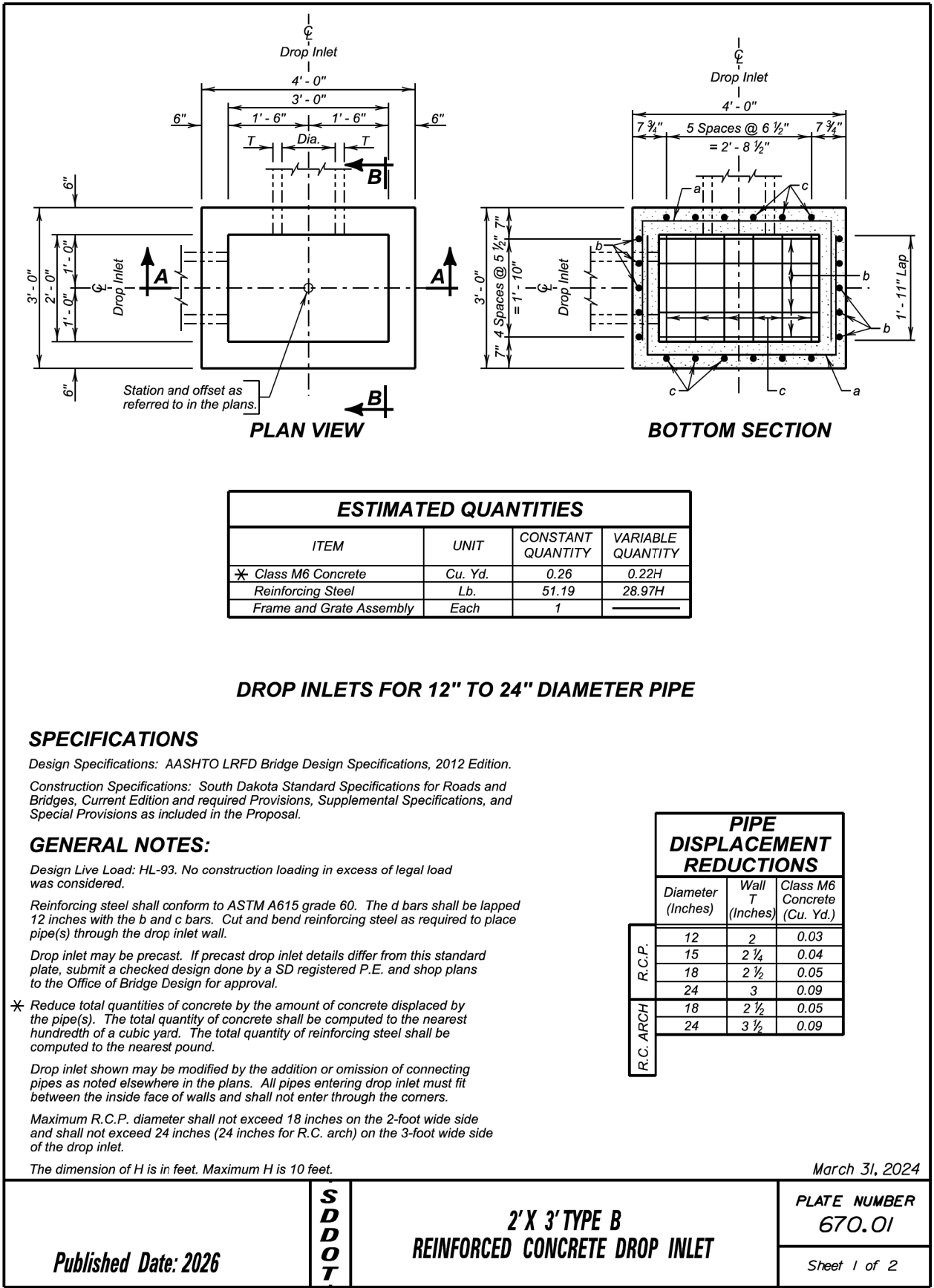
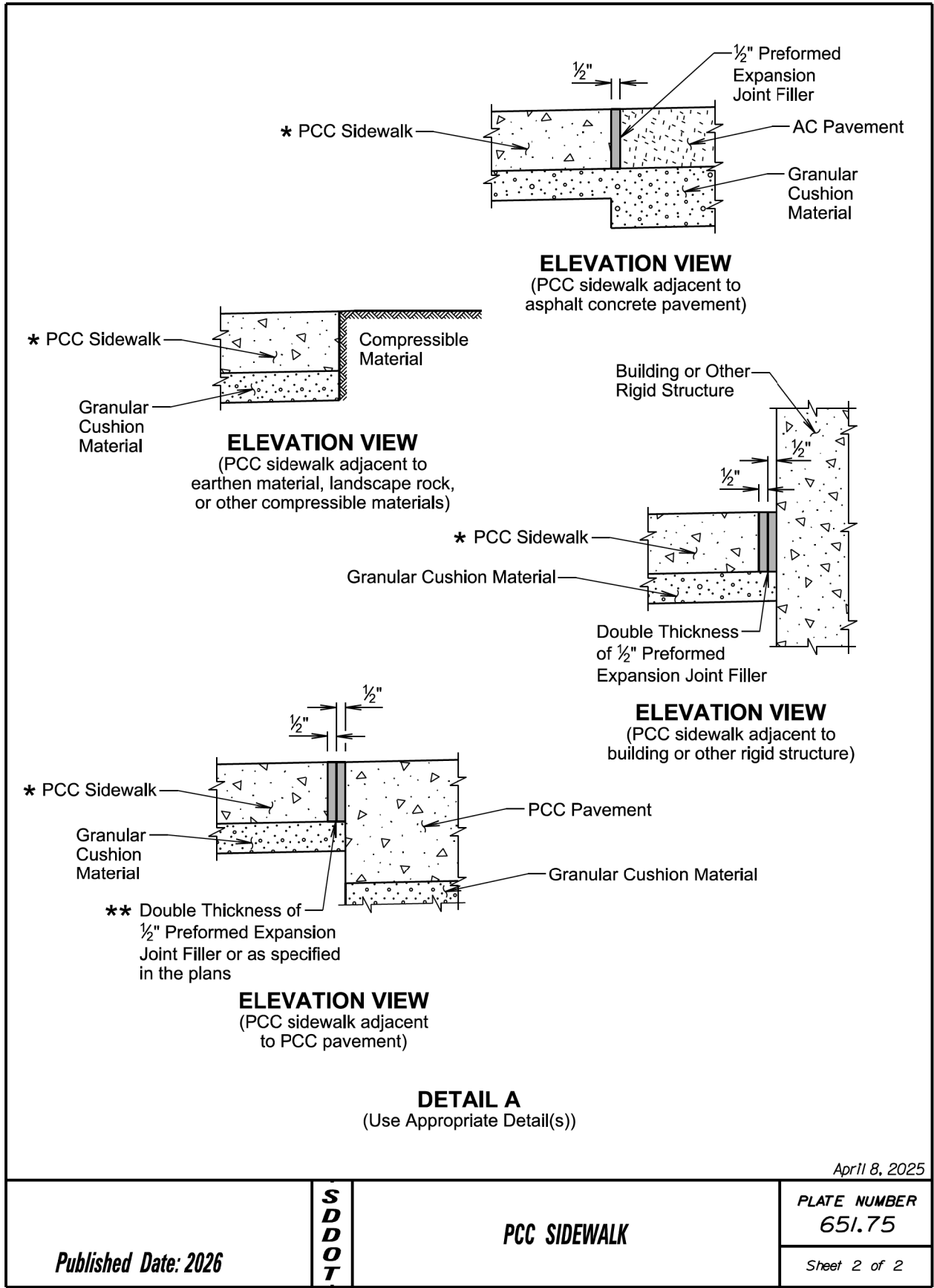
Type 1 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing type 1 detectable warnings including labor, equipment, materials, and incidentals will be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

