

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F1	F24

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SECTION F – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
120E6200	Water for Granular Material	380.3	MGal
* 120E6200	Water for Granular Material	2.3	MGal
* 260E1030	Base Course, Salvaged	195.0	Ton
260E1030	Base Course, Salvaged	20,417.0	Ton
260E1080	Base Course, Salvaged, State Furnished	11,282.0	Ton
270E0220	Blend and Stockpile Granular Material	20,612.0	Ton
320E1200	Asphalt Concrete Composite	720.0	Ton
380E0070	9" Nonreinforced PCC Pavement	35,578.1	SqYd
* 380E0070	9" Nonreinforced PCC Pavement	310.0	SqYd
380E3020	6" PCC Driveway Pavement	245.8	SqYd
380E3040	8" PCC Driveway Pavement	1,157.5	SqYd
* 380E6000	Dowel Bar	119	Each
380E6000	Dowel Bar	22,675	Each
380E6110	Insert Steel Bar in PCC Pavement	177	Each
* 380E6110	Insert Steel Bar in PCC Pavement	143	Each

* - Denotes Non-Participating

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.

SAWING IN EXISTING SURFACING

Where new Portland Cement Concrete Pavement (PCCP) or new asphalt concrete is placed adjacent to existing asphalt concrete or PCCP, the existing pavement shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

RECYCLED CONCRETE AGGREGATE (RCA)

Portland cement concrete pavement (RCA) removed from the mainline within the project limits may be crushed and reused as granular material provided it meets the requirements for the granular material it is replacing.

All in-place rebar will be separated and removed from the RCA.

There is an estimated 7,961 tons of PCC Pavement on this project that can be crushed and reused. This quantity is based on a unit weight of 118 lbs. per cubic foot for the recycled concrete aggregate.

The Contractor will dispose of the material (including existing rebar) not utilized on the project at a site approved by the Engineer.

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

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, Salvaged, State Furnished, and Base Course, Salvaged spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer. All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the "Checker". No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

BLEND AND STOCKPILE GRANULAR MATERIAL

An Estimated 7,902 tons (for informational purposes only) of Salvaged Asphalt Mix Material and 12,710 tons of Salvaged Granular Material will be blended and stockpiled at the Contractor's furnished stockpile site.

The Contractor will use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material.

The salvaged asphalt mix material will be crushed prior to blending into the stockpile. The blended material will meet the requirements of Section 884.2 D.

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Salvaged asphalt mix material and salvaged granular material will be blended at a rate of 50% salvaged asphalt mix material and 50% Salvaged Granular Material to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.

No further gradation testing of the blended material will be required.

All costs for crushing the salvaged asphalt mix material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for "Blend and Stockpile Granular Material".

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the stockpile site(s) provided by the Contractor and may be used without further gradation testing.

The Contractor will ensure the Base Course, Salvaged material contains no more than 50% salvaged asphalt mix material and at least 50% granular material (salvaged or virgin). Blended material will be to the satisfaction of the Engineer.

All other requirements for Base Course, Salvaged will apply.

BASE COURSE, SALVAGED, STATE FURNISHED

Base Course, Salvaged, State Furnished estimated at 11,262 tons (for informational purposes only) of granular material will be obtained from the stockpile site located in the SE ¼ of Section 5, Township 110 North, Range 61 West of the Black Hills Meridian, Beadle County, South Dakota at the East Huron Maintenance Yard. There is approximately 56,000 tons of material in the stockpile.

No gradation testing will be required for the Base Course, Salvaged, State Furnished material.

The Base Course, Salvaged, State Furnished is royalty free to the Contractor.

All other requirements for Base Course, Salvaged will apply.

REINFORCEMENT FABRIC (MSE) For SOFT AND UNSTABLE AREAS

If, in the opinion of the Engineer, the subgrade will not stabilize by being reworked and recompacted, Reinforcement Fabric (MSE) and granular material may be used. Contact the Geotechnical Engineering Activity (605-773-3725) for assistance should the use of Reinforcement Fabric (MSE) and additional granular material become necessary. See Section B for installation and specifications of Reinforcement Fabric (MSE).

An additional 1,481 tons. (80' x 500' x 1') of Base Course, Salvaged/Base Course and 17.8 MGal of Water for Granular Material is included in the materials quantities for Section F. This quantity can be adjusted or eliminated by CCO, depending on field conditions.

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ASPHALT CONCRETE COMPOSITE

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed salvaged granular material or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

The binder used in the Asphalt Concrete Composite mix can be PG 58H-34 or PG 58V-34 Asphalt Binder.

9" NONREINFORCED PCC PAVEMENT

The aggregate may require screening as determined by the Engineer.

The concrete mix used in the PCC Pavement will 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 construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

The transverse construction joints will be handled in accordance with Standard Plate 380.15.

The location of joints, as shown and designated on the PCC Pavement Joint Layout(s) are only approximate locations to be used as a guide and to afford bidders a basis for estimating the construction cost of the joints. The final locations of the joints are to be designated by the Engineer during construction.

The entire surface of the mainline paving will be a heavy carpet drag. The surface of the mainline paving will receive a heavy carpet drag to within 2 or 3 feet of the face of the curb. All other areas will be textured as directed by the Engineer.

Unless specified otherwise in the PCC Pavement Joint Layout Sheets or elsewhere in the plans, the typical joint spacing for 9" Nonreinforced PCC Pavement will be 14'.

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

6" and 8" PCC DRIVEWAY PAVEMENT

The concrete for the 6" and 8" PCC Driveway Pavement will comply with the requirements of the specifications for Class M6 Concrete, unless otherwise specified in the plans. The mix design can meet either Class M6 Concrete specifications or conform to the Special Provision for Contractor Furnished Mix Design for PCC Pavement.

The surface of the 6" and 8" PCC Driveway Pavement will have a maximum 10% slope and the tie-ins will match the existing and/or new adjoining PCC Approach Pavement.

Contraction joints in the 6" and 8" PCC Driveway Pavement will 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 will be at least ¼ the thickness of the approach pavement.

The curing compound will be applied in two applications to ensure the entire surface is white from any viewing angle.

All costs for furnishing and placing the 6" and 8" PCC Driveway Pavement and constructing the expansion and contraction joints including labor, equipment, and materials (including the earthen backfill) will be incidental to the contract unit price per square yard for "6" and 8" PCC Driveway Pavement".

Payment for any excavation required for placing the 6" and 8" PCC Driveway Pavement and granular material will be incidental to the contract unit price of the surfacing material.

All costs for furnishing and placing the granular material will be incidental to the contract unit price per ton for "Base Course, Salvaged, State Furnished, and Base Course, Salvaged".

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PAVEMENT SMOOTHNESS

The following locations will be tested for smoothness with 0.2-inch blanking band in accordance with Section 380.3 O.3 of the Specifications.

SD37 - Sta. 13+99.63 to Sta. 66+33.40 - Driving Lanes

All other 9" PCC Pavement areas that include turning lanes, center turn lane and side streets will be tested using the 10' straight edge as per Specifications 380.3.O.2.

CURING OF CONCRETE

Portland Cement Concrete Pavement, Concrete Curb & Gutter, Concrete Gutter, and Concrete Fillet will be cured with Linseed Oil Base Emulsion Compound. Poly-alpha methylstyrene (AMS) membrane curing compound may be used in place of the Linseed Oil Base Emulsion compound at the Contractor's option. AMS has higher potential to drift and may cause damage to private property. The Contractor will be responsible for any damage to private property because of the use of AMS. All costs for Curing of Concrete will be incidental to the contract unit price per various Portland Cement Concrete bid items.

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ALKALI SILICA REACTIVITY

Fine aggregate will conform to Section 800.2 D Alkali Silica Reactivity (ASR) Requirements.

