

Section F: Surfacing Plans

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET F1	TOTAL SHEETS F18
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Plotting Date: 06/30/2015

INDEX OF SHEETS

- F1 General Layout with Index
- F2 - F4 Estimate of Quantities, Notes, Rates & Tables
- F5 Typical Surfacing Sections
- F6 - F10 PCC Pavement Joint Layouts
- F11 Details for Manhole Box-Outs
- F12 Special Plate for PCC Pavement Dowel Bar Assembly for Transverse Joints - 11 Bar Assembly on Granular Base Material
- F13 - F18 Standard Plates

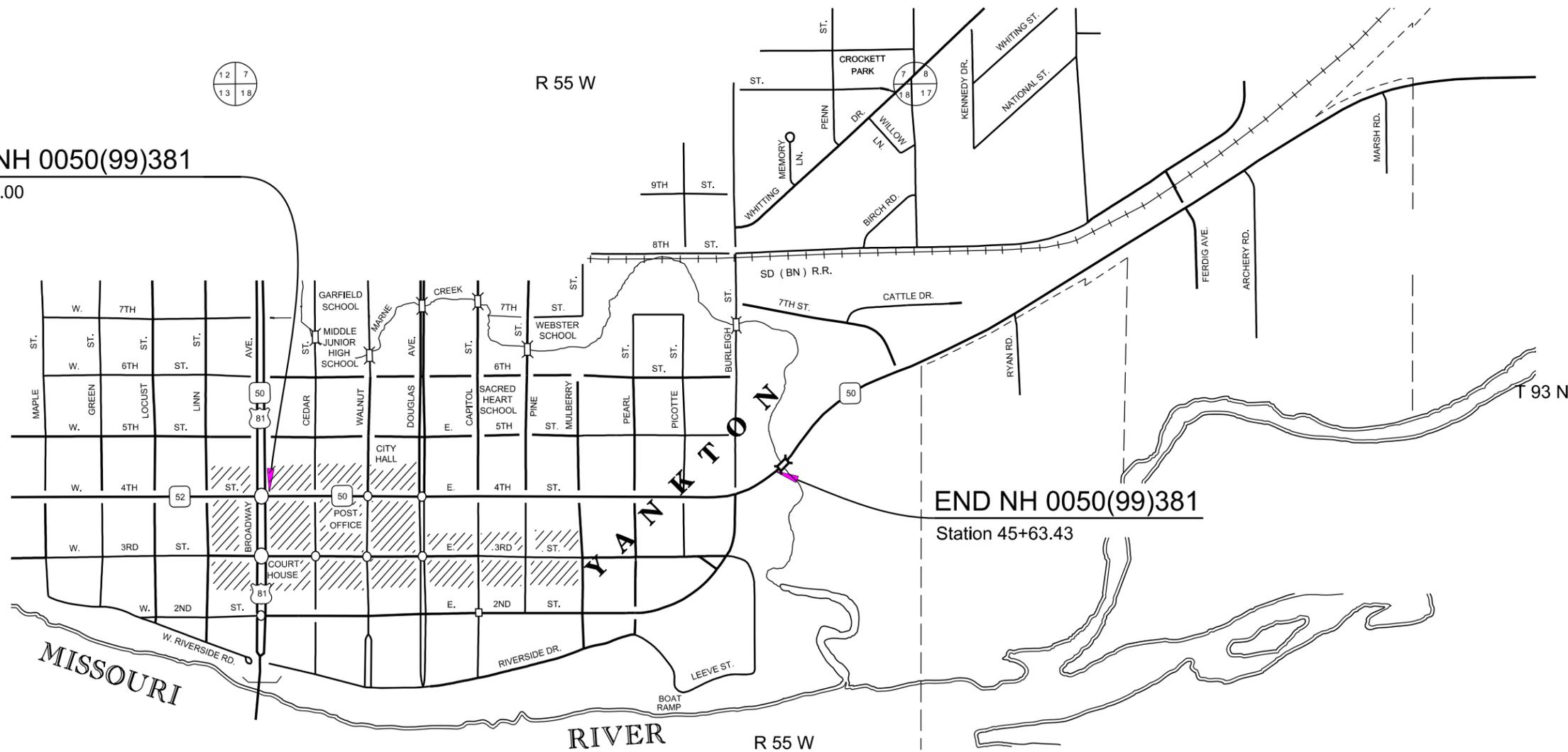
PLOT SCALE - 1:200

PLOT NAME - 1

BEGIN NH 0050(99)381

Station 4+00.00

T 93 N



END NH 0050(99)381

Station 45+63.43



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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
120E6200	Water for Granular Material	101.1	MGal
260E2010	Gravel Cushion	8,419.4	Ton
320E1200	Asphalt Concrete Composite	149.0	Ton
380E0050	8" Nonreinforced PCC Pavement	251.7	SqYd
380E0070	9" Nonreinforced PCC Pavement	23,932.1	SqYd
380E3020	6" PCC Driveway Pavement	189.9	SqYd
380E3040	8" PCC Driveway Pavement	1,122.9	SqYd
380E6000	Dowel Bar	15,204	Each
380E6110	Insert Steel Bar in PCC Pavement	640	Each

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

RECLAIMED CONCRETE AGGREGATE

Portland Cement Concrete Pavement removed from this project may be crushed and reused as granular material on the project provided it meets the Specifications for the granular material it is replacing.

Payment for the reclaimed concrete aggregate will be at the contract unit price per ton for the granular material that it is replacing.

TABLE OF ASPHALT CONCRETE COMPOSITE

Location	Asphalt Concrete Composite Without Specified Density Ton
Intersecting Streets	58
Areas Beyond Sidewalk/Drives	91
Total:	149

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET NO. F2	TOTAL SHEETS F18
-----------------------	---------------------------	-----------------	---------------------

8" & 9" NONREINFORCED PCC PAVEMENT

The aggregate may require screening as determined by the Engineer.

The concrete mix shall conform to the special provision for Contractor Furnished Mix Design for PCC Pavement.

In lieu of an automatic subgrader operating from a preset line, a motor grader or other suitable equipment may be used to trim the gravel cushion to final grade prior to placement of concrete. There will be no direct payment for trimming of the gravel cushion for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement.

A minimum of 6 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

The transverse contraction joints shall be perpendicular to the centerline as detailed in the standard plates 380.01 and 380.08. In multilane areas the transverse contraction joints shall be perpendicular to the centerline and be in a straight line across the width of the pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints that are not pre-approved shall be removed at the Contractor's expense. Any method of placement that cannot produce these requirements shall not be allowed to continue.

The surface of the mainline paving shall be a heavy carpet drag finish.

CURING OF CONCRETE

Portland Cement Concrete Pavement, Concrete Curb & Gutter, Concrete Gutter and Concrete Fillet will be cured with Linseed Oil Base Emulsion Compound.

ALKALI SILICA REACTIVITY

Fine aggregate shall conform to Section 800.2 D. Alkali Silica Reactivity (ASR) Requirements of the Specifications.

Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.170
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Mickelson Pit	E. of Nisland, SD	0.129
Fisher S&G - Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Higman	Akron, IA	0.203
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.186
L.G. Everist	Hawarden, IA	0.166
L.G. Everist	Summit, SD	0.178
Morris	Blunt, SD	0.192
Morris - Richards Pit	Onida, SD	0.188
Myrl & Roys – Ode Pit	E Sioux Falls, SD	0.214
Myrl & Roys - Nelson Pit	NE Sioux Falls, SD	0.156
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.133
Opperman - Gunvordahl Pit	Burke, SD	0.362*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.321*
Opperman - Randall Pit	Pickstown, SD	0.239
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.129
Pete Lien & Sons	Wasta, SD	0.192
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Pickstown (Wagner), SD	0.241
Winter Brothers- Whitehead Pit	Brookings, SD	0.197

* These sources will require Type V cement in the concrete mix design and Class F (Modified) fly ash as specified.

The Department will use the running average of the last three known expansion test results or less for determining acceptability of source and the required Type of cement. These expansion results are reported in the preceding table. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

The values listed in the table are intended for use in bidding. If a previously tested pit by SDDOT with acceptable test values (less than 0.250) is discovered after letting to require Type V cement (greater than 0.250) the Department will accept financial responsibility for the change from Type II to Type V cement.

Type II or Type V cement will not change the requirement for the fly ash. The cost for either type of cement shall be subsidiary to the contract item.

TABLE OF PCC PAVEMENT

Location	8" Nonreinforced PCC Pavement SqYd	9" Nonreinforced PCC Pavement SqYd
Mainline		
Sta. 4+00 to Sta. 4+70	---	448.0
Sta. 4+70 to Sta. 37+46.89	---	20,025.4
Sta. 37+46.89 to Sta. 38+62.03	---	735.5
17 Intersecting Streets	251.7	2,723.2
Totals:	251.7	23,932.1

TABLE OF DOWEL BARS

Location	1 ¼"x18" 11 Bar Assembly Each	1 ¼"x18" 12 Bar Assembly Each
Mainline		
Sta. 4+00 to Sta. 4+70	230	---
Sta. 4+70 to Sta. 37+46.89	13,255	---
Sta. 37+46.89 to Sta. 38+62.03	459	---
17 Intersecting Streets	44	1,216
Totals:	13,988	1,216

TRANSVERSE CONTRACTION JOINTS

See Special Plate for PCC Pavement Dowel Bar Assembly for Transverse Contraction Joints – 11 Bar Assembly on Granular Base Material and Standard Plate 380.01 for placement of Dowel Bars. See Standard Plate 380.09 for joint spacing of 8" & 9" Nonreinforced PCC Pavement.

6" & 8" PCC DRIVEWAY PAVEMENT

The concrete for the 6" & 8" PCC driveway pavement shall comply with the requirements of the specifications for Class M6 concrete unless otherwise stated in the plans.

Contraction joints in the 6" & 8" PCC driveway pavement shall be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least ¼ the thickness of the approach pavement.

All costs for furnishing and placing the 6" & 8" PCC driveway pavement and constructing the expansion and contraction joints including labor, equipment and materials including the earthen backfill shall be incidental to the contract unit price per square yard for "6" PCC Driveway Pavement" or "8" PCC Driveway Pavement" accordingly.

All costs for excavation required for placing the 6" & 8" PCC driveway pavement and granular material shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

All costs for furnishing and placing the granular material shall be incidental to the contract unit price per ton for "Gravel Cushion".

