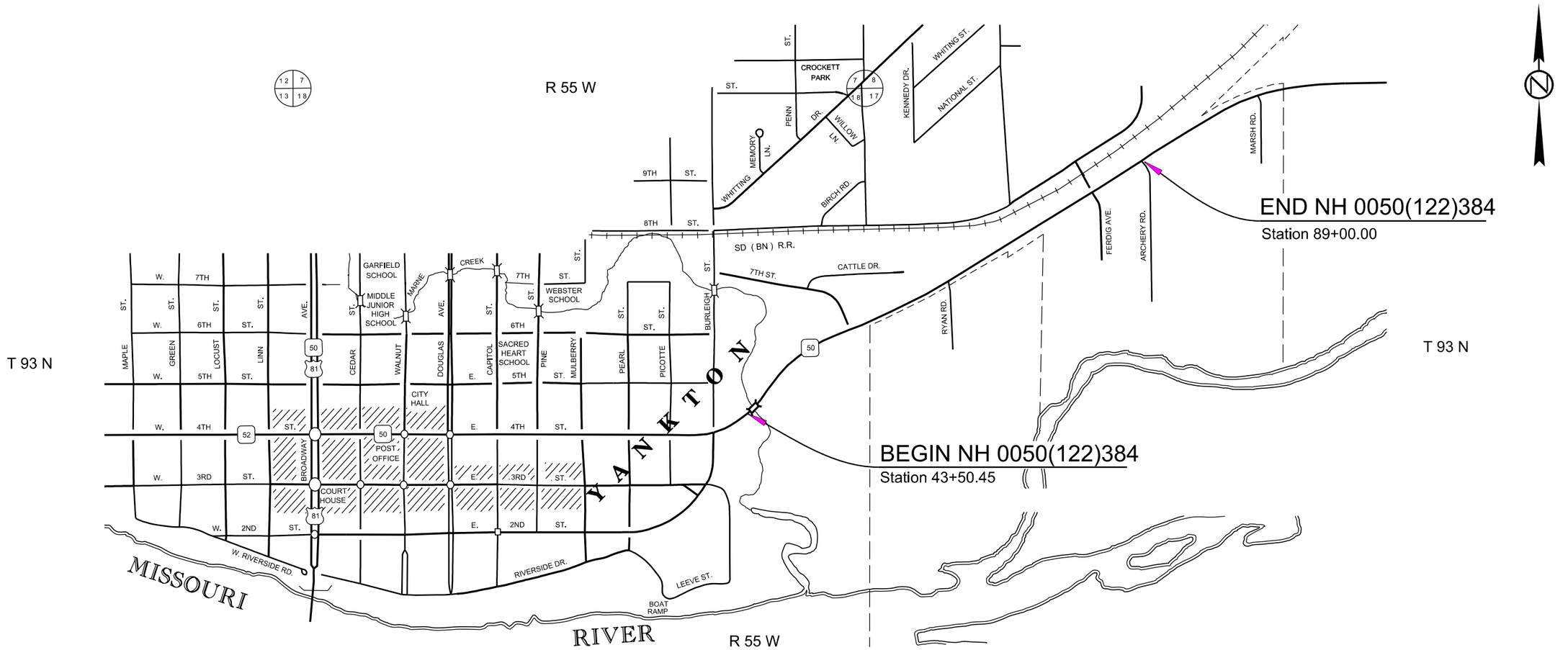
Section F: Surfacing Plans

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F1	F19

Plotting Date: 05/20/2016

INDEX OF SHEETS



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0050(122)384	F2	F19

FOR BIDDING PURPOSES ONLY

Revised 8-26-2016 LLH

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	132.0	MGal
260E2010	Gravel Cushion	10,976.5	Ton
320E1200	Asphalt Concrete Composite	289.0	Ton
380E0050	8" Nonreinforced PCC Pavement	343.8	SqYd
380E0070	9" Nonreinforced PCC Pavement	31,997.4	SqYd
380E3040	8" PCC Driveway Pavement	93.8	SqYd
380E6000	Dowel Bar	19,521	Each
380E6110	Insert Steel Bar in PCC Pavement	170	Each
410E2600	Membrane Sealant Expansion Joint	110.0	Ft

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.

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.

ALKALI SILICA REACTIVITY

Delete Section 820.2 D and replace with the following:

Alkali-Silica Reactivity (ASR) Requirements: Fine aggregates from sources that have not been tested by the Department shall be submitted to the Department's Materials and Surfacing Central Materials Laboratory for ASR testing 30 days prior to performing the concrete mix design.

ASR testing shall be performed in accordance with ASTM C1260, except that the gradation of the material used for testing shall be as produced from the source. The fine aggregate shall only be sampled at the source by a Department representative or in the presence of a Department representative.

Fine aggregate with a 14 day expansion value below 0.250 shall require Type II cement with a fly ash content of 20 to 25% in the concrete mix. Fine aggregate with a 14 day expansion value of 0.250 or greater shall require Type II cement with a fly ash content of 25% in the concrete mix. Fine aggregate with a 14 day expansion value of 0.400 or greater shall not be used.

When a fine aggregate supplier changes locations within the pit, the fine aggregate from the new location in the pit shall be submitted for testing.

When more than one source of fine aggregate is blended to meet the gradation specifications, the expansion value of the blended sands will be used for determining acceptability and type of cement required.

Blended sources will be treated as a new source and it shall be the responsibility of the Contractor to submit the blended samples for testing 30 days prior to performing the concrete mix design. The expansion value of the blended sources will be used to determine the type of cement required.

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	0.146
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	0.267*
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
Morris - Shawn's Pit	E of Sturgis, SD	0.186
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	0.363
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 II cement with a fly ash content of 25% in the concrete mix.

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 a test value less than 0.250 is discovered after letting to be 0.250 or greater, then the Department will accept financial responsibility if higher costs are incurred due to higher % of fly ash requirement.

CURING OF CONCRETE

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

PAVEMENT SMOOTHNESS

The following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with the Special Provision for PI PCC Pavement Smoothness with 0.2" Blanking Band.

Mainline Sta. 45+57.07 to Sta. 89+00 (Driving Lanes)

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 PCC PAVEMENT

Location	8" Nonreinforced PCC Pavement SqYd	9" Nonreinforced PCC Pavement SqYd
Mainline		
Sta. 43+50.45 to Sta. 43+65.67	---	85.2
Sta. 45+57.07 to Sta. 47+00	---	873.3
Sta. 47+00 to Sta. 83+74.93	---	24,499.5
Sta. 83+74.93 to Sta. 89+00	---	3,967.2
3 Intersecting Streets	---	1,435.3
Drives		
Sta. 63+19 L.	---	378.9
Sta. 79+24 R.	---	133.3
Sta. 83+07 R.	343.8	278.7
Sta. 85+65 R.	---	143.8
Sta. 88+57 R.	---	202.2
Totals:	343.8	31,997.4

TABLE OF DOWEL BARS

Location	12 Bar Assembly Dowel Bar (Size 1 ¼") Each
Mainline	
Sta. 45+57.07 to Sta. 47+00	602
Sta. 47+00 to Sta. 83+74.93	15,180
Sta. 83+74.93 to Sta. 89+00	2,720
Intersecting Streets	
Sta. 46+57 R.	96
Sta. 56+54 L.	144
Sta. 83+05 L.	198
Drives	
Sta. 63+19 L.	144
Sta. 79+24 R.	80
Sta. 83+07 R.	261
Sta. 85+65 R.	24
Sta. 88+57 R.	72
Total:	19,521

8" PCC DRIVEWAY PAVEMENT

The concrete for the 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 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 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 "8" PCC Driveway Pavement" accordingly.

All costs for excavation required for placing the 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".

TABLE OF PCC DRIVEWAY PAVEMENT

Location	L or R	8" PCC Driveway Pavement SqYd
Mainline		
Sta. 71+24 to Sta. 71+90	L	45.5
Sta. 74+82 to Sta. 75+50	L	48.3
Total:		93.8

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

MEMBRANE SEALANT EXPANSION JOINT

For notes and details see Membrane Sealant Expansion Joint Details located elsewhere in these plans.

TABLE OF MEMBRANE SEALANT EXPANSION JOINT

Location	Length Feet
Mainline	
Sta. 43+65.67	55
Sta. 45+57.07	55
Total:	110

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 and Yankton City Project ES2016-003 Yankton County PCN X04H for the proposed locations of the manholes.

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.

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 ¼" x 18" Plain Round Dowel Bars Each	No. 5 x 24" Deformed Tie Bars Each
Mainline		
Sta. 43+50.45 – 25.1' L. to 25.3' R.	50	---
Sta. 43+50.45 to Sta. 43+65.67 L.	---	6
Sta. 43+50.45 to Sta. 43+65.67 R.	---	6
Intersecting Streets		
Sta. 46+57 R.	24	---
Sta. 56+54 L.	40	---
Sta. 83+05 L.	44	---
Total:	158	12

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. 47+00 to Sta. 83+74.93

GRAVEL CUSHION

Crushed Aggregate 208.08 Tons.