Below is a list of known fine aggregate sources and the average corresponding 14-day expansion values (as of 10-2-2025):

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.146
Concrete Materials - Vellek Pit	Yankton, SD	0.442**
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Blair Pit	W of Vale, SD	0.171
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*
Henning – Tilstra Pit	Ash Creek, MN	0.199
Higman	Hudson, SD	0.187
Jensen	Herried, SD	0.276*
L.G. Everist	Akron, IA	0.257*
L.G. Everist	Brookings, SD	0.297*
L.G. Everist – Ode Pit	E Sioux Falls, SD	0.222
L.G. Everist – Nelson Pit	NE Sioux Falls, SD	0.156
L.G. Everist	Hawarden, IA	0.211
L.G. Everist	Summit, SD	0.184
Mark’s S&G – Moerke Pit	Underwood, MN	0.165
Morris – Birdsall	Blunt, SD	0.229
Morris - Leesman	Blunt, SD	0.231
Morris - Richards Pit	Onida, SD	0.188
Morris - Shawn's Pit	E of Sturgis, SD	0.186
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.154
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	0.250
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.157
Pete Lien & Sons	Wasta, SD	0.255*
Simon Materials - Beltline Pit	Scottsbluff, NE	0.277*
Thorpe Pit	Britton, SD	0.098
Valley S&G – Van Beek Pit	Rock Valley, IA	0.228
Wagner Building Supplies	Pickstown (Wagner), SD	0.251*
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.
** These sources will not be used.

The Department will use the running average of the last three or fewer known expansion test results for determining acceptability of the source. 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 percent of fly ash requirement.

MANHOLE BOX-OUT DETAILS

The Contractor will construct box-outs for all manholes in the 9” Nonreinforced PCC Pavement according to the Box-Out Detail. Locations of Proposed Manholes and water valve boxes are shown on the PCC Pavement Joint Layout Sheets.

TABLE OF 9” NONREINFORCED PCC PAVEMENT

Mainline Location			9" NONREINFORCED PCC PAVEMENT
Sta	to	Sta.	Area(SqYd)
Mainline			
13+99.63	to	17+14.00	2,472.1
17+14.00	to	22+00.00	3,402.1
22+00.00	to	66+37.75	27,138.1
Intersecting Streets			
Between Mainline Stations			
13+99.63	to	17+14.00	---
17+14.00	to	22+00.00	156.8
22+00.00	to	66+37.75	2,069.0
Storm Sewer Repair Area			340.0
Sanitary Sewer Repair Area			*310.0
Total:			35,888.1

*Non-Participating bid items.

TABLE OF 8” PCC DRIVEWAY PAVEMENT

8" PCC Driveway Pavement			8" NONREINFORCED PCC PAVEMENT
(28 business driveways)			Area(SqYd)
Sta	to	Sta.	
13+99.63	to	27+00.00	483.1
27+00.00	to	40+00.00	453.8
40+00.00	to	53+00.00	114.9
53+00.00	to	66+37.75	68.3
108+00.00	to	175+00.00	37.4
Total:			1,157.5

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TABLE OF 6” PCC DRIVEWAY PAVEMENT

6" PCC Driveway Pavement			6" NONREINFORCED PCC PAVEMENT
(16 residential driveways)			Area(SqYd)
Sta	to	Sta.	
13+99.63	to	27+00.00	---
27+00.00	to	40+00.00	---
40+00.00	to	53+00.00	56.0
53+00.00	to	66+37.75	189.8
Total:			245.8

TABLE OF DOWEL BARS

Location	1 1/4" Bars
Mainline	
Bars in Mainline	21,762
Bars in Intersecting Roads	823
Bars in Storm Sewer Repair	78+12=90
Bars in Sanitary Sewer Repair	*119
Total Dowel Bars:	22,794

*Non-Participating bid items.

STEEL BAR INSERTION

The Contractor will insert the Steel Bars (1¼ inch x 18 inch epoxy coated plain round dowel bars) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

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

Epoxy coated plain round steel bars will be inserted on 12 inch centers in the transverse joint. The first steel bar will be placed a minimum of 3 inches and a maximum of 9 inches from the outside edge of the slab.

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

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TABLE OF STEEL BAR INSERTION

Station	Lt or Rt	No. 5 x 24" Deformed Tie Bars	1-1/4" x 18" Plain Round Dowel Bars
12+81.26	Rt	12	35
13+57.52	Lt & Rt	*73	*70
13+99.63	BOP	---	75
66+37.75	EOP	---	55
	Totals	85	235

*Non-Participating bid items.

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TABLE OF MATERIALS QUANTITIES

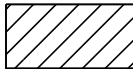
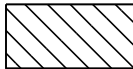
LOCATION		WATER FOR GRANULAR MATERIAL	BASE COURSE, SALVAGED/ BASE COURSE, SALVAGED, STATE FURNISHED	ASPHALT CONCRETE COMPOSITE	
				1st Lift	Top Lift
Station	to Station			(Ton)	(Ton)
Mainline					
13+99.63	to 17+14.00	23.3	1,939.0		
17+14.00	to 22+00.00	34.2	2,848.0		
22+00.00	to 66+37.75	287.8	23,983.0		
AC Intersecting Street Tie Ins (21)		3.8	342.0	114.0	114.0
PCC Driveways and Entrances (44 total)					
Sta. 14+00 to Sta. 27+00 (10 each)		0.9	90.0		
Sta. 27+00 to Sta. 40+00 (12 each)		1.2	96.0		
Sta. 40+00 to Sta. 53+00 (8 each)		0.4	28.0		
Sta. 53+00 to Sta. 66+37.75 (13 each)		0.7	56.0		
Storm Sewer - Sta. 108+00 to Sta. 175+00 (1 each)		0.4	37.0		
AC Driveways and Entrances (18 total)					
Sta. 14+00 to Sta. 27+00 (4 each)		2.0	160.0	60.0	60.0
Sta. 27+00 to Sta. 40+00 (7 each)		3.5	287.0	112.0	112.0
Storm Sewer - Sta. 108+00 to Sta. 175+00 (6 each)		1.2	90.0	72.0	72.0
Driveway - NW corner of 9th St. & Hwy 37		0.1	7.0	2.0	2.0
Granular Driveways and Entrances (8 total)					
Sta. 40+00 to Sta. 53+00 (3 each)		0.1	9.0		
Sta. 53+00 to Sta. 66+37.75 (3 each)		0.1	8.0		
Storm Sewer - Sta. 108+00 to Sta. 175+00 (2 each)		0.2	24.0		
Sanitary Sewer Replacement		*2.3	*195.0		
Storm Sewer Replacement		2.6	214.0		
Unstable / Reinforcement Fabric Areas		17.8	1,481.0		
Total Non-Participating Quantities		2.3	195.0		
Total Participating Quantities		380.3	31,699.0		
Totals:		382.6	31,894.0	720.0	

