

Section M: Pavement Marking Plans

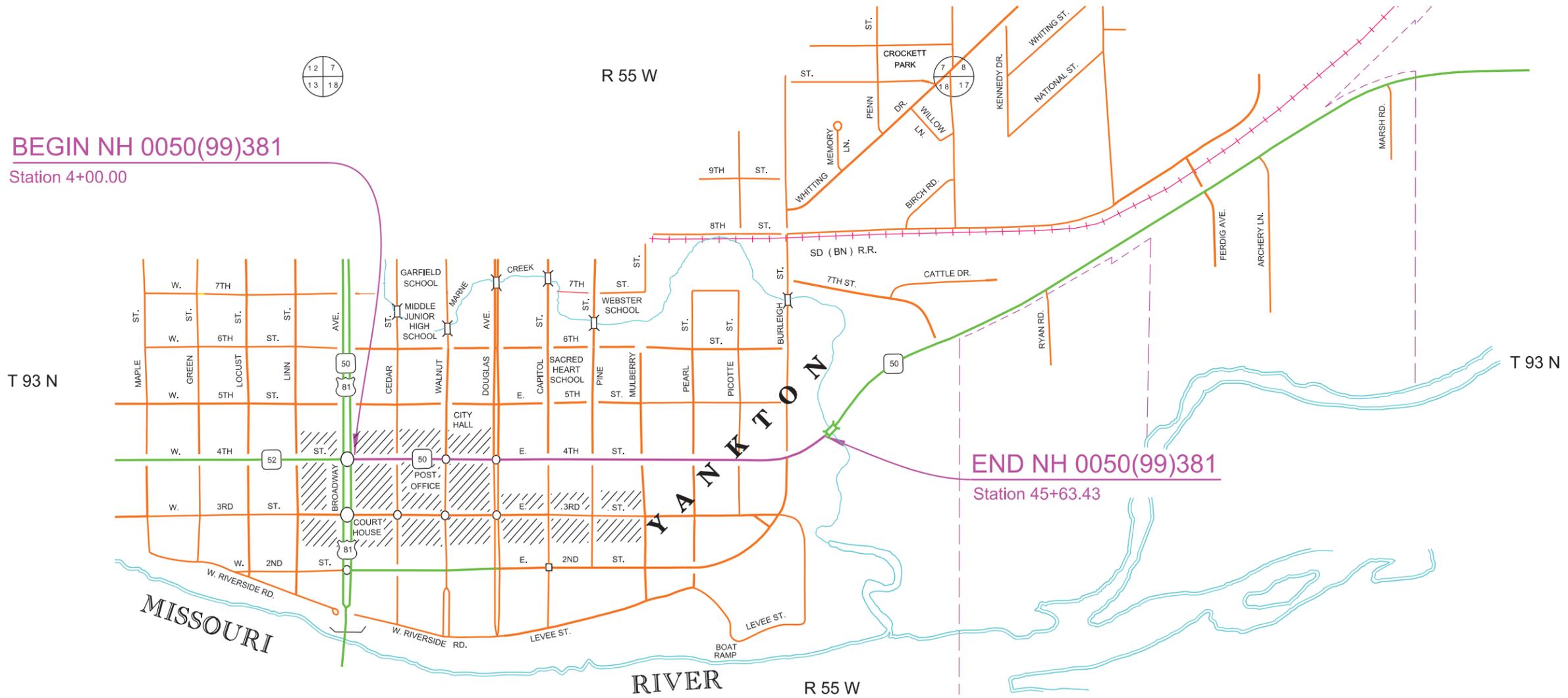
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(99)381	M1	M12

Plotting Date: 7/01/2015

INDEX OF SHEETS

- M1 General Layout W/Index
- M2 Estimate of Quantities and Plan Notes
- M3-M11 Pavement Marking Layouts
- M12 Standard Plates



SECTION M ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E0030	Cold Applied Plastic Pavement Marking, 24" (White 1,510', Yellow 40')	1,550	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow (Left 38, Right 0)	38	Each
633E3000	Durable Pavement Marking, 4" White	2,855	Ft
633E3005	Durable Pavement Marking, 4" Yellow	8,465	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	1,550	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	38	Each
633E5100	Grooving for Durable Pavement Marking, 4"	11,320	Ft
634E0560	Remove Pavement Marking, 4" or Equivalent	7,635	Ft
634E0565	Remove Pavement Marking, Arrow	11	Each
634E0640	Temporary Pavement Marking	1,750	Ft

GROOVE PAVEMENT FOR PAVEMENT MARKING

The Contractor should not use water for the grooving for pavement markings. If water is used, then there shall be adequate time for the concrete pavement to completely dry prior to the installation of pavement markings.

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. The Contractor shall use a vacuum attachment to collect dust and residue created by the grooving of pavement. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue shall 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, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

REMOVE PAVEMENT MARKING

The Contractor shall remove all existing pavement markings for crosswalks, stop bars, lane lines, arrows, and railroad crossing before placing new pavement markings on existing pavement. The locations and respective quantities for the removal and replacement of pavement markings on existing pavement to remain in-place at cross-street intersections have been identified in the plan sheets and accounted for in the estimate of quantities. The removal and replacement of the existing pavement markings shall be at the discretion of the Project Engineer.

All work involved in removing the existing crosswalk, stop bar, and lane line pavement markings for the placement of new pavement markings shall be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or Equivalent".

All work involved in removing the existing arrow pavement markings for the placement of new pavement markings shall be incidental to the contract unit price each for "Remove Pavement Marking, Arrow".

Removal quantities broken out per intersection, as follows:

Remove Pavement Marking, 4" or Equivalent:
 565 Ft between US81/Broadway Street and STA 4+00
 90 Ft at Douglas Avenue
 6,980 Ft at Burleigh Street and from Burleigh Street through the Marne Creek Bridge

Remove Pavement Marking, Arrow
 2 each between US81/Broadway Street and STA 4+00
 1 each at Walnut Street
 2 each at Douglas Avenue
 6 each at Burleigh Street

EXISTING PAVEMENT MARKINGS ON PAVEMENT LEFT IN-PLACE

For pavement markings that replace existing pavement markings on pavement left in-place extending from the intersections with US81/Broadway Street, Douglas Avenue, and Burleigh Street as noted in the plans, the following notes apply:

Match existing lane channelization pavement markings unless indicated on the plan sheets. New pavement markings on in-place pavement shall tie into new pavement markings on new pavement.

