SECTION M: PAVEMENT MARKING PLANS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M1	M24

INDEX OF SHEETS

END IM-B-CR 2292(101)3

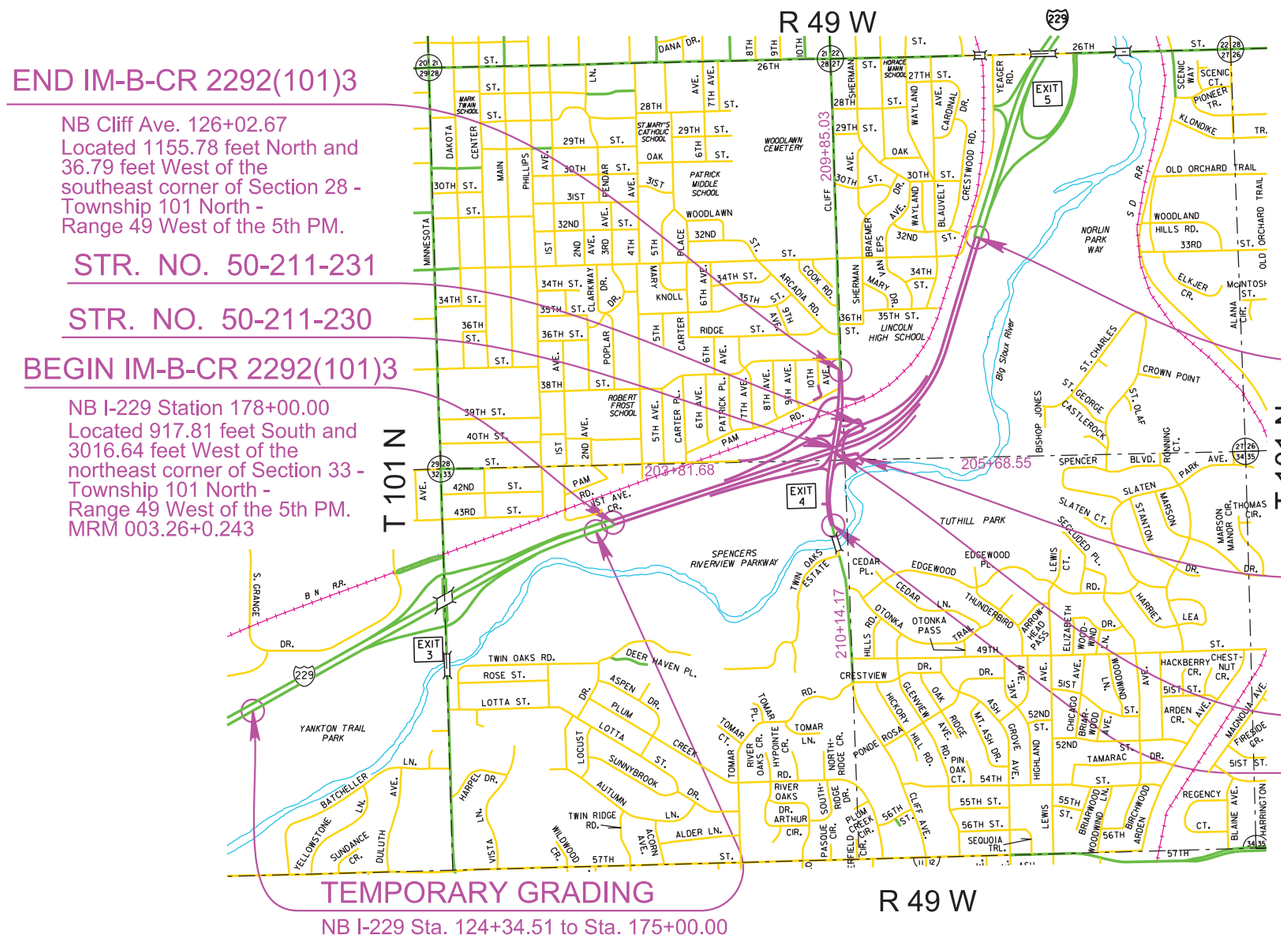
NB Cliff Ave. 126+02.67
Located 1155.78 feet North and 36.79 feet West of the southeast corner of Section 28 - Township 101 North - Range 49 West of the 5th PM.

STR. NO. 50-211-231

STR. NO. 50-211-230

BEGIN IM-B-CR 2292(101)3

NB I-229 Station 178+00.00
Located 917.81 feet South and 3016.64 feet West of the northeast corner of Section 33 - Township 101 North - Range 49 West of the 5th PM.
MRM 003.26+0.243



END IM-B-CR 2292(101)3

NB I-229 Station 245+03.64
Located 2934.62 feet North and 1765.55 feet East of the southwest corner of Section 27 - Township 101 North - Range 49 West of the 5th PM.
MRM 004.37+0.465

STR. NO. 50-210-231

STR. NO. 50-210-230

BEGIN IM-B-CR 2292(101)3

NB Cliff Ave. Station 105+40.80
Located 890.68 feet South and 115.85 feet West of the northeast corner of Section 33 - Township 101 North - Range 49 West of the 5th PM.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
11-15-24

Revised Date: 01/15/2025
Initials: NBG

SECTION M ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E0010	Cold Applied Plastic Pavement Marking, 4"	38,711	Ft
633E0019	Cold Applied Plastic Pavement Marking, 4" with Contrast Border	27,663	Ft
633E0021	Cold Applied Plastic Pavement Marking, 8" with Contrast Border	750	Ft
633E0025	Cold Applied Plastic Pavement Marking, 12"	2,687	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"	214	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	57	Each
633E0045	Cold Applied Plastic Pavement Marking, Combination Arrow	9	Each
633E0210	Preformed Thermoplastic Pavement Marking, 4"	936	Ft
633E0211	Preformed Thermoplastic Pavement Marking, 4" with Contrast Border	2,432	Ft
633E0215	Preformed Thermoplastic Pavement Marking, 8"	322	Ft
633E0216	Preformed Thermoplastic Pavement Marking, 8" with Contrast Border	2,242	Ft
633E0225	Preformed Thermoplastic Pavement Marking, 24"	1,500	Ft
633E0230	Preformed Thermoplastic Pavement Marking, Area	57	SqFt
633E0235	Preformed Thermoplastic Pavement Marking, Arrow	14	Each
633E1100	Epoxy Pavement Marking Paint, 4" White	1,159	Ft
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	30,234	Ft
633E5004	Grooving for Cold Applied Plastic Pavement Marking, 4" with Contrast Border	28,336	Ft
633E5005	Grooving for Cold Applied Plastic Pavement Marking, 8"	322	Ft
633E5008	Grooving for Cold Applied Plastic Pavement Marking, 8" with Contrast Border	2,992	Ft
633E5010	Grooving for Cold Applied Plastic Pavement Marking, 12"	2,687	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	1,714	Ft
633E5020	Grooving for Cold Applied Plastic Pavement Marking, Area	57	SqFt
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	80	Each
633E5050	Surface Preparation for Pavement Marking	9,413	Ft
634E0560	Remove Pavement Marking, 4" or Equivalent	1,642	Ft
634E0565	Remove Pavement Marking, Arrow	4	Each

SECTION M ESTIMATE OF QUANTITIES (Exit 3 Crossover)

(Included in overall estimate of quantities table, for information only)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E0010	Cold Applied Plastic Pavement Marking, 4"	14,104	Ft
633E0045	Cold Applied Plastic Pavement Marking, Combination Arrow	3	Each
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	4,691	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	3	Each
633E5050	Surface Preparation for Pavement Marking	9,413	Ft

COLD APPLIED PLASTIC PAVEMENT MARKING

All materials will be applied as per the manufacturer's recommendations. Cold Applied Plastic Pavement Markings will be 3M Series 380 AW or an approved equal.

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, 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.

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
1-15-2025

GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. The cleaning of the residue for grooving will be to the satisfaction of the Engineer and may require more than one pass to adequately remove material. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot or each for “Grooving for Cold Applied Plastic Pavement Marking” contract items.

GROOVING FOR PREFORMED THERMOPLASTIC PAVEMENT MARKING

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. The cleaning of the residue for grooving will be to the satisfaction of the Engineer and may require more than one pass to adequately remove material. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot or each for “Grooving for Cold Applied Plastic Pavement Marking” contract items.

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”.

TABLE OF REMOVE PAVEMENT MARKINGS

Location	4" White (Ft)	4" Yellow (Ft)	24" White (Ft)	Arrow (Each)
Cliff Avenue, 38th Street to S Arcadia Road	100	610	117	1
38th Street, east of Cliff Avenue		140		3
38th Street, west of Cliff Avenue		90		
Total	100	840	117	4
4" Equivalent Total	100	840	702	4
4" Equivalent Grand Total		1,642		4

SURFACE PREPARATION FOR PAVEMENT MARKING (Exit 3 Crossover)

The Contractor will prepare the pavement surface prior to applying the durable pavement marking in accordance with the following.

In areas where the existing groove meets the required depth and existing markings are still in place, the Contractor will clean the existing groove without adding additional depth beyond the required depth for the new pavement marking, including reflective media as noted below.

Description	Specification	Tolerance
Depth of Groove	Marking Thickness[1] + 15 mils	+ 5 mils

[1] Marking thickness will include the thickness of marking material and reflective media.

The cleaning will result in the existing pavement marking being adequately scuffed, abraded, and removed by light grinding or abrasive blasting or both to allow proper adhesion of the new durable pavement marking as per the manufacturer’s recommendations to comply with product warranties.

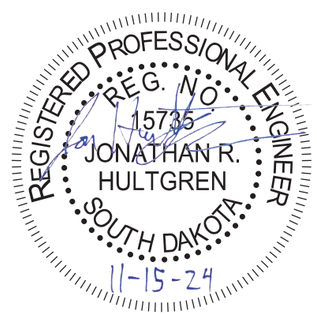

TABLE OF PAVEMENT MARKING QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M4	M24

Plotting Date: 11/15/2024

Location		Cold Applied Plastic Markings									Preformed Thermoplastic Markings							Epoxy Markings
		4W	4Y	4CW	8CW	12W	24Y	White Turn Arrow	White Thru Arrow	White Combination Arrow	4YT	4CWT	8WT	8CWT	24WT	White Area	White Turn Arrow	4WE
From	To	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(Each)	(Each)	(Each)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)	(SqFt)	(Each)	(Ft)
Cliff Avenue																		
South End	Ramp B & C Terminals		1,260	1,679			48	12						60				
Ramp B & C Terminals	Ramp A & D Terminals											315		255	255			
Ramp A & D Terminals	41st Street			1,660				15						56				
41st Street Intersection												28			630			
41st Street	38th Street		1,452	685			112	7										
38th Street Intersection															386			
38th Street	36th Street		534	200				3		1								
41st Street																		
West End	Cliff Avenue		3,190	849				6	3									
Park Entrance																		
West End	Cliff Avenue	30	60					2							69			
School Entrance																		
Cliff Avenue	East End		480	124				2		2								
School Parking Lot																		1,159
38th Street																		
West End	Cliff Avenue	156	856				33	3		2								
Cliff Avenue	East End	65	130					1	1	1								
36th Street																		
Cliff Avenue	East End	46	726				21	2										
Northbound I-229			6,236	9,529	88	737					468	708						
Southbound I-229			6,178	8,327	331	606					468	708						
I-229 Ramp A			703	1,094		352							78	458			5	
I-229 Ramp B			898	1,087		236						116	37					
I-229 Ramp C			610	1,181		502							63	845			6	
I-229 Ramp D			997	1,248	331	254						294	27	318				
I-229 Ramp E															40	24	1	
I-229 Ramp F												138	38	47	32			
I-229 Ramp G													52	156	56	33	2	
I-229 Ramp H												125	27	47	32			
05HN Totals		297	24,310	27,663	750	2,687	214	53	4	6	936	2,432	322	2,242	1,500	57	14	1,159

