FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	1	68

FILE: ...\01 (Title)
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

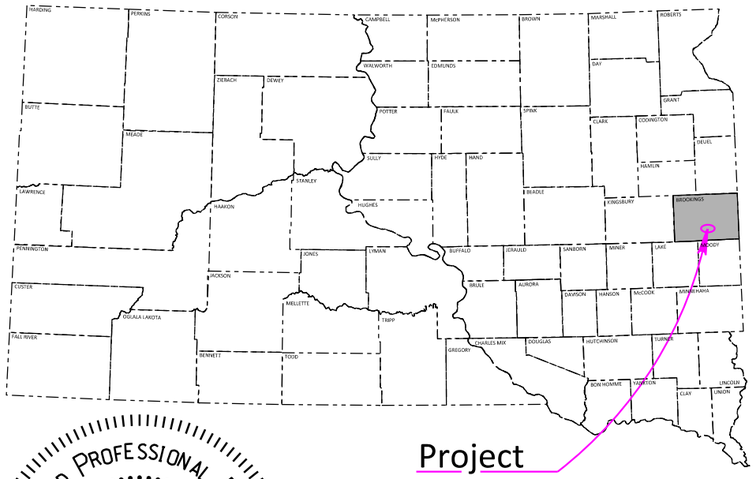
PROJECT EM 0295(45)130

20th Street South and 22nd Avenue South Intersection Expansion

BROOKINGS COUNTY

GRADING, CURB & GUTTER, STORM SEWER, PCC/AC PAVEMENT,
SIDEWALK, PAVEMENT MARKING, SIGNALS, LIGHTING, PERMANENT SIGNING

PCN 0A3L



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
4-14-25

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
4-14-25

DESIGN DESIGNATION

	20TH STREET S - 22ND AVE TO I-29	22ND AVE
AADT (2024)	5,000	7,400
AADT (2050)	15,000	15,500
D (P.M. Peak)	10%	10%
DHV (2050)	1,595	1,660
T DHV	4%	3%
T ADT	4%	3%
V	40	40

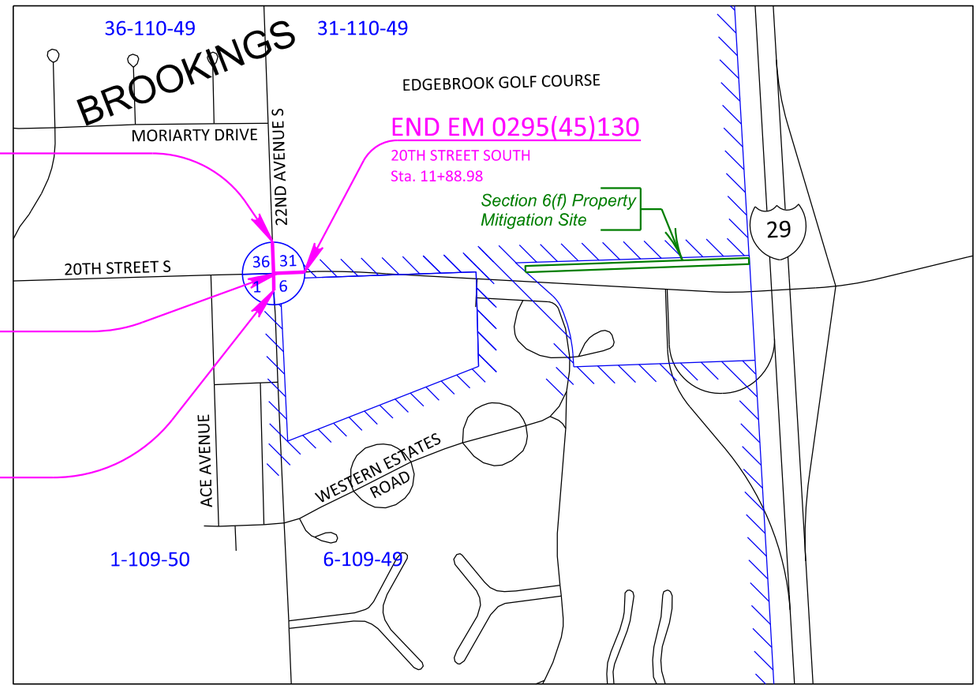
STORM WATER PERMIT

Major Stream: Medary Creek, Big Sioux River
Area Disturbed: 0.37 Acres
Total Project Area: 0.54 Acres
Approx. Begin Lat/Long: 44.2824, -96.7683

END EM 0295(45)130
22ND AVENUE SOUTH
Sta. 507+49.47

BEGIN EM 0295(45)130
20TH STREET SOUTH
Sta. 10+45.79

BEGIN EM 0295(45)130
22ND AVENUE SOUTH
Sta. 504+90.60



20th Street South Gross Length	143.19	Feet	0.027	Miles
22nd Avenue South Road Gross Length	258.87	Feet	0.049	Miles
Total Net Length	402.06	Feet	0.076	Miles

LIST OF SHEETS

HDR

1

September 3, 2025

FOR BIDDING PURPOSES ONLY

REV DATE: 5-7-2025
INITIAL: JHU

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	2	68

Plotting Date: 5/7/2025

Estimated Quantities

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
009E4220	Project Management, Category II	Lump Sum	LS
100E0020	Clear and Grub Tree	6	Each
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	333	Ft
110E0400	Remove Drop Inlet	1	Each
110E0420	Remove Drop Inlet Frame and Grate Assembly	1	Each
110E1010	Remove Asphalt Concrete Pavement	186.6	SqYd
110E1100	Remove Concrete Pavement	42.1	SqYd
110E1140	Remove Concrete Sidewalk	276.7	SqYd
110E1300	Remove Concrete Retaining Wall	65.0	Ft
110E1520	Remove Signal Equipment	Lump Sum	LS
110E1530	Remove Signal Pole Footing	2	Each
110E1690	Remove Sediment	0.3	CuYd
110E1695	Remove Sediment Filter Bag	130	Ft
110E1700	Remove Silt Fence	18	Ft
110E7150	Remove Sign for Reset	4	Each
120E0010	Unclassified Excavation	590	CuYd
120E0600	Contractor Furnished Borrow Excavation	614	CuYd
120E2000	Undercutting	227	CuYd
120E6100	Water for Embankment	6.0	MGal
120E6200	Water for Granular Material	3.7	MGal
120E6300	Water for Vegetation	51.7	MGal
230E0010	Placing Topsoil	190	CuYd
260E1010	Base Course	77.6	Ton
260E2010	Gravel Cushion	212.7	Ton
320E1200	Asphalt Concrete Composite	37.2	Ton
380E0030	7" Nonreinforced PCC Pavement	112.6	SqYd
380E1030	8" Miscellaneous PCC Pavement	369.2	SqYd
450E0122	18" RCP Class 2, Furnish	104	Ft
450E0130	18" RCP, Install	104	Ft
451E0608	8" PVC Water Main	30	Ft
451E3008	8" Pipe Bend	1	Each
451E3108	8" Pipe Cap	1	Each
451E6105	Connect to Existing Water Main	1	Each
462E0100	Class M6 Concrete	5.5	CuYd
480E0100	Reinforcing Steel	919	Lb
632E3500	Reset Sign	4	Each
633E0225	Preformed Thermoplastic Pavement Marking, 24"	432	Ft
633E0235	Preformed Thermoplastic Pavement Marking, Arrow	4	Each
633E3005	Durable Pavement Marking, 4" Yellow	20	Ft
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	403.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	5	Each
634E0560	Remove Pavement Marking, 4" or Equivalent	988	Ft
634E0565	Remove Pavement Marking, Arrow	2	Each
634E0640	Temporary Pavement Marking	500	Ft
634E1002	Detour and Restriction Signing	150.0	SqFt

Estimated Quantities (continued)

Bid Item Number	Item	Quantity	Unit
634E2000	Longitudinal Pedestrian Barricade	30	Ft
634E2015	Temporary Pedestrian Access Route	1.000	LS
634E2020	Temporary Curb Ramp	2	Each
634E2025	Longitudinal Pedestrian Barrier	200	Ft
635E2000	Pedestal Signal Pole	2	Each
635E5030	3' Diameter Footing	26.0	Ft
635E5100	Controller Cabinet Footing	1	Each
635E5302	Type 2 Electrical Junction Box	1	Each
635E5304	Type 4 Electrical Junction Box	1	Each
635E5800	Miscellaneous Signal Parts	Lump Sum	LS
635E6200	Miscellaneous, Electrical	Lump Sum	LS
635E7510	Remove and Reset Signal Pole	2	Each
635E7530	Relocate Signal Equipment	Lump Sum	LS
635E8050	5" Rigid Galvanized Steel Conduit	10	Ft
635E8110	1" Rigid Conduit, Schedule 40	85	Ft
635E8130	3" Rigid Conduit, Schedule 40	35	Ft
635E8140	4" Rigid Conduit, Schedule 40	50	Ft
635E8220	2" Rigid Conduit, Schedule 80	165	Ft
635E8230	3" Rigid Conduit, Schedule 80	105	Ft
635E8240	4" Rigid Conduit, Schedule 80	100	Ft
635E8851	4/4/4 Aluminum Wire	100	Ft
635E9016	1/C #6 AWG Copper Wire	1,110	Ft
635E9502	2/C #14 AWG Copper Tray Cable, K2	1,855	Ft
635E9504	4/C #14 AWG Copper Tray Cable, K2	360	Ft
635E9505	5/C #14 AWG Copper Tray Cable, K2	215	Ft
635E9507	7/C #14 AWG Copper Tray Cable, K2	30	Ft
635E9512	12/C #14 AWG Copper Tray Cable, K2	285	Ft
635E9524	24/C #14 AWG Copper Tray Cable, K2	1,585	Ft
650E0080	Type B68 Concrete Curb and Gutter	344	Ft
651E0060	6" Concrete Sidewalk	616	SqFt
651E2010	Special Sidewalk	1,955	SqFt
651E7000	Type 1 Detectable Warnings	40	SqFt
670E1200	Type B Frame and Grate	3	Each
670E2200	Type C Frame and Grate	1	Each
670E5400	Precast Drop Inlet Collar	5	Each
671E6007	Type A7 Manhole Frame and Lid	1	Each
730E0206	Type D Permanent Seed Mixture	45	Lb
731E0100	Fertilizing	263	Lb
732E0350	Bonded Fiber Matrix	623	Lb
734E0180	Sediment Filter Bag	130	Ft
734E0602	Low Flow Silt Fence	410	Ft
734E0610	Mucking Silt Fence	8	CuYd
734E0845	Sediment Control at Inlet with Frame and Grate	5	Each

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

This project (PCN 03AL) is a subsequent phase to PCN 020V for which a FONSI was approved on 1.22.2021. A Supplemental EA has been prepared and approved for PCN 03AL.

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

REGISTERED PROFESSIONAL ENGINEER
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COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
< https://sdleastwanted.sd.gov/maps/default.aspx>

< South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species:
https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04 >

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, “No Dumping Allowed”.

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.
Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

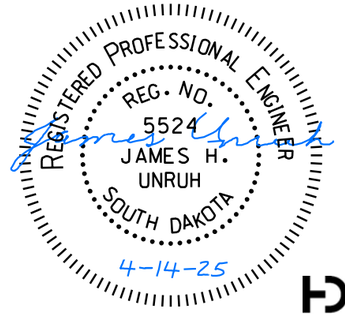
The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.



COMMITMENT M: SECTION 4(f)/6(f) RESOURCES

COMMITMENT M1: SECTION 4(f) PROPERTY

A Section 4(f) Evaluation concluded there are no feasible and prudent alternatives to avoiding Section 4(f) property located within the project.

Station	Section 4(f) Property
22nd Avenue 506+20 to 507+60 R	Allyn Frerichs Trail
10+00 to 37+00 L	Edgebrook Golf Course

Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property:

A trail detour will be provided for both the north and south of 20th Street trail segments. Appropriate signage will be installed to alert users of the Allyn Frerichs Trail of construction activities, access restrictions or closures, and to direct users to secondary access points. See the Pedestrian Detour Layout plan sheet.

The Contractor is not permitted to stage equipment or materials within the Allyn Frerichs Trail or the Edgebrook Golf Course.

The land being used will be fully restored and returned to a condition which is at least as good as that which existed prior to the project. Revegetation and landscaping within the temporary grading areas will occur.

The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

COMMITIMENT M2: SECTION 6(f) PROPERTY

South Dakota Department of Game, Fish and Parks concurrence has been obtained for project impacts to the following resource acquired and developed through a Land and Water Conservation Fund grant.

Station	Section 6(f) Property
22nd Ave 506+20 to 507+60 R	Edgebrook Golf Course

Action Taken/Required:

The impacted area of the Edgebrook Golf Course in the northeast quadrant of the 20th Street / 22nd Avenue intersection is being mitigated by replacement property of equal or greater usefulness and value along the south edge of the golf course approximately 1,500 feet east of the intersection.

The Contractor is not permitted to stage equipment or materials within the Edgebrook Golf Course.

The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 6(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 6(f) property.

UTILITIES

The Contractor will be aware that the existing utilities shown in the plans were surveyed during 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. Utility contacts include:

MediaCom Mike Klingenberg mklingenberg@mediacomcc.com (605) 691-3978	Brookings Municipal Utilities (BMU) Electrical Todd VanderWal tvanderwal@swiftel-bmu.com (605) 692-6325
Northwestern Energy Tyler Brunsvig Tyler.Brunsvig@northwestern.com (605) 403-4310	Brookings Municipal Utilities (BMU) Water/Sewer Chad Bachman cbachman@swiftel-bmu.com (605) 690-5902
ITC Heath Hinker Heath.Hinker@itccoop.com (605) 695-6925 Jerome Salanoa jerome.salanoa@itccoop.com (605) 520-0054	Swiftel Communications Justin Borns jborns@swiftel-bmu.com (605) 697-8298

Swiftel will be adjusting a manhole casting at the intersection corners during construction. The Contractor will contact Justin Borns to coordinate this work. MediaCom intend on adjusting a vault at the northeast corner of the intersection during concrete paving operations.

COORDINATION WITH OTHER PROJECTS

Interstate Telecommunications Coop (ITC) intends on installing a new communications building concurrently with the intersection expansion project. The location of the new building is shown in the plans. ITC will also be removing their old building and making the communication lines connections. The Contractor will coordinate with the Contractor for the ITC project so that work activities do not conflict. All costs associated with this coordination will be incidental to the various bid items on the project.

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5-7-25

TABLE OF EXCAVATION QUANTITIES BY BALANCES				
		Excavation	* Undercutting	* Contractor Furnished Borrow Excavation
Station	Station	(CuYd)	(CuYd)	(CuYd)
SE Corner 22nd Ave/20th Street				
10+45.9 (20th)	11+89.0 (20th)	33	114	0
NE Corner 22nd Ave/20th Street				
506+07.2 (22nd)	507+49.5 (22nd)	140	113	614
	Totals:	**173**	**227**	**614**

TABLE OF UNCLASSIFIED EXCAVATION	
Excavation (includes topsoil)	173
* Undercutting	227
Place Topsoil	190
Total	590

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

Shrinkage Factor: 30%

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

The final Unclassified Excavation quantity will be based on plan quantities. If there are locations with substantial deviations from the design cross sections, measured cross sections will be used to determine final quantities at those locations.

CONTRACTOR FURNISHED BORROW EXCAVATION

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

TABLE OF CONTRACTOR FURNISHED BORROW EXCAVATION	
Station to	(CyYd)
SE Corner 22nd Ave/20th Street	
10+45.9 (20th)	0
NE Corner 22nd Ave/20th Street	
506+07.2 (22nd)	614
Total	614

UNDERCUTTING

In cut sections, the earthen subgrade will be undercut 1 foot below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced, and compacted to the density specified for the section being constructed.

The Contractor will verify depth of existing buried utilities prior to undercut. Reduce undercut as necessary to avoid impacts to existing buried utilities.

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	
Station to	(CyYd)
SE Corner 22nd Ave/20th Street	
10+45.9 (20th)	114
NE Corner 22nd Ave/20th Street	
506+07.2 (22nd)	113
Total	227

7" NONREINFORCED AND 8" MISCELLANEOUS PCC PAVEMENT

The concrete for the 7" Nonreinforced and 8" Miscellaneous PCC Pavement will comply with the requirements of the specifications for Class M6 Concrete or Section 380.

REMOVE SIGNAL POLE FOOTING

The footings of the relocated existing signal poles will be removed by the Contractor to a minimum of 2 feet below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

All costs for removing the footings of the existing signal poles will be incidental to the contract unit price per each for "Remove Signal Pole Footing".

TABLE OF REMOVE SIGNAL POLE FOOTING		
Station	Each	Description
10+67.88 - 35.37' L	1	NE Signal
10+71.50 - 39.11' R	1	SE Signal
Total	**2**	

PLACING TOPSOIL

The thickness will be approximately 6 inches. It is expected that existing topsoil stripped from the work limits will provide adequate quantity for the topsoil placement area.

Table of Placing Topsoil	
Station to	(CuYd)
SE Corner 22nd Ave/20th Street	
10+45.9 (20th)	13
NE Corner 22nd Ave/20th Street	
506+07.2 (22nd)	177
Total	190

TABLE OF REMOVE ASPHALT CONCRETE PAVEMENT			
Station to	Station	L/R	SqYd
10+45.9	11+89.1	R	46.1
506+07	507+49.5	R	49.0
506+61.2	507+57	R	91.4
		Total	**186.6**

TABLE OF REMOVE CURB AND GUTTER			
Station to	Station	L/R	LF
10+49, 44'	10+49, 88.5'	R	45
10+72.7	11+89	R	116
506+10, 33'	506+10, 83'	R	50
506+27	507+49.5	R	122
		Total	**333**

TABLE OF REMOVE CONCRETE PAVEMENT			
Station to	Station	L/R	SqYd
10+48.0	10+72.7	R	25.8
506+09.2	506+27.1	R	16.3
		Total	**42.1**

Quantity includes adjacent curb & gutter.
Existing pavement is 8" thick.

TABLE OF REMOVE CONCRETE SIDEWALK			
Station to	Station	L/R	SqYd
10+50.8	11+44.0	R	158.6
10+85	11+50	L	26.7
506+12.6	506+62.9	R	64.8
506+13	49' to 114'	R	26.7
		Total	**276.7**

TABLE OF REMOVE DROP INLET	
Station	Each
506+30.1, 16.8' R	1
Total	**1**

TABLE OF REMOVE DROP INLET FRAME AND GRATE ASSEMBLY	
Station	Each
505+07.50, 13.67' R	1
Total	**1**

TABLE OF REMOVE RETAINING WALL	
Station	Ft
10+85 to 11+50, 32' L	65
Total	**65**

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TABLE OF SAW CUT ASPHALT PAVEMENT (INCIDENTAL)		
Station to	Station	Ft
10+46, 16' R	10+46, 89' R	72
10+46, 89' R	10+46, 9' R	2
10+46, 16' R	11+89, 16' R	143
11+89, 16' R	11+89, 18' R	2
506+07, 11' R	506+07, 83' R	72
506+07, 83' R	506+07, 85' R	2
506+07, 11' R	507+50, 11' R	142
507+50, 11' R	507+50, 13' R	2
507+57, 46.7' R	507+57, 55.2' R	9
	Total	**446**

CLEARING

Before clearing activities begin, the Contractor will contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are supposed to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor will replace them with the same size and type at the Contractor's expense.

All trees removed will be the property of the Contractor.

TABLE OF CLEAR AND GRUB TREE			
Station	Offset	Size	Qty.
506+43	37' R	8" dia.	1
506+63	42' R	8" dia.	1
506+87	46' R	8" dia.	1
507+00	39' R	8" dia.	1
507+00	67' R	8" dia.	1
507+21	40' R	8" dia.	1
	Total		**6**

STORM SEWER

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

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

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

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

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

Watertight joint seals will conform to the following requirements:

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

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

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

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

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

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

Approved List of Self-adhesive Joint Wrap

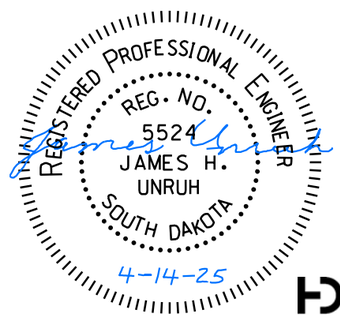
Product	Manufacturer
Mar Mac Seal Wrap	Mar Mac Construction Products McBee, SC 843-335-5909 www.marmac.com
ConWrap CS-217	Concrete Sealants, Inc. Tipp City, OH 800-332-7325 conseal.com

Approved List of Hydrophilic Flexible Water Stop Seal:

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

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

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



DROP INLETS

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

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, Type B Frame and Grate Assembly, Type C Frame and Grate Assembly, Precast Drop Inlet Collar, and Precast Concrete Type A7 Drop Inlet Lid will be the basis of payment for these items. Quantities are included in the Table of Storm Sewer Inlets and Junction Boxes.

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.

TYPE 1 DETECTABLE WARNINGS

Detectable warnings will be in compliance with the Americans with Disability 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 cast iron plates of natural patina (weathered steel). When Type 1 Detectable Warnings are specified, the Contractor will furnish and install only one of the products listed in the Type 1 Detectable Warnings table.

Type 1 Detectable Warnings will be installed along a radius at the locations as shown in the plans. The radius necessary will be as shown in the plans. Payment for the radius detectable warnings will be at the contract unit price per square foot for "Type 1 Detectable Warnings".

The Contractor will submit a detailed layout of the radius designed detectable warnings for approval by the Engineer prior to installation.

When Type 1 Detectable Warnings with a radius are specified, the Contractor will furnish and install an appropriately sized product listed in the following Type 1 Detectable Warnings (Radius) table.

Type 1 Detectable Warnings (Radius)

Product	Manufacturer
Detectable Warning Plate Cast Iron Plate 9'-5", 15', 20', 25', 35' Radius	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate (No Coating) 10', 15', 17.5', 20', 25', 30', 35' Radius	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.ejiw.com

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
4-14-25

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All seed will be inoculated by the seed supplier with a minimum of 20,000 live propagules of mycorrhizal fungi per 1,000 square feet. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 34 pounds per 1,000 square feet in accordance with the manufacturer's recommended method of application

The Fertilizer provided will be from the approved product list. The approved product list may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the paved areas. Type D Permanent Seed Mixture will be used.

Type D Permanent Seed Mixture will be tested within 12 months prior to planting, exclusive of the calendar month in which the test was completed.

Type D Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet, Action	1.4
Perennial Ryegrass	Turf Type Varieties	1.4
Creeping Red Fescue	Epic, Boreal, Chantilly	1.4
Chewings Fescue	Ambrose, K2, Zodiac, Shadow III	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
	Total:	7

WATER FOR VEGETATION

Water for vegetation consists of applying water to seeded areas to enhance germination and/or root growth. When watering, use the following guidelines:

Immediately after seeding:

- Keep the topsoil moist but not excessively wet until the seed has germinated.
- Water a minimum of 3 days a week for 2 weeks preferably watering 2 or 3 times a day in small quantities.
- Use fine spray and low pressure to avoid topsoil wash and to prevent uncovering buried seeds.

After emergence:

- Topsoil will be kept thoroughly moistened by sprinkling, as necessary, for 6 weeks. After the 6-week period, an inspection will be made to determine if grass is established enough to suspend watering. Continue watering until grass has been thoroughly established.
- Never apply water at a rate faster than the topsoil can absorb.
- Water during early morning hours or early evening hours.
- Do not water when rain is forecasted for the area.
- If rainfall occurs, suspend watering according to rainfall amount.

An estimated 60 Gallons of water per square yard of seeding area was used to compute the quantity for the bid item "Water for Vegetation".

All costs for furnishing and applying the water including hauling, materials, equipment, labor, and incidentals necessary will be paid for at the contract unit price per MGal for "Water for Vegetation".

BONDED FIBER MATRIX

Bonded fiber matrix will be hydraulically applied to the seeded areas and any other areas deemed necessary by the Engineer at an assumed rate of 3,500 lb/ac.

The Contractor will use a bonded fiber matrix from the approved products list, or an approved equal. The approved product list for bonded fiber matrix may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING

Refer to Standard Plate 734.05 for details of installation of high flow silt fence at drop inlets, manholes, and junction boxes.

The high flow silt fence fabric provided will be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

In addition, the Contractor will do the following for this installation:

- A space of at least 1' will be provided between the silt fence installation and the inlet. This space will be filled completely with a 2" depth of aggregate, 2" minus or smaller.
- The top elevation of the silt fence will be such that a 12" horizontal flap of silt fence will remain at the bottom.
- The base of the silt fence will conform to the natural ground profile but does not need to be trenched in at the bottom.
- The extra 12" of the silt fence material may be cut so that the material will lay flat upon the subgrade.
- Sediment filter bags will be placed on the 12" flap around the perimeter of the silt fence installation. The sediment filter bags will overlap 6" at the ends and be placed tightly together.
- The sediment filter bags will be filled with clean aggregate 2" minus or smaller.

The Sediment Filter Bag provided will be from the approved product list. The approved product list may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

All costs for furnishing and installing the sediment filter bags will be incidental to the contract unit price per foot for "Sediment Filter Bag."

All costs for removing the sediment filter bags will be incidental to the contract unit price per foot for "Remove Sediment Filter Bag".

Payment for high flow silt fence will be as stated in Section 734.5 of the Specifications.

All costs for furnishing, installing, and removing the 2" depth of aggregate will be incidental to other erosion and sediment control contract items.

All costs for removing and disposing of sediment collected by the sediment control device will be incidental to the contract unit price per cubic yard for "Remove Sediment".

The removed sediment will be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

The Contractor and Engineer will inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event greater than 1/2".

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlet with Frame and Grate will be installed prior to working in the vicinity of the drop inlets.

The Contractor will be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance will be scheduled to prevent storm water from backing up into the driving lane.

"Sediment Control at Inlet with Frame and Grate" will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlet with Frame and Grate will be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

The device will be installed in reinforced concrete drop inlets in accordance with the manufacturer's recommendations

The Sediment Control at Inlets with Frames and Grates provided will be from the approved product list. The approved product list may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
4-14-25

CURB AND GUTTER, PAVEMENT, AND SIDEWALK QUANTITIES

Roadway	Station to	Station	L/R	SDDOT Type Curb & Gutter Type B 68 (Ft)	PCC Misc. Pavement 8" (SqYd)	Nonreinforced PCC Pavement (ITC Access) 7" (SqYd)	Concrete Sidewalk 6" (SqFt)	Concrete Sidewalk 7" (SqFt)	Detectable Warning Panel Type 1 (SqFt)	Gravel Cushion (Tons)
SE Corner	10+49	11+89	R	172	187.0			1,192	20	86.5
NE Corner	506+09	507+50	R	172	182.2	112.6	616	763	20	126.2
		Total		**344**	**369.2**	**112.6**	**616**	**1,955**	**40**	**212.7**

TABLE OF ASPHALT AND BASE COURSE QUANTITIES

Roadway	Station to	Station	L/R	Width (Feet)	Area (sq ft)	Asphalt Depth (In)	Number of lifts (#)	Base course depth (in)	Asphalt Concrete Composite (Tons)	Base Course (Tons)	Water (Mgal)
SE Corner	10+49	11+91	R	2	410	6	3	12	18.3	38.2	0.5
NE Corner	506+07	507+50	R	2	424	6	3	12	18.9	39.4	0.5
								Total	**37.2**	**77.6**	**0.9**

TABLE OF SEED, FERTILIZER, BONDED FIBER MATRIX, AND WATER

Roadway	Station to Station	L/R	Area (1000 SqFt)	Area (Acres)	Seed Type D (Lb)	Bonded Fiber Matrix (Lb)	Water for Veg. (MGal)	Fertilizer (Lb)
SE Corner	10+60 to 11+50	R	0.5	0.01	3	46	3.8	19
NE Corner	506+13 to 507+75	R	6.0	0.14	42	577	47.9	244
		Total	**6.5**	**0.15**	**45**	**623**	**51.7**	**263**

TABLE OF STORM SEWER DROP INLETS AND JUNCTION BOXES AND EROSION CONTROL AT INLETS

Station	Offset		Inlet Type	Top of Grate Elevation Elev.	Floor Elevation Elev.	Class M6 Concrete (CuYd)	Reinforcing Steel (Lb)	Precast Drop Inlet Collar (Each)	Frame and Grate / Lid Type B (Each)	Frame and Grate / Lid Type C (Each)	Frame and Grate / Lid Type A7 (Each)	Before surfacing: Low Flow Silt Fence Quantity	Before surfacing: Sediment Filter Bag Quantity	Before surfacing: Remove Sediment	Before surfacing: Muck Silt Fence	After surfacing: Sediment Control at inlets with frames and grates
22nd Avenue																
505+07.5	13.67	R						1		1		22	26	0.06	1.53	1
506+30.0	15.40	R	DOT 3x4 Type B	1624.09	1619.10	1.90	277	1			1	22	26	0.06	1.53	1
507+28.4	15.40	R	DOT 2x3 Type B	1625.28	1619.68	1.20	216	1	1			22	26	0.06	1.53	1
507+35.4	15.00	R	DOT 2x3 Type B	1625.34	1619.82	1.20	214	1	1			22	26	0.06	1.53	1
507+42.4	14.80	R	DOT 2x3 Type B	1625.40	1619.96	1.20	212	1	1			22	26	0.06	1.53	1
					Totals	**5.5**	**919**	**5**	**3**	**1**	**1**	**110**	**130**	**0.3**	**8**	**5**

Top of wall elevation and wall height will be adjusted by the Contractor based on the paving operation.

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4-14-25

REV DATE: 5-7-2025
INITIAL: JHU

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	10	68

Plotting Date: 5/7/2025

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
5-7-25

TABLE OF REINFORCED CONCRETE PIPE	
	Circular
	18"
	Cl 2
Station Offset (L/R)	(Ft)
506+30.0 - 15.4' R to 507+28.4 - 15.4' R	96
507+28.4 - 15.4' R to 507+35.4 - 15.0' R	4
507+35.4 - 15.0' R to 507+42.4 - 14.8' R	4
Project Total:	**104**

TABLE OF PAVEMENT MARKINGS

	PREFORMED THERMOPLASTIC		DURABLE	REMOVE PAVEMENT MARKING	
Width	24"	Arrow	4"	4" or Equivalent	Arrow
Solid or Skip					
Color	W	W	Y		
Bid item	633E0225	633E0235	633E3005	634E0560	634E0565
Location	(Ft)	(Each)	(Ft)	(Ft)	(Each)
22nd Avenue	272	4	0	365	2
20th Street					
at 22nd Ave intersection	160		20	123	
for traffic control *(see traffic control quantity tables)*				500	
Totals	**432**	**4**	**20**	**988**	**2**

REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT

Markings that fall outside of the new groove will be obliterated using additional methods approved by the Engineer. Removal of the existing markings will be accomplished without causing damage to the pavement, pavement joints, or joint sealant. The Contractor will repair any damage to the pavement, pavement joints, or joint sealant for no additional payment and at no cost to the State. All costs for materials, labor, and equipment necessary to remove the existing markings will be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or Equivalent".

DURABLE PAVEMENT MARKINGS

Durable Pavement Markings will be applied as shown in the plans. All materials will be applied as per the Special Provisions.

PREFORMED THERMOPLASTIC PAVEMENT MARKING

General

- Made of prefabricated retroreflective, resilient thermoplastic material;
- Contains glass beads uniformly distributed through the entire cross-sectional area;
- Capable of being affixed to bituminous or concrete pavement by heating;
- Resistant to deterioration due to exposure to sunlight, water, salt, and adverse weather conditions;
- Under traffic wear, shows no appreciable fading in accordance with the color requirements, lifting, or shrinkage throughout the life of the marking;
- Capable of conforming to pavement contours, breaks, and faults through the action of traffic at normal pavement temperatures;
- Possesses resealing characteristics, such that it is capable of fusing with itself and previous thermoplastic markings when heated; and
- Protected during shipment and in storage.

Apply the preformed thermoplastic pavement marking as recommended by the manufacturer to provide a neat, durable marking that will not flow, distort, or crack due to temperature if the pavement surface remains stable. Use equipment and application methods specified by the manufacturer. Primer as required by the manufacturer will be provided with the material.

Application of the markings will include the use of any manufacturer recommended sealers. Sealers may be required on concrete pavements, inside grooves, or on older asphalt pavements. Prior to placing any markings on new concrete, the Contractor will remove any curing compounds. Removal will be by sandblasting or other standard industry methods.

Any required primers or sealers will be included in the contract unit price for the various preformed thermoplastic pavement marking items.

Provide precut messages and symbols meeting the requirements of the MUTCD and the Standard Signs Manual in custom kits. Use separate pieces or segments to form individual letters or symbols only to the extent supplied by the manufacturer. Provide shapes, sizes, and colors as required by the contract.

Color

- Will meet the color specification limits and luminance factors for Cold Applied Plastic Pavement Marking and Legends (Section 983.2 D of the Specifications, Tables 1 and 2).

Glass Beads

- Ensure the preformed thermoplastic pavement marking contains a minimum 30% intermixed glass beads by weight and a minimum 80% true spheres.
- Ensure preformed thermoplastic pavement markings contain only clear beads.

Skid Resistance

- Ensure the surface of the preformed thermoplastic pavement marking provides a skid resistance value of at least 45 British Pendulum Number (BPN) when tested in accordance with ASTM E303.

Retroreflectivity

- Provide preformed thermoplastic pavement marking meeting the minimum initial pavement marking retroreflectivity values using 30 m geometry and meeting the testing procedures of ASTM E1710:

Minimum Initial Pavement Marking Retroreflectivity		
	White	**Yellow**
Thermoplastic	400 mcd/sq. ft./ft.	250 mcd/sq. ft./ft.
Thermoplastic, enhanced skid resistance (ESR)	250 d/sq. ft./ft.	150 d/sq. ft./ft.

Thickness

- A longitudinal marking is a minimum 90 mils thick at the edges, and a maximum 125 mils thick at the center of the stripe.
- Transverse markings and symbols are a minimum 125 mils thick at the edges, and a maximum 160 mils thick at the center.

Sample

- Prior to application, the Contractor will provide a sample of the preformed thermoplastic pavement marking to be used on the project to the Region Traffic Engineer for inspection and approval.
- Do not begin application of the preformed thermoplastic pavement marking prior to obtaining the Region Traffic Engineer's approval of the preformed thermoplastic pavement marking material. The Region Traffic Engineer's approval of the preformed thermoplastic pavement marking does not void other preformed thermoplastic pavement marking requirements specified.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

The existing traffic signals are allowed to be shut-down upon the beginning of construction, with STOP signs being installed to allow for a 4-way stop condition.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, the Brookings County Sheriff and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

The Contractor may be required to modify messages on portable changeable message signs or relocate portable changeable message signs, and to provide flaggers to direct or detour traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting more than two hours. Fixed location ground mounted signs may be covered and additional portable signs provided.