Water for Granular Material at the rate of 2.50 M. Gallons

MAINLINE
Sta. 83+74.93 to Sta. 89+00

GRAVEL CUSHION

Crushed Aggregate 230.39 Tons.

Water for Granular Material at the rate of 2.76 M. Gallons.

GRAVEL CUSHION – WEDGE ADJACENT TO PCCP

Crushed Aggregate 10.50 Tons.

Water for Granular Material at the rate of 0.13 M. Gallons.

TABLE OF ADDITIONAL QUANTITIES

Location	Water For Granular Material MGal	Gravel Cushion Ton	Asphalt Concrete Composite Without Specified Density Ton
Mainline			
Sta. 43+50.45 to Sta. 43+65.67	0.3	22.4	---
Sta. 45+57.07 to Sta. 47+00	3.3	276.9	---
3 Intersecting Streets	4.4	364.2	---
20 Drives	3.2	264.4	---
Drives			
Sta. 63+19 L.	1.1	89.0	---
Sta. 79+24 R.	0.8	61.6	11
Sta. 83+07 R.	2.1	177.7	---
Sta. 85+65 R.	1.1	92.4	32
Sta. 88+57 R.	0.9	71.6	12
Areas Beyond Sidewalk/Drives	3.7	302.7	34
Temporary Surfacing and Maintenance of Traffic	4.1	342	200
Totals:	25.0	2,064.9	289

See Typical Surfacing Sections, PCC Pavement Joint Layouts for additional details showing limits of work and depths of surfacing. See Section C – Traffic Control for Temporary Surfacing and Maintenance of Traffic locations.

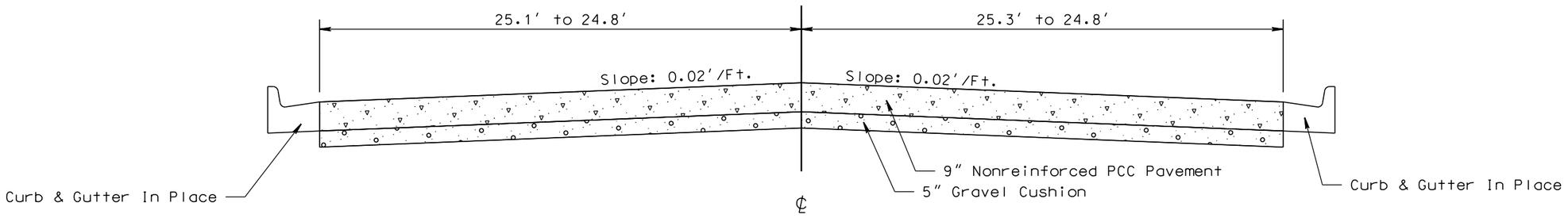
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0050(122)384	F5	F19

Plotting Date: 05/20/2016

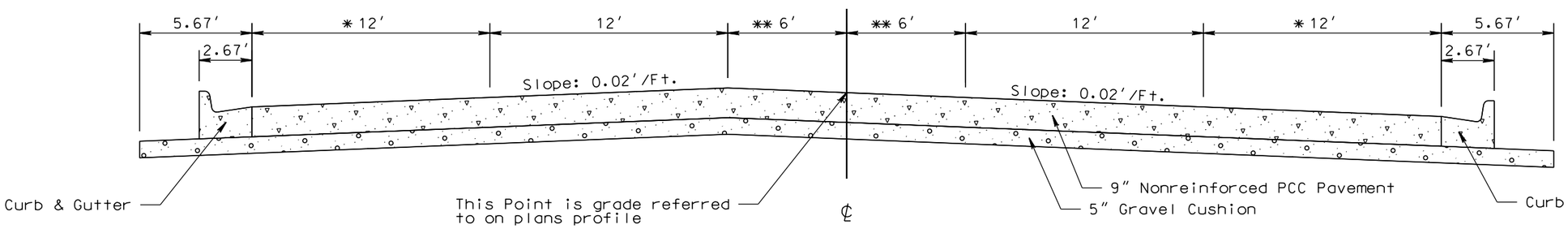
MAINLINE

Sta 43+50.45 to Sta 43+65.67



MAINLINE

Sta 45+57.07 to Sta 83+65.10

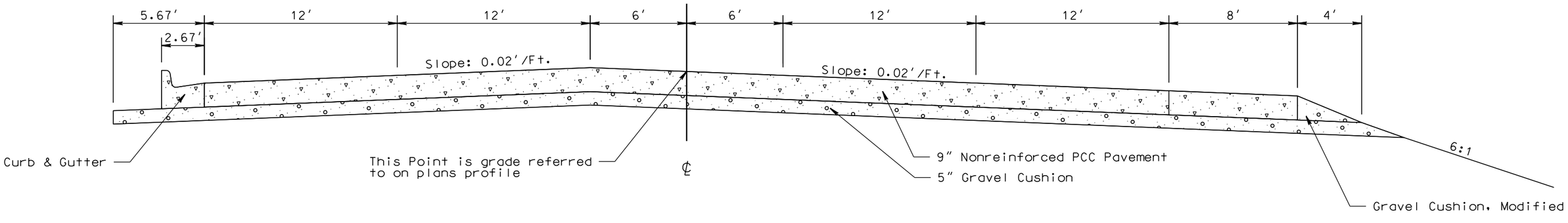


Transitions

Sta 45+57.07 to Sta. 47+00
* 12.8' to 12'
** 0' to 6'

MAINLINE

Sta 83+65.10 to Sta 89+00.00



PLOT SCALE - 1:6.19298

PLOTTED FROM - TRPR19388

PLOT NAME - 2

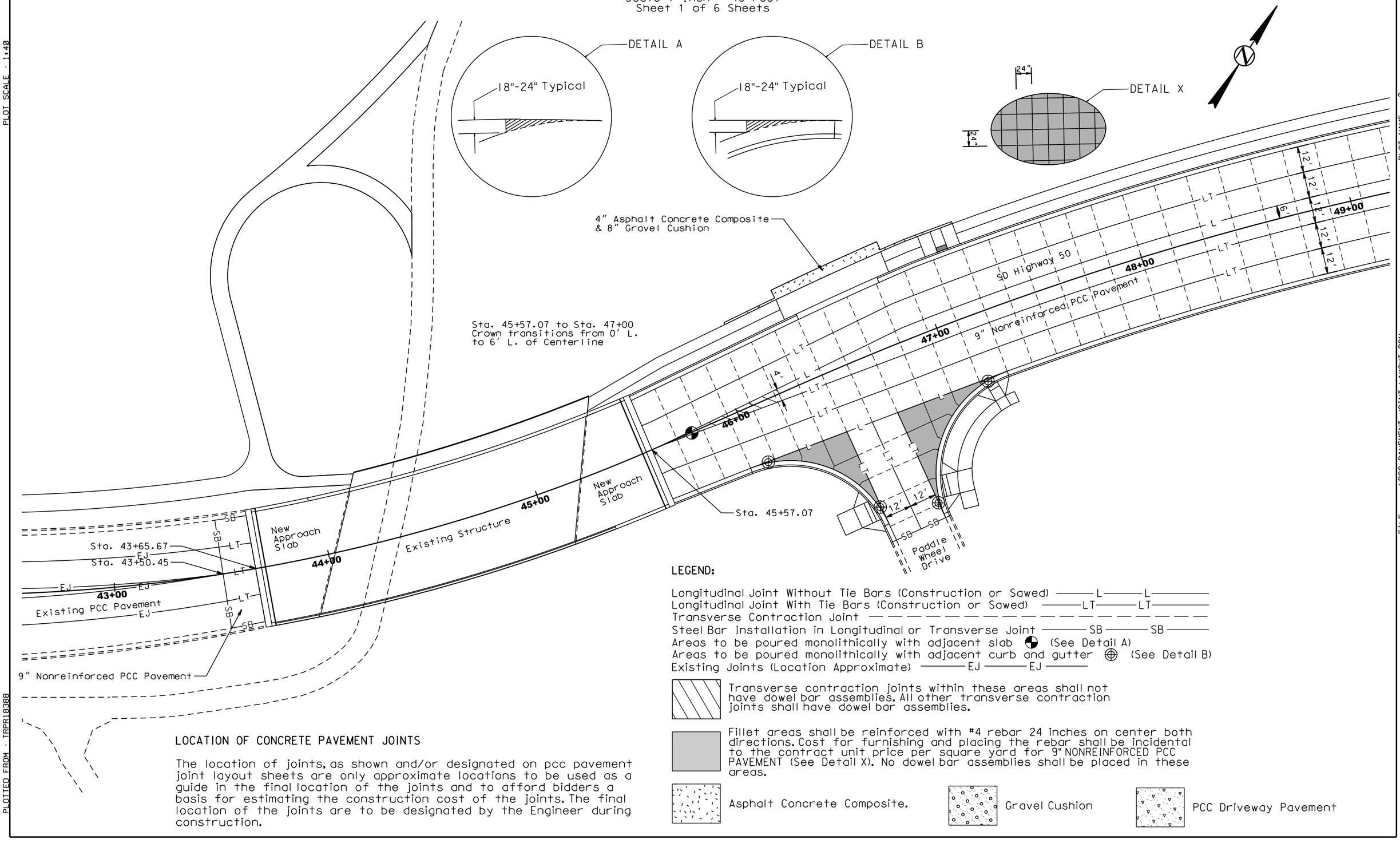
FILE - ...\YANK05HD\TYPICAL SECTION.DGN

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F6	F19

Plotting Date: 05/20/2016

Scale 1 Inch = 40 Feet
Sheet 1 of 6 Sheets



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.