Plan sheet lane width dimensions marked with an (*) indicates lane width is approximate and reflects record drawing layout.

Stationing of pavement markings on pavement left in-place is approximate and used as basis for estimate of quantities.

Unless specifically noted, estimate of quantities accounts for the removal of existing pavement markings on pavement to remain in-place, grooving for new pavement marking layout, and placement of new pavement markings.

REPAIR PAVEMENT MARKINGS AT END OF PROJECT

A quantity of "Temporary Pavement Marking" is included in the plans to repair pavement markings at the east end of the project from approximately STA 43+66 to east end of construction tapers near 50+50.

The Contractor shall apply 2 separate applications of paint, with the second being a minimum of 2 weeks after the first application.

COLD WEATHER WATERBORNE PAINT

Waterborne paint applied after October 15 shall be formulated as cold weather, waterborne paint, and shall be applied in accordance with manufacturer's recommendations, including minimum temperature requirements.

Cold weather, waterborne paint shall conform to Section 980 of the Specifications except for the following:

980.1: Resin Binder shall be Fastrack™ XSR manufactured by Dow, or approved equal.

980.1 A. Quantitative Requirements:

Pigment, percent by weight: 60.0 – 63.0 for white and 58.5 – 61.5 for yellow.

Pigment, percent by weight; Tested in accordance with ASTM D3723: 60.0 – 63.0 for white and 56.1 – 59.2 for yellow.

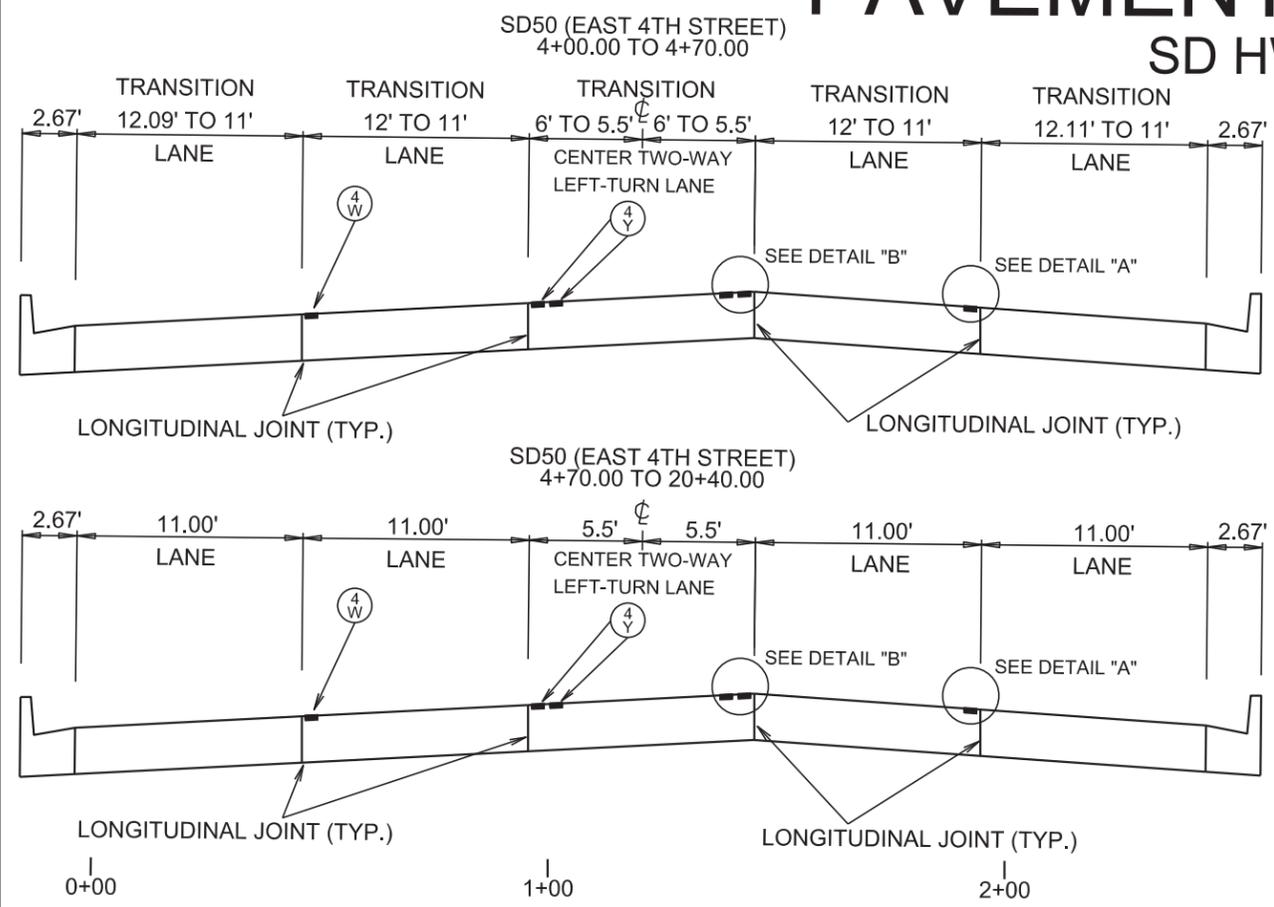
Non-volatile Vehicle, percent by weight; Tested in accordance with NIST 141C (Method 4051.1): 41.5 minimum for white and 51.5 minimum for yellow.