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for the relocation of an advance warning sign due to an incident will be 50% of the designated sign rate. Flaggers will be paid for at the contract unit price per hour for "Flagging".

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
5-7-25

TEMPORARY PEDESTRIAN ACCESS ROUTE

A Temporary Pedestrian Access Route (TPAR) will be provided when crosswalks, sidewalks, or other pedestrian facilities are blocked, closed, or relocated. A TPAR may consist of a combination of existing and/or temporary pedestrian facilities. The TPAR will be kept free of any obstructions and hazards, such as holes, debris, mud, snow, construction equipment, traffic control signing, stored materials, etc.

The Contractor will notify the Engineer at least 72 hours prior to start of any construction operation that will necessitate a change in pedestrian access. Pedestrian traffic signal displays controlling a crosswalk that is closed will be covered or removed.

TEMPORARY CURB RAMP

Temporary curb ramps should be firm, stable, and have a non-slip surface. They will not warp or buckle, and should be made of materials strong enough to support a weight of 800 pounds. Temporary curb ramps will be yellow or color contrasting and contain marked edges, so they are noticeable by pedestrians who have visual impairments. Lateral joints or gaps between surfaces will be a maximum of 0.5 inches in width. Temporary curb ramps will include detectable warning panels.

Temporary curb ramps will be the same width as the pedestrian access route, with a recommended width of 60 inches and a minimum width of 48 inches. Temporary curb ramps will have a maximum slope of 8.3% and have free draining surfaces with a maximum cross slope of 2%. Handrails on temporary curb ramps are not required unless the curb ramp has a rise exceeding 6 inches and a length exceeding 72 inches.

All costs will be incidental to the contract unit price per each for "Temporary Curb Ramp".

LONGITUDINAL PEDESTRIAN BARRICADE

Longitudinal pedestrian barricades should not be used to provide positive protection for pedestrians.

To prevent any tripping hazard to pedestrians, ballast will be located behind or internal to the device.

When longitudinal pedestrian barricades are combined in a series, the maximum gap between devices that do not interlock will be one inch. Joints between devices that do interlock will be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing. When used as a sidewalk closure mechanism, longitudinal pedestrian barricade must run the entire width of the sidewalk. Longitudinal pedestrian barricade should provide a color contrasting pattern. Black should not be used to color any base on a device. The devices should comply with the general color and stripe pattern requirements of Section 6F.68 of the MUTCD.

Longitudinal pedestrian barricade will have continuous bottom and top surfaces. The top surface will be smooth to allow safe hand trailing. Both upper and lower surfaces will share a common vertical plane.

All costs will be incidental to the contract unit price per foot for "Longitudinal Pedestrian Barricade".

LONGITUDINAL PEDESTRIAN BARRIER

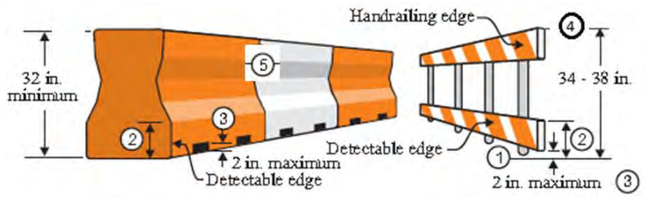
When used to separate pedestrians from vehicular traffic for TPARs in the roadway, longitudinal pedestrian barrier must meet or exceed the crashworthy requirements of NCHRP 350 or MASH Test Level 2 or 3. The bottom and top surfaces of the traffic side of devices will have retroreflective sheeting or delineation for improved nighttime visibility.

When longitudinal pedestrian barriers are combined in a series, the maximum gap between devices that do not interlock will be one inch. Joints between devices that do interlock should be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing. Channelizing devices should provide a color contrasting pattern. Black should not be used to color any base on a device. The devices should comply with the general color and stripe pattern requirements of Chapter 6F of the MUTCD.

Longitudinal pedestrian barriers will have continuous bottom and top surfaces. The top surface will be smooth to allow safe hand trailing.

All costs will be incidental to the contract unit price per foot for “Longitudinal Pedestrian Barrier”.

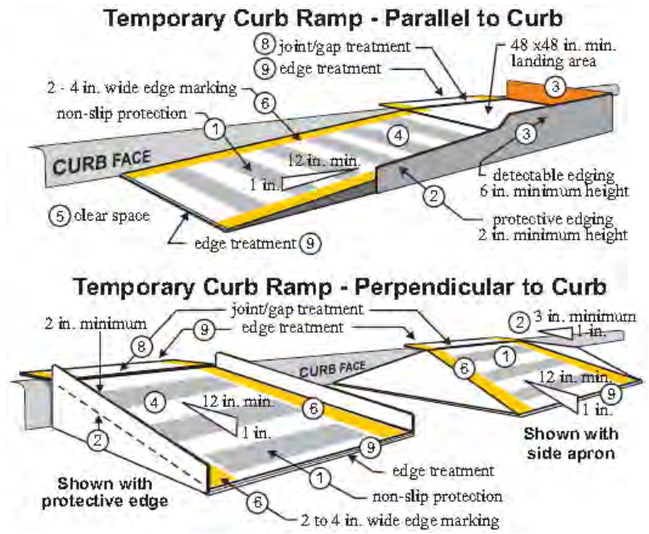
PEDESTRIAN CHANNELIZING DEVICE DETAILS



Longitudinal Pedestrian Barrier Longitudinal Pedestrian Barricade

1. Barricade rail supports may not extend into the pedestrian walkway more than 4 inches from the face of the barricade.
2. The top edge of the bottom portion will be a minimum of 8 inches above the walkway.
3. Devices will not block water drainage from the walkway. A gap height or opening from the walkway surface up to a maximum of 2 inches in height is allowed for drainage purposes.
4. The top edge of the longitudinal pedestrian barricade is to be used as a guiderail to provide visual and tactile guidance to pedestrians along a designated route. The top surface should have a minimum width of 0.5 inches to allow the hand to feel the surface. The surface should be smooth and free of any sharp or abrasive elements to allow safe hand trailing.
5. Longitudinal pedestrian barrier used to provide positive protection from traffic to pedestrians should be crashworthy.

TEMPORARY CURB RAMP DETAILS



1. Curb ramps will be 48-inch minimum width with a firm, stable, and non-slip surface.
2. Protective edging with a 2-inch minimum height will be installed when the curb ramp or landing platform has a vertical drop of 6 inches or greater or has a side apron slope steeper than 33:1 (33%). Protective edging should be considered when curb ramps or landing platforms have a vertical drop of 3 inches or more.
3. Detectable edging with 6 inches minimum height and contrasting color will be installed on all curb ramp landings where the walkway changes direction (turns).
4. Curb ramps and landings should have a 50:1 (2%) maximum cross slope.
5. A minimum clear space of 48 inch x 48 inch minimum will be provided above and below the curb ramp, with a 60 inch x 60 inch clear space preferred.
6. The curb ramp walkway edge will be marked with a contrasting color 2 to 4 inch wide marking. The marking is optional where color contrasting edging is used.
7. Water flow in the gutter system will have minimal restriction.
8. Lateral joints or gaps between surfaces will be less than 0.5 inches in width.
9. Changes between surface heights should not exceed 0.5 inches. Lateral edges between 0.25 inches and 0.5 inches in height, should be vertical up to 0.25 inches in height and beveled at 2:1 between 0.25 inches and 0.5 inches in height.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
4-14-25

HDR

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	13	68

FOR BIDDING PURPOSES ONLY

Plotting Date: 5/9/2025

REV DATE: 05/09/2025 INITIAL: LRM

SUPPLYING AS BUILT PLANS

If the traffic signal systems or roadway lighting systems are constructed differently than what is stated in the plans, the Contractor will supply as built plans to the Engineer and a copy will be sent to the Traffic Design Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

SHOP DRAWING AND CATALOG CUTS SUBMITTAL

The Contractor will submit shop drawings and catalog cuts in accordance with Section 985 of the Specifications.

PDF submittals will be sent to the following email address:

Lance.McQueen@hdrinc.com

Upon review of the submittals, they will be sent by the Engineer to the following email addresses for concurrence of approvals or remarks:

Stacy.Bartlett@state.sd.us

ON-SITE INSPECTION

An on-site inspection of the traffic signals will be conducted before acceptance of the project, once the traffic signals are completed and operational. The on-site inspection will be conducted by the Contractor, Region Traffic Engineer, City Traffic Engineer, Consultant Design Engineer and City Light Department.

MISCELLANEOUS, ELECTRICAL

The contract lump sum price for “Miscellaneous, Electrical” must include all costs for the following work items:

- A full-time temporary connection from the existing transformer at the northeast quadrant of 22nd Ave S and 20th Street S to the existing junction box EJL1, to maintain power to the existing luminaire poles along 20th Street.
- Furnishing and installing the traffic signal control cable labels and schedule / diagram as explained in these notes.
- Reprogramming of the existing traffic signal controller.
- Removing the existing cables / wires from the existing conduits.
- Connecting to the existing conduits.
- Coordination with Brookings Municipal Utilities (BMU) to allow BMU to relocate and reconnect BMU’s existing light pole on the northeast quadrant of 22nd Avenue and 20th Street intersection. Contact Todd VanderWal of BMU at office # (605) 695-5003.

REMOVE CONCRETE FOOTING

Concrete footings that are to be removed will be removed by the Contractor to a minimum of 2’ below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

The existing traffic signal controller cabinet footing will be removed by the Contractor as per these plans.

All costs for removing the concrete footing will be incidental to the contract lump sum price for “Remove Concrete Footing(s)”.

REMOVE SIGNAL POLE FOOTING

The footings of existing signal poles ES3 and ES4 will be removed by the Contractor to a minimum of 2 feet below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

All costs for removing the footings of the existing signal poles will be incidental to the contract unit price per each for “Remove Signal Pole Footing”.

REMOVE AND RESET SIGNAL POLE

The existing signal poles and their mast arms will be removed and reset as shown on the plans.

The existing signal poles were originally installed in Year 2023 with Project EM 0295(45)130 - PCN 020V. The existing signal pole shop drawings are available on the SDDOT Contractor SharePoint Site.

It will be the Contractor’s responsibility to obtain the bolt circle pattern and anchor bolts for the salvaged poles from the original pole manufacturer, as follows:

Millerbernd Manufacturing
P.O. Box 98
Winsted, MN 55395
Phone: (320) 485-2111

Signal poles damaged during removal or resetting will be repaired or replaced by the Contractor at no cost to the State.

All costs involved with removing and resetting the existing signal pole and their mast arms, including new anchor bolts with associated hardware, will be incidental to the contract unit price per each for “Remove and Reset Signal Pole”.

PEDESTAL SIGNAL POLES

The pedestal signal poles will be installed on the existing 2’ diameter concrete footings, from the removed pedestal signal poles. The concrete footings and their anchor bolts were originally installed in Year 2023 with Project EM 0295(45)130 - PCN 020V. The existing pedestal signal pole shop drawings are available on the SDDOT Contractor SharePoint Site.

The Contractor’s bolt pattern for the base of the pedestal signal poles may need to be modified, to match the existing footing’s anchor bolt patterns. The Contractor will take their own measurements of the existing footing’s anchor bolts for the potential modifications to their pedestal signal poles bases.

Pedestal signal poles may be aluminum. Aluminum poles will conform to the following requirements:

Aluminum will conform to ASTM B221, Alloy 6061, and Temper T6.

Poles will be round with a minimum outside pole diameter of 4 inches, and the pole assembly will have a square, cast aluminum base with aluminum access door. The base will conform to the breakaway requirements of NCHRP 350 or MASH. A grounding lug will be provided in the base.

The pole to base connection will be a threaded connection; threads will be 8 TPI, NPT. A collar (integral or non-integral) to prevent wind-induced loosening of pole will be provided. All bolt and connection threads will be coated with a commercially available anti-seize compound intended for use in aluminum-to-aluminum and steel-to-aluminum connections.

The pole finish will either be brushed satin or spun. The top of the pole will be sealed by the traffic signal head mounting hardware or by an aluminum cap.

Measurement and payment for aluminum poles will be as specified in Specifications Section 635.

TABLE OF FOOTING DATA

Site Designation	Footing Diameter	*Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
S3	3’ - 0”	13’ - 0”	2’ - 8”	129’ - 3”	14-#8 x 12’ -6”
S4	3’ - 0”	13’ - 0”	2’ - 8”	129’ - 3”	14-#8 x 12’ -6”

*Footing depth will be below ground level.
**The size of all spirals will be #3.

SUBSURFACE

Subsurface conditions at the intersection of 20th Street S and 22nd Avenue S consist of brown silt-clay to a depth of 20 feet. Borings placed in August 2020 encountered groundwater at a depth of 9.7 feet below the ground surface.

Concrete placement operations should closely follow excavation procedures. The longer the excavations are left open, the more likely caving may occur.

If caving soils are encountered, it may be necessary to use casing or drilling fluids to maintain an open excavation. Casing will be of sufficient strength to withstand handling and installation procedures. Casing material may consist of Sonotube, corrugated metal pipe, pvc, smooth metal pipe or any other material as approved by the Engineer. Drilling fluids can be water or other slurries as approved by the engineer. Concrete placed through drilling fluids will be tremied. If caving is not an issue but, water is present, it will be removed prior to concrete placement or the concrete will be tremied.

TRAFFIC SIGNAL CONTROL CABLE LABELS

Traffic signal cable will be identified in hand holes, junction boxes, pedestal bases, electrical service cabinets, and controller cabinets as indicated on the Wiring Diagram. Labels will be wrapped around traffic signal cable to indicate the signal pole and signal head that it is connected to. Labels will be self-adhesive vinyl cloth with a preprinted legend. Traffic signal control cables to the poles will be marked with a legend and will be color coded as follows; northwest (blue), northeast (red), southeast (green), and southwest (orange).

The Contractor will provide a cable schedule of the wiring for the field terminals of the controller cabinet as wired. Each cable will be identified in the cable schedule with its letter/number identifier (example: A1, B1). Each row of the schedule will include the wire color, field terminal number it is connected to, the function of the conductor (example: R,Y,<R,NEUT.) and the head number it is connected to. The cable schedule will be completed using Microsoft Excel with an electronic copy and printed copy provided to Lyle Reed of BMU / City of Brookings, contact # (605) 697-8427.

Each individual conductor leaving the controller cabinet will be marked with a preprinted self-adhesive label within one inch of the terminal it is connected to and within one inch of where the sheath of the cable is removed if the sheath is removed for more than twelve inches. The label will indicate the terminal the wire is connected to. (example: 1R, 1Y, 1G etc.)

All costs for this work will be included in the contract lump sum price for “Miscellaneous, Electrical”.

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REMOVE SIGNAL EQUIPMENT

The existing pedestal signal poles identified on the plans will be removed by the Contractor.

All costs for work for removals of the of the existing signal equipment will be incidental to the contract lump sum price for “Remove Signal Equipment”.

RELOCATE SIGNAL EQUIPMENT

The existing signal equipment identified on the plans will be relocated by the Contractor.

The existing signal equipment was originally installed in Year 2023 with Project EM 0295(45)130 - PCN 020V. The existing signal equipment shop drawings are available on the SDDOT Contractor SharePoint Site.

All costs for work involved in relocating the existing signal equipment will be incidental to the contract lump sum price for “Relocate Signal Equipment”.

For the relocated existing traffic signal controller cabinet:

- It will be the Contractor’s responsibility to obtain the anchor bolts for the salvaged controller cabinet from the original cabinet manufacturer. The existing traffic signal controller cabinet shop drawings are available on the SDDOT Contractor SharePoint Site. Anchor bolts for cabinet may have hooked ends.
- The footing for the controller cabinet will be extended to allow the battery backup cabinet to be securely attached to the cabinet footing with steel anchors and to also allow the battery backup cabinet to be securely attached the side wall of the controller cabinet using chase nipples as approved by the Engineer.

For the relocated existing pedestrian push button poles:

- It will be the Contractor’s responsibility to obtain the anchor bolts for the salvaged pedestrian push button poles from the pole manufacturer.

For the electrical service cabinet to be relocated with the existing traffic signal controller cabinet:

- The service cabinet will be mounted on the side of the signal controller cabinet as shown on the plan sheets.
  - o The service cabinet will be plumb and level to controller cabinet. The Contractor will take precautions when positioning the service cabinet to avoid damaging wire or equipment within the controller cabinet while drilling the mounting holes and the access hole. The access hole will be two inch diameter and will be drilled through the service cabinet into the controller cabinet. A grommet or bushing will be installed in the two inch diameter hole to prevent damage during pull through of the cable.
  - o The service cabinet will be mounted and tightened securely to the controller cabinet using a minimum of four bolts. A bead of clear silicon caulking will be placed in all gaps between the service cabinet and controller cabinet to prevent water intrusion into either cabinet.
- No meter will be installed within the traffic signal controller cabinet.
- The breakers installed within the electrical service cabinet will act as disconnects for the power to the signals and the luminaires.
  - o The electrical cable for the signal power will be on a separate breaker from the electrical cable for the luminaires mounted on the signal poles
- When installing the PVC conduit from the BMU transformer to the electrical service cabinet and from the electrical service cabinet to the nearby junction box, the Contractor will install the conduit within RGSC from the 90 degree bend in the ground to the electrical service cabinet. The conduit runs will be installed within separate RGSC. The RGSC will be fully sealed at the electrical service cabinet. Quantity has been included in the plans for this RGSC.
- The existing transformer to be connected to is a 120/240V, 60Hz., Single Phase, Three Wire Service
  - o Brookings Municipal Utilities (BMU) will be contacted prior to connecting to their transformers.
  - o Contact Todd VanderWal (#605-695-5003) of BMU prior to this work.

4/4/4 ALUMINUM WIRE

The 4/4/4 Aluminum Wire for the street light wire will be triplex 4-4-4 awg 600-volt low voltage aluminum wire. The wire will consist of two phase conductors and one neutral conductor. The conductors will be Class B or SIW compressed 1350-H19 aluminum.

The wire will be abuse-resistant cables insulated with extruded lead-free composite cross-linked polyethylene and high-density cross-linked polyethylene. The wire will have sequential footage markings.

The two phase conductors will be black in color. The one neutral conductor will be black in color with three extruded yellow stripes. Phase identification will be by provided by means of a while print legend on the wires. The wire will be Vassar as manufactured by General Cable Vassar or approved equal.

All costs to furnish and install the 4/4/4 Aluminum Wire will be included in the contract unit price per linear foot for “4/4/4 Aluminum Wire”.

WIRE SPLICING FOR LIGHTING

All wire splices for lighting will be made using TE Connectivity GTAP connectors, NSI Industries Polaris Blue connectors, or an approved equal.

TABLE FOR CONDUIT & CABLE QUANTITIES

		RGSC	PVC Conduit Sch 40			PVC Conduit Sch 80			Cable[1]									
		5"	1"	3"	4"	2"	3"	4"	4/4/4	1C #6	2/C #14	4/C #14	5/C #14	7/C #14	12/C #14	24/C #14	PC[2] (EVP & 3c)	CAT5[3] (video)
Location to Location		(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)
LIGHTING																		
Transformer	EJL1					50			100									
SIGNALS																		
Transformer	JS2					65												
JS2	CC1	10			50	50												
JS2	S3			15														
JS2	PB3		20															
JS2	PB4		30															
JS2	JS3							100										
JS3	S4			20														
JS3	PB5		20															
JS3	PB6		15															
JS3	EJS4						50											
JS2	EJS1						55											
CC1	Transformer									330								
CC1	ES1															235	590	305
CC1	ES2															270		
CC1	S3														70	70	280	150
CC1	S4									780					215	215	580	300
CC1	ES5															395	950	485
CC1	ES6															400		
	S2											30	15	15				
	S3											150	90					
	S4											150	95					
	S6											30	15	15				
CC1	EPB1										255							
CC1	EPB2										265							
CC1	PB3										65							
CC1	PB4										80							
CC1	PB5										205							
CC1	PB6										200							
CC1	EPB7										395							
CC1	EPB8										390							
Total:		**10**	**85**	**35**	**50**	**165**	**105**	**100**	**100**	**1110**	**1855**	**360**	**215**	**30**	**285**	**1585**	**2400**	**1240**

1 - All cable quantities shown include 6' of slack/coil installed in each junction box, unless shown otherwise.
2 - Incidental to "Relocate Signal Equipment" bid item.
3 - Incidental to "Miscellaneous Signal Parts" bid item.

MULTICONDUCTOR CONTROL CABLE FOR SIGNAL CIRCUITS

The Conductor Jackets for the multiconductor control cables will be color coded in accordance with ICEA S-73-532 Table E2.

CONTROLLER PROGRAMMING

Existing controllers will be reprogrammed to use the patterns and timings specified on the Signal Timing Sheets by a qualified technician. Costs for reprogramming the controllers will be incidental to the contract lump sum price for “Miscellaneous, Electrical”.

MISCELLANEOUS SIGNAL PARTS

All costs for labor, equipment, and material to relocate the existing video detection system will be incidental to the contract lump sum price for “Miscellaneous Signal Parts”.

The existing video detection system was originally installed in Year 2023 with Project EM 0295(45)130 - PCN 020V. The existing video detection system shop drawings are available on the SDDOT Contractor SharePoint Site.

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REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Permanent Signing.

Signs that are mounted on luminaire, utility, and signal poles and on signal mast arms will be attached with high strength stainless steel bands or galvanized pole clamps. Signs will be attached as recommended by the manufacturer. All sign mounting hardware will be stainless steel or galvanized steel.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for “Remove Sign for Reset”. All costs for resetting the existing signs will be incidental to the contract unit price per each for “Reset Sign”. All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

Permanent Sign Installation Table

Alignment	Sign Data				Post Data
Station	Sign Description	Sign Code	Remove Sign for Reset (Each)	Reset Sign (Each)	use Mast Arm (MA), use Existing Posts (EP)
20TH STREET S AND 22ND AVENUE S, Mast Arm					
NE Corner	20th Street S (existing)	Existing	1	1	MA
	Left Turn Only (existing)	Existing	1	1	MA
SE Corner	22nd Ave S (existing)	Existing	1	1	MA
	Left Turn Only (existing)	Existing	1	1	MA
		Total	**4**	**4**	

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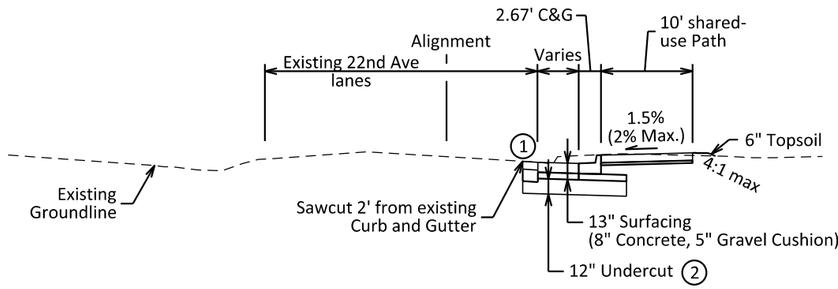
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	16	68

FILE: ...\16 Typicals
PLOTTING DATE: 04-14-2025

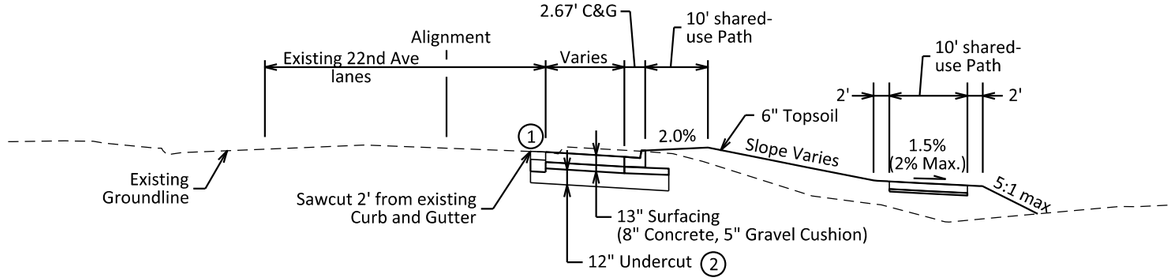
REV DATE:
INITIAL:

Typical Sections

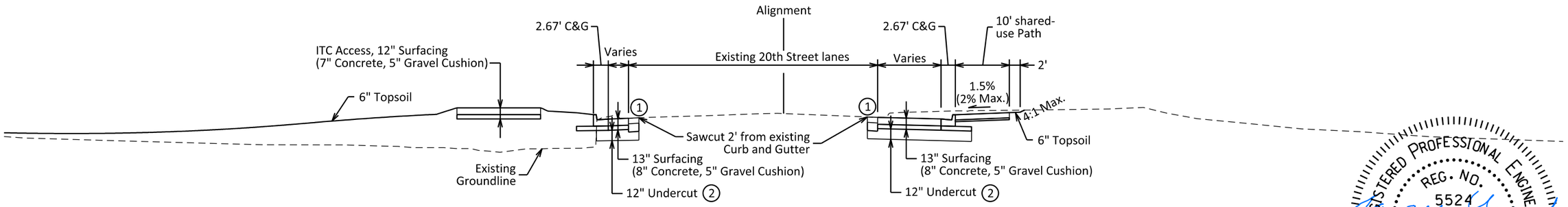
22nd Avenue Widening
South of 20th Street



22nd Avenue Widening
North of 20th Street



20th Street Widening and ITC Access
East of 22nd Avenue



1. Asphalt Patch
   Match existing pavement section (6" Asphalt Concrete Composite, 12" Base Course)

2. Verify depth of existing buried utilities prior to undercut. Reduce undercut as necessary to avoid impacts to existing buried utilities.

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Temporary Traffic Control Details

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	17	68

FILE: ...\17 traffic control - details.dgn
PLOTTING DATE: 05-06-2025
REV DATE: 05/07/2025
INITIAL: LRM

TABLE FOR TRAFFIC CONTROL SIGNS (SqFt)

Sign Description	Symbol	Sign Code	Width (in)	Height (in)	Sign Quantity (SqFt)	Traffic Control layout		Field Determined Signs		Estimated Quantity	
						No. of Signs	Total SqFt	No. of Signs	Total SqFt	No. of Signs	Total SqFt
ROAD WORK AHEAD	A	W20-1	48	48	16.0	4	64.0	2	32.0	6	96.0
CURVE LEFT	B	W1-4L	48	48	16.0	1	16.0	4	64.0	5	80.0
CURVE RIGHT	C	W1-4R	48	48	16.0	2	32.0	4	64.0	6	96.0
STOP	D	R1-1	48	48	16.0	4	64.0			4	64.0
END ROAD WORK	E	G20-2	36	18	4.5	4	18.0	2	9.0	6	27.0
CENTER LANE CLOSED AHEAD	F	W9-3	48	48	16.0			2	32.0	2	32.0
NO LEFT TURN	G	R3-2	24	24	4.0			2	8.0	2	8.0
					Total		**194.0**		**209.0**		**403.0**

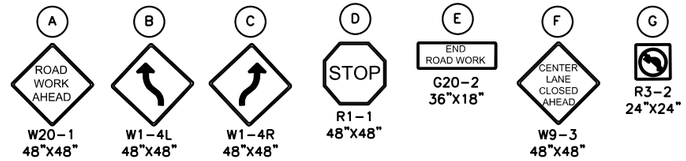
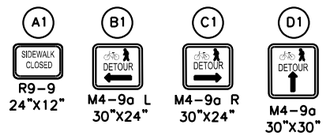


TABLE FOR DETOUR SIGNING (SqFt)

Sign Description	Symbol	Sign Code	Width (in)	Height (in)	Sign Quantity (SqFt)	Pedestrian Detour		Field Determined		Estimated Quantity*	
						No. of Signs	Total SqFt	No. of Signs	Total SqFt	No. of Signs	Total SqFt
SIDEWALK CLOSED	A1	R9-9	24	12	2.0	3	6.0	2	4.0	5	10.0
PED DETOUR - ARROW LEFT	B1	M4-9bL	30	24	5.0	6	30.0	3	15.0	9	45.0
PED DETOUR - ARROW RIGHT	C1	M4-9bR	30	24	5.0	6	30.0	3	15.0	9	45.0
PED DETOUR - ARROW UP	D1	M4-9a	30	30	6.3	4	25.0	4	25.0	8	50.0
					Total		**91.0**		**59.0**		**150.0**



OTHER TRAFFIC CONTROL QUANTITIES

Item	Unit	Traffic Control layouts	Field Determined	Total
Flagging	Hour		40	40
Type 3 Barricade	Each		5	5
Remove Pavement Marking, 4" or Equivalent	Ft		500	500
Temporary Pavement Marking	Ft		500	500
Longitudinal Pedestrian Barricade	Ft	18	12	30
Temporary Curb Ramp	Each	1	1	2
Longitudinal Pedestrian Barrier	Ft	180	20	200

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Traffic Control Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	18	68

FILE: ...\18 traffic control layout.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

SCALE IN FEET
0 50 100

LEGEND		
KEY	ITEM	KEY/ITEM
	TRAFFIC FLOW	TRAFFIC DRUMS/ CONES
Front of Sign / Sign Post	SIGN LOCATION/ORIENTATION	
CONSTRUCTED IN CURRENT PHASE	TRAFFIC DRUMS/CONES WILL BE SPACED AT 25' UNLESS SHOWN OTHERWISE 5' BARREL SPACING = ●●●●●●●●●● 10' BARREL SPACING = ● ● ● ● ●	

END ROAD WORK
ROAD WORK AHEAD
END ROAD WORK
150'
100' TAPER
100'
22ND AVENUE
STOP
STOP
DRUM / CONE OFF RIGHT TURN LANE
20TH STREET
20TH STREET
20TH STREET
20TH STREET
600'
ROAD WORK AHEAD
STOP
STOP
60'
100' TAPER
500'
ROAD WORK AHEAD
END ROAD WORK
PEDESTRIAN DETOUR ROUTE. SEE DETOUR LAYOUT FOR FURTHER INFORMATION.
INSTALL TEMPORARY CURB RAMP FOR THE PEDESTRIAN DETOUR ROUTE
PEDESTRIAN DETOUR ROUTE TO BE PLACED ONTO THE CLOSED LANE OF TRAFFIC, PARALLEL TO THE CONSTRUCTION WORK AREA. INSTALL LONGITUDINAL PEDESTRIAN BARRIER ALONG BOTH SIDES OF THE DETOUR ROUTE THAT IS ALONG THE CONSTRUCTION WORK AREA.
22ND AVENUE
500'
DRUM / CONE OFF RIGHT TURN LANE
END ROAD WORK
ROAD WORK AHEAD

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LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
4-14-25

HDR

Pedestrian Detour Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	19	68

FILE: ...\19 traffic control detour.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

SCALE IN FEET
0 75 150

LEGEND	
KEY	ITEM
	DETOUR ROUTE
Front of Sign / Sign Post	SIGN LOCATION / ORIENTATION
Front of Sign / Sign Post	DOUBLE POST - SIGN LOCATION / ORIENTATION
	LONGITUDINAL PEDESTRIAN BARRICADE
	CONSTRUCTED IN CURRENT PHASE

MORIARTY DRIVE

20TH STREET

22ND AVENUE

DETOUR

SIDEWALK CLOSED

PEDESTRIAN DETOUR ROUTE TO BE PLACED ONTO THE CLOSED LANE OF TRAFFIC, PARALLEL TO THE CONSTRUCTION WORK AREA. INSTALL LONGITUDINAL PEDESTRIAN BARRIER ALONG BOTH SIDES OF THE DETOUR ROUTE THAT IS ALONG THE CONSTRUCTION WORK AREA.

INSTALL TEMPORARY CURB RAMP

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	20	68

FILE: ...\20 EC Legend.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

Erosion and Sediment Control Legend

SYMBOLOGY FOR BEST MANAGEMENT PRACTICES

- RIP RAP (SEE SECTION B FOR DETAILS)
- SEDIMENT CONTROL AT INLET BEFORE PLACEMENT OF SURFACING
- SEDIMENT CONTROL AT INLET WHEN SURFACING IS IN PLACE
- LOW FLOW SILT FENCE
- HIGH FLOW SILT FENCE
- EROSION CONTROL WATTLES IN DITCHES
- SURFACE ROUGHENING
- TYPE D PERMANENT SEED MIXTURE
- PROPOSED DRAINAGE STRUCTURE / PIPE
- SURFACE FLOW DIRECTION
- RIGHT-OF-WAY
- PROPOSED ROADWAY
- WORK LIMITS

BMPs without symbology are listed below. Notes and details are shown in the plans if it has been determined the BMP is needed. In the event notes and details are needed for a particular BMP, contact the Road Design Office. If additional BMPs are required other than what is included in the plans, be sure to indicate they were added by updating the Storm Water Pollution Prevention Plan (SWPPP) / Section D.

Dewatering and Sediment Collecting--Water that needs to be removed for construction to progress can either be pumped into the sanitary sewer (with the City's permission), onto a long flat vegetated area, or through a filtration system as detailed in the plans.

Street Sweeping--Used to prevent sediment from tracking or blowing off the site.

Rip Rap--Notes and details are shown in Section B

Rip Rap for bridge berms--Notes and details are typically shown in Section E

Cover Crop--Typically seeded on all topsoil stockpiles and disturbed areas where grading is complete but permanent seeding cannot be done within 14 days due to seasonal limitations. Usually followed with Grass Hay/Straw Mulching.

Permanent Seeding--Done on all disturbed areas that are not going to be paved, graveled, or sodded. Permanent seeding can be done after mulching has been applied using a no-till drill.

Grass Hay/Straw Mulching--Usually follows Permanent Seeding. Mulching is done on all disturbed areas not covered with pavement, sodding, erosion control blanket, fiber mulching, bonded fiber matrix, or fiber reinforced matrix. It is not shown on the plan sheets unless it is put down as a temporary/Blue BMP.

Sediment Basins--Usually added to the plans if space is available on the construction site. It is preferred that they be installed prior to earth moving activities when possible. The Engineer determines whether or not a sediment basin will remain on the site or be removed after construction done.

Recommendations for maintaining a manageable site that meets the requirements of the Storm Water Permit are listed below.

Do not disturb more area than is needed to complete work.

Complete work near wet or sensitive areas of the project during the winter or dry seasons.

Keep the area disturbed under 10 acres at a time. The permit requires us to install a sediment basin for every 10 acres of common drainage disturbed.

Areas that have been temporarily or permanently stabilized with cover crop or permanent seeding and the appropriate mulch, blanket, or matrix are no longer considered disturbed--so stabilize as soon as possible.

BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are split into three categories and are to be used throughout construction.