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——

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

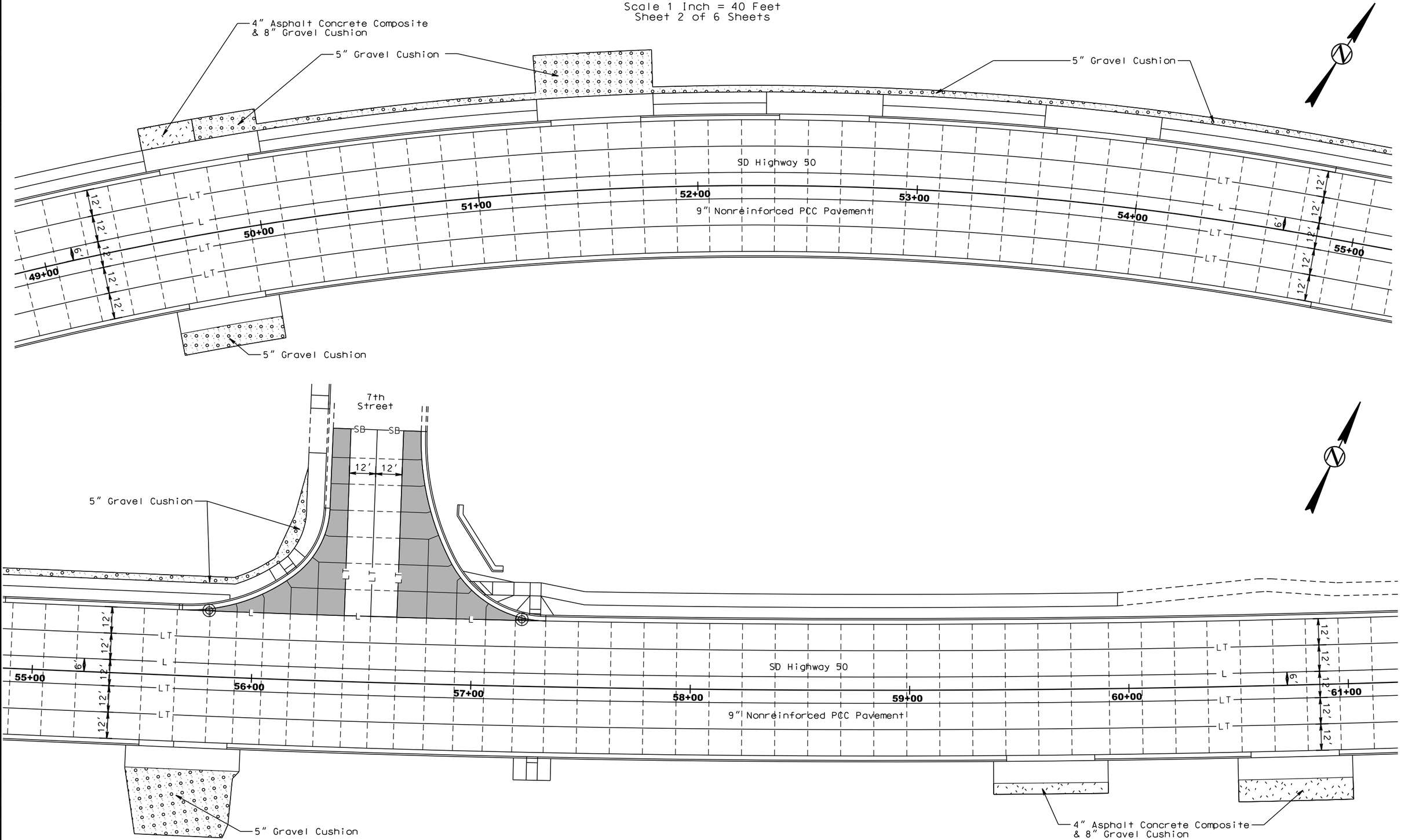
PCC PAVEMENT JOINT LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F7	F19

Plotting Date: 05/20/2016

Scale 1 Inch = 40 Feet
Sheet 2 of 6 Sheets



PLOT SCALE - 1:40

PLOT NAME - 4

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

PLOTTED FROM - TRPR18388

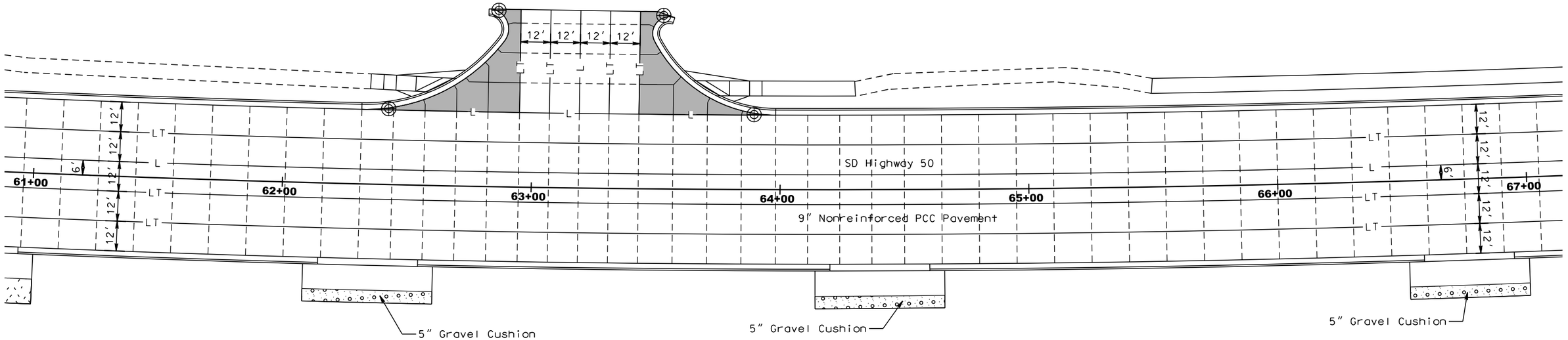
PCC PAVEMENT JOINT LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F8	F19

Plotting Date: 05/20/2016

Scale 1 Inch = 40 Feet
Sheet 3 of 6 Sheets



PLOT SCALE - 1:40

PLOTTED FROM - TRPR19388

PLOT NAME - 5

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

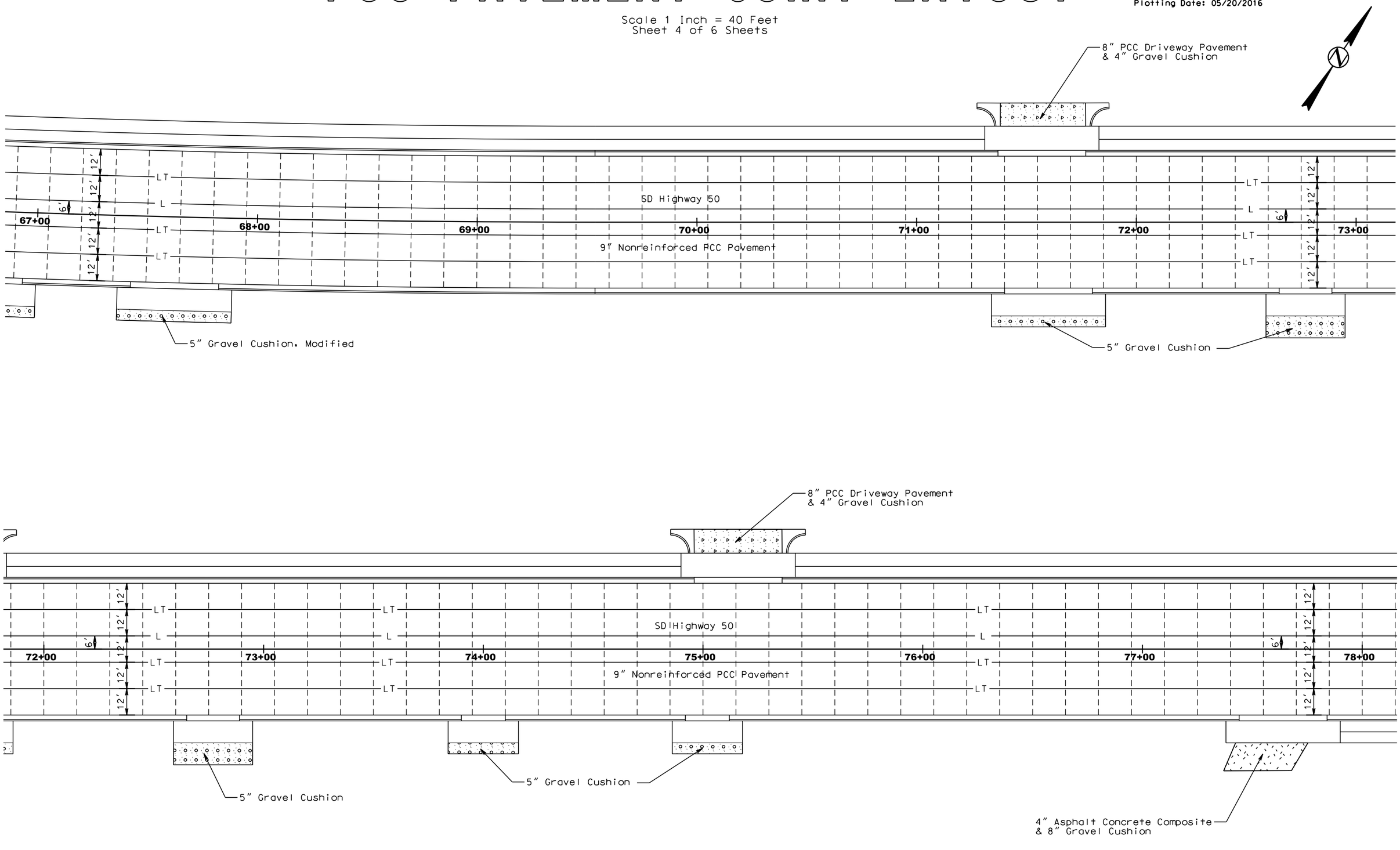
PCC PAVEMENT JOINT LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F9	F19

