

MINNESOTA DEPARTMENT OF TRANSPORTATION	TRANSMITTAL LETTER NO. (16-01)
DEVELOPED BY: Design Standards	MANUAL: Standard Plans
ISSUED BY: Office of Project Management and Technical Support, Design Support Section	DATED: February 23, 2016
SUBJECT: Standard Plans 5-297.209, .210, .217, and .219	

The following Standard Plan Sheets have been revised:

- 5-297.209 – Acceleration and Deceleration Lane (Rural)
- 5-297.210 – Acceleration and Deceleration Lane (Urban)
- 5-297.217 – Concrete Mainline Pavement 15 Ft. Panel Length (2 Sheets)
- 5-297.219 – Concrete Ramp Pavement 15 Ft. Panel Length

Please refer to the attached Summary of Changes document for modification details.

INSTRUCTIONS:

1. Record the transmittal letter number, date and subject on the transmittal record sheet located in the front of the manual. The previous Transmittal Letter No. issued for this manual was 15-03, dated December 23, 2015.
2. Remove from the manual:
 - Standard Plan Index (Sheets 1 - 4 of 4) (December 11, 2015)
 - Standard Plans 209 and 210 (May 27, 2014)
 - Standard Plans 217 and 219 (August 6, 2014)
3. Insert in the manual:
 - Standard Plan Index (Sheets 1 - 4 of 4) (February 16, 2016)
 - 5-297.209 (Sheet 1 of 1) (February 16, 2016)
 - 5-297.210 (Sheet 1 of 1) (February 16, 2016)
 - 5-297.217 (Sheet 1-2 of 2) (February 16, 2016)
 - 5-297.219 (Sheet 1 of 1) (February 16, 2016)
4. Current Standard Plans including Transmittal Letters are available on the web at:
<http://standardplans.dot.state.mn.us/StdPlan.aspx>
5. Any questions regarding this transmittal should be directed Ron Reemer, Design Standards Unit at (651) 366-4707.



Michael Elle, P.E.
Design Standards Engineer

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Summary of Changes
Multiple Standard Plans
Transmittal Letter No. (16-01)

All plans:

1. Longitudinal and contraction joint designations changed from sealed to unsealed.

Plan .209 Sheet 1 of 1

1. From L1TH to L1TU
2. From L1H to L1U
3. From C2H-D to C1U-D
4. From C2H to C1U

Plan .210 Sheet 1 of 1

1. From L2KTH to L2KTU
2. From L2TH to L2TU
3. From L1TH to L1TU
4. From L1H to L1U
5. From C2H-D to C1U-D
6. From C2H to C1U

Plan .217 Sheet 1 and 2 of 2

1. From L1TH to L1TU
2. From C2H-D to C1U-D
3. From C2H to C1U

Plan .219 Sheet 1 of 1

1. From L2KTH to L2KTU
2. From L2TH to L2TU
3. From L1TH to L1TU
4. From C2H-D to C1U-D
5. From C2H to C1U

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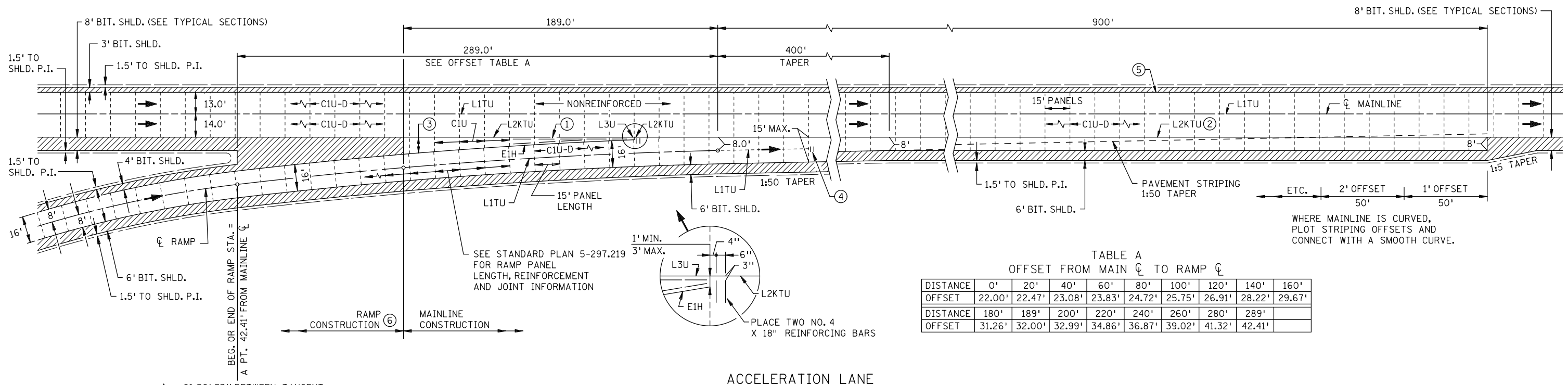
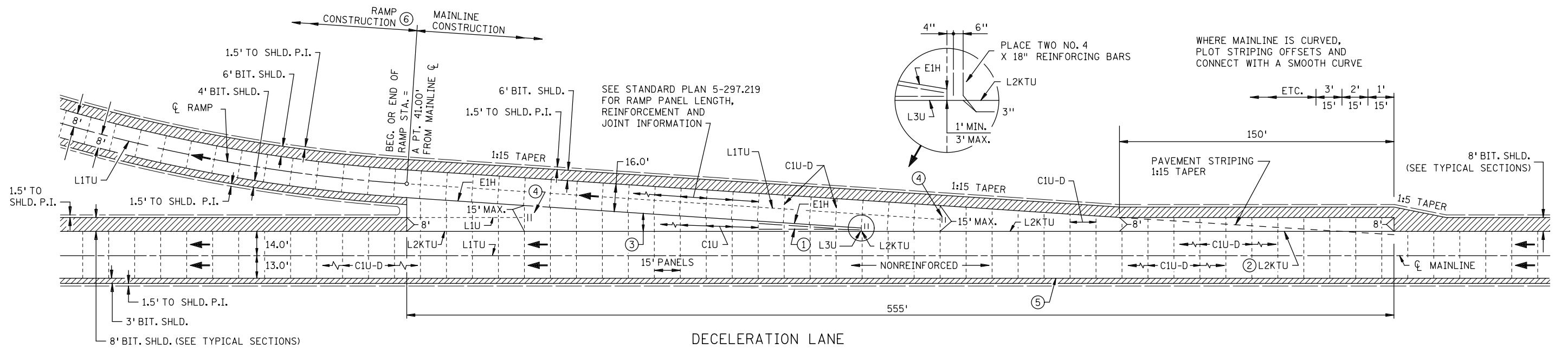