INITIAL PHASE
BMPs from the Legend shown as Orange Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Initial Phase prior to earth disturbing activities. Other BMPs installed during the initial phase, like inlet protection on existing inlets, may remain in place, be removed, or be replaced depending on the fate of the inlet it is protecting. Most BMPs installed during this phase should remain in place until water is diverted or until Final Phase BMPs are installed.

INTERMEDIATE PHASE
BMPs from the Legend shown as Blue Symbols on the Erosion and Sediment Control Plan Sheets are to be installed during the Intermediate Phase to do one of the following:
--Dewater and/or collect sediment and debris from storm water
--Temporarily stabilize soil to reduce the need for excessive sediment capture
Sediment control BMPs should remain in place until Final Stabilization is acheived unless they are replaced by another BMP.

FINAL PHASE
BMPs from the Legend shown as Green Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Final Phase to do one of the following:
--Achieve final stabilization through permanent erosion control.
--Capture sediment during final stabilization. BMPs used to capture sediment, such as inlet protection, should be removed once the vegetation reaches 75% of the background level. Other BMPs, like erosion control wattles, can be left to decompose.

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SOUTH DAKOTA
4-14-25

FOR BIDDING PURPOSES ONLY

Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	21	68

FILE: ...\21 EC.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

SCALE IN FEET
0 15 30

Install Low Flow Silt Fence at the following locations:

10+60 to 11+50 R	Perimeter	110	Ft
506+13 to 507+75 R	Perimeter	190	Ft

BEGIN EM 0295(45)130
20th Street S
Station 10+45.79

END EM 0295(45)130
22nd Avenue S
Station 506+28.40

40'
33'
36'
33'

22nd Avenue S
Section Line
N2°41'30"W
Section Line

504+00
505+00
506+00
507+00
508+00
10+00
11+00
12

Allyn Frerichs Trail
Allyn Frerichs Trail

BEGIN EM 0295(45)130
22nd Avenue S
Station 501+00.00

20th Street S
N87°56'04"E
Section Line

ITC Building
(by others)

Edgebrook
Golf Course

Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:

505+07.50 - 13.67' R	22 Ft Low Flow Silt Fence	26 Ft Sediment Filter Bags
506+30.0 - 15.40' R	22 Ft Low Flow Silt Fence	26 Ft Sediment Filter Bags
507+28.4 - 15.40' R	22 Ft Low Flow Silt Fence	26 Ft Sediment Filter Bags
507+35.4 - 15.00' R	22 Ft Low Flow Silt Fence	26 Ft Sediment Filter Bags
507+42.4 18.80' R	22 Ft Low Flow Silt Fence	26 Ft Sediment Filter Bags

END EM 0295(45)130
20th Street S
Station 11+88.98

Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:

505+07.50 - 13.67' R	1	Each
506+29.20 - 16.40' R	1	Each
506+33.20 - 16.40' R	1	Each
506+37.20 - 16.40' R	1	Each

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SOUTH DAKOTA
4-14-25

HDR

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	22	68

FOR BIDDING PURPOSES ONLY

Plotting Date: 4/14/2025

Horizontal Alignment Data

20th Street S

Type	Station			Northing	Easting
POB	9+00.00			180602.701	2814501.213
		TL=349.49	N 87° 56' 04" E		
POE	12+49.50			180615.298	2814850.477

22nd Avenue S

Type	Station			Northing	Easting
POB	504+00.00			180428.567	2814645.133
		TL=583.24	N 2° 41' 30" W		
PI	505+83.24			180611.604	2814636.528
		TL=516.76	N 2° 06' 02" W		
POE	511+00.00			181128.016	2814617.588

NE Corner Bike Trail

Type	Station			Northing	Easting
POB	5+00.00			180660.493	2814672.417
		TL=10.90	N 49° 23' 44" E		
PC	5+10.90			180667.588	2814680.693
PI	5+41.14	R = 50.00	Delta = 62° 19' 34" L	180687.267	2814703.650
PT	5+65.29			180716.738	2814696.883
		TL=66.17	N 13° 03' 34" W		
PI	6+31.46			180781.194	2814681.932
		TL=54.98	N 8° 45' 06" W		
POB	6+86.440			180835.598	2814673.983

Control Data

HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP DITCH	10+00	543' R	5/8" Rebar w/plastic cap West Ditch of 22nd Ave S at culvert	180063.2400	2814620.5210	1614.60
CP FIELD	9+82	242' L	5/8" Rebar w/plastic cap West Ditch of 22nd Ave S by light pole	180847.4470	2814574.7650	1626.57
CP HOUSE	10+63	270' R	5/8" Rebar w/plastic cap East Ditch of 22nd Ave S	180338.3110	2814674.1400	1619.14

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/2011); epoch 2010.00
Geoid 18; SF = 0.9999557940

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4-14-25

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	23	68

FILE: ...\23 Symbology.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

Legend

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush/Hedge
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Concrete Symbol
- Control Point
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Electric Transformer/Power Junction Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Miscellaneous
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Gutter
- Guy Pole
- Haystack
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Miscellaneous
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Miscellaneous Line
- Miscellaneous Property Corner
- Miscellaneous Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad ROW Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Sign Double Face
- Traffic Sign One Post
- Traffic Sign Two Post
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Wetland Delineated
- Wetland Number WL-01C
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter
- Remove Retaining Wall XXXXX
- Clear and Grub Tree
- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope
- Proposed Riprap

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SOUTH DAKOTA
4-14-25

Plan Sheet

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	24	68

FILE: ...\24 P&P.dgn
PLOTTING DATE: 04-14-2025
REV DATE:
INITIAL:

SCALE IN FEET
0 15 30

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
4-14-25

Take Out Drop Inlet at the Following Location:
506+30.1 - 16.8' R

506+30.0 to 507+28.4 - 15.4' R
Install 18" -96' RC Pipe

507+28.4 - 15.4' R to 507+35.4 - 15.0' R
Install 18" -4'' RC Pipe

507+35.4 - 15.0' R to 507+42.4 - 14.8' R
Install 18" -4'' RC Pipe

Install 3'x4' Type B Drop Inlet with 6" Concrete Collar and Type A7 Frame and Lid at the Following Location:
506+30.0 - 15.4' R

Install 2'x 3' Type B Drop Inlets with 6" Concrete Collar and Type B Frame & Grate at the Following Locations:
507+28.4 - 15.4' R
507+35.4 - 15.0' R
507+42.4 - 14.8' R

BROOKINGS

BEGIN EM 0295(45)130
20th Street S
Station 10+45.79

Sec. 1-T109N-R50W

Sec. 36-T110N-R50W

END EM 0295(45)130
22nd Avenue S
Station 506+28.40

22nd Avenue S
Section Line
N2°41'30"W

Section Line
N2°06'02"W

505+00
10+35.60
506+00
507+00
508+00

10+00
11+00

40'
36'
33'
33'

Allyn Frerichs Trail

11+62.27-100'

10+62.92
80.21'

BEGIN
EM 0295(45)130
22nd Avenue S
Station 501+00.00

10+98.67
44.14'

11+00-67'

John H. Mills
Parcel 9

11+31.65
36.67'

R'SURENE MORGAN FARM ADDITION

Sec. 6-T109N-R49W

11+50-40'&48'

20th Street S
N87°56'04"E
Section Line

END EM 0295(45)130
20th Street S
Station 11+88.98

11+90
36.67' & 40'

506+16.04
142.00'

506+16.02
162'

507+56.15
22.00'

6+86

6+00

507+74
22' & 72'

Edgebrook Golf Course

City of Brookings
Parcel 10

SW 1/4

Sec. 31-T110N-R49W

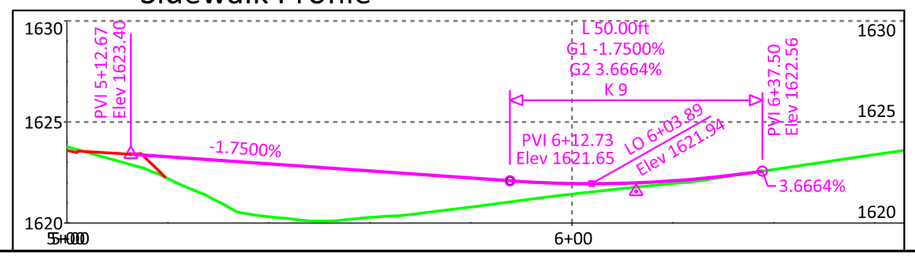
ITC Building (by others)

See Grading and Site Plan Detail

Parcel 9
11+62.27 to 11+90 R
Temporary Easement containing
0.1 ac. (1876 sq ft), more or less

Parcel 10
506+16.04 to 507+74 R
Temporary Easement containing
0.2 ac. (6609 sq ft), more or less

Sidewalk Profile



Removal Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	25	68

FILE: ...\25 REM.dgn
PLOTTING DATE: 04-14-2025
REV DATE:
INITIAL:

SCALE IN FEET
0 15 30

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
4-14-25

Take Out Asphalt Pavement at the Following Locations:
10+45.9 to 11+89.0 R
506+07 to 507+49.5 R
506+61.2 to 507+51.5 R

Take Out Concrete Pavement at the Following Locations:
10+48.0 to 10+72.7 R
506+09.2 to 506+27.1 R

Take Out Concrete Sidewalk at the Following Locations:
10+50.8 to 11+44.0 R
506+12.6 to 506+62.9 R
506+13, 49' to 114' R

Remove Concrete Sidewalk (between sidewalk and block wall) at the Following Location:
10+85 to 11+50 L

Take Out Curb & Gutter at the Following Locations:
10+49, 44' to 88.5' R
10+72.7 to 11+89 R
506+10, 33' to 83' R
506+27 to 507+49.5 R

Take Out Retaining Wall at the Following Location:
10+85 to 11+50, 32' L
(See Detail Below)

Clear and Grub Trees:
506+43, 37' R - 8"
506+63, 42' R - 8"
506+87, 46' R - 8"
507+00, 39' R - 8"
507+00, 67' R - 8"
507+21, 40' R - 8"

Take out Signal Footing at the following locations:
10+67.88 - 35.37' L
10+71.50 - 39.11' L

BEGIN EM 0295(45)130
20th Street S
Station 10+45.79

END EM 0295(45)130
22nd Avenue S
Station 509+49.47

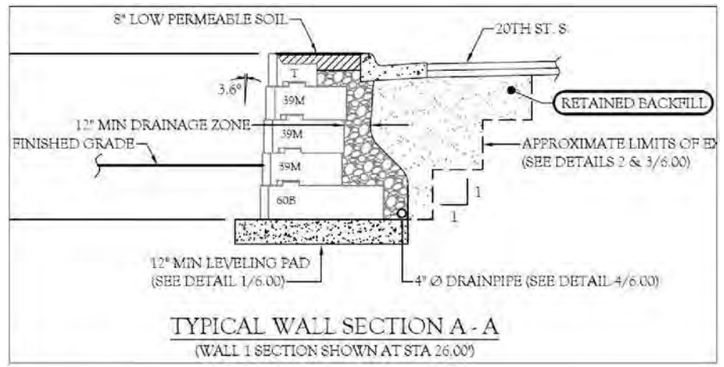
BEGIN EM 0295(45)130
22nd Avenue S
Station 504+90.60

END EM 0295(45)130
20th Street S
Station 11+88.98

22nd Avenue S
N2°41'30"W
N2°06'02"W
20th Street S
N87°56'04"E
Allyn Frerichs Trail
Edgebrook Golf Course
504+00
505+00
506+00
507+00
508+00
10+00
11+00

ITC building removal by others

Remove existing block wall sections only as necessary to provide a minimum 2' cover above the remaining block wall sections (paid for as "Remove Concrete Retaining Wall" per foot). Do not disturb the existing curb and gutter. Removed block wall sections will become the property of the Contractor.



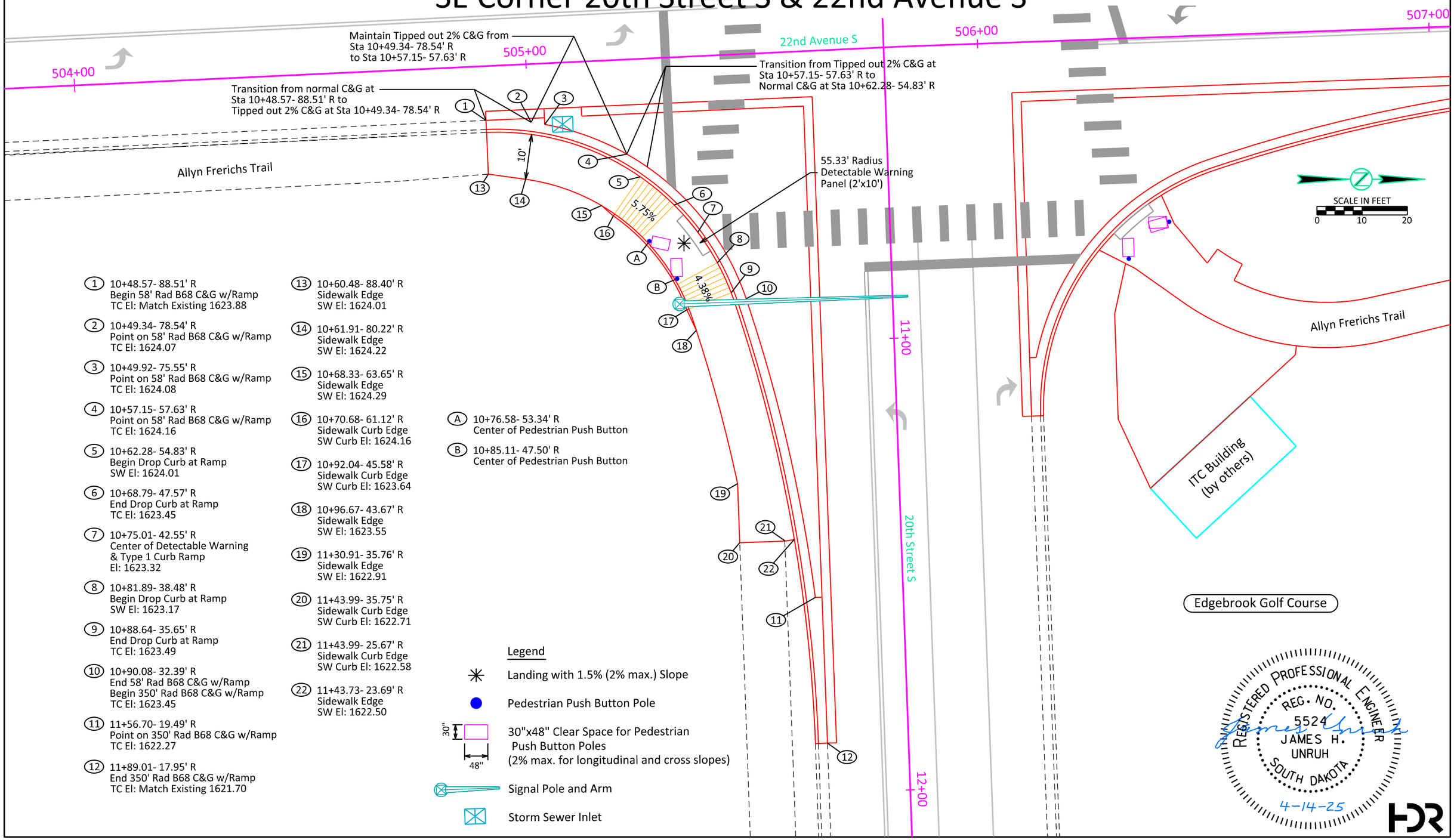
Existing Large Block Retaining Wall Detail (from shop drawings)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	26	68

FILE: ...\26 C&G (SE).dgn
PLOTTING DATE: 04-14-2025
REV DATE:
INITIAL:

Curb and Gutter and Curb Ramp Details
SE Corner 20th Street S & 22nd Avenue S



(1) 10+48.57- 88.51' R
Begin 58' Rad B68 C&G w/Ramp
TC El: Match Existing 1623.88

(2) 10+49.34- 78.54' R
Point on 58' Rad B68 C&G w/Ramp
TC El: 1624.07

(3) 10+49.92- 75.55' R
Point on 58' Rad B68 C&G w/Ramp
TC El: 1624.08

(4) 10+57.15- 57.63' R
Point on 58' Rad B68 C&G w/Ramp
TC El: 1624.16

(5) 10+62.28- 54.83' R
Begin Drop Curb at Ramp
SW El: 1624.01

(6) 10+68.79- 47.57' R
End Drop Curb at Ramp
TC El: 1623.45

(7) 10+75.01- 42.55' R
Center of Detectable Warning
& Type 1 Curb Ramp
El: 1623.32

(8) 10+81.89- 38.48' R
Begin Drop Curb at Ramp
SW El: 1623.17

(9) 10+88.64- 35.65' R
End Drop Curb at Ramp
TC El: 1623.49

(10) 10+90.08- 32.39' R
End 58' Rad B68 C&G w/Ramp
Begin 350' Rad B68 C&G w/Ramp
TC El: 1623.45

(11) 11+56.70- 19.49' R
Point on 350' Rad B68 C&G w/Ramp
TC El: 1622.27

(12) 11+89.01- 17.95' R
End 350' Rad B68 C&G w/Ramp
TC El: Match Existing 1621.70

(13) 10+60.48- 88.40' R
Sidewalk Edge
SW El: 1624.01

(14) 10+61.91- 80.22' R
Sidewalk Edge
SW El: 1624.22

(15) 10+68.33- 63.65' R
Sidewalk Edge
SW El: 1624.29

(16) 10+70.68- 61.12' R
Sidewalk Curb Edge
SW Curb El: 1624.16

(17) 10+92.04- 45.58' R
Sidewalk Curb Edge
SW Curb El: 1623.64

(18) 10+96.67- 43.67' R
Sidewalk Edge
SW El: 1623.55

(19) 11+30.91- 35.76' R
Sidewalk Edge
SW El: 1622.91

(20) 11+43.99- 35.75' R
Sidewalk Curb Edge
SW Curb El: 1622.71

(21) 11+43.99- 25.67' R
Sidewalk Curb Edge
SW Curb El: 1622.58

(22) 11+43.73- 23.69' R
Sidewalk Edge
SW El: 1622.50

(A) 10+76.58- 53.34' R
Center of Pedestrian Push Button

(B) 10+85.11- 47.50' R
Center of Pedestrian Push Button

Legend

- Landing with 1.5% (2% max.) Slope
- Pedestrian Push Button Pole
- 30"x48" Clear Space for Pedestrian Push Button Poles (2% max. for longitudinal and cross slopes)
- Signal Pole and Arm
- Storm Sewer Inlet

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
4-14-25

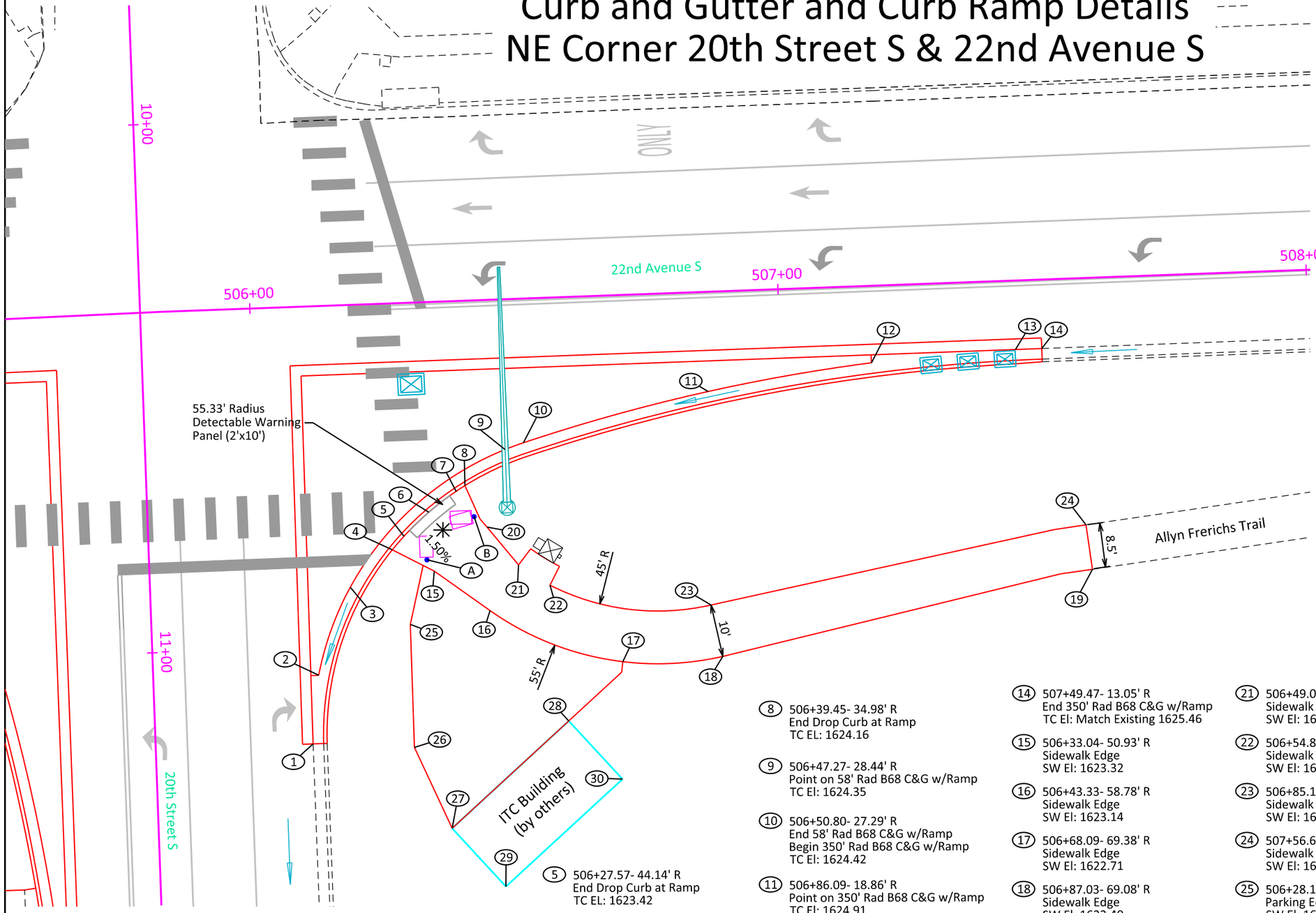
FOR BIDDING PURPOSES ONLY

Curb and Gutter and Curb Ramp Details
NE Corner 20th Street S & 22nd Avenue S

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	27	68

FILE: ...\27 C&G (NE).dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:



SCALE IN FEET
0 10 20

Legend

- Landing with 1.5% (2% max.) Slope
- Pedestrian Push Button Pole
- 30"x48" Clear Space for Pedestrian Push Button Poles (2% max. for longitudinal and cross slopes)
- Signal Pole and Arm
- Signal Controller Cabinet
- Surface Drainage Flowline
- Storm Sewer Inlet

(A) 506+31.75- 48.75' R
Center of Pedestrian Push Button

(B) 506+40.96- 40.92' R
Center of Pedestrian Push Button

(1) 506+08.96- 82.78' R
Begin 58' Rad B68 C&G w/Ramp
TC El: Match Existing 1622.91

(2) 506+10.47- 69.83' R
Point on 58' Rad B68 C&G w/Ramp
TC El: 1623.20

(3) 506+17.06- 53.42' R
Point on 58' Rad B68 C&G w/Ramp
TC El: 1623.59

(4) 506+25.26- 46.62' R
Begin Drop Curb at Ramp
SW El: 1623.79

(5) 506+27.57- 44.14' R
End Drop Curb at Ramp
TC EL: 1623.42

(6) 506+32.43- 39.75' R
Center of Detectable Warning
& Type 1 Curb Ramp
El: 1623.55

(7) 506+37.76- 36.06' R
Begin Drop Curb at Ramp
SW El: 1623.68

(8) 506+39.45- 34.98' R
End Drop Curb at Ramp
TC EL: 1624.16

(9) 506+47.27- 28.44' R
Point on 58' Rad B68 C&G w/Ramp
TC El: 1624.35

(10) 506+50.80- 27.29' R
End 58' Rad B68 C&G w/Ramp
Begin 350' Rad B68 C&G w/Ramp
TC El: 1624.42

(11) 506+86.09- 18.86' R
Point on 350' Rad B68 C&G w/Ramp
TC El: 1624.91

(12) 507+17.17- 14.58' R
Point on 350' Rad B68 C&G w/Ramp
TC El: 1625.18

(13) 507+44.47- 13.09' R
Point on 350' Rad B68 C&G w/Ramp
TC El: 1625.42

(14) 507+49.47- 13.05' R
End 350' Rad B68 C&G w/Ramp
TC El: Match Existing 1625.46

(15) 506+33.04- 50.93' R
Sidewalk Edge
SW El: 1623.32

(16) 506+43.33- 58.78' R
Sidewalk Edge
SW El: 1623.14

(17) 506+68.09- 69.38' R
Sidewalk Edge
SW El: 1622.71

(18) 506+87.03- 69.08' R
Sidewalk Edge
SW El: 1622.40

(19) 507+57.52- 55.15' R
Sidewalk Edge
SW El: 1622.42

(20) 506+43.32- 42.98' R
Sidewalk Edge
SW El: 1623.50

(21) 506+49.03- 50.36' R
Sidewalk Edge
SW El: 1623.31

(22) 506+54.84- 54.39' R
Sidewalk Edge
SW El: 1623.16

(23) 506+85.15- 59.26' R
Sidewalk Edge
SW El: 1622.55

(24) 507+56.60- 46.72' R
Sidewalk Edge
SW El: 1622.70

(25) 506+28.17- 60.85' R
Parking Edge
SW El: 1623.35

(26) 506+28.08- 84.14' R
Parking Edge
SW El: 1623.16

(27) 506+34.66- 99.72' R
Parking Edge
SW El: 1623.50

(28) 506+57.45- 80.21' R
Parking Edge
SW El: 1623.50

(29) 506+44.42- 111.11' R
Pad Edge
SW El: 1623.50

(30) 506+67.20- 91.60' R
Pad Edge
SW El: 1623.50

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
4-14-25

HDR

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	28	68

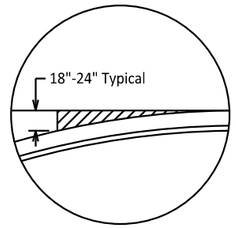
FILE: ...\28 Surfacing.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

Surfacing Plan

Surfacing Legend

	6" Concrete Shared-Use Path / Sidewalk
	7" Concrete Shared-Use Path / Sidewalk
	7" Non-reinforced Concrete Pavement
	8" Special Steel Bar Reinforcement (paid for as Misc. PCC Pvmt)
	6" Asphalt Concrete Pavement
	Proposed Storm Sewer
	Areas to be poured monolithically with adjacent curb and gutter (See Detail A)



Detail A

SCALE IN FEET
0 15 30

Existing Right-of-Way Line

BEGIN EM 0295(45)130
22nd Avenue S
Station 504+90.60

BEGIN EM 0295(45)130
20th Street S
Station 10+45.79

END EM 0295(45)130
22nd Avenue S
Station 509+49.47

22nd Avenue S
Section Line

504+00 505+00 506+00 507+00 508+00

10+00

Sta. 10+46, 16' R

Sta. 10+46, 89' R

Sta. 506+07, 11' R

Sta. 507+50' 11' R

Allyn Frerichs Trail

Proposed Right-of-Way Line

8" Misc. PCC Pavement

Existing Right-of-Way Line

Allyn Frerichs Trail

11+00

Sta. 506+17, 85' R

Edgebrook Golf Course

ITC Building (by others)

Proposed Right-of-Way Line

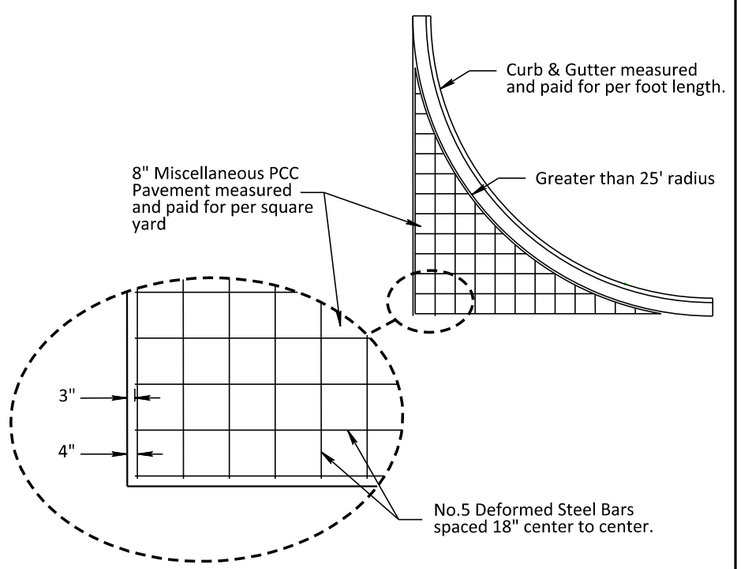
Existing Right-of-Way Line

20th Street S
Section Line

12

Sta. 11+89, 16' R

END EM 0295(45)130
20th Street S
Station 11+88.98



Special Steel Bar Reinforcement Detail for Large Radius Turning Areas

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Grading and Site Plan Detail

SCALE IN FEET
0 10 20

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	29	68

FILE: ...\29 Grading Detail.dgn
PLOTTING DATE: 04-14-2025
REV DATE:
INITIAL:

22nd Avenue S
505+00
506+00
507+00
11+00
20th Street S
Allyn Frerichs Trail
ITC Building
Edgebrook Golf Course
Varies 5:1 Max.
5H : 1V
1625
1624
1623
1622
1621
1620
1619

ITC building pad finished elev. = 1623.50 ft
Building by Others

Legend

	Proposed Roadway
	Proposed Path
	Proposed ITC Access
	Existing Contour
	Proposed Contour
	Surface Flows
	Existing Signal
	Proposed Signal
	Work Limit
	Temporary Easement
	Proposed Storm Sewer

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4-14-25

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	30	68

FILE: ...\30 PM.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

Pavement Marking Plan
20th Street / 22nd Avenue Intersection

Pavement Marking Legend

4Y	Durable Pavement Marking, 4" Yellow
24WT	Thermoplastic Pavement Marking, 24" White
	Thermoplastic Pavement Marking, Arrow
	Remove Pavement Marking, 4" or Equivalent
	Remove Pavement Marking, Arrow
	Existing Pavement Markings

SCALE IN FEET
0 20 40

509+00
508+33
508+00
507+73
507+13
507+00
506+49
506+00
22nd Avenue S
Allyn Frerichs Trail
ITC Building (by others)
Edgebrook Golf Course
Sta. 506+33 - 1' R
Sta. 506+24 - 35' L
Sta. 505+31.8 - 10.4' L
Sta. 10+85 - 5.25' R
24WT
4Y
10+00
11+00
12+00
13+00
14+00
15+00
20th Street S

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Existing Signal Layout

22nd Avenue S & 20th Street S

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	31	68

FILE: ...\31 existing signal.dgn
PLOTTING DATE: 05-06-2025

REV DATE: 05/07/2025
INITIAL: LRM

SCALE IN FEET
0 20 40

ESTIMATE OF QUANTITIES

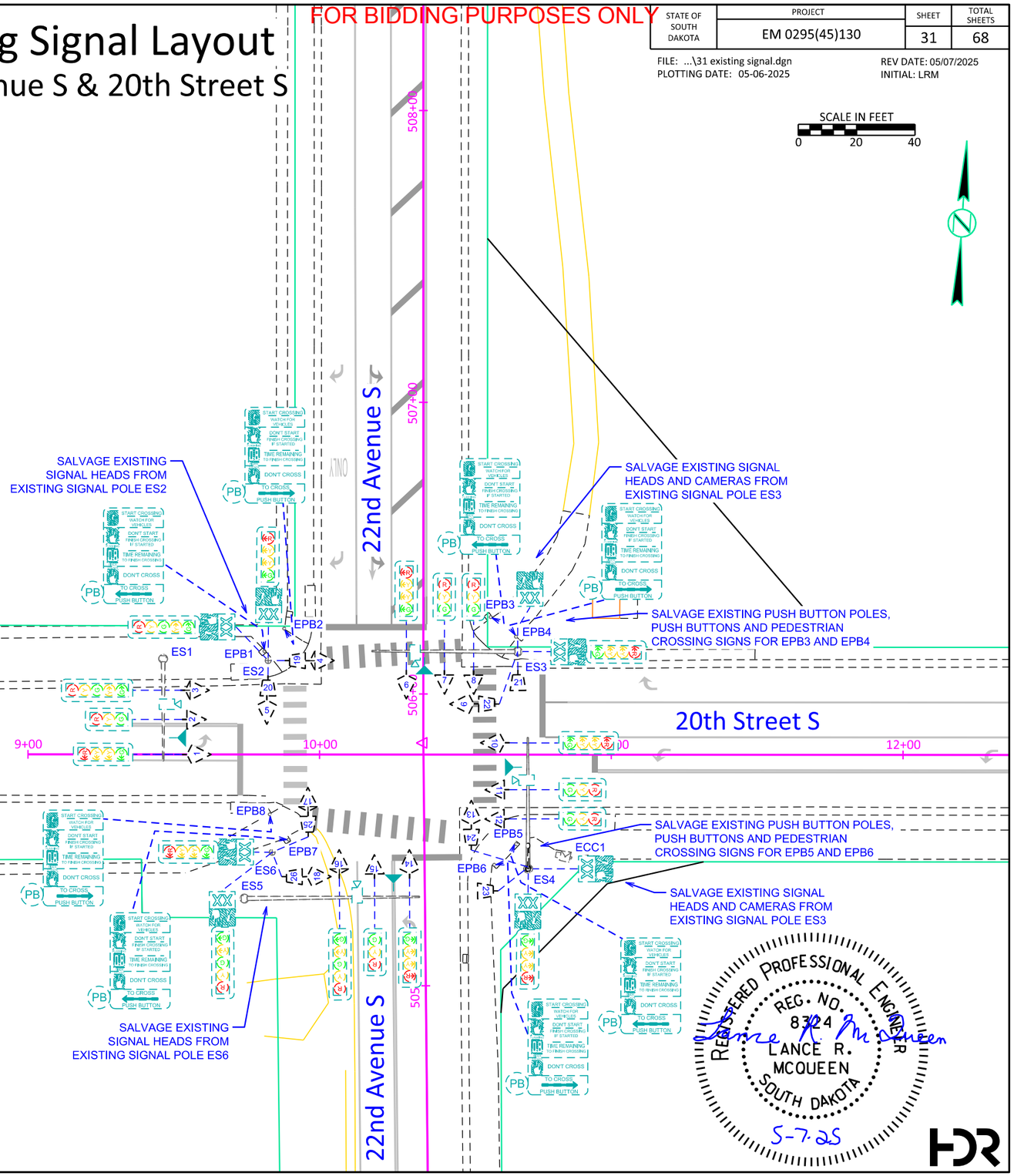
KEY	ITEM	QUANTITY	UNIT
	REMOVE CONCRETE FOOTING(S) (FOR ECC1 / CONTROLLER CABINET CONCRETE FOOTING)	LUMP SUM	LS
	REMOVE SIGNAL POLE FOOTING (ES3, ES4)	2	EACH
	REMOVE AND RESET SIGNAL POLE (AND MAST ARM) (ES3, ES4)	2	EACH
	REMOVE SIGNAL EQUIPMENT	LUMP SUM	LS
	RELOCATE SIGNAL EQUIPMENT	LUMP SUM	LS
	SALVAGE EXISTING TRAFFIC SIGNAL CAMERAS (2 EACH) (INCIDENTAL TO THE CONTRACT LUMP SUMP BID ITEM "MISCELLANEOUS SIGNAL PARTS")	LUMP SUM	LS