Plotting Date: 05/20/2016

Scale 1 Inch = 40 Feet
Sheet 4 of 6 Sheets



PLOT SCALE - 1:40

PLOTTED FROM - TRPR18388

PLOT NAME - 6

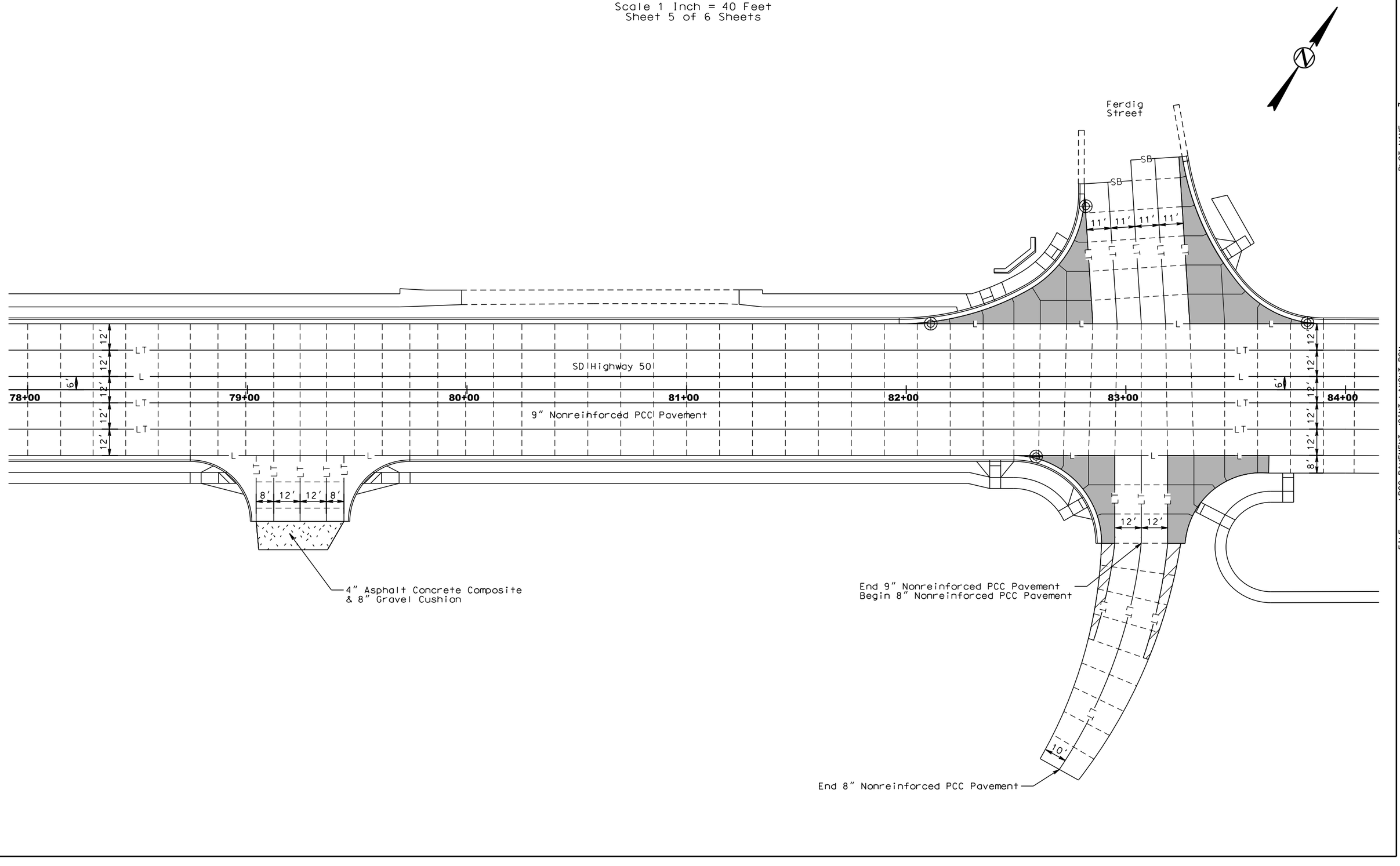
FILE - ...\PCC PAVEMENT JOINT LAYOUT.DGN