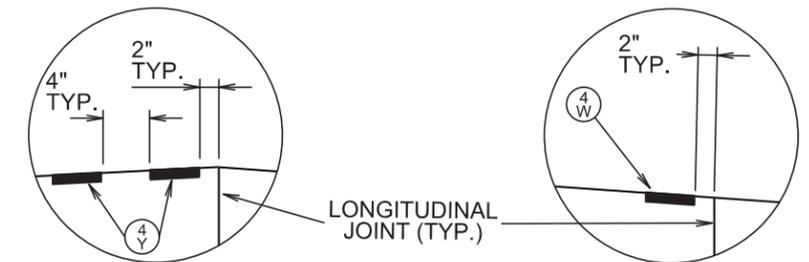
PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

FOR BIDDING PURPOSES ONLY

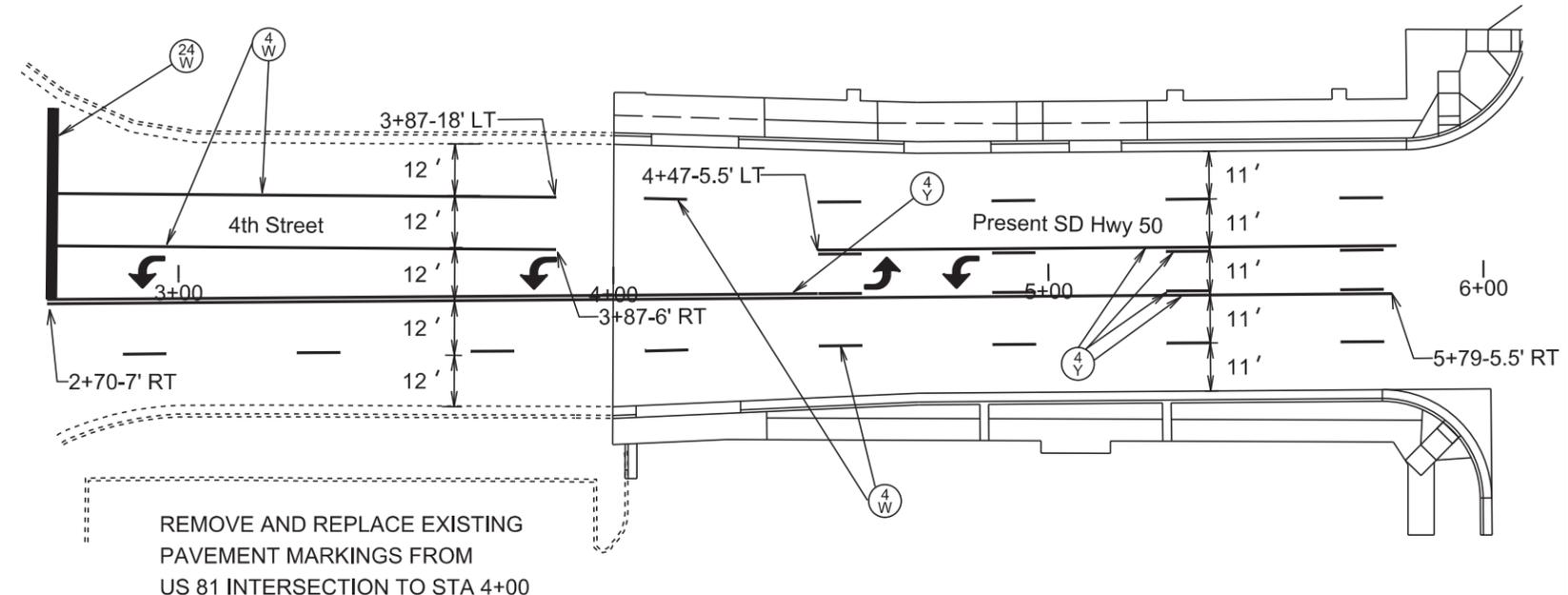


DETAIL "B" CENTER TWO-WAY LEFT-TURN LANE
 DETAIL "A" LANE LINE IN SAME DIRECTION OF TRAVEL



SOLID OR BROKEN LANE LINES (TYPICAL)
 - AS INDICATED ON PLAN SHEETS
 - SOLID LANE LINE 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF TRAFFIC FLOW
 - BROKEN OR SOLID LANE LINE 4" TO THE INSIDE OF SOLID YELLOW LINE

SOLID OR BROKEN LANE LINE (TYPICAL)
 - AS INDICATED ON PLAN SHEETS
 - 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF TRAFFIC FLOW



ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
(24 W)	COLD APPLIED PLASTIC PAVEMENT MARKING, 24" WHITE	1,510	FT
(24 Y)	COLD APPLIED PLASTIC PAVEMENT MARKING, 24" YELLOW	40	FT
↶	COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW LEFT - 38, RIGHT - 0	38	EACH
(4 W)	DURABLE PAVEMENT MARKING, 4" WHITE	2,855	FT
(4 Y)	DURABLE PAVEMENT MARKING, 4" YELLOW	8,465	FT
	GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING, 24"	1,550	FT
	GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW LEFT - 38, RIGHT - 0	38	EACH
	GROOVING FOR DURABLE PAVEMENT MARKING, 4"	11,320	FT
	REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT	7,635	FT
	REMOVE PAVEMENT MARKING, ARROW	11	EACH
	TEMPORARY PAVEMENT MARKING	1,750	FT