TABLE A
OFFSET FROM MAIN CL TO RAMP CL

DISTANCE	0'	20'	40'	60'	80'	100'	120'	140'	160'
OFFSET	22.00'	22.47'	23.08'	23.83'	24.72'	25.75'	26.91'	28.22'	29.67'
DISTANCE	180'	189'	200'	220'	240'	260'	280'	289'	
OFFSET	31.26'	32.00'	32.99'	34.86'	36.87'	39.02'	41.32'	42.41'	

CONSTRUCTION NOTES:

PAVEMENT AND BASE THICKNESS, PANEL LENGTHS, JOINTS AND REINFORCEMENT FOR THE DECELERATION AND ACCELERATION LANES, INCLUDING TAPERS, SHALL BE THE SAME AS THE MAINLINE, EXCEPT WHERE NOTED OTHERWISE.

ALL REINFORCEMENT BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

LANE AND SHOULDER WIDTHS MAY VARY FROM AS SHOWN. SEE CONSTRUCTION PLANS FOR ACTUAL PROPOSED WIDTHS.

① IN GORE AREAS 6 FEET WIDE OR LESS, MAKE THE PAVEMENT AND BASE THICKNESS THE SAME AS THE MAINLINE. THE ADJACENT MAINLINE C1U-D JOINTS SHALL BE EXTENDED THROUGH THE GORE AREA AS C1U JOINTS. PLACE A NO. 4 REINFORCEMENT BAR 4 INCHES FROM AND ALONG EACH SIDE OF THE GORE TAPER. WHEN GORE AREAS ARE GREATER THAN 6 FEET WIDE, TIE THE MAINLINE TO THE GORE WITH AN L2KTU JOINT.

② WHEN MAINLINE THICKNESS IS LESS THAN 7" USE L2TU JOINTS INSTEAD OF L2KTU JOINTS.

③ CONSTRUCT 15 FOOT PANELS (MAINLINE THICKNESS) WHEN GORE WIDTH IS 6 FEET OR GREATER. THIS AREA SHALL BE SEPARATED FROM OTHER CONCRETE PAVEMENT BY AN E1H JOINT. WHEN THE WIDTH EXCEEDS 15 FEET, CONSTRUCT ONE L1U RELIEF JOINT.

④ PLACE TWO NO. 4 X 18" REINFORCING BARS AT ENDS OF L1U AND L1TU JOINTS, SPACED 4" AND 10" FROM JOINT.

⑤ WHEN INSIDE SHOULDERS ARE CONSTRUCTED WITH CONCRETE AN L1TU OR L2KTU JOINT SHALL BE USED.

⑥ TRANSITION THE MAINLINE THICKNESS OVER TWO RAMP PANELS TO THE RAMP THICKNESS.



Tom John
STATE DESIGN ENGINEER

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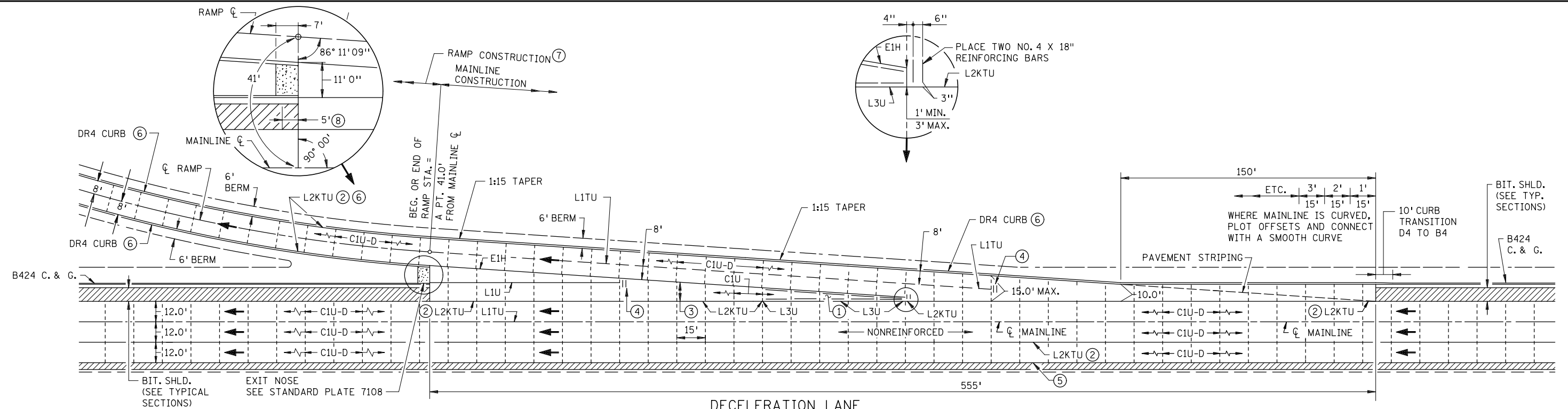
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ACCELERATION AND DECELERATION LANE (RURAL)
RIGID DESIGN MAINLINE JOINTED PAVEMENT
15 FT. PANEL LENGTH