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0050(99)381	F3	F18

TABLE OF PCC DRIVEWAY PAVEMENT

Location	L or R	6" PCC Driveway Pavement SqYd	8" PCC Driveway Pavement SqYd
Sta. 4+06 to Sta. 4+52	R	---	40.0
Sta. 4+66 to Sta. 4+92	L	14.5	---
Sta. 5+03 to Sta. 5+14	L	6.0	---
Sta. 6+45 to Sta. 6+71	L	---	39.9
Sta. 6+79 to Sta. 7+66	L	---	53.6
Sta. 6+75 to Sta. 8+05	R	---	117.0
Sta. 8+51 to Sta. 8+98	L	28.1	---
Sta. 12+54 to Sta. 12+83	R	---	30.7
Sta. 12+70 to Sta. 18+74	R	---	206.8
Sta. 13+13 to Sta. 13+72	L	---	72.1
Sta. 15+36 to Sta. 16+41	L	---	57.9
Sta. 19+62 to Sta. 21+19	R	---	38.4
Sta. 21+17 to Sta. 21+36	L	---	39.4
Sta. 22+07 to Sta. 22+26	R	23.7	---
Sta. 25+59 to Sta. 25+87	L	---	5.6
Sta. 24+84 to Sta. 27+15	R	---	53.1
Sta. 27+20 to Sta. 27+45	R	---	18.3
Sta. 27+76 to Sta. 28+01	L	---	35.5
Sta. 28+05 to Sta. 28+96	L	---	61.8
Sta. 28+06 to Sta. 29+62	R	---	78.9
Sta. 30+32 to Sta. 30+65	L	---	32.5
Sta. 30+33 to Sta. 30+41	R	7.0	---
Sta. 32+57 to Sta. 32+77	L	22.2	---
Sta. 34+51 to Sta. 34+86	L	66.0	---
Sta. 37+87 to Sta. 38+47	L	---	97.0
Sta. 40+32 to Sta. 40+44	L	22.4	---
Sta. 40+44 to Sta. 40+72	L	---	44.4
Totals:		189.9	1,122.9

See PCC Pavement Joint Layouts for additional details showing limits of work.

MANHOLE BOX-OUT DETAILS

The Contractor shall construct box-outs for all manholes in the PCC Concrete Pavement according to the Details for Manhole Box-Outs located elsewhere in these plans. See Section B – Grading Plans for the proposed locations of the manholes.

FOR BIDDING PURPOSES ONLY

INSERT STEEL BAR IN PCC PAVEMENT

The Contractor shall insert the Steel Bars (1-1/4" x 18" Plain Round Dowel Bars and No. 5 x 30" Deformed Steel Bars) into drilled holes in the existing concrete pavement.

The steel bars shall be cut to the specified length by sawing or shearing and shall be free from burring or other deformations.

Epoxy coated plain round steel bars shall be inserted on 12 inch centers in the transverse joint. The first steel bar shall be placed a minimum of 3 inches and a maximum of 6 inches from the outside edge of the slab.

Epoxy coated deformed steel bars shall be inserted on 30 inch centers in the longitudinal joint and shall be spaced a minimum of 15 inches from the existing transverse contraction joint.

TABLE OF INSERT STEEL BAR IN PCC PAVEMENT

Location	1 1/4" x 18" Plain Round Dowel Bars Each	No. 5 x 30" Deformed Steel Bars Each
Mainline		
Sta. 4+00 - 30.1' L. to 30.1' R.	60	---
Sta. 38+62.03 - 32.9' L. to 29.6' R.	63	---
Intersecting Streets		
Sta. 10+52 L.	61	---
Sta. 14+83 L.	45	---
Sta. 14+83 R.	73	---
Sta. 19+15 L.	26	---
Sta. 23+37 L.	40	---
Sta. 27+61 L.	26	9
Sta. 27+61 R.	26	---
Sta. 31+73 L.	25	---
Sta. 31+73 R.	26	---
Sta. 35+74 L.	22	---
Sta. 39+57 R	138	
Total:	631	9

See PCC Pavement Joint Layouts for additional details showing limits of work.

RATES OF MATERIALS

The Estimate of Surfacing Quantities is based on the following quantities of materials per station.

MAINLINE

Sta. 4+70 to Sta. 37+46.89

GRAVEL CUSHION

Crushed Aggregate 193.47 Tons.

Water for Granular Material at the rate of 2.32 M. Gallons.

TABLE OF ADDITIONAL QUANTITIES

Location	Water For Granular Material MGal	Gravel Cushion Ton	Asphalt Concrete Composite Ton
Mainline			
Sta. 4+00 to Sta. 4+70	1.7	140.9	---
Sta. 37+46.89 to Sta. 38+62.03	2.8	231.4	---
17 Intersecting Streets	10.6	883.6	58
41 Drives	4.1	340.3	---
Areas Beyond Sidewalk/Drives	5.8	482.7	91
Totals:	25.0	2,078.9	149

See Typical Surfacing Sections and PCC Pavement Joint Layouts for additional details showing limits of work and depths of surfacing.

TYPICAL SURFACING SECTIONS

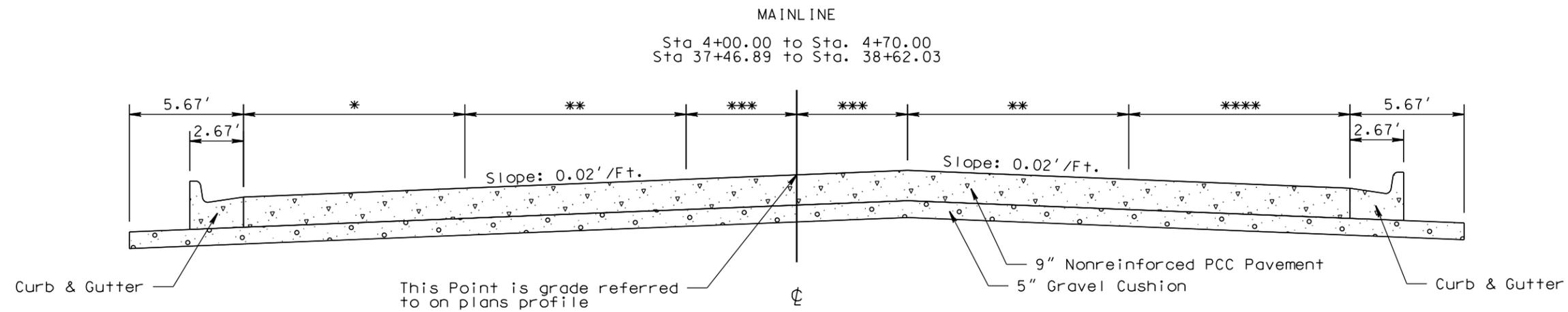
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0050(99)381	F5	F18

Plotting Date: 06/30/2015

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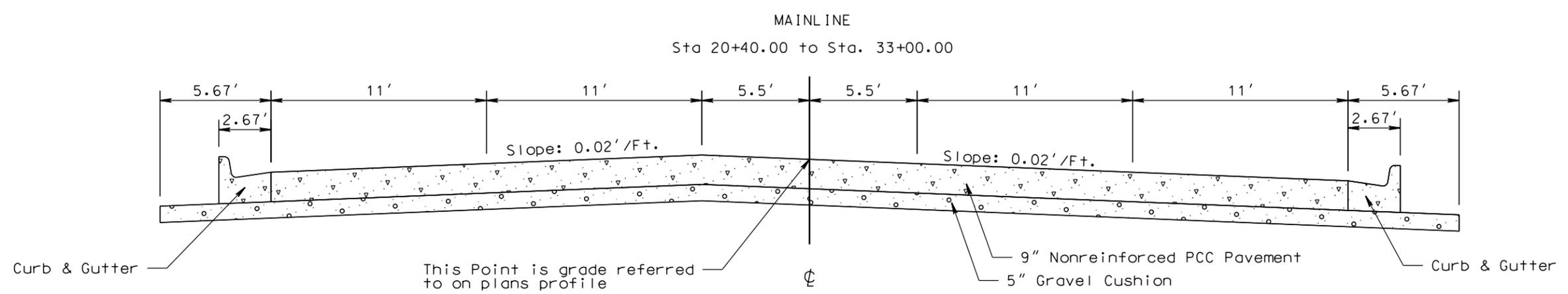
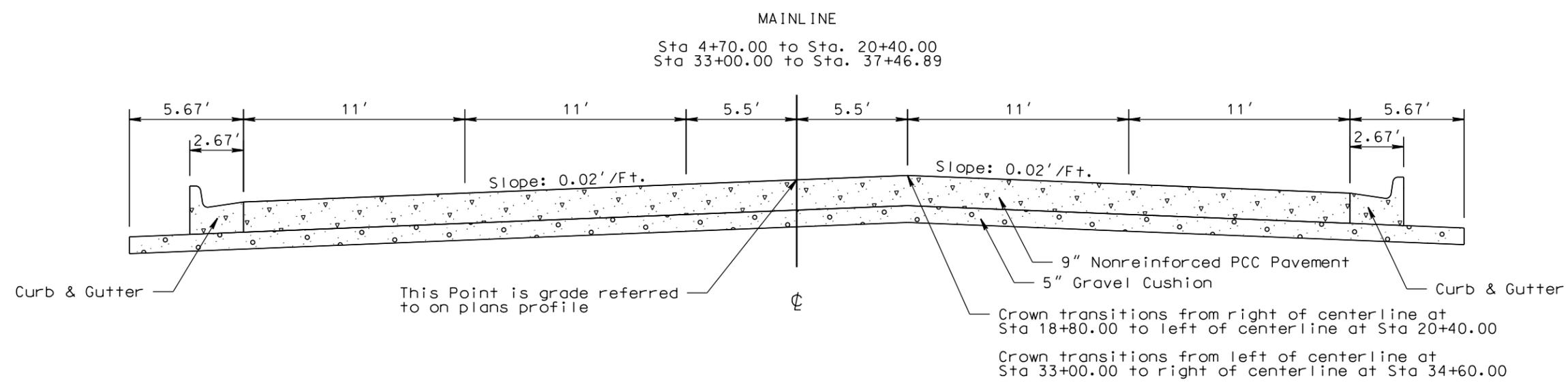
PLOT SCALE - 1+6.19298

PLOT NAME - 2



Exception
Sta. 38+62.03 to Sta. 45+22.20

- Transitions
- Sta 4+00.00 to Sta 4+70.00
- * 12.09' to 11'
 - ** 12' to 11'
 - *** 6' to 5.5'
 - **** 12.11' to 11'
- Sta 37+46.89 to Sta 38+62.03
- * 11' to 12.17'
 - ** 11' to 12'
 - *** 5.5' to 6'
 - **** 11' to 11.59'



PLOTTED FROM - TRPR18388

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PCC PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

