

SECTION M: PAVEMENT MARKING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0037(158)126	M1	M13

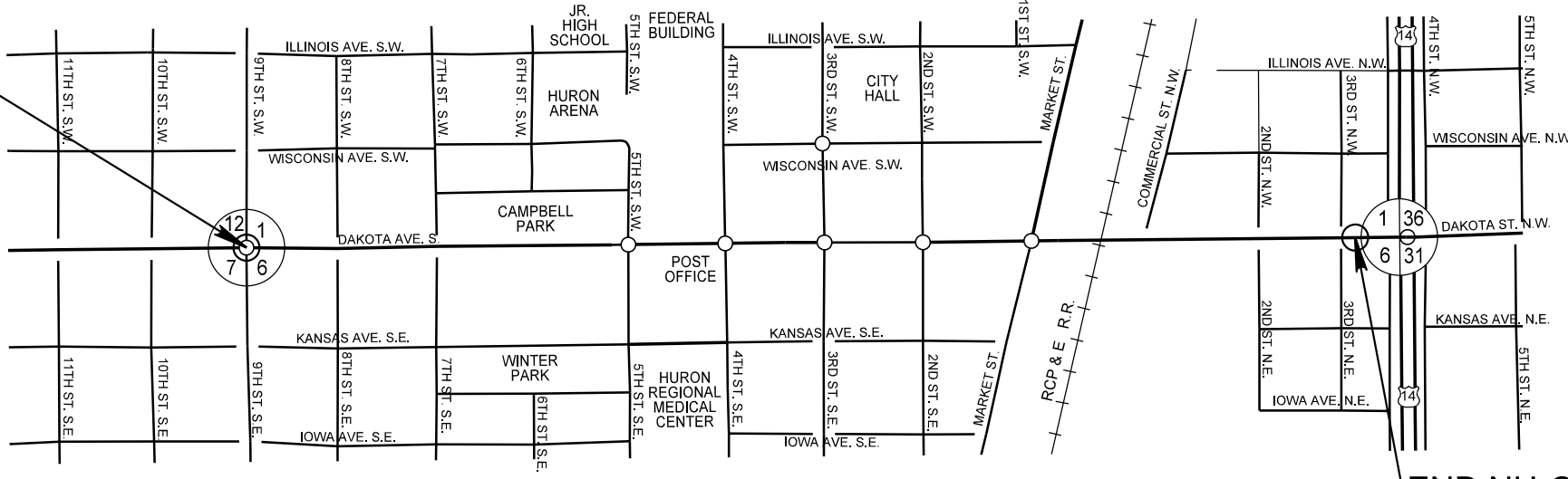
Plotting Date: 11/28/2023

INDEX OF SHEETS

- M1 General Layout with Index
- M2 Estimate with General Notes & Tables
- M3-M11 Pavement Marking Layouts
- M12-M13 Standard Plates



BEGIN NH-CR 0037(158)126
Station 9+32.27



END NH-CR 0037(158)126
Station 58+84.30

HURON

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SECTION M ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E0010	Cold Applied Plastic Pavement Marking, 4"	17,600	Ft
633E0020	Cold Applied Plastic Pavement Marking, 8"	300	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	36	Each
633E0050	Cold Applied Plastic Pavement Marking, Message	2	Word
633E0055	Cold Applied Plastic Pavement Marking, Railroad Crossing	5	Each
633E0062	Cold Applied Plastic Pavement Marking, Symbol	6	Each
633E0210	Preformed Thermoplastic Pavement Marking, 4"	1,400	Ft
633E0225	Preformed Thermoplastic Pavement Marking, 24"	2,100	Ft
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	19,000	Ft
633E5005	Grooving for Cold Applied Plastic Pavement Marking, 8"	300	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	2,100	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	36	Each
633E5035	Grooving for Cold Applied Plastic Pavement Marking, Message	2	Word
633E5037	Grooving for Cold Applied Plastic Pavement Marking, Symbol	6	Each
633E5040	Grooving for Cold Applied Plastic Pavement Marking, Railroad Crossing	5	Each

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.

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. 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.

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.

GROOVING FOR THERMOPLASTIC PAVEMENT MARKING

All surfaces receiving thermoplastic pavement markings will be grooved prior to application.

Grooving for the thermoplastic pavement markings will be done according to "Grooving for Cold Applied Plastic Pavement Marking" in the specifications and plan notes.

Immediately prior to application of the markings the grooves must be cleaned by using high pressure compressed air (90 psi minimum). All costs associated with groove cleaning will be incidental to the contract unit per foot for "Grooving for Cold Applied Plastic Pavement Marking, 24".

If application of the markings does not immediately follow dry pavement grooving, then within 24 hours prior to placing the thermoplastic pavement markings the groove will be sandblasted and cleaned as noted above. If the thermoplastic pavement markings are not placed within 24 hours of sandblasting, the groove will be re-sandblasted and re-cleaned. All costs associated with sandblasting and cleaning will be incidental to the contract unit price per foot for "Grooving for Cold Applied Plastic Pavement Marking, 24".