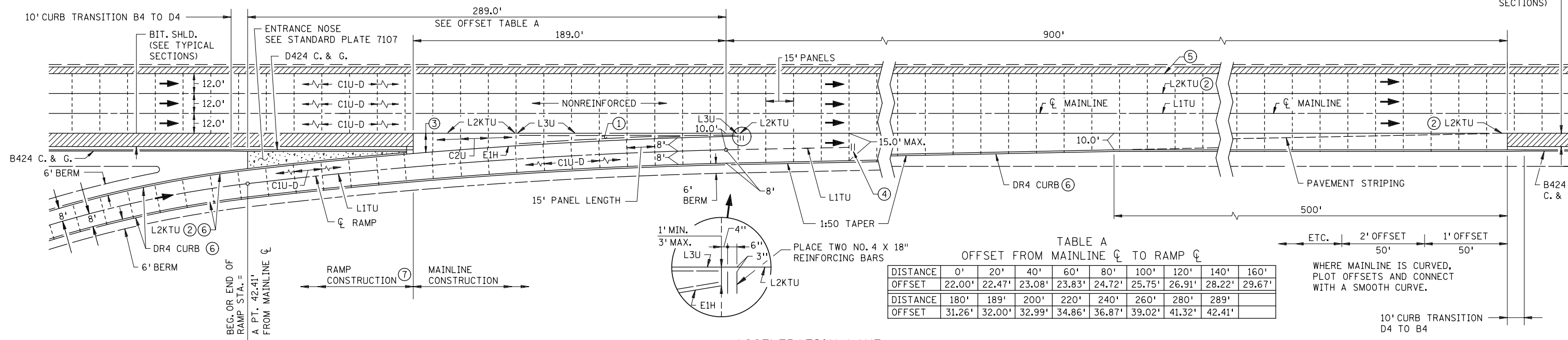
STANDARD PLAN 5-297.209

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DECELERATION LANE



ACCELERATION LANE

TABLE A
OFFSET FROM MAINLINE CL TO RAMP CL

DISTANCE	0'	20'	40'	60'	80'	100'	120'	140'	160'
OFFSET	22.00'	22.47'	23.08'	23.83'	24.72'	25.75'	26.91'	28.22'	29.67'
DISTANCE	180'	189'	200'	220'	240'	260'	280'	289'	
OFFSET	31.26'	32.00'	32.99'	34.86'	36.87'	39.02'	41.32'	42.41'	

$\Delta = 6^\circ 56' 33''$ BETWEEN TANGENT OF RAMP CURVE AND TANGENT OF MAINLINE AT THE 42.41' POINT.

CONSTRUCTION NOTES:

PAVEMENT AND BASE THICKNESS, PANEL LENGTHS, JOINTS AND REINFORCEMENT FOR THE DECELERATION AND ACCELERATION LANES SHALL BE THE SAME AS THE MAINLINE, EXCEPT WHERE NOTED OTHERWISE.

ALL REINFORCEMENT BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

LANE AND SHOULDER WIDTHS MAY VARY FROM DIMENSIONS SHOWN. SEE CONSTRUCTION PLANS FOR ACTUAL WIDTHS.

- ① THE ADJACENT MAINLINE C1U-D JOINTS SHALL BE EXTENDED THROUGH THE GORE AREA AS C1U JOINTS. PLACE A NO. 4 REINFORCEMENT BAR 4 INCHES FROM AND ALONG EACH EDGE OF THE GORE TAPER. WHEN GORE AREAS ARE GREATER THAN 6 FEET WIDE, TIE THE MAINLINE TO THE GORE WITH AN L2KTU JOINT.
- ② WHEN RAMP THICKNESS IS LESS THAN 7" USE L2TU JOINTS INSTEAD OF L2KTU JOINTS.
- ③ CONSTRUCT 15 FOOT PANELS (MAINLINE THICKNESS) WHERE GORE WIDTH IS 6 FEET OR GREATER. WHERE THE WIDTH EXCEEDS 15 FEET, CONSTRUCT ONE L1U RELIEF JOINT.
- ④ PLACE TWO CL TIE BARS AT ENDS OF L1U AND L1TU JOINTS AS SHOWN.
- ⑤ WHEN INSIDE SHOULDERS ARE CONSTRUCTED WITH CONCRETE, CONSTRUCT A L2KTU JOINT.
- ⑥ THE CONTRACTOR SHALL HAVE THE OPTION TO CONSTRUCT INTEGRANT CURB IN PLACE OF DR4 CURB WITH L2KTU JOINT. PAYMENT WILL BE BASED ON THE DR4 CURB OPTION, REGARDLESS OF THE METHOD OF CONSTRUCTION USED.

- ⑦ THE MAINLINE THICKNESS SHOULD TRANSITION OVER TWO RAMP PANELS TO THE RAMP THICKNESS.
- ⑧ WHEN CONSTRUCTING CURB AND GUTTER, SLOPE FROM 0" TO 4" CURB.