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F10	F19

Plotting Date: 05/20/2016

Scale 1 Inch = 40 Feet
Sheet 5 of 6 Sheets



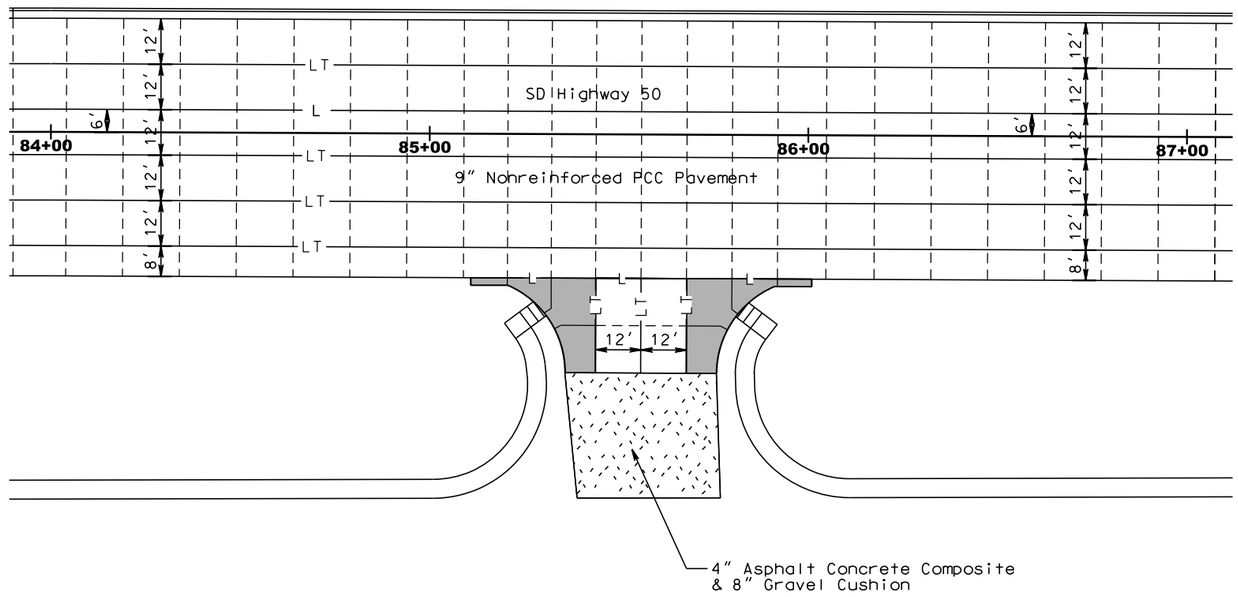
PCC PAVEMENT JOINT LAYOUT

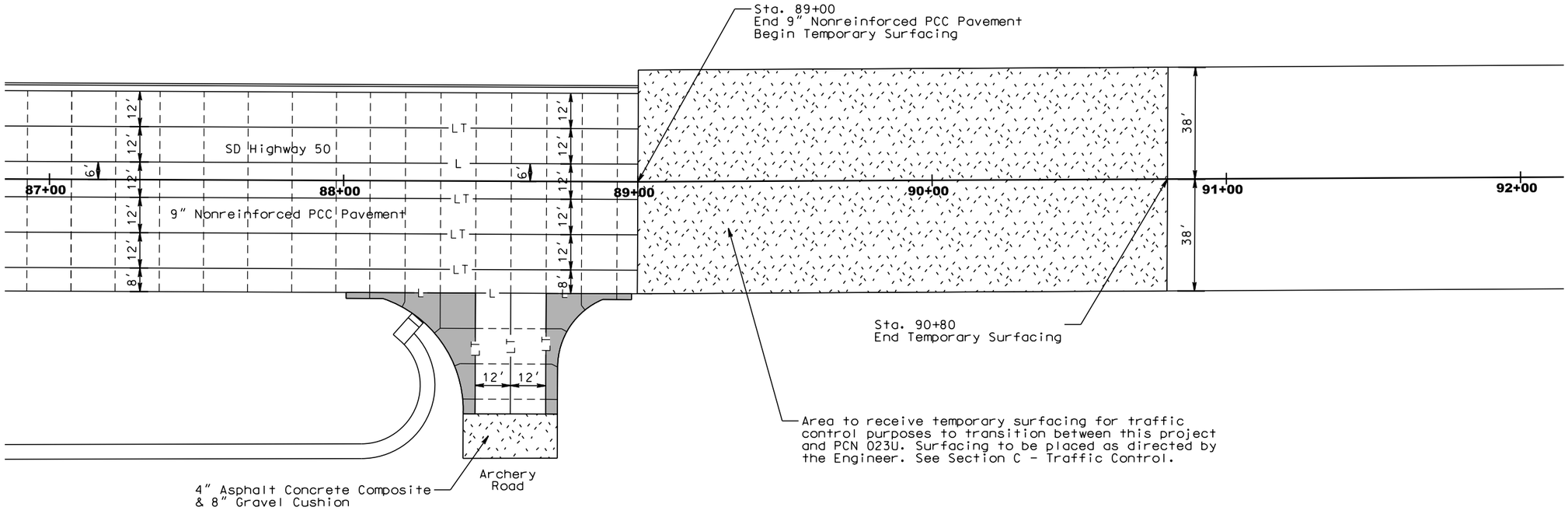
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F11	F19

Plotting Date: 05/20/2016

Scale 1 Inch = 40 Feet
Sheet 6 of 6 Sheets





PLOT SCALE - 1:40

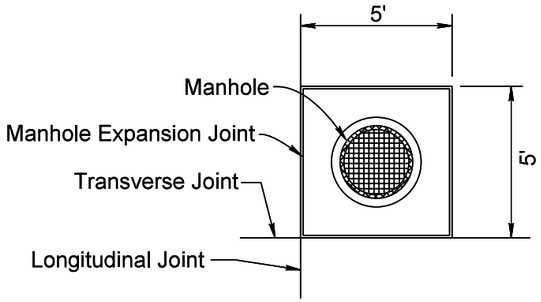
PLOTTED FROM - TRPR18388

PLOT NAME - 8

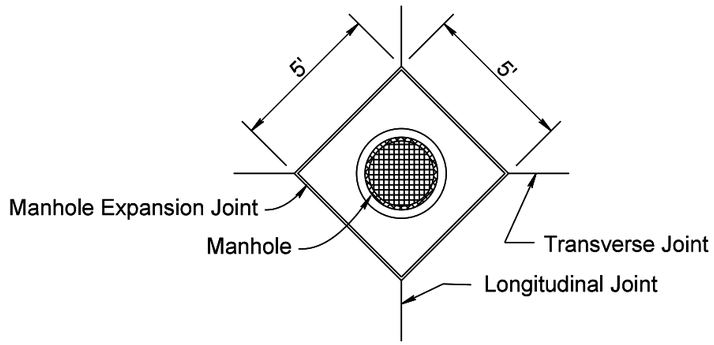
FILE - ...\PCC PAVEMENT JOINT LAYOUT.DGN

DETAILS FOR MANHOLE BOX-OUTS

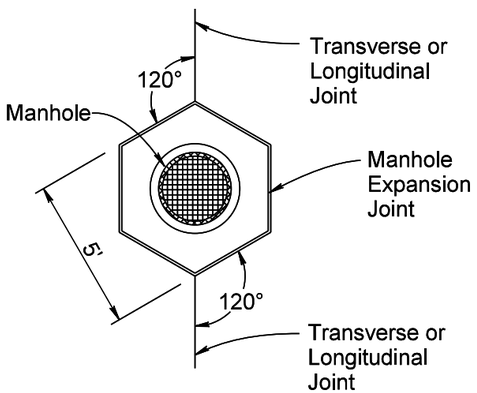
BOX-OUT DETAIL IN PCC PAVEMENT



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

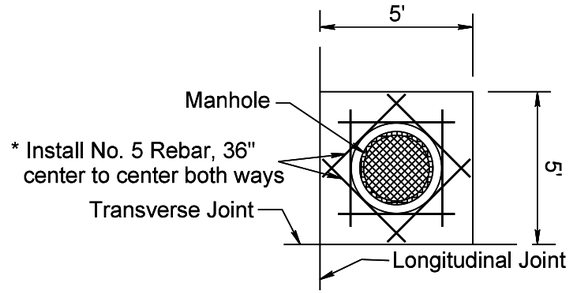


Where the utility access is intersected by the longitudinal and transverse joints

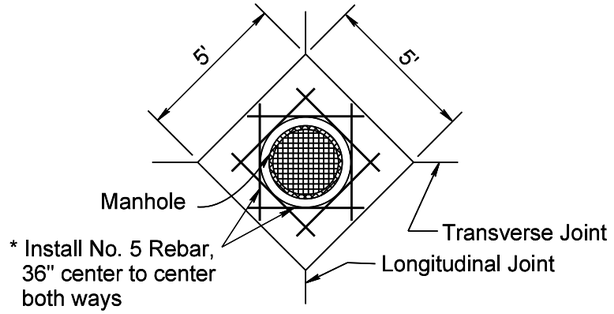


Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

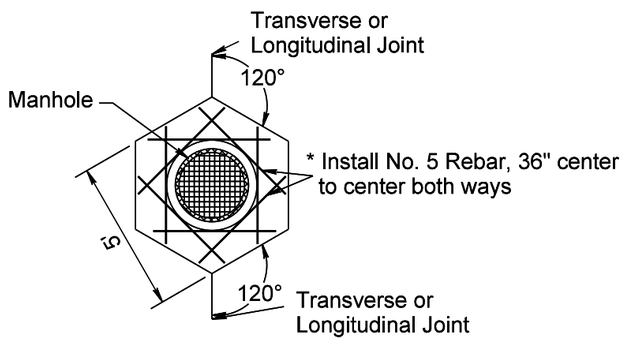
REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUTS



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

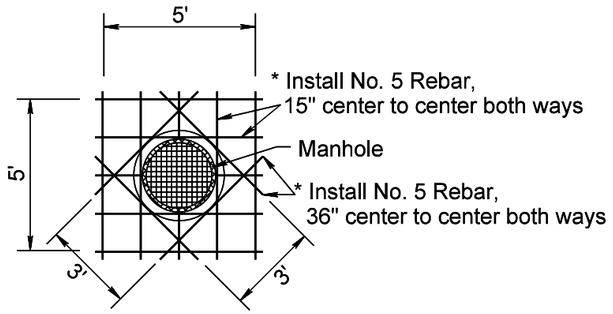


Where the utility access is intersected by the longitudinal and transverse joints



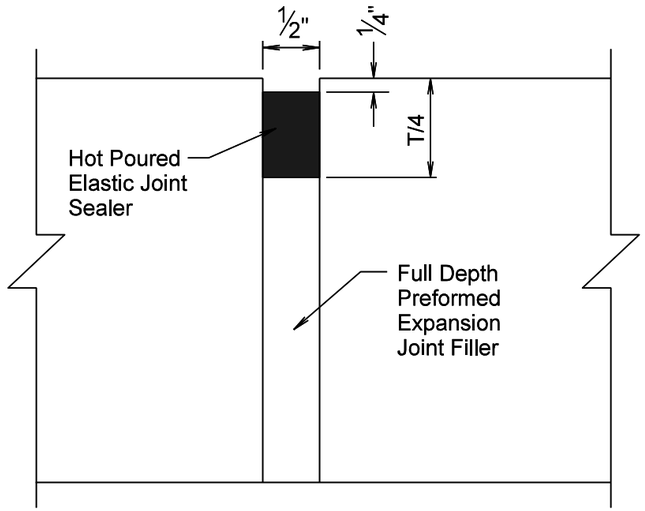
Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

