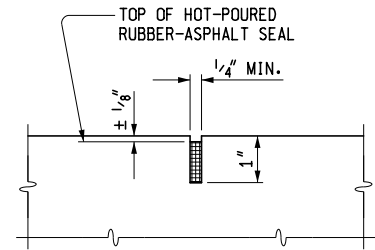
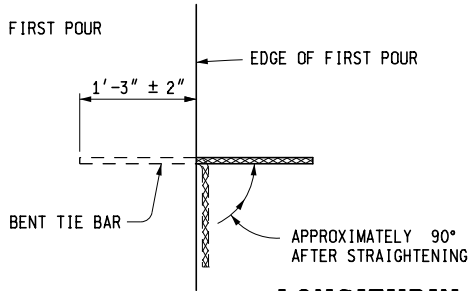


SYMBOL ( B )



SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT



SURFACE OF FINISHED PAVEMENT

1/2 PAVEMENT THICKNESS ± 3/4"

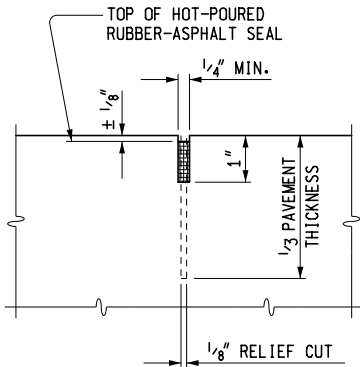
BENT TIE BAR EPOXY COATED #5 DEFORMED BAR 2'-6" LONG (TYP.)

MAXIMUM ALLOWABLE LANE TIE SPACING (SPECIFIED BELOW)

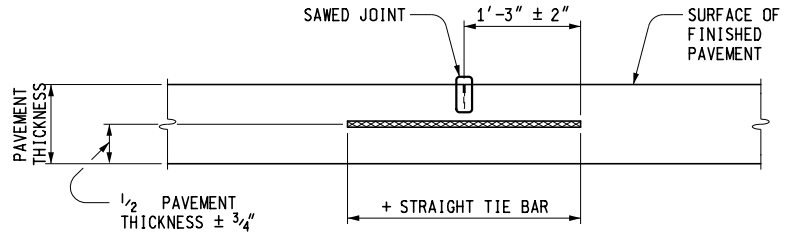
LONGITUDINAL BULKHEAD JOINT - SYMBOL ( B )

ALL SYMBOL (B) JOINTS SHALL BE SAWED AND SEALED EXCEPT JOINTS WITHOUT LANE TIES AND JOINTS ADJACENT TO VERTICAL FACES WHICH WOULD PROHIBIT SAWING.

SYMBOL ( D ) AND ( S )



SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT



+ EPOXY COATED #5 DEFORMED BAR 2'-6" LONG FOR SYMBOL (D)  
EPOXY COATED #5 SMOOTH BAR 2'-6" LONG FOR SYMBOL (S)  
(MAXIMUM ALLOWABLE LANE TIE SPACING SPECIFIED BELOW)

LONGITUDINAL LANE TIE JOINT - SYMBOL ( D )  
LONGITUDINAL SMOOTH LANE TIE JOINT - SYMBOL ( S )

SYMBOL (D) AND SYMBOL (S) TIE BARS SHALL BE PLACED AT THE PROPER SPACING LONGITUDINALLY, AND TRANSVERSELY AT 90° WITH THE JOINT.

MAXIMUM ALLOWABLE LANE TIE SPACING SYMBOLS (B), (D), (L2), AND (S)		* TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE
(B) GRADE 40	(D), (L2), AND (S) GRADE 60	
2'-10"	3'-7"	12' OR LESS
1'-11"	2'-7"	OVER 12' THROUGH 17'
1'-5"	1'-11"	OVER 17' THROUGH 24'
1'-2"	1'-9"	OVER 24' THROUGH 28'
1'-2"	1'-4"	OVER 28' THROUGH 36'
1'-1"	1'-1"	36' OR GREATER **

\* INCLUDES ANY TIED COMBINATION OF LANE WIDTH, VALLEY GUTTER, CURB & GUTTER, OR SHOULDER

\*\* FOR WIDTHS GREATER THAN 48' USE #6 DEFORMED BARS AT 1'-2" SPACING.

MAXIMUM ALLOWABLE LANE TIE SPACING



PREPARED BY DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR Kirk T. Stuedle

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APPROVED BY: *Mark A. Van Pelt*  
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