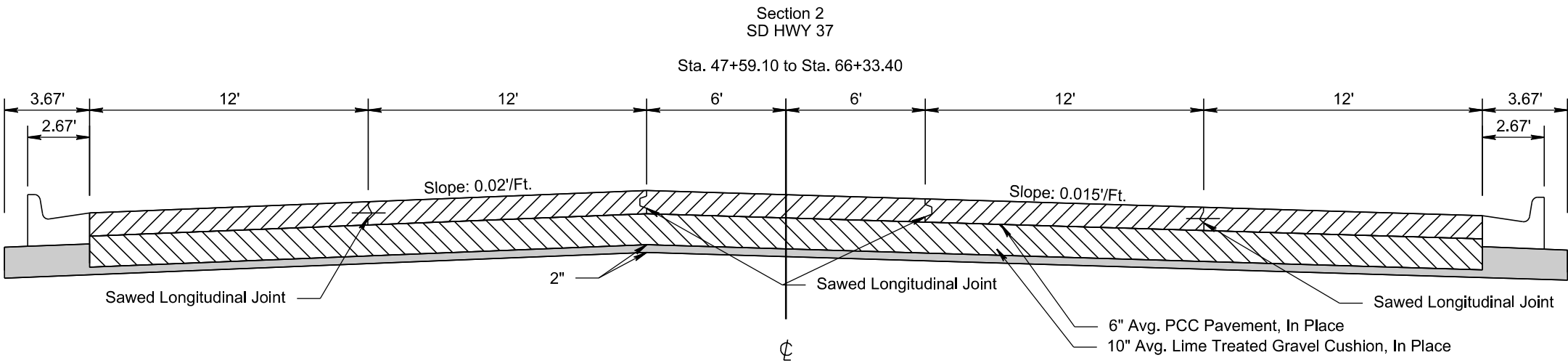
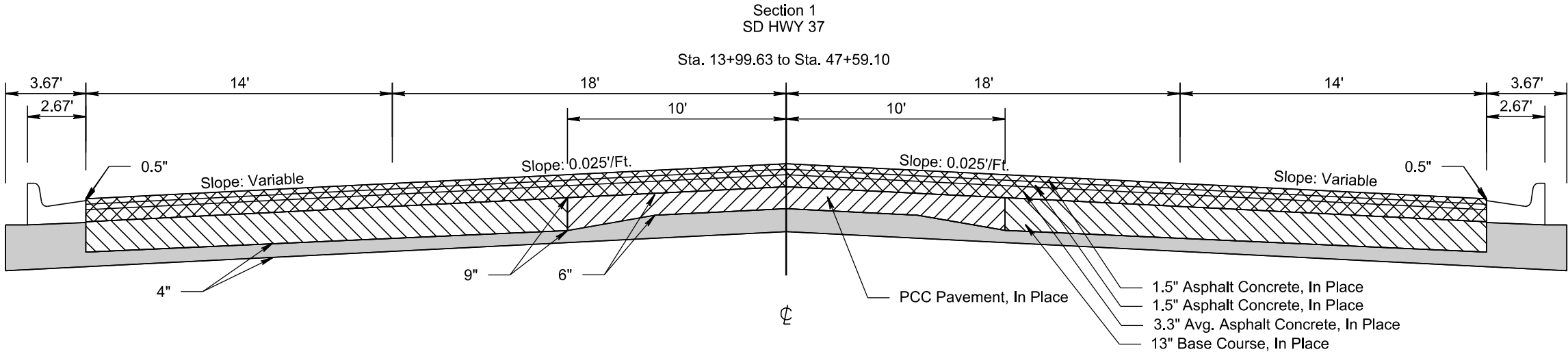
*Non-Participating bid items.

IN PLACE TYPICAL SECTIONS

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-  Remove Concrete Pavement
-  Salvage & Stockpile Granular Material (Unclassified Excavation)
-  Salvage & Stockpile Asphalt Mix Material (Unclassified Excavation)
-  Unclassified Excavation



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TYPICAL SURFACING SECTIONS

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Transitions:
Sta. 13+99.63 to Sta. 17+14
* 13.5' to 8'
** 0' to 5.5'

Sta. 13+99.63 to Sta. 17+14
*** 7.5' to 5.5'
**** 11' to 0'

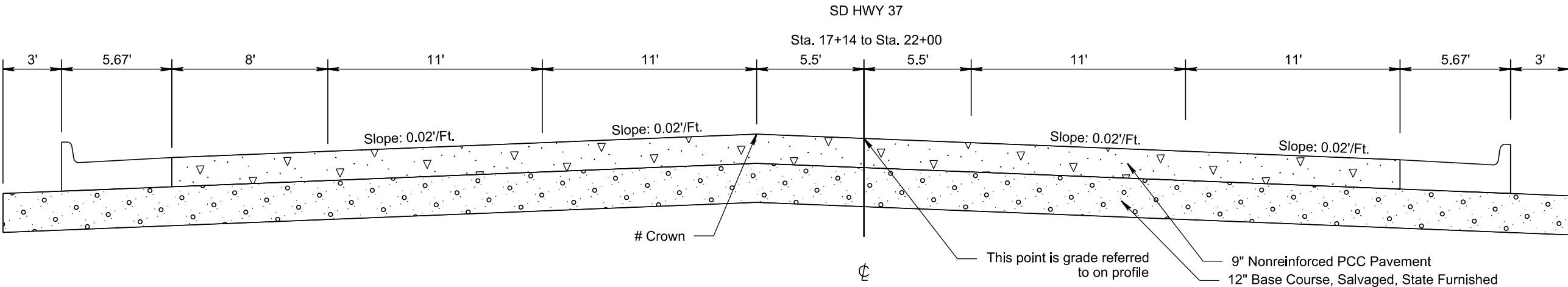
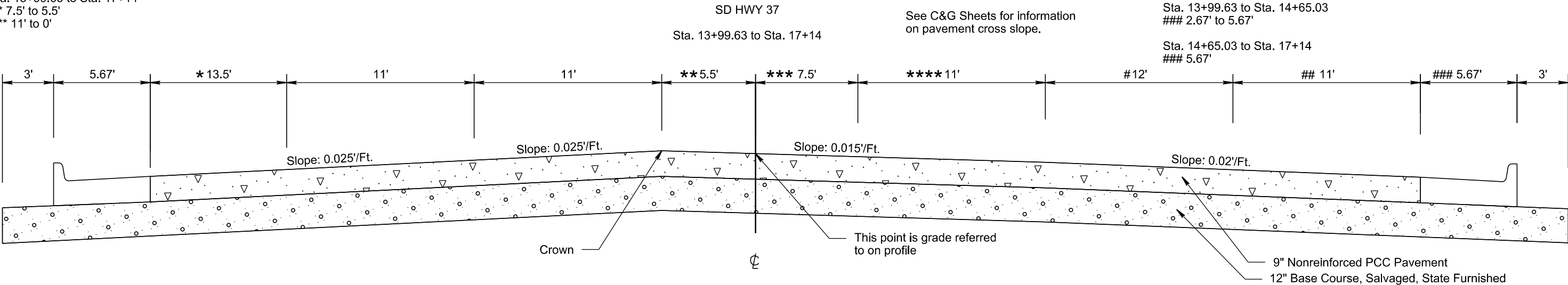
Note:
See PCC Joint Layouts
for details

See C&G Sheets for information
on pavement cross slope.

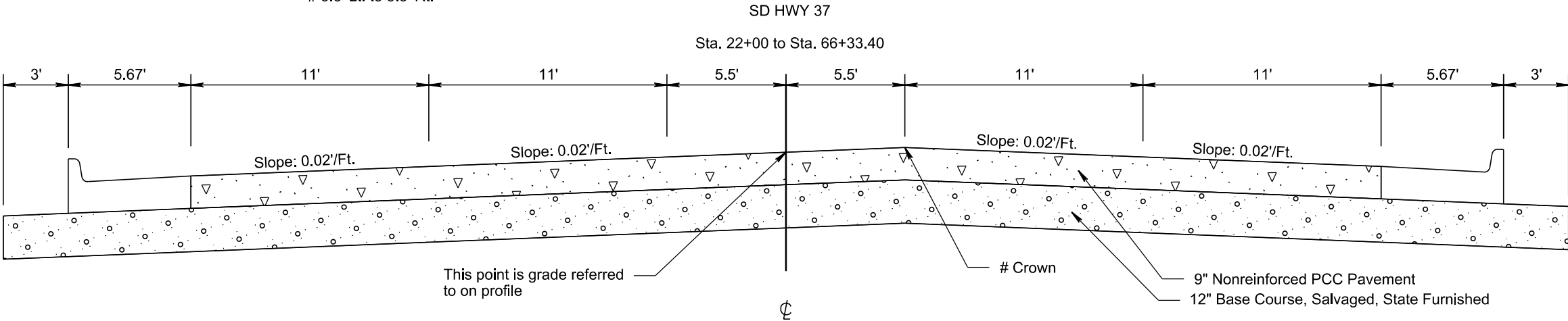
Transitions:
Sta. 13+99.63 to Sta. 17+14
12' to 11'
11.42' to 11'

Sta. 13+99.63 to Sta. 14+65.03
2.67' to 5.67'

Sta. 14+65.03 to Sta. 17+14
5.67'



Crown Transition:
Sta. 20+05 to Sta. 21+30
5.5' Lt. to 5.5' Rt.