LEGEND

- (4 W) 4" WHITE
- (4 Y) 4" YELLOW
- (24 W) 24" WHITE
- (24 Y) 24" YELLOW
- ↶ ARROW

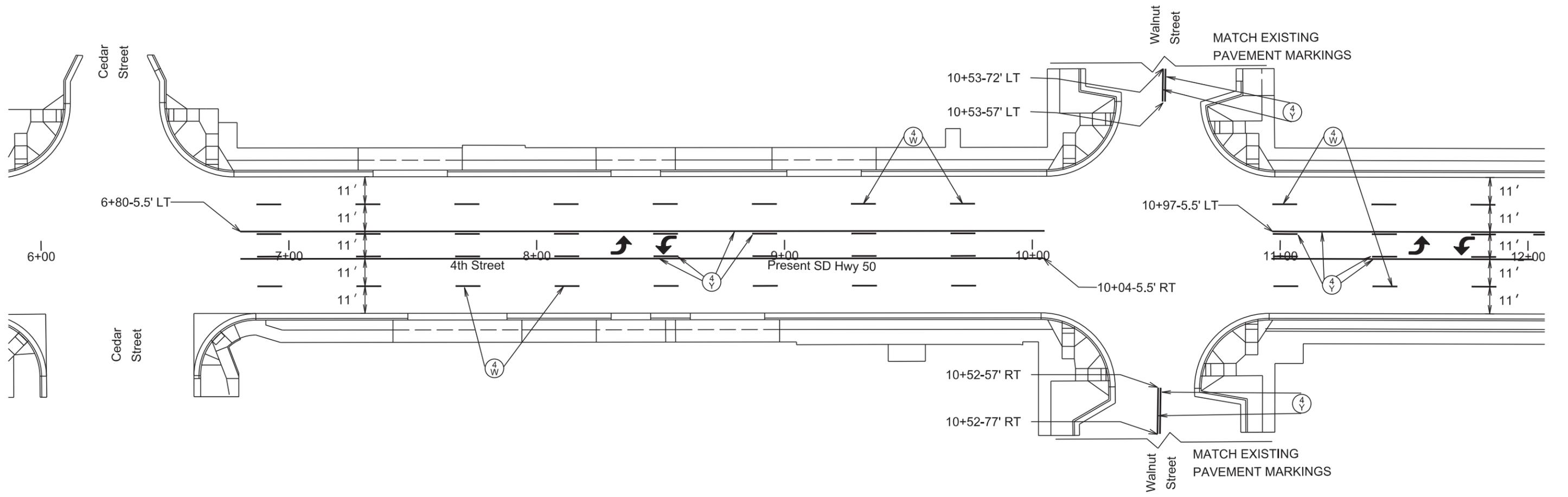


PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET M4	TOTAL SHEETS M12
Plotting Date: 7/1/2015			



LEGEND

- 4" WHITE
- 4" YELLOW
- 24" WHITE
- 24" YELLOW
- ARROW

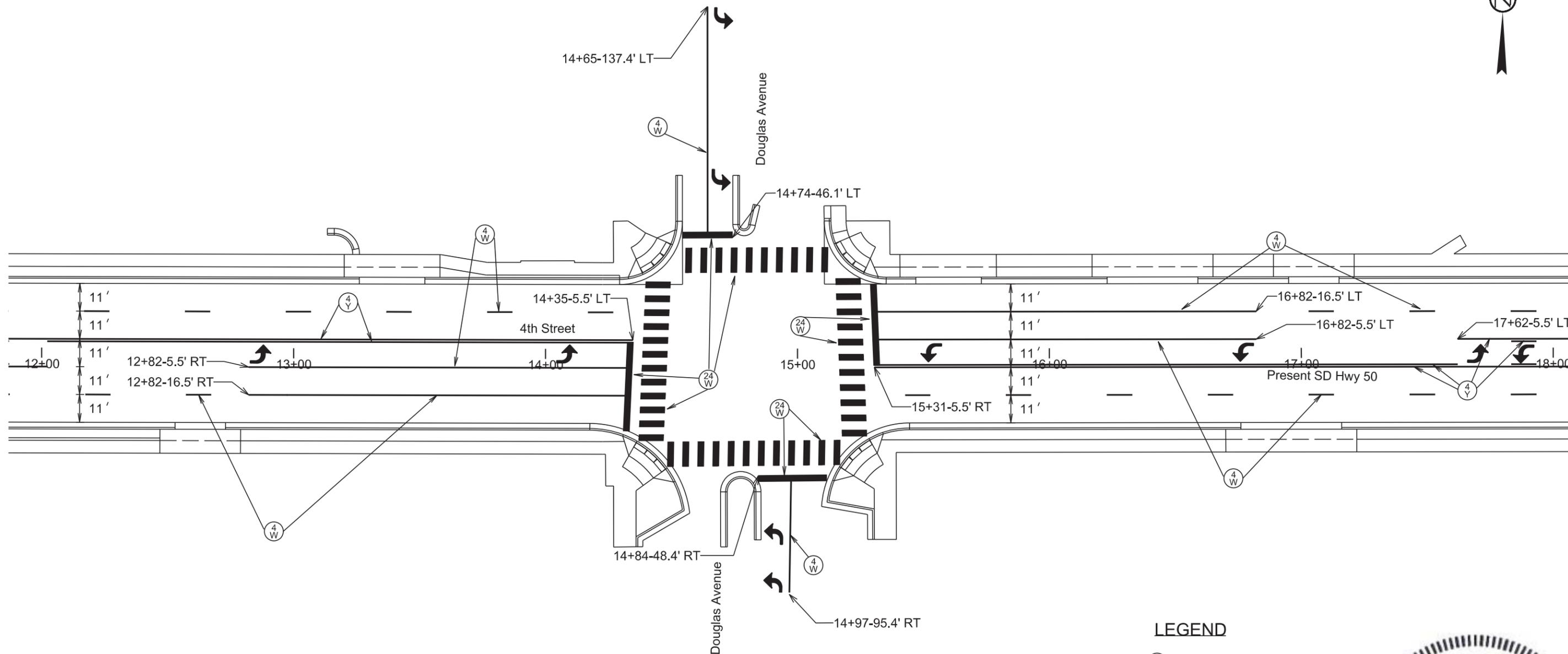


PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(99)381	M5	M12
Plotting Date:		7/1/2015	