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

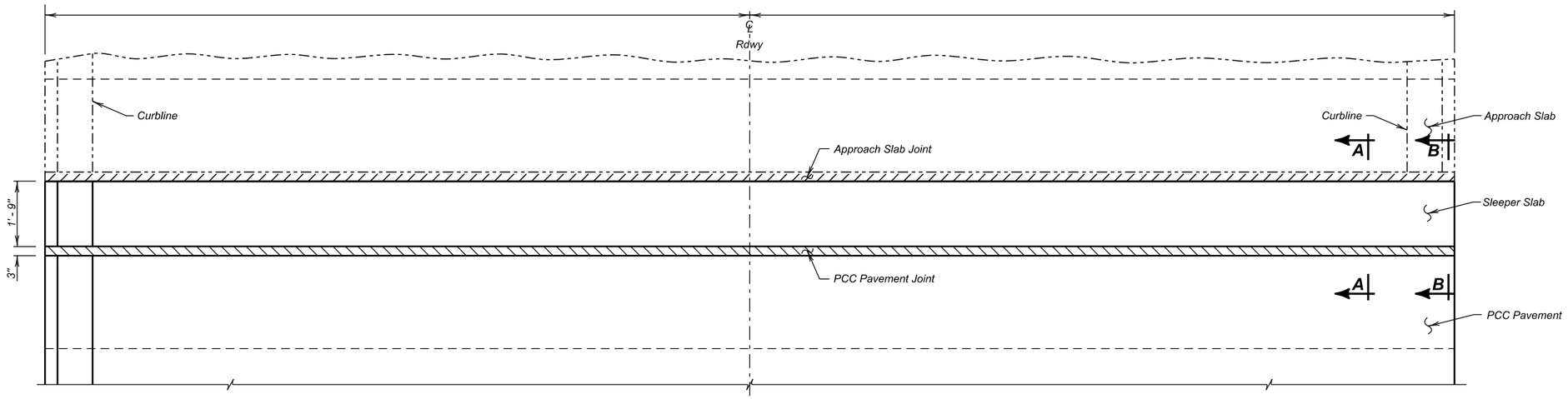


* Rebar will be placed at the midpoint depth of the PCC Pavement. Cost for furnishing & installing rebar and constructing box-outs shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

MEMBRANE SEALANT EXPANSION JOINT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F13	F19

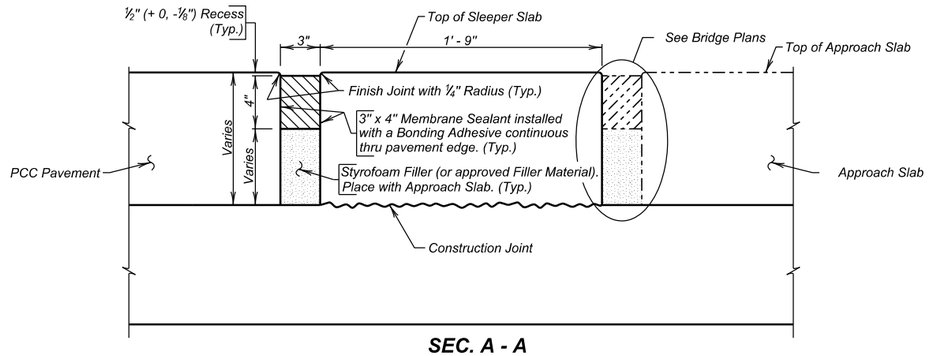
Plotting Date: 05/20/2016



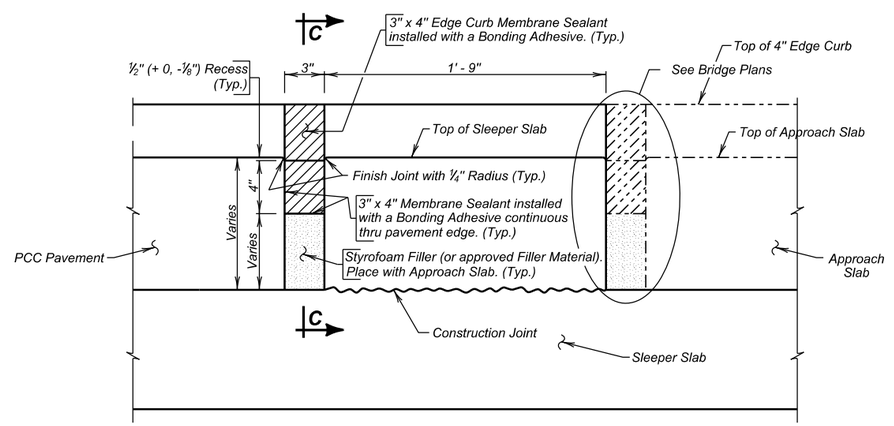
PLAN

GENERAL NOTES

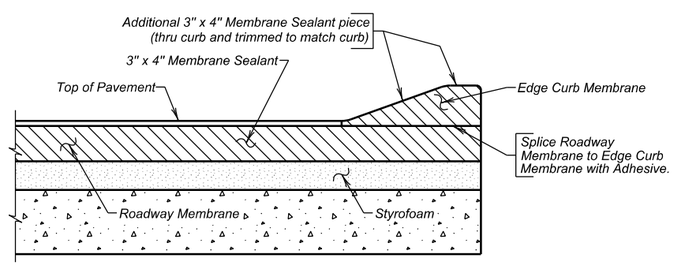
1. The Membrane Sealant shall be on the approved product list for Membrane Sealant Expansion Joints.
2. The manufacturer shall supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension shall be as recommended by the sealant manufacturer, however, in no case shall the precompressed dimension exceed 75% of the joint opening width. The foam sealant shall be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant shall provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension.
4. The membrane sealant shall be supplied in pieces a minimum of 5 feet in length. The foam sealant shall be ultra-violet and ozone resistant.
5. The bonding adhesive used to attach the membrane sealant to the adjacent concrete shall be approved by the membrane sealant manufacturer.
6. Adhesive used to join adjacent pieces of the membrane sealant shall be as recommended by the manufacturer.
7. If Styrofoam filler material is used in the construction, it shall be closed cell and water-tight as approved by the Engineer.
8. The minimum concrete air temperature at the time of joint installation and adhesive curing shall be 40° F.
9. A technical representative of the membrane sealant manufacturer shall be present at the jobsite during installation. The technical representative shall be knowledgeable in the correct procedures for the preparation and installation of the joint material to ensure the Contractor installs the joint to the Manufacturers recommendations.
10. Surfaces that will be in contact with the membrane sealant shall be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the surface. At a minimum, two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the surface will be required. Cleaning of the surfaces with solvents, wire brushing, or grinding shall not be permitted.
11. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface shall be air blasted. The air compressor used for joint cleaning shall be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent surfaces must be dry and clean. The contact surfaces for the joint shall be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
12. Individual spliced sections shall be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer shall submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
13. Traffic shall not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
14. Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
15. The Membrane Sealant Expansion Joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The Membrane Sealant Expansion Joint will be paid for at the contract unit price per foot complete in place. Payment for this item shall be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.



SEC. A - A

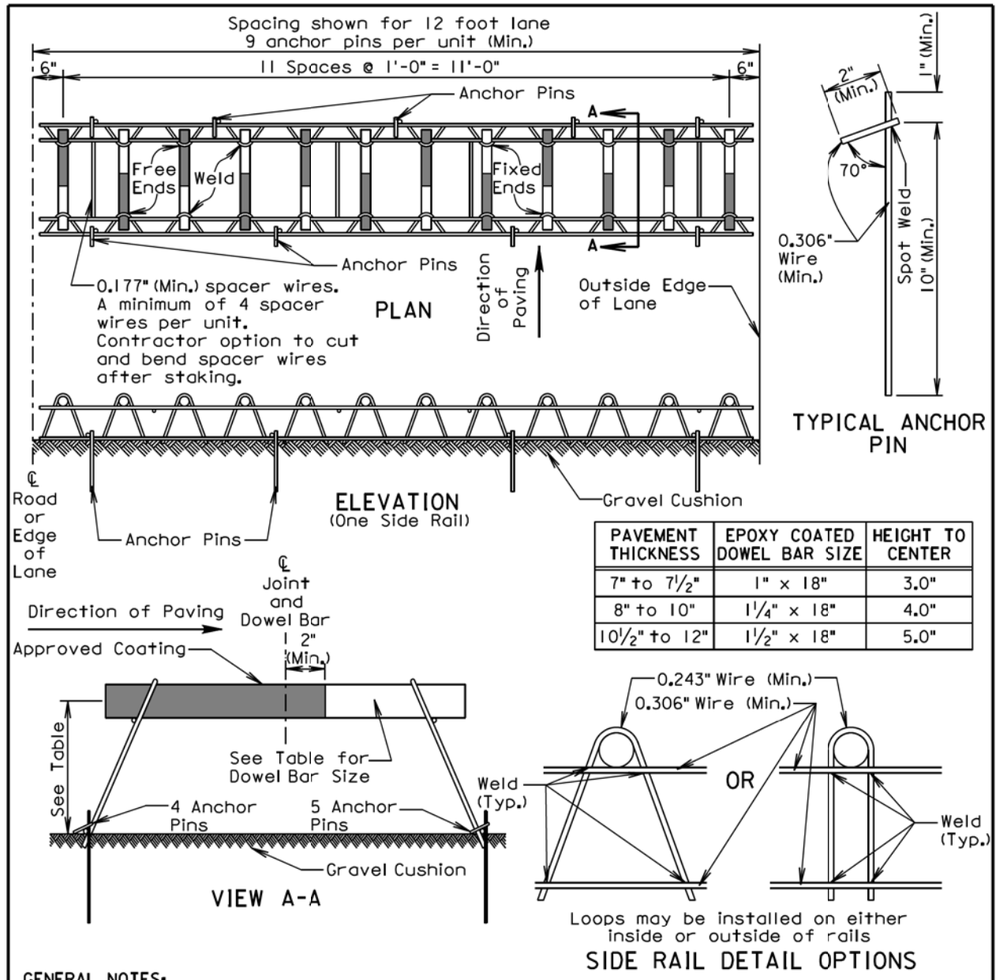


SEC. B - B



SEC. C - C

MEMBRANE SEALANT EXPANSION JOINT DETAILS FOR JOINT BETWEEN SLEEPER SLAB AND PCC PAVEMENT



PAVEMENT THICKNESS	EPOXY COATED DOWEL BAR SIZE	HEIGHT TO CENTER
7" to 7½"	1" x 18"	3.0"
8" to 10"	1¼" x 18"	4.0"
10½" to 12"	1½" x 18"	5.0"

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 ±1/8 inch in 18 inches and to all other dowel bars in the assembly ±1/16 inch in 18 inches.