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SOUTH DAKOTA
11-15-24

Plot Scale - 1:200

Plotted From - ngjersvik

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PAVEMENT MARKING LAYOUT

I-229

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M5	M24

Plotting Date: 1/14/2025 Revised Date: 1/14/2025
Initials: NBG

Pavement Marking Legend

4 W or 4 Y	Cold Applied Plastic Pavement Marking, 4" White or Yellow
12 W	Cold Applied Plastic Pavement Marking, 12" White
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow
4C W	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
8C W	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
4 WT or 4 YT	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
4C WT	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
24 WT	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
8 WT	Preformed Thermoplastic Pavement Marking, 24" White
8C WT	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
4 WE	Epoxy Pavement Marking, 4" White (No Grooving)

REGISTERED PROFESSIONAL ENGINEER
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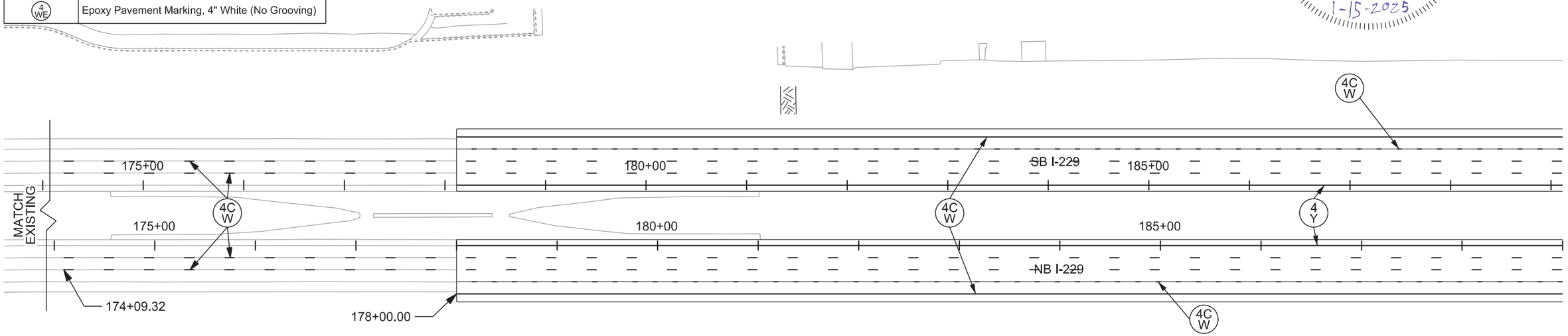
SOUTH DAKOTA
1-15-2025



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT	KEY	ITEM	EST QUANT	UNIT	KEY	ITEM	EST QUANT	UNIT
4 W	Cold Applied Plastic Pavement Marking, 4" White	297	FT		Grooving For Cold Applied Plastic Pavement Marking, 12"	2,687	FT		Grooving For Preformed Thermoplastic Pavement Marking, 8"	322	FT
4 Y	Cold Applied Plastic Pavement Marking, 4" Yellow	24,310	FT		Grooving For Cold Applied Plastic Pavement Marking, 24"	214	FT		Grooving For Preformed Thermoplastic Pavement Marking, 8" with Contrast Border	2,242	FT
4C W	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border	27,663	FT		Grooving For Cold Applied Plastic Pavement Marking, Arrow (Left - 36, Right - 17, Thru - 4, Left/Thru - 0, Right/Thru - 6)	63	EACH		Grooving For Preformed Thermoplastic Pavement Marking, 24"	1,500	FT
8C W	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border	750	FT	4 YT	Preformed Thermoplastic Pavement Marking, 4" Yellow	936	FT		Grooving For Preformed Thermoplastic Pavement Marking, Area (Yield Marking - 19)	57	SQFT
12 W	Cold Applied Plastic Pavement Marking, 12" White	2,687	FT	4C WT	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border	2,432	FT		Grooving For Preformed Thermoplastic Pavement Marking, Arrow (Left - 8, Right - 6)	14	EACH
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow	214	FT	8 WT	Preformed Thermoplastic Pavement Marking, 8" White	322	FT	4 WE	Epoxy Pavement Marking, 4" White	1,159	FT
	Cold Applied Plastic Pavement Marking, Combination Arrow (Left - 0, Right - 6)	6	EACH	8C WT	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border	2,242	FT				
	Cold Applied Plastic Pavement Marking, Arrow (Left - 36, Right - 17)	53	EACH	24 WT	Preformed Thermoplastic Pavement Marking, 24" White	1,500	FT				
	Cold Applied Plastic Pavement Marking, Arrow	4	EACH		Preformed Thermoplastic Pavement Marking, Area (Yield Marking - 19)	57	SQFT				
	Grooving For Cold Applied Plastic Pavement Marking, 4"	24,607	FT		Preformed Thermoplastic Pavement Marking, Arrow (Left - 8, Right - 6)	14	EACH				
	Grooving For Cold Applied Plastic Pavement Marking, 4" with Contrast Border	27,663	FT		Grooving For Preformed Thermoplastic Pavement Marking, 4"	936	FT				
	Grooving For Cold Applied Plastic Pavement Marking, 8" with Contrast Border	750	FT		Grooving For Preformed Thermoplastic Pavement Marking, 4" with Contrast Border	673	FT				

PAVEMENT MARKING LAYOUT

I-229

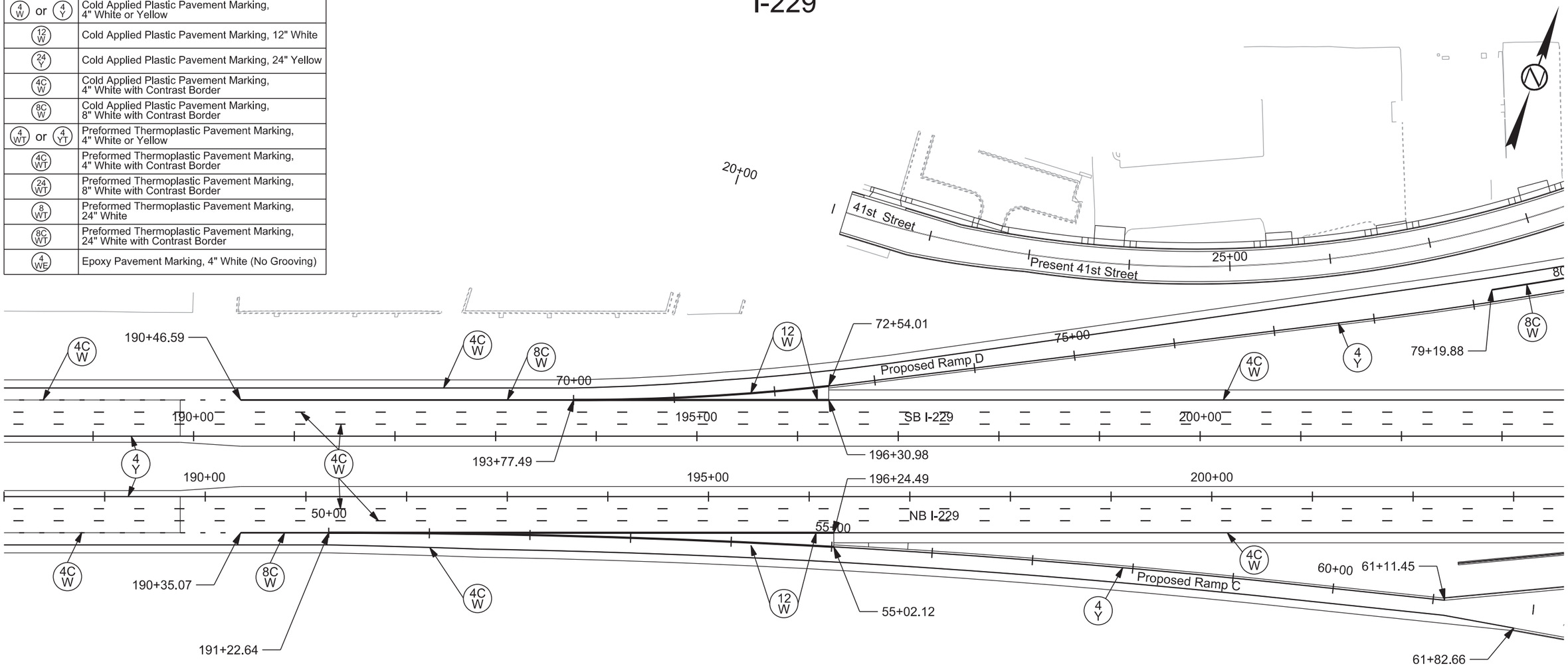
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M6	M24

Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)



REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
11-15-24

Plot Scale - 1:100
Plotted From - ngjersvik
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PAVEMENT MARKING LAYOUT

I-229

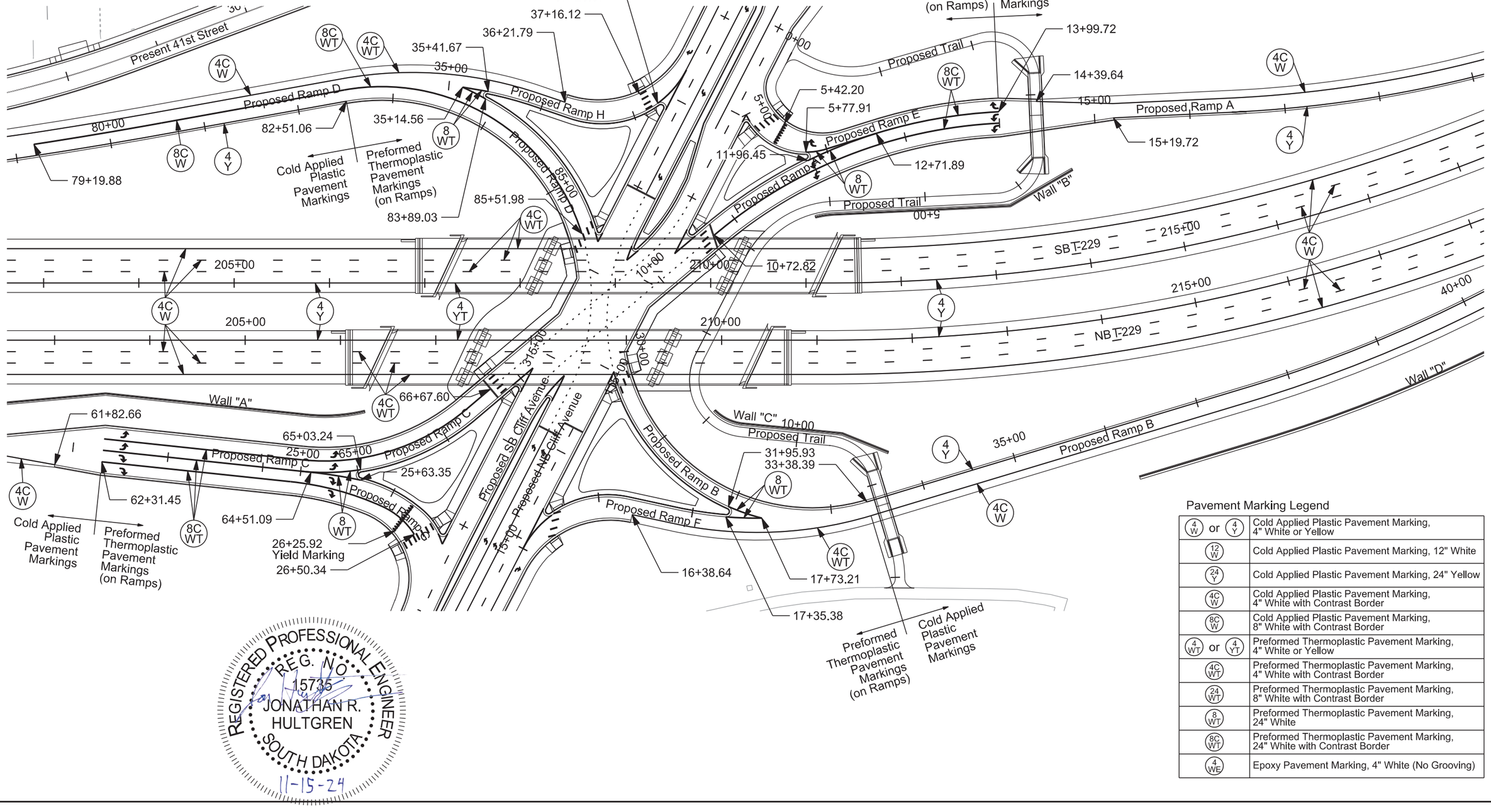
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M7	M24