LEGEND

- 4" WHITE
- 4" YELLOW
- 24" WHITE
- 24" YELLOW
- ARROW

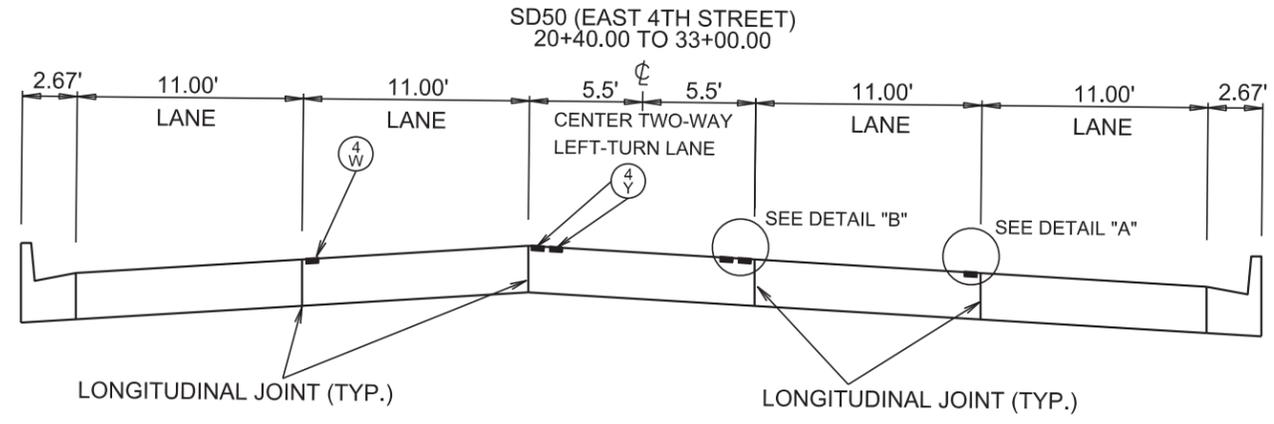


PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

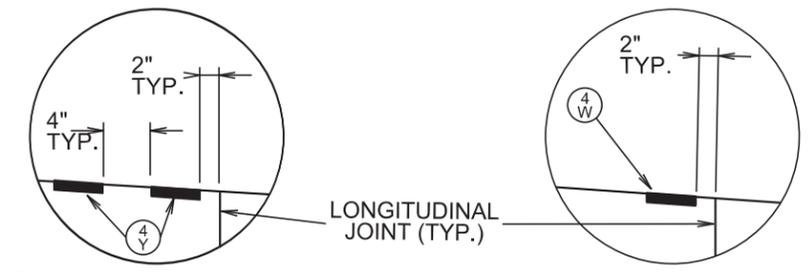
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STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET M6	TOTAL SHEETS M12
Plotting Date: 7/1/2015			



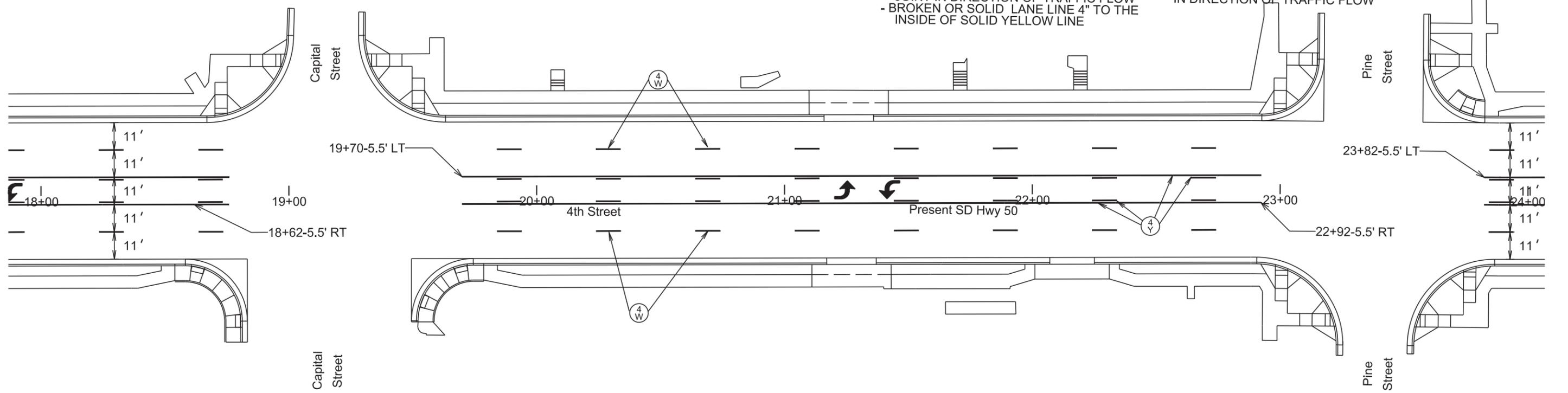
DETAIL "B"
CENTER TWO-WAY LEFT-TURN LANE

DETAIL "A"
LANE LINE IN SAME DIRECTION OF TRAVEL



SOLID OR BROKEN LANE LINES (TYPICAL)
- AS INDICATED ON PLAN SHEETS
- SOLID LANE LINE 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF TRAFFIC FLOW
- BROKEN OR SOLID LANE LINE 4" TO THE INSIDE OF SOLID YELLOW LINE

SOLID OR BROKEN LANE LINE (TYPICAL)
- AS INDICATED ON PLAN SHEETS
- 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF TRAFFIC FLOW



LEGEND

- 4" WHITE
- 4" YELLOW
- 24" WHITE
- 24" YELLOW
- ARROW

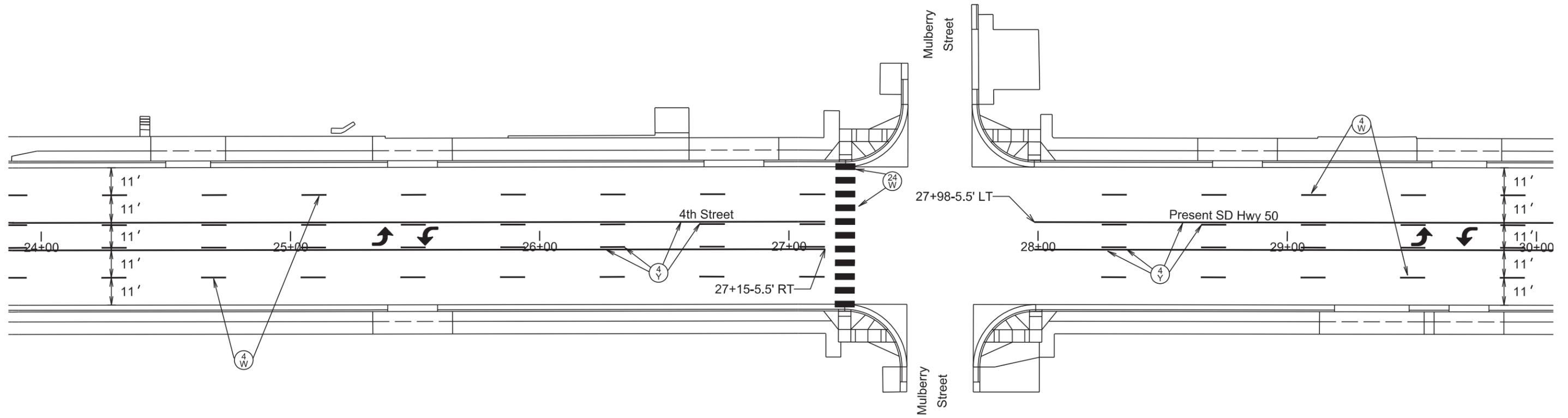


PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET M7	TOTAL SHEETS M12
Plotting Date: 7/1/2015			