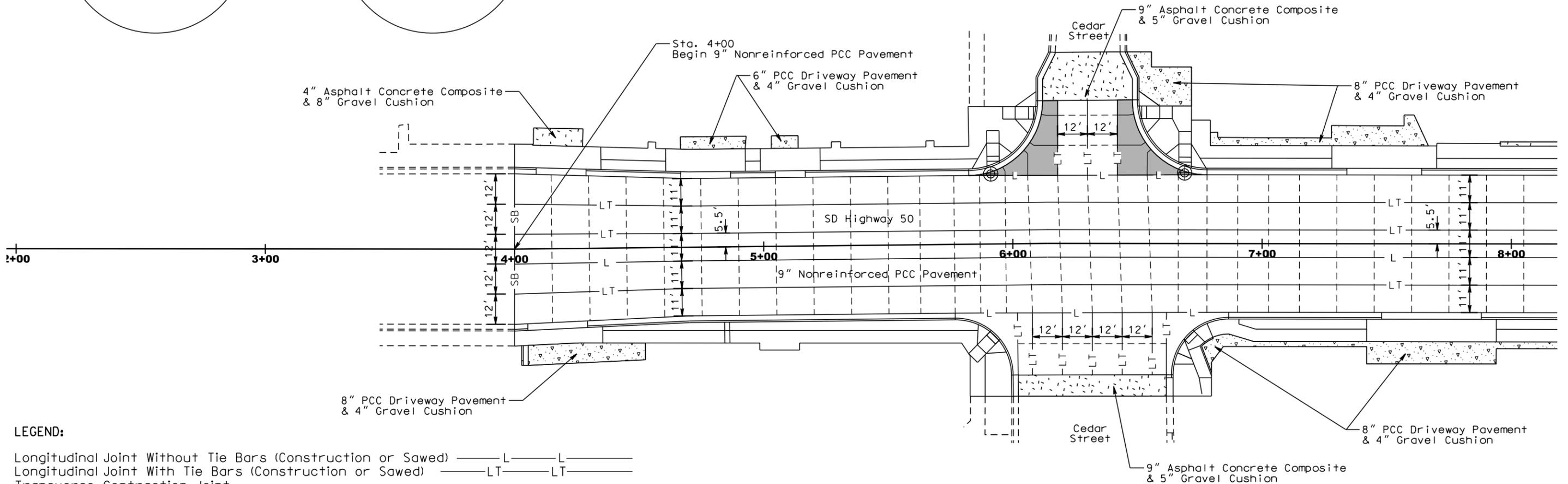
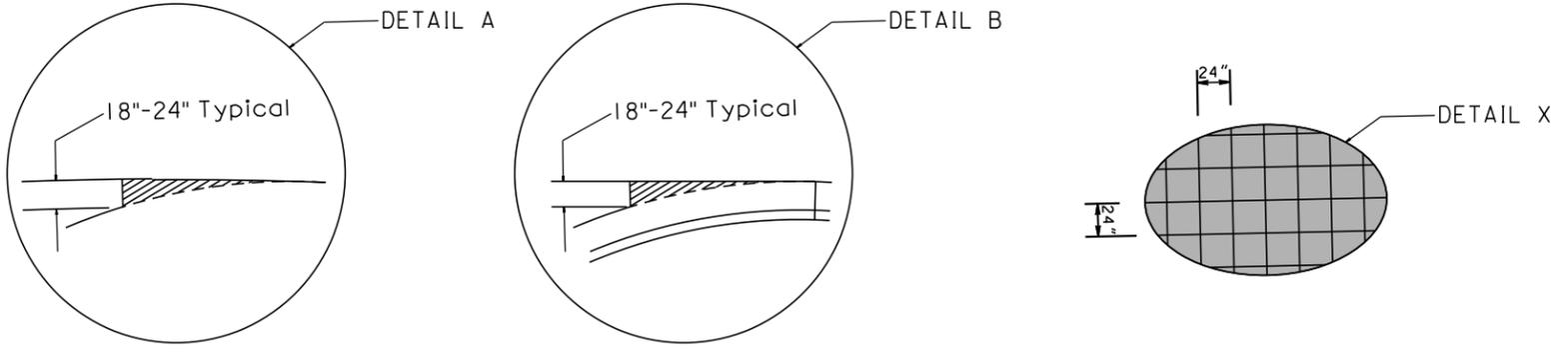
STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET F6	TOTAL SHEETS F18
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Plotting Date: 06/30/2015

Scale 1 Inch = 40 Feet
Sheet 1 of 5 Sheets

PLOT SCALE - 1:40

PLOT NAME - 3



LEGEND:

- Longitudinal Joint Without Tie Bars (Construction or Sawed) ——— L ——— L ———
- Longitudinal Joint With Tie Bars (Construction or Sawed) ——— LT ——— LT ———
- Transverse Contraction Joint ——— ——— ———
- Steel Bar Installation in Longitudinal or Transverse Joint ——— SB ——— SB ———
- Areas to be poured monolithically with adjacent slab (See Detail A)
- Areas to be poured monolithically with adjacent curb and gutter (See Detail B)
- Existing Joints (Location Approximate) ——— EJ ——— EJ ———
- Crown Point ——— ——— ———

- Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.
- Fillet areas shall be reinforced with #4 rebar 24 inches on center both directions. Cost for furnishing and placing the rebar shall be incidental to the contract unit price per square yard for 9" NONREINFORCED PCC PAVEMENT (See Detail X). No dowel bar assemblies shall be placed in these areas.
- Asphalt Concrete Composite.
- Gravel Cushion
- PCC Driveway Pavement

LOCATION OF CONCRETE PAVEMENT JOINTS

The location of joints, as shown and/or designated on pcc pavement joint layout sheets are only approximate locations to be used as a guide in the final location of the joints and to afford bidders a basis for estimating the construction cost of the joints. The final location of the joints are to be designated by the Engineer during construction.