Plotting Date: 11/15/2024

Note:

Preformed Thermoplastic Pavement Markings shall be used on I-229 bridges (no grooving)



Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)

REGISTERED PROFESSIONAL ENGINEER
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11-15-24

Plot Scale - 1:100
Plotted From - ...\06HN_pm.dgn
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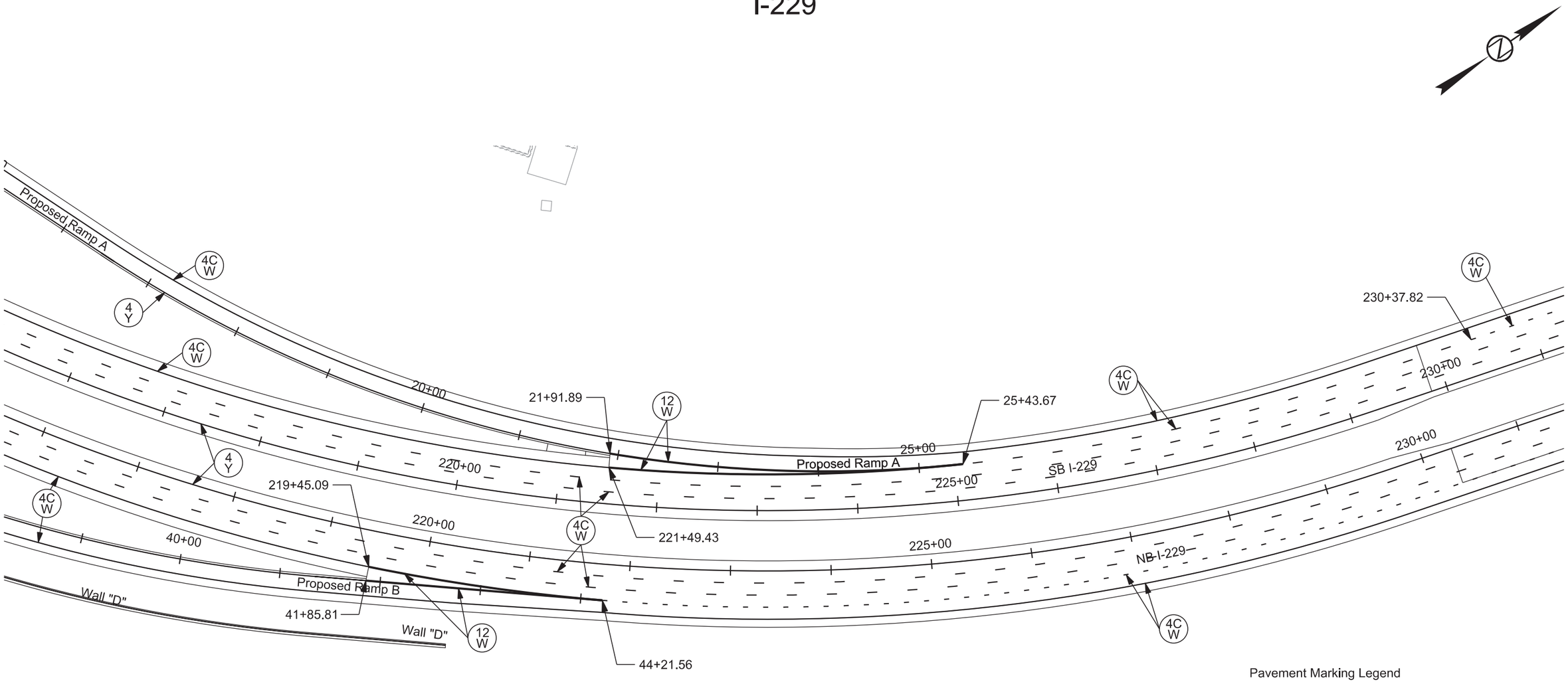
PAVEMENT MARKING LAYOUT

I-229

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M8	M24

Plotting Date: 11/15/2024



Pavement Marking Legend

4 W or 4 Y	Cold Applied Plastic Pavement Marking, 4" White or Yellow
12 W	Cold Applied Plastic Pavement Marking, 12" White
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow
4C W	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
8C W	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
4 WT or 4 YT	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
4C WT	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
24 WT	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
8 WT	Preformed Thermoplastic Pavement Marking, 24" White
8C WT	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
4 WE	Epoxy Pavement Marking, 4" White (No Grooving)

REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA
11-15-24

Plot Scale - 1:100
Plotted From - ngjersvik
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PAVEMENT MARKING LAYOUT

I-229

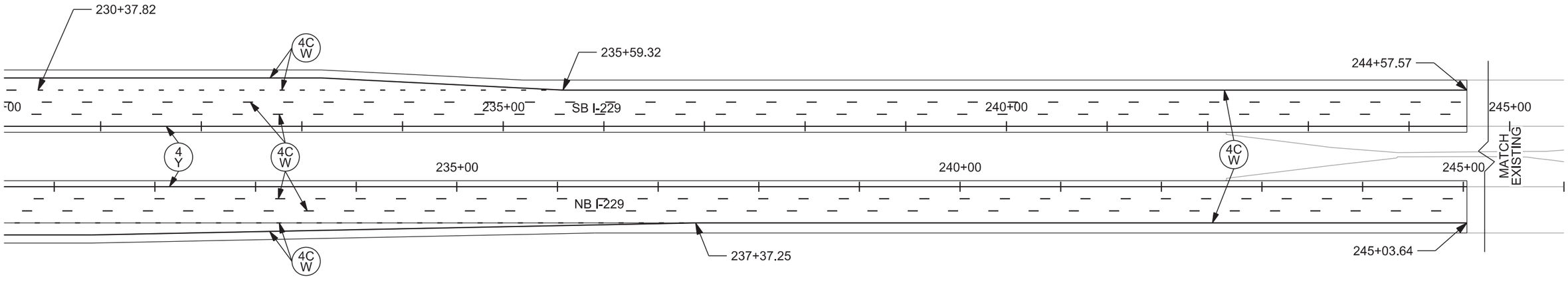
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M9	M24

Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)



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SOUTH DAKOTA
11-15-24

Plot Scale - 1:100

Plotted From - ngiersvik

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PAVEMENT MARKING LAYOUT

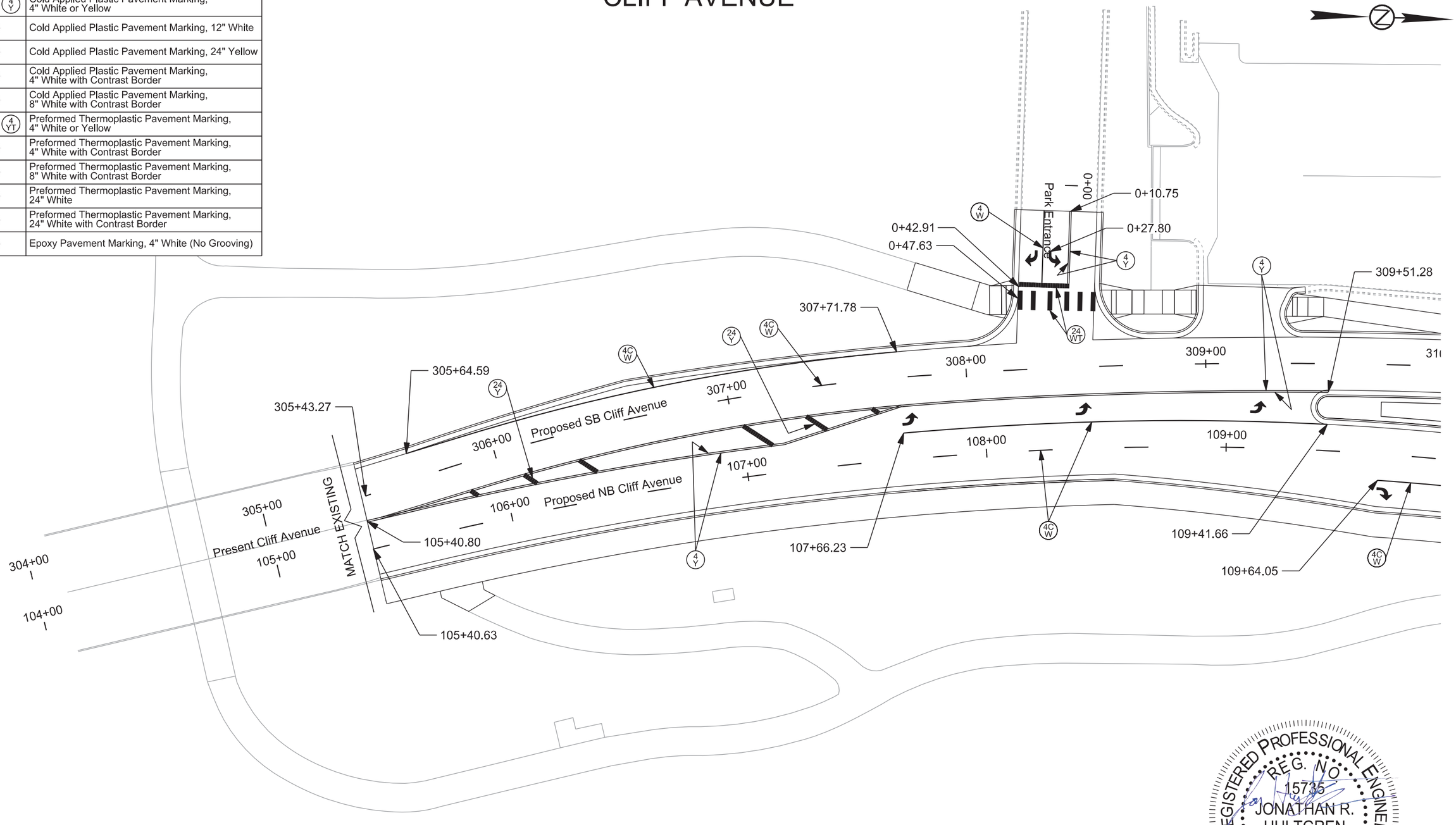
CLIFF AVENUE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M10	M24

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15735
JONATHAN R.
HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40