STATE DESIGN ENGINEER

REVISED:

APPROVED:

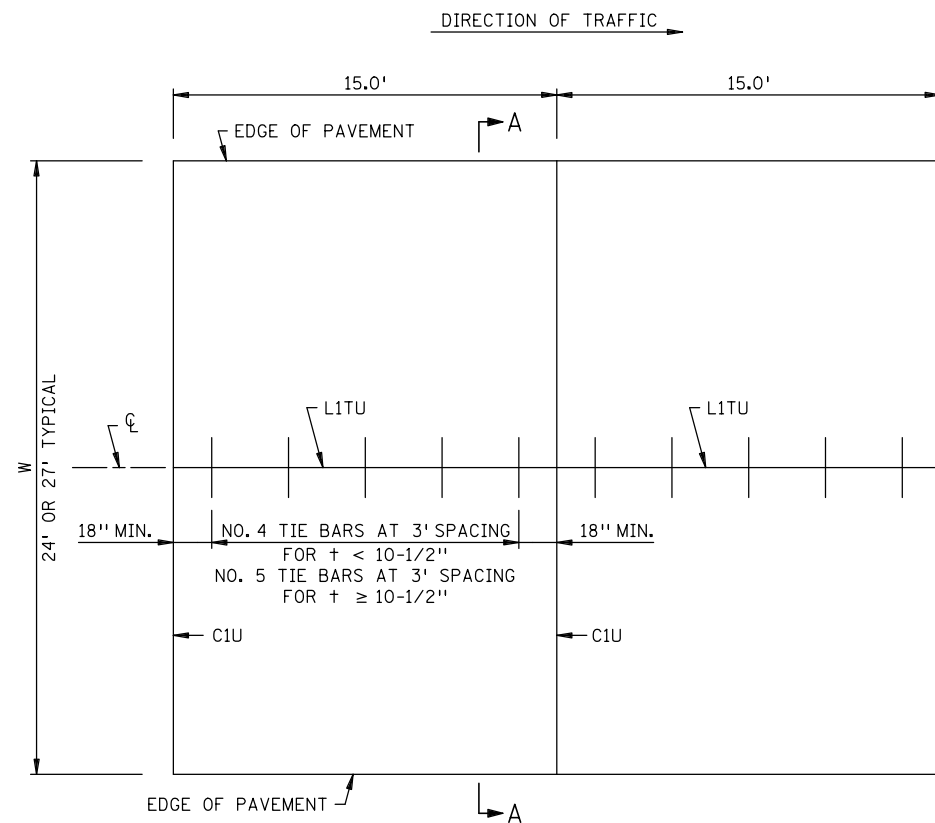
2-16-2016

ACCELERATION AND DECELERATION LANE (URBAN)
RIGID DESIGN MAINLINE JOINTED PAVEMENT
15 FT. PANEL LENGTH

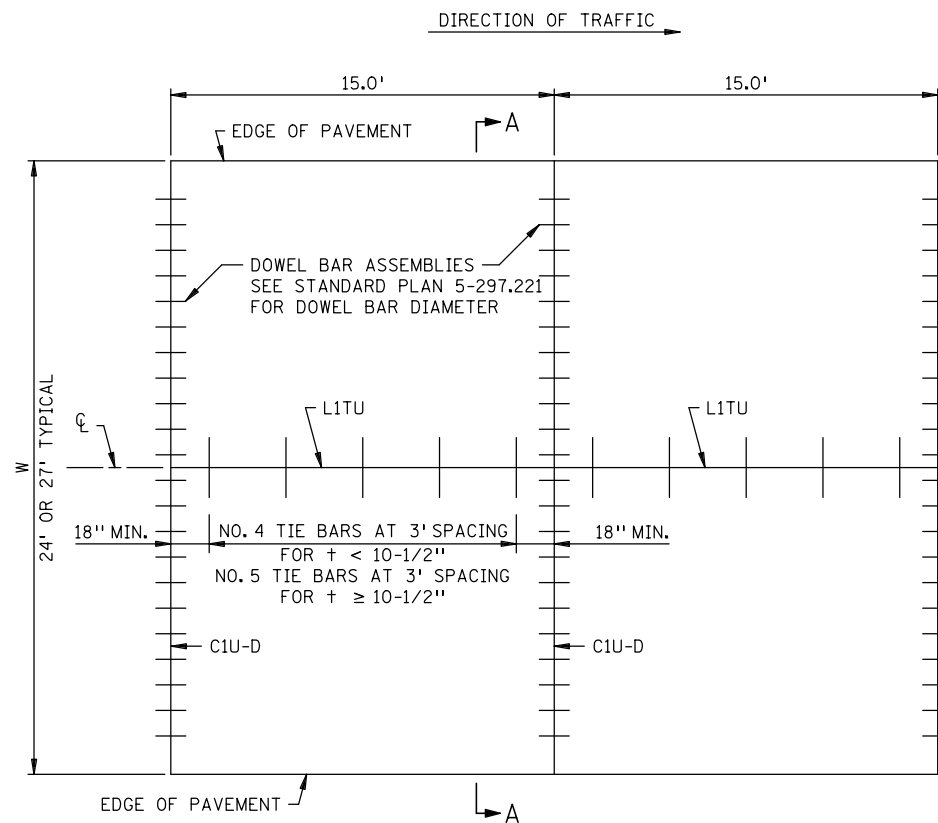
STANDARD PLAN 5-297.210

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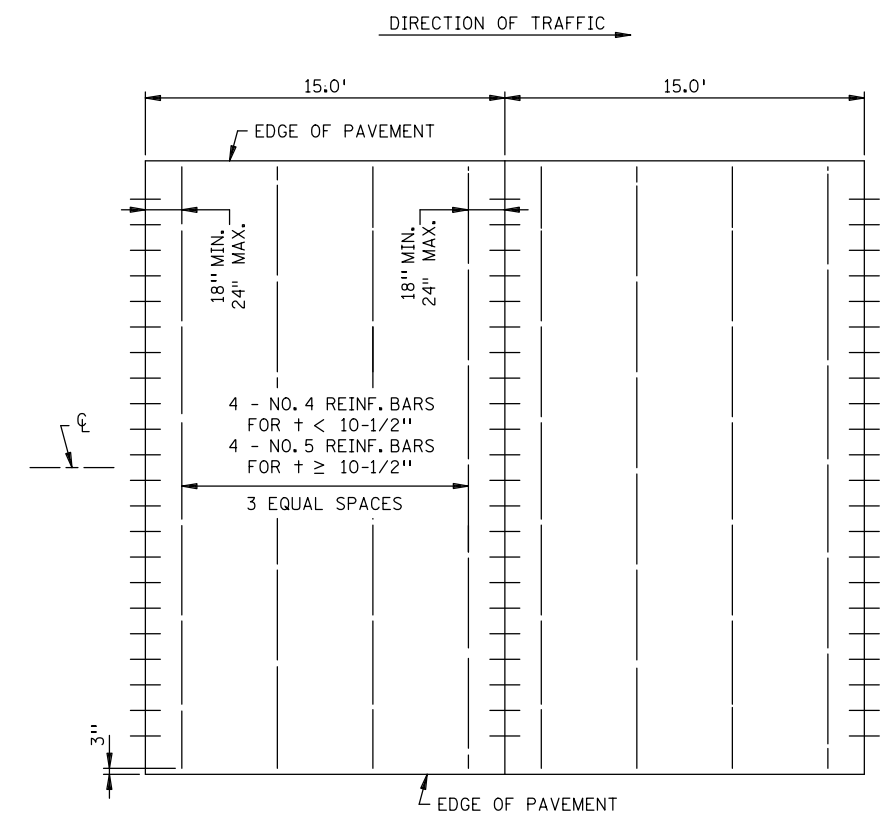
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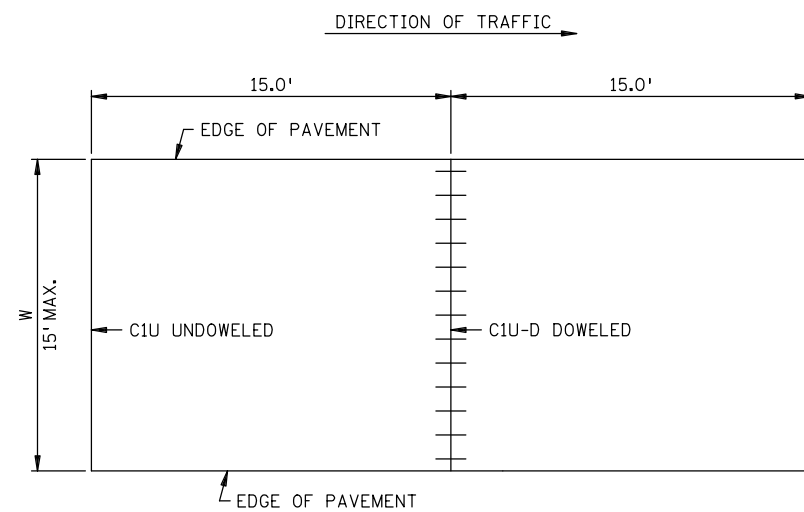
MAINLINE PAVEMENT
UNDOWELED



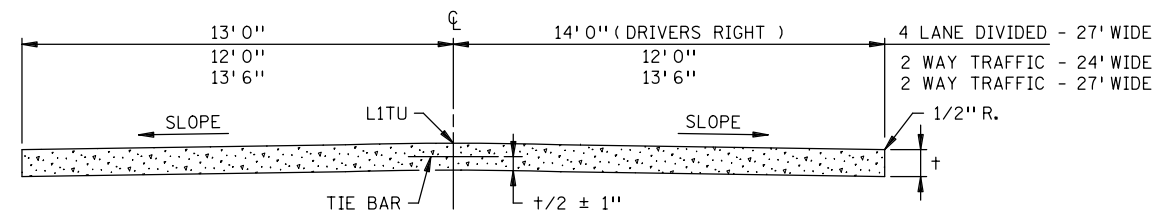
MAINLINE PAVEMENT
DOWELED



PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH
UNDOWELED OR DOWELED



SECTION A-A

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t .

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT. PLACEMENT DEPTH SHALL BE PLANNED $t/2 \pm 1"$. IT IS PREFERRED TO ADD A LONGITUDINAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