PAVEMENT MARKING LAYOUT

SD HWY 37 / DAKOTA AVE

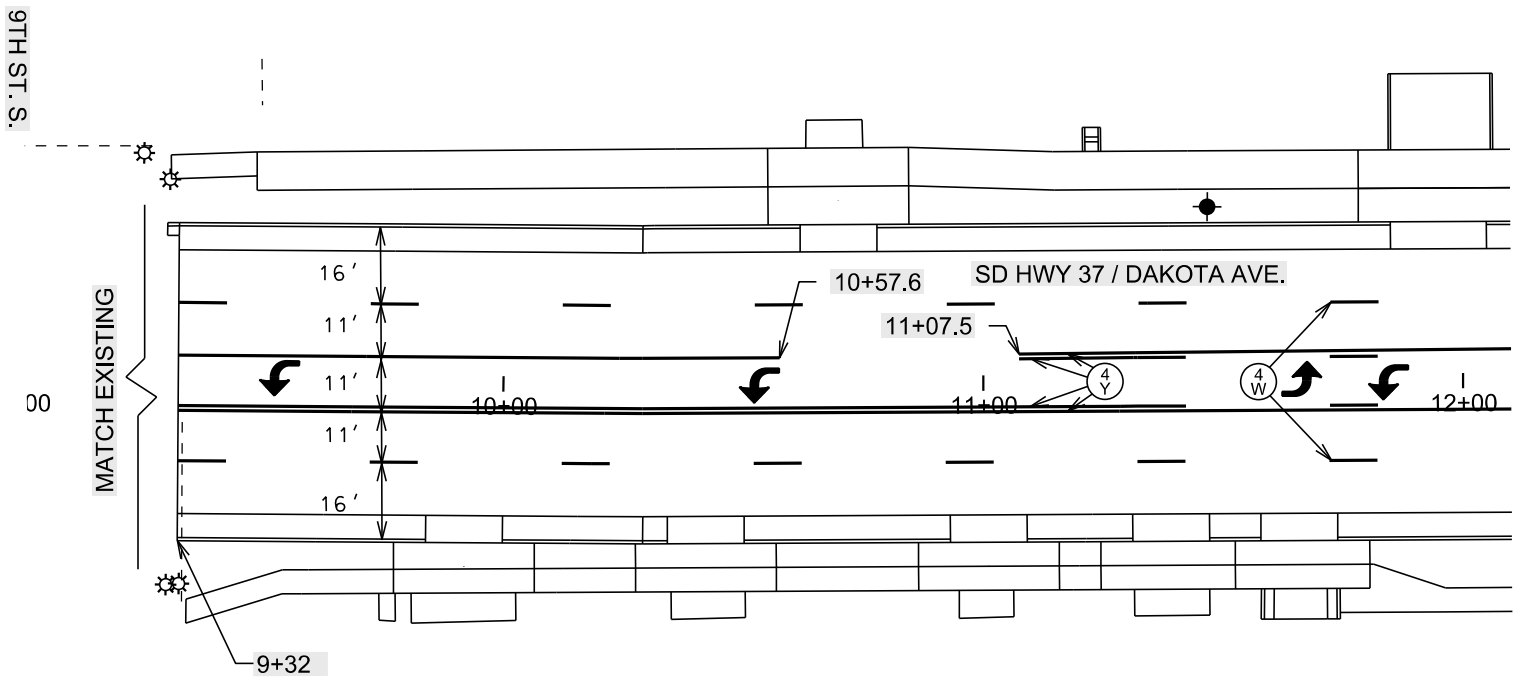
STATE OF SOUTH DAKOTA	PROJECT NH-CR 0037(158)126	SHEET M3	TOTAL SHEETS M13
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Revised 01/17/2024 - RR



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ESTIMATE OF QUANTITIES			
KEY	ITEM	EST QUANT	UNIT
(4 W)	Cold Applied Plastic Pavement Marking, 4" White	7,000	FT
(4 Y)	Cold Applied Plastic Pavement Marking, 4" Yellow	10,600	FT
(8 W)	Cold Applied Plastic Pavement Marking, 8" White	300	FT
(24 W)	Preformed Thermoplastic Pavement Marking, 24" White	2,100	FT
(4 W)	Preformed Thermoplastic Pavement Marking, 4" White	1,400	FT
↩	Cold Applied Plastic Pavement Marking, Arrow (Left 32, Right 4)	36	EACH
RR	Cold Applied Plastic Pavement Marking, Railroad Crossing	5	EACH
ONLY	Cold Applied Plastic Pavement Marking, Message	2	EACH
♿	Cold Applied Plastic Pavement Marking, Symbol	6	EACH
	Grooving For Cold Applied Plastic Pavement Marking, 4"	19,000	FT
	Grooving For Cold Applied Plastic Pavement Marking, 8"	300	FT
	Grooving For Cold Applied Plastic Pavement Marking, 24"	2,100	FT
	Grooving For Cold Applied Plastic Pavement Marking, Railroad Crossing	5	EACH
	Grooving For Cold Applied Plastic Pavement Marking, Arrow (Left 32, Right 4)	36	EACH
	Grooving For Cold Applied Plastic Pavement Marking, Message	2	EACH
	Grooving For Cold Applied Plastic Pavement Marking, Symbol	6	EACH



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PAVEMENT MARKING LAYOUT

SD HWY 37 / DAKOTA AVE

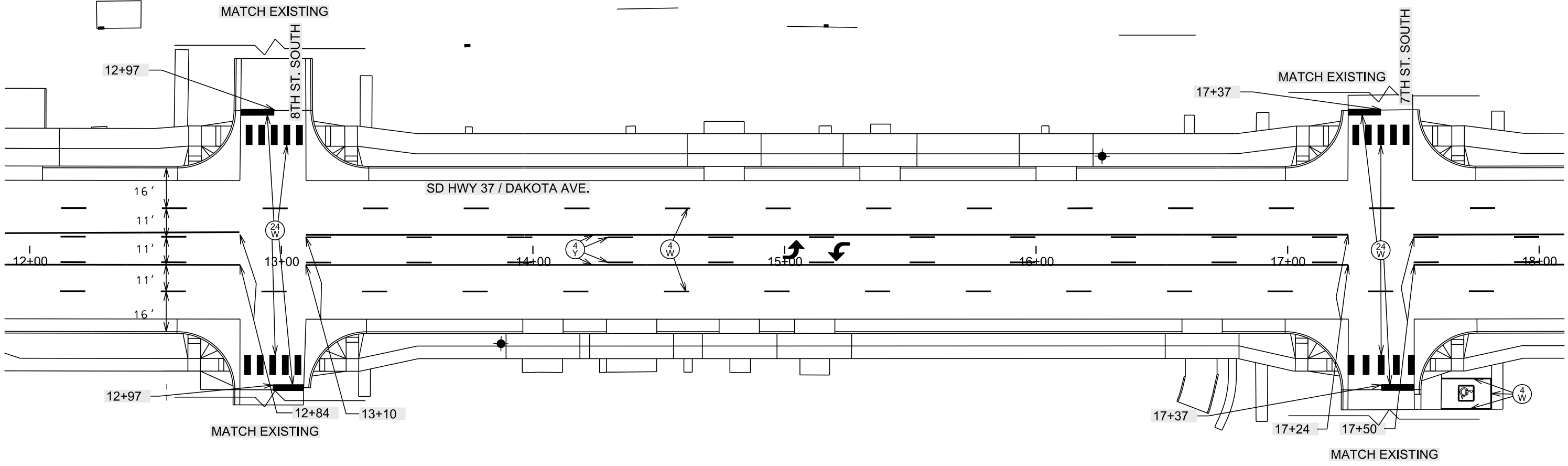
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NOTE:
Replace existing Handicapped Parking pavement markings as existing.