Plotted From - ngjersvik

File - ...\05HN_pm.dgn

PAVEMENT MARKING LAYOUT
CLIFF AVENUE

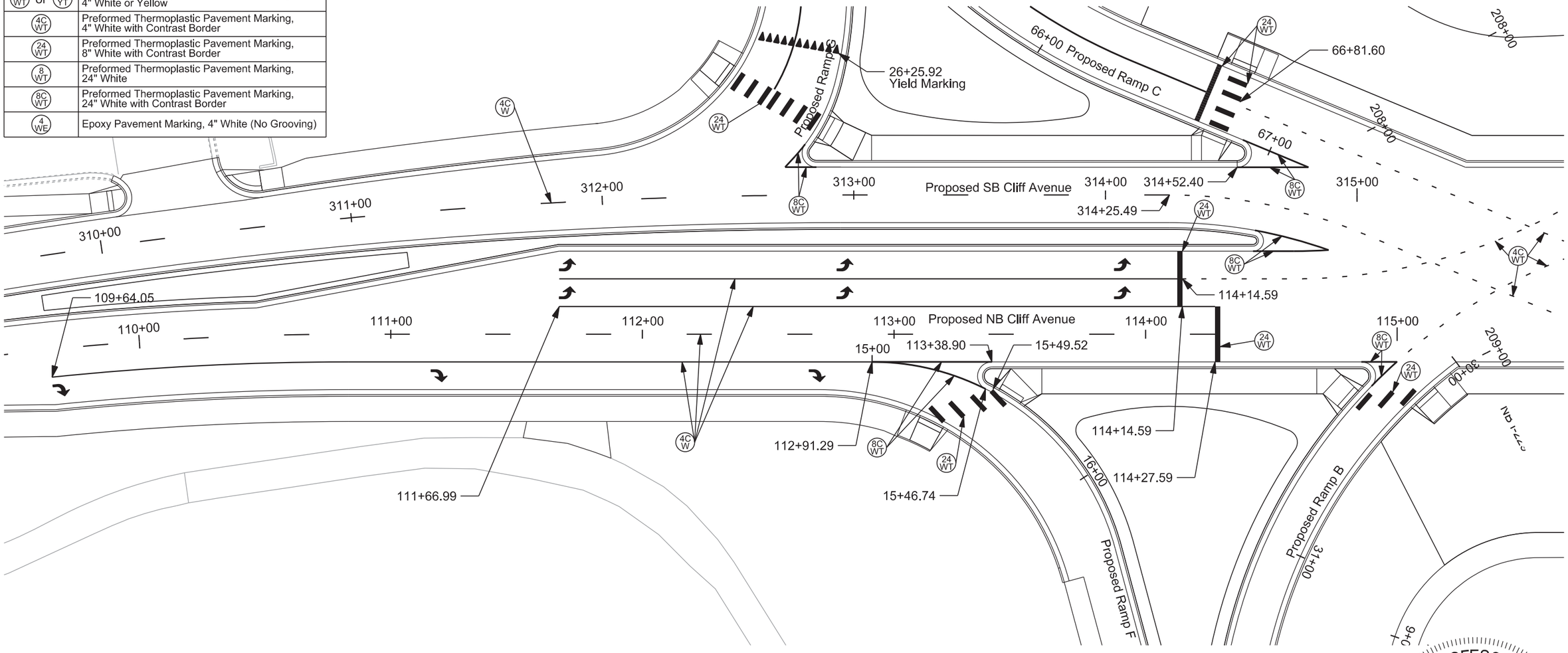
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M11	M24

Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40
Plotted From - mjersvik
File - ...\06HN_pm.dgn

PAVEMENT MARKING LAYOUT
CLIFF AVENUE

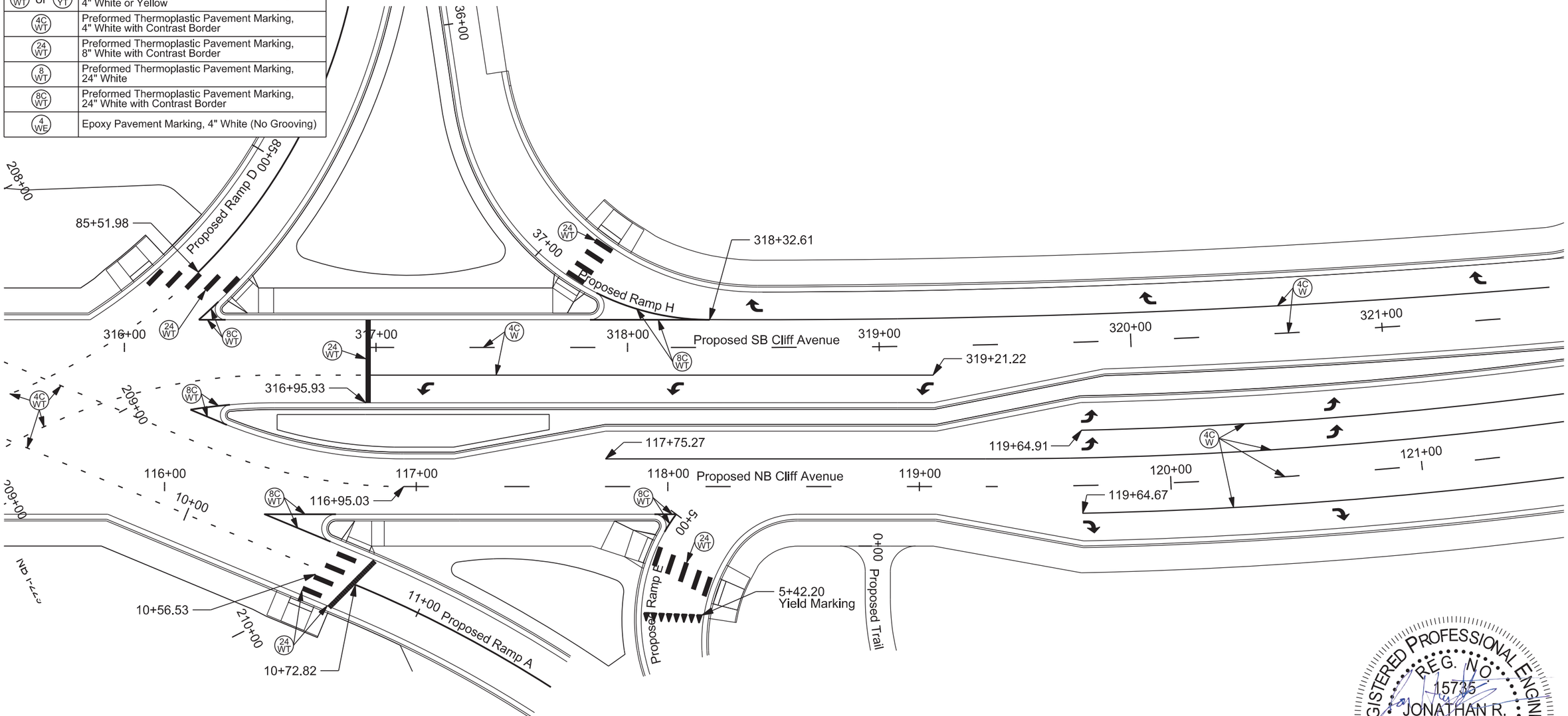
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M12	M24

Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)



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REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40

Plotted From - ngjersvik

File - ...\05HN_pm.dgn

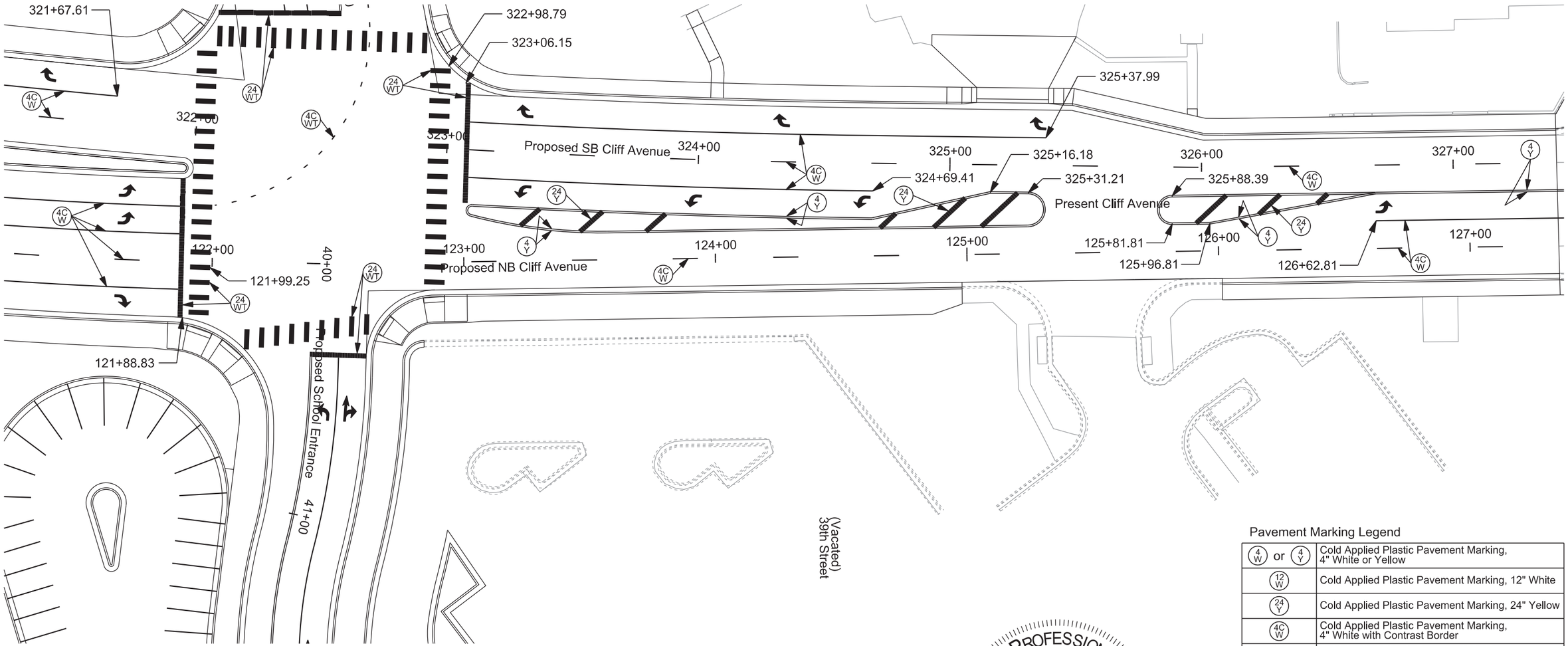
PAVEMENT MARKING LAYOUT

CLIFF AVENUE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M13	M24

Plotting Date: 11/15/2024



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15735
JONATHAN R.
HULTGREN
SOUTH DAKOTA
11-15-24

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)

Plot Scale - 1:40

Plotted From - ngjersvik

File - ...\05HN_pm.dgn

PAVEMENT MARKING LAYOUT

CLIFF AVENUE & 38TH STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M14	M24

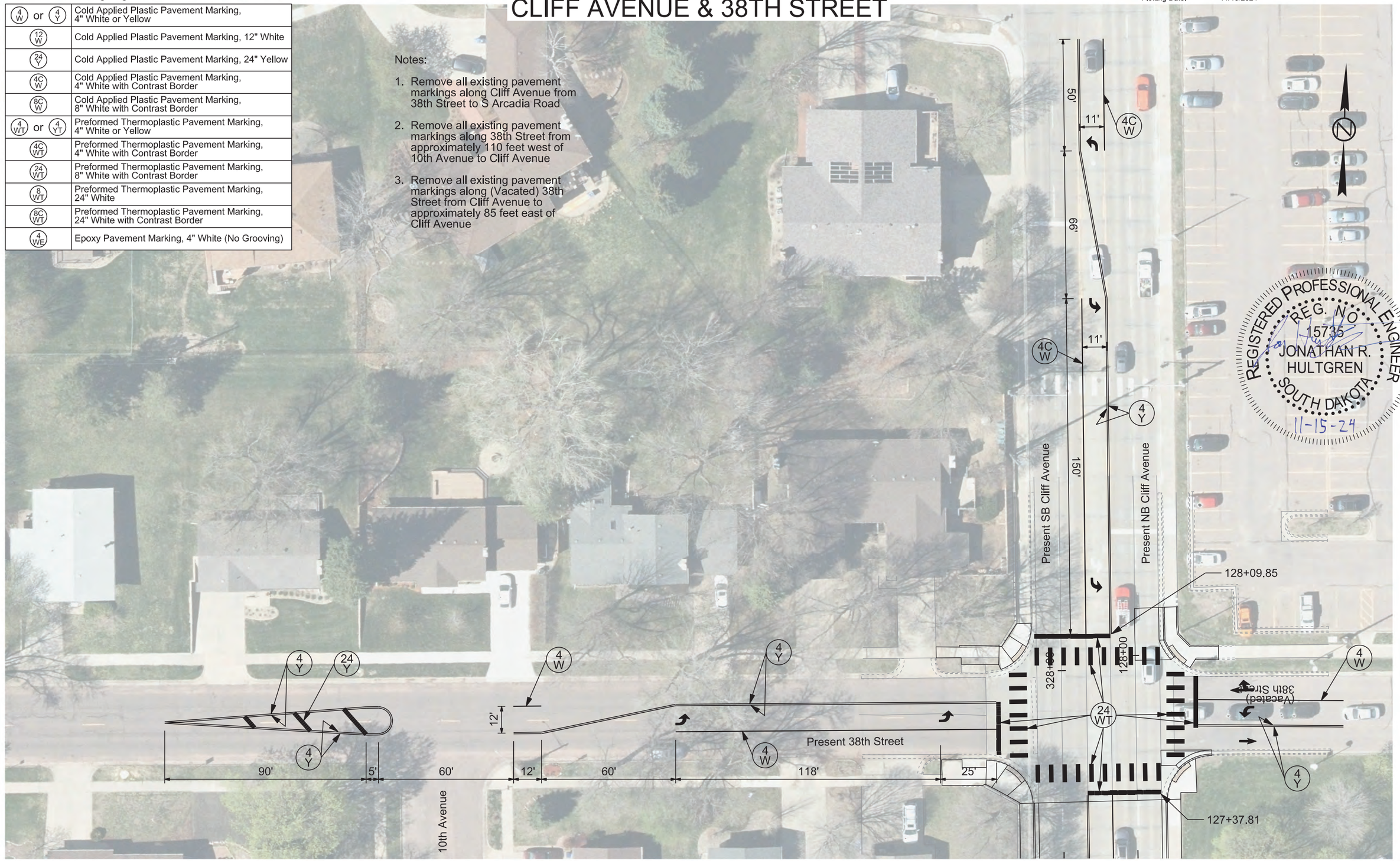
Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)