PLOTTED FROM - TRPR18388

FILE - ... \PCC PAVEMENT JOINT LAYOUT.DGN

PCC PAVEMENT JOINT LAYOUT

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(99)381	F7	F18

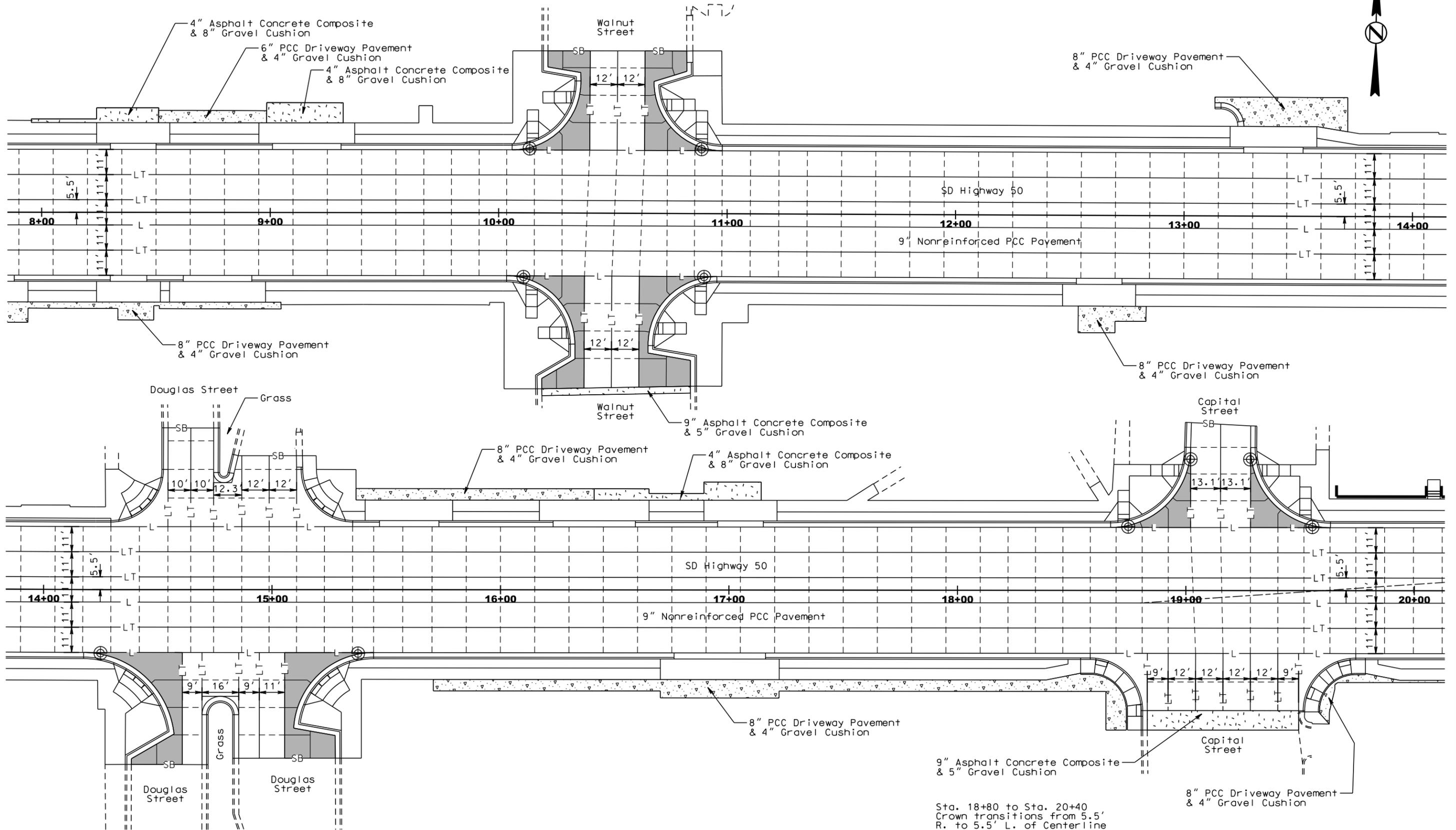
Plotting Date: 06/30/2015

Scale 1 Inch = 40 Feet
Sheet 2 of 5 Sheets

PLOT SCALE - 1:40

PLOT NAME - 4

FILE - ... \PCC PAVEMENT JOINT LAYOUT.DGN



Sta. 18+80 to Sta. 20+40
Crown transitions from 5.5'
R. to 5.5' L. of Centerline

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PCC PAVEMENT JOINT LAYOUT

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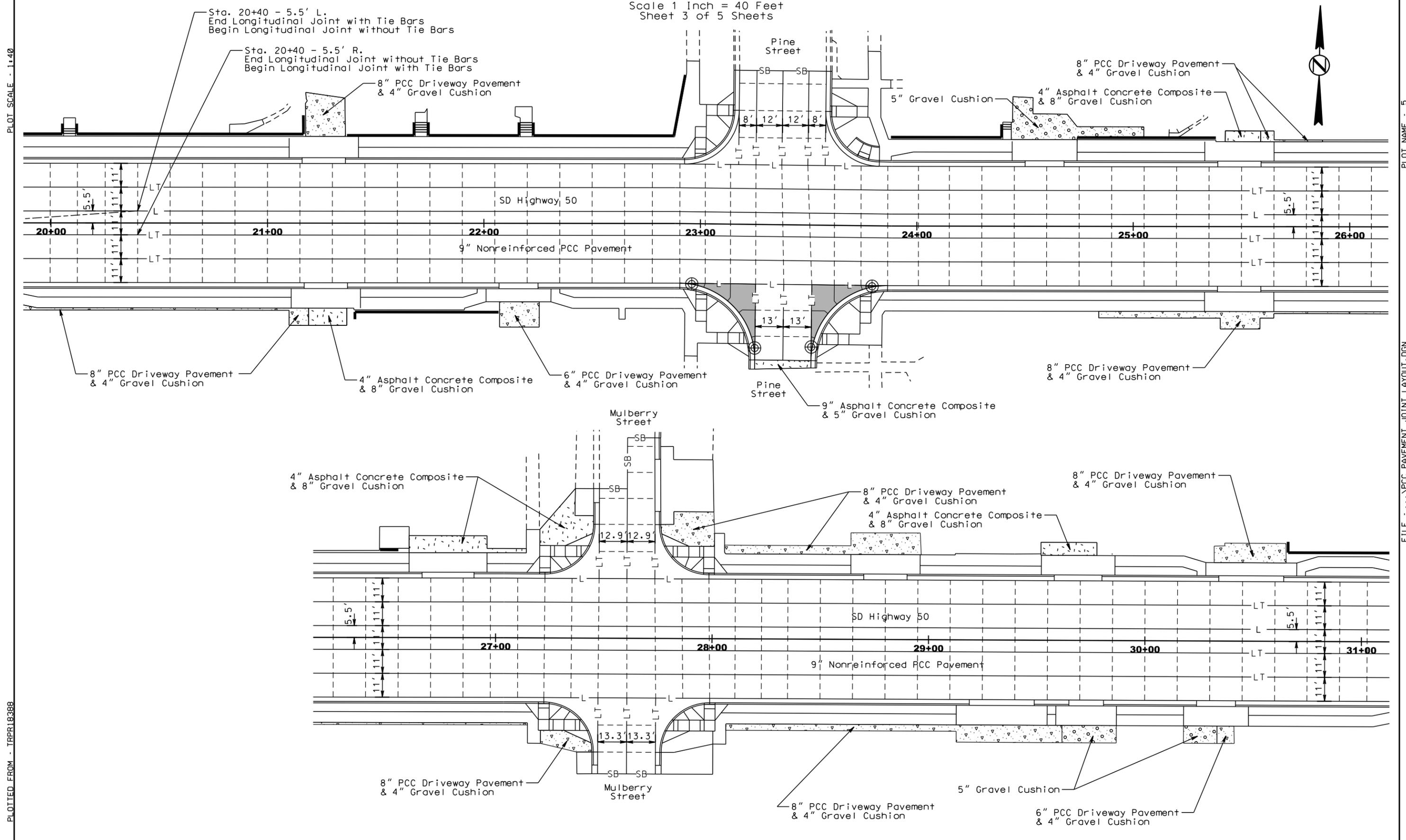
STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET F8	TOTAL SHEETS F18
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Plotting Date: 06/30/2015

Scale 1 Inch = 40 Feet
Sheet 3 of 5 Sheets

PLOT SCALE - 1:40

PLOT NAME - 5



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PCC PAVEMENT JOINT LAYOUT

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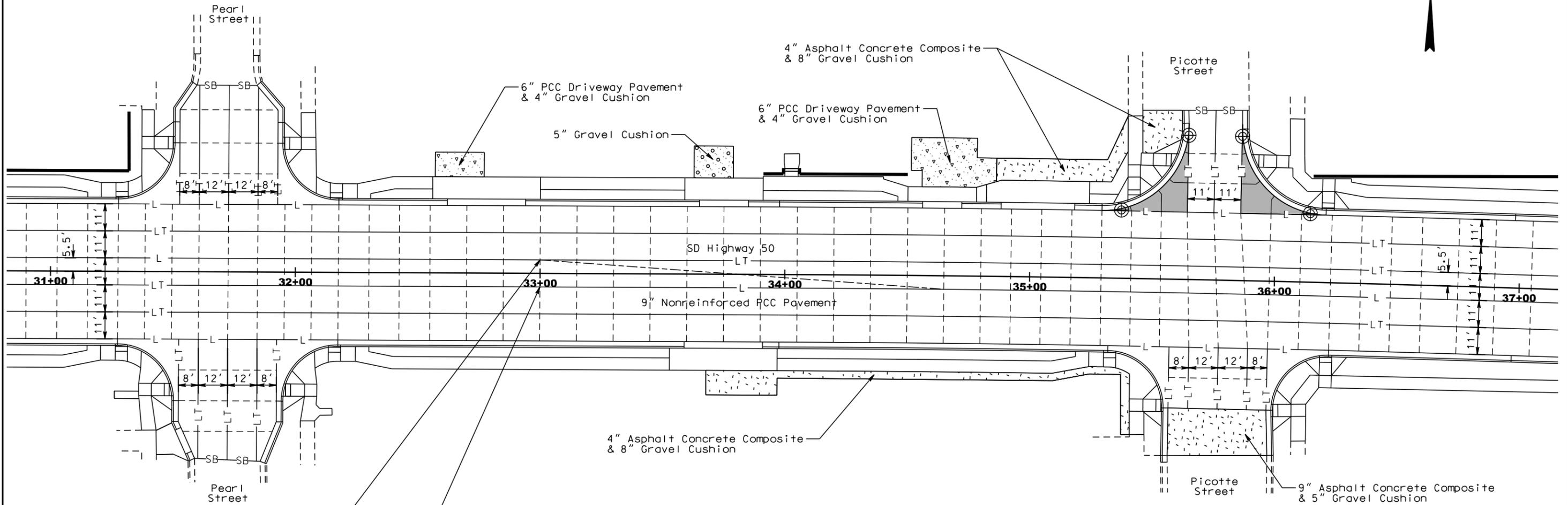
STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET F9	TOTAL SHEETS F18
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Plotting Date: 06/30/2015

Scale 1 Inch = 40 Feet
Sheet 4 of 5 Sheets

PLOT SCALE - 1:40

PLOT NAME - 6



Sta. 33+00 - 5.5' L.
End Longitudinal Joint without Tie Bars
Begin Longitudinal Joint with Tie Bars

Sta. 33+00 - 5.5' R.
End Longitudinal Joint with Tie Bars
Begin Longitudinal Joint without Tie Bars

Sta. 33+00 to Sta. 34+60
Crown transitions from 5.5'
L. to 5.5' R. of Centerline

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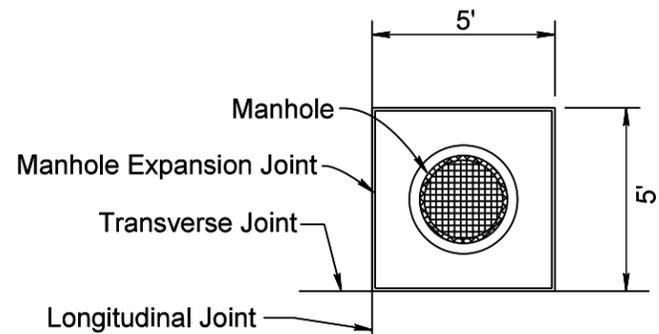
FILE - ... \PCC PAVEMENT JOINT LAYOUT.DGN

DETAILS FOR MANHOLE BOX-OUTS

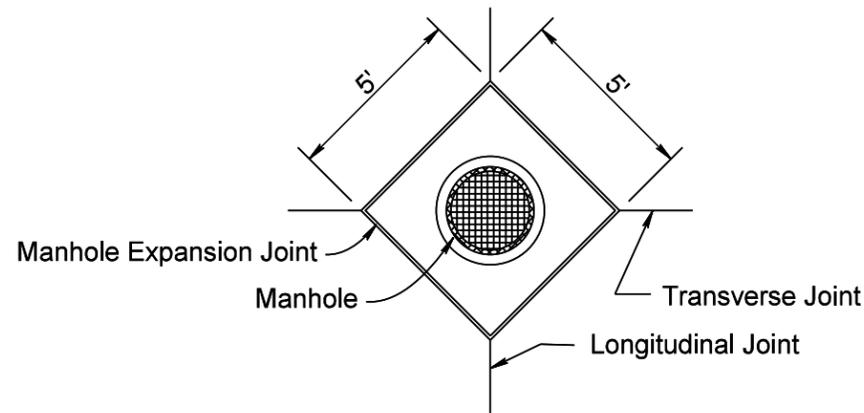
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(99)381	F11	F18
Plotting Date: 06/30/2015			

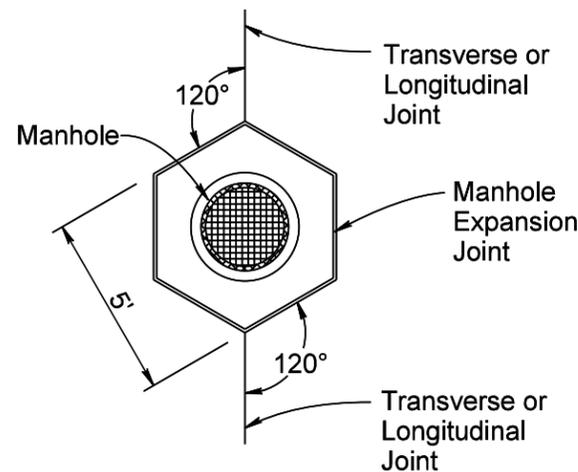
BOX-OUT DETAIL IN PCC PAVEMENT



Where the utility access is offset from the longitudinal and transverse joints

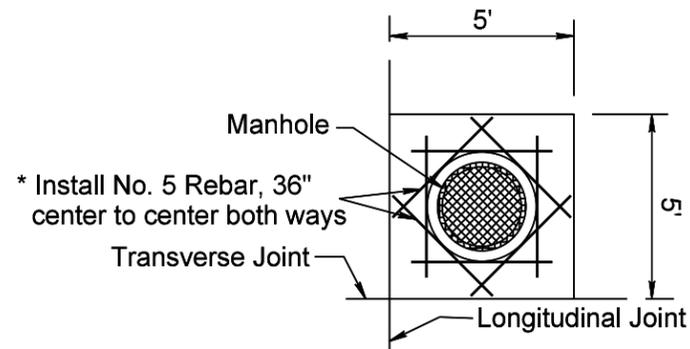


Where the utility access is intersected by the longitudinal and transverse joints