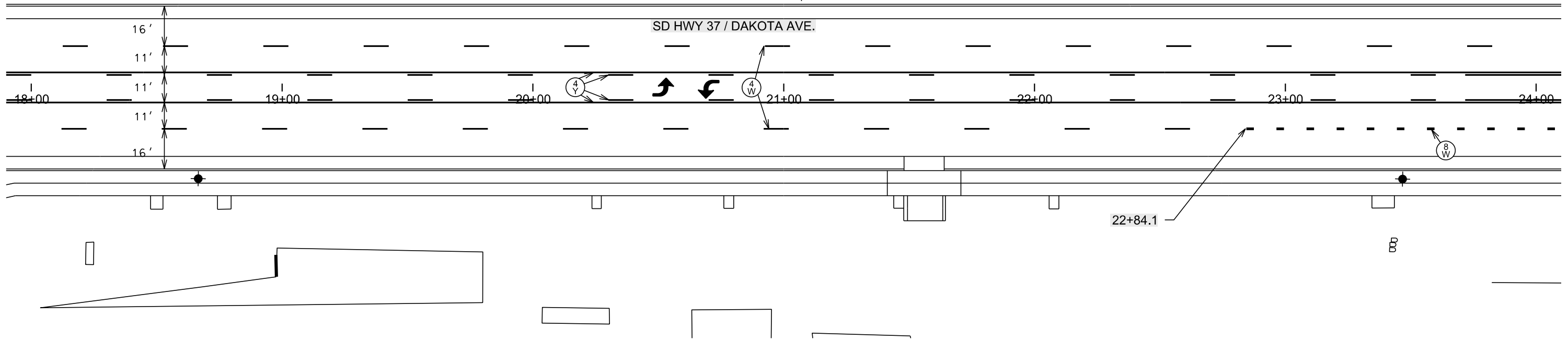
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PAVEMENT MARKING LAYOUT

SD HWY 37 / DAKOTA AVE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0037(158)126	M5	M13

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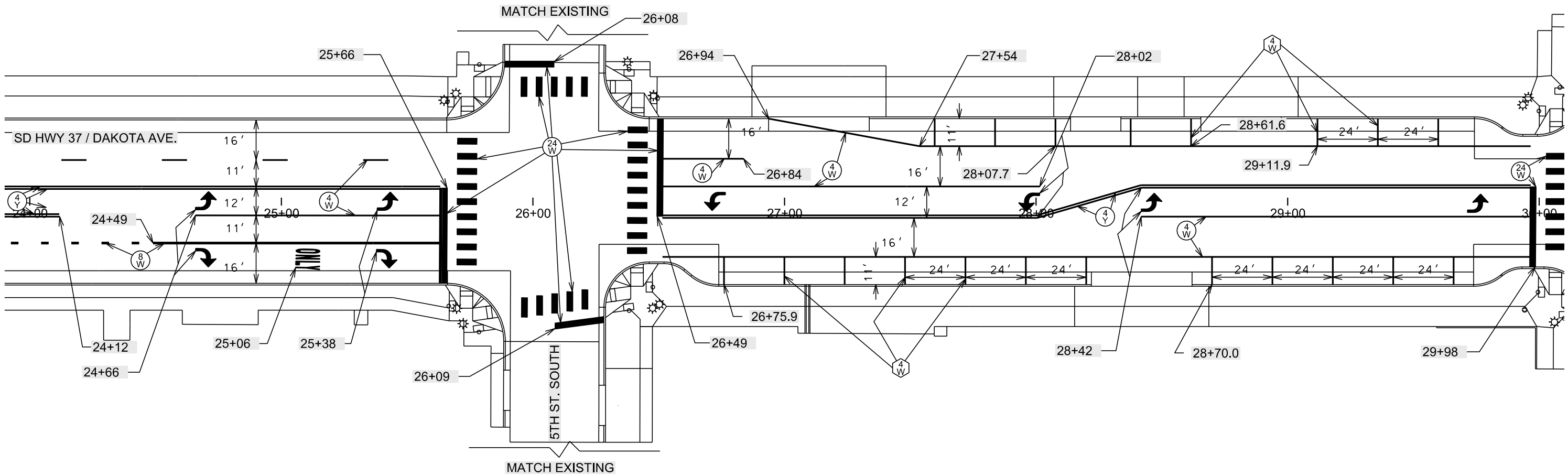
PAVEMENT MARKING LAYOUT