Notes:

1. Remove all existing pavement markings along Cliff Avenue from 38th Street to S Arcadia Road
2. Remove all existing pavement markings along 38th Street from approximately 110 feet west of 10th Avenue to Cliff Avenue
3. Remove all existing pavement markings along (Vacated) 38th Street from Cliff Avenue to approximately 85 feet east of Cliff Avenue



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REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40

Plotted From - ...njensvik

File - ...\05HN_pm.dgn

PAVEMENT MARKING LAYOUT
CLIFF AVENUE & 36TH STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M15	M24

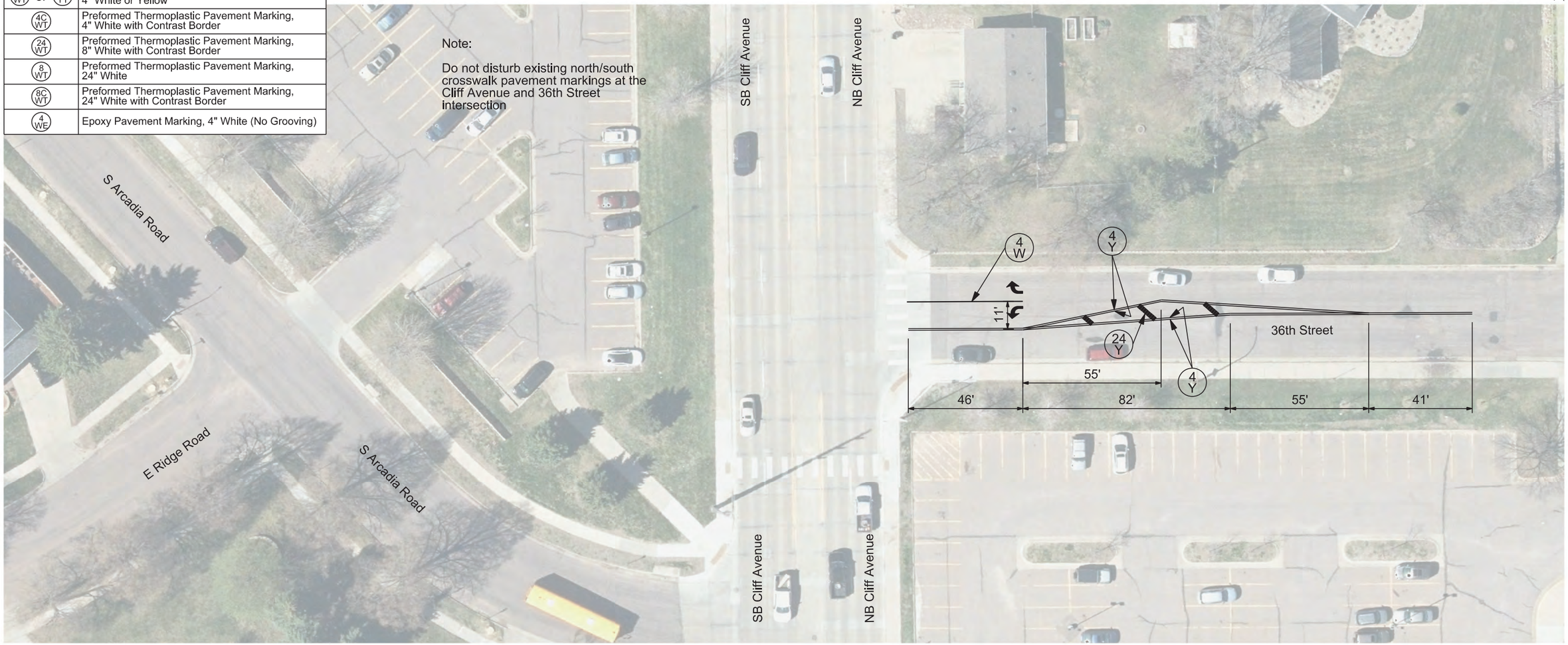
Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)

Note:

Do not disturb existing north/south crosswalk pavement markings at the Cliff Avenue and 36th Street intersection



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REG. NO. 15735
JONATHAN R. HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40
Plotted From - njjersvik
File - ...\05HN_pm.dgn

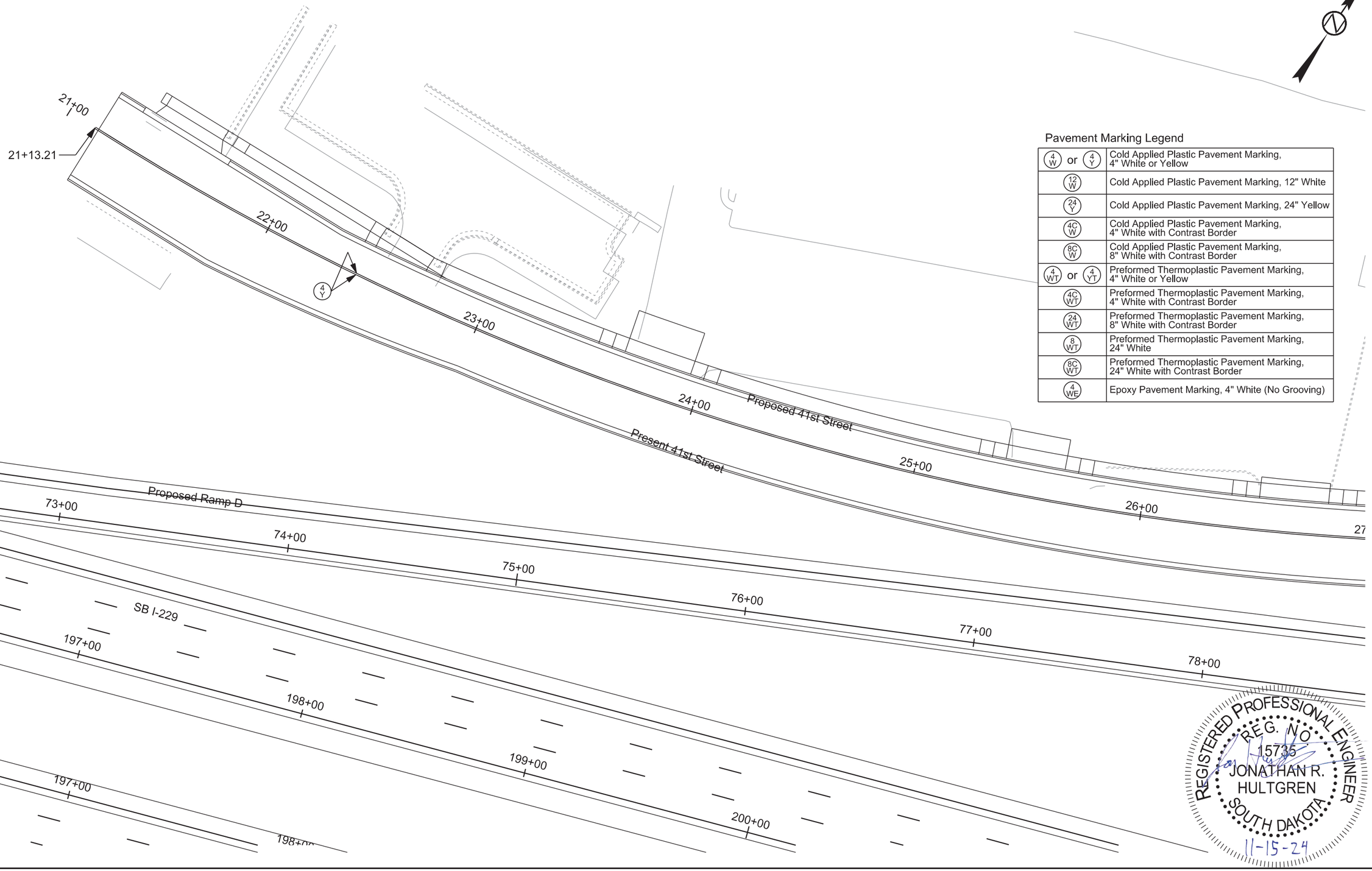
PAVEMENT MARKING LAYOUT

41ST STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M16	M24

Plotting Date: 11/15/2024



Pavement Marking Legend

4 W or 4 Y	Cold Applied Plastic Pavement Marking, 4" White or Yellow
12 W	Cold Applied Plastic Pavement Marking, 12" White
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow
4C W	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
8C W	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
4 WT or 4 YT	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
4C WT	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
24 WT	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
8 WT	Preformed Thermoplastic Pavement Marking, 24" White
8C WT	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
4 WE	Epoxy Pavement Marking, 4" White (No Grooving)

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REG. NO.
15735
JONATHAN R.
HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40
Plotted From - ...nojersvik
File - ...\05HN_pm.dgn

PAVEMENT MARKING LAYOUT

41ST STREET

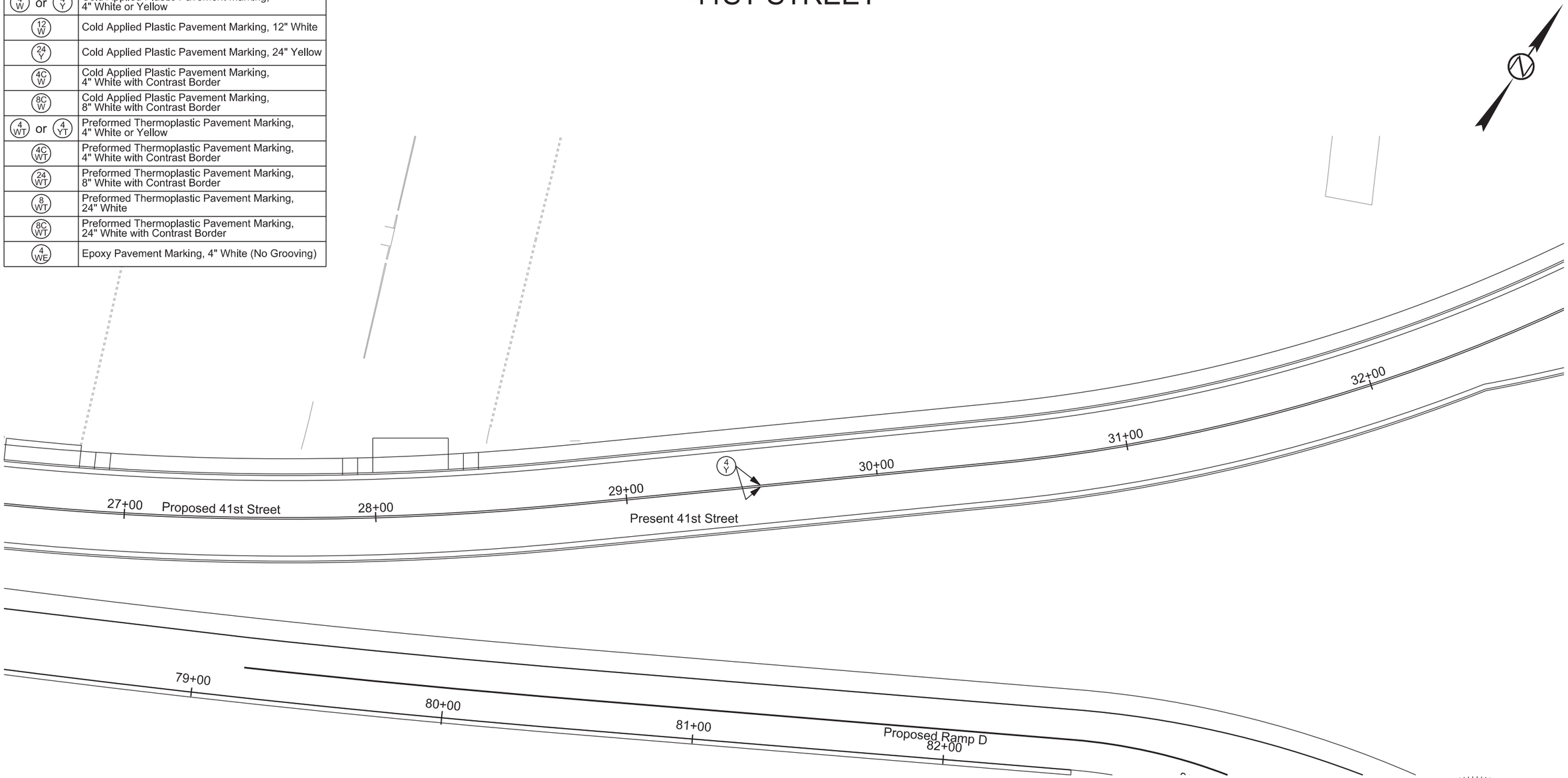
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M17	M24

Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)



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REG. NO.
15735
JONATHAN R.
HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40

Plotted From - ngjersvik

File - ...\05HN_pm.dgn

PAVEMENT MARKING LAYOUT

41ST STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M18	M24

Plotting Date: 11/15/2024

Pavement Marking Legend

(4 W) or (4 Y)	Cold Applied Plastic Pavement Marking, 4" White or Yellow
(12 W)	Cold Applied Plastic Pavement Marking, 12" White
(24 Y)	Cold Applied Plastic Pavement Marking, 24" Yellow
(4C W)	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
(8C W)	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
(4 WT) or (4 YT)	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
(4C WT)	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
(24 WT)	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
(8 WT)	Preformed Thermoplastic Pavement Marking, 24" White
(8C WT)	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
(4 WE)	Epoxy Pavement Marking, 4" White (No Grooving)

50+00

E. Pam Road

Present E. Pam Road

35+80.97

37+19.83

35+00

36+00

Proposed 41st Street

37+08.41

37+00

34+00

33+00

34+85.26

33+31.94

37+02.23

37+07.42

Present 41st Street

321+00

322+00

323+00

324+00

40+00

Proposed SB Cliff Avenue

Proposed NB Cliff Avenue

Proposed School Entrance

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HULTGREN
SOUTH DAKOTA
11-15-24

Plot Scale - 1:40

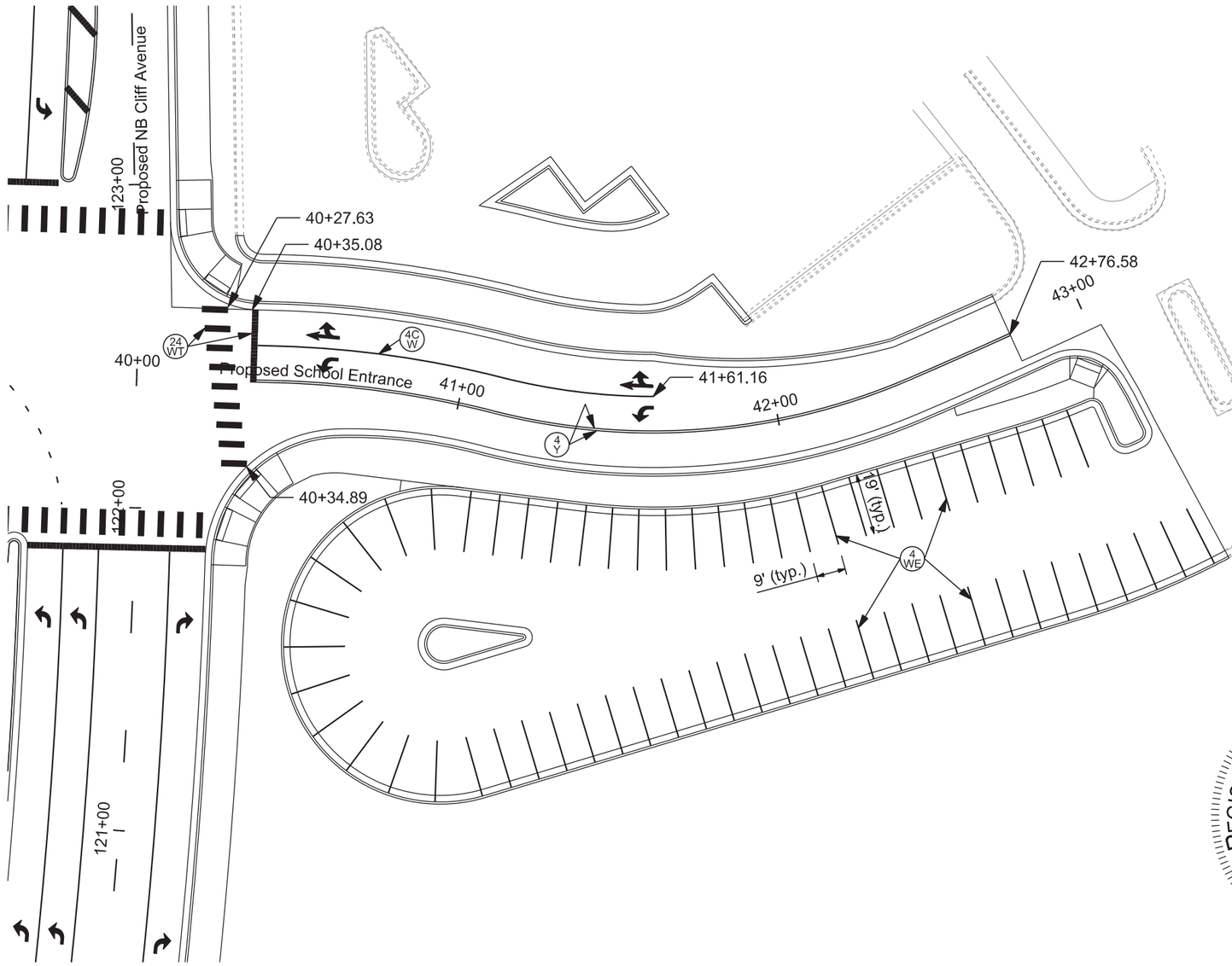
Plotted From - nojensvik

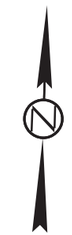
File - ...\05HN_pm.dgn

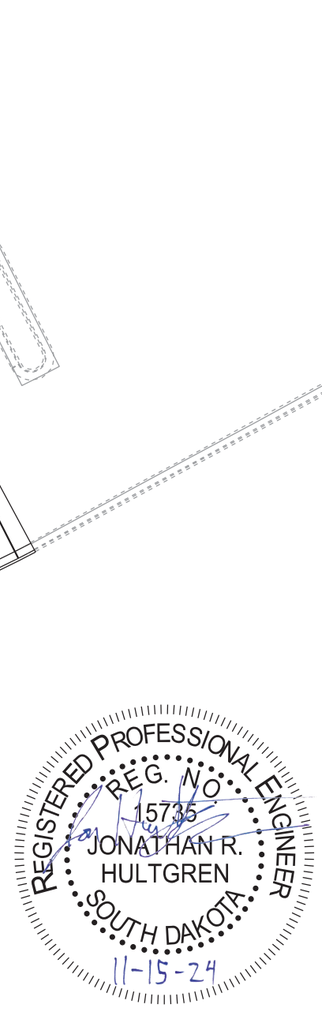
PAVEMENT MARKING LAYOUT
SCHOOL ENTRANCE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M19	M24







Pavement Marking Legend

4 W or 4 Y	Cold Applied Plastic Pavement Marking, 4" White or Yellow
12 W	Cold Applied Plastic Pavement Marking, 12" White
24 Y	Cold Applied Plastic Pavement Marking, 24" Yellow
4C W	Cold Applied Plastic Pavement Marking, 4" White with Contrast Border
8C W	Cold Applied Plastic Pavement Marking, 8" White with Contrast Border
4 WT or 4 YT	Preformed Thermoplastic Pavement Marking, 4" White or Yellow
4C WT	Preformed Thermoplastic Pavement Marking, 4" White with Contrast Border
24 WT	Preformed Thermoplastic Pavement Marking, 8" White with Contrast Border
8 WT	Preformed Thermoplastic Pavement Marking, 24" White
8C WT	Preformed Thermoplastic Pavement Marking, 24" White with Contrast Border
4 WE	Epoxy Pavement Marking, 4" White (No Grooving)

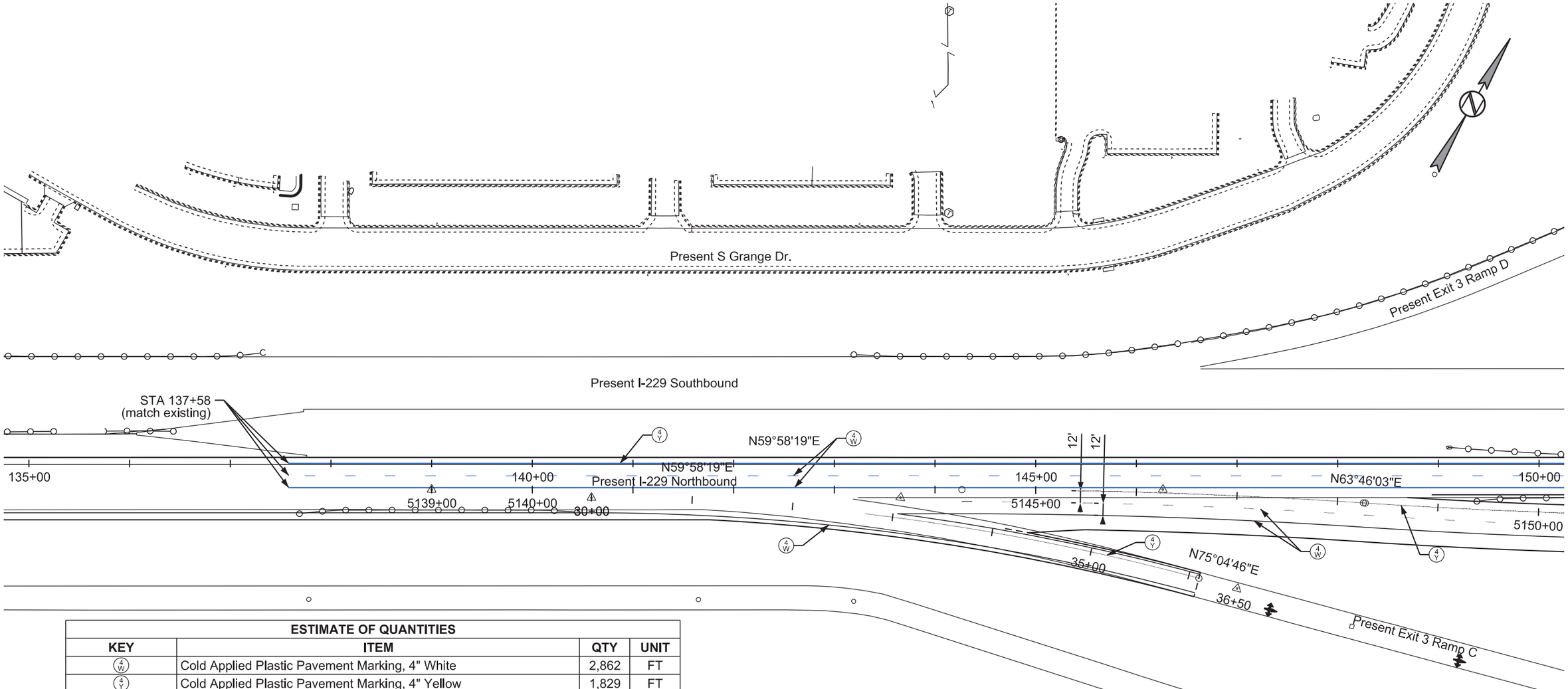
PAVEMENT MARKING LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	IM-B-CR 2292(101)3	M20	M24

Plotting Date: 10/23/2024 Revision Date: 1/15/2025 PLG

Exit 3 NB Diversion



ESTIMATE OF QUANTITIES				
KEY		ITEM	QTY	UNIT
(4W)		Cold Applied Plastic Pavement Marking, 4" White	2,862	FT
(4Y)		Cold Applied Plastic Pavement Marking, 4" Yellow	1,829	FT
		Grooving For Cold Applied Plastic Pavement Marking, 4"	4,691	FT
(Pavement Marking for Section C Removals)				
Phase 2b	(4W)	Cold Applied Plastic Pavement Marking, 4" White	2,504	FT
	(4Y)	Cold Applied Plastic Pavement Marking, 4" Yellow	1,252	FT
Phase 2c	(4W)	Cold Applied Plastic Pavement Marking, 4" White	3,731	FT
	(4Y)	Cold Applied Plastic Pavement Marking, 4" Yellow	1,426	FT
Phase 3a	(4W)	Cold Applied Plastic Pavement Marking, 4" White	250	FT
	(4Y)	Cold Applied Plastic Pavement Marking, 4" Yellow	250	FT
		Cold Applied Plastic Pavement Marking, Combination Arrow (Left, Thru, Right)	3	EACH

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GUNDVALDSON
SOUTH DAKOTA
1-15-25

infrastructure design group inc.