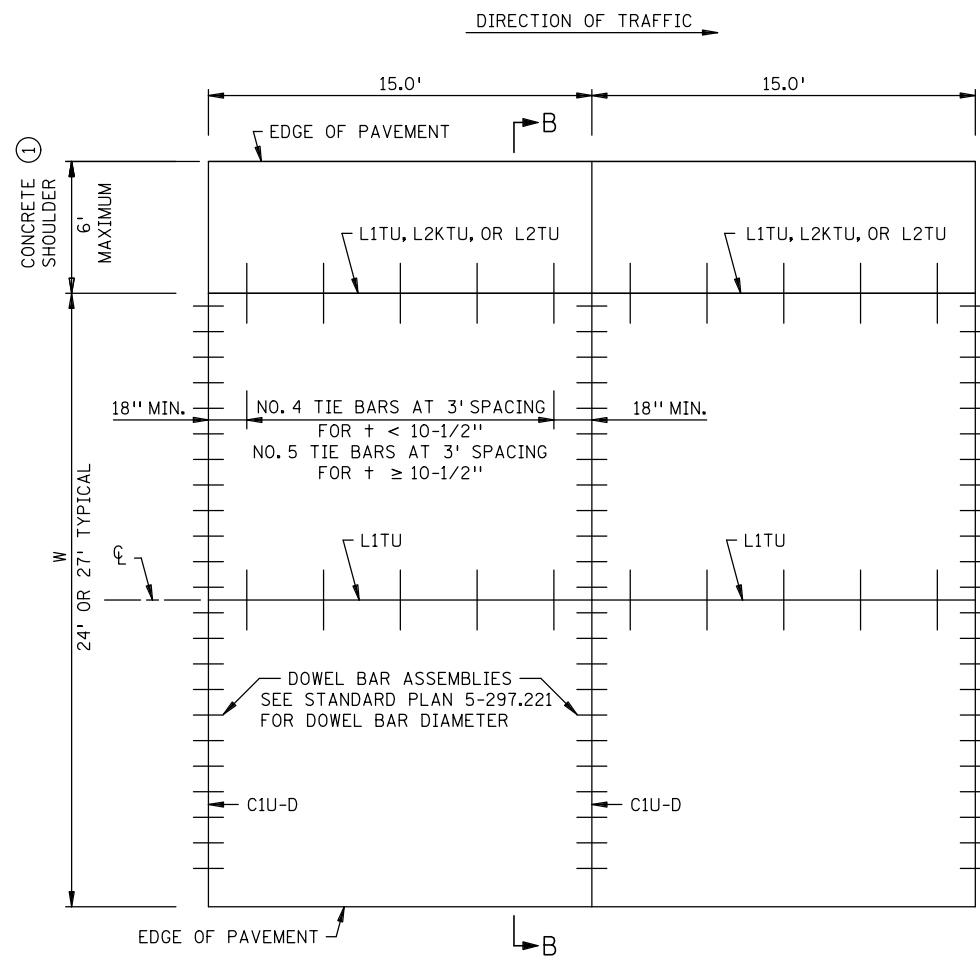
REVISION:
APPROVED: FEBRUARY 16, 2016
[Signature]
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH



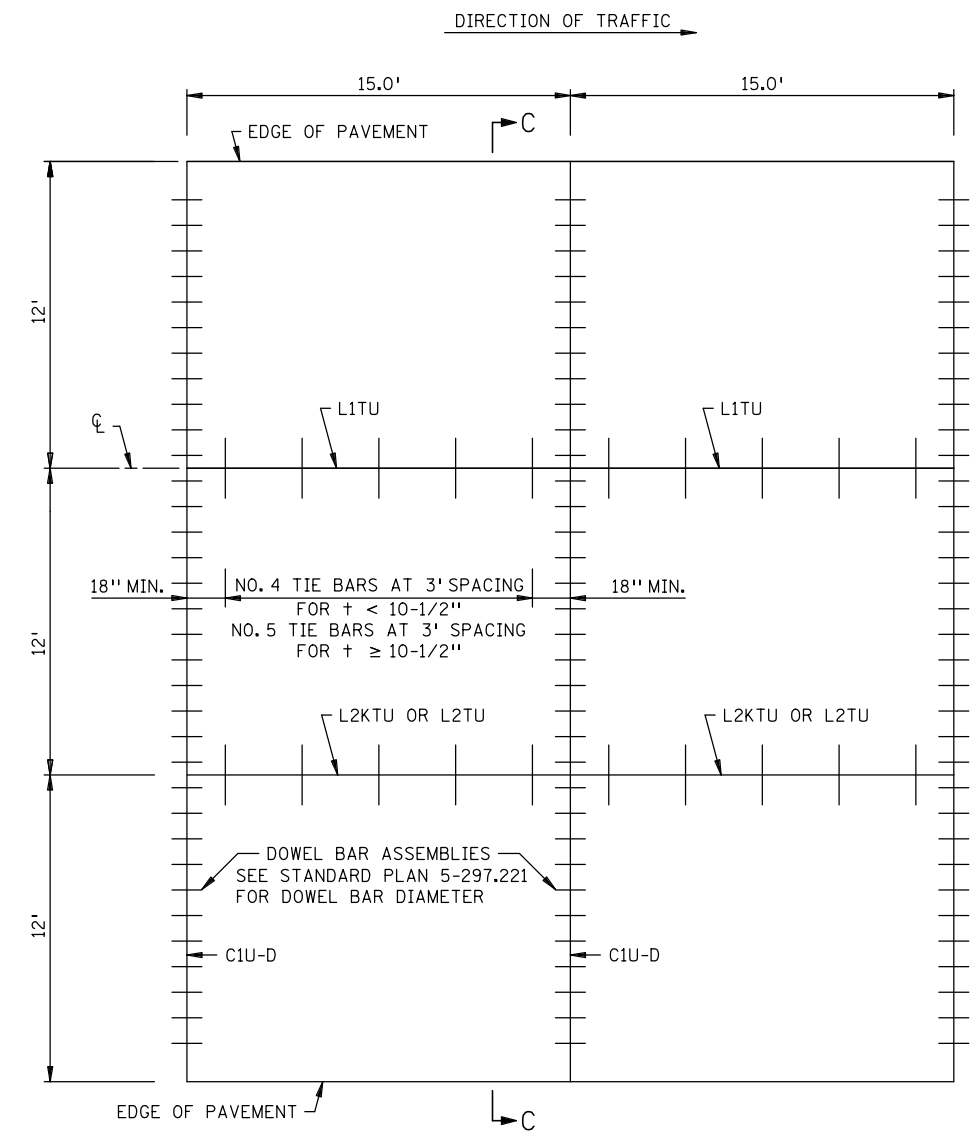
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APPROVED:
2-16-2016