SD HWY 37 / DAKOTA AVE

STATE OF SOUTH DAKOTA	PROJECT NH-CR 0037(158)126	SHEET M6	TOTAL SHEETS M13
Plotting Date: 11/28/2023			



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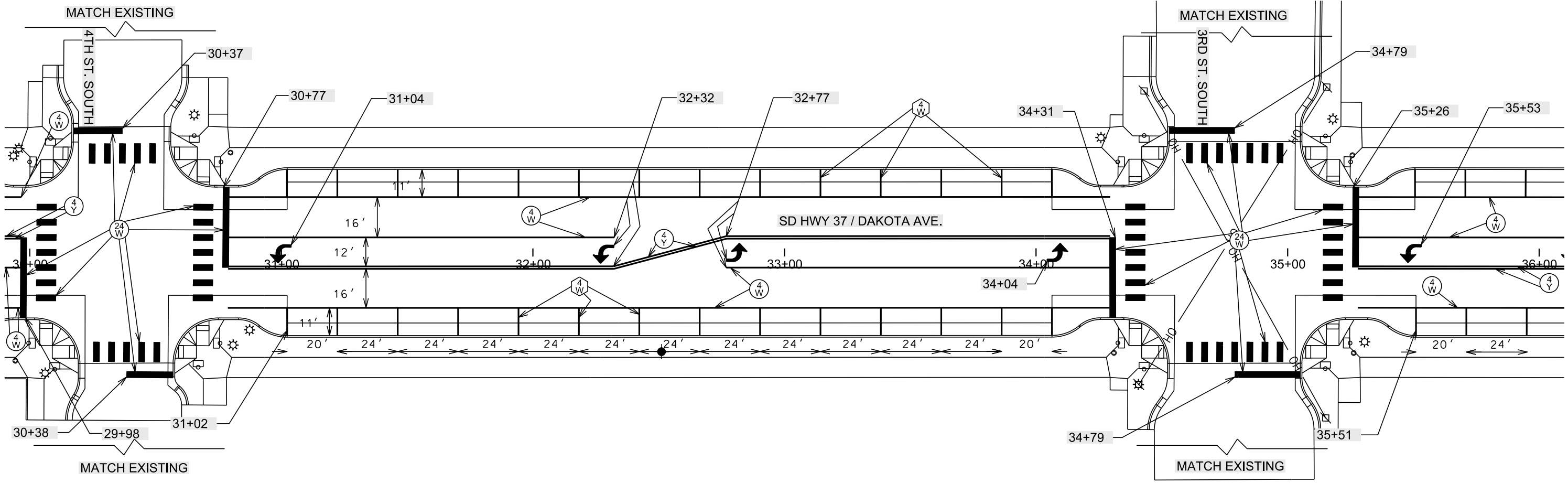
PAVEMENT MARKING LAYOUT

SD HWY 37 / DAKOTA AVE

STATE OF SOUTH DAKOTA	PROJECT NH-CR 0037(158)126	SHEET M7	TOTAL SHEETS M13
Plotting Date: 11/28/2023			



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PAVEMENT MARKING LAYOUT

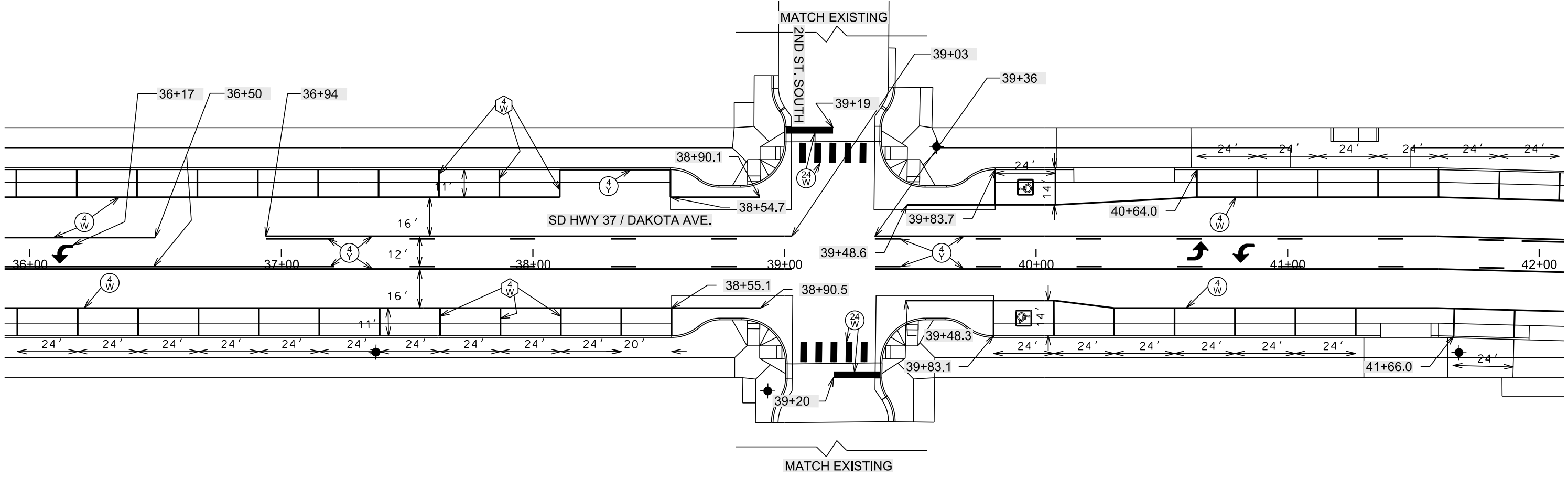
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STATE OF SOUTH DAKOTA	PROJECT NH-CR 0037(158)126	SHEET M8	TOTAL SHEETS M13
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Revised: 02/13/2024 RR



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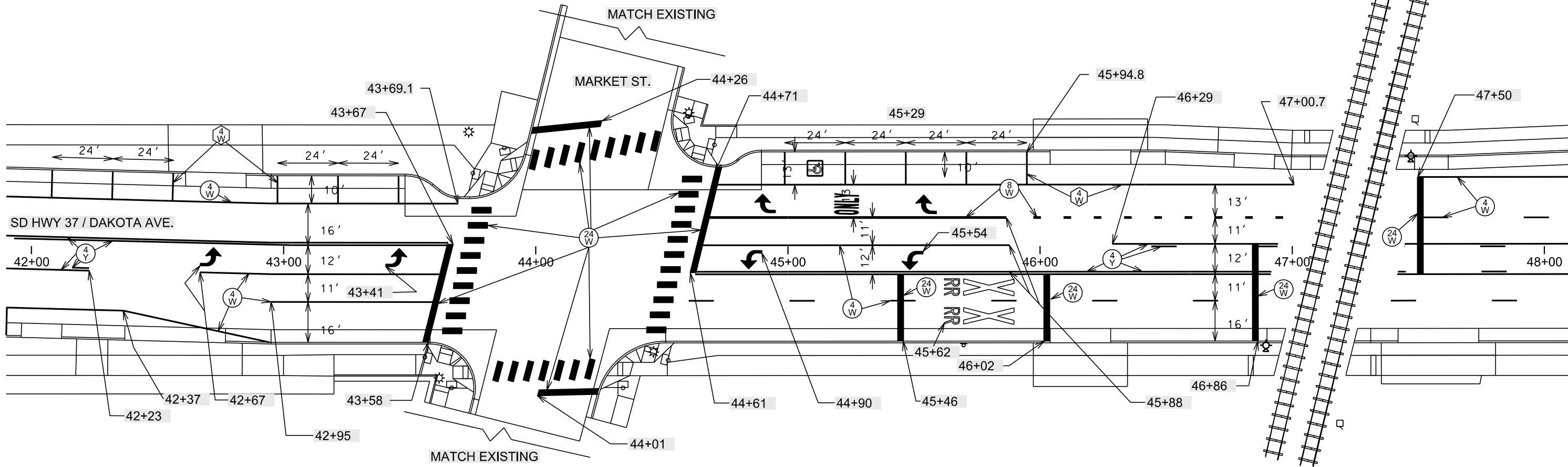
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PAVEMENT MARKING LAYOUT

SD HWY 37 / DAKOTA AVE

STATE OF SOUTH DAKOTA	PROJECT NH-CR 0037(158)126	SHEET M9	TOTAL SHEETS M13
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PAVEMENT MARKING LAYOUT

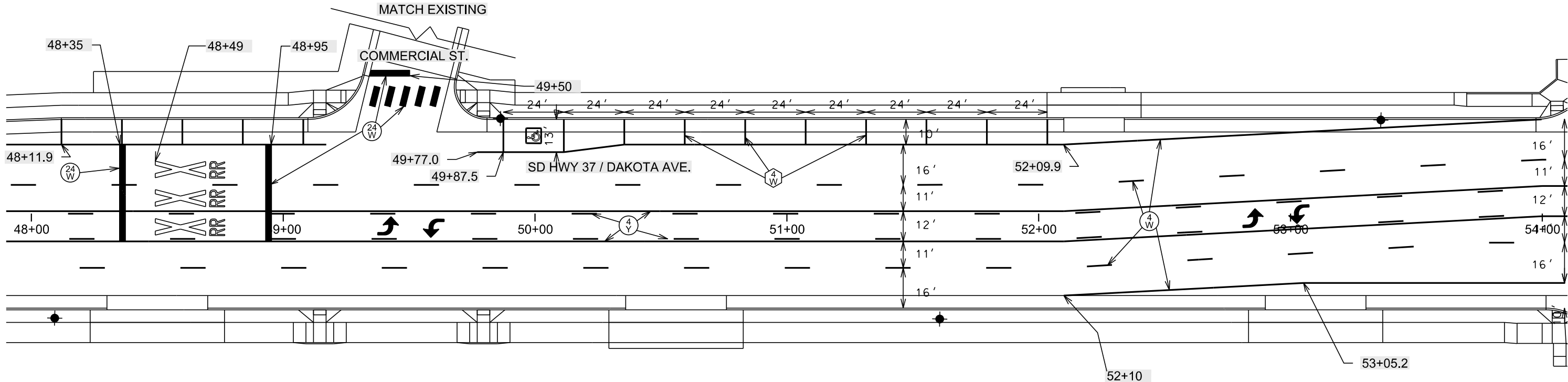
SD HWY 37 / DAKOTA AVE

STATE OF SOUTH DAKOTA	PROJECT NH-CR 0037(158)126	SHEET M10	TOTAL SHEETS M13
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Revised: 01/17/2024 RR



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PAVEMENT MARKING LAYOUT

SD HWY 37 / DAKOTA AVE

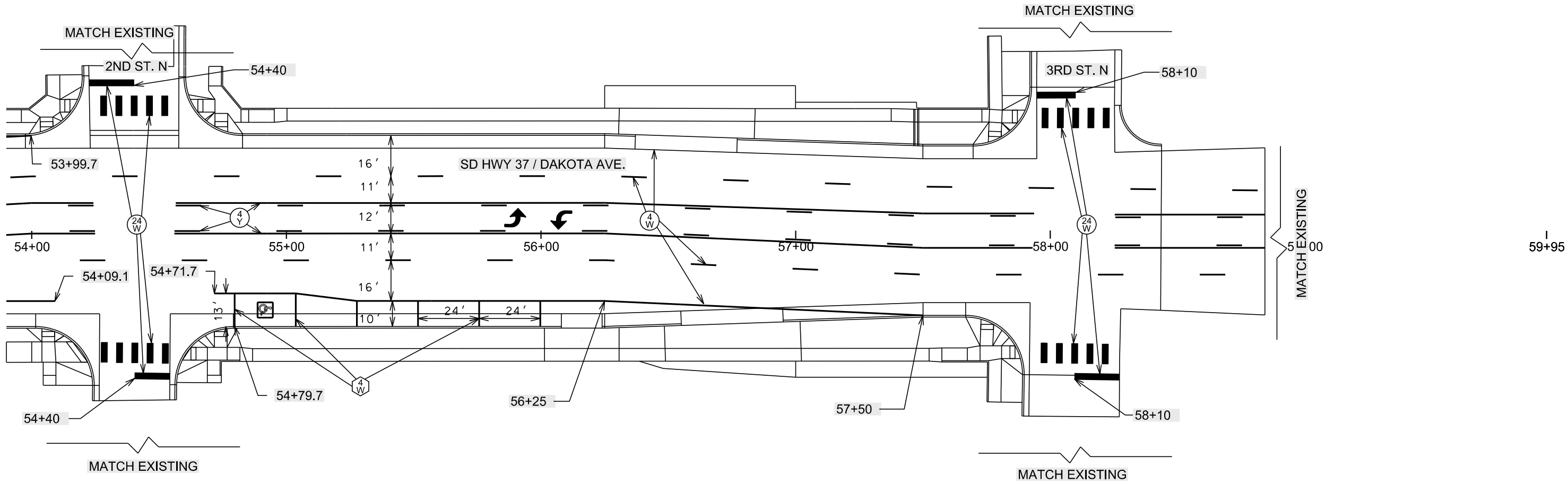
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Revised: 01/17/2024 RR



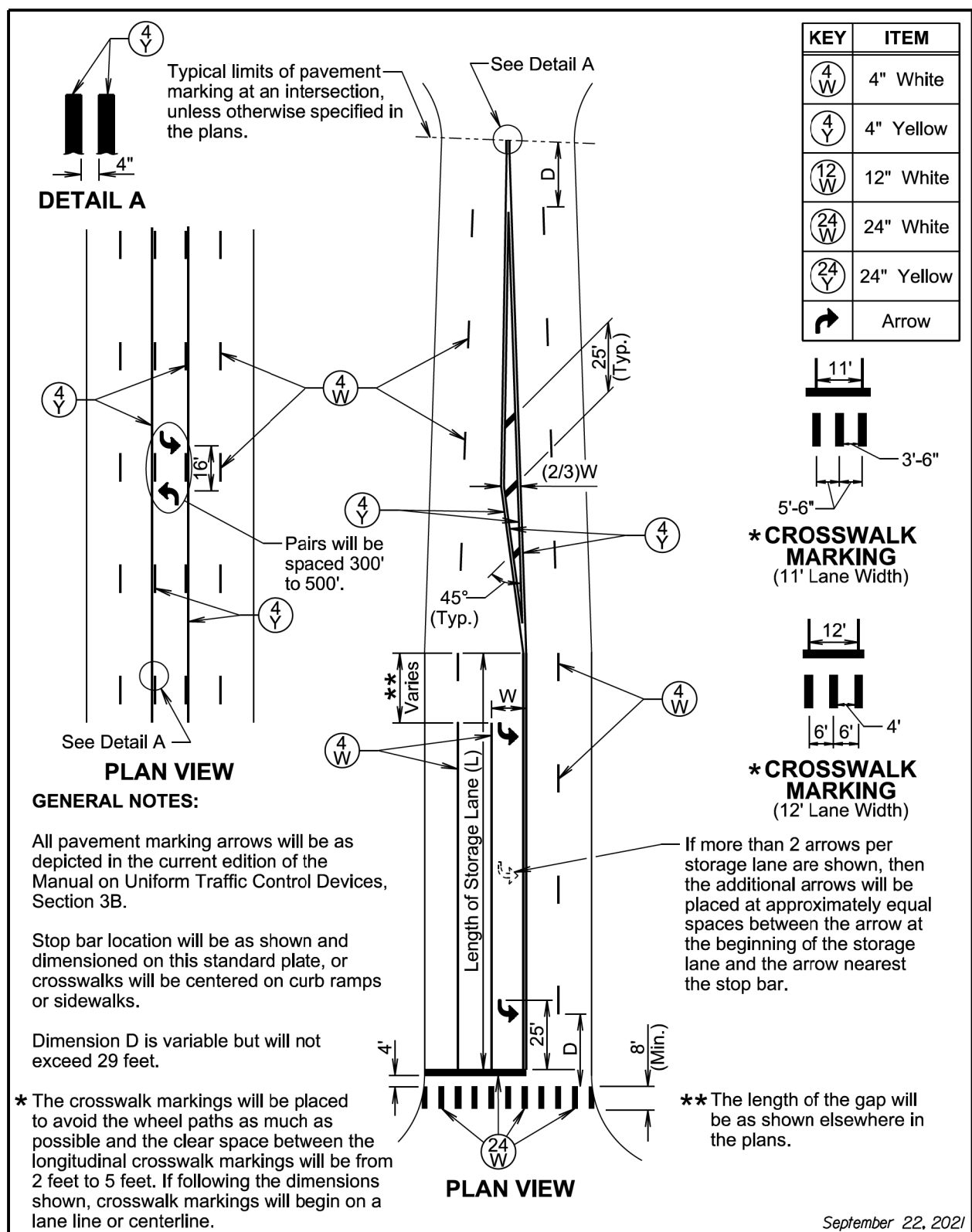
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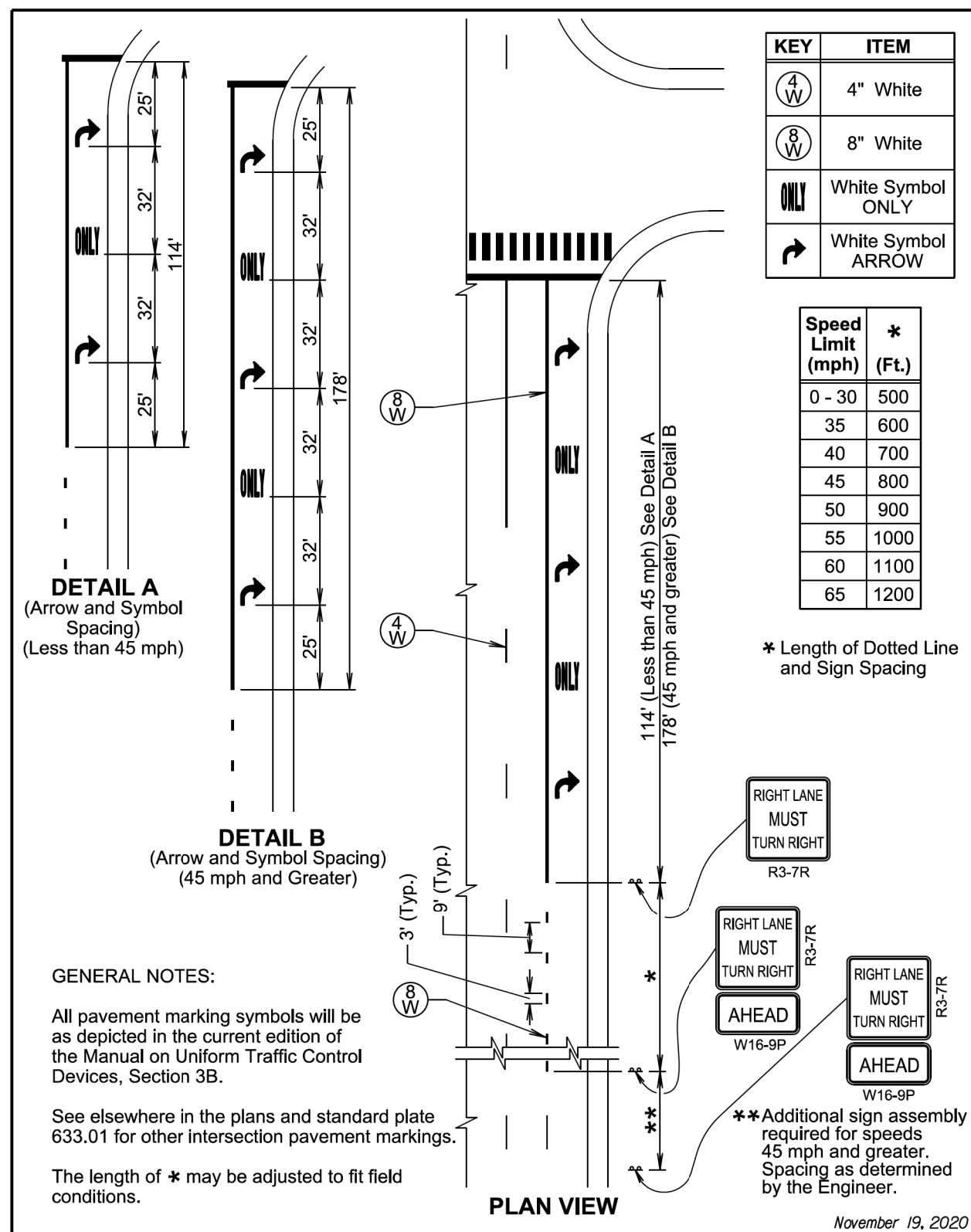


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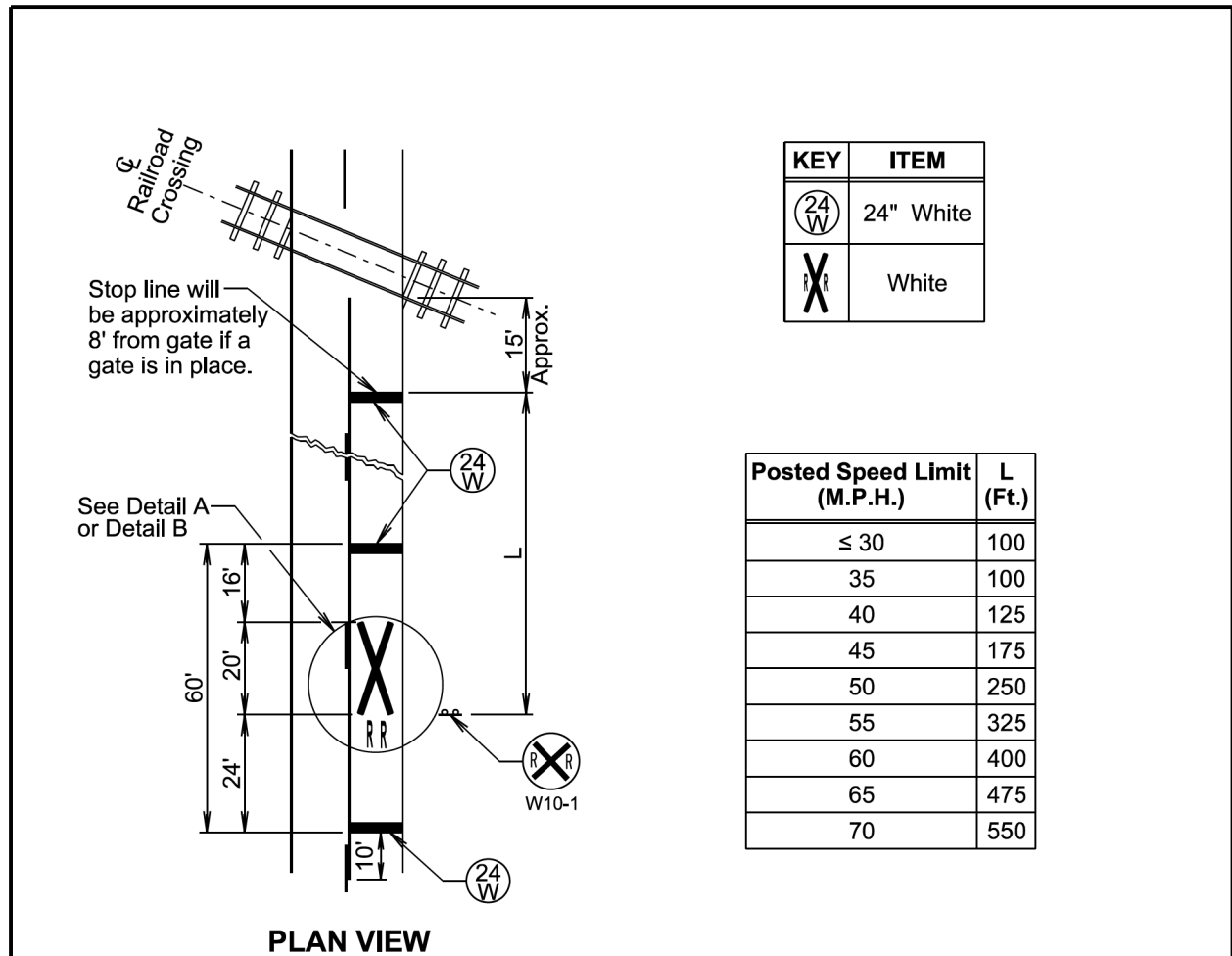
S D D O T	PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE	PLATE NUMBER 633.01
	Published Date: 2024	Sheet 1 of 1



S D D O T	LANE-DROP PAVEMENT MARKINGS	PLATE NUMBER 633.02
	Published Date: 2024	Sheet 1 of 1

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GENERAL NOTES:

The railroad crossing pavement markings will be placed symmetrically about the centerline of the railroad crossing. DETAIL A should be used unless the railroad crossing pavement markings are installed in existing grooves that match DETAIL B.

When pavement markings are used, a portion of the RXR symbol will be placed directly opposite of the advance warning sign W10-1.

On multi-lane roads the transverse bands will extend across all approach lanes and individual RXR symbols will be placed in each approach lane.

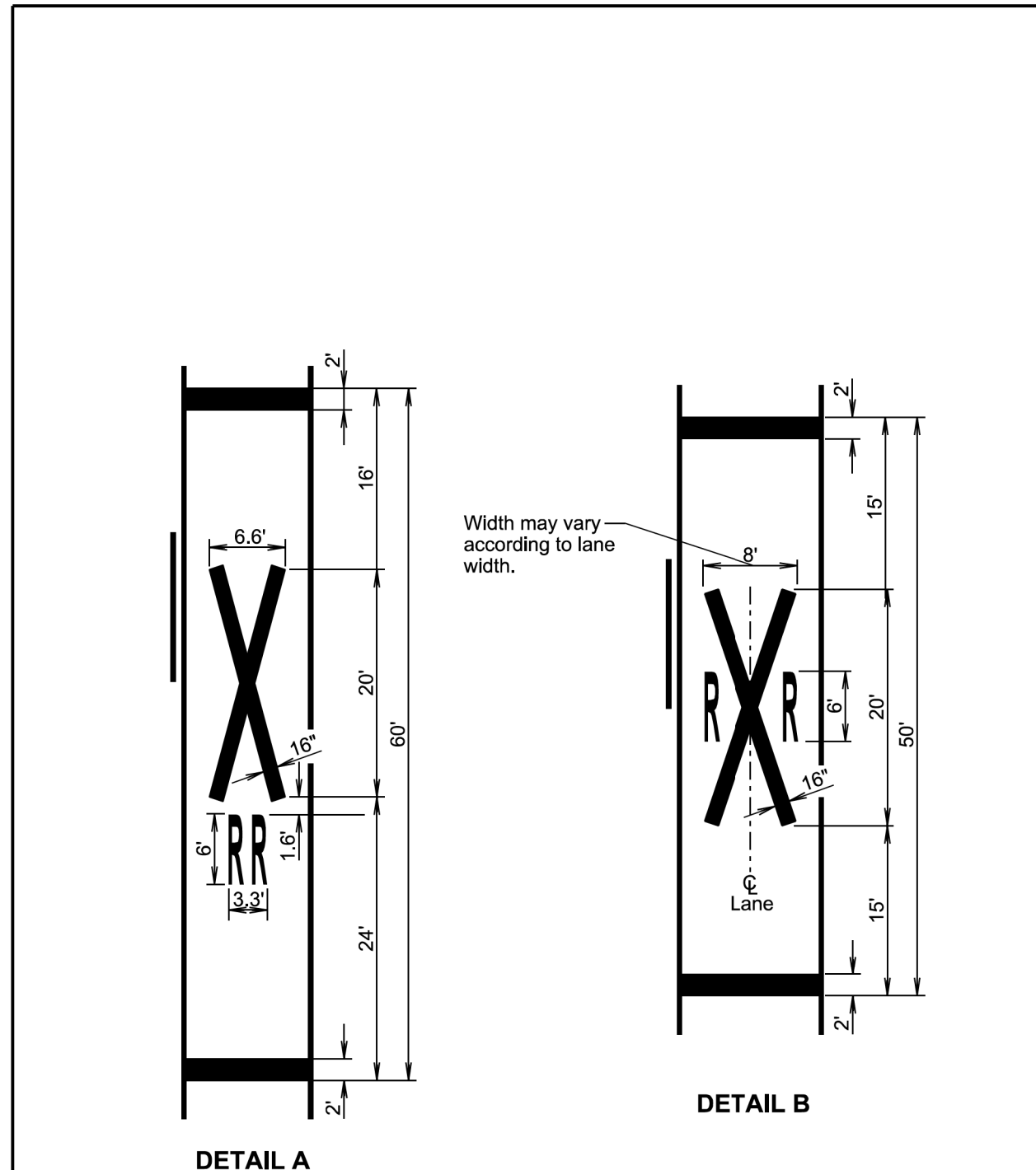
The railroad crossing pavement markings will consist of all the transverse bands, stop lines, and RXR symbols.

All costs for furnishing and installing the markings, materials, labor, and necessary equipment for the railroad crossing markings will be paid for at the contract unit price per gallon or per each for the type of marking material specified in the plans.

November 19, 2020

S D D O T	PAVEMENT MARKINGS AT RAILROAD CROSSING	PLATE NUMBER 633.10
		Sheet 1 of 2

Published Date: 2024



November 19, 2020

S D D O T	PAVEMENT MARKINGS AT RAILROAD CROSSING	PLATE NUMBER 633.10
		Sheet 2 of 2

Published Date: 2024

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