LEGEND

-  4" WHITE
-  4" YELLOW
-  24" WHITE
-  24" YELLOW
-  ARROW



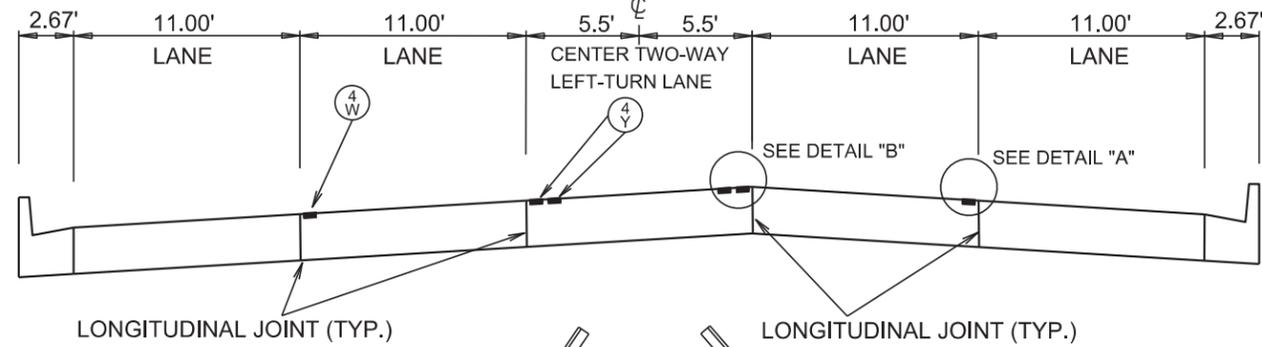
PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

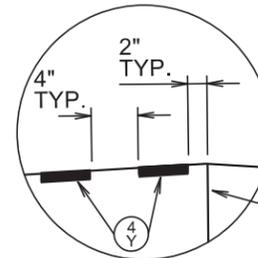
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET M8	TOTAL SHEETS M12
Plotting Date: 7/1/2015			

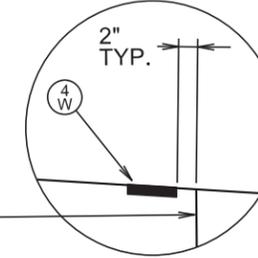
SD50 (EAST 4TH STREET)
33+00.00 TO 37+46.89



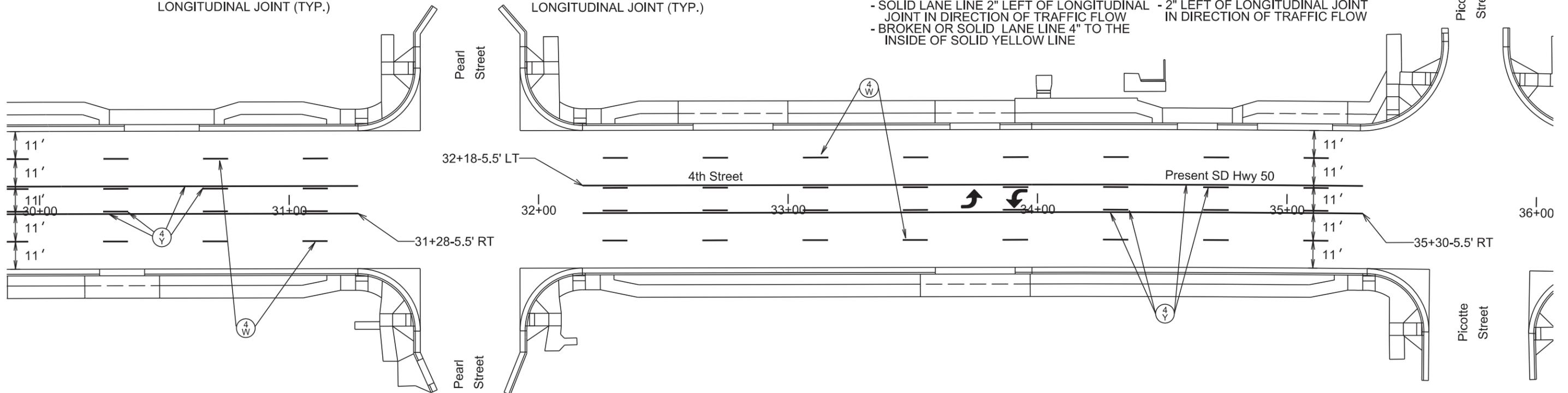
DETAIL "B"
CENTER TWO-WAY LEFT-TURN LANE



DETAIL "A"
LANE LINE IN SAME DIRECTION OF TRAVEL



- SOLID OR BROKEN LANE LINES (TYPICAL)
- AS INDICATED ON PLAN SHEETS
 - SOLID LANE LINE 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF TRAFFIC FLOW
 - BROKEN OR SOLID LANE LINE 4" TO THE INSIDE OF SOLID YELLOW LINE
- SOLID OR BROKEN LANE LINE (TYPICAL)
- AS INDICATED ON PLAN SHEETS
 - 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF TRAFFIC FLOW



LEGEND

- 4" WHITE
- 4" YELLOW
- 24" WHITE
- 24" YELLOW
- ARROW



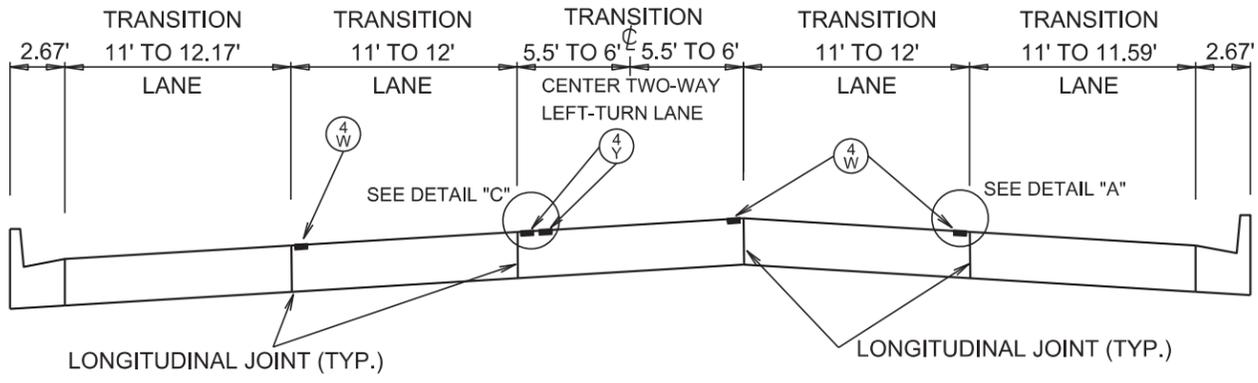
PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