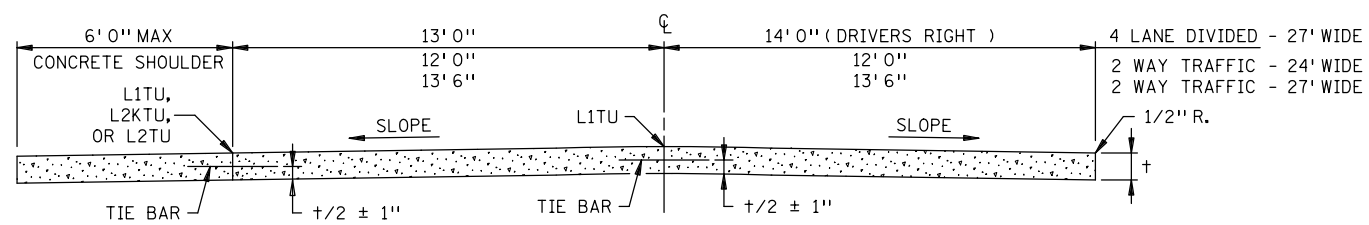
CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
RURAL
STANDARD PLAN 5-297.217 1 OF 2



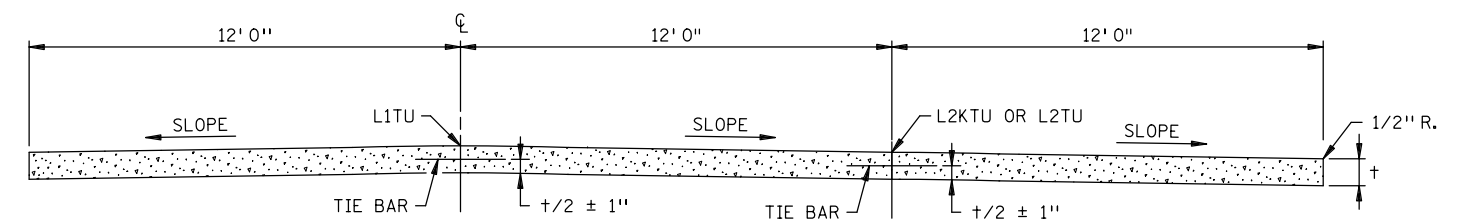
MAINLINE PAVEMENT WITH INSIDE CONCRETE SHOULDER
DOWELED



MAINLINE PAVEMENT URBAN
DOWELED



SECTION B-B



SECTION C-C

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t .

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

① CONTACT THE CONCRETE ENGINEER TO DISCUSS WHETHER TIE BARS AND SAWED JOINTS ARE NEEDED BASED ON CONCRETE SHOULDER WIDTH AND DEPTH.

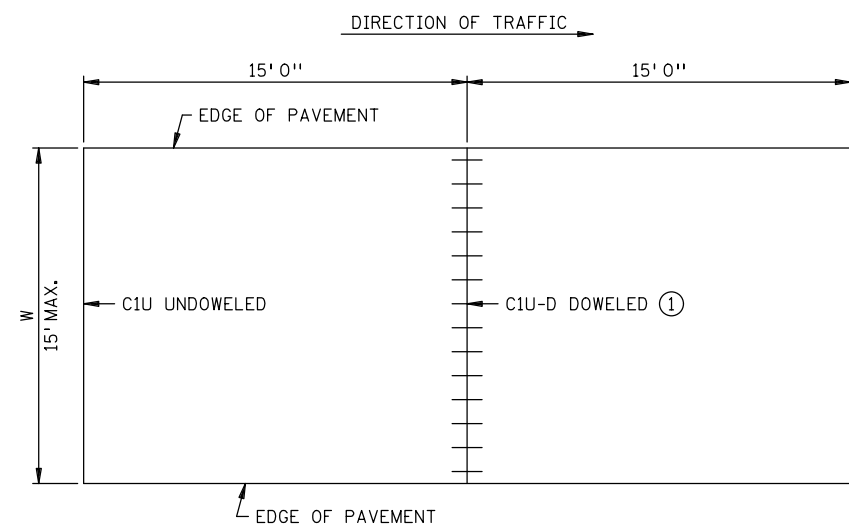
REVISION:
APPROVED: FEBRUARY 16, 2016
[Signature]
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH



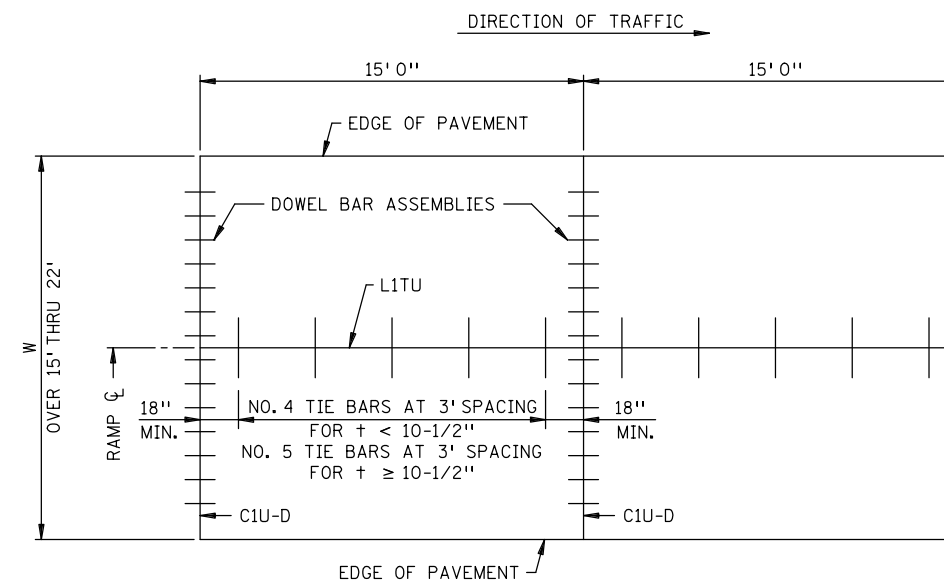
[Signature]
STATE DESIGN ENGINEER

REVISED:
APPROVED:
2-16-2016

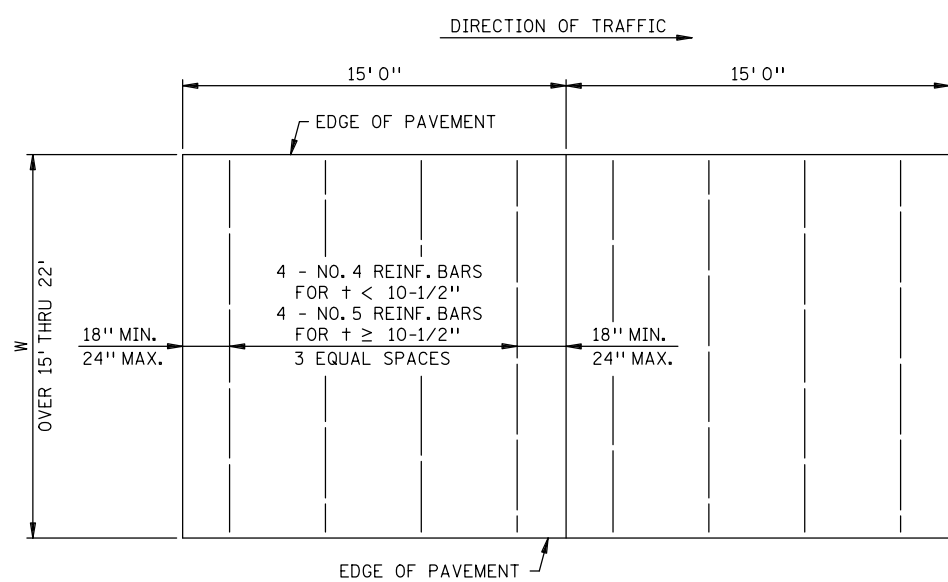
CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
URBAN OR CONCRETE SHOULDERS
STANDARD PLAN 5-297.217 2 OF 2



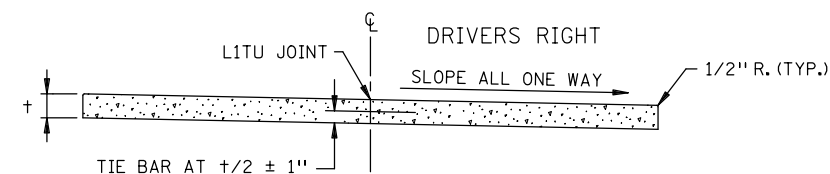
RAMP PAVEMENT 1 FT. THRU 15 FT. WIDTH



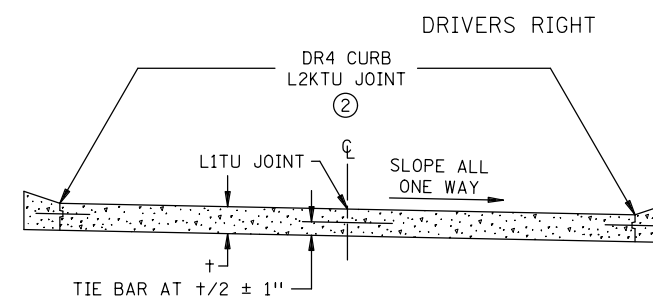
RAMP PAVEMENT OVER 15 FT. THRU 22 FT. WIDTH DOWELED



PANEL REINFORCEMENT
 PANELS OVER 15 FT. THRU 22 FT. WIDTHS
 IT IS PREFERRED TO ADD A LONGITUDINAL JOINT
 RATHER THAN PAVE GREATER THAN 15 FT. IN WIDTH.
 PLACEMENT DEPTH SHALL BE PLANNED $\pm/2 \pm 1''$



RURAL DESIGN RAMP CROSS SECTION



URBAN DESIGN RAMP CROSS SECTION

NOTES:

- WHEN RAMP THICKNESS IS LESS THAN 7", USE L2TU JOINTS INSTEAD OF L2KTU JOINTS.
- DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.
- SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, \pm .
- ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.
- FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.
- ① DOWELS USED WHEN PAVEMENT WIDTH IS GREATER THAN OR EQUAL TO 4'.
- ② THE CONTRACTOR SHALL HAVE THE OPTION TO CONSTRUCT INTEGRANT CURBS IN PLACE OF DR4 CURB WITH L2KTU JOINTS. IN EITHER OPTION, DOWEL BAR ASSEMBLIES WILL NOT BE REQUIRED IN THE CURB AREA. PAYMENT WILL BE BASED ON THE DR4 CURB OPTION, REGARDLESS OF THE METHOD OF CONSTRUCTION USED. DR4 JOINTS SHALL BE SEALED.

REVISION:
 APPROVED: FEBRUARY 16, 2016
 DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 REVISOR:
 APPROVED: 2-16-2016

CONCRETE RAMP/LOOP PAVEMENT
 15 FT. PANEL LENGTH
 STANDARD PLAN 5-297.219
 1 OF 1

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