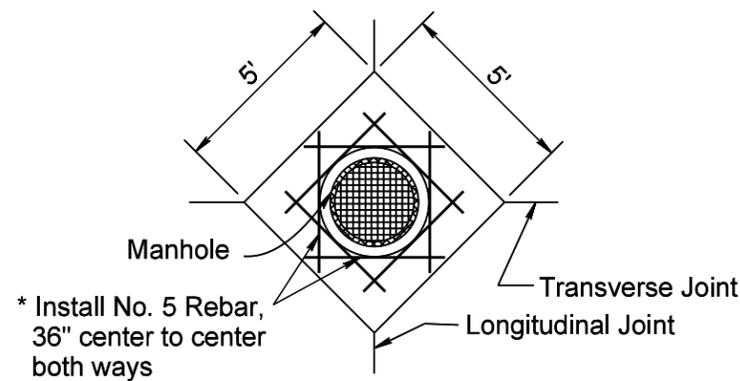


Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

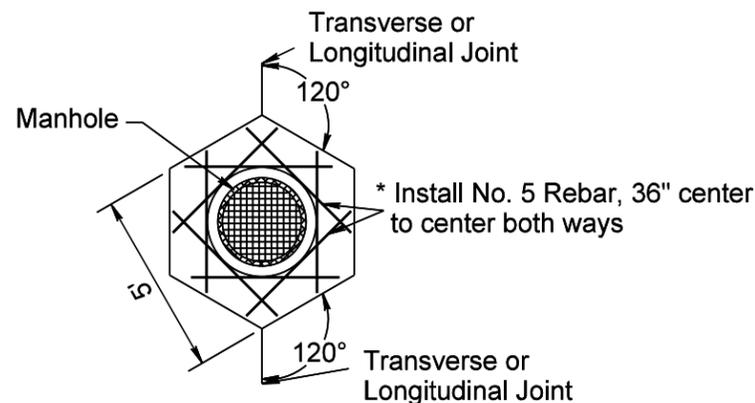
REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUTS



Where the utility access is offset from the longitudinal and transverse joints

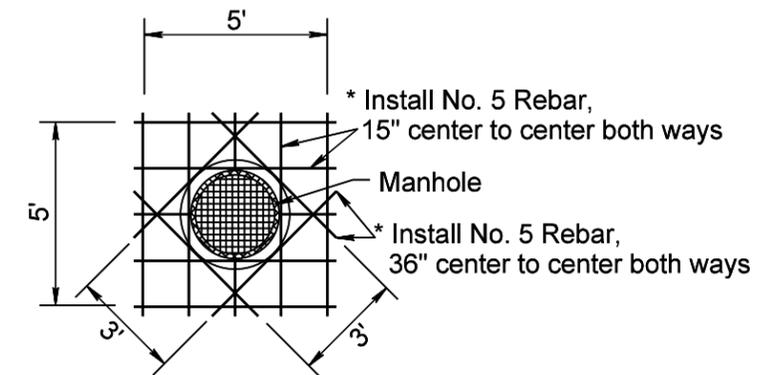


Where the utility access is intersected by the longitudinal and transverse joints



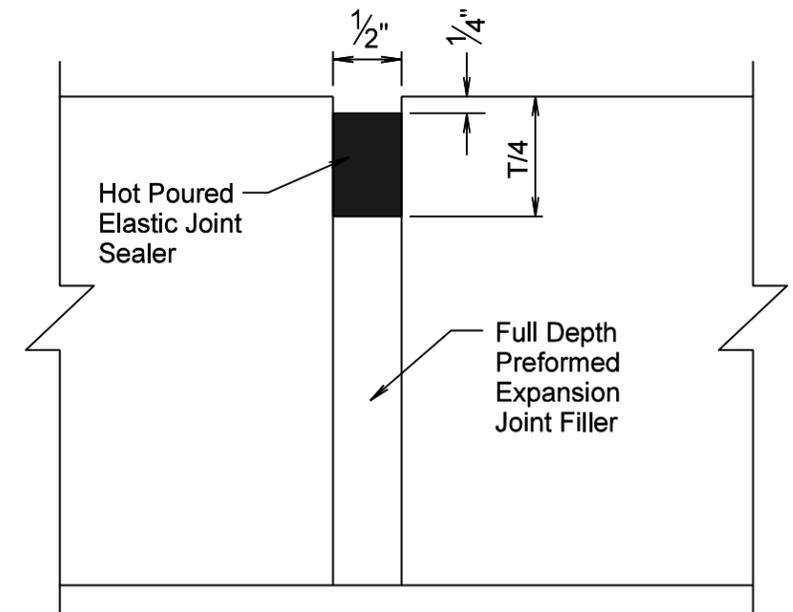
Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

REBAR LAYOUT IN PCC PAVEMENT WITHOUT BOX-OUT



Note: The rebar shall not cross any joint in the concrete pavement. If manhole is next to a joint in the concrete pavement the Engineer shall approve a revised layout of the rebar.

MANHOLE EXPANSION JOINT DETAIL

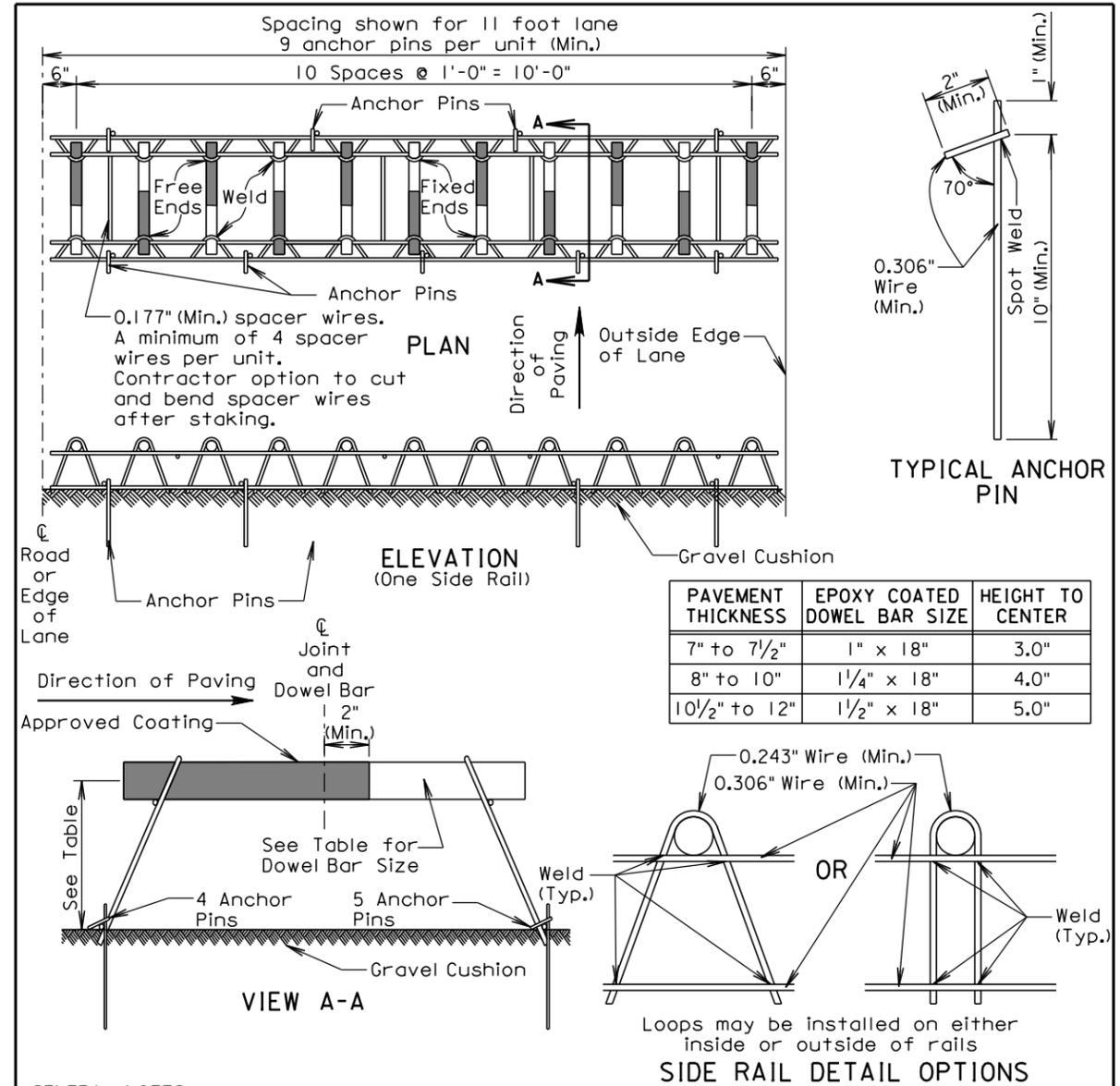


* Rebar will be placed at the midpoint depth of the PCC Pavement. Cost for furnishing & installing rebar and constructing box-outs shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

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STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET F12	TOTAL SHEETS F18
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Plotting Date: 06/30/2015



GENERAL NOTES:

- Longitudinal joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.
- Centerline of individual dowel bars shall be parallel to top of subgrade $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.
- Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.
- The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.
- Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

June 12, 2015

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**PCC PAVEMENT DOWEL BAR ASSEMBLY
FOR TRANSVERSE CONTRACTION JOINTS
11 Bar Assembly on Granular Base Material**