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PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 1 of 9 Sheets

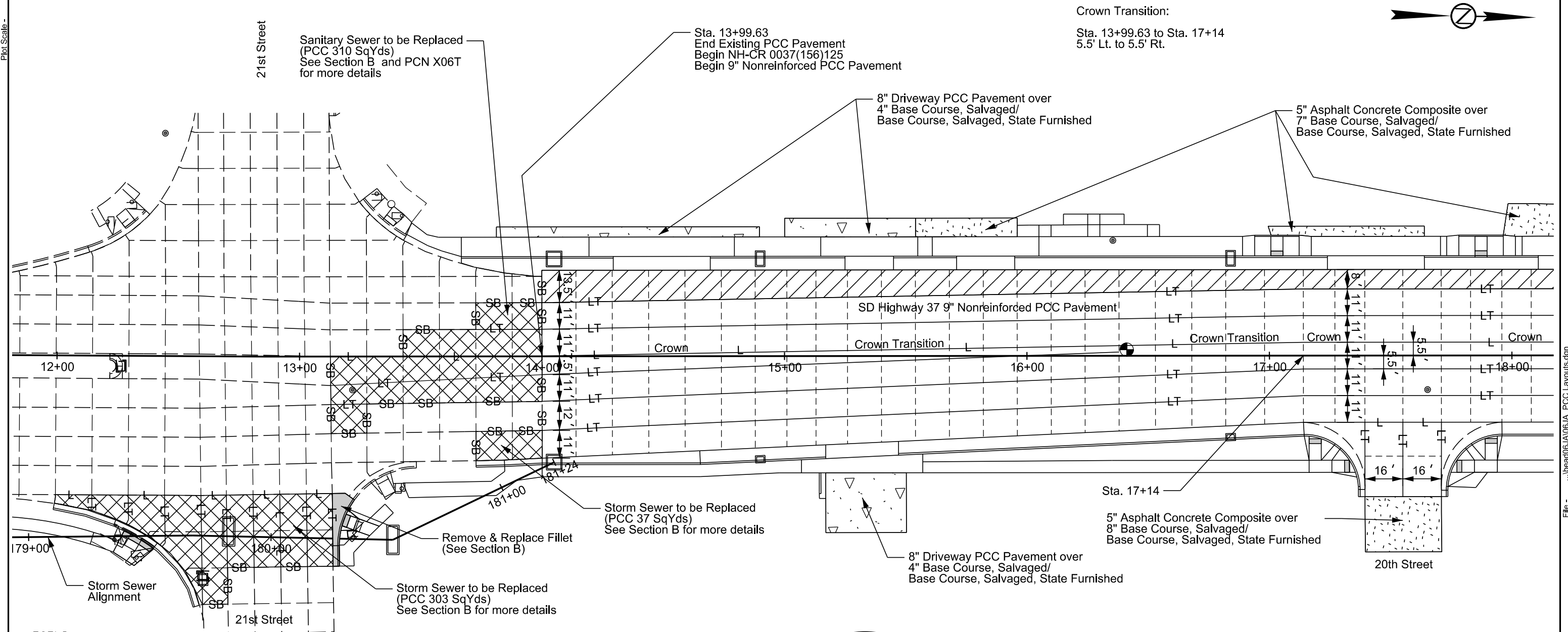
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Note:

Everything south of station 14+00 is existing
Underlying Plans PCN 0271



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) 

 Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.



PCC Remove & Replace Areas

—DETAIL A

—DETAIL B

- ⊙ Existing Sanitary Manhole
- ⊗ Water Valve
- Fire Hydrant
- Curb Stop
- ⊗ W Water Meter

 Drop Inlet Drainage Outlet

⊕ Sanitary Manhole

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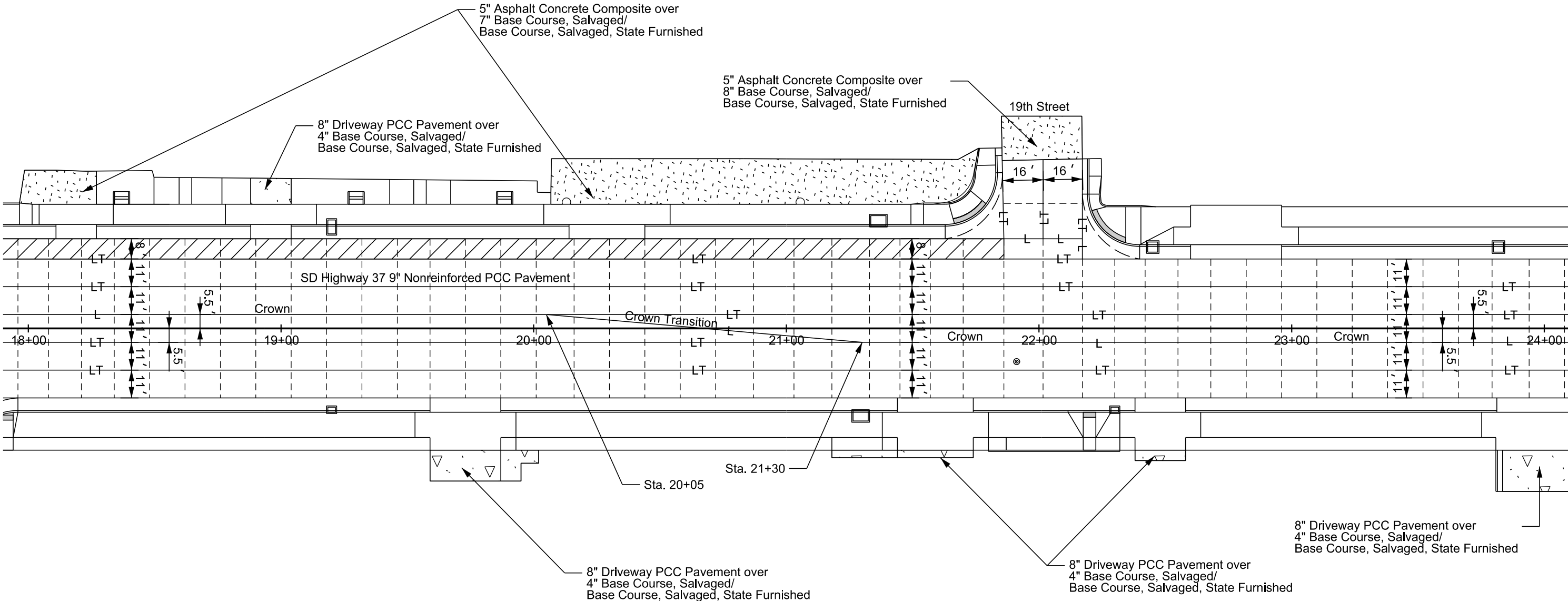
PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
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Plot Scale - 1:40