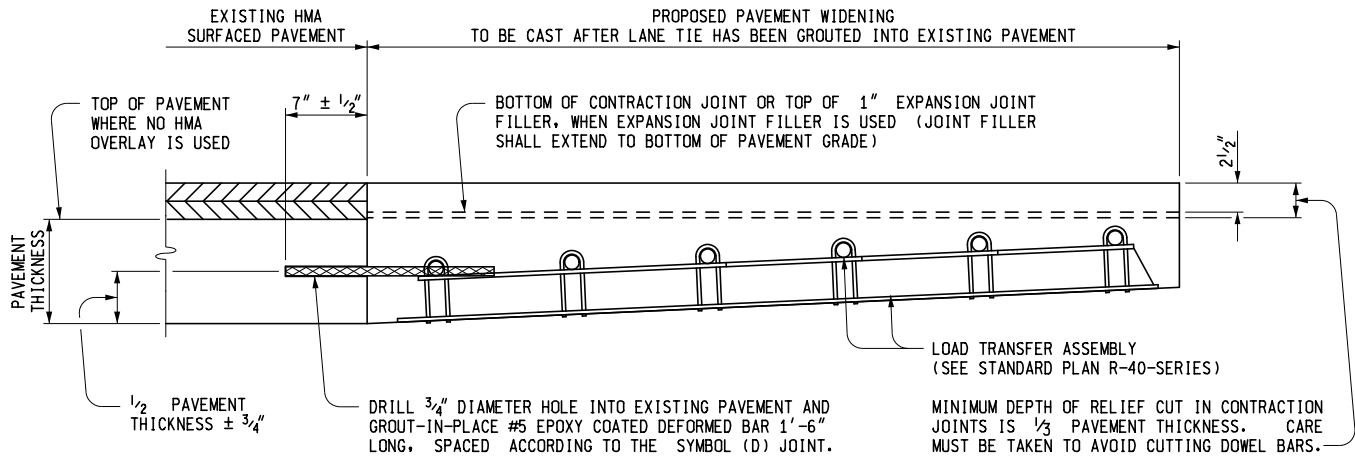
9-30-2014 F.H.W.A. APPROVAL

4-22-2013 PLAN DATE

R-41-H

SHEET 1 OF 2

## SYMBOL ( L2 )



NOTE:  
SYMBOL (L2) JOINT USED FOR WIDENING CONCRETE PAVEMENTS WITHOUT HMA OVERLAYS SHALL BE SAWED AND SEALED ACCORDING TO THE SYMBOL (B) JOINT.

THE LONGITUDINAL JOINT USED FOR WIDENING EXISTING CONCRETE BASE COURSE OR CONCRETE PAVEMENT HAVING A HMA SURFACE SHALL HAVE EPOXY ANCHORED LANE TIES PLACED AS SPECIFIED.

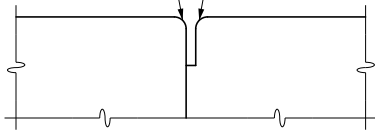
TAPERED PAVEMENT THICKNESS OVER THE DISTANCE OF PAVEMENT WIDENING OR IN ONE LANE WIDTH WHEN WIDENING IS FOR TWO OR MORE LANES.

## LONGITUDINAL BULKHEAD JOINT

FOR WIDENING EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE (USING EPOXY ANCHORED LANE TIES)

THE FIRST SLAB SHALL BE EDGED WITH AN EDGER HAVING A  $\frac{3}{4}$ " LIP AND A RADIUS OF  $\frac{1}{8}$ " TO  $\frac{1}{4}$ "

EDGING TOOL SHALL BE 6" x 12" AND SHALL HAVE A 1" LIP WITH A RADIUS OF  $\frac{1}{8}$ " TO  $\frac{1}{4}$ "



### METHOD OF EDGING

**NOTES:**

ALL LANE TIE BARS SHALL BE DEFORMED EXCEPT SYMBOL (S) WHICH WILL BE SMOOTH.

THE EPOXY COATED S BARS ARE TO BE FACTORY COATED WITH AN APPROVED BOND RELEASE AGENT, UNIFORMLY APPLIED BY DIPPING AND WITHOUT EXCESSIVE DRIPS OR THICKNESS.

THE INSTALLATION OF LANE TIE BARS AND THE SAWING OF LONGITUDINAL JOINTS WILL NOT BE REQUIRED FOR TEMPORARY CONCRETE PAVEMENT UNLESS SPECIFIED ON PLANS OR IN THE PROPOSAL. THE EDGING OF TEMPORARY CONCRETE PAVEMENT WILL NOT BE REQUIRED.

FOR JOINT LAYOUT DETAILS, SEE STANDARD PLAN R-42-SERIES.

SAWING PROCEDURES AND RELATED OPERATIONS ARE DESCRIBED IN THE CURRENT STANDARD SPECIFICATIONS.

NO SAWED OR SEALED JOINT SHALL BE CONSTRUCTED BETWEEN THE PAVEMENT AND CURB OR PAVEMENT AND CURB AND GUTTER, WHERE THESE ITEMS ARE CAST INTEGRALLY.

WHEN JOINTED PLAIN CONCRETE IS SPECIFIED AT INTERSECTIONS SYMBOL (S) JOINTS ARE TO BE USED FOR THE LONGITUDINAL JOINT BETWEEN THE THE E2 JOINT AT THE SPRINGPOINT OF THE SIDE STREET AND THE THROUGH LANE GUTTER PAN LINE. WHEN THE E2 JOINT IS MOVED TO THE THROUGH LANE GUTTER PAN LINE USE SYMBOL (D) JOINT AS NORMALLLY REQUIRED.

ALL STRAIGHT TIE BARS SHALL BE EPOXY COATED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR EPOXY COATED STEEL REINFORCEMENT FOR STRUCTURES.

WHEN LANE TIES ARE GROUTED INTO AN EXISTING PAVEMENT, THE GROUT SHALL BE SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SAMPLING GUIDE" FOR LANE TIES.

IN ORDER TO AVOID CONFLICT WITH THE LOAD TRANSFER ASSEMBLY, THE PLACEMENT OF THE END LANE TIE ADJACENT TO ANY TRANSVERSE JOINT SHALL BE AS FOLLOWS:

1. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING EXCEEDS 3'-4", PLACE FIRST AND LAST LANE TIE HALF THE MAXIMUM ALLOWABLE LANE TIE SPACING FROM JOINT.
2. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING IS LESS THAN 3'-4", PLACE FIRST AND LAST LANE TIE A MINIMUM OF 1'-8" FROM JOINT.

IT MAY BE NECESSARY TO ADJUST THE LAST THREE LANE TIE SPACINGS TO ENSURE UNIFORM LOADING RESISTANCE ALONG THE LONGITUDINAL JOINT.

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

## LONGITUDINAL PAVEMENT JOINTS

9-30-2014  
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SHEET  
2 OF 2