**PLATE NUMBER
SPECIAL**

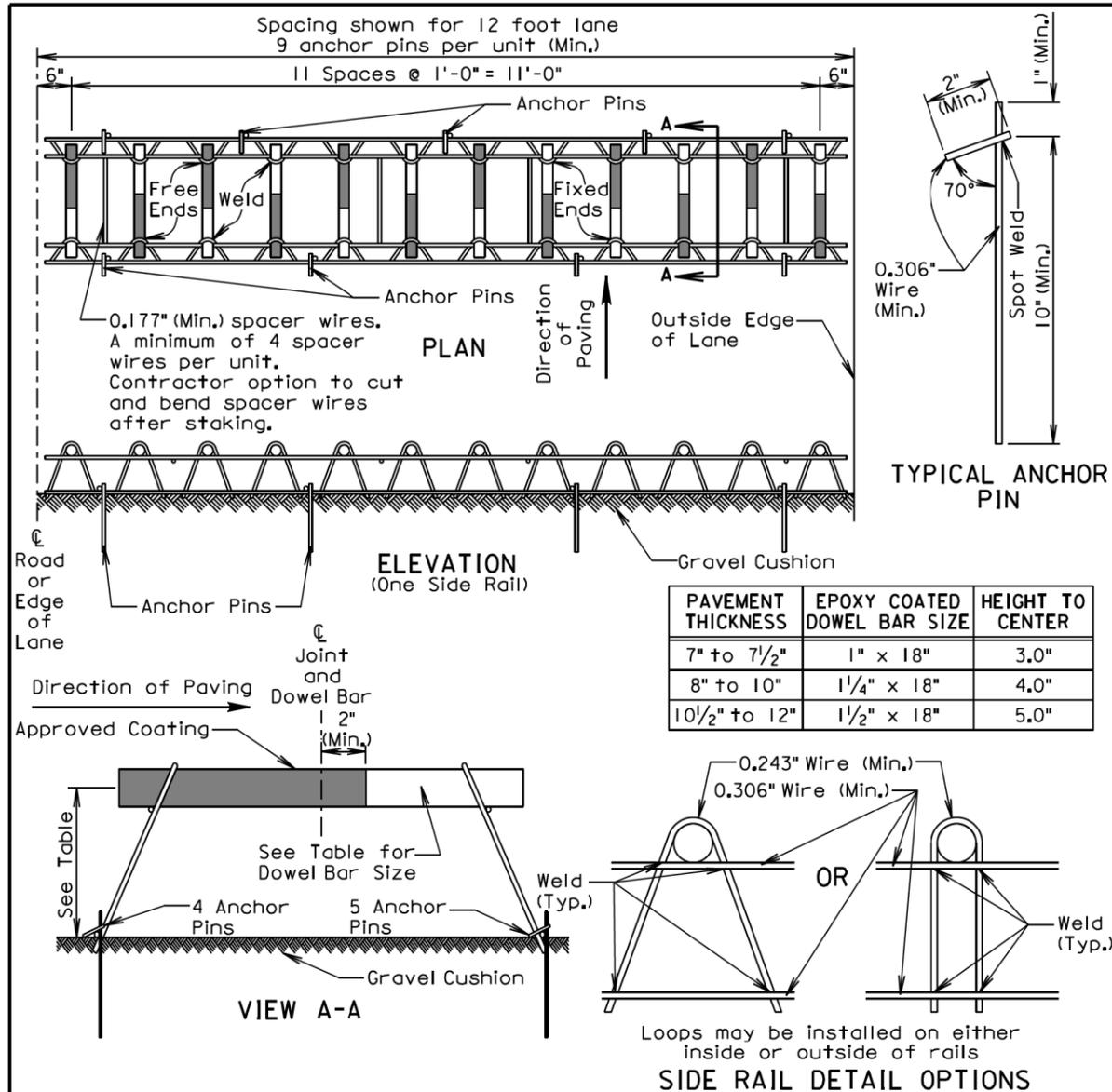
Sheet 1 of 1

PLOT SCALE - 1:200

PLOTTED FROM - TRPR18388

PLOT NAME - 9

FILE - ... \S38801 WITH 11 LANES .DGN



GENERAL NOTES:

Longitudinal joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

Centerline of individual dowel bars shall be parallel to top of subgrade $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.

Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

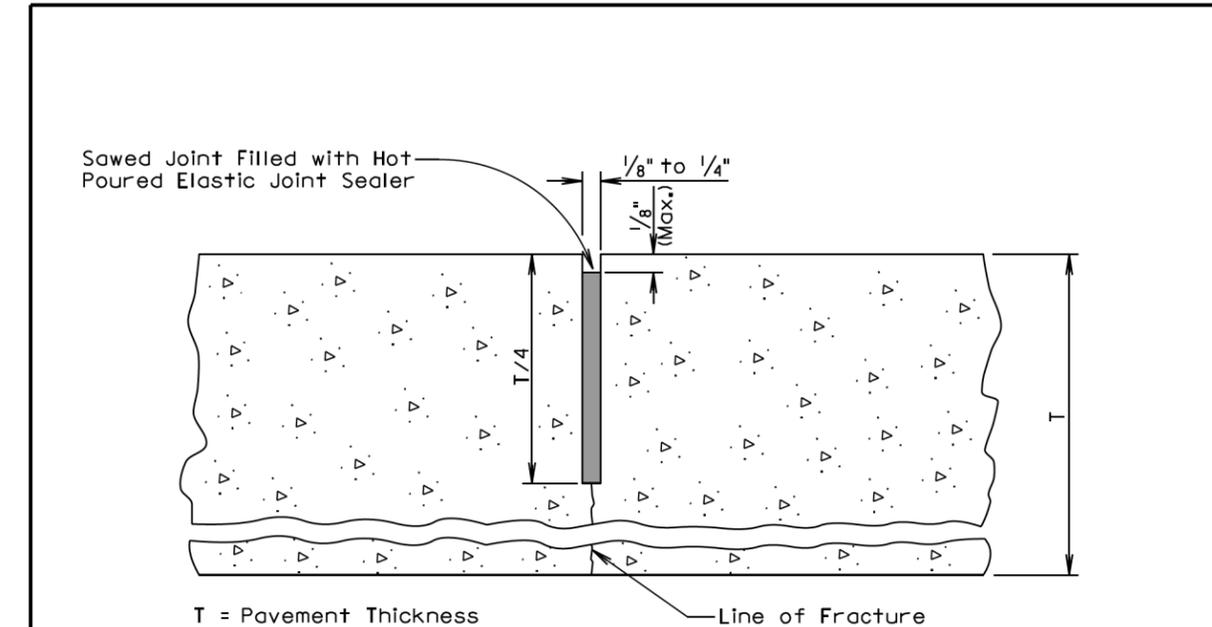
The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

August 30, 2013

S D D O T	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS	PLATE NUMBER 380.01
	12 Bar Assembly on Granular Base Material	Sheet 1 of 1

Published Date: 2nd Qtr. 2015



GENERAL NOTES:

The saw cut to control cracking shall be a minimum of $1/4$ the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement shall be removed as soon as the material has cooled. The extent of removal of material shall be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material shall be borne by the Contractor.

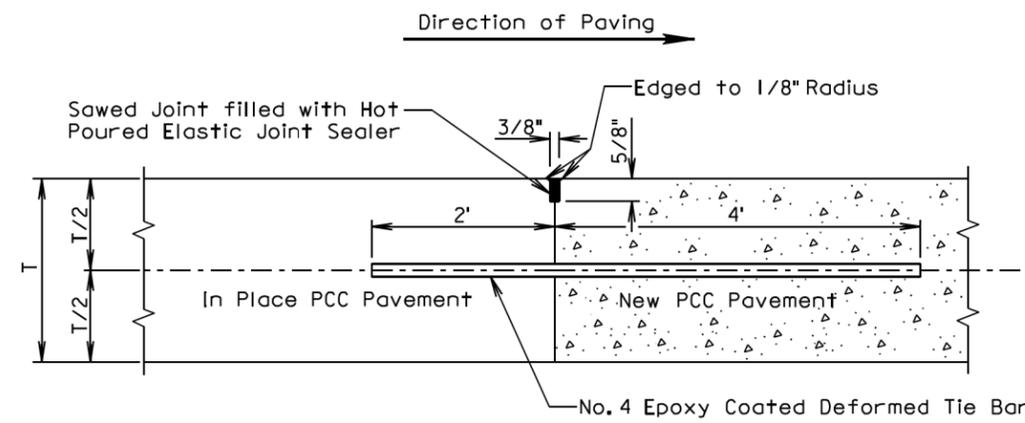
June 26, 2013

S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.05
	Joint with or without Dowel Bar Assembly	Sheet 1 of 1

Published Date: 2nd Qtr. 2015

PLOT SCALE - 1:200

PLOT NAME - 11



T = Pavement Thickness

GENERAL NOTES:

No. 4 epoxy coated deformed tie bars shall be spaced 12 inches center to center and shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The minimum distance between a transverse construction joint with tie bars and an adjacent transverse contraction joint shall be 5 feet.

When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

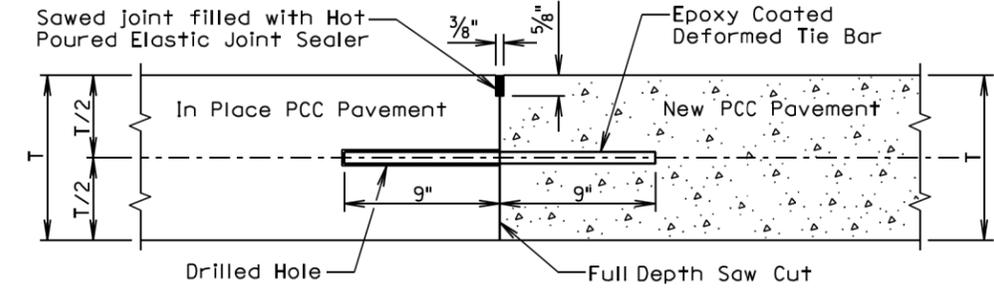
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

June 26, 2013

S D D O T	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.07
	<i>Published Date: 2nd Qtr. 2015</i>	Sheet 1 of 1

**DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS**



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

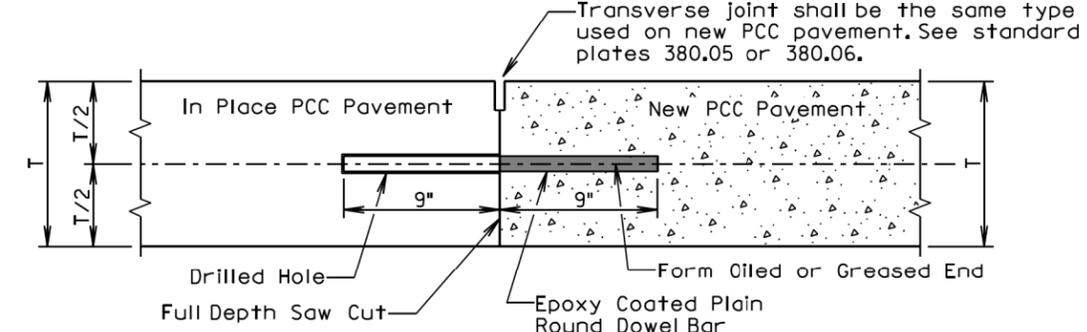
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A shall be used.

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No. 9 epoxy coated deformed tie bars shall be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars shall be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing shall be 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

**DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS**



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

See sheet 2 of 2 of this standard plate to determine if Detail B shall be used.

The plain round dowel bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

The epoxy coated plain round dowel bar size, number, and spacing shall be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

September 6, 2013

S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08
	<i>Published Date: 2nd Qtr. 2015</i>	Sheet 1 of 2