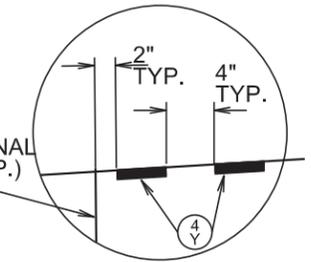
STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET M9	TOTAL SHEETS M12
Plotting Date: 7/1/2015			

FOR BIDDING PURPOSES ONLY

SD50 (EAST 4TH STREET)
37+46.89 TO 38+62.03

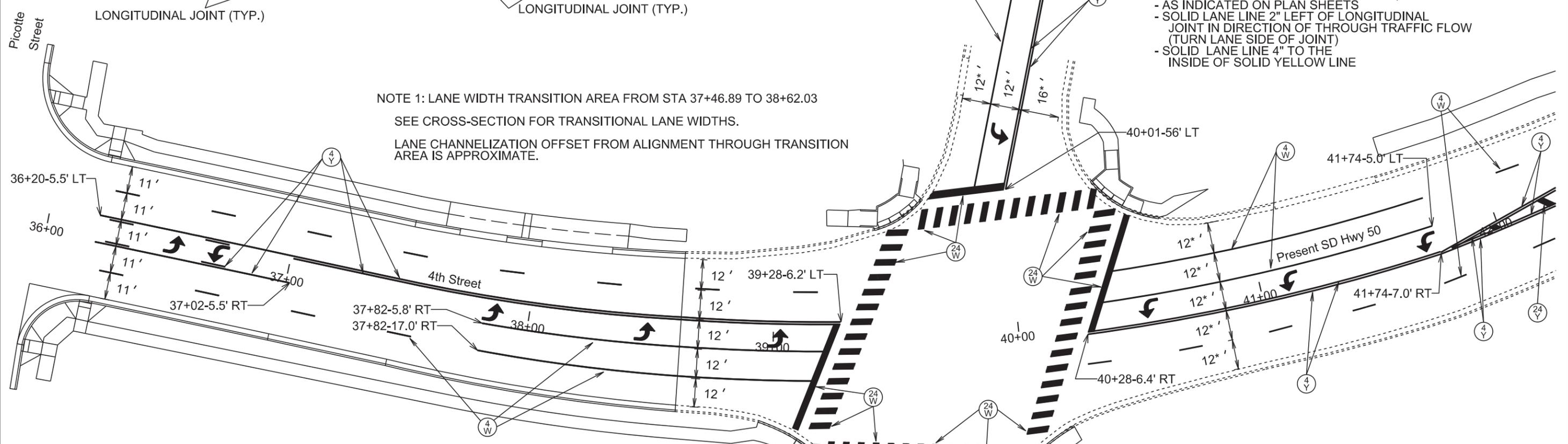


DETAIL "C"
DOUBLE LANE LINES BETWEEN
TURN LANE AND OPPOSING DIRECTION OF TRAVEL



SOLID OR BROKEN LANE LINES (TYPICAL)
- AS INDICATED ON PLAN SHEETS
- SOLID LANE LINE 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF THROUGH TRAFFIC FLOW (TURN LANE SIDE OF JOINT)
- SOLID LANE LINE 4" TO THE INSIDE OF SOLID YELLOW LINE

NOTE 1: LANE WIDTH TRANSITION AREA FROM STA 37+46.89 TO 38+62.03
SEE CROSS-SECTION FOR TRANSITIONAL LANE WIDTHS.
LANE CHANNELIZATION OFFSET FROM ALIGNMENT THROUGH TRANSITION AREA IS APPROXIMATE.



LEGEND

- (4 W) 4" WHITE
- (4 Y) 4" YELLOW
- (24 W) 24" WHITE
- (24 Y) 24" YELLOW
- ↔ ARROW

NOTE 2: REMOVE AND REPLACE EXISTING PAVEMENT MARKINGS FROM STA 38+62.03 TO 42+22.20, INCLUDING BURLEIGH STREET INTERSECTION.

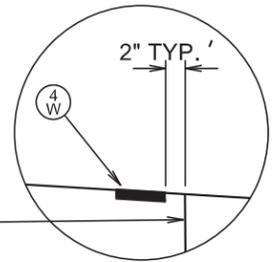
WHEN POSSIBLE, MATCH EXISTING LANE CHANNELIZATION PAVEMENT MARKINGS. NEW PAVEMENT MARKINGS ON IN-PLACE PAVEMENT SHALL TIE INTO NEW PAVEMENT MARKINGS ON NEW PAVEMENT.

LANE WIDTHS MARKED WITH AN '*' INDICATES LANE WIDTH IS APPROXIMATE AND REFLECTS RECORD DRAWING LAYOUT

STATIONING OF PAVEMENT MARKINGS IS APPROXIMATE AND USED AS BASIS FOR ESTIMATE OF QUANTITIES.

ESTIMATE OF QUANTITIES ACCOUNTS FOR THE REMOVAL OF EXISTING PAVEMENT MARKINGS ON PAVEMENT TO REMAIN IN-PLACE, GROOVING FOR FINAL PAVEMENT MARKING LAYOUT, AND PLACEMENT OF NEW PAVEMENT MARKINGS.

DETAIL "A"
LANE LINE IN SAME DIRECTION OF TRAVEL



SOLID OR BROKEN LANE LINE (TYPICAL)
- AS INDICATED ON PLAN SHEETS
- 2" LEFT OF LONGITUDINAL JOINT IN DIRECTION OF TRAFFIC FLOW

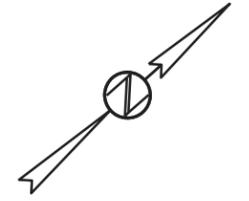


PAVEMENT MARKING LAYOUT

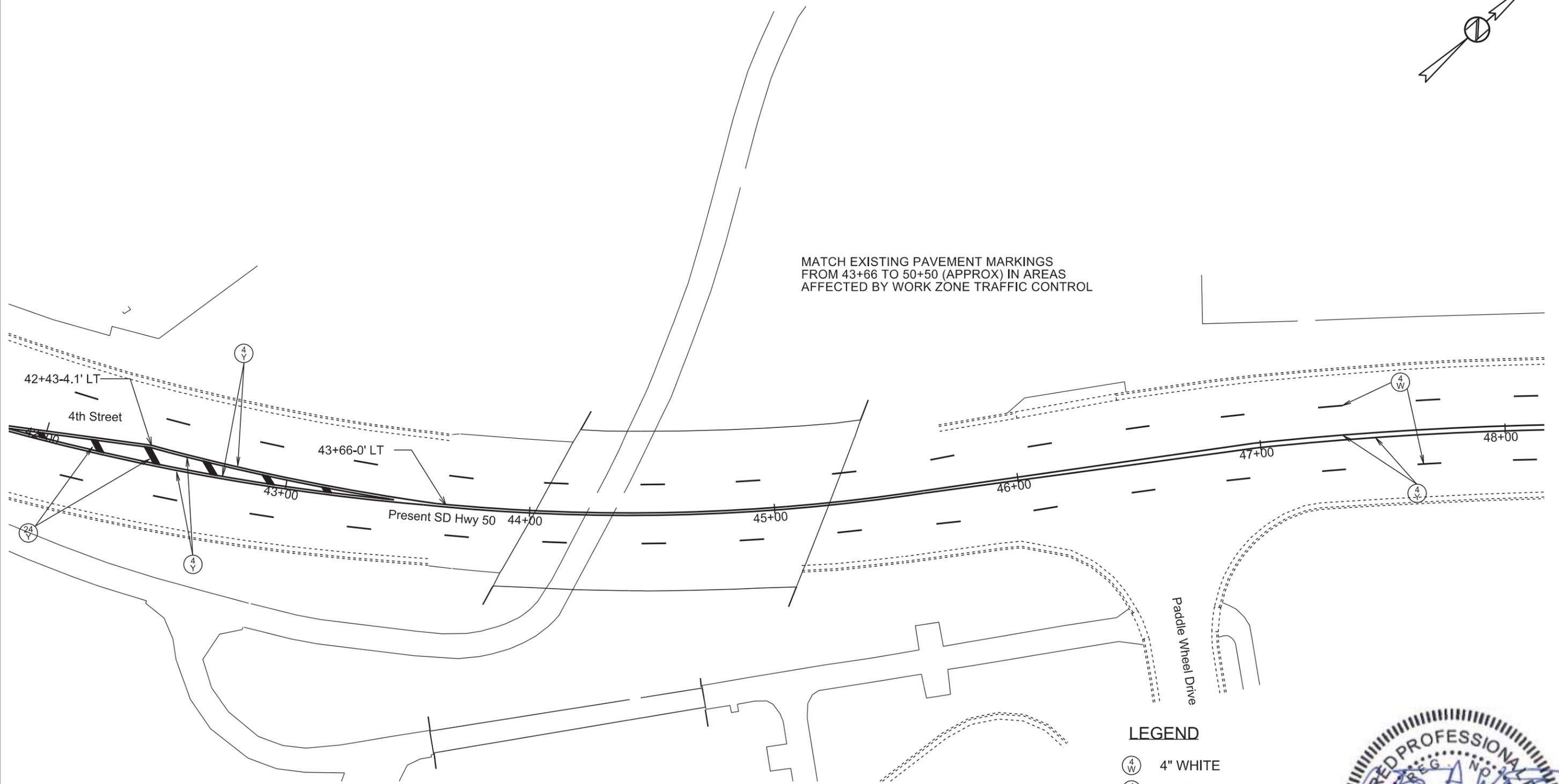
SD HWY 50 / 4TH STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(99)381	M10	M12
Plotting Date:		7/1/2015	



MATCH EXISTING PAVEMENT MARKINGS
FROM 43+66 TO 50+50 (APPROX) IN AREAS
AFFECTED BY WORK ZONE TRAFFIC CONTROL



LEGEND

- 4" WHITE
- 4" YELLOW
- 24" WHITE
- 24" YELLOW
- ARROW

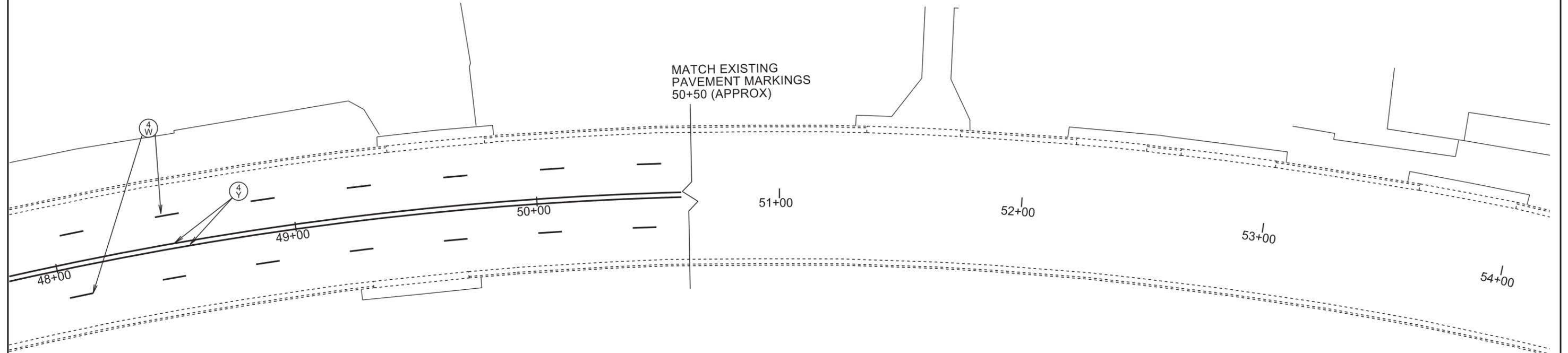
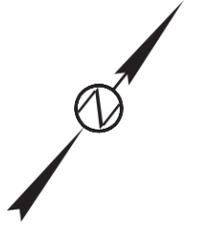


PAVEMENT MARKING LAYOUT

SD HWY 50 / 4TH STREET

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET M11	TOTAL SHEETS M12
Plotting Date: 7/1/2015			



LEGEND

-  4" WHITE
-  4" YELLOW
-  24" WHITE
-  24" YELLOW
-  ARROW