Plotted From - TRPR13462

PCC PAVEMENT JOINT LAYOUT

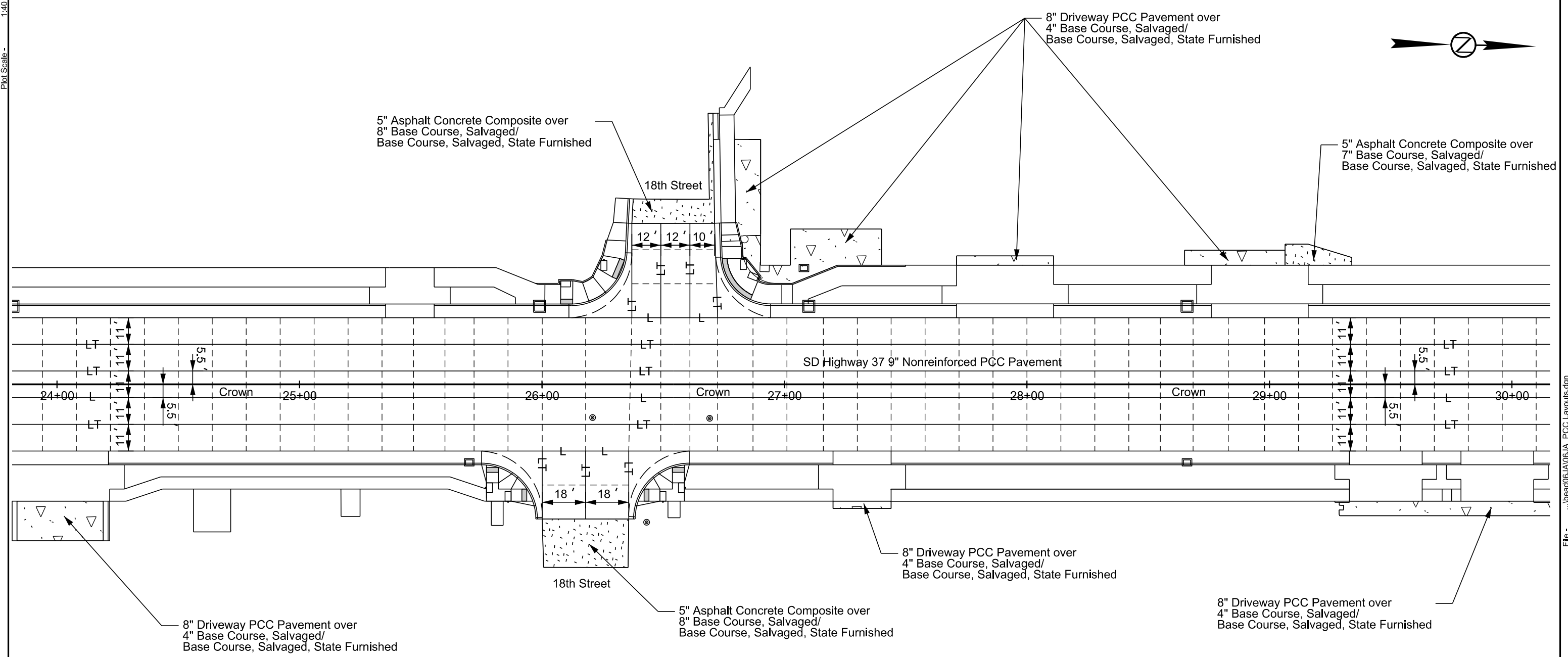
Scale 1 Inch = 40 Feet
Sheet 3 of 9 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F11	F24

Plotting Date: 09/11/2026

Revised: 09/11/2026 RTS

Plot Scale - 1:40

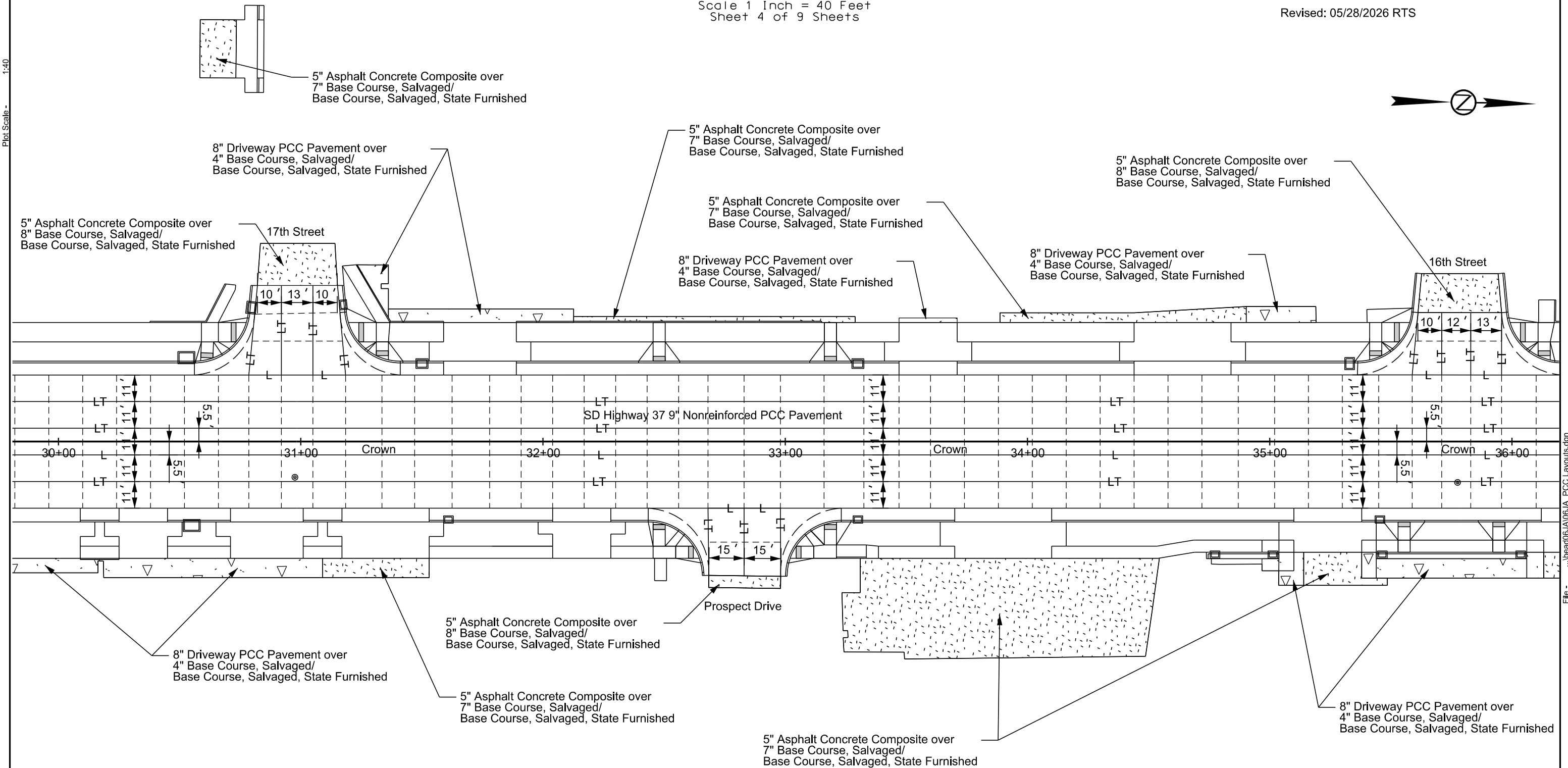


Plotted From - TRPR13462

File - ...bead06\A\06\A_PCC Layouts.dgn

Plot Scale - 1:40

Plotted From - TRPR13462

Plotting Date: 09/11/2026

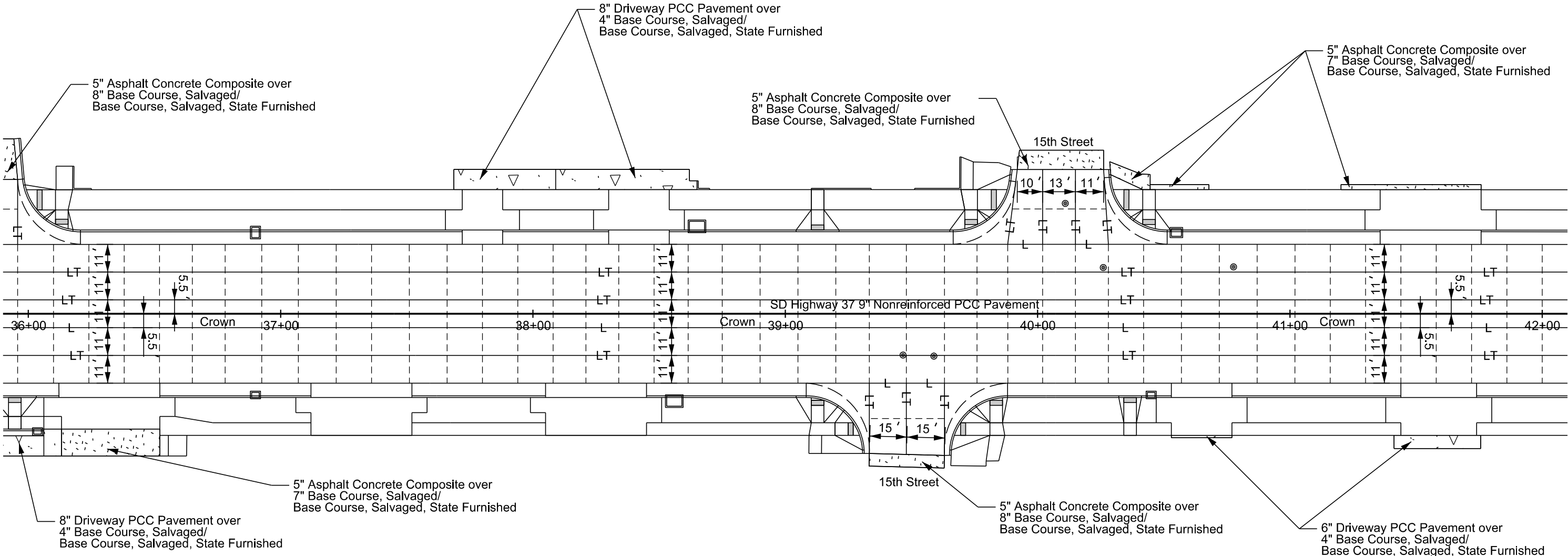
PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 5 of 9 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F13	F24

Plotting Date: 09/11/2026

Revised: 05/28/2026 RTS



File - ...\\bead06JA\\06JA_PCC Layouts.dgn

Plot Scale - 1:40

TRPR13462

Plotted From -

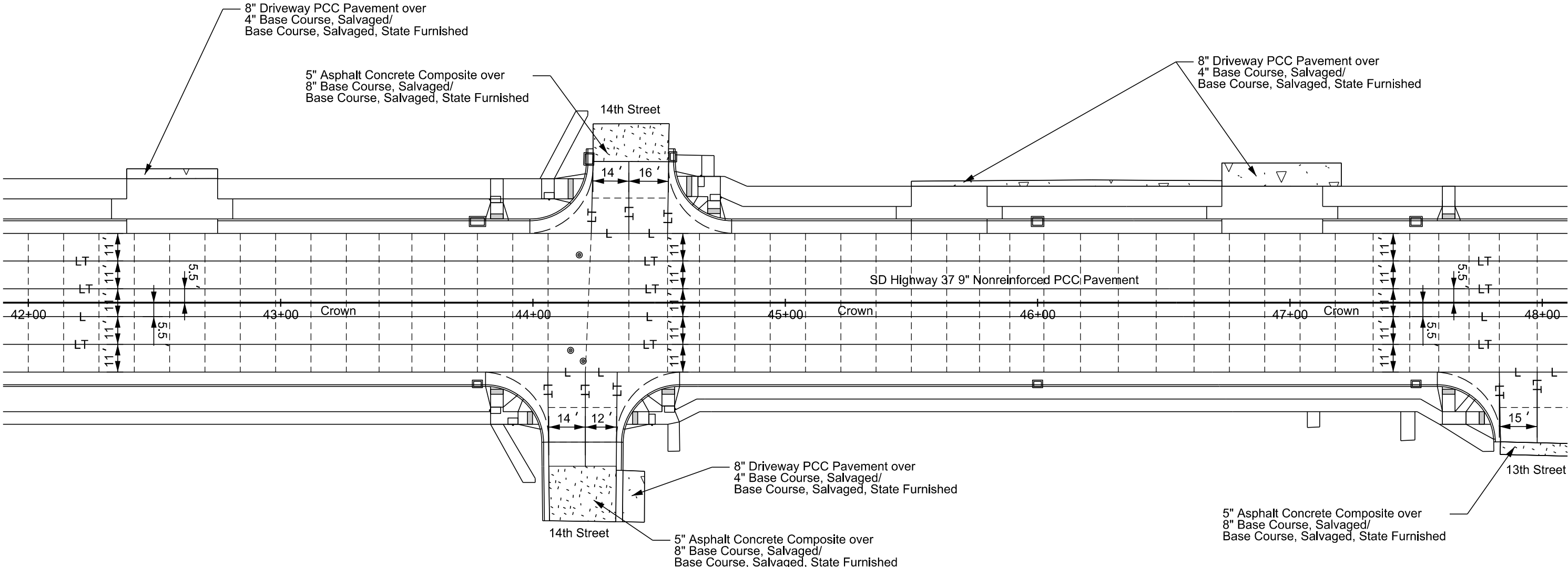
PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 6 of 9 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F14	F24

Plotting Date: 09/11/2026

Revised: 05/28/2026 RTS



File - ...\\bead06JA\\06JA_PCC Layouts.dgn

Plot Scale - 1:40

Plotted From - TRPR13462

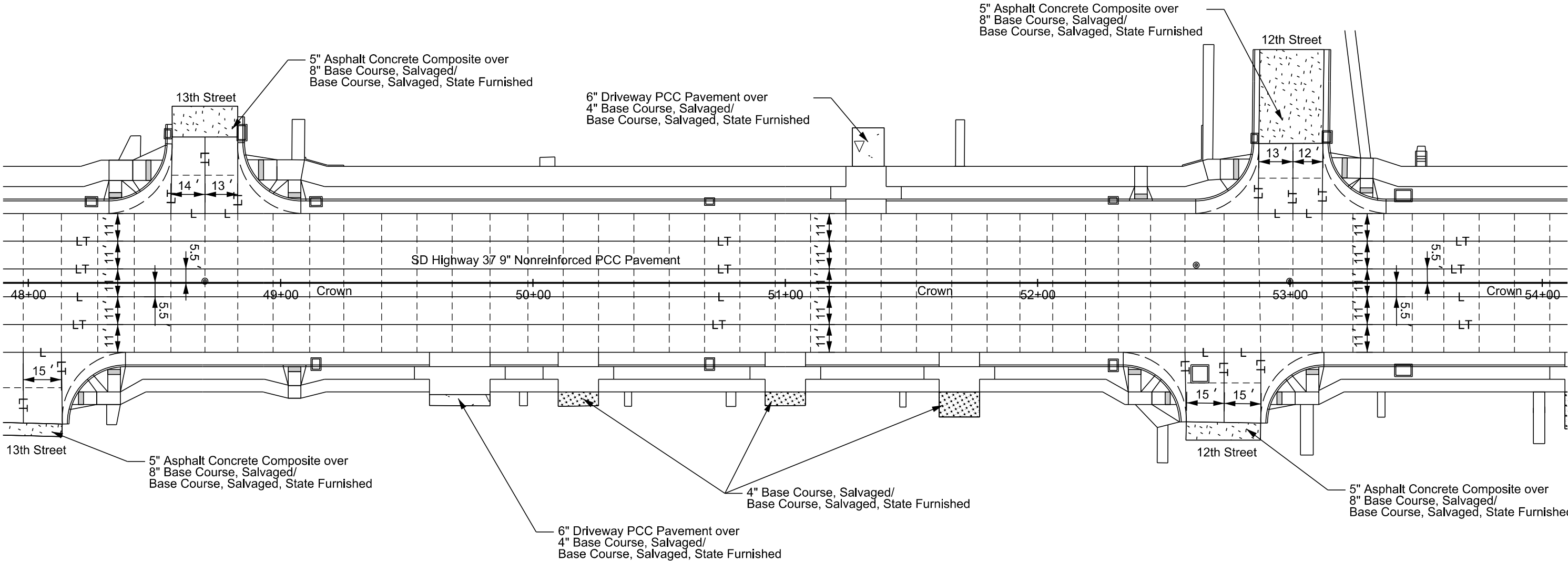
PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 7 of 9 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F15	F24

Plotting Date: 09/11/2026

Revised: 05/28/2026 RTS



File - ...\\bead06JA\\06JA_PCC Layouts.dgn

Plot Scale - 1:40

Plotted From - TRPR13462

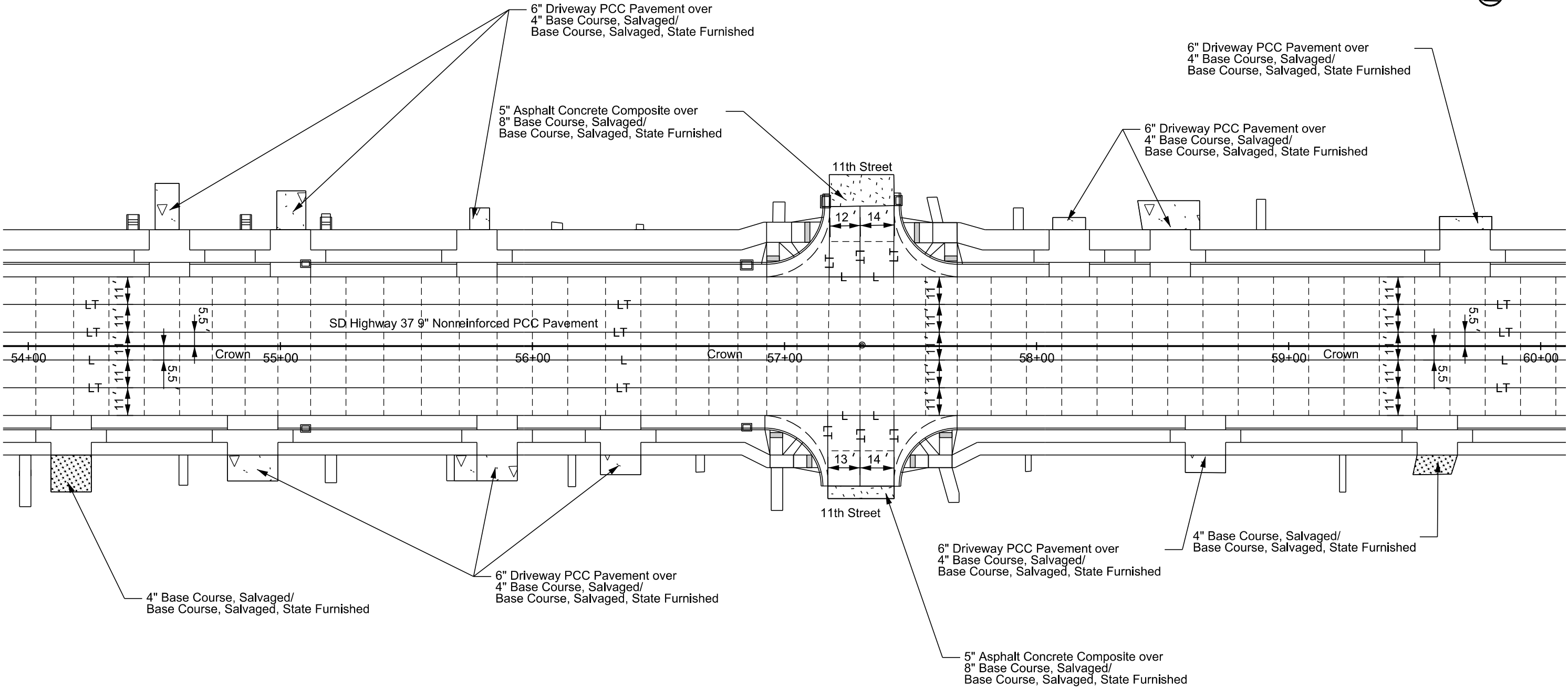
PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 8 of 9 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F16	F24

Plotting Date: 09/11/2026

Revised: 05/28/2026 RTS



Plot Scale - 1:40

Plotted From - TRPR13462

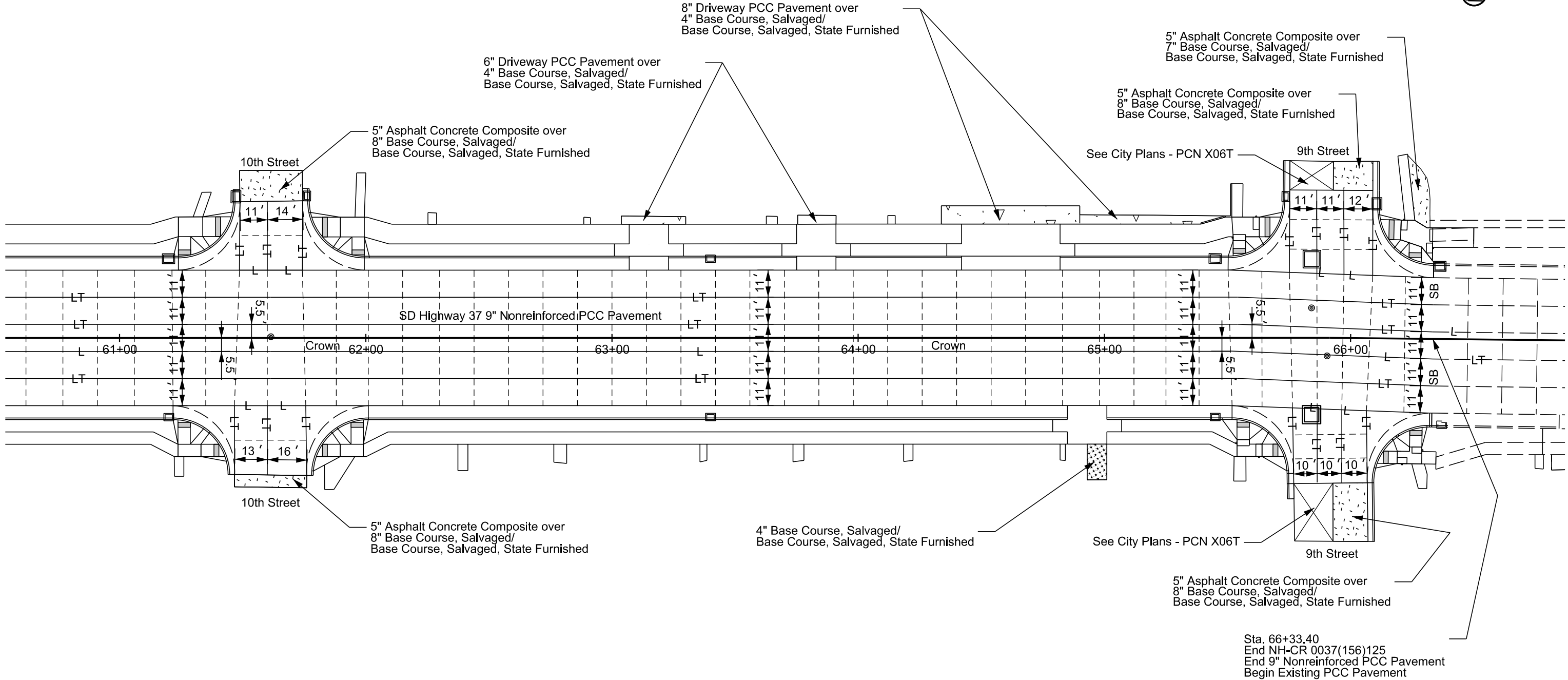
PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 9 of 9 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F17	F24

Plotting Date: 09/11/2026

Revised: 05/28/2026 RTS



Sta. 66+33.40
End NH-CR 0037(156)125
End 9" Nonreinforced PCC Pavement
Begin Existing PCC Pavement

Note:
"L" Joint ends at Sta. 66+33.40, 5.5' Rt.
Existing "L" Joint begins at Sta. 66+33.40, 2.85' Lt.

Plot Scale -
1:40

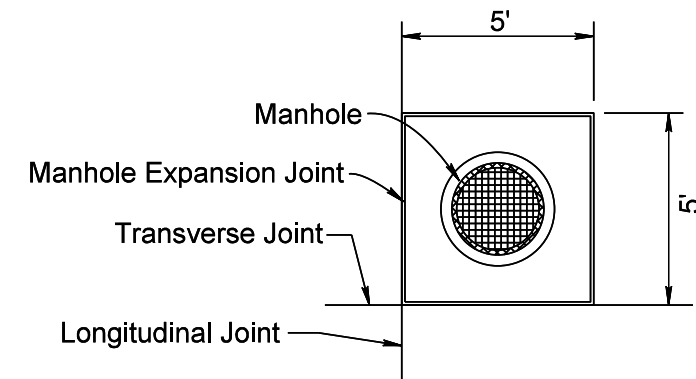
Plotted From -
TRPR13462

File - ...bead06\A\06\A_PCC Layouts.dgn

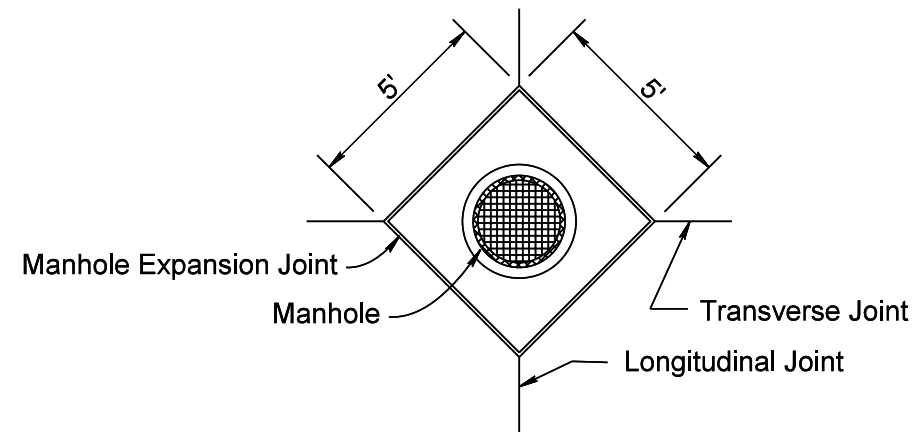
TYPICAL MANHOLE BOX-OUT DETAILS FOR PCC PAVEMENT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F18	F24
Plotting Date: 09/11/2026			

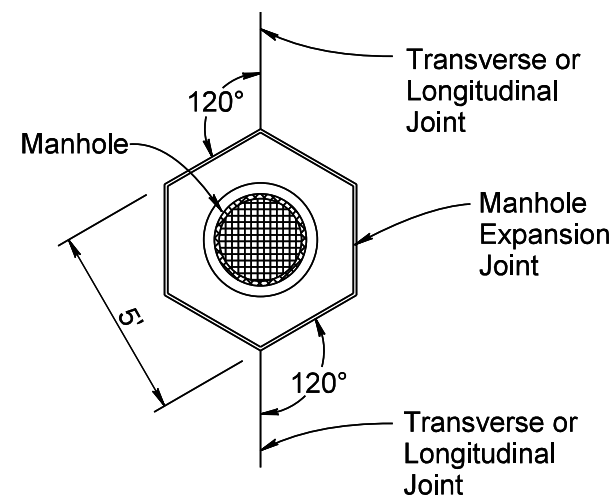
BOX-OUT DETAIL IN PCC PAVEMENT



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

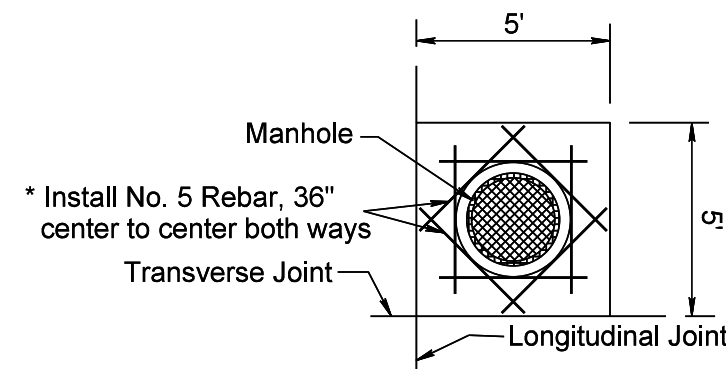


Where the utility access is intersected by the longitudinal and transverse joints

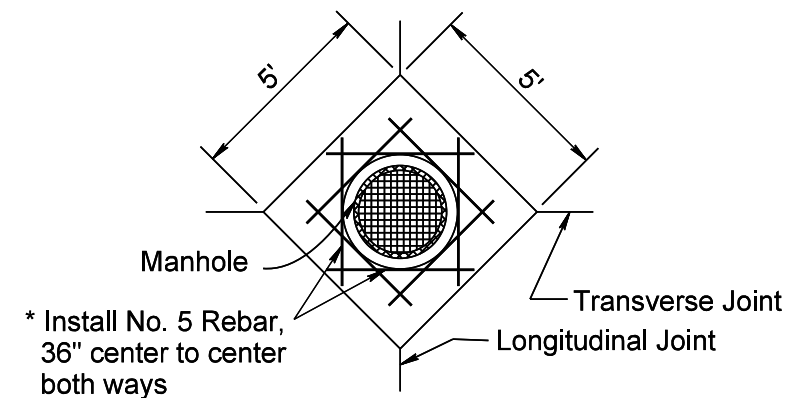


Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

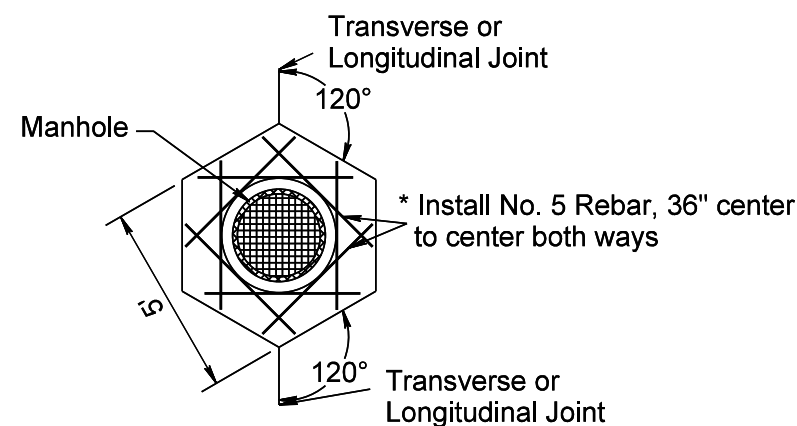
REBAR LAYOUTS IN PCC PAVEMENT WITH BOX-OUTS



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

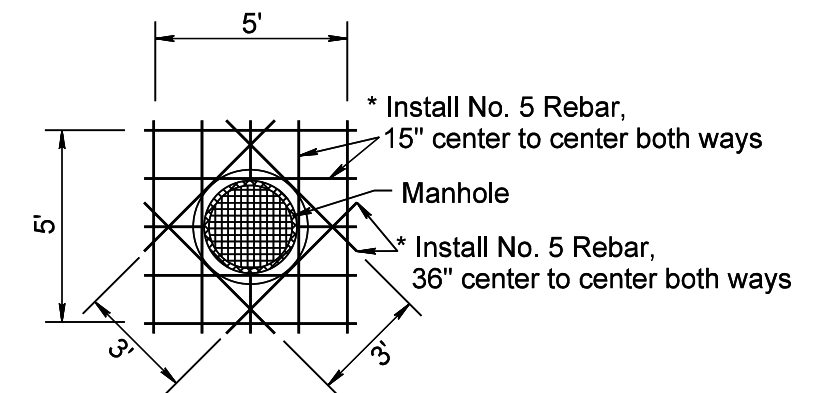


Where the utility access is intersected by the longitudinal and transverse joints