REMOVE SIGNAL EQUIPMENT

KEY	ITEM	QUANTITY	UNIT
	PEDESTAL SIGNAL POLE (ES2, ES6)	2	EACH

RELOCATE SIGNAL EQUIPMENT

KEY	ITEM	QUANTITY	UNIT
	3 SECTION VEHICLE SIGNAL HEAD (7,8,11,12)	4	EACH
	4 SECTION VEHICLE SIGNAL HEAD (5,6,9,10,13,18)	6	EACH
	5 SECTION VEHICLE SIGNAL HEAD (4,17)	2	EACH
	PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER (19-26)	8	EACH
PB	ACCESSIBLE PEDESTRIAN SIGNAL (EPB3-EPB6)	4	EACH
	PEDESTRIAN PUSH BUTTON POLE (EPB3-EPB6)	4	EACH
	OPTICAL DETECTOR	2	EACH
	TRAFFIC SIGNAL CONTROLLER (ECC1) (FRONT OF CABINET / DOOR)	1	EACH
	SIGNAL HEAD BATTERY BACKUP AND FLASH SYSTEM (INSTALLED WITHIN SIDE MOUNTED CABINET) (INSTALLED ON RIGHT SIDE OF CABINET FRONT)	1	EACH
	ELECTRICAL SERVICE CABINET (INSTALLED ON LEFT SIDE OF CABINET FRONT)	1	EACH
	PEDESTRIAN CROSSING SIGN (LEFT-2, RIGHT-2)	4	EACH



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
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SOUTH DAKOTA
5-7-25

HDR

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Signal Layout

22nd Avenue S & 20th Street S

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	32	68

FILE: ...\32 signal.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

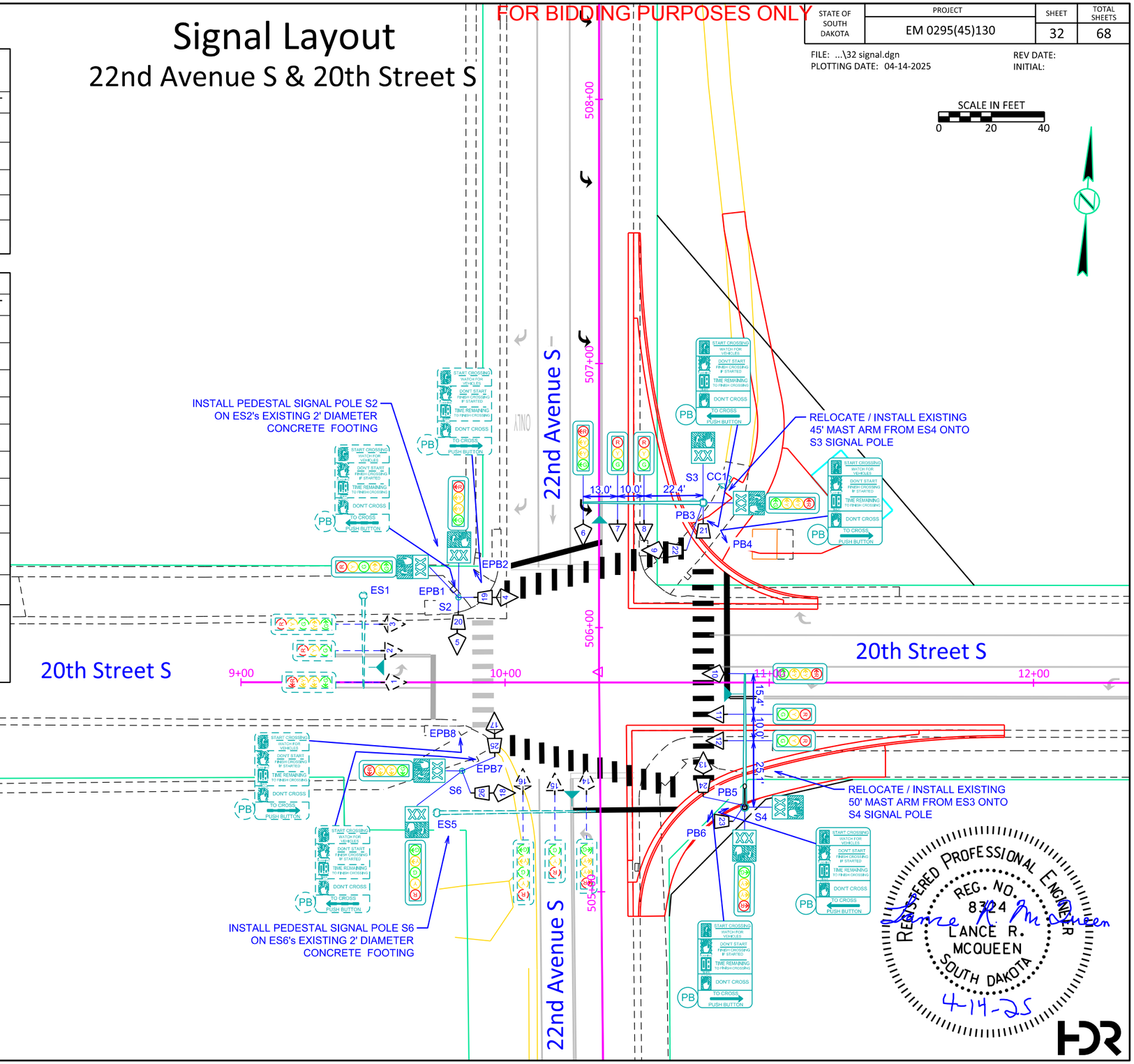
ESTIMATE OF QUANTITIES

KEY	ITEM	QUANTITY	UNIT
	REMOVE AND RESET SIGNAL POLE (AND MAST ARM) (S3, S4)	2	EACH
	RELOCATE SIGNAL EQUIPMENT	LUMP SUM	LS
⊗	PEDESTAL SIGNAL POLE (S2,S6)	2	EACH
○	3' DIAMETER FOOTING (S3,S4)	26.0	FT
	CONTROLLER CABINET FOOTING (FOR CC1 / RELOCATED EXISTING SIGNAL CABINET)	1	EACH

RELOCATE SIGNAL EQUIPMENT

KEY	ITEM	QUANTITY	UNIT
	3 SECTION VEHICLE SIGNAL HEAD (7,8,11,12)	4	EACH
	4 SECTION VEHICLE SIGNAL HEAD (5,6,9,10,13,18)	8	EACH
	5 SECTION VEHICLE SIGNAL HEAD (4,17)	2	EACH
	PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER (19-26)	8	EACH
PB	ACCESSIBLE PEDESTRIAN SIGNAL (PB3-PB6)	4	EACH
•	PEDESTRIAN PUSH BUTTON POLE (PB3-PB6)	4	EACH
	OPTICAL DETECTOR	2	EACH
	TRAFFIC SIGNAL CONTROLLER (CC1) (FRONT OF CABINET / DOOR)	1	EACH
	SIGNAL HEAD BATTERY BACKUP AND FLASH SYSTEM (INSTALLED WITHIN SIDE MOUNTED CABINET) (INSTALLED ON RIGHT SIDE OF CABINET FRONT)	1	EACH
	ELECTRICAL SERVICE CABINET (INSTALLED ON LEFT SIDE OF CABINET FRONT)	1	EACH
	PEDESTRIAN CROSSING SIGN (LEFT-2, RIGHT-2)	4	EACH

SCALE IN FEET
0 20 40



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
4-14-25

Signal Conduit Layout

22nd Avenue S & 20th Street S

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	33	68

FILE: ...\33 signal conduit.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

SCALE IN FEET
0 15 30

ESTIMATE OF QUANTITIES

KEY	ITEM	QUANTITY	UNIT
	TYPE 2 ELECTRICAL JUNCTION BOX (JS3)	1	EACH
	TYPE 4 ELECTRICAL JUNCTION BOX (JS2)	1	EACH
5" RIGID GALVANIZED STEEL CONDUIT	5" RIGID GALVANIZED STEEL CONDUIT	10	FT
1" SCH 40	1" RIGID CONDUIT, SCHEDULE 40	85	FT
3" SCH 40	3" RIGID CONDUIT, SCHEDULE 40	35	FT
4" SCH 40	4" RIGID CONDUIT, SCHEDULE 40	50	FT
2" SCH 80	2" RIGID CONDUIT, SCHEDULE 80	165	FT
3" SCH 80	3" RIGID CONDUIT, SCHEDULE 80	105	FT
4" SCH 80	4" RIGID CONDUIT, SCHEDULE 80	100	FT
1 4/4/4	4/4/4 ALUMINUM WIRE	100	FT
#6	1/C #6 AWG COPPER WIRE	1110	FT
2C	2/C #14 AWG COPPER TRAY CABLE, K2	1855	FT
4C	4/C #14 AWG COPPER TRAY CABLE, K2	360	FT
5C	5/C #14 AWG COPPER TRAY CABLE, K2	215	FT
7C	7/C #14 AWG COPPER TRAY CABLE, K2	30	FT
12C	12/C #14 AWG COPPER TRAY CABLE, K2	285	FT
24C	24/C #14 AWG COPPER TRAY CABLE, K2	1585	FT
PC	PREEMPTION CABLE (NOT A BID ITEM) (INCIDENTAL TO "RELOCATE SIGNAL EQUIPMENT" BID ITEM) (1 PC FOR THE PREEMPTION UNIT) (1 PC FOR THE CONFIRMATION LIGHT)	2400	FT
CAT5	OUTDOOR RATED CAT5 CABLE (NOT A BID ITEM) (TO VIDEO DETECTION CAMERAS) (INCIDENTAL TO "MISCELLANEOUS SIGNAL PARTS" BID ITEM)	1240	FT

REMOVAL ITEMS

KEY	ITEM	QUANTITY	UNIT
	REMOVE EXISTING ELECTRICAL JUNCTION BOX (EJS2, EJS3)	LUMP SUM**	LS
	REMOVE EXISTING CABLE / WIRE	LUMP SUM**	LS

**INCLUDED IN THE BID ITEM "MISCELLANEOUS, ELECTRICAL"

CONTRACTOR WILL MOUNT THE SALVAGED ELECTRICAL SERVICE CABINET ON THE WEST SIDE OF THE SALVAGED CONTROLLER CABINET.
- INSTALL 3-#6 WIRES FROM TRANSFORMER INTO ELECTRICAL SERVICE CABINET AS SHOWN.
- INSTALL 3-#6 WIRES FROM ELECTRICAL SERVICE CABINET INTO CONTROLLER CABINET TO PROVIDE POWER TO THE SIGNALS.
- INSTALL 3-#6 WIRES FROM ELECTRICAL SERVICE CABINET TO JS2 AND JS3 AS SHOWN TO PROVIDE POWER TO THE LUMINAIRE ON SIGNAL POLE S4.

THE CONTRACTOR WILL MAINTAIN A FULL TIME TEMPORARY CONNECTION WITH CONDUIT AND WIRE FROM THE EXISTING TRANSFORMER TO THE EXISTING JUNCTION BOX EJL1, DURING THE RELOCATION / RAISING OF THE EXISTING TRANSFORMER. ALL COSTS FOR THIS TEMPORARY CONNECTION WORK WILL BE INCLUDED IN THE LUMP SUM BID ITEM "MISCELLANEOUS, ELECTRICAL".

INSTALL CONCRETE PAD IN FRONT OF CABINET (INCIDENTAL)

CONNECT CONDUITS AND WIRES DIRECTLY INTO TRANSFORMER (INCIDENTAL)

EXISTING TRANSFORMER
- GROUND MOUNTED
120/240 v.a.c., 15kVA, 60Hz, Single Phase, 3 Wire Service by BMU

EXISTING BMU LUMINAIRE POLE, TO BE RELOCATED BY BMU.

CABINET FRONT

CONNECT TO EXISTING CONDUIT

22nd Avenue S

20th Street S

9+00 10+00 11+00 12+00

507+00 505+00

JS2 JS3 S3 S4 S6 PB3 PB4 PB5 PB6 CC1 ECC1 ES1 ES2 ES3 ES4 ES5 EJS1 EJS2 EJS3 EJS4 EJL1 EL1 EPB1 EPB2 EPB3 EPB4 EPB5 EPB6 EPB7 EPB8

PROPOSED ITEM LOCATIONS		PROPOSED ITEM LOCATIONS	
ITEM	STATION-OFFSET	ITEM	STATION-OFFSET
S3	10+74.90 - 68.10' LT	PB3	SEE GRADING SHEETS
S4	10+90.72 - 47.14' RT	PB4	
CC1	10+83.02 - 75.51' LT	PB5	
JS2	10+71.34 - 73.96' LT	PB6	
JS3	10+79.79 - 57.13' RT		

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
4-14-25

HDR

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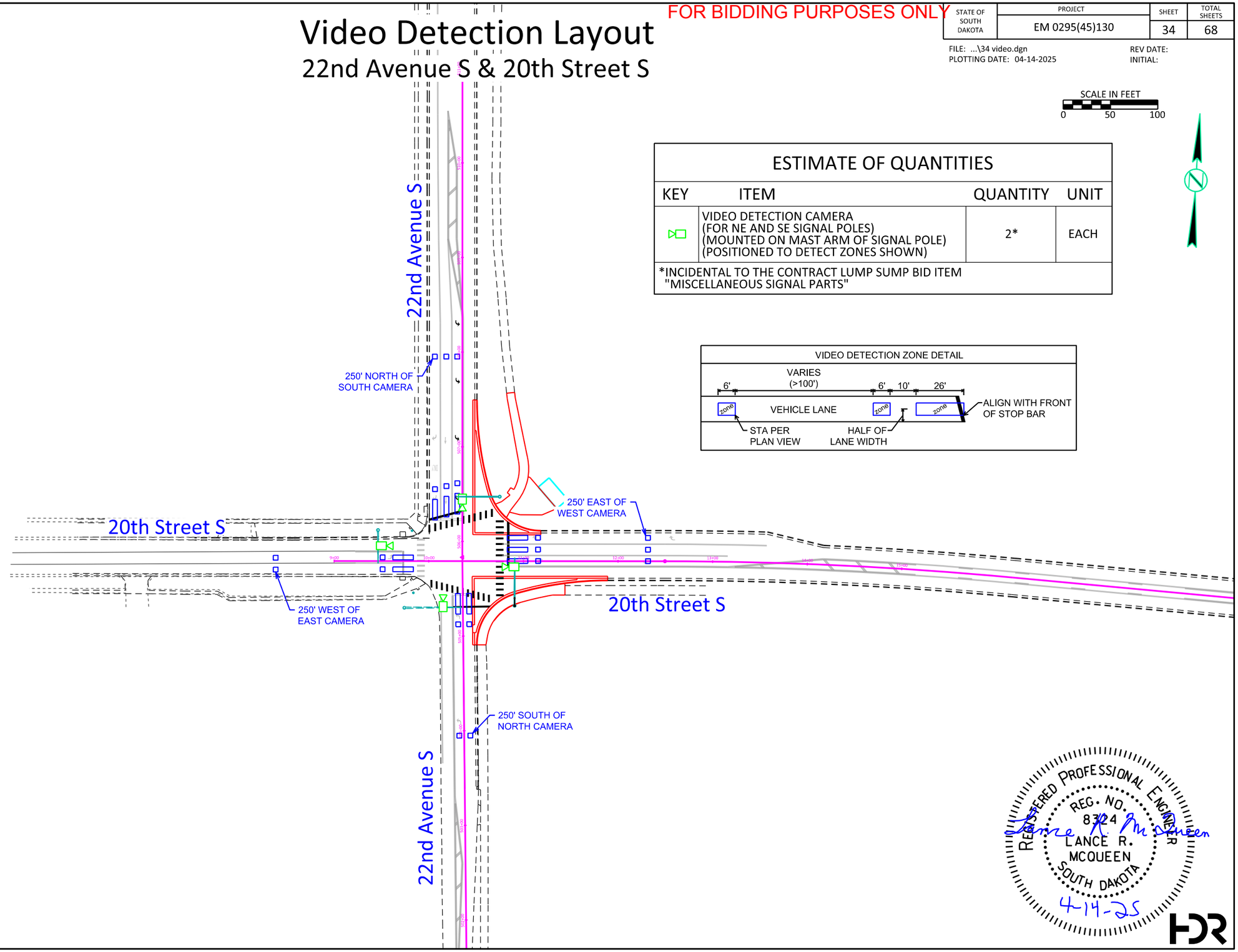
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	34	68

FILE: ...\34 video.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

Video Detection Layout

22nd Avenue S & 20th Street S



SCALE IN FEET
0 50 100

ESTIMATE OF QUANTITIES

KEY	ITEM	QUANTITY	UNIT
	VIDEO DETECTION CAMERA (FOR NE AND SE SIGNAL POLES) (MOUNTED ON MAST ARM OF SIGNAL POLE) (POSITIONED TO DETECT ZONES SHOWN)	2*	EACH

*INCIDENTAL TO THE CONTRACT LUMP SUMP BID ITEM "MISCELLANEOUS SIGNAL PARTS"

VIDEO DETECTION ZONE DETAIL

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SOUTH DAKOTA
4-14-25

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	35	68

FILE: ...\35 signal timing.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

Signal Timing Diagram

22nd Avenue S & 20th Street S

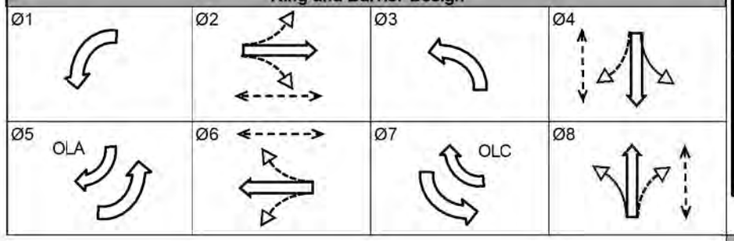
Controller Timings								
Phase	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBTL	EBL	WBTL	SBL	NBTL
Lag		X		X		X		X
Min Green	5	12	5	7	5	12	5	7
Extension	2	3	2	3	2	3	2	3
Max 1	10	25	10	25	15	25	15	25
Max 2	10	20	10	20	10	20	10	20
Time Before								
Time to Reduce								
Minimum Gap								
Yellow	3.5	4	3.5	4	3.5	4	3.5	4
All Red	1	2.5	1	2.5	1	2.5	1	2.5
Walk		7		7		7		7
Ped Clearance		26		18		26		29
Recall		SOFT				SOFT		
Prog Flash Display	R	Y	R	R	R	Y	R	R
Start Up Ø		X				X		
Protected	FYA		FYA		FYA		FYA	
Overlap				pm+ov		pm+ov		

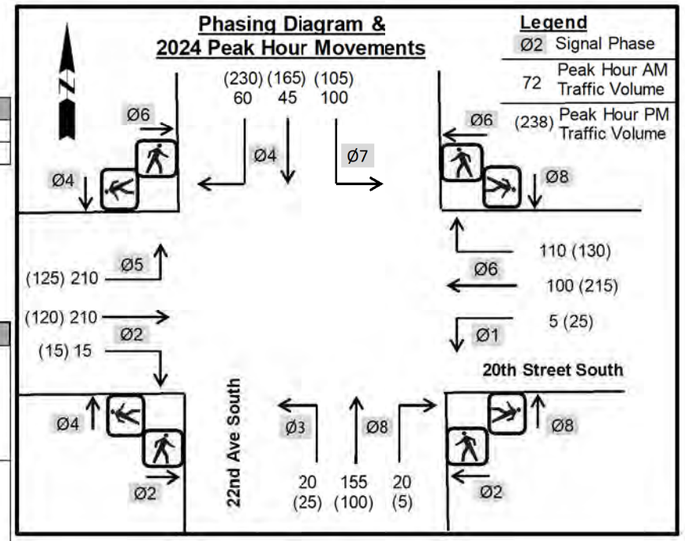
Pre-Emption				
Plan	1	2	3	4
Calls Ø	3&8	4&7	2&5	1&6
Output	CH 13R	CH 14R	CH 15R	CH 16R

Weekly Program							
Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Timing Plan	2	1	1	1	1	1	2

Overlap Definitions
OLA = 5 + 4 - 4P
OLC = 7 + 6 - 6P

Ring and Barrier Design





Timing Plan 1		Timing Plan 2	
Time of Day (TOD)	Pattern (C/S/O)	Time of Day (TOD)	Pattern (C/S/O)
06:00 - 23:00	Max 1	06:00 - 23:00	Max 2
23:00 - 06:00	FLASH	23:00 - 06:00	FLASH

THE 4 SECTION VEHICLE SIGNAL HEADS SHALL OPERATE IN FOLLOWING SEQUENCE:

1. SOLID RED
2. SOLID GREEN
3. SOLID YELLOW
4. SOLID RED
5. FLASHING YELLOW

Detector Label															
		Detector	Phase Called (Call / Call Locking / Extend)												Controller Settings	
Detector Label		Type	1	2	3	4	5	6	7	8	9	10	11	12	Extend	Delay
NB Thru, NB Right		Video								C/E						
NB Left		Video			C/E											
EB Thru, EB Right		Video		C/E												
EB Left		Video					C/E									
SB Right		Video				C/E										10
SB Thru		Video				C/E										
SB Left		Video							C/E							
WB Right		Video						C/E								
WB Thru		Video						C/E								
WB Left		Video	C/E													

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	36	68

Signal Wiring Diagram

22nd Avenue S & 20th Street S

FILE: ...\36 signal wiring.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

POLE: S1 CABLE SIZE: 24/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	1	1
1R	Red	Red	R	1	1
1G	Blue	Blue	G	1	1
1Y	Orange	Orange	Y	1	1
9Y	Yellow	Yellow	FYA	1	1
	Brown				
6R	Red/Black	Red	R	2	6
6G	Blue/Black	Blue	G	2	6
6Y	Orange/Black	Orange	Y	2	6
N	Yellow/Black	Black	N	2	6
N	Brown/Black	Black	N	3	6
6R	Black/Red	Red	R	3	6
6G	Blue/Red	Blue	G	3	6
6Y	Orange/Red	Orange	Y	3	6
15Y	Yellow/Red	Yellow	Y→	3	OLC
15G	Brown/Red	Brown	G→	3	OLC
	Black/Blue				
	Red/Blue				
	Orange/Blue				
	Yellow/Blue				
	Brown/Blue				
	Black/Orange				
	Red/Orange				
	Blue/Orange				

POLE: S2 CABLE SIZE: 24/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	4	6
6R	Red	Red	R	4	6
6G	Blue	Blue	G	4	6
6Y	Orange	Orange	Y	4	6
15Y	Yellow	Yellow	Y→	4	OLC
15G	Brown	Brown	G→	4	OLC
3R	Red/Black	Red	R	5	3
3G	Blue/Black	Blue	G	5	3
3Y	Orange/Black	Orange	Y	5	3
10Y	Yellow/Black	Yellow	FYA	5	3
N	Brown/Black	Black	N	5	3
N	Black/Red	Black	N	19	6P
11G	Blue/Red	Blue	W	19	6P
	Orange/Red				
11R	Yellow/Red	Red	DW	19	6P
	Brown/Red				
N	Black/Blue	Black	N	20	4P
10R	Red/Blue	Red	DW	20	4P
	Orange/Blue				
10G	Yellow/Blue	Blue	W	20	4P
	Brown/Blue				
	Black/Orange				
	Red/Orange				
	Blue/Orange				

POLE: S3 CABLE SIZE: 24/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	6	3
3R	Red	Red	R	6	3
3G	Blue	Blue	G	6	3
3Y	Orange	Orange	Y	6	3
10Y	Yellow	Yellow	FYA	6	3
	Brown				
8R	Red/Black	Red	R	7	8
8G	Blue/Black	Blue	G	7	8
8Y	Orange/Black	Orange	Y	7	8
N	Yellow/Black	Black	N	7	8
	Brown/Black				
N	Black/Red	Black	N	8	8
8G	Blue/Red	Blue	G	8	8
8Y	Orange/Red	Orange	Y	8	8
8R	Yellow/Red	Red	R	8	8
	Brown/Red				
N	Black/Blue	Black	N	9	5
5R	Red/Blue	Red	R	9	5
5Y	Orange/Blue	Orange	Y	9	5
11Y	Yellow/Blue	Yellow	FYA	9	5
5G	Brown/Blue	Blue	G	9	5
	Black/Orange				
	Red/Orange				
	Blue/Orange				

POLE: S4 CABLE SIZE: 24/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	10	5
5R	Red	Red	R	10	5
5G	Blue	Blue	G	10	5
5Y	Orange	Orange	Y	10	5
11Y	Yellow	Yellow	FYA	10	5
	Brown				
2R	Red/Black	Red	R	11	2
2G	Blue/Black	Blue	G	11	2
2Y	Orange/Black	Orange	Y	11	2
N	Yellow/Black	Black	N	11	2
	Brown/Black				
N	Black/Red	Black	N	12	2
2G	Blue/Red	Blue	G	12	2
2Y	Orange/Red	Orange	Y	12	2
2R	Yellow/Red	Red	R	12	2
	Brown/Red				
N	Black/Blue	Black	N	13	7
7R	Red/Blue	Red	R	13	7
7Y	Orange/Blue	Orange	Y	13	7
12Y	Yellow/Blue	Yellow	FYA	13	7
7G	Brown/Blue	Blue	G	13	7
	Black/Orange				
	Red/Orange				
	Blue/Orange				

POLE: S5 CABLE SIZE: 24/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	14	7
7R	Red	Red	R	14	7
7G	Blue	Blue	G	14	7
7Y	Orange	Orange	Y	14	7
12Y	Yellow	Yellow	FYA	14	7
	Brown				
4R	Red/Black	Red	R	15	4
4G	Blue/Black	Blue	G	15	4
4Y	Orange/Black	Orange	Y	15	4
N	Yellow/Black	Black	N	15	4
N	Brown/Black	Black	N	16	4
4R	Black/Red	Red	R	16	4
4G	Blue/Red	Blue	G	16	4
4Y	Orange/Red	Orange	Y	16	4
13Y	Yellow/Red	Yellow	Y→	16	OLA
13Y	Brown/Red	Brown	G→	16	OLA
	Black/Blue				
	Red/Blue				
	Orange/Blue				
	Yellow/Blue				
	Brown/Blue				
	Black/Orange				
	Red/Orange				
	Blue/Orange				

POLE: S6 CABLE SIZE: 24/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	17	4
4R	Red	Red	R	17	4
4G	Blue	Blue	G	17	4
4Y	Orange	Orange	Y	17	4
13Y	Yellow	Yellow	Y→	17	OLA
13Y	Brown	Brown	G→	17	OLA
1R	Red/Black	Red	R	18	1
1G	Blue/Black	Blue	G	18	1
1Y	Orange/Black	Orange	Y	18	1
9Y	Yellow/Black	Yellow	FYA	18	1
N	Brown/Black	Black	N	18	1
N	Black/Red	Black	N	25	4P
10G	Blue/Red	Blue	W	25	4P
	Orange/Red				
10R	Yellow/Red	Red	DW	25	4P
	Brown/Red				
N	Black/Blue	Black	N	26	2P
9R	Red/Blue	Red	DW	26	2P
	Orange/Blue				
9G	Yellow/Blue	Blue	W	26	2P
	Brown/Blue				
	Black/Orange				
	Red/Orange				
	Blue/Orange				

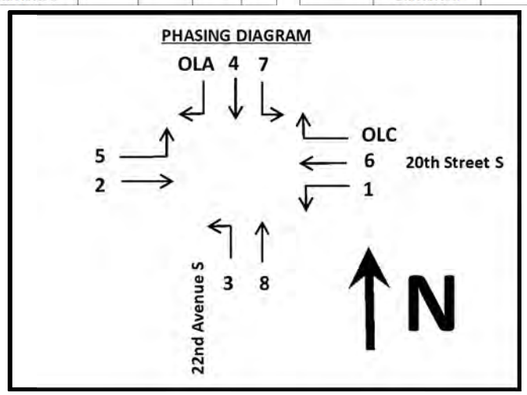
POLE: S3 CABLE SIZE: 12/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	21	8P
12R	Red	Red	DW	21	8P
12G	Blue	Blue	W	21	8P
	Orange				
	Yellow				
	Brown				
11R	Red/Black	Red	DW	22	6P
11G	Blue/Black	Blue	W	22	6P
	Orange/Black				
N	Yellow/Black	Black	N	22	6P
	Brown/Black				
	Black/Red				

POLE: S4 CABLE SIZE: 12/C

CABINET TERM.	CABLE CONDUCTOR COLOR	POLE COND. COLOR	HEAD TERM.	HEAD NO.	ø
N	Black	Black	N	23	2P
9R	Red	Red	DW	23	2P
9G	Blue	Blue	W	23	2P
	Orange				
	Yellow				
	Brown				
12R	Red/Black	Red	DW	24	8P
12G	Blue/Black	Blue	W	24	8P
	Orange/Black				
N	Yellow/Black	Black	N	24	8P
	Brown/Black				
	Black/Red				

PHASING DIAGRAM



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	37	68

FILE: ...\37 permanent signs.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

Permanent Signing Plan
22nd Ave S & 20th Street S

SCALE IN FEET
0 20 40

SIGNING LEGEND

SIGN	EXISTING TRAFFIC SIGN TO BE REMOVED FOR RESET AND RESET
DND	DO NOT DISTURB EXISTING SIGN

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8324
LANCE R. MCQUEEN
SOUTH DAKOTA
Lance R. McQueen
4-14-25

22nd Avenue S
20th Street S
507+00
506+00
505+00
504+00
9+00
10+00
11+00
12+00
13+00
ONLY
DND
RIGHT LANE MUST TURN RIGHT
SPEED LIMIT 35

22ND AVENUE S SIGNAL POLE MAST ARM SIGNS

NW MAST ARM
ONLY
DND
22nd Ave S
DND

NE MAST ARM
SALVAGE AND RESET EXISTING SIGN
ONLY
20th St S
SALVAGE AND RESET EXISTING SIGN

SW MAST ARM
ONLY
DND
20th St S
DND

SE MAST ARM
SALVAGE AND RESET EXISTING SIGN
ONLY
22nd Ave S
SALVAGE AND RESET EXISTING SIGN

NOTE:
STREET NAME SIGNS INSTALLED ON THE SIGNAL MAST ARMS WILL BE INSTALLED LEVEL AND WILL NOT FOLLOW THE TAPER OF THE SIGNAL MAST ARM.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	38	68

FILE: ...\38 Water.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:

Watermain Extension Detail
20th Street / 22nd Avenue Intersection

Temporary Easement

20th Street S

10+50 11+00 11+50

505+50 505+00

22nd Avenue S

505+32.4 - 31.8' R to 505+11.5 - 53.3' R
Remove Existing 8" Cap (Incidental)
Connect to Existing Watermain
F&I 1- 8" MJ Bend 45°
F&I 30 LF of 8" C900 Watermain
F&I 1- 8" MJ Cap

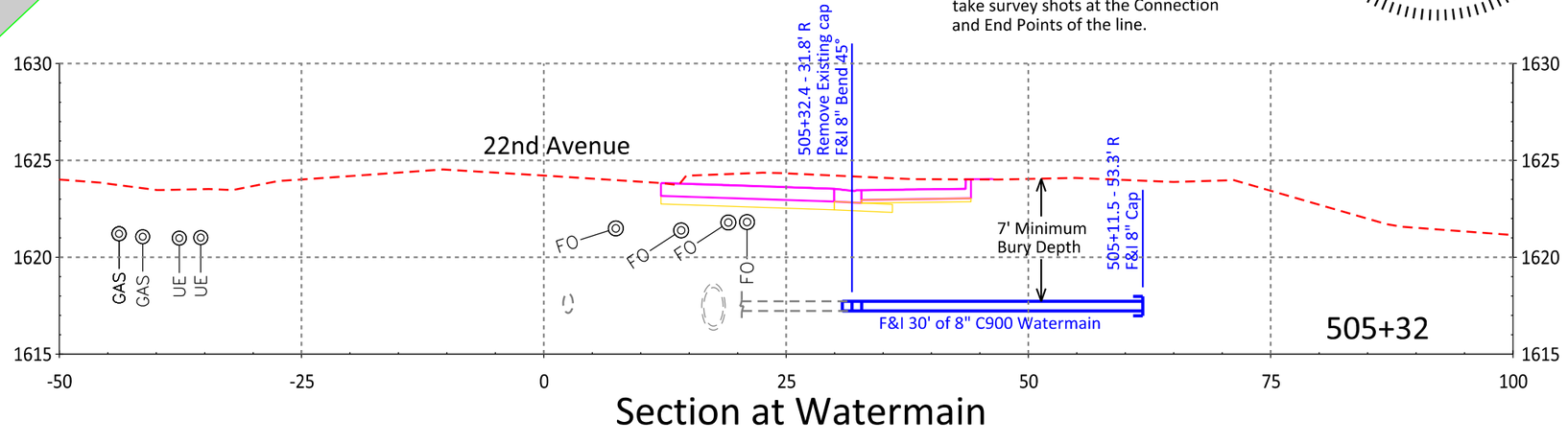
BMU Coordination:

- Contractor will contact BMU to close the water valve in 22nd Avenue prior to beginning the extension work.