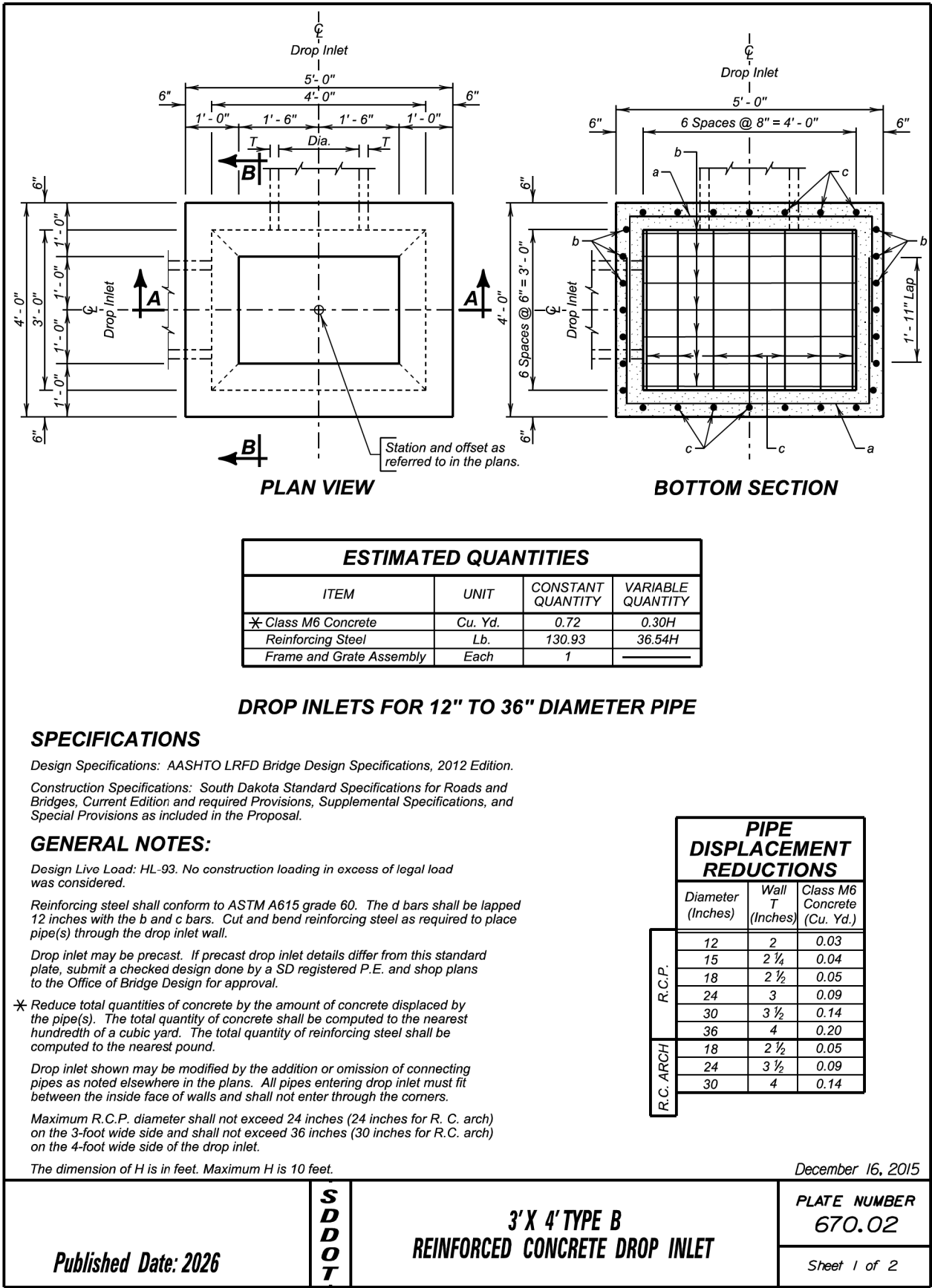
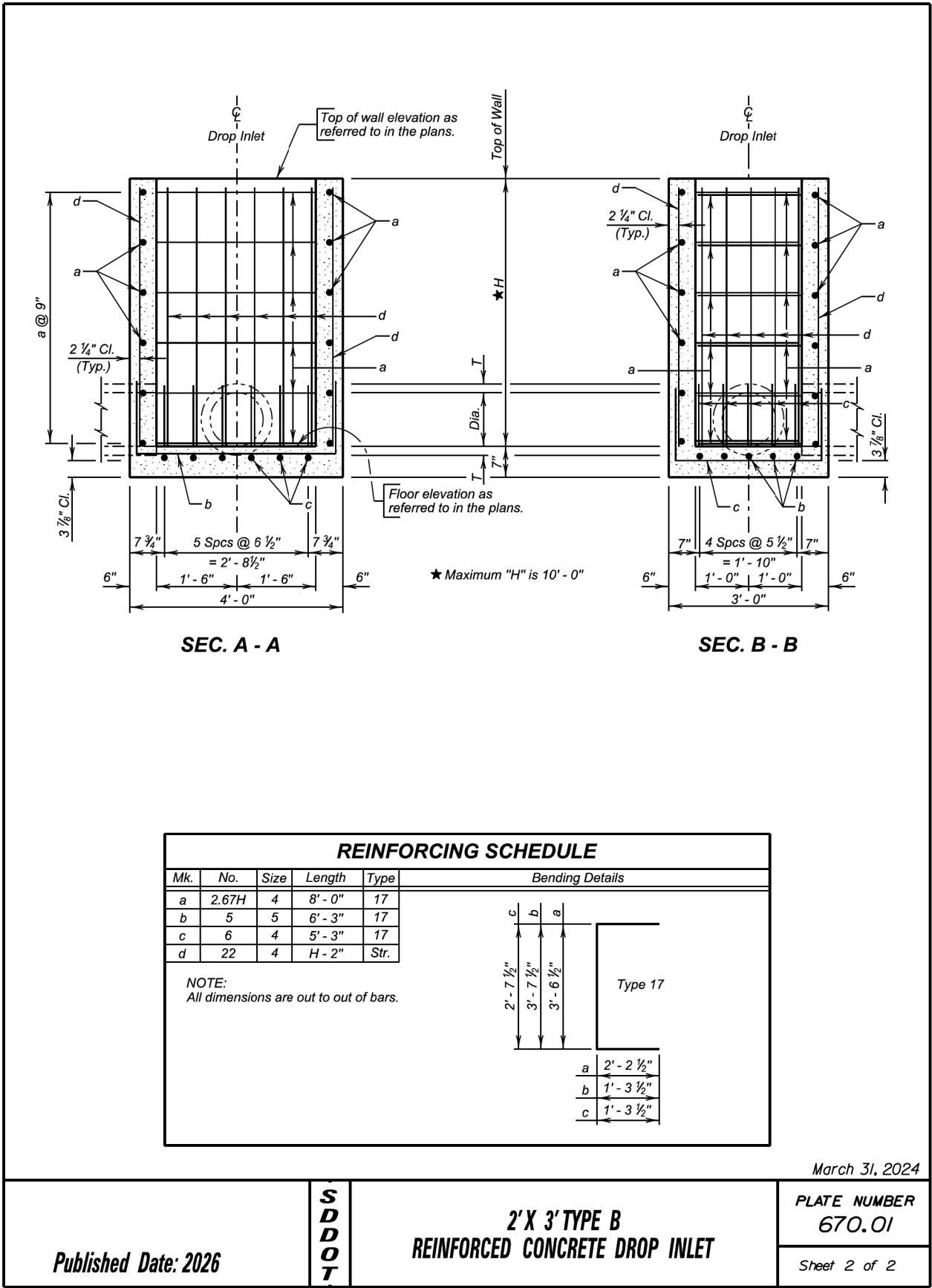
Type 2 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding will be paid for at the contract unit price per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