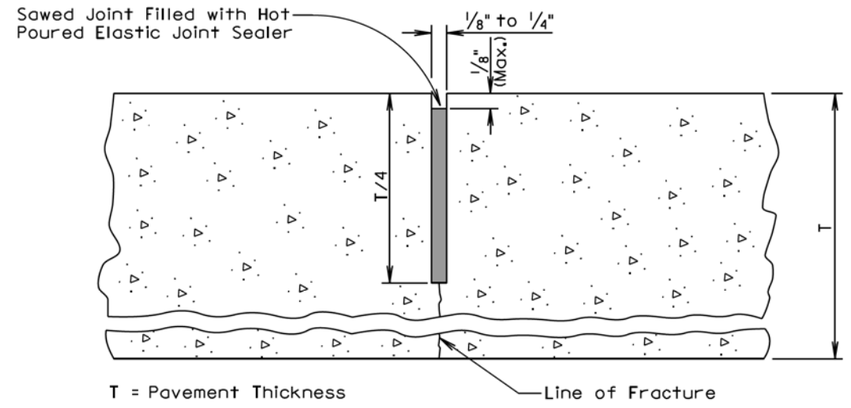
Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

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

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material	PLATE NUMBER 380.01 Sheet 1 of 1



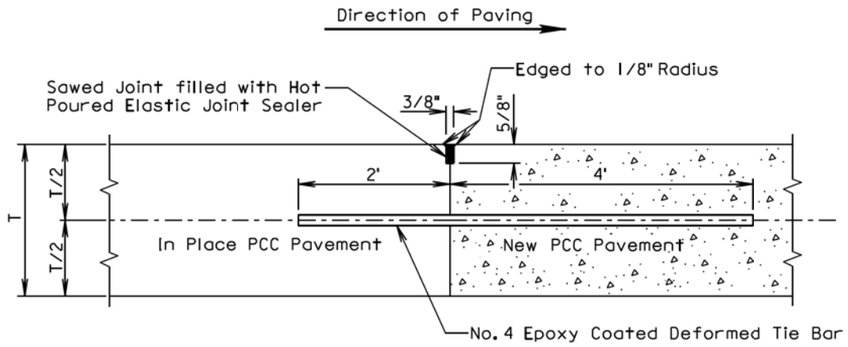
GENERAL NOTES:

If an early entrance sawcut does not develop the full transverse crack, then 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, 2015

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.05 Sheet 1 of 1



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.

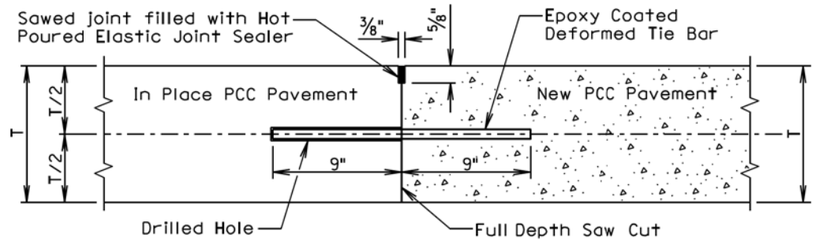
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

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

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.07 Sheet 1 of 1

DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

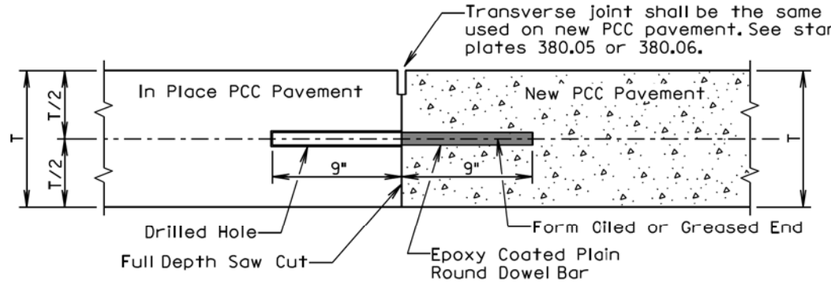
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

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.

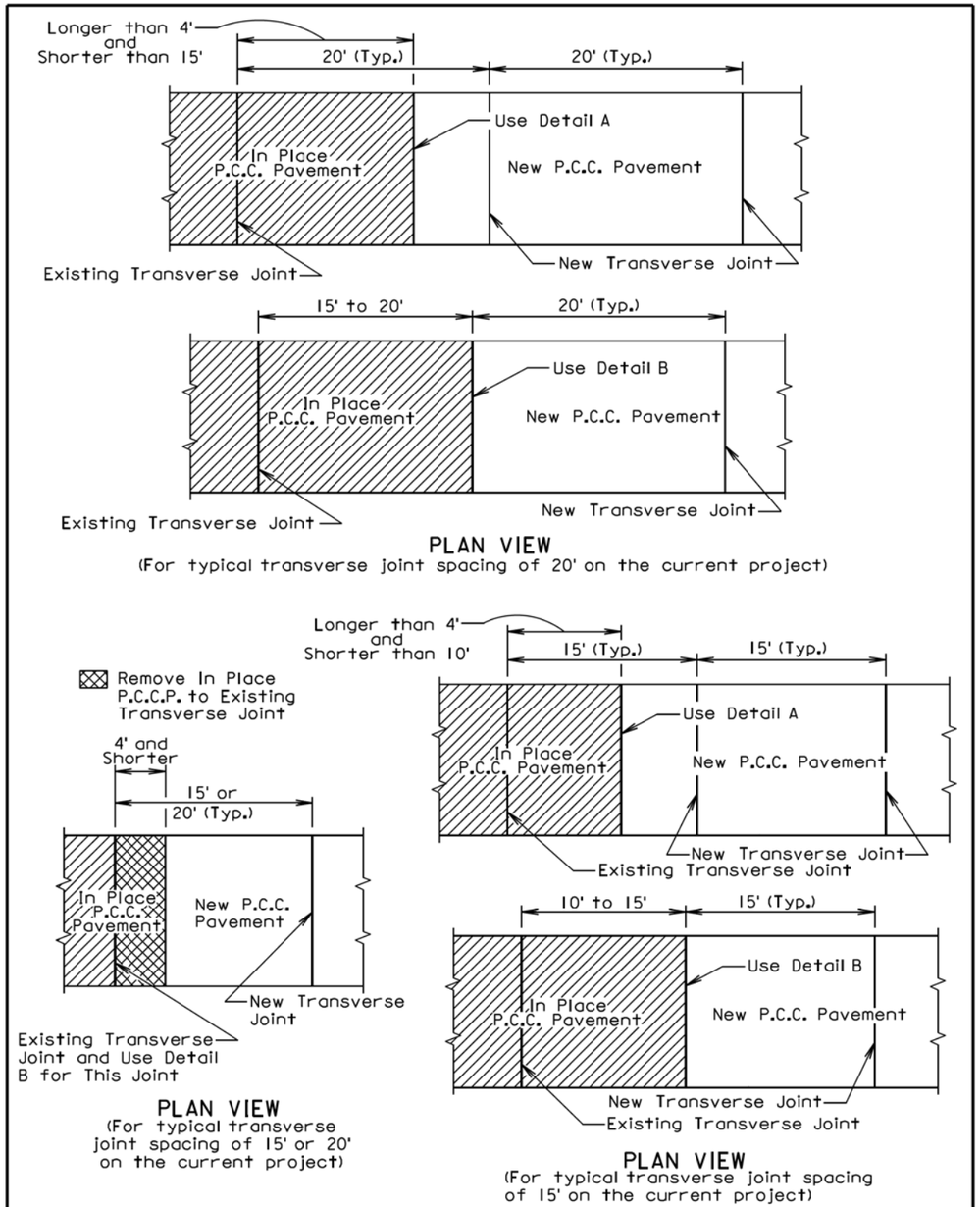
See sheet 2 of 2 of this standard plate to determine if Detail B shall be used.

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.