- Contractor will notify BMU when extension is complete so BMU can take survey shots at the Connection and End Points of the line.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
4-14-25

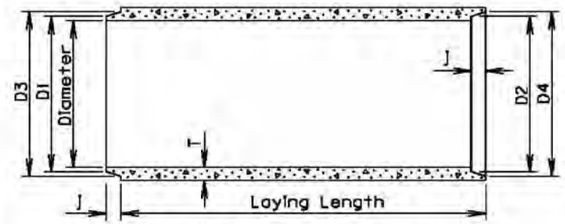
SCALE IN FEET
0 15



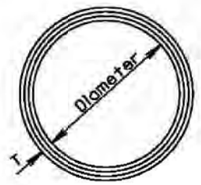
Section at Watermain

TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

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

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

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

June 26, 2015

Published Date: 2025

SDDOT

REINFORCED CONCRETE PIPE

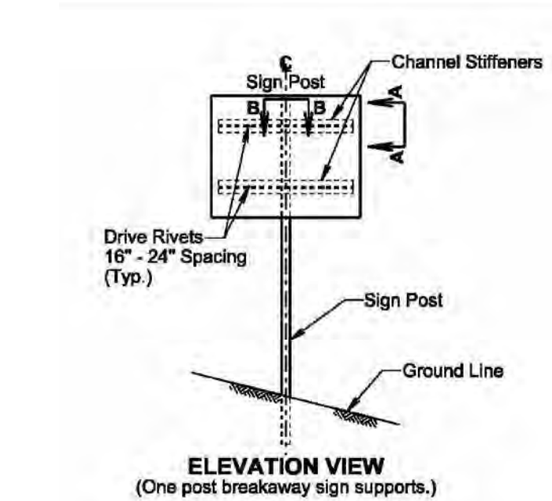
PLATE NUMBER
450.01

Sheet 1 of 1

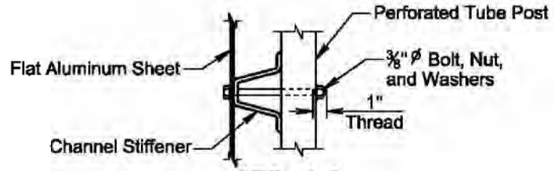
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	40	68

FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

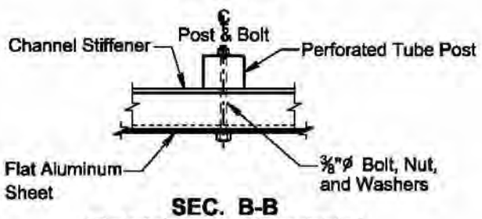
REV DATE:
INITIAL:



ELEVATION VIEW
(One post breakaway sign supports.)



SEC. A-A

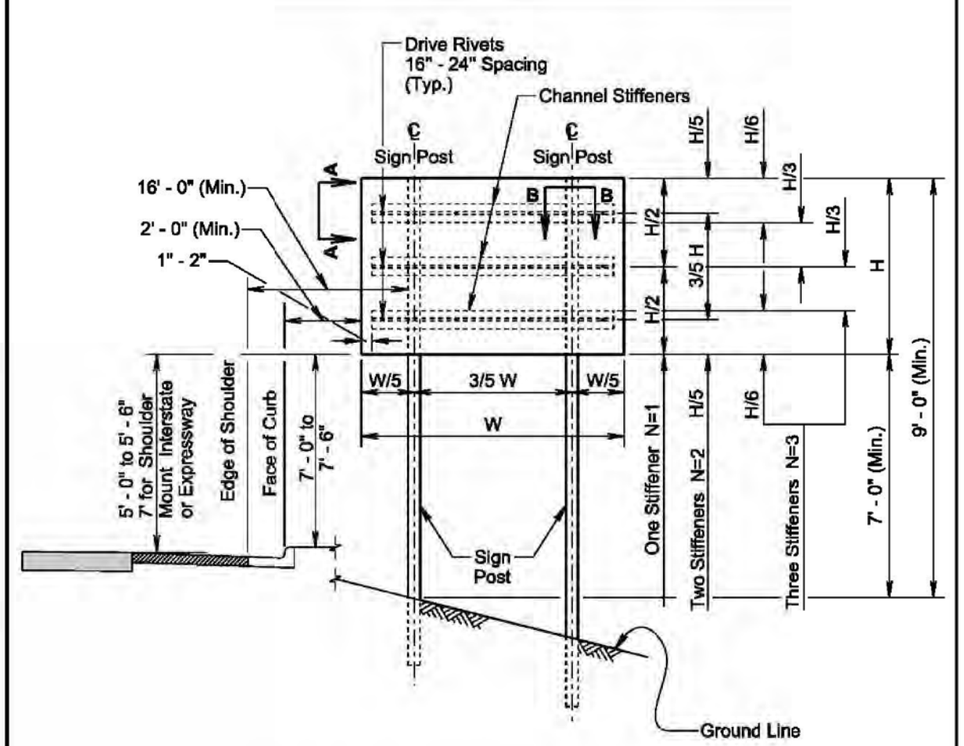


SEC. B-B
(Typical sign and stiffener details.)

ø A plastic washer, as recommended by the sheeting manufacturer, will be installed between the sign face and the metal washer shown.

November 19, 2020

Published Date: 2025	SDDOT	SIGN STIFFENER DETAILS	PLATE NUMBER 632.60
			Sheet 1 of 2



TWO POST BREAKAWAY SIGN SUPPORTS

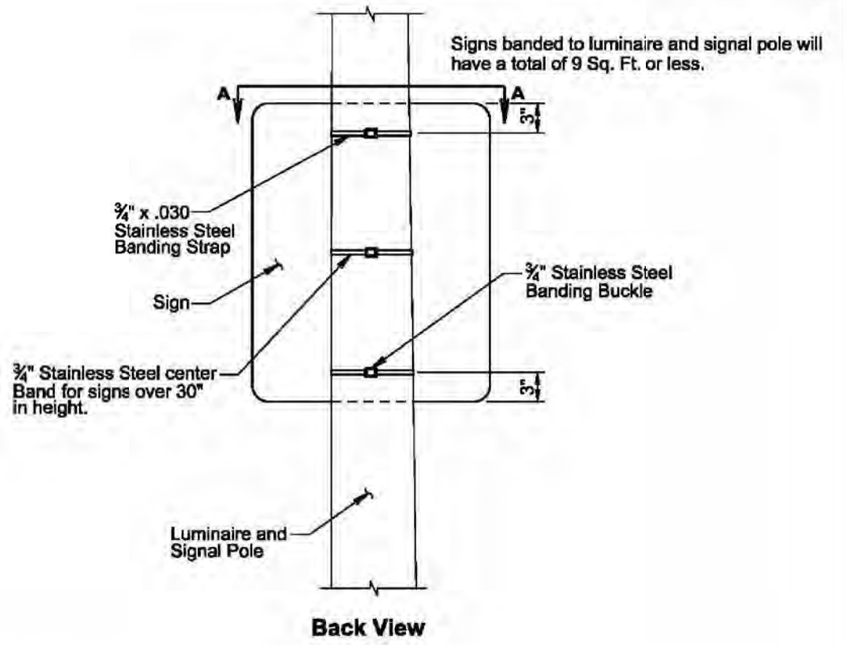
GENERAL NOTES:

The number of stiffeners used (N) will be as follows:
If H < = 2' - 0" then N = 1
If 2' - 0" < H < = 8' - 0" then N = 2
If 8' - 0" < H < = 15' - 0" then N = 3
where H is the vertical dimension of the sign.

A minimum of two bolts will be required to fasten the sign to each post.

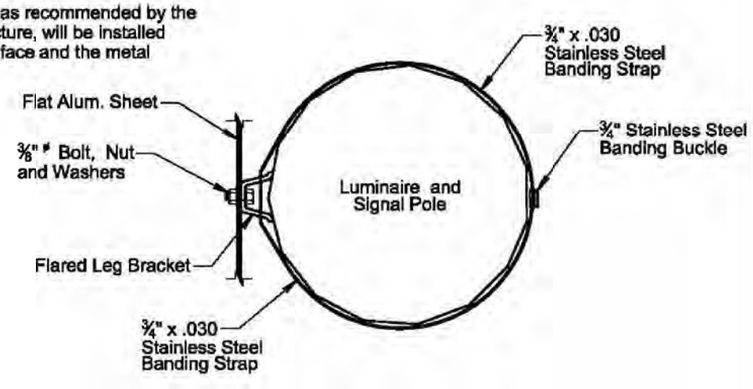
November 19, 2020

Published Date: 2025	SDDOT	SIGN STIFFENER DETAILS	PLATE NUMBER 632.60
			Sheet 2 of 2



Back View

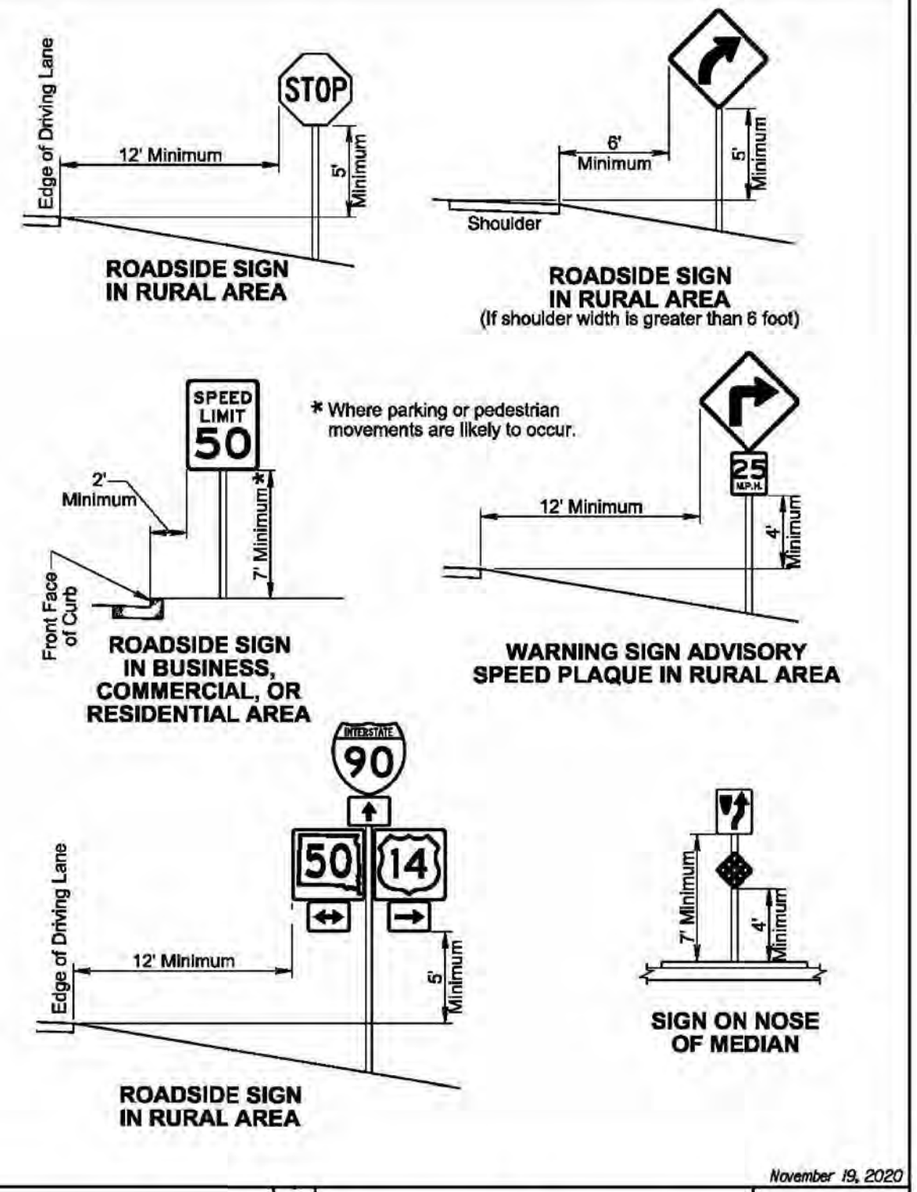
ø A plastic washer, as recommended by the sheeting manufacture, will be installed between the sign face and the metal washer shown.



View A - A

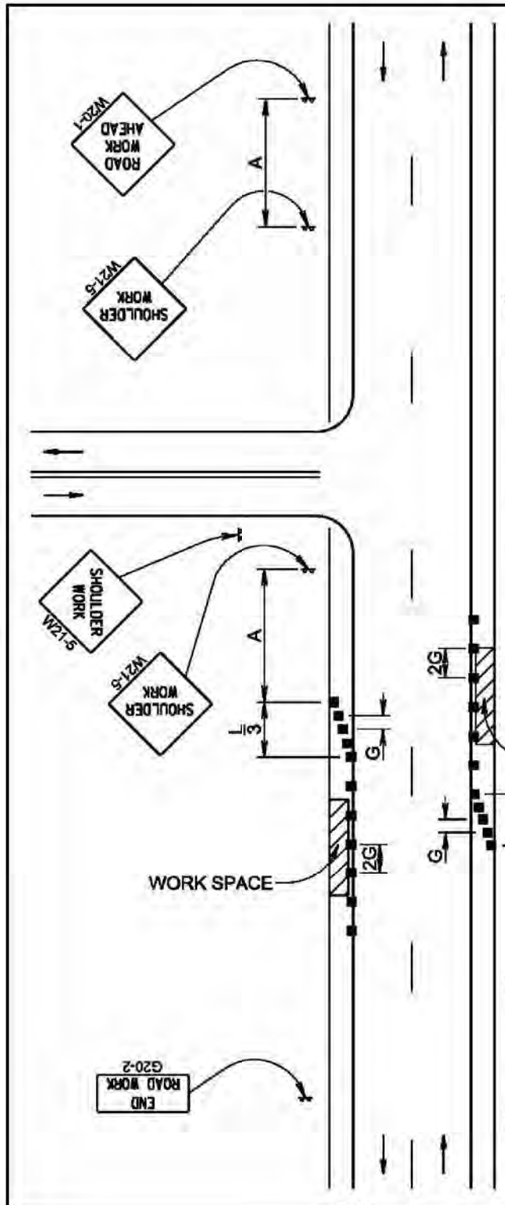
November 19, 2020

Published Date: 2025	SDDOT	BANDING SIGN TO LUMINAIRE AND SIGNAL POLE	PLATE NUMBER 632.80
			Sheet 1 of 1



November 19, 2020

Published Date: 2025	SDDOT	OFFSETS FOR SIGN INSTALLATION	PLATE NUMBER 632.90
			Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

END ROAD WORK G20-2

The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

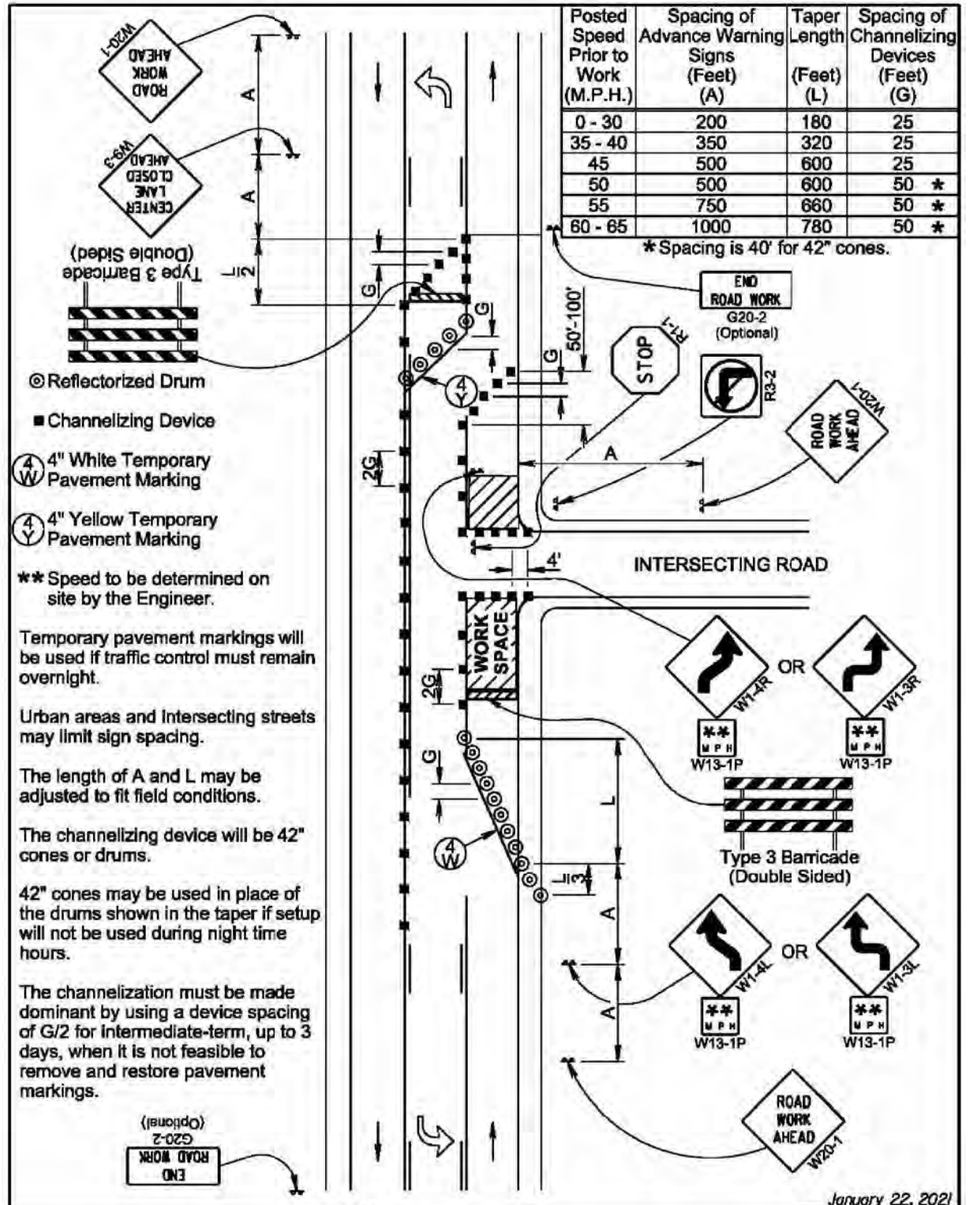
Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

January 22, 2021

Published Date: 2025	SDDOT	WORK ON SHOULDERS	PLATE NUMBER 634.03 Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

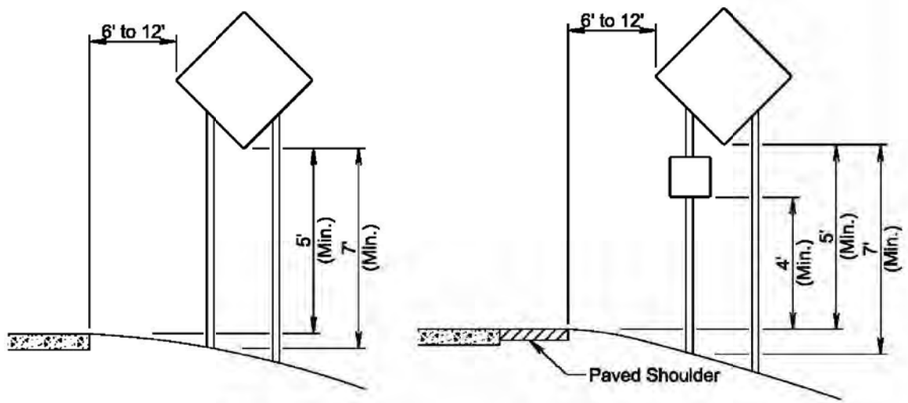
January 22, 2021

Published Date: 2025	SDDOT	3-LANE, OUTSIDE LANE CLOSED	PLATE NUMBER 634.53 Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	43	68

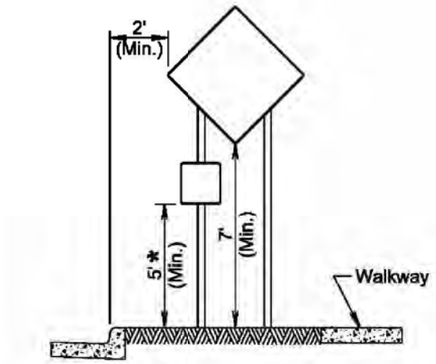
FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:

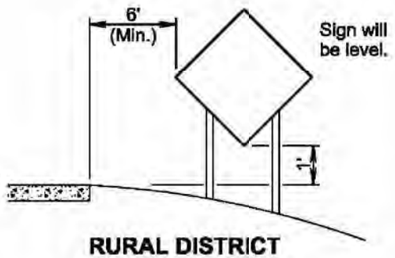


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

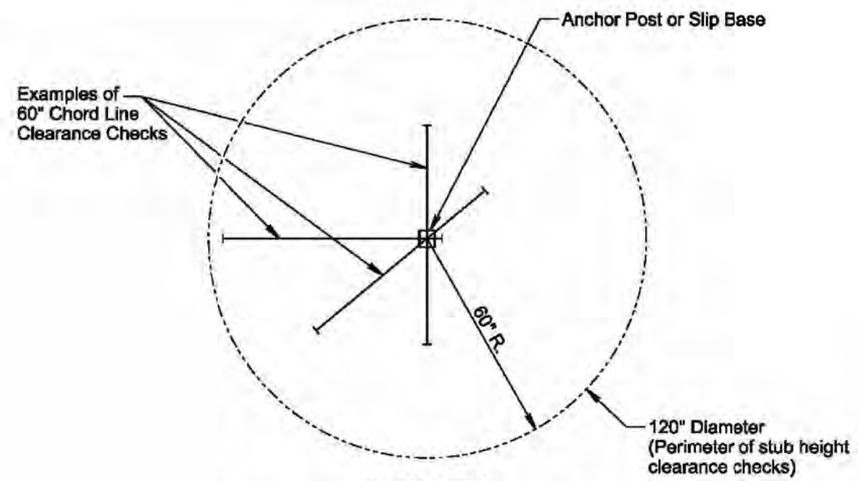


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

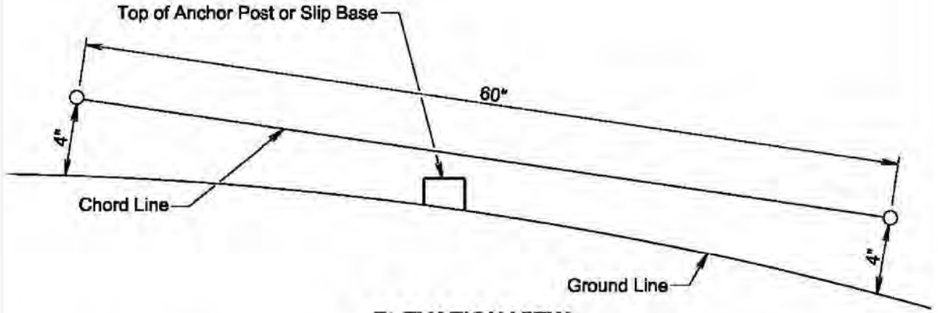
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

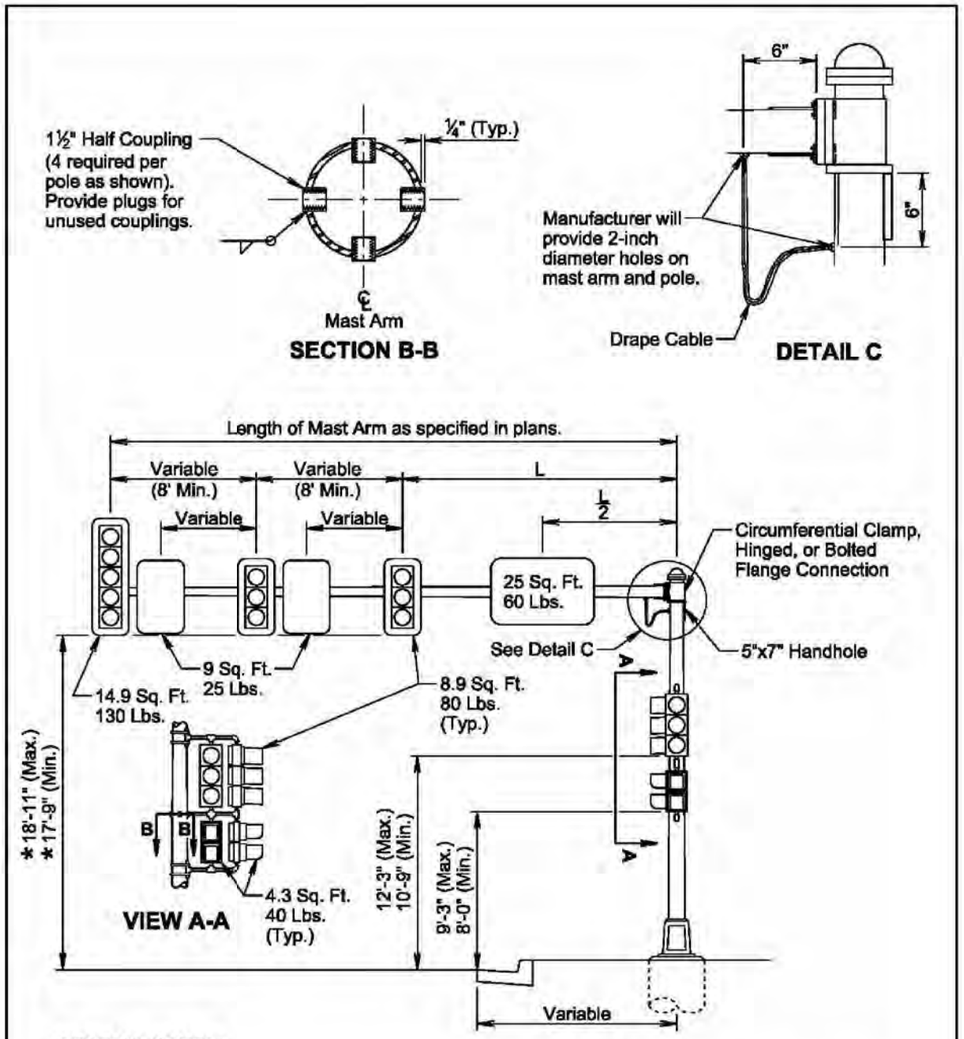
January 22, 2021

Published Date: 2025	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	44	68

FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:



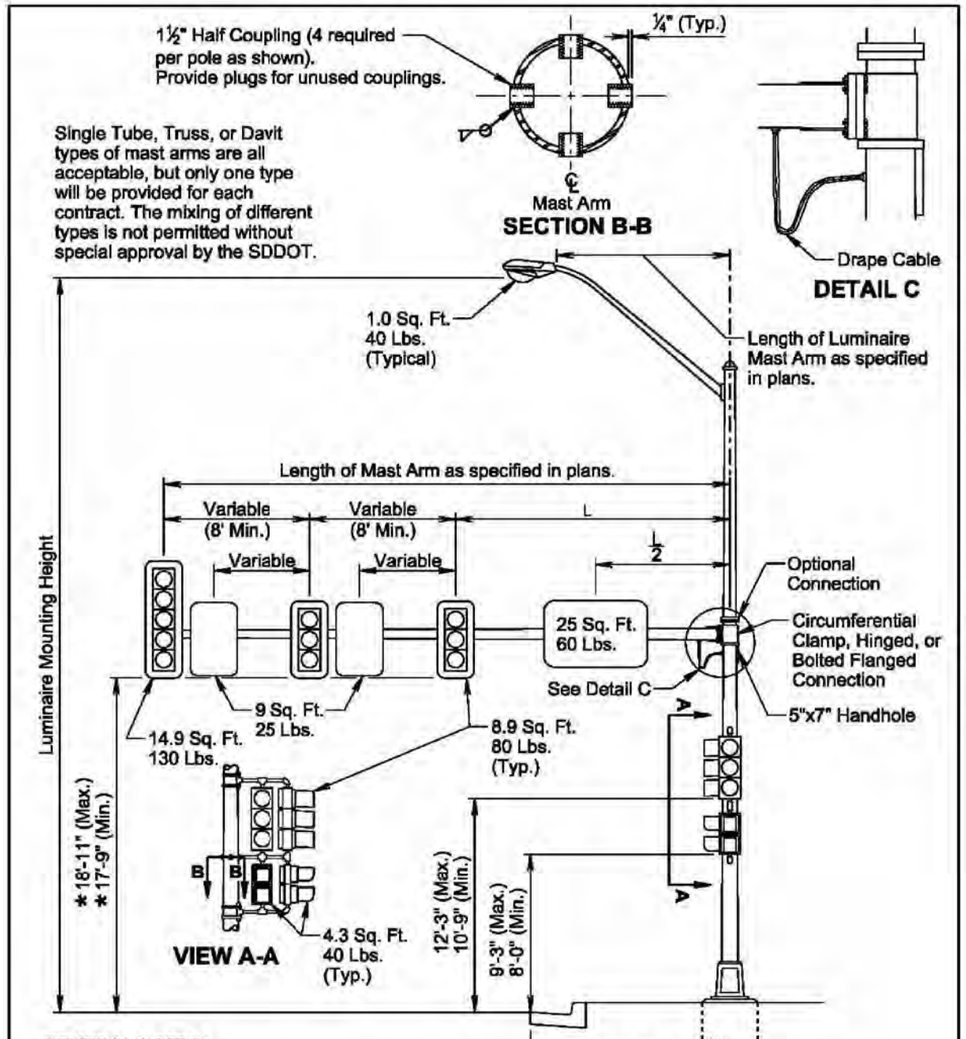
GENERAL NOTES:

Some of the signal heads are shown with backplates removed so that the mounting hardware is visible.

* The signal height allowances shown above are based on a horizontal distance greater than 53' between the signals and stop line. For horizontal distance of 53' and less between the signals and the stop line, the height allowances will be as specified in Section 4D.15 of the MUTCD.

November 19, 2022

Published Date: 2025	SDDOT	**SIGNAL POLE (WITH MAST ARM)**	PLATE NUMBER 635.31
			Sheet 1 of 1



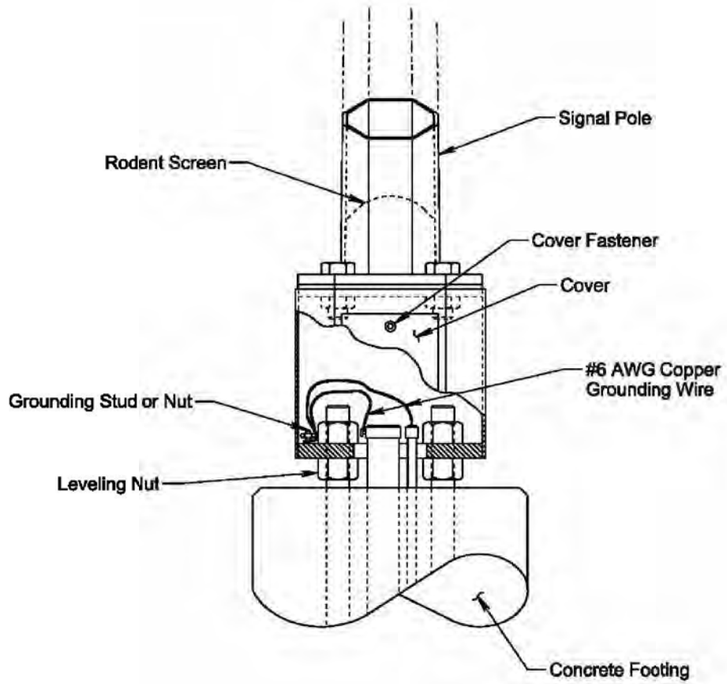
GENERAL NOTES:

Some of the signal heads are shown with backplates removed so that the mounting hardware is visible.

* The signal height allowances shown above are based on a horizontal distance greater than 53' between the signals and stop line. For horizontal distance of 53' and less between the signals and the stop line, the height allowances will be as specified in Section 4D.15 of the MUTCD.

November 19, 2022

Published Date: 2025	SDDOT	**SIGNAL POLE (WITH MAST ARM AND LUMINAIRE EXTENSION)**	PLATE NUMBER 635.32
			Sheet 1 of 1



GENERAL NOTES:

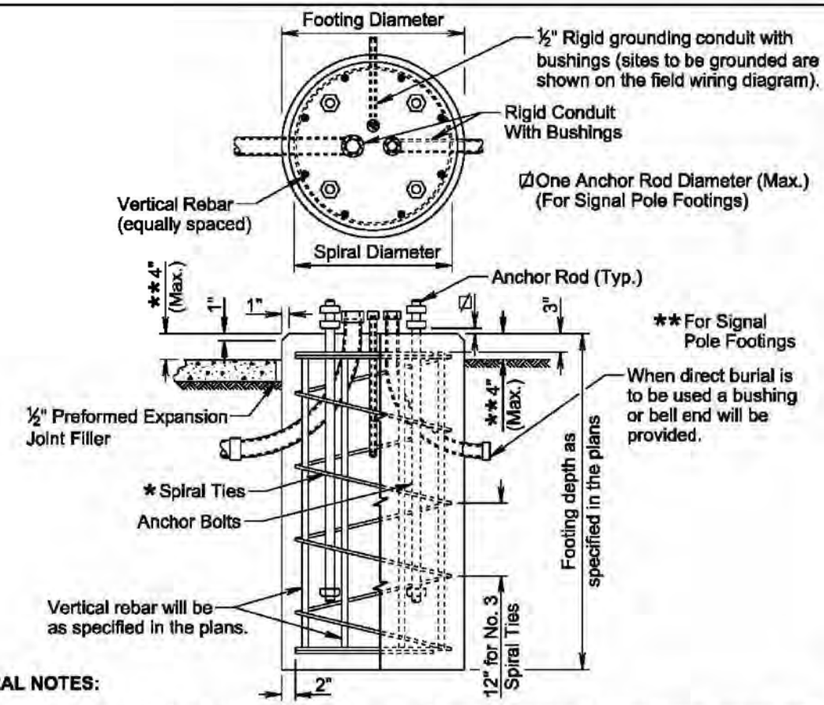
Base details are provided for example only and are not intended to be a complete design.

The Contractor will furnish and install a rodent screen in the signal pole above the tranformer base. The rodent screen will be a galvanized steel mesh with a maximum opening size of ¼ inch. The rodent screen will be friction fitted or installed by other methods approved by the Engineer.

All costs for furnishing and installing the rodent screen including labor, equipment, and materials will be incidental to the contract unit price per each for the corresponding signal pole contract item.

February 14, 2020

Published Date: 2025	SDDOT	TRANSFORMER SIGNAL POLE BASE	PLATE NUMBER 635.50 Sheet 1 of 1



GENERAL NOTES:

* Circular ties may be used in lieu of the spiral ties. The No. 3 ties will be spaced 12 inches apart except for the top two which will be spaced 6 inches apart. The ties will be lapped 18 inches and the laps will be staggered around the cage.

Spiral ties will have 1-1/2 extra turns at each end.

See Section 985 of the Specifications for footing materials.

Conduits and bushings may project 2½ inches to 6 inches above footing for fixed base poles but will not project above the slip plane or fracture plane for breakaway poles.

Conduits will be sealed water-tight during all phases of construction until poles are in place.

The anchor rods will fit inside the reinforcing steel cage. If the anchor rods designed by the Pole Manufacturer do not fit, contact the Office of Bridge Design for footing redesign. No additional payment will be made for the redesigned footing.

Costs of conduit and conduit bushings shown on footing detail will be incidental to the footing bid item(s).