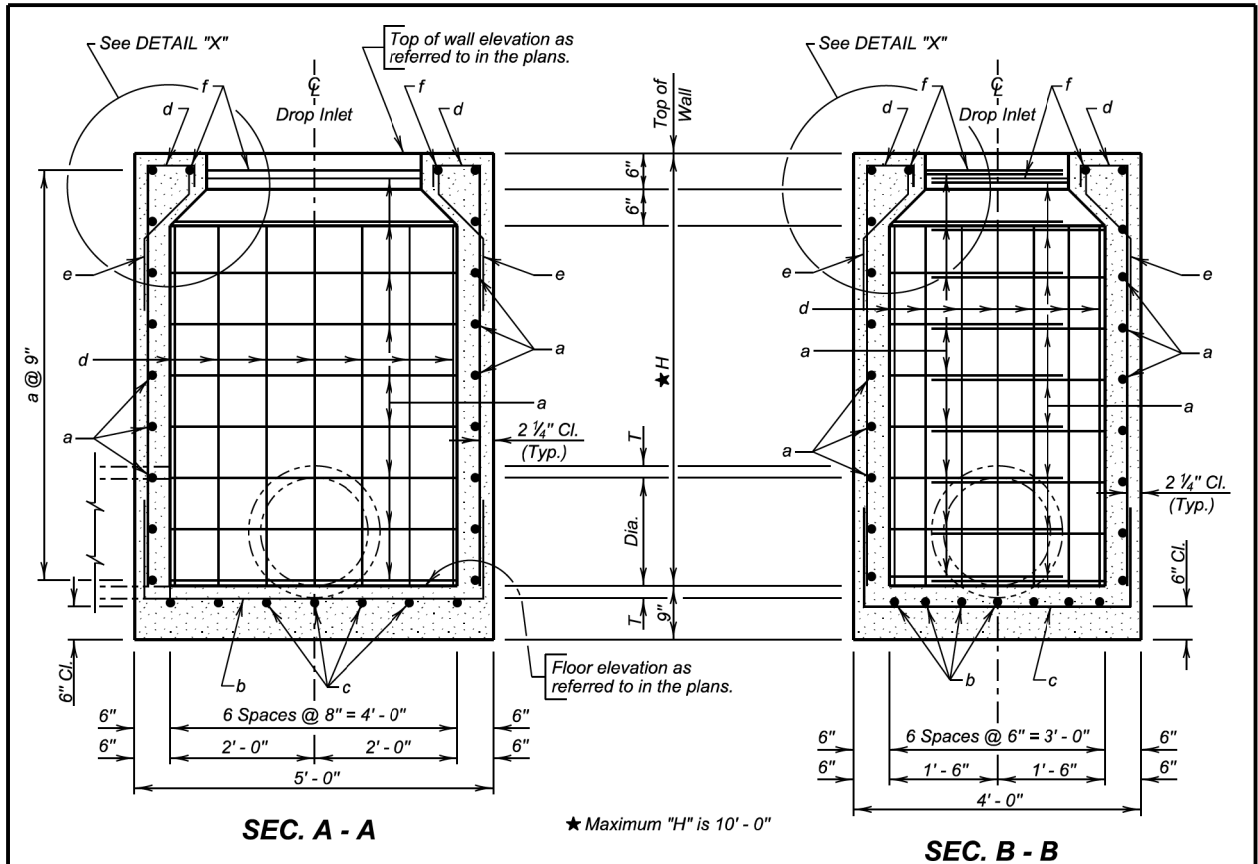
April 8, 2025

Published Date: 2026	S D D O T	TYPE 2 CURB RAMP (DIRECTIONAL CURB RAMP)	PLATE NUMBER 651.02
			Sheet 3 of 3