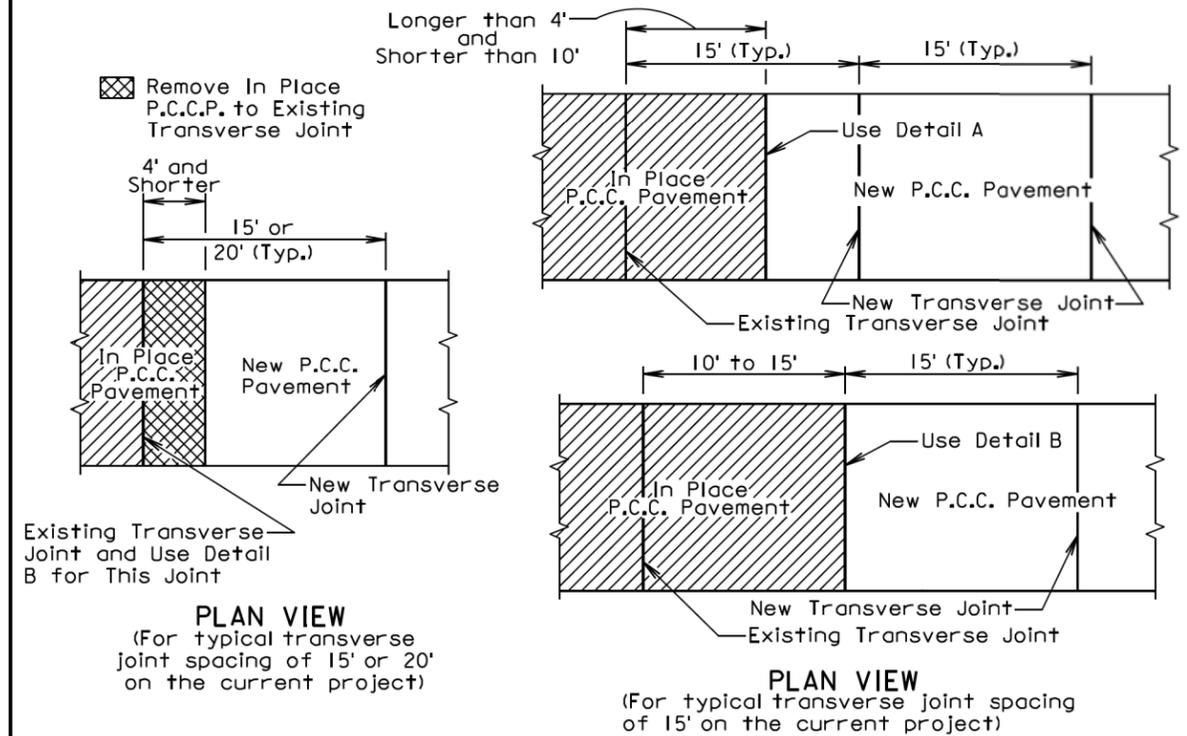
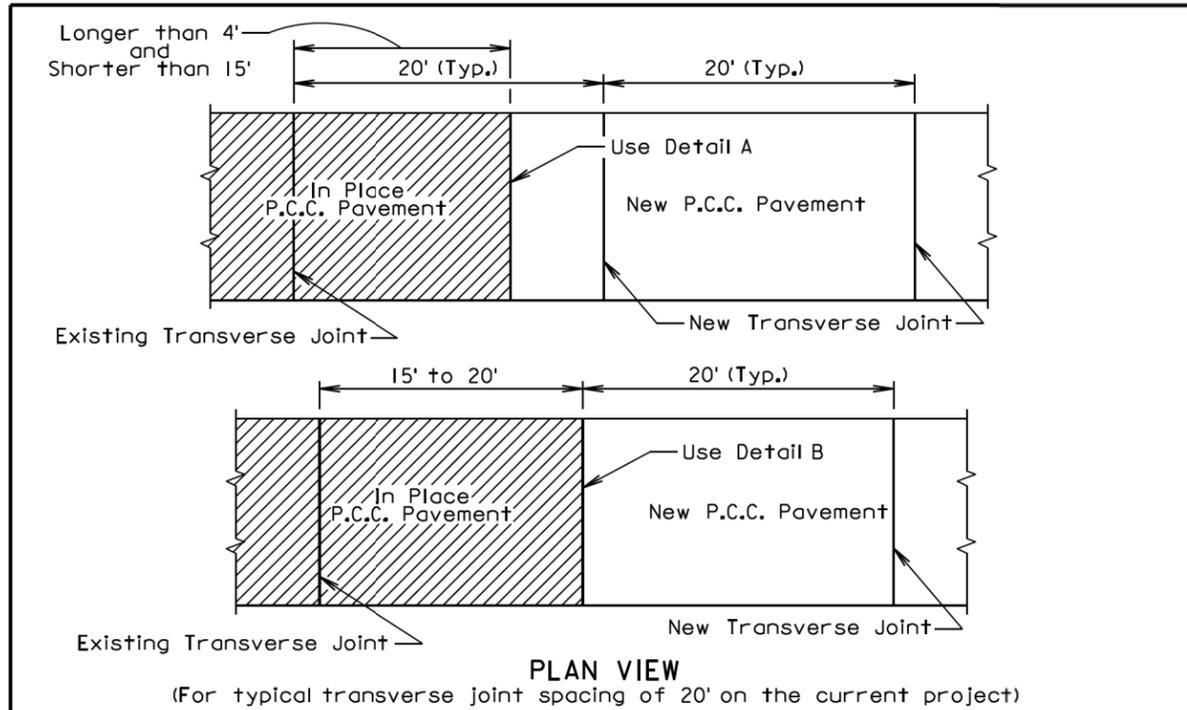
PLOTTED FROM - TRPR18388

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PLOT SCALE - 1:200

PLOT NAME - 12

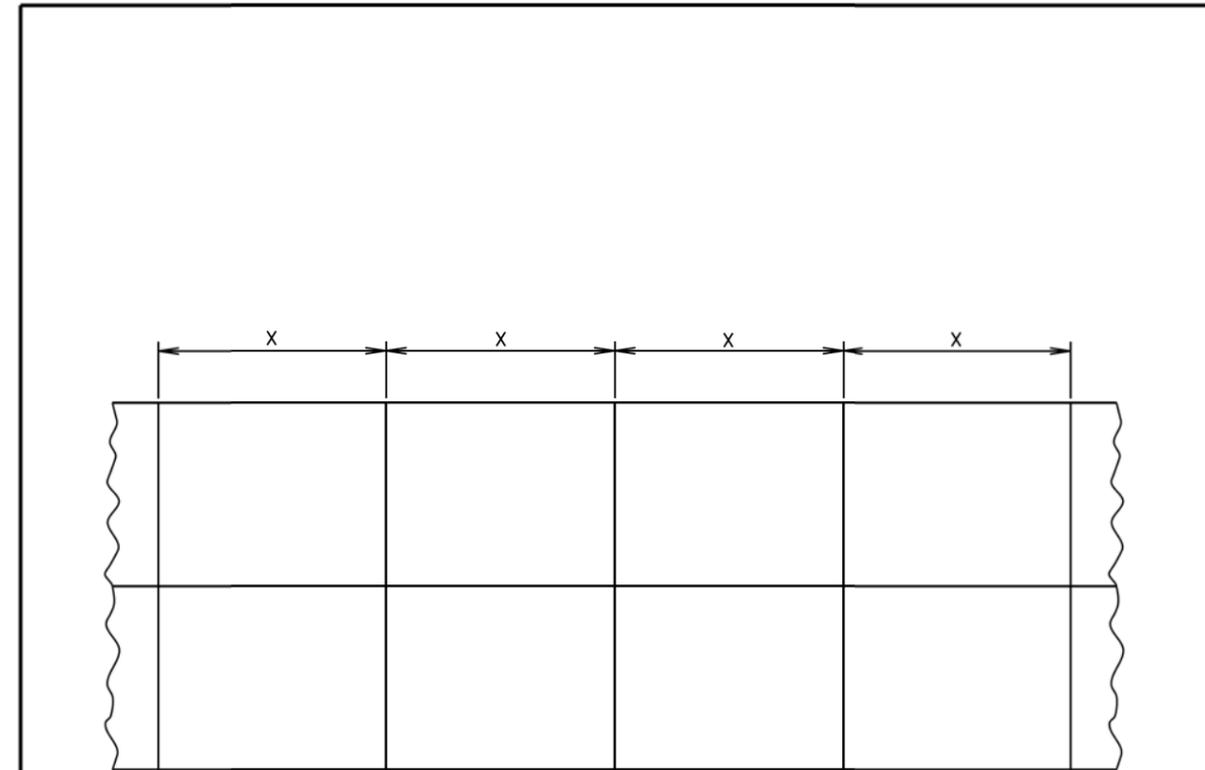
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September 6, 2013

August 31, 2013

Published Date: 2nd Qtr. 2015	S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08
			Sheet 2 of 2



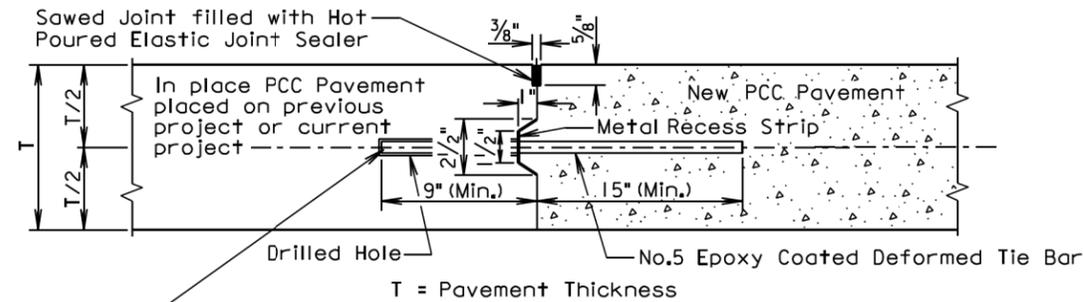
PCCP Thickness	Transverse Contraction Joint Spacing (X)
8" to 9.5"	15'
10" and Thicker	20'

Published Date: 2nd Qtr. 2015	S D D O T	PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING	PLATE NUMBER 380.09
			Sheet 1 of 1

-PLOTTED FROM - TRPR18388

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

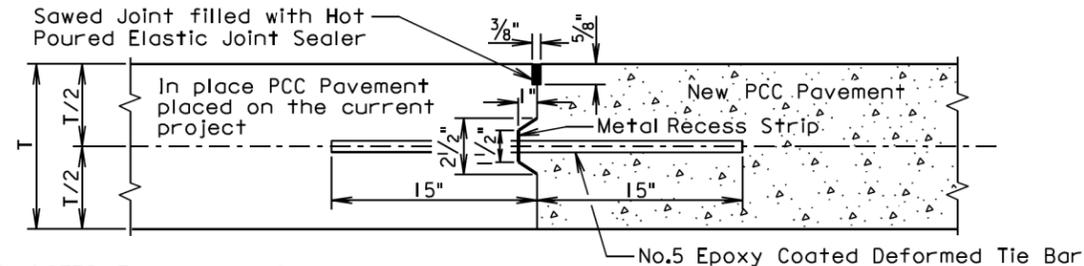
(DRILLED IN BARS)



T = Pavement Thickness
The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(INSERTED OR FORMED IN BARS)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following tables:

Tie Bar Spacing 48" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

Tie Bar Spacing 30" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
5' to 7'	2
7.5' to 9.5'	3
10' to 12'	4
12.5' to 14.5'	5
15' to 17'	6
17.5' to 19.5'	7
20' to 22'	8

The tie bars shall be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table shall be uniformly spaced within each panel. The uniformly spaced tie bars shall be spaced a maximum of 48 inches center to center for a female keyway and shall be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing shall apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

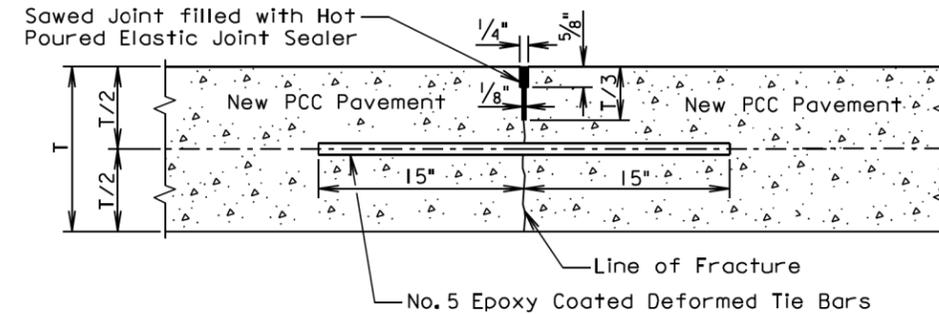
August 31, 2013

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
		Sheet 1 of 2

Published Date: 2nd Qtr. 2015

SAWED LONGITUDINAL JOINT WITH TIE BARS

(POURED MONOLITHICALLY)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following table:

Tie Bar Spacing 48" Maximum	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

The tie bars shall be placed a minimum of 15 inches from the transverse contraction joints.