The pole will not be installed until the concrete has attained design strength (4000 psi).

The contour of the area surrounding the breakaway pole will be flat, though not necessarily level for a distance of 5 feet in all directions. The Contractor may be required to provide finish grading at some breakaway pole locations.

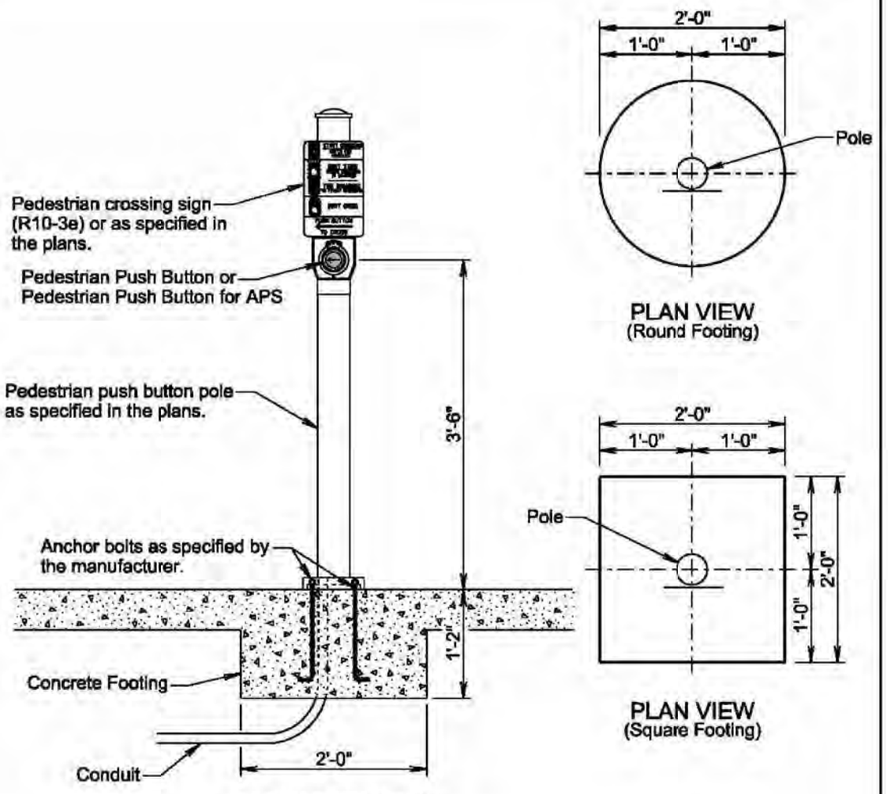
November 19, 2022

Published Date: 2025	SDDOT	POLE FOOTING	PLATE NUMBER 635.55 Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	46	68

FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:



GENERAL NOTES:

The pedestrian push button pole will be as specified in the plans.

The Contractor will install either the round or the square concrete footing. For informational purpose, the quantity of concrete for one footing is 0.14 cubic yards for the round footing and 0.17 cubic yards for the square footing.

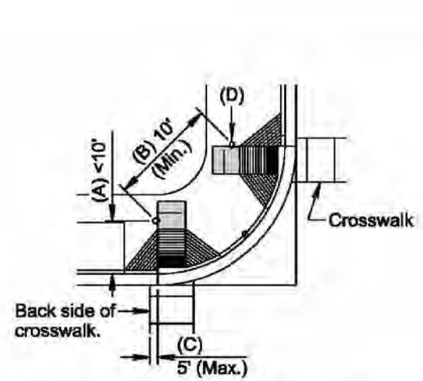
The concrete for the footing will be class M6 concrete.

All costs for furnishing and installing the concrete footing will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.

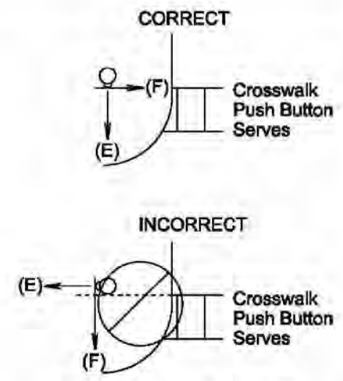
All costs for furnishing and installing the pedestrian push button pole including labor, equipment, and materials including the pole, cap, and the conduit in the footing will be incidental to the contract unit price per each for "Pedestrian Push Button Pole".

May 9, 2020

Published Date: 2025	SDDOT	PEDESTRIAN PUSH BUTTON POLE	PLATE NUMBER 635.57
			Sheet 1 of 2

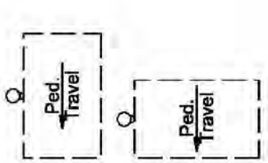


Push Button Relationship To Curb Ramp And Crosswalk

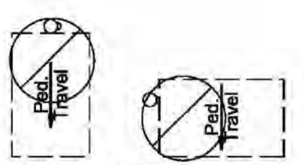


Push Button Orientation To Crosswalk

Clear Ground Space Dimensions



Correct Relationship



Incorrect Relationship

Clear space not adjacent to push button

Push button not Centered on Clear space

General Notes:

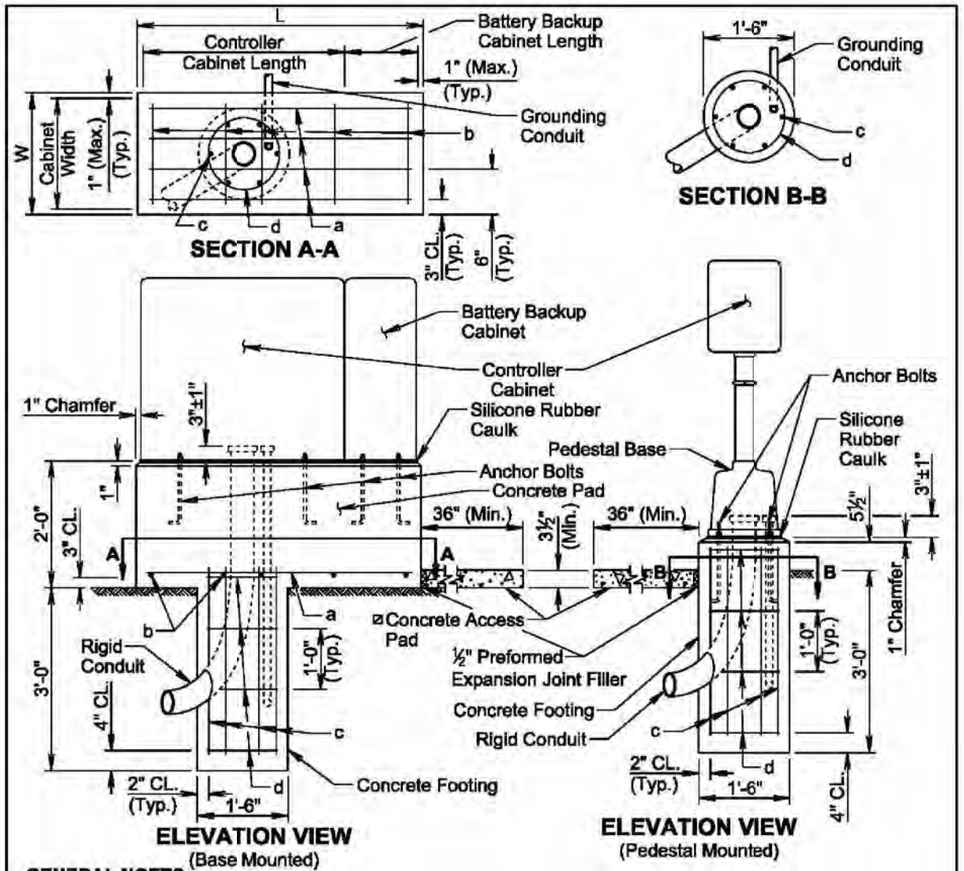
Pedestrian Push Buttons Location and Orientation Requirements:

(A) Within 10 feet from the front face of curb.
(B) Where two push buttons are provided, the push buttons should have at least 10 feet of separation from each other.
(C) If two curb ramps are used, the push button should be within 5 feet of the backside of the crosswalk.
(D) The push button should be mounted adjacent to a clear ground space (within 10 inches maximum reach). The clear ground space will be a least 30 inches x 48 inches and will slope no more than 50:1 (2%) in any direction. The push button will be centered on either side of the clear ground space (either the 30 inch or 48 inch side). The 30 inch x 48 inch clear ground space shouldn't touch the detectable warning panel.
(E) The push button should face the edge of roadway.
(F) The push button face should be parallel to the crosswalk being used.

The push button poles will not interfere with the minimum clear width of the Pedestrian Access Route.

May 9, 2020

Published Date: 2025	SDDOT	PEDESTRIAN PUSH BUTTON POLE	PLATE NUMBER 635.57
			Sheet 2 of 2



GENERAL NOTES:

The concrete pad will conform to the base of the controller and battery backup cabinets to the satisfaction of the Engineer.

Conduits will be sealed water-tight until the conductor cables are installed.

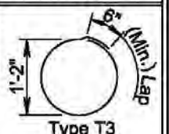
☑ If the controller and battery backup concrete pad and footing is not located within or adjacent to an existing sidewalk, the Contractor will provide a concrete access pad as directed by the Engineer.

Anchor bolts and related hardware will conform to the controller and battery backup cabinets manufacturer's specifications.

A continuous bead of silicone rubber caulk will provide a weather-tight seal between the concrete pad or footing, and the cabinet or base.

REINFORCING SCHEDULE
(for one footing)

Mk.	No.	Size	Length	Type	Bending Detail
a	*	3	L-4"	Str.	
b	*	3	W-4"	Str.	
c	6	6	3'-0"	Str.	
d	4	3	4'-0"	T3	



Type T3

Note: Dimensions are out to out of bar
*Vary number of bars as required by footing size.

November 19, 2022

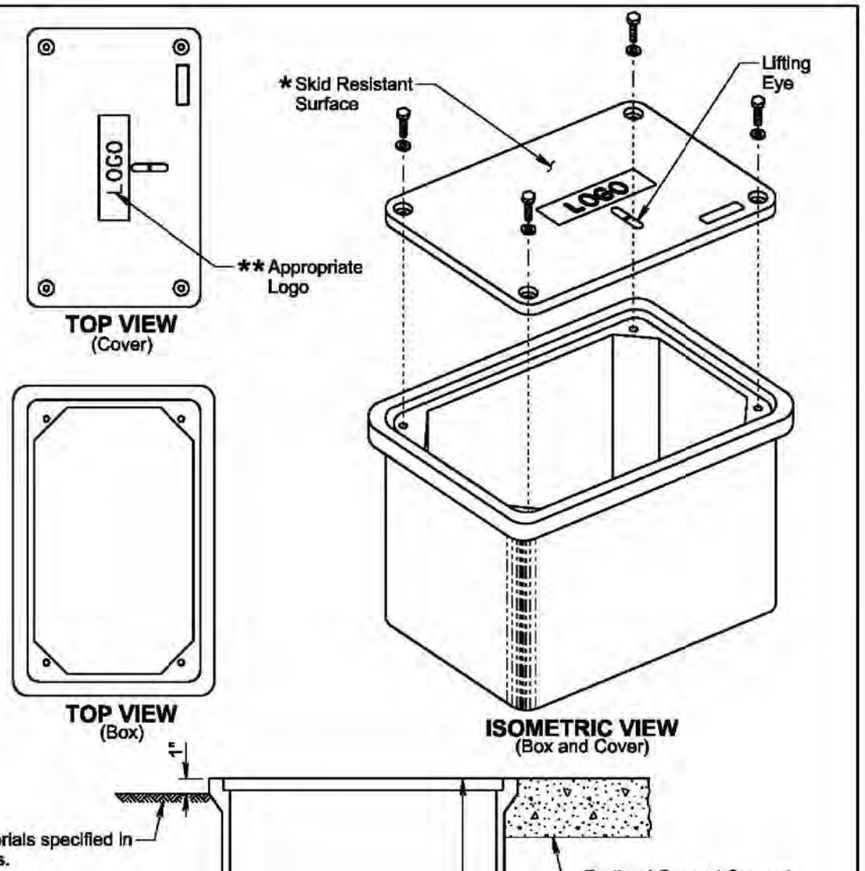
Published Date: 2025

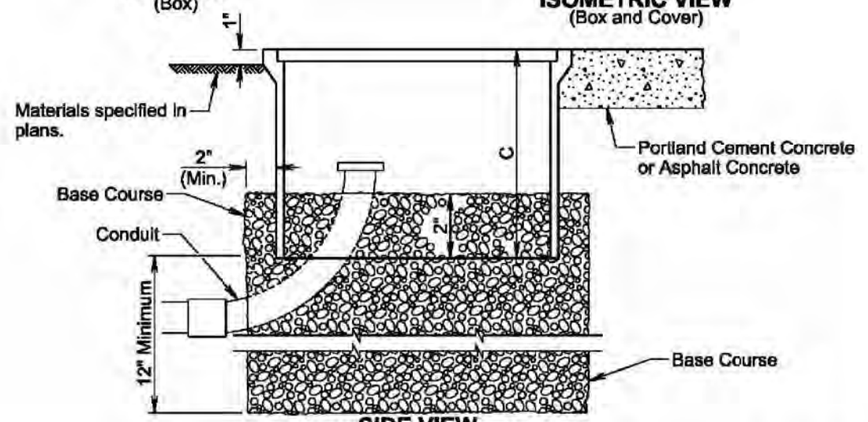
SDDOT

CONTROLLER CABINET AND FOOTING

PLATE NUMBER 635.60

Sheet 1 of 1





November 19, 2020

Published Date: 2025

SDDOT

ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4

PLATE NUMBER 635.65

Sheet 1 of 2

ELECTRICAL JUNCTION BOX

TYPE	DESCRIPTION	APPROXIMATE COVER SIZE	MINIMUM DEPTH (C)
1	Open Bottom with Gasket	11"x18"	18"
2	Open Bottom with Gasket	13"x24"	18"
3	Open Bottom with Gasket	17"x30"	18"
3A	Open Bottom with Gasket	24"x36"***	24"
4	Open Bottom with Gasket	30"x48"***	24"

GENERAL NOTES:

The cover will be gasketed with a minimum of two stainless steel bolts and washers.

The cover will have a lifting eye.

* The surface of the cover will have a minimum wet and dry coefficient of friction value of 0.5 as determined by ASTM F609.

** The cover of the junction box will have the appropriate logo in one inch size letters and will be recessed. When the junction box contains cables or wires for a traffic signal then the logo will be "Signal". When the junction box contains lighting conductors then the logo will be "Lighting".

*** Two piece covers will be used for Type 3A and Type 4 junction boxes.

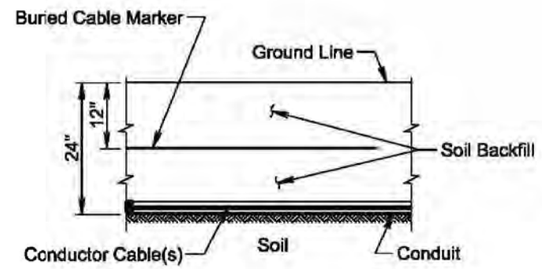
The electrical junction boxes will comply with the American National Standards Institute (ANSI)/Society of Cable Telecommunications Engineers (SCTE) 77 2007 Specification for Underground Enclosure Integrity. The loading requirement for all electrical junction boxes and covers will be Tier 22 of ANSI/SCTE 77 2007.

The electrical junction boxes will be UL listed.

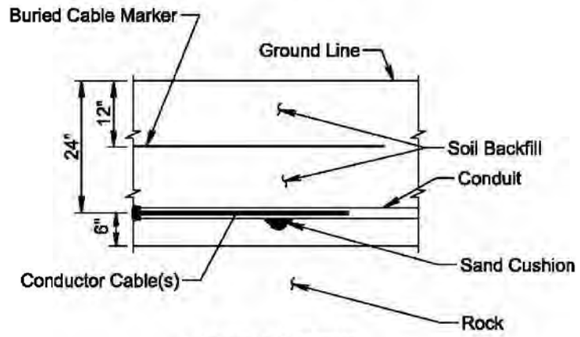
For junction boxes located outside of pavement, a No. 4 steel reinforcing bar with a minimum length of 18" will be buried adjacent to the long side of the junction box. All costs associated with furnishing and placing the steel reinforcing bar will be incidental to the contract unit price per each for "Type _ Electrical Junction Box".

November 19, 2020

Published Date: 2025	SDDOT	ELECTRICAL JUNCTION BOXES TYPE 1 THROUGH TYPE 4	PLATE NUMBER 635.65 Sheet 2 of 2



SECTION VIEW



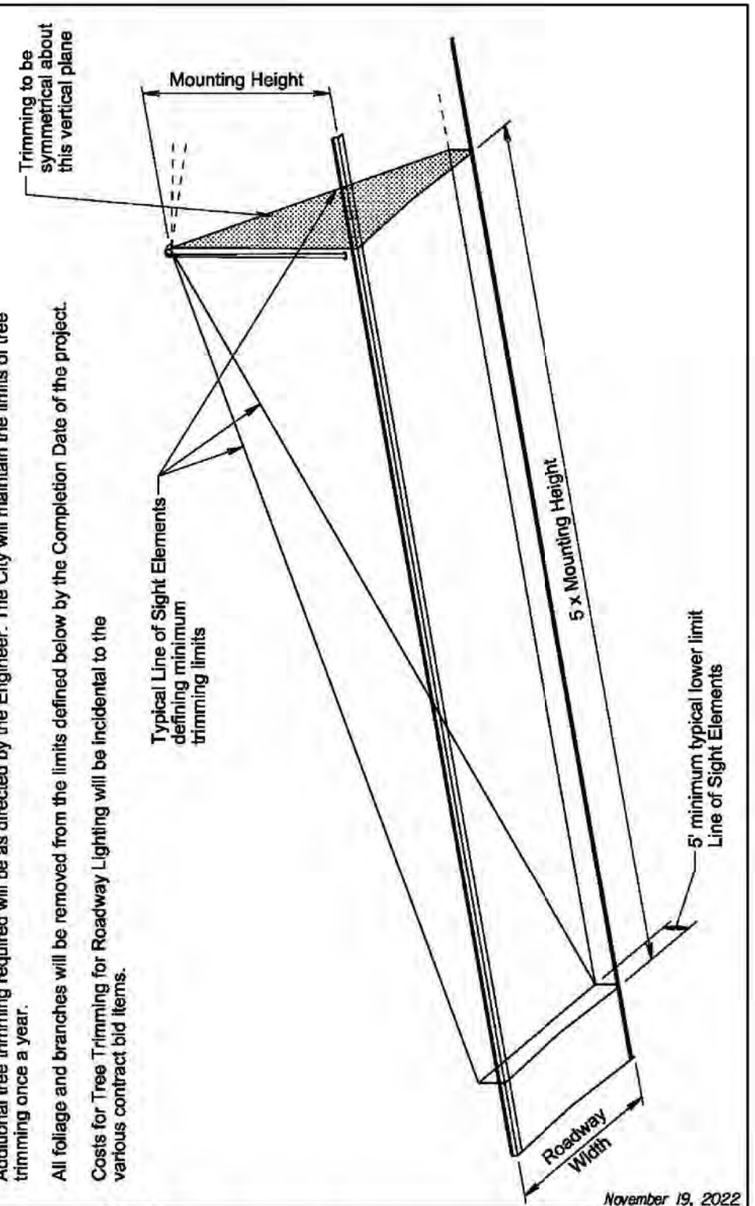
SECTION VIEW

GENERAL NOTE:

The Buried Cable Marker will be plastic, approximately 6" wide, and will be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker will have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below will be printed in a contrasting color on the cable marker. The Buried Cable Marker will be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker will be incidental to the contract unit price per foot for the bid item used for the electrical conductor.

November 19, 2022

Published Date: 2025	SDDOT	CONDUIT INSTALLATION	PLATE NUMBER 635.76 Sheet 1 of 1



GENERAL NOTES:

Tree Trimming will be done in accordance with proper tree trimming practices. The underside of each branch to be removed will have a groove sawed through the bark (1/2" Min. depth) before any sawing is started on the top side of the branch.

Tree trimming will be applied around each light source installed within the limits of the project.

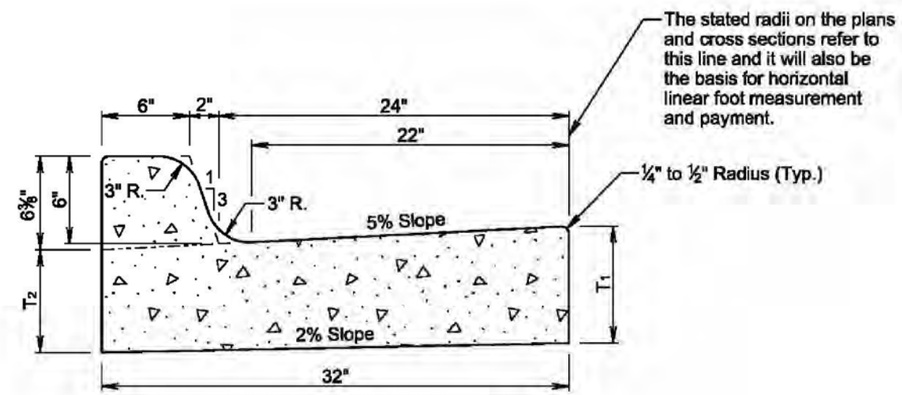
The tree trimming limits as shown on this sheet represents the minimum amount of trimming required. Additional tree trimming required will be as directed by the Engineer. The City will maintain the limits of tree trimming once a year.

All foliage and branches will be removed from the limits defined below by the Completion Date of the project.

Costs for Tree Trimming for Roadway Lighting will be incidental to the various contract bid items.

November 19, 2022

Published Date: 2025	SDDOT	TREE TRIMMING FOR ROADWAY LIGHTING	PLATE NUMBER 635.99
			Sheet 1 of 1



TYPE B CONCRETE CURB AND GUTTER

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

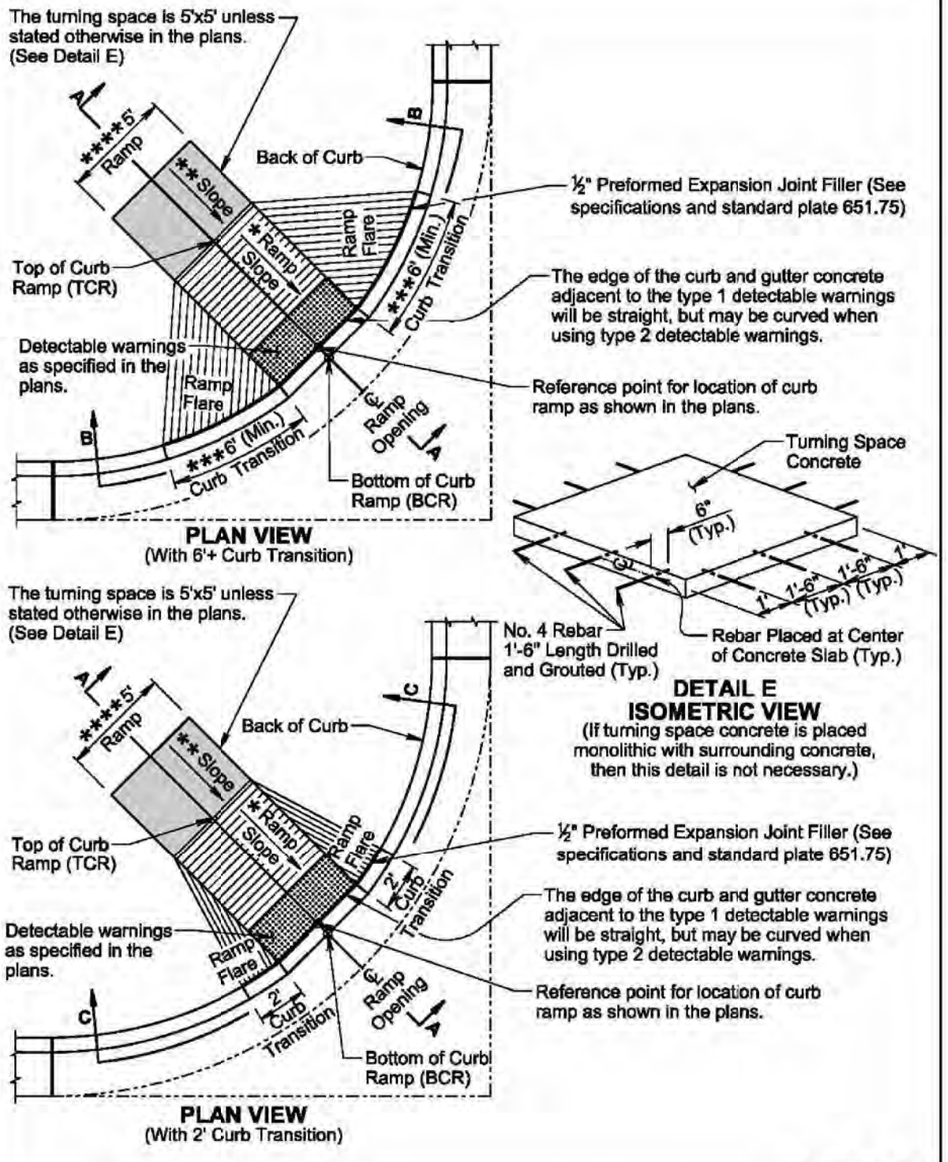
GENERAL NOTES:

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

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

January 22, 2023

Published Date: 2025	SDDOT	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1



February 14, 2020

Published Date: 2025	SDDOT	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01 Sheet 1 of 3

* Curb ramp slopes are designed at 7.5% unless stated otherwise in the plans. The curb ramp may have a maximum slope of 8.3% and will not exceed 15' in length unless stated otherwise in the plans.

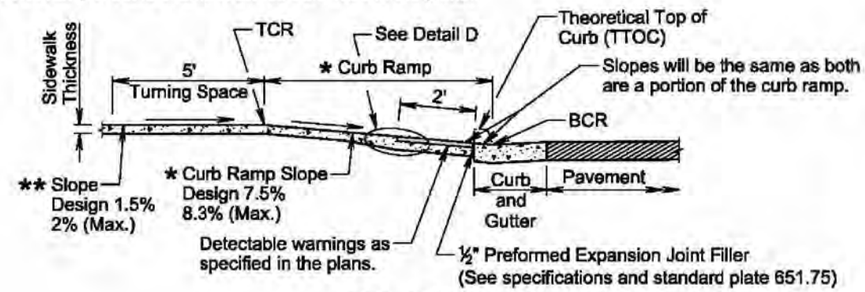
The curb ramp length may be computed based on the intersection of a continuous 1.5% theoretical slope from theoretical top of curb (TTOC) with the curb ramp using a continuous 7.5% curb ramp slope. The elevation of point TCR will always be higher than the elevation of point TTOC unless specified otherwise in the plans. The curb ramp length dimension as shown in the plans will be adjusted as necessary to meet all slope and length requirements based on field geometrics.

The cross slope of the ramp will not be steeper than 2%. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

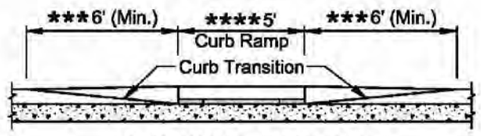
** The slope in the turning space will not be steeper than 2% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

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

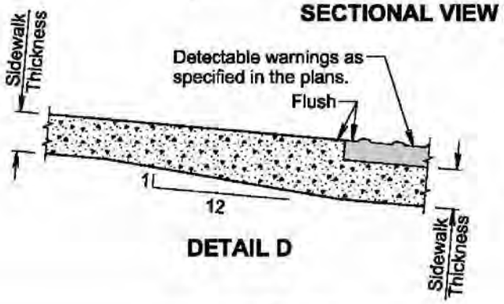
**** The ramp width is 5' unless stated otherwise in the plans.



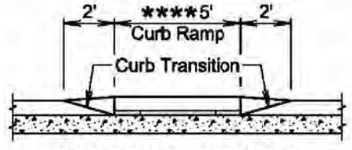
SECTION A-A



SECTIONAL VIEW B-B



DETAIL D



SECTIONAL VIEW C-C

February 14, 2020

Published Date: 2025	SDDOT	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01 Sheet 2 of 3

GENERAL NOTES:

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

For illustrative purpose only, PCC fillet sections 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.

For illustrative purpose only, the curb ramp location is shown at the center of a PCC fillet section. 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 turning space 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.

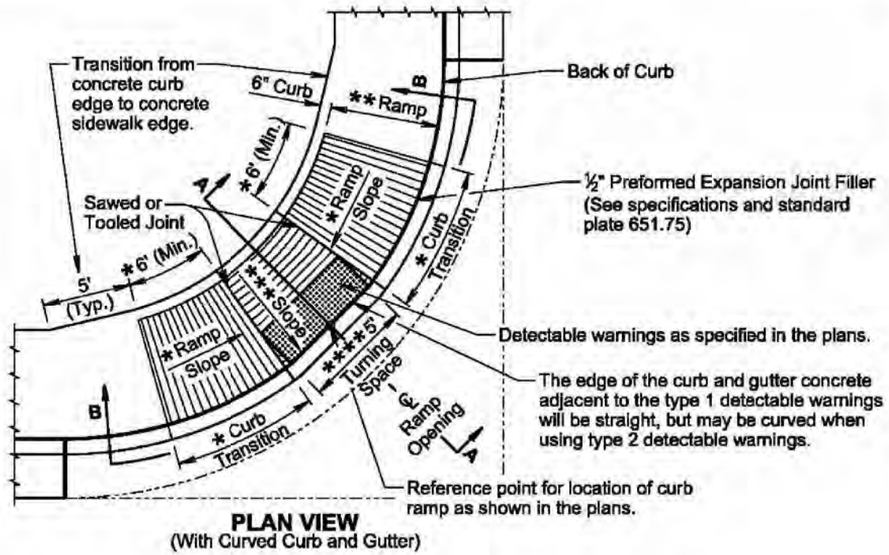
The curb transitions and ramp opening will be measured and paid for at the contract unit price per foot for the corresponding curb and gutter contract item when curb and gutter is used. The curb transitions and ramp opening will be measured and paid for at the contract unit price per square yard for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

The type 1 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing the 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".

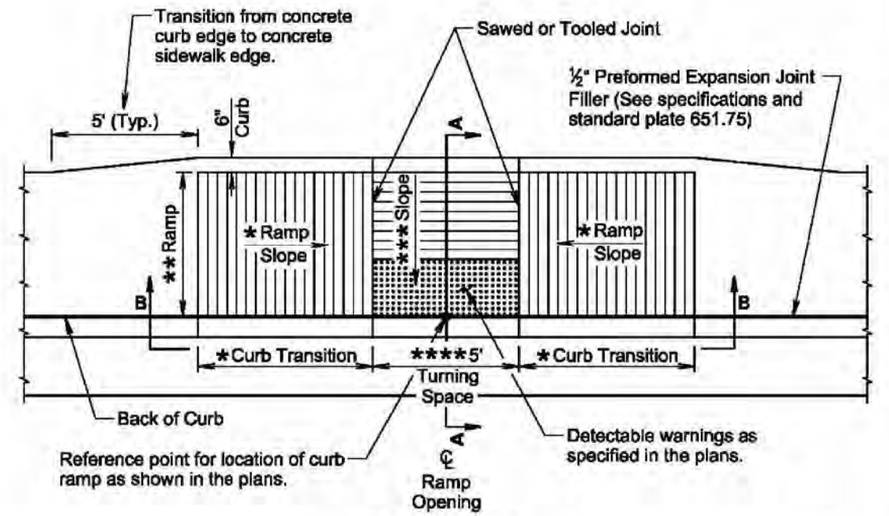
The type 2 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding will be paid for at the contract unit price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

February 14, 2020

Published Date: 2025	SDDOT	TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)	PLATE NUMBER 651.01 Sheet 3 of 3



PLAN VIEW
(With Curved Curb and Gutter)



PLAN VIEW
(With Straight Curb and Gutter)

April 18, 2021

Published Date: 2025	SDDOT	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03 Sheet 1 of 3

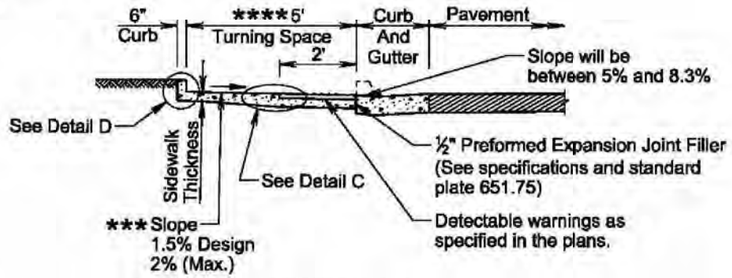
* The curb transition slope will match the curb ramp slope. Curb ramp slopes are designed at 7.5% unless stated otherwise in the plans. The curb ramp may have a maximum slope of 8.3% at any location of the curb ramp and will not exceed 15' in length unless stated otherwise in the plans. The curb transitions and curb ramp lengths will be adjusted as necessary to meet all slope and length requirements based on field geometrics.

** The cross slope of the ramp will not be steeper than 2% and the ramp width is 5' unless stated otherwise in the plans. Plans are designed using a 1.5% cross slope for the ramp unless stated otherwise in the plans.

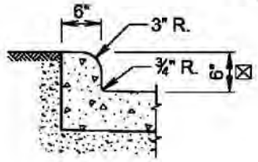
*** The slope in the turning space will not be steeper than 2% in any direction of pedestrian travel. Plans are designed using a 1.5% slope unless stated otherwise in the plans.

**** The turning space is 5'x5' unless stated otherwise in the plans.

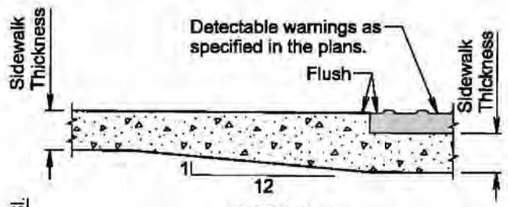
☒ The curb height will be 6" unless stated otherwise in the plans.



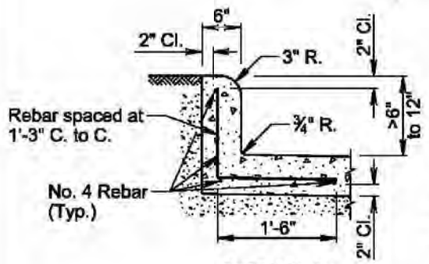
SECTION A-A



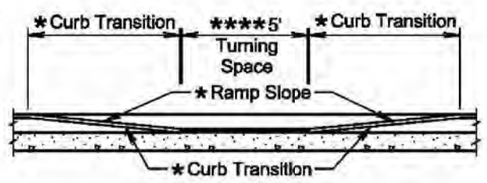
DETAIL D



DETAIL C



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



SECTIONAL VIEW B-B

April 18, 2021

Published Date: 2025	SDDOT	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03 Sheet 2 of 3

GENERAL NOTES:

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

For illustrative purpose only, a PCC fillet section is shown in one of the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section or with curb and gutter.

The curb ramp will be placed at the location stated in the plans.

Sidewalk adjacent to the curb ramp will be as shown in the plans.

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

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

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

Joints will be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking (see plan view for joint location).

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

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

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

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

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

The type 1 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing the 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".

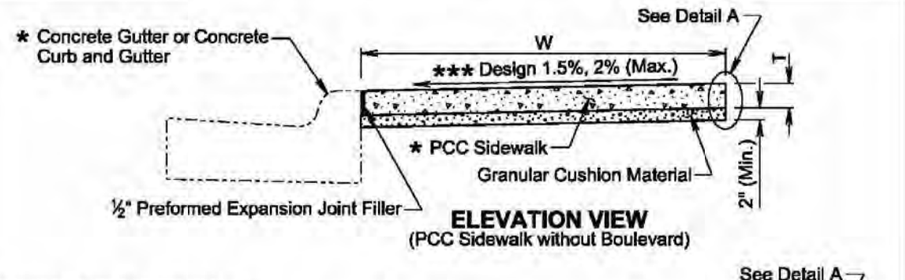
The type 2 detectable warnings will be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding will be paid for at the contract unit price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

April 18, 2021

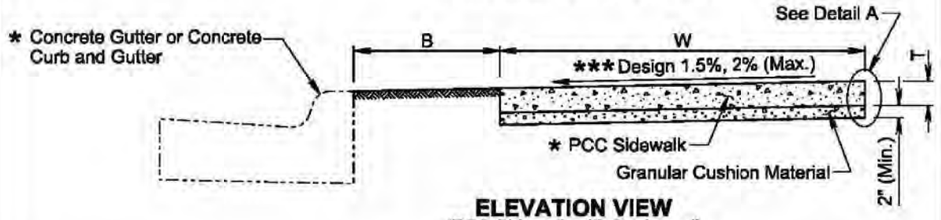
Published Date: 2025	SDDOT	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03 Sheet 3 of 3

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	53	68

FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025
REV DATE:
INITIAL:



ELEVATION VIEW
(PCC Sidewalk without Boulevard)



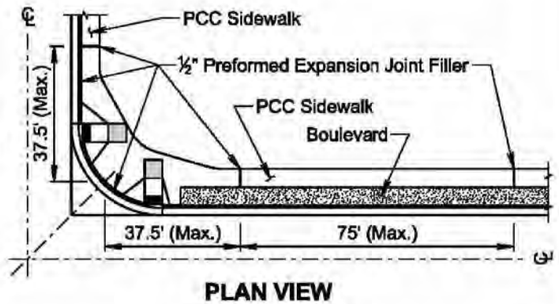
ELEVATION VIEW
(PCC Sidewalk with Boulevard)

B Width of boulevard as specified in the plans.

T Thickness of PCC sidewalk as specified in the plans.

W Width of PCC sidewalk as specified in the plans.

* Type as specified in the plans.



PLAN VIEW

GENERAL NOTES:

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

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

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

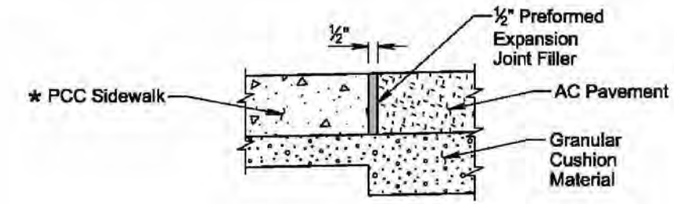
PCC sidewalk placed adjacent to intersection of roadways will have an expansion joint placed transversely a maximum of 37.5 feet from the intersection. See Plan View.

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

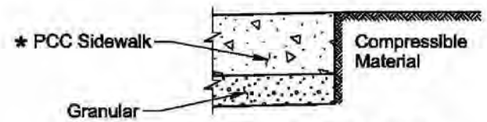
** Large areas of PCC pavement adjacent to the PCC sidewalk may require a different joint treatment than shown in the detail. If a different joint detail is necessary, plans will contain the joint detail and the Contractor will construct the joint treatment in accordance with the plans.

February 14, 2020

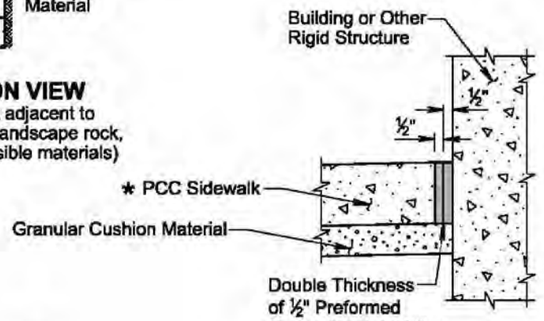
Published Date: 2025	SDDOT	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 1 of 2



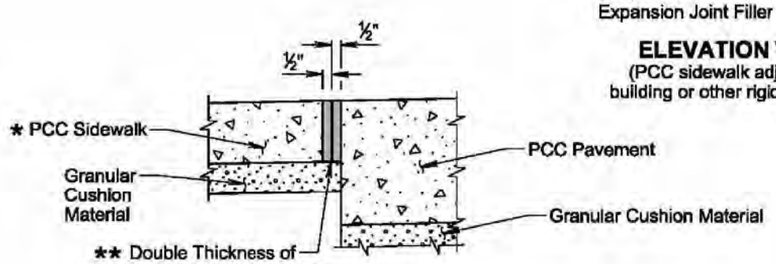
ELEVATION VIEW
(PCC sidewalk adjacent to asphalt concrete pavement)



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



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



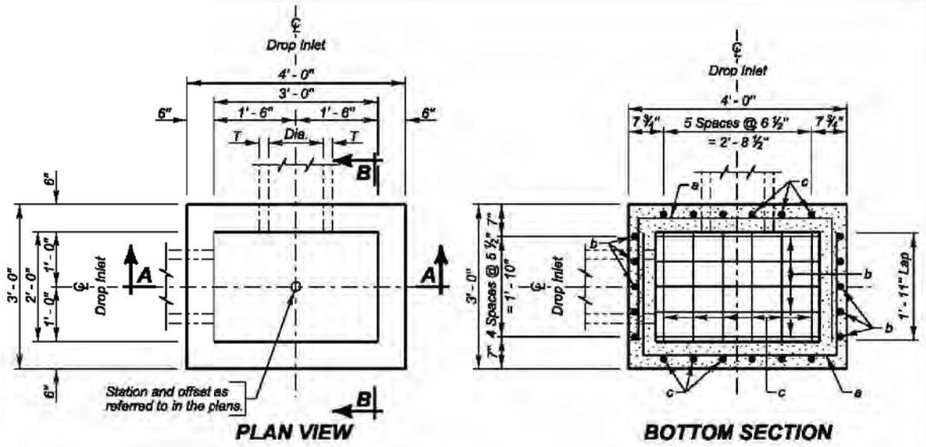
ELEVATION VIEW
(PCC sidewalk adjacent to PCC pavement)

DETAIL A
(Use Appropriate Detail(s))

February 14, 2020

Published Date: 2025	SDDOT	PCC SIDEWALK	PLATE NUMBER 651.75
			Sheet 2 of 2

FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025
REV DATE:
INITIAL:



ESTIMATED QUANTITIES

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

DROP INLETS FOR 12" TO 24" DIAMETER PIPE

SPECIFICATIONS

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

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

GENERAL NOTES:

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

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

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

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

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

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

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

PIPE DISPLACEMENT REDUCTIONS

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

March 31, 2024

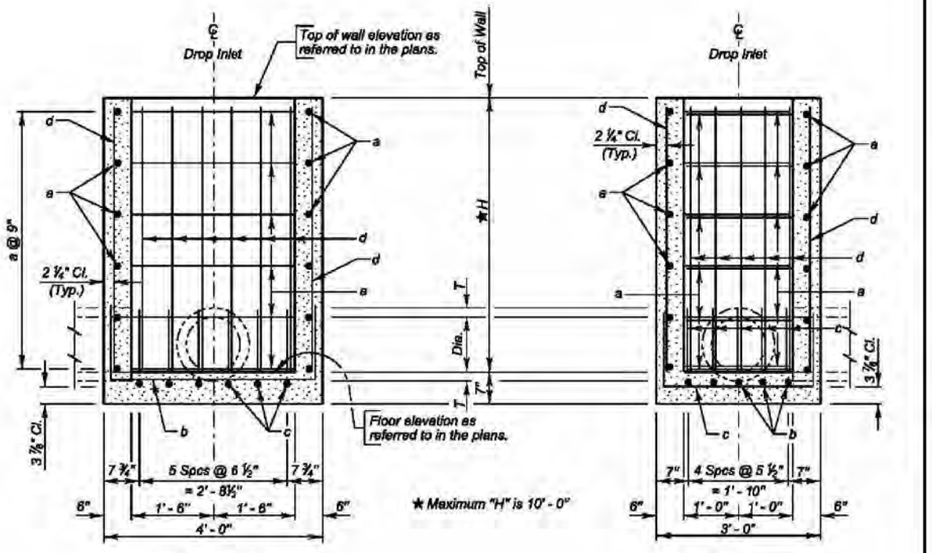
Published Date: 2025

SDDOT

2'X 3' TYPE B REINFORCED CONCRETE DROP INLET

PLATE NUMBER 670.01

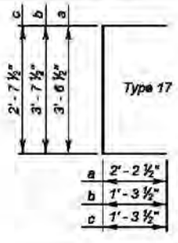
Sheet 1 of 2



REINFORCING SCHEDULE

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

NOTE:
All dimensions are out to out of bars.



a	2' - 2 ½"
b	1' - 3 ½"
c	1' - 3 ½"

March 31, 2024

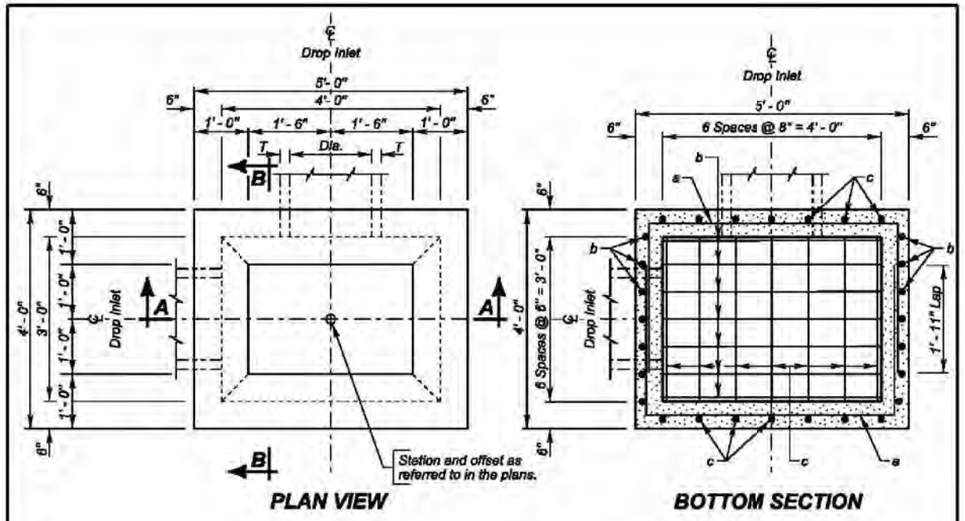
Published Date: 2025

SDDOT

2'X 3' TYPE B REINFORCED CONCRETE DROP INLET

PLATE NUMBER 670.01

Sheet 2 of 2



ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
✳ Class M6 Concrete	Cu. Yd.	0.72	0.30H
Reinforcing Steel	Lb.	130.93	36.54H
Frame and Grate Assembly	Each	1	———

DROP INLETS FOR 12" TO 36" DIAMETER PIPE

SPECIFICATIONS

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

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

GENERAL NOTES:

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

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

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

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

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

Maximum R.C.P. diameter shall not exceed 24 inches (24 inches for R. C. arch) on the 3-foot wide side and shall not exceed 36 inches (30 inches for R.C. arch) on the 4-foot wide side of the drop inlet.

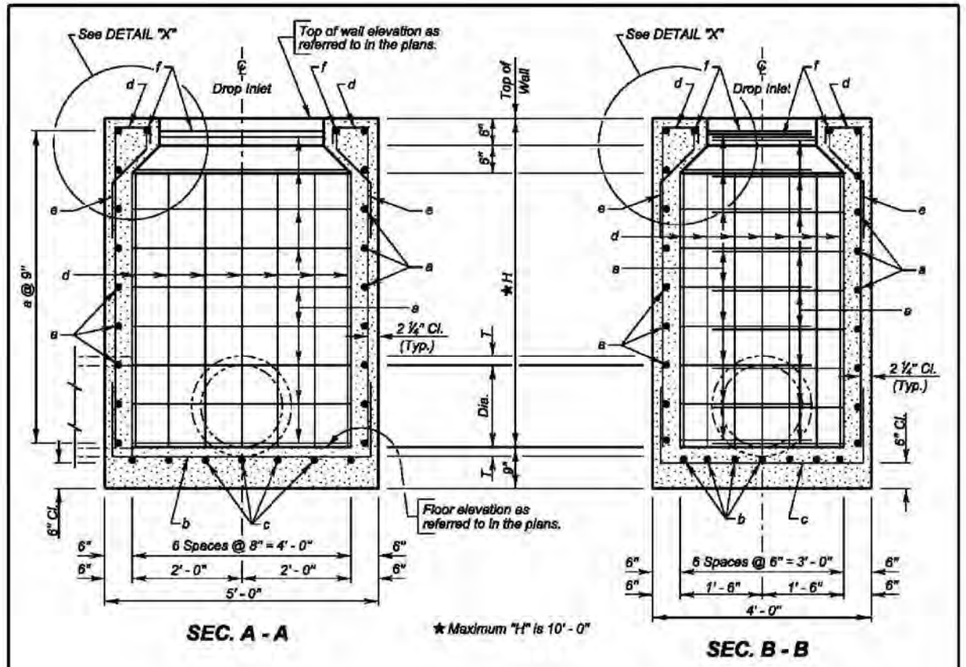
The dimension of H is in feet. Maximum H is 10 feet.

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
	30	3 ½	0.14
	36	4	0.20
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09
	30	4	0.14

December 16, 2015

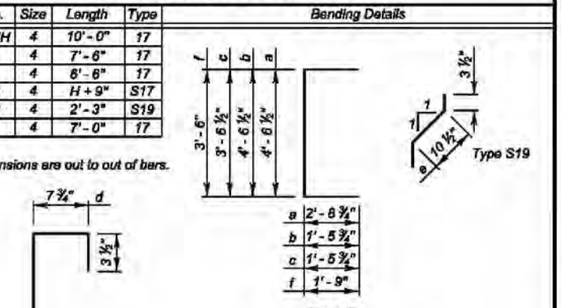
Published Date: 2025	SDDOT	3'X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02	Sheet 1 of 2

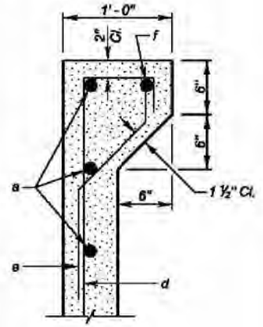


REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
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.





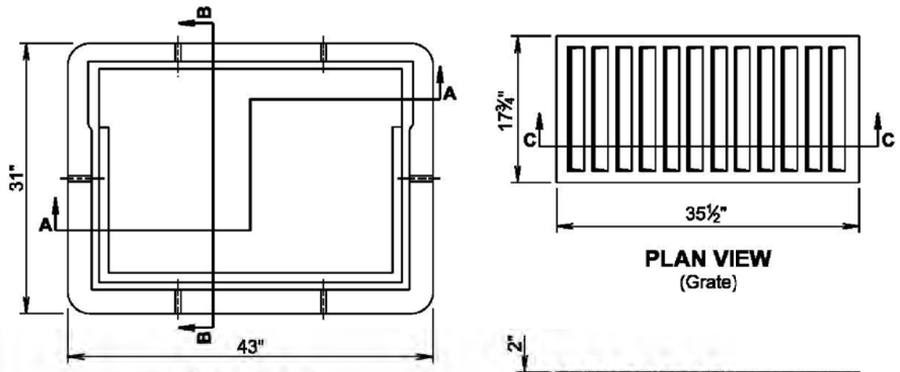
December 16, 2015

Published Date: 2025	SDDOT	3'X 4' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.02	Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	56	68

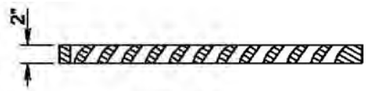
FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:



PLAN VIEW
(Frame)

PLAN VIEW
(Grate)



SECTION A-A

SECTION B-B

SECTION E-E

SECTION C-C

TOP VIEW
(Curb Box)

ELEVATION VIEW
(Curb Box)

GENERAL NOTES:

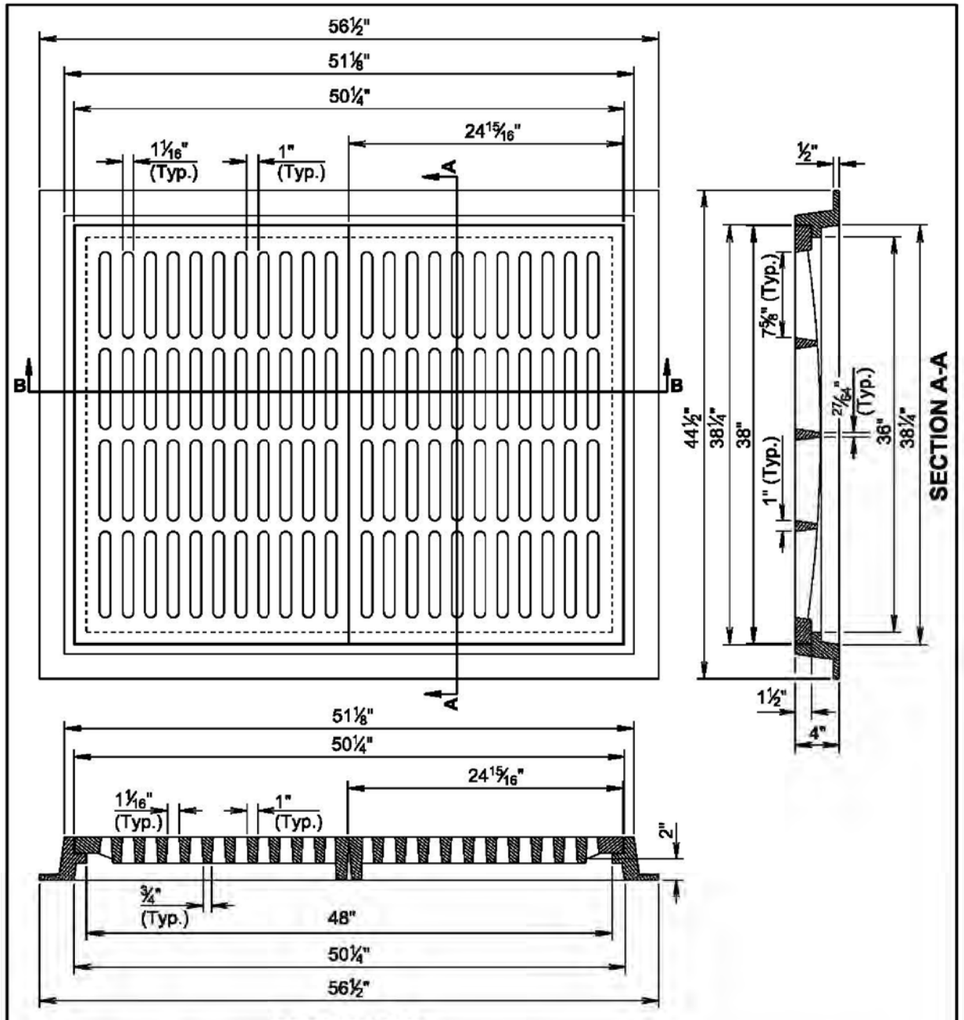
The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity and bicycle safety. Any variation in dimensions will be approved by the Engineer and the type B frame and grate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

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

The curb box will be adjustable 6" to 9".

June 1, 2022

Published Date: 2025	SDDOT	***TYPE B FRAME AND GRATE***	***PLATE NUMBER 670.80*** *Sheet 1 of 1*



SECTION B-B

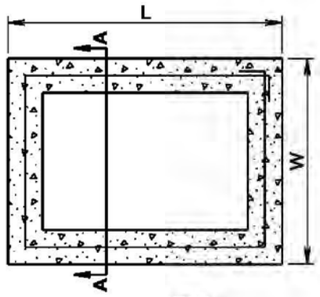
GENERAL NOTES:

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

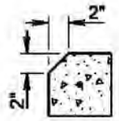
Design load for the grate will meet the requirements of AASHTO HL-93.

March 31, 2024

Published Date: 2025	SDDOT	***TYPE C FRAME AND GRATE***	***PLATE NUMBER 670.82*** *Sheet 1 of 1*

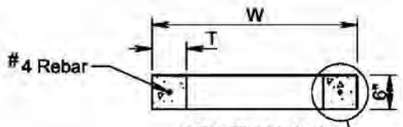


PLAN VIEW



For Type D Drop Inlets only:
Use Precast Drop Inlet Collar with
2" chamfer on L sides only.

DETAIL B



SECTION A-A

See Detail B
(For Type D
Drop Inlets Only)

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

GENERAL NOTES:

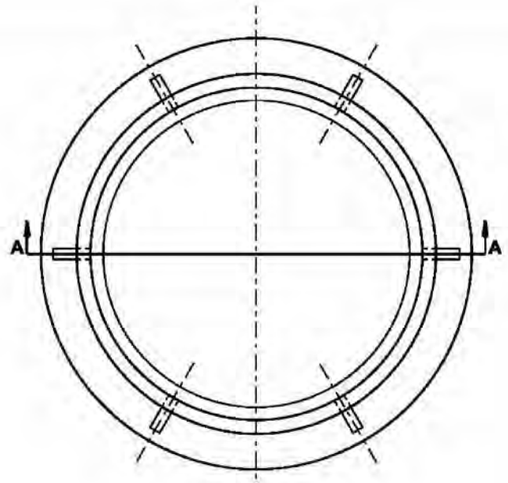
All reinforcing steel will conform to ASTM A615, Grade 60.

The ½" diameter bar will lap 6"± and will be centered in the concrete.

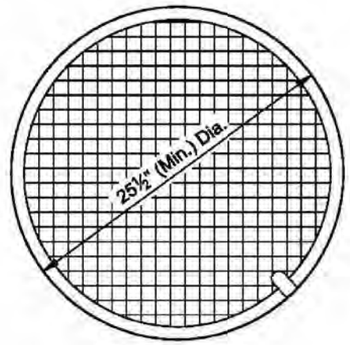
The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals will be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

June 1, 2022

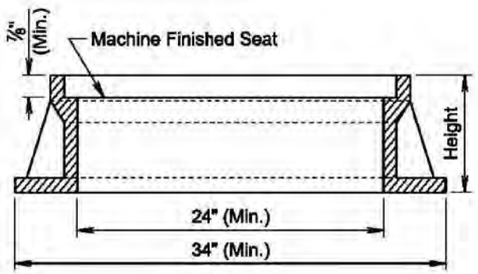
Published Date: 2025	SDDOT	PRECAST DROP INLET COLLAR	PLATE NUMBER 670.99
			Sheet 1 of 1



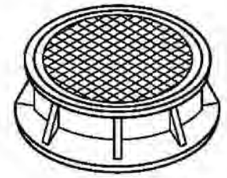
PLAN VIEW
(Frame)



PLAN VIEW
(Lid)



SECTION A-A



ISOMETRIC VIEW

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

Published Date: 2025	SDDOT	TYPE A MANHOLE FRAME AND LID	PLATE NUMBER 671.10
			Sheet 1 of 1

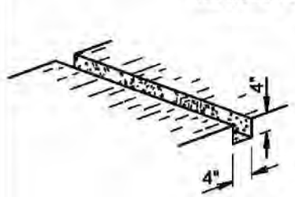
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	58	68

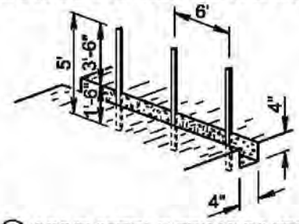
FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:

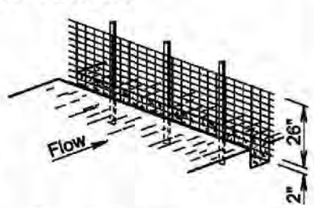
MANUAL LOW FLOW SILT FENCE INSTALLATION



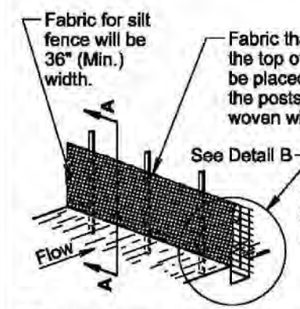
① EXCAVATE TRENCH



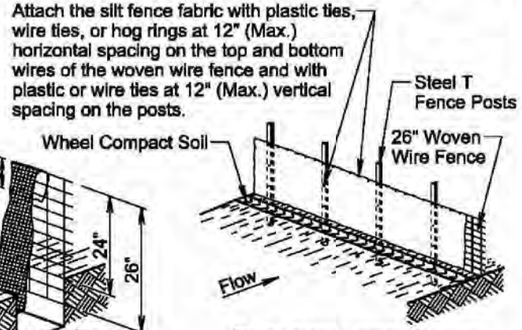
② DRIVE STEEL T FENCE POSTS



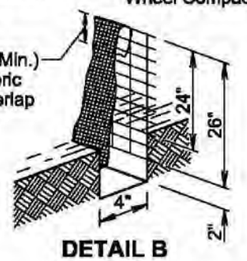
③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



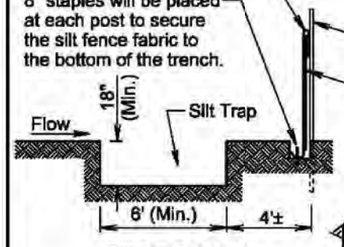
④ ATTACH SILT FENCE FABRIC



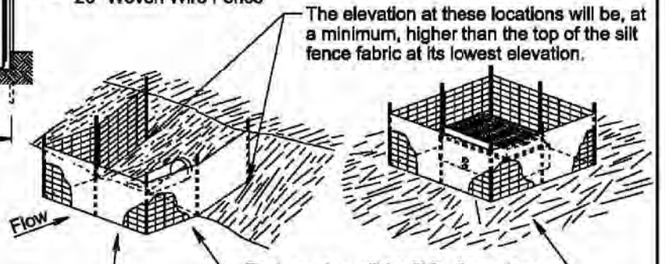
⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL



DETAIL B



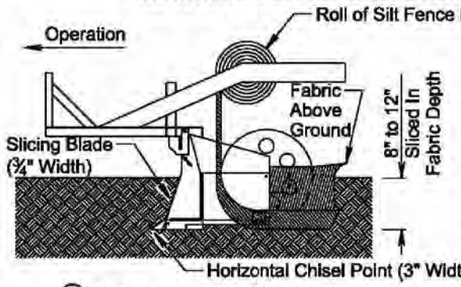
SECTION A-A



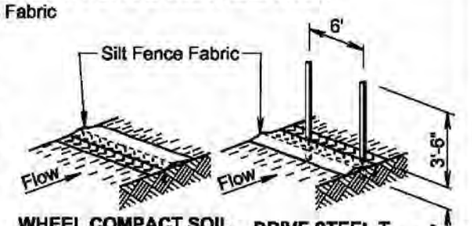
February 14, 2020

Published Date: 2025	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04 Sheet 1 of 2

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



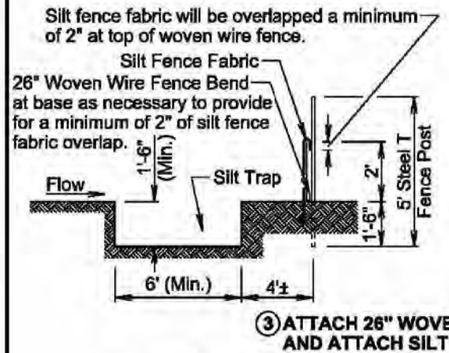
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

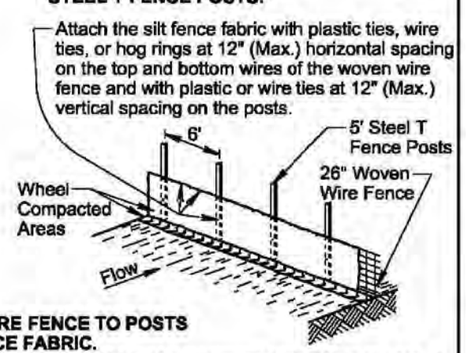


WHEEL COMPACT SOIL

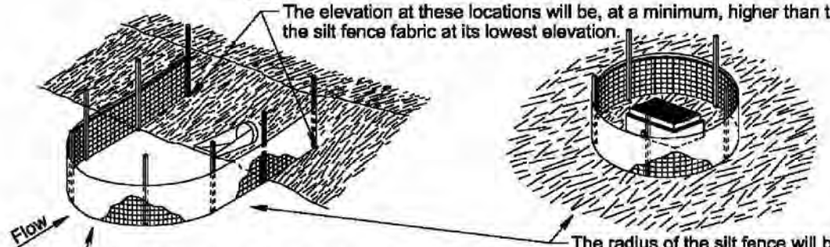
DRIVE STEEL T FENCE POSTS

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.





③ ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



GENERAL NOTES:

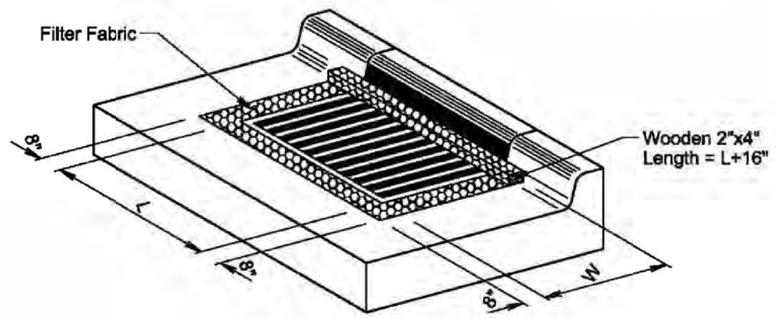
A silt trap will be provided when specified by a plan note. All costs for constructing the silt trap will be incidental to the contract unit price per cubic yard for "Silt Trap".

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

February 14, 2020

Published Date: 2025	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04 Sheet 2 of 2

L = Length of Grate
W = Width of Grate



ISOMETRIC VIEW

GENERAL NOTES:

The grate and curb and gutter shown are for illustrative purposes only.

The sediment control at inlet with frame and grate will be placed at locations stated in the plans or at locations determined by the Engineer.

The filter fabric will be the type specified in the plans.

The filter fabric will be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric will be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.

The Contractor and Engineer will inspect the sediment control device in accordance with the storm water permit. The Contractor will maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.

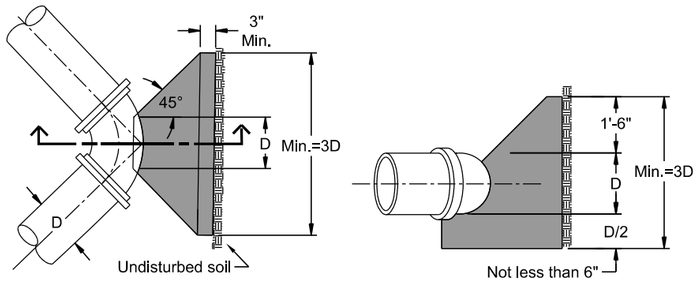
The removed sediment will be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials will be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

February 14, 2020

Published Date: 2025	SDDOT	SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES	PLATE NUMBER 734.10
			Sheet 1 of 1

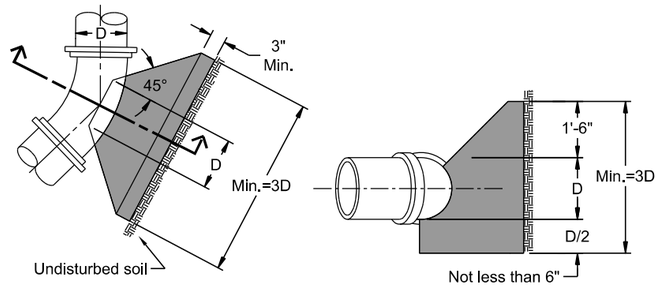
Concrete Thrust Blocks



Plan View

Section View

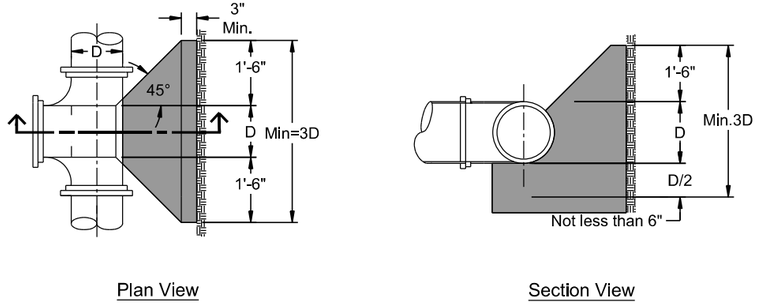
90 - Degree Bend



Plan View

Section View

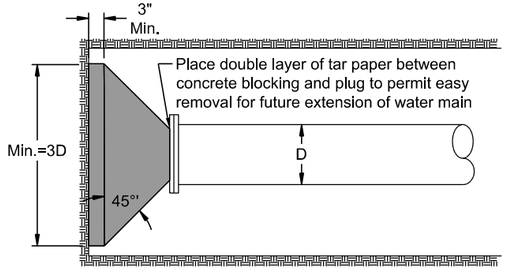
11 1/4 - Degree, 22 1/2 - Degree and 45 - Degree Bends



Plan View

Section View

Tee



S.J./M.J. Plug

Revised: December 2020

Concrete Thrust Blocks

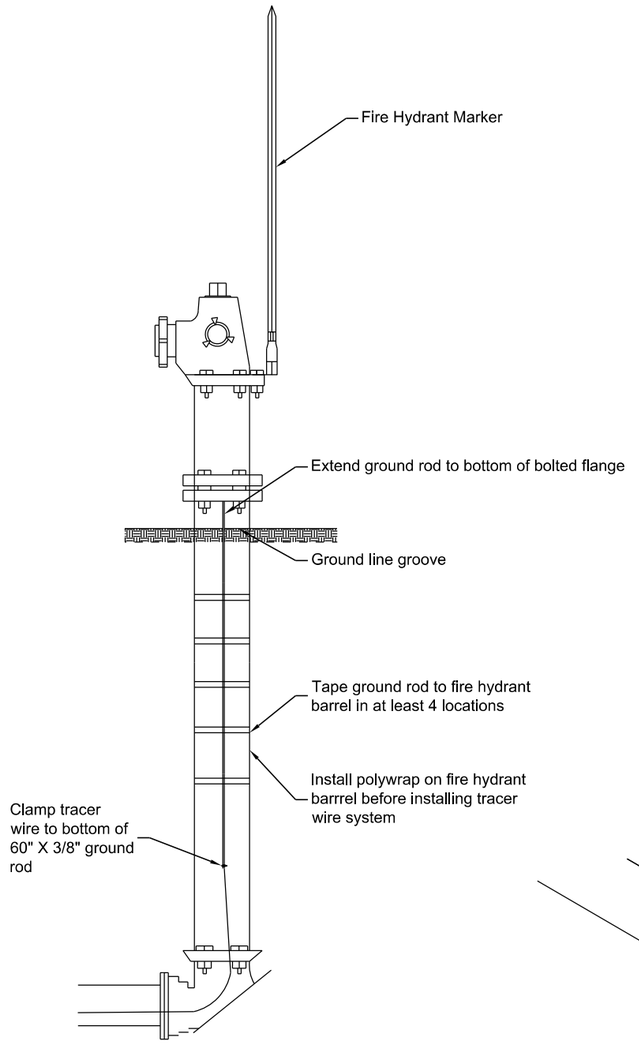
CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

Specification Reference	Plate Number
No. 900	900.01

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	61	68

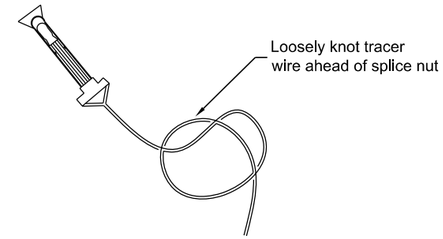
FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:



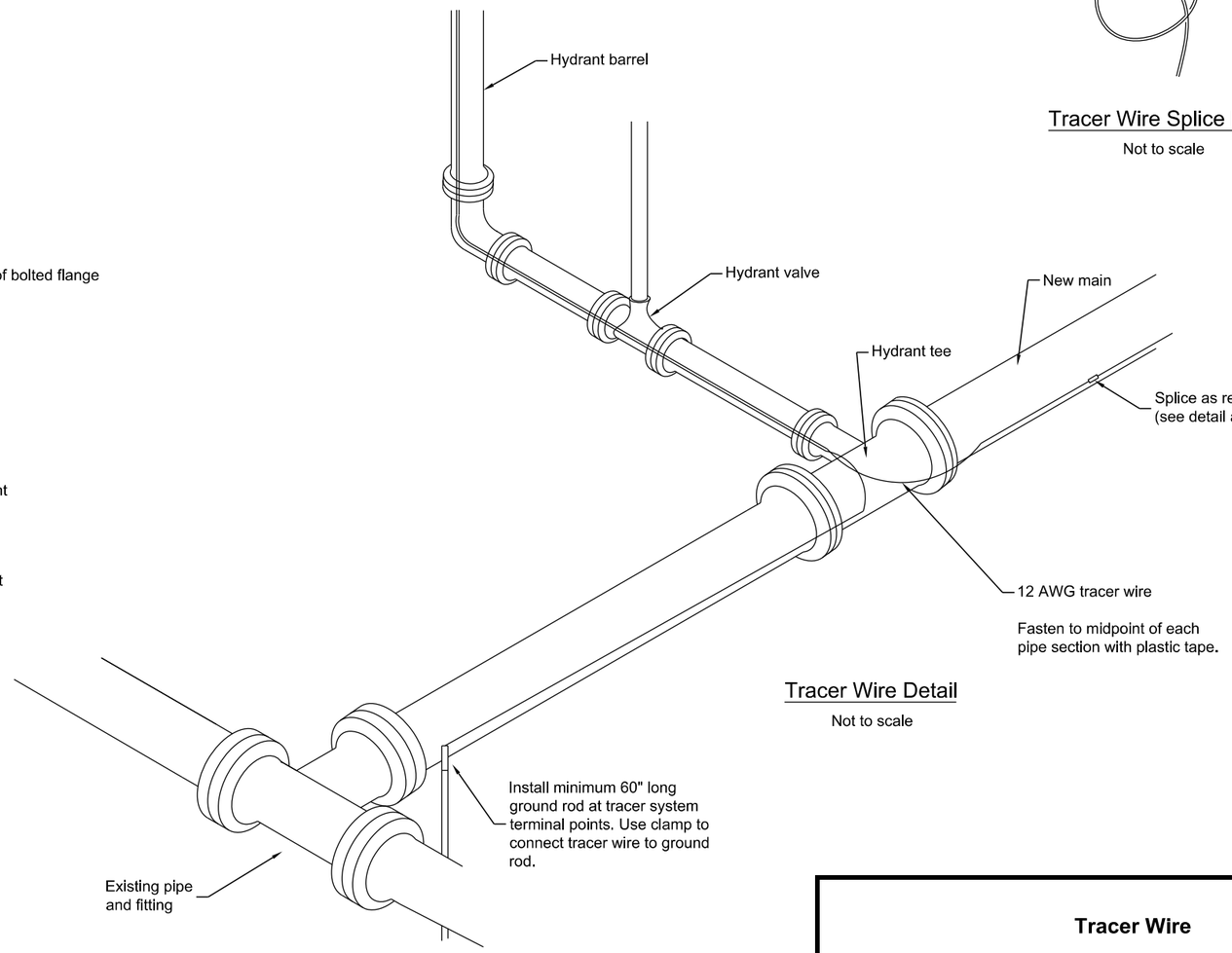
Tracer Wire Detail at Fire Hydrant

Not to scale



Tracer Wire Splice Detail

Not to scale



Tracer Wire Detail

Not to scale

Revised: December 2020

Tracer Wire

CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

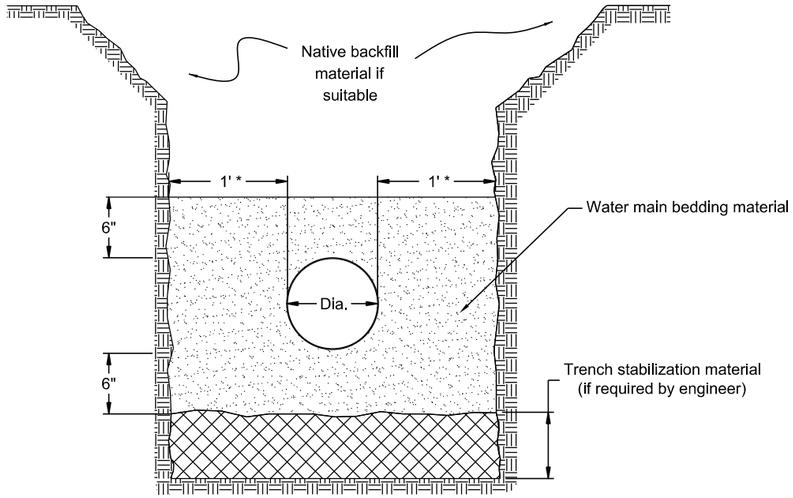
Specification Reference	Plate Number
No. 900	900.07

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	62	68

FILE: ...\39-59 standard plates.dgn
PLOTTING DATE: 04-15-2025

REV DATE:
INITIAL:

Water Main Bedding



Pipe Size Diameter	Trench Width	Trench Height	Trench Area	Pipe Area	Water Main Bedding Mat. Area	Water Main Bedding Mat. Tons/LF
4"	28"	16"	3.11 Sq.Ft.	.09 Sq.Ft.	3.02 Sq.Ft.	0.21
6"	30"	18"	3.75 Sq.Ft.	.20 Sq.Ft.	3.55 Sq.Ft.	0.25
8"	32"	20"	4.44 Sq.Ft.	.35 Sq.Ft.	4.10 Sq.Ft.	0.29
10"	34"	22"	5.19 Sq.Ft.	.55 Sq.Ft.	4.65 Sq.Ft.	0.33
12"	36"	24"	6.00 Sq.Ft.	.79 Sq.Ft.	5.22 Sq.Ft.	0.37
16"	40"	28"	7.78 Sq.Ft.	1.40 Sq.Ft.	6.38 Sq.Ft.	0.45
20"	44"	32"	9.78 Sq.Ft.	2.18 Sq.Ft.	7.60 Sq.Ft.	0.53
24"	48"	36"	12.00 Sq.Ft.	3.14 Sq.Ft.	8.86 Sq.Ft.	0.62
30"	60"	42"	17.50 Sq.Ft.	4.91 Sq.Ft.	12.59 Sq.Ft.	0.88

* If >30" use dia./2 on each side of water main pipe.

* Length based on one (1) foot of main.

Revised: December 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Water Main Bedding	Specification Reference No. 900	Plate Number 900.11

Verify depth of existing buried utilities prior to undercut. Reduce undercut as necessary to avoid impacts to existing buried utilities.

Cross Sections (20th Street)

FOR BIDDING PURPOSES ONLY

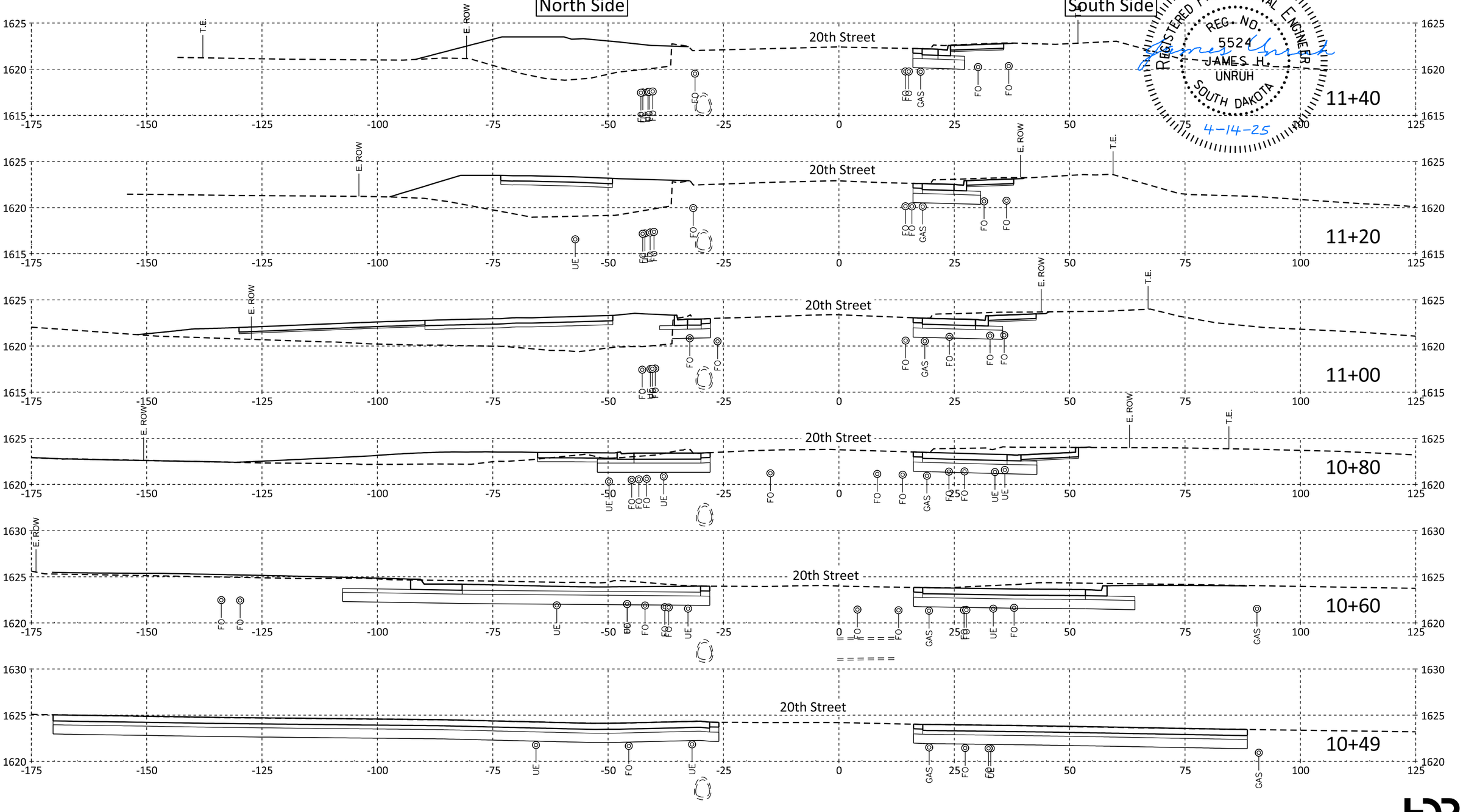
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	63	68

FILE: ...\60-64 Xsec.dgn
PLOTTING DATE: 04-14-2025
REV DATE:
INITIAL:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
4-14-25

North Side

South Side



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	64	68

FILE: ...\60-64 Xsec.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

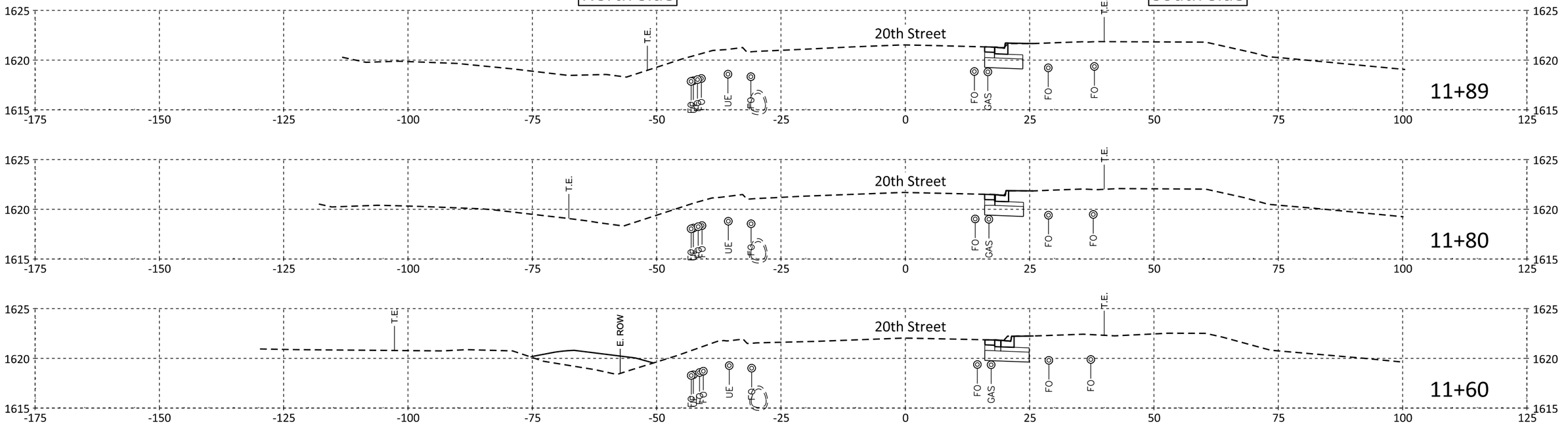
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
4-14-25

Cross Sections (20th Street)

Verify depth of existing buried utilities prior to undercut. Reduce undercut as necessary to avoid impacts to existing buried utilities.

North Side

South Side



Verify depth of existing buried utilities prior to undercut. Reduce undercut as necessary to avoid impacts to existing buried utilities.

Cross Sections (22nd Avenue)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	65	68

FILE: ...\60-64 Xsec.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
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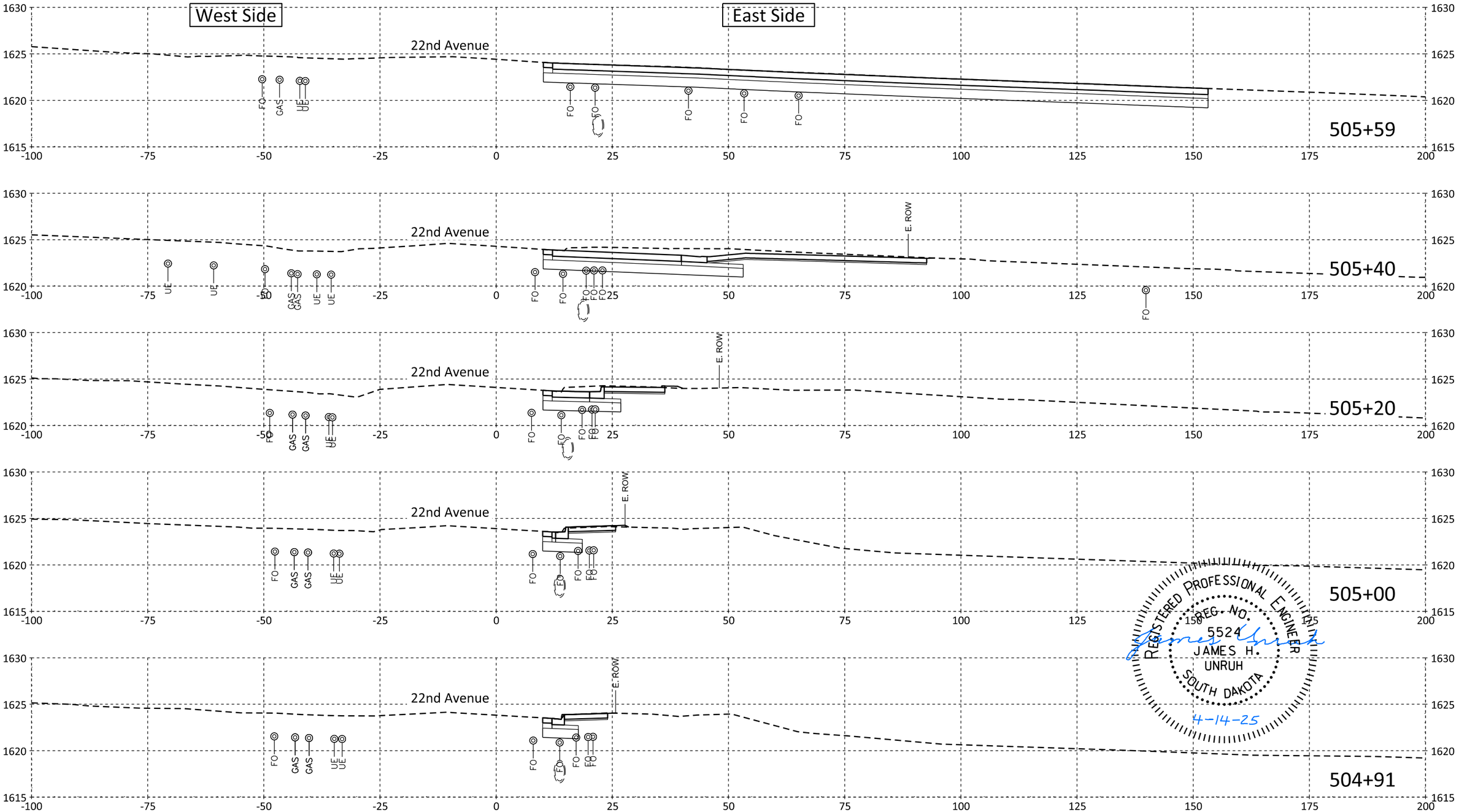

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SOUTH DAKOTA
4-14-25

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	66	68

FILE: ...\60-64 Xsec.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

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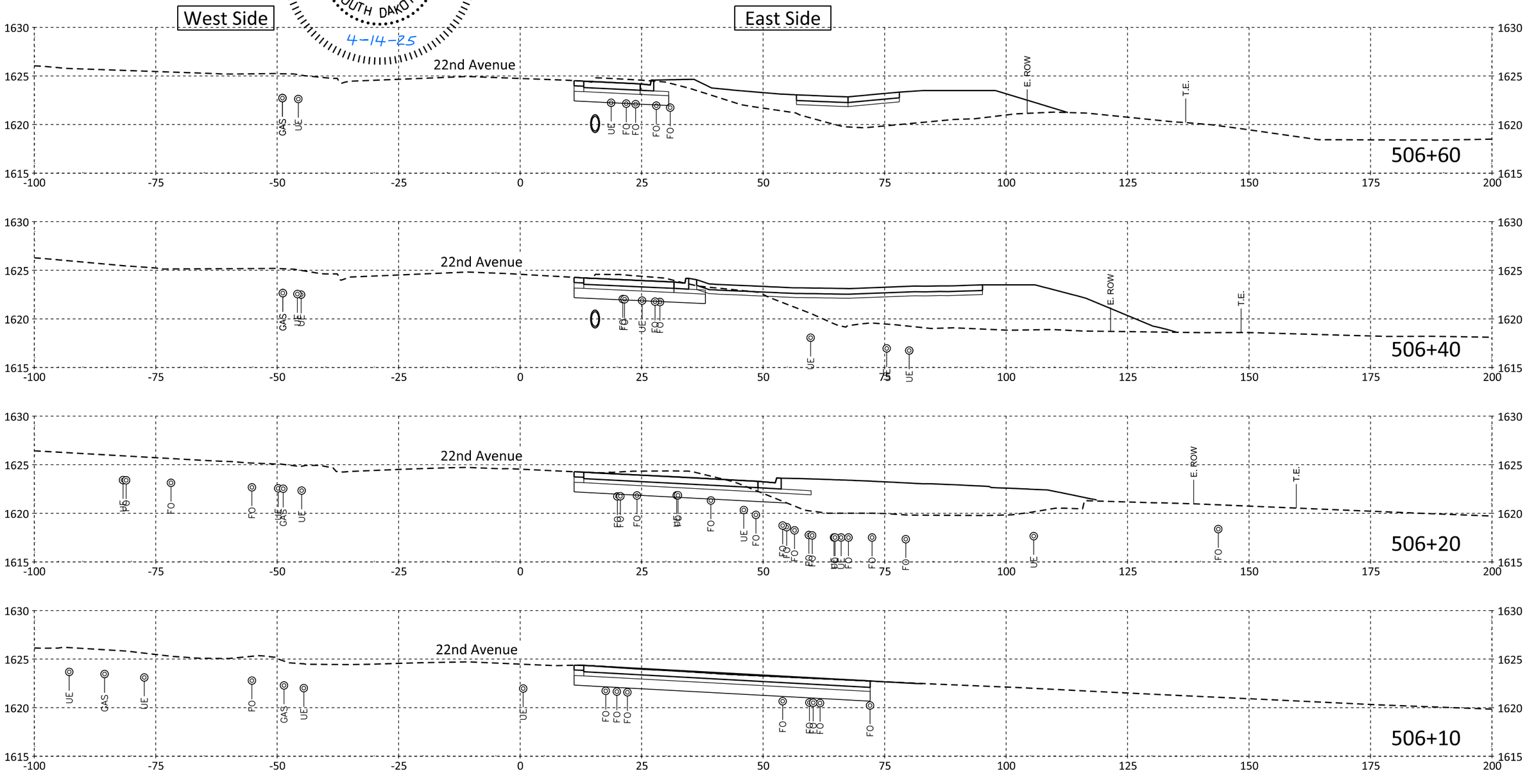
4-14-25

Cross Sections (22nd Avenue)

Verify depth of existing buried utilities prior to undercut. Reduce undercut as necessary to avoid impacts to existing buried utilities.



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	67	68

FILE: ...\60-64 Xsec.dgn
PLOTTING DATE: 04-14-2025

REV DATE:
INITIAL:

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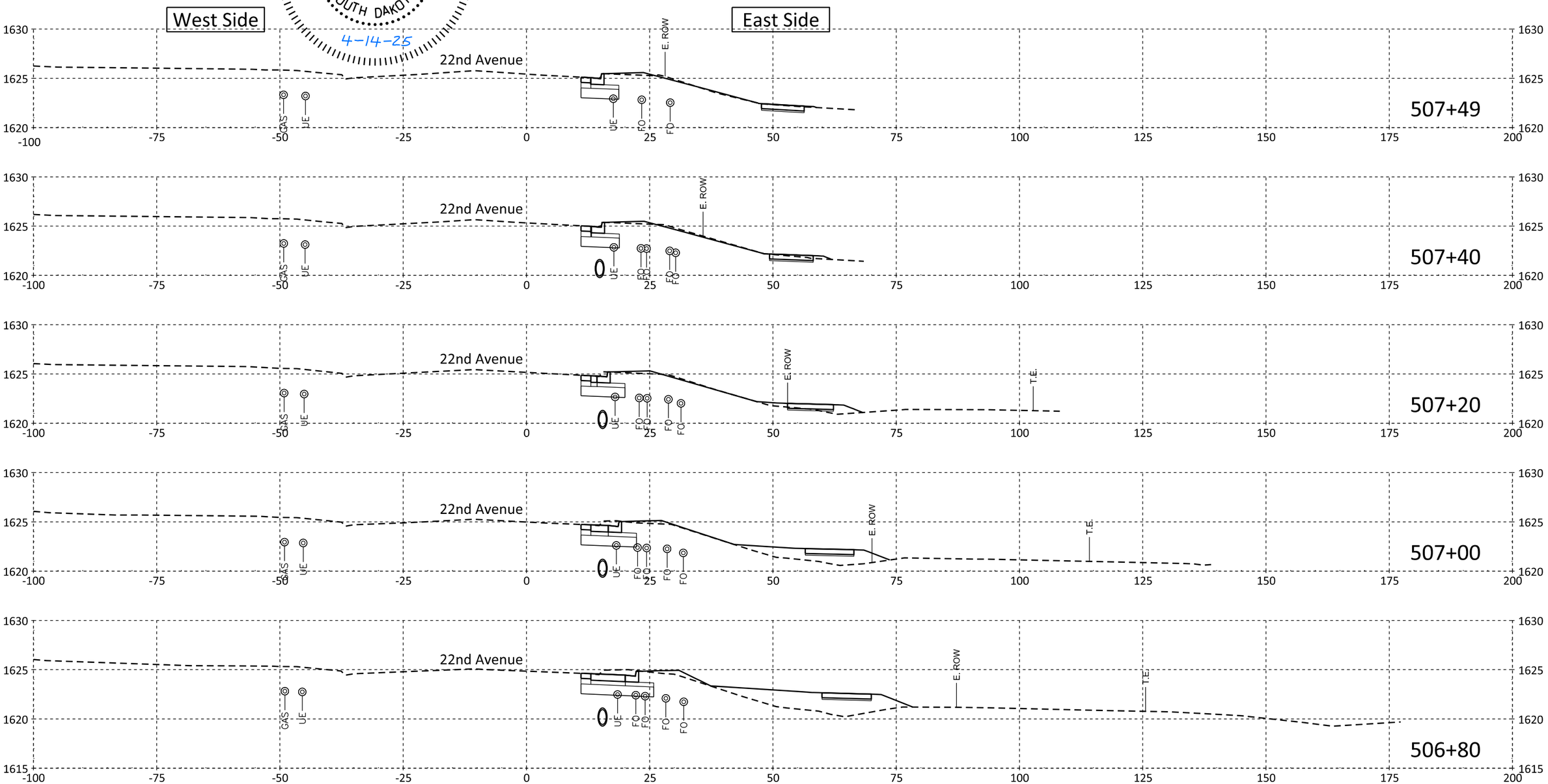
SOUTH DAKOTA
4-14-25

Cross Sections (22nd Avenue)

Verify depth of existing buried utilities prior to undercut. Reduce undercut as necessary to avoid impacts to existing buried utilities.



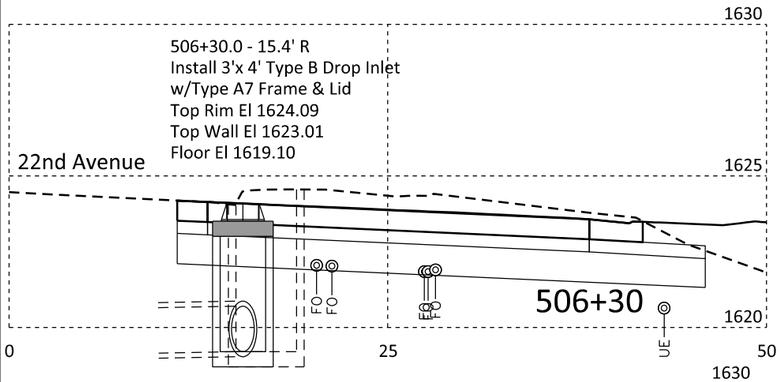
FOR BIDDING PURPOSES ONLY

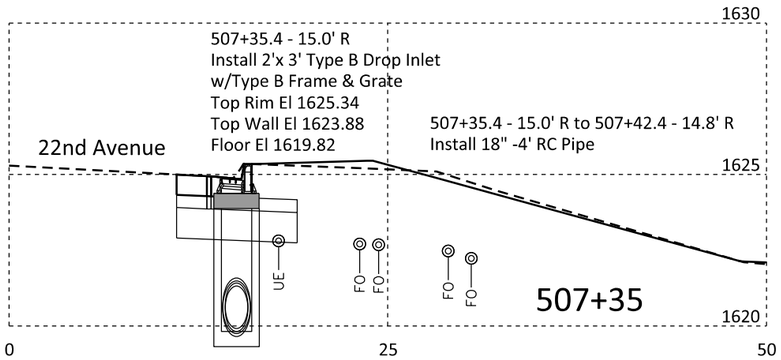
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0295(45)130	68	68

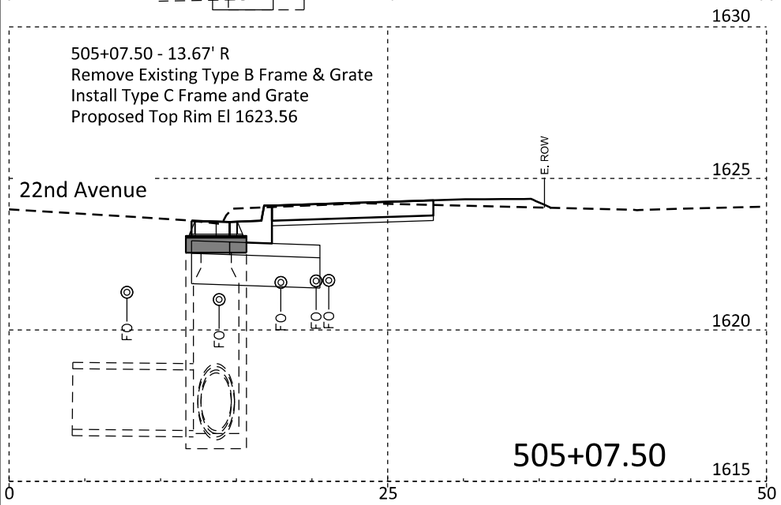
FILE: ...\65 Pipe sec.dgn
PLOTTING DATE: 05-07-2025

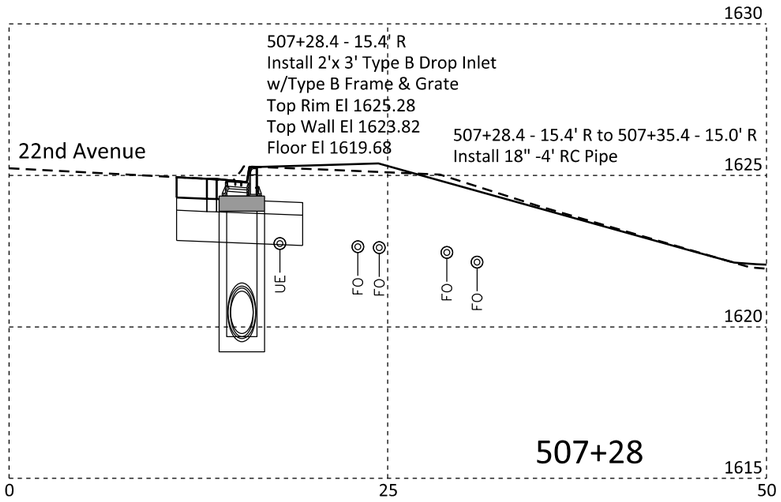
REV DATE: 5-7-2025
INITIAL: JHU

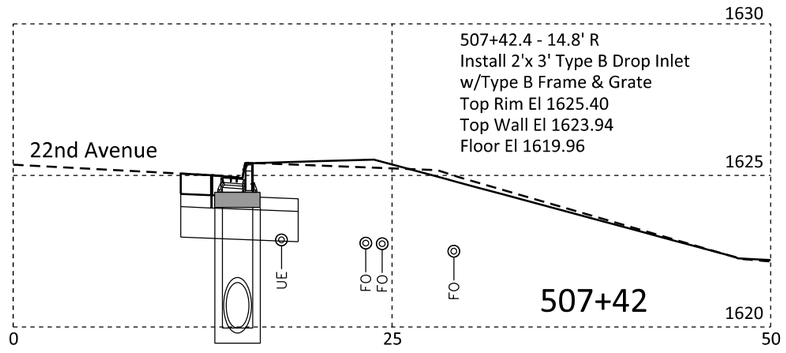
Pipe Sections

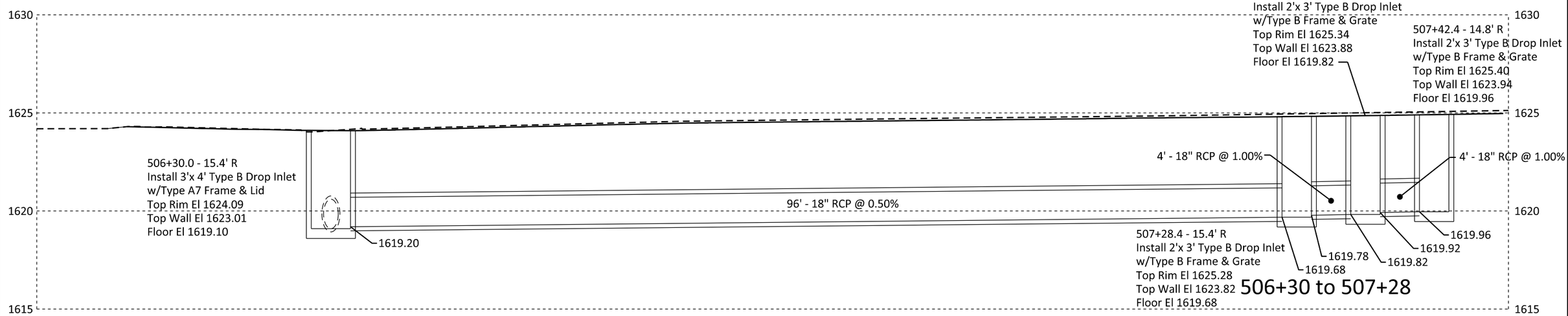












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