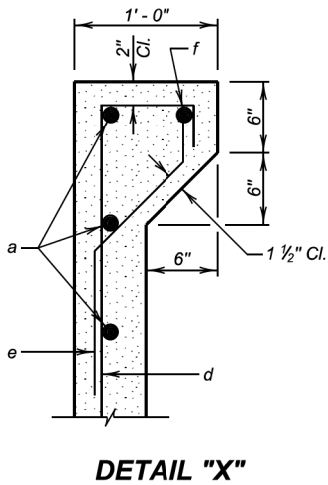




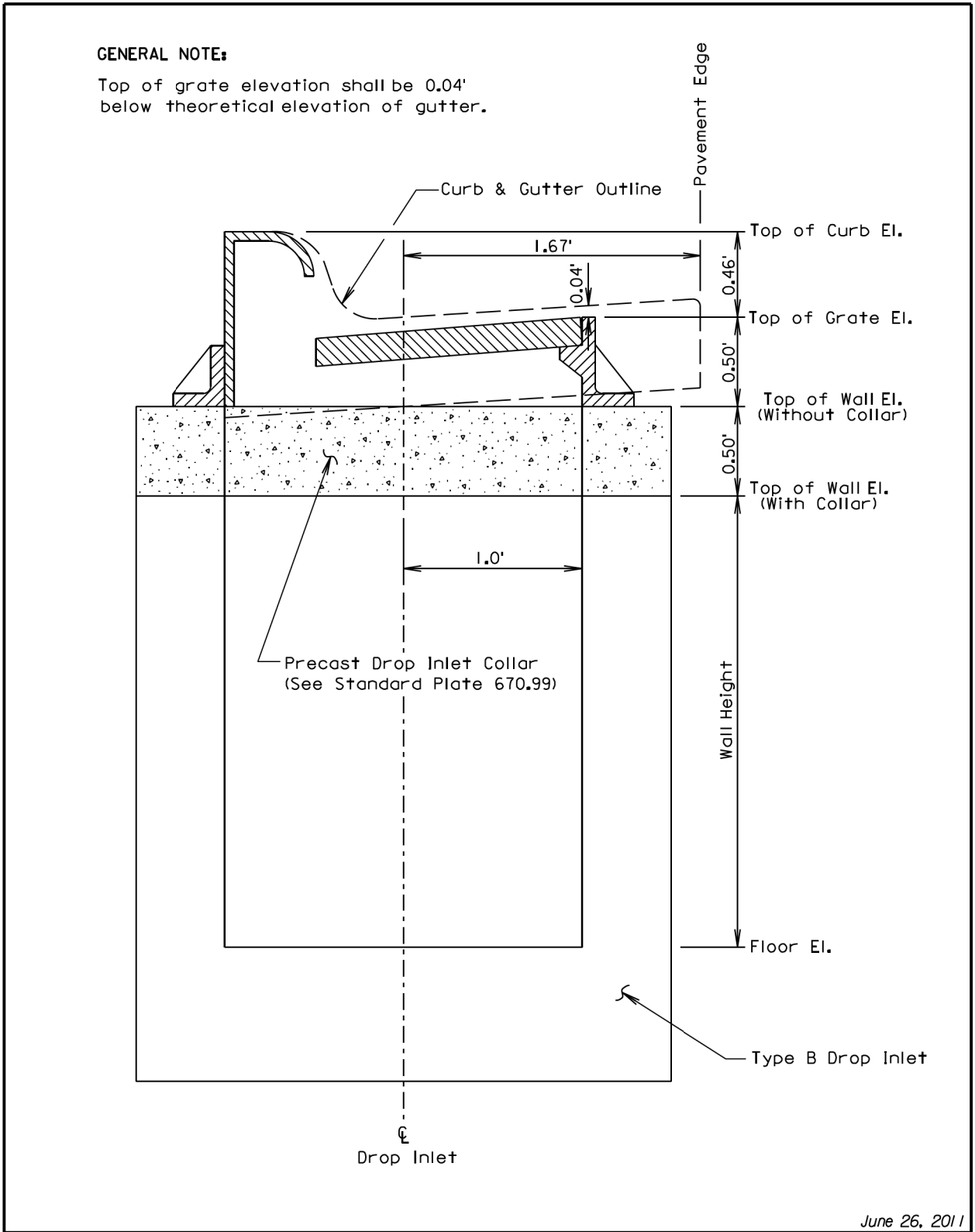


REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
a	2.67H	4	10' - 0"	17
b	7	4	7' - 6"	17
c	7	4	6' - 6"	17
d	28	4	H + 9"	S17
e	28	4	2' - 3"	S19
f	2	4	7' - 0"	17