The required number of tie bars as shown in the table shall be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing shall apply to tie bars within each panel.

The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

August 31, 2013

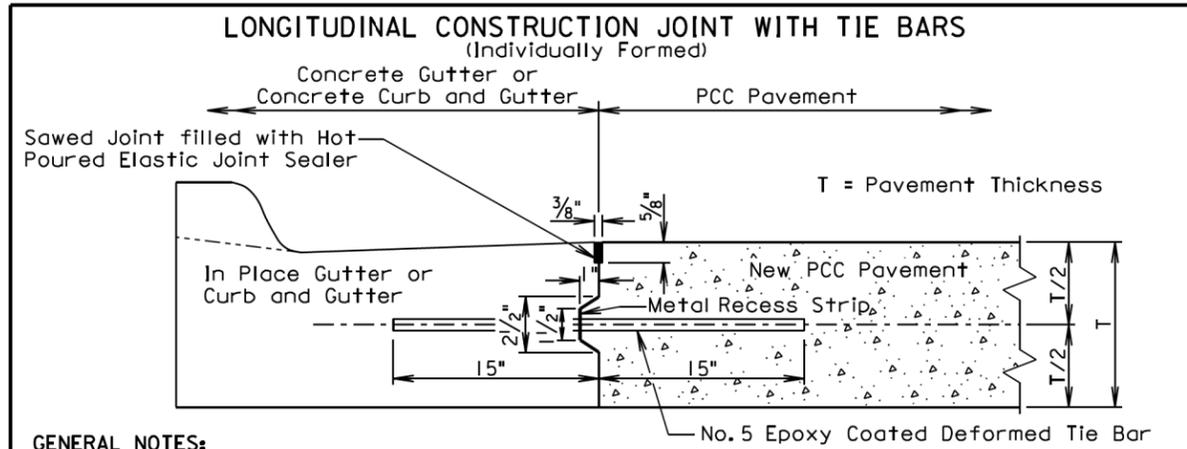
S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
		Sheet 2 of 2

Published Date: 2nd Qtr. 2015

PLOT SCALE - 1:200

PLOT NAME - 14

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GENERAL NOTES:

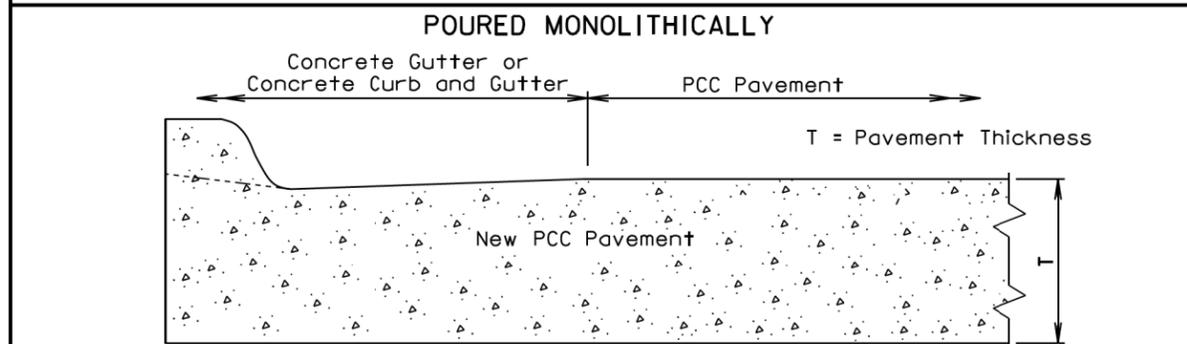
No. 5 epoxy coated deformed tie bars shall be spaced 48 inches center to center. The keyway shown above is a female keyway.

The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter shall be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter shall be 1/2 inches deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.



GENERAL NOTES:

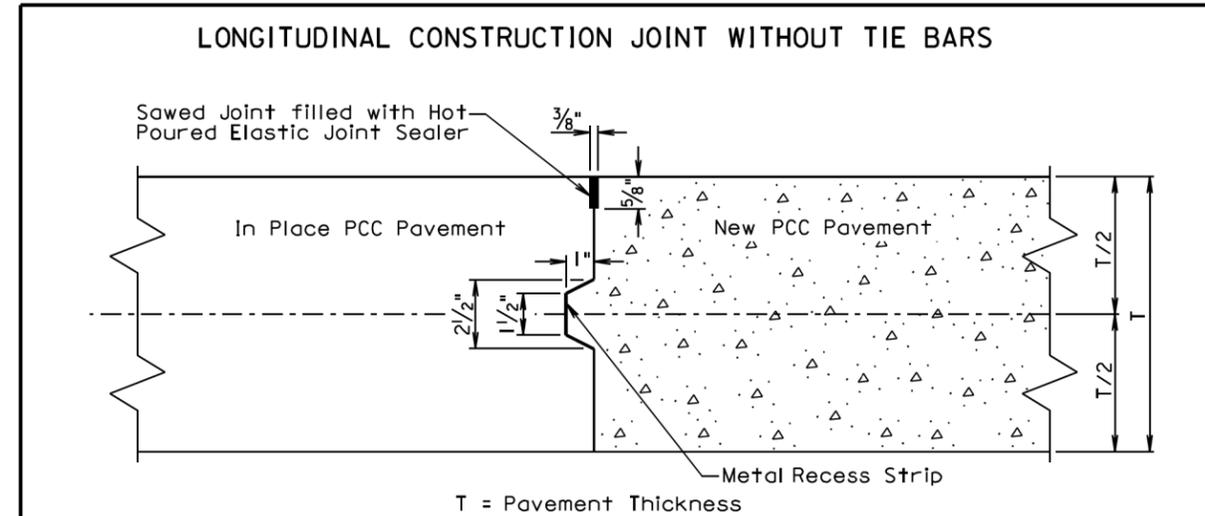
The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement shall be eliminated.

The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

The slope of the gutter shall be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter shall be constructed at the same slope as the mainline concrete pavement.

June 26, 2013

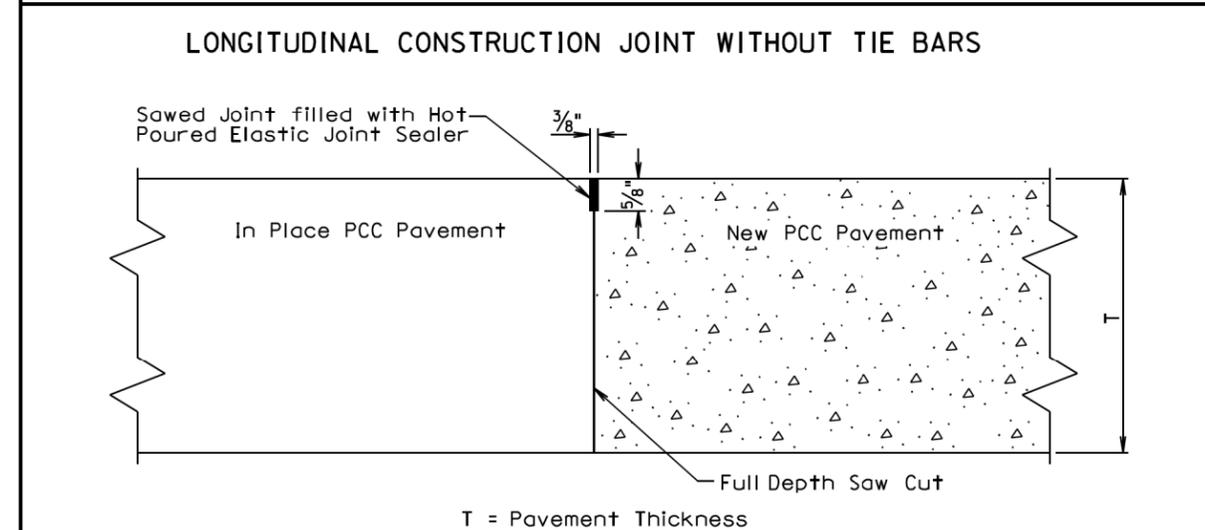
S D D O T	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11
	<i>Published Date: 2nd Qtr. 2015</i>	Sheet 1 of 1



GENERAL NOTES:

When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.



GENERAL NOTE:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

September 14, 2001

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.12
	<i>Published Date: 2nd Qtr. 2015</i>	Sheet 1 of 2

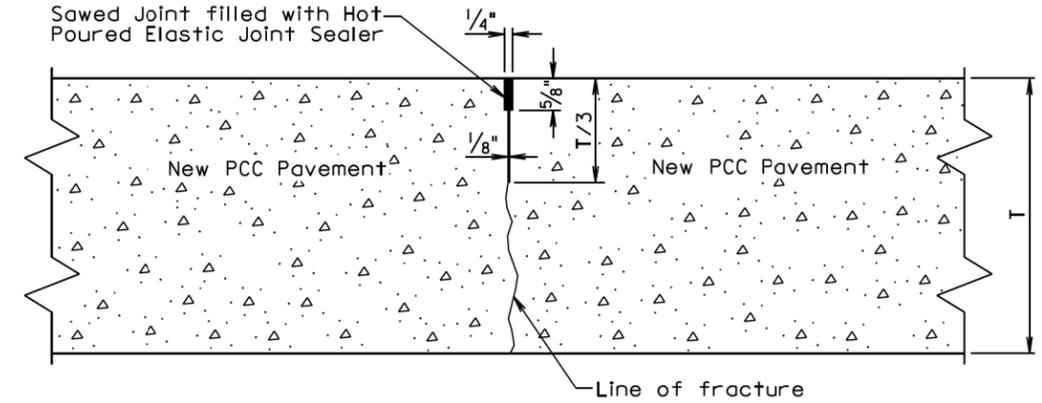
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STATE OF SOUTH DAKOTA	PROJECT NH 0050(99)381	SHEET F18	TOTAL SHEETS F18
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Plotting Date: 06/30/2015

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



T = Pavement Thickness

GENERAL NOTE:

The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

September 14, 2001

Published Date: 2nd Qtr. 2015

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PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS

PLATE NUMBER
380.12

Sheet 2 of 2

PLOT SCALE - 1:200

-PLOTTED FROM - TRPR18388

PLOT NAME - 15

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