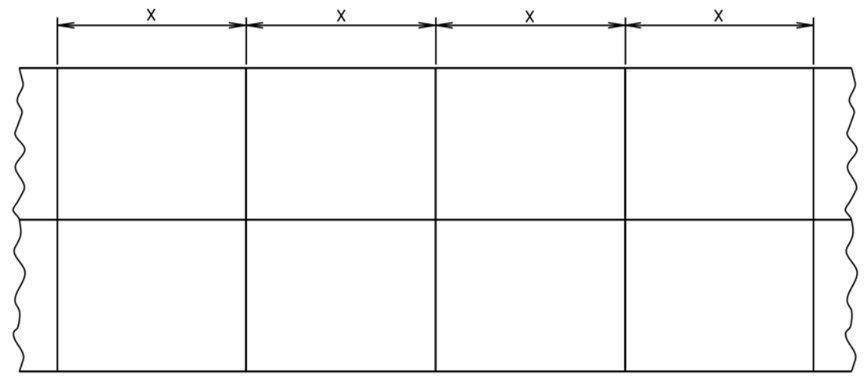
September 6, 2013

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08 Sheet 1 of 2



September 6, 2013

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.08
			Sheet 2 of 2



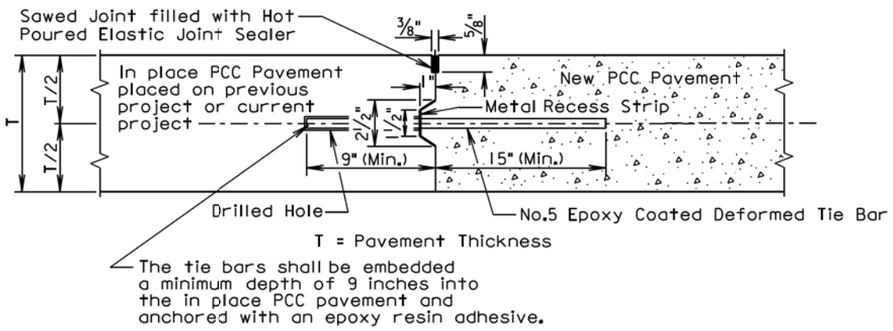
PCCP Thickness	Transverse Contraction Joint Spacing (X)
8" to 9.5"	15'
10" and Thicker	20'

August 31, 2013

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING	PLATE NUMBER 380.09
			Sheet 1 of 1

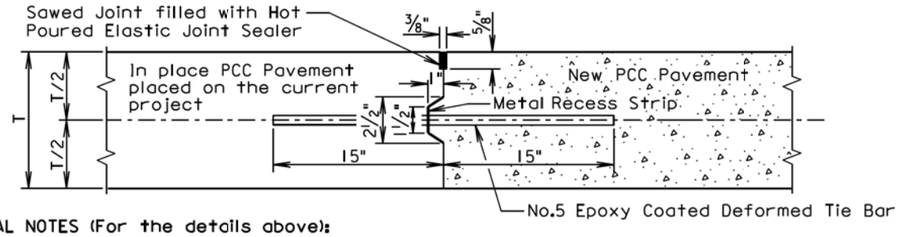
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(DRILLED IN BARS)



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.

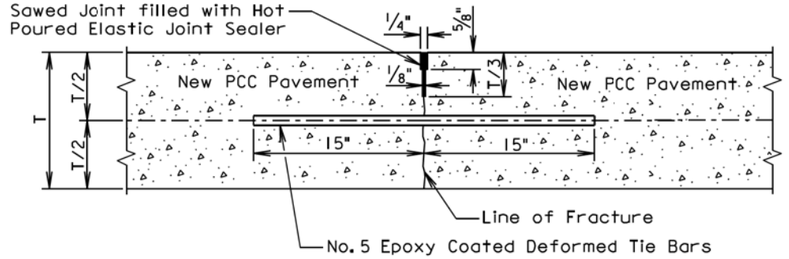
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

August 31, 2013

Published Date: 2nd Qtr. 2016	SDDOT	*PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS*	*PLATE NUMBER 380.10* Sheet 1 of 2

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

Published Date: 2nd Qtr. 2016	SDDOT	*PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS*	*PLATE NUMBER 380.10* Sheet 2 of 2

FOR BIDDING PURPOSES ONLY

Plotting Date: 05/20/2016

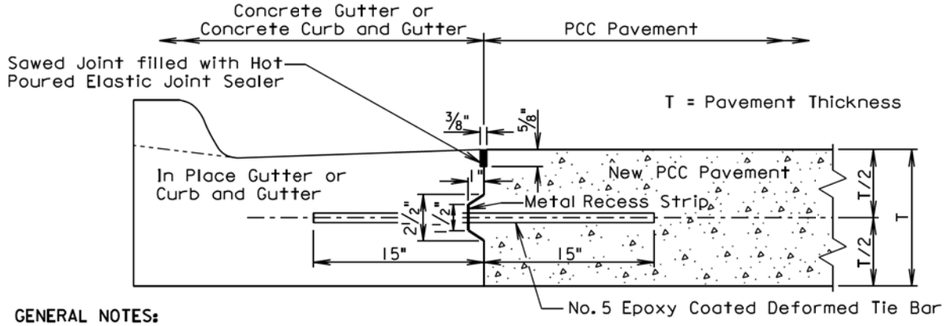
PLOT SCALE - 1:200

PLOT NAME - 15

FILE - U:\MS\PRJ\YANK05HD\SP5.DGN

-PLOTTED FROM - TRPR18388

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Individually Formed)



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.

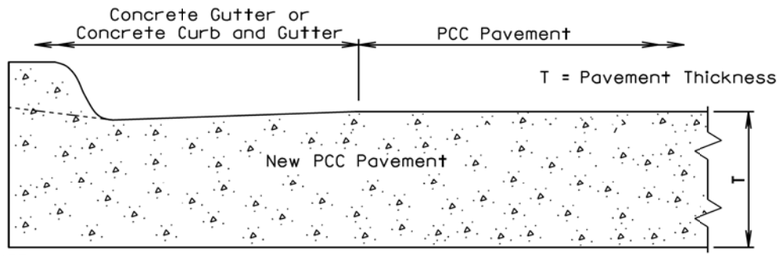
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

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 1½ 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 ¼ 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.

POURED MONOLITHICALLY



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.

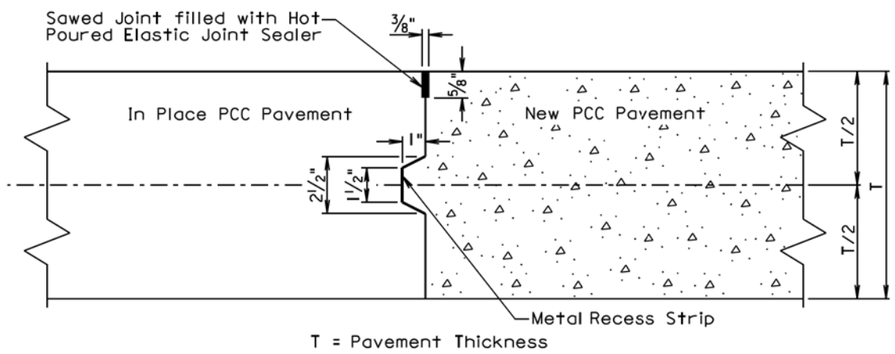
The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

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

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11	Sheet 1 of 1

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS

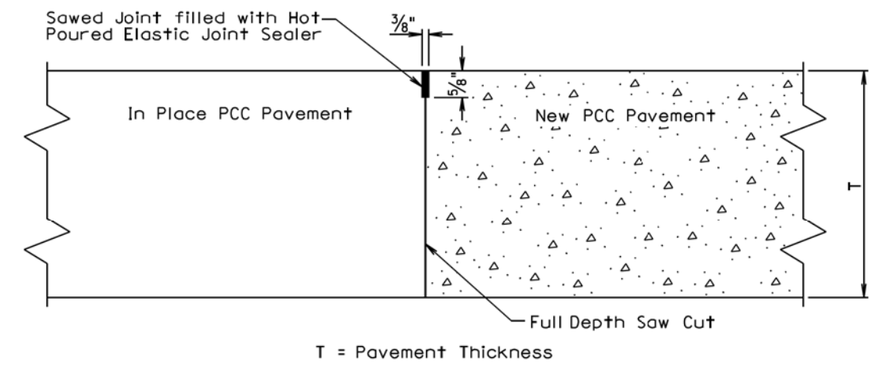


GENERAL NOTES:

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.

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



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.

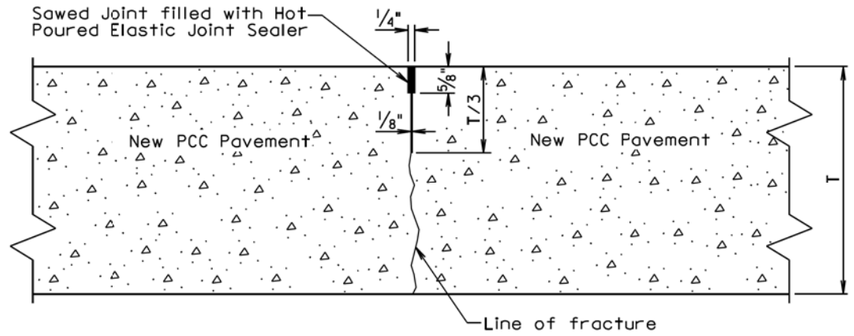
September 14, 2001

Published Date: 2nd Qtr. 2016	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.12	Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	F19	F19

Plotting Date: 05/20/2016

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. 2016	SDDOT	*PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS*	*PLATE NUMBER 380.12* *Sheet 2 of 2*