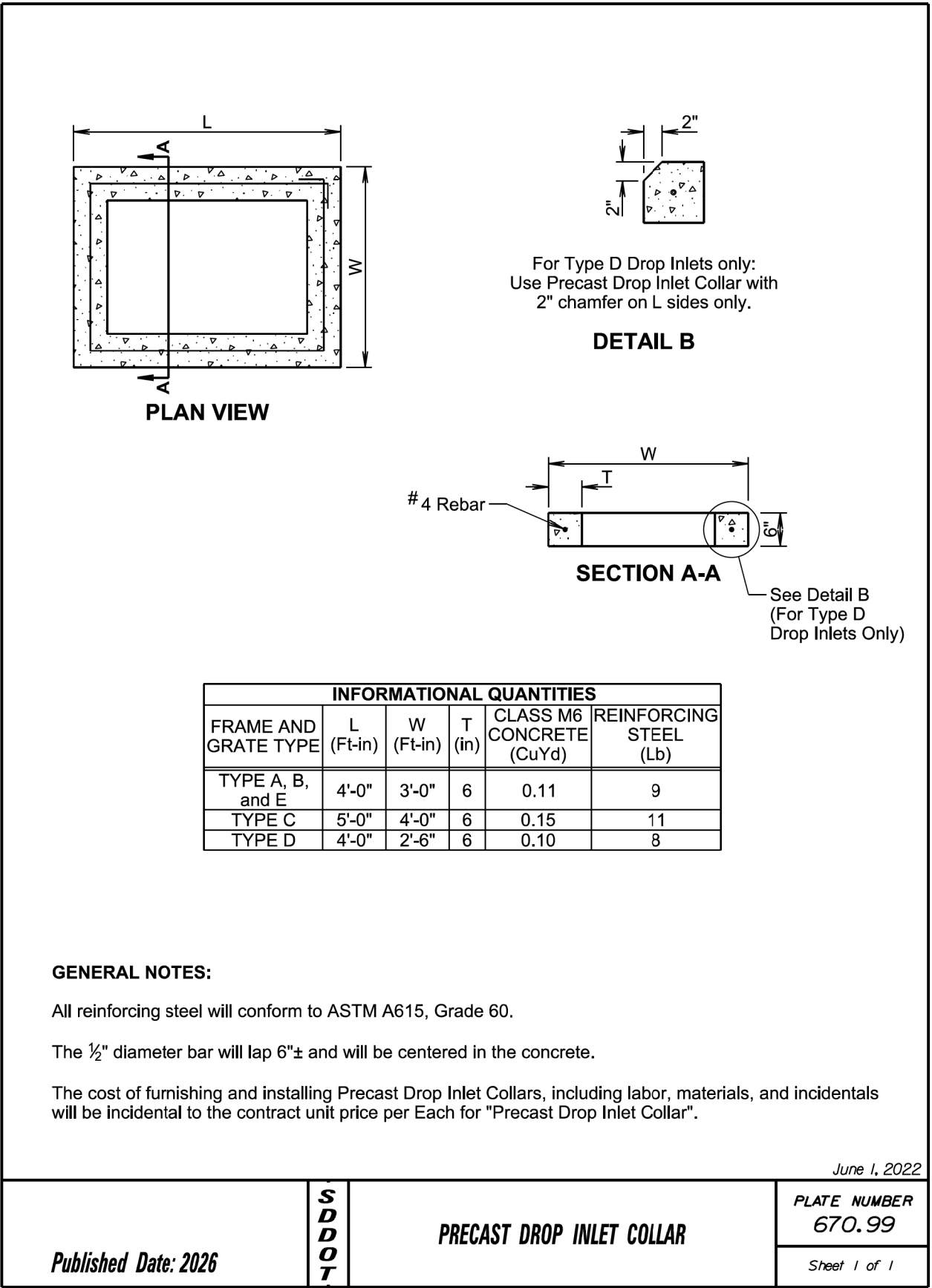
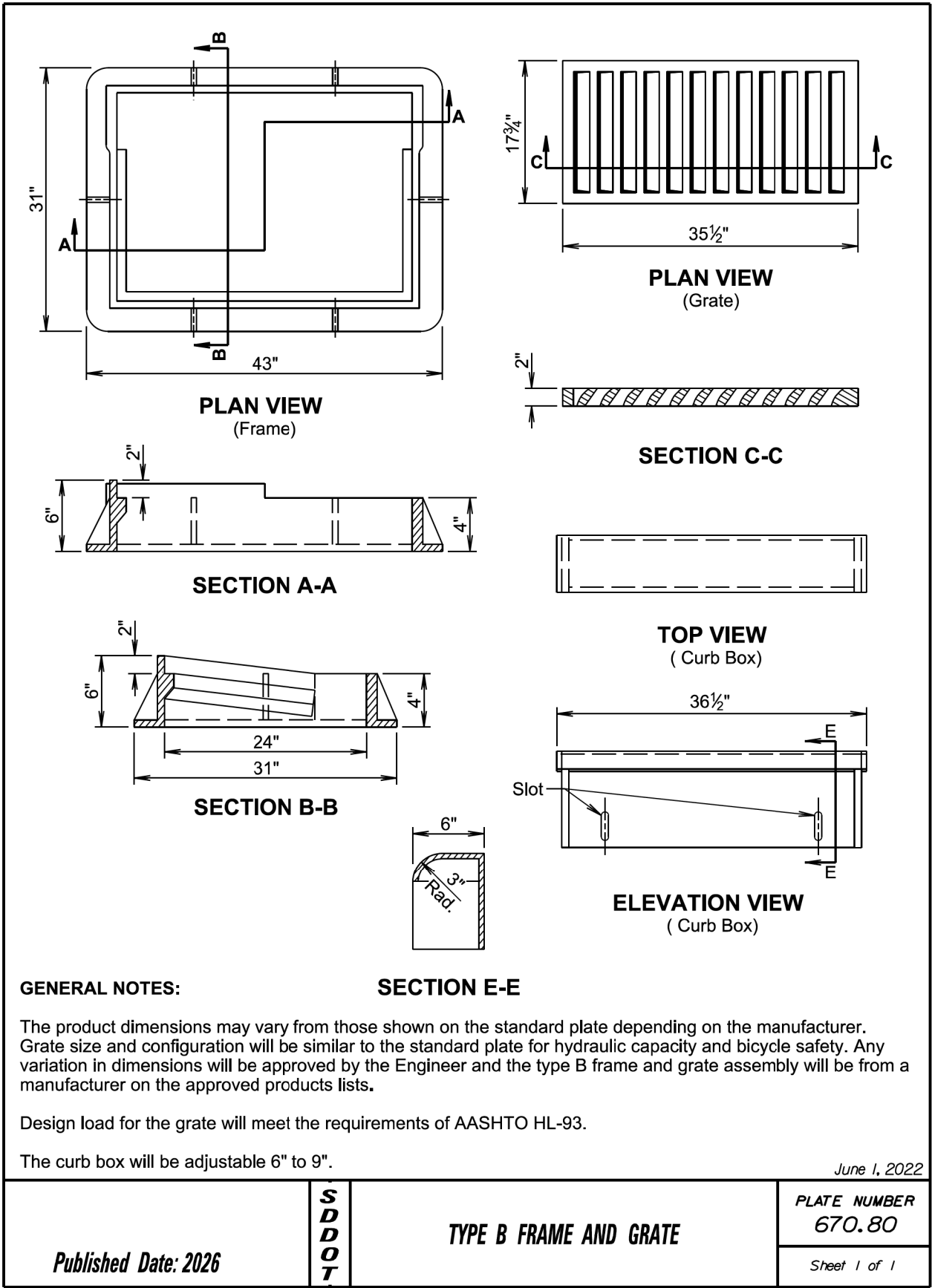
NOTE:
All dimensions are out to out of bars.



Published Date: 2026	S D D O T	3' X 4' TYPE B REINFORCED CONCRETE DROP INLET	December 16, 2015
			PLATE NUMBER 670.02
			Sheet 2 of 2



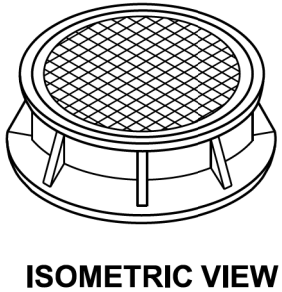
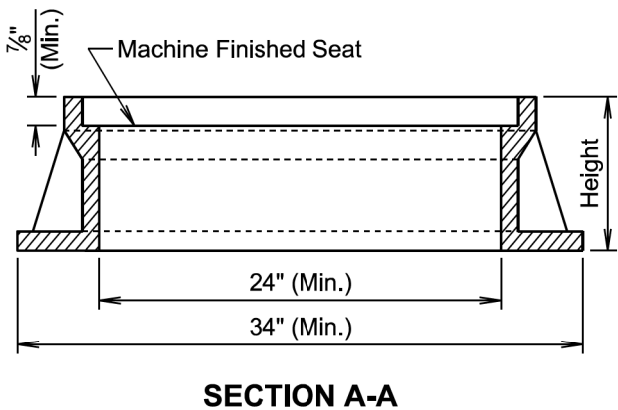
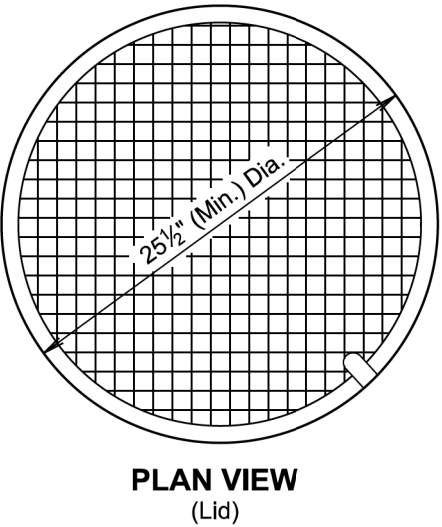
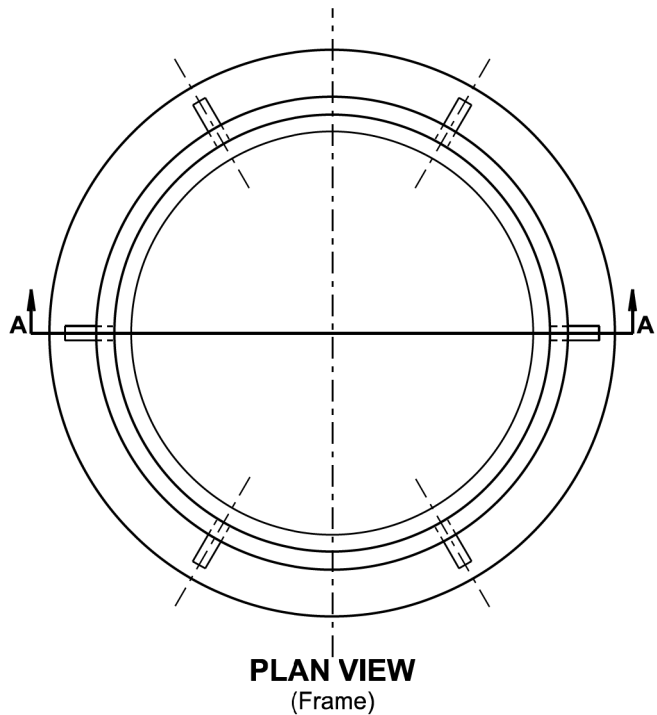
Published Date: 2026	S D D O T	INSTALLATION OF TYPE B DROP INLET	June 26, 2011
			PLATE NUMBER 670.75
			Sheet 1 of 1



INFORMATIONAL QUANTITIES					
FRAME AND GRATE TYPE	L (Ft-in)	W (Ft-in)	T (in)	CLASS M6 CONCRETE (CuYd)	REINFORCING STEEL (Lb)
TYPE A, B, and E	4'-0"	3'-0"	6	0.11	9
TYPE C	5'-0"	4'-0"	6	0.15	11
TYPE D	4'-0"	2'-6"	6	0.10	8

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0018(260)425	B	51/51

Plotting Date: 03/25/2026



TYPE	HEIGHT (Inches)
A7	7
A8	8
A9	9
A10	10

GENERAL NOTES:

The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Any variation in dimensions will be approved by the Engineer and the type A manhole frame and lid will be from a manufacturer on the approved products lists.

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

Geometric pattern on top of lid other than that shown will be approved by the Engineer.

June 1, 2022

<i>Published Date: 2026</i>	S D D O T	TYPE A MANHOLE FRAME AND LID	PLATE NUMBER 671.10
			Sheet 1 of 1