PAVEMENT MARKING LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	IM-B-CR 2292(101)3	M21	M24

Plotting Date: 10/23/2024

Exit 3 NB Diversion

Present Exit 3 Ramp D

Present Minnesota Ave

Present Exit 3 Ramp A

STA 151+95
(match existing)

Present I-229 Southbound

STA 151+84
(match existing)

N59°58'19"E

STA 164+48
(match existing)

150+00

155+00

Present I-229 Northbound

N55°27'11"E

160+00

165+00

5163+49

5160+00

N59°58'19"E

5150+00

Proposed NB Diversion

5155+00

Present Exit 3 Ramp B

Present Exit 3 Ramp C

Present Minnesota Ave

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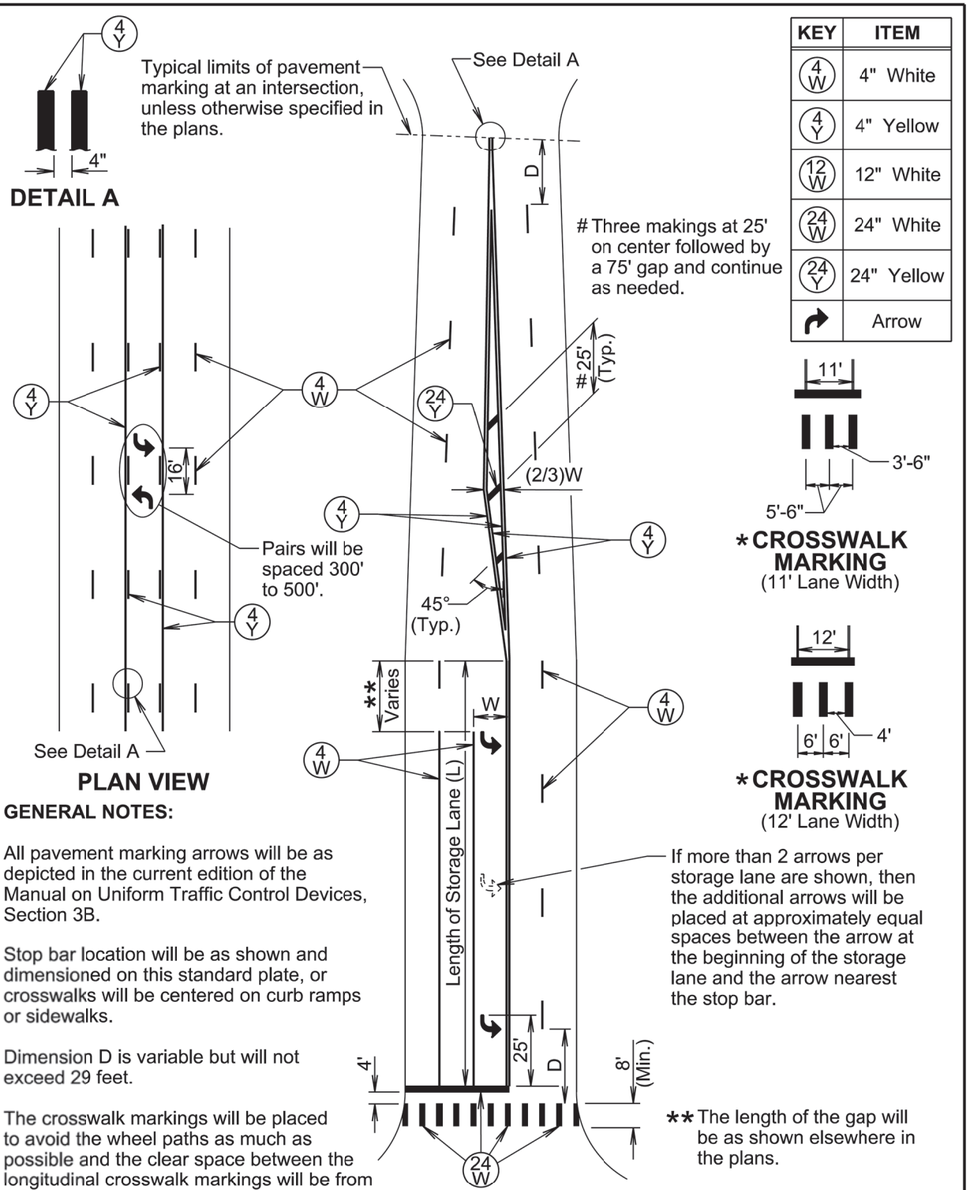
9234
PHILIP L.
GUNDVALDSON
SOUTH DAKOTA
11-15-24

infrastructure design group inc.

Plotted From - InfrastructureDesignGroup File - S:\0-2018 Projects\18052.02 - I-229 Exit 4 (Cliff Ave) Interchange (PCN 05HN, 07CY)\Design\Microstation\Exit 3 Crossover\WorkSets\Exit 3 - Temporary Bridge\DGN Files\Sheets\Section M\05HN_SectionM_PavementMarkings.dgn

Plot Scale - 1"=100'



GENERAL NOTES:

All pavement marking arrows will be as depicted in the current edition of the Manual on Uniform Traffic Control Devices, Section 3B.

Stop bar location will be as shown and dimensioned on this standard plate, or crosswalks will be centered on curb ramps or sidewalks.

Dimension D is variable but will not exceed 29 feet.

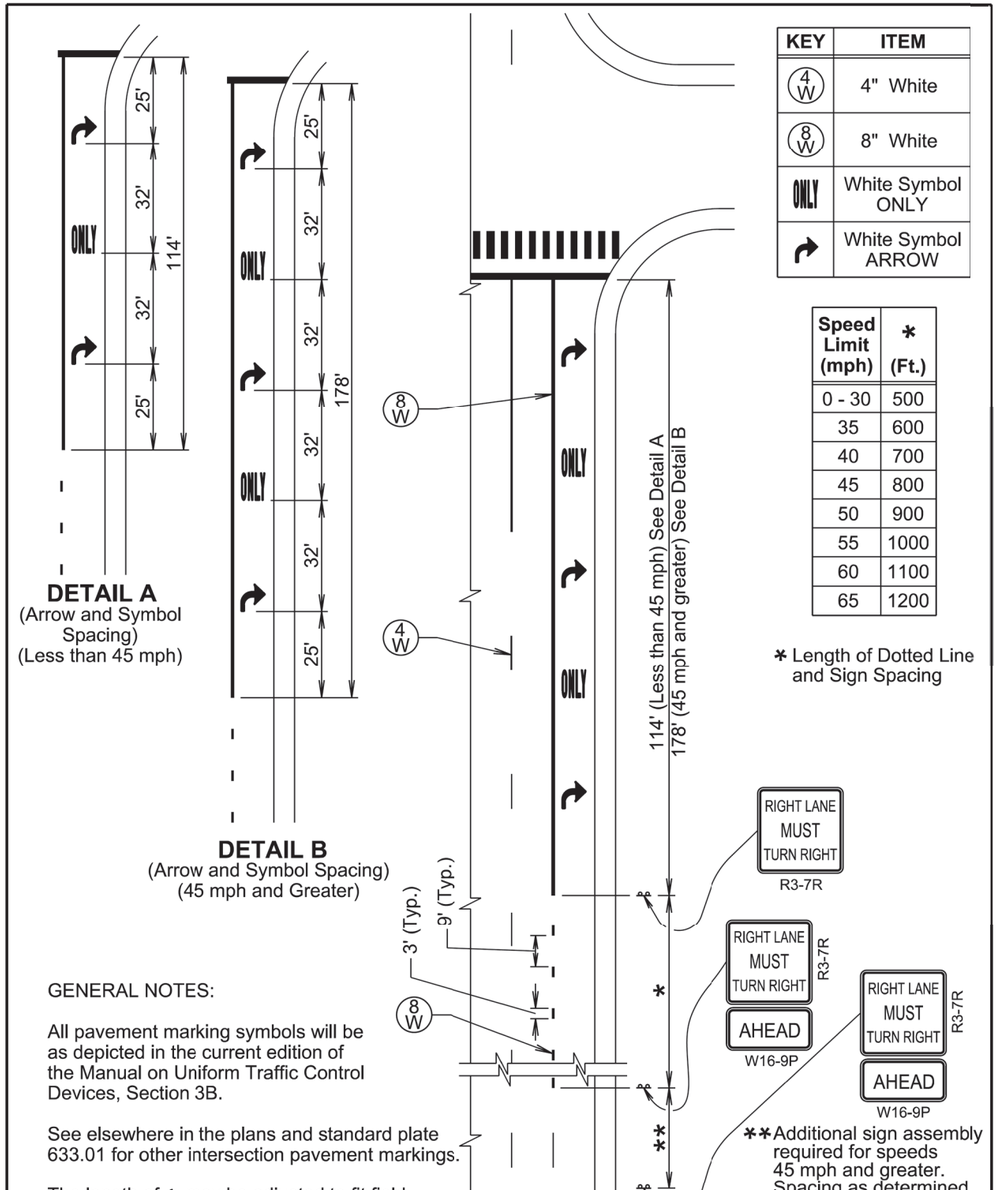
* The crosswalk markings will be placed to avoid the wheel paths as much as possible and the clear space between the longitudinal crosswalk markings will be from 2 feet to 5 feet. If following the dimensions shown, crosswalk markings will begin on a lane line or centerline.

If more than 2 arrows per storage lane are shown, then the additional arrows will be placed at approximately equal spaces between the arrow at the beginning of the storage lane and the arrow nearest the stop bar.

** The length of the gap will be as shown elsewhere in the plans.

March 31, 2024

Published Date: 2025	SDDOT	PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE	PLATE NUMBER 633.01
			Sheet 1 of 1



GENERAL NOTES:

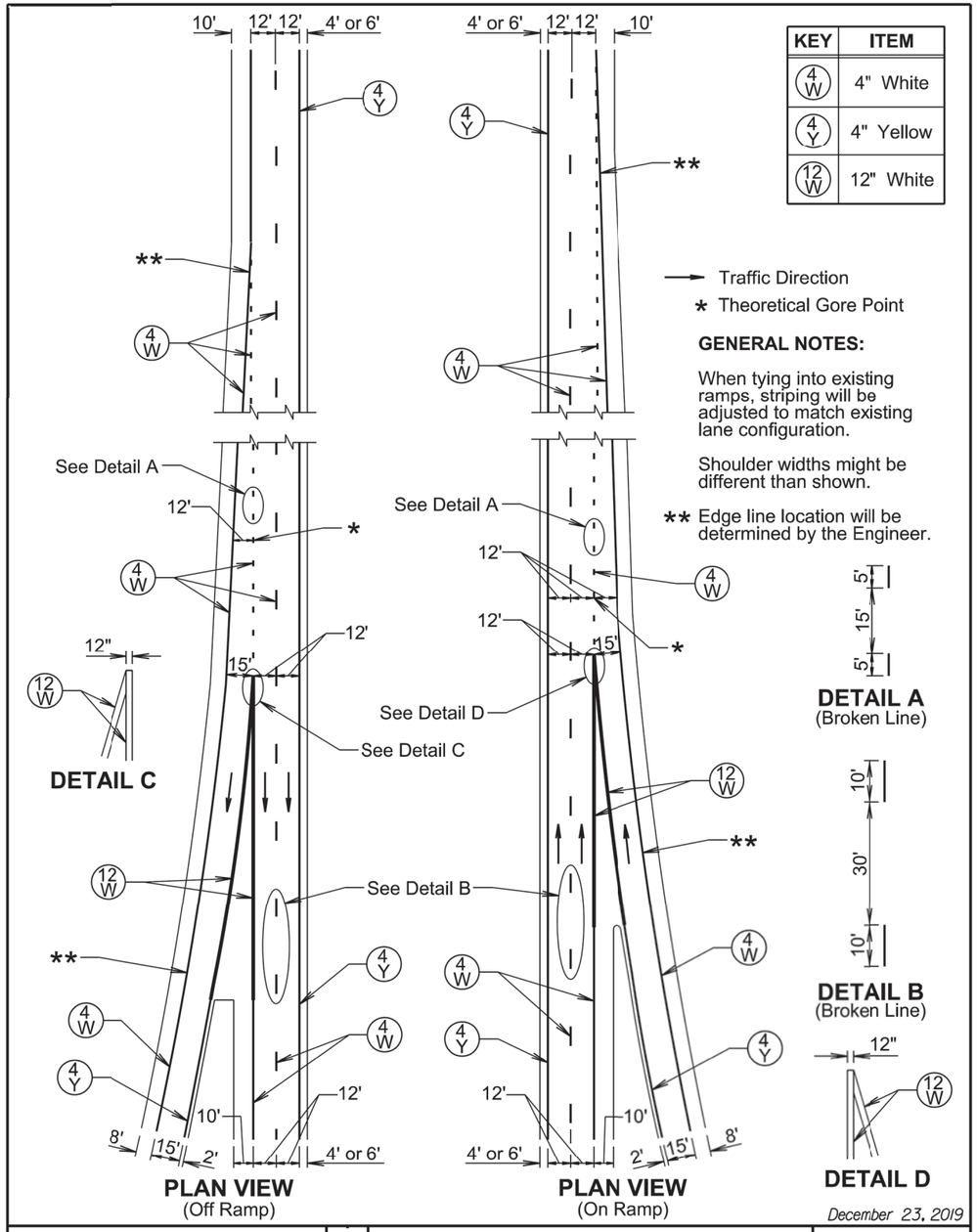
All pavement marking symbols will be as depicted in the current edition of the Manual on Uniform Traffic Control Devices, Section 3B.

See elsewhere in the plans and standard plate 633.01 for other intersection pavement markings.

The length of * may be adjusted to fit field conditions.

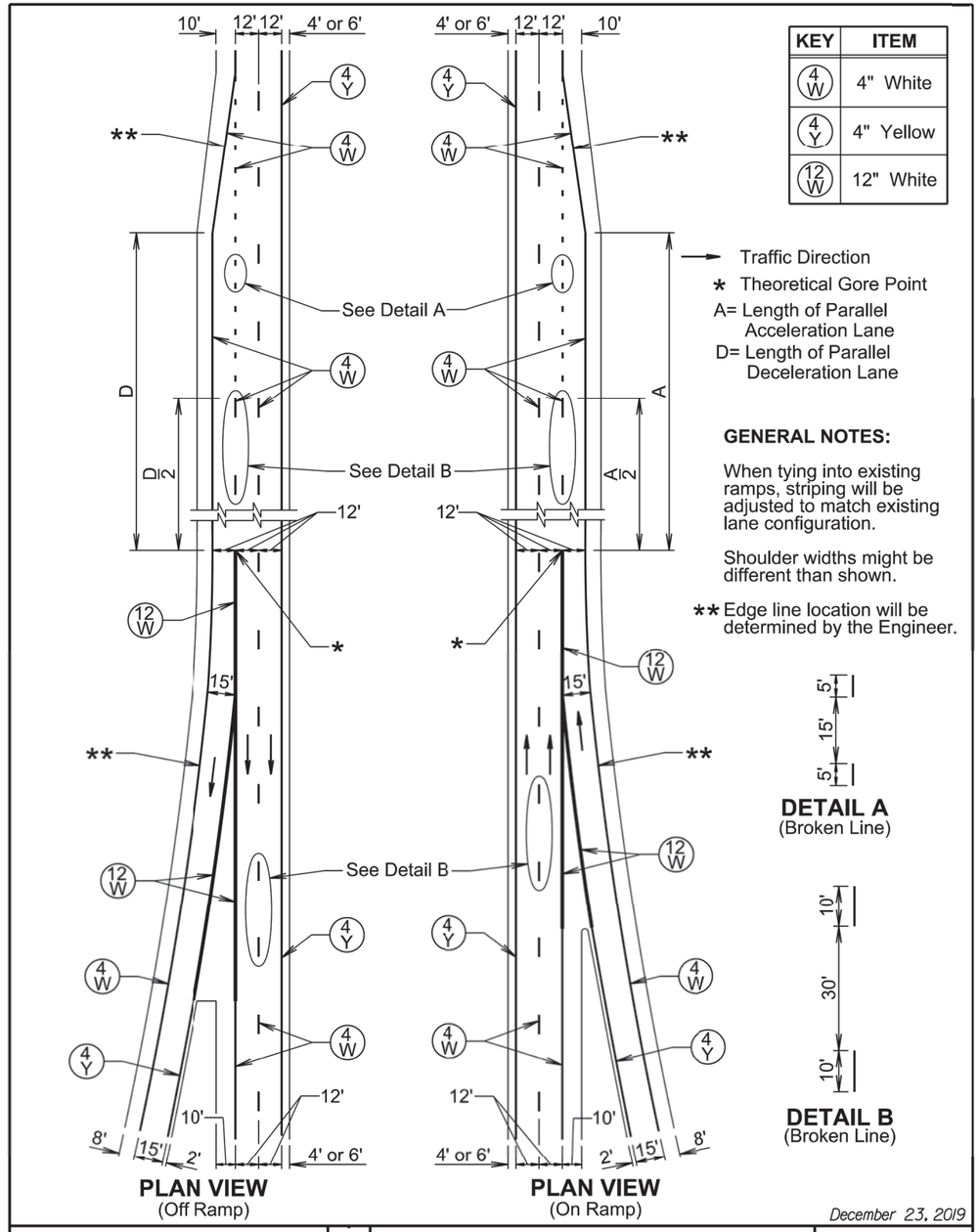
November 19, 2020

Published Date: 2025	SDDOT	LANE-DROP PAVEMENT MARKINGS	PLATE NUMBER 633.02
			Sheet 1 of 1



December 23, 2019

Published Date: 2025	SDDOT	PAVEMENT MARKING LAYOUT FOR TAPERED INTERSTATE RAMPS	PLATE NUMBER 633.05
			Sheet 1 of 1



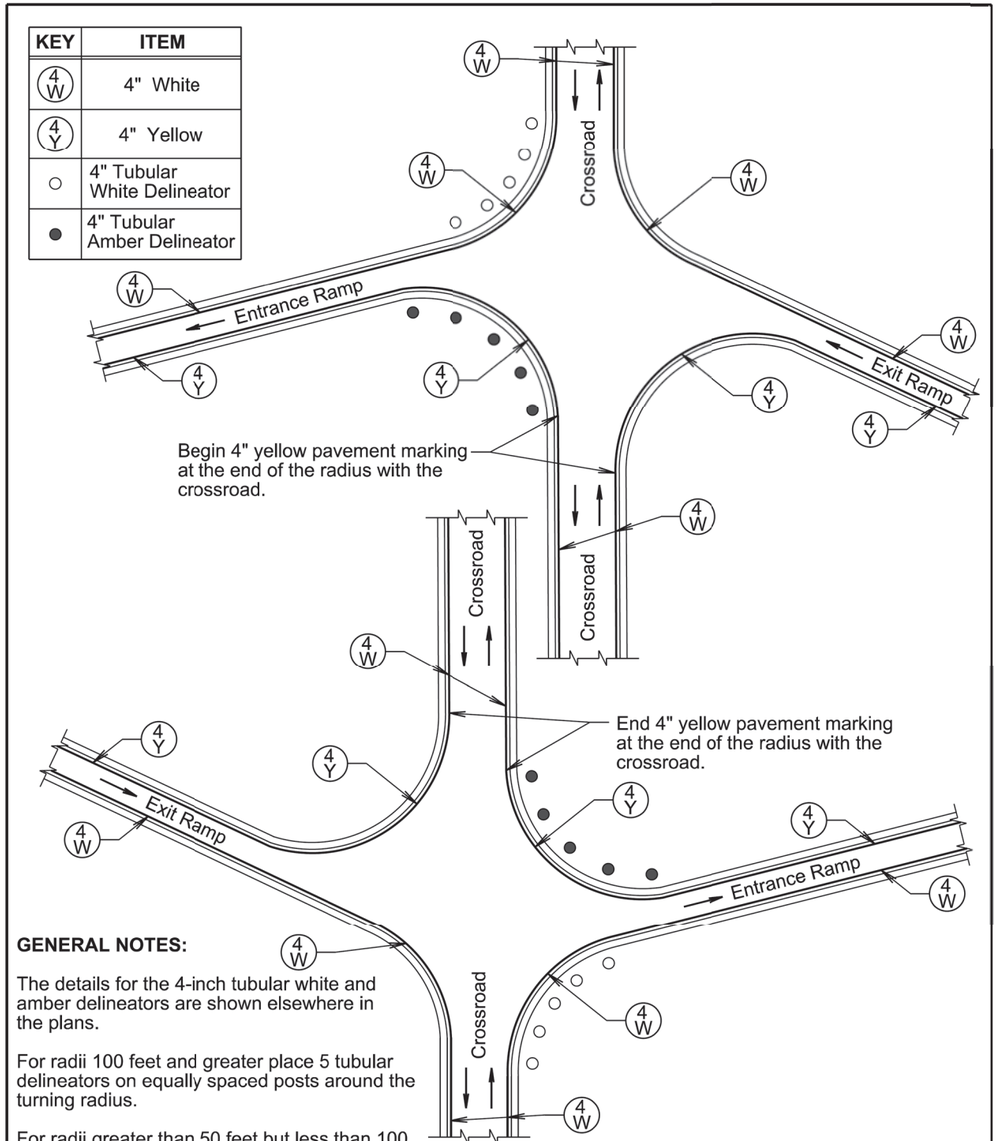
December 23, 2019

Published Date: 2025	SDDOT	PAVEMENT MARKING LAYOUT FOR PARALLEL INTERSTATE RAMPS	PLATE NUMBER 633.06
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-B-CR 2292(101)3	M24	M24

Plotting Date: 11/15/2024

KEY	ITEM
4 W	4" White
4 Y	4" Yellow
○	4" Tubular White Delineator
●	4" Tubular Amber Delineator



PLAN VIEW

GENERAL NOTES:

The details for the 4-inch tubular white and amber delineators are shown elsewhere in the plans.

For radii 100 feet and greater place 5 tubular delineators on equally spaced posts around the turning radius.

For radii greater than 50 feet but less than 100 feet place 4 tubular delineators on equally spaced posts around the radius.

For radii 50 feet and less place 3 tubular delineators on equally spaced posts around the radius.

June 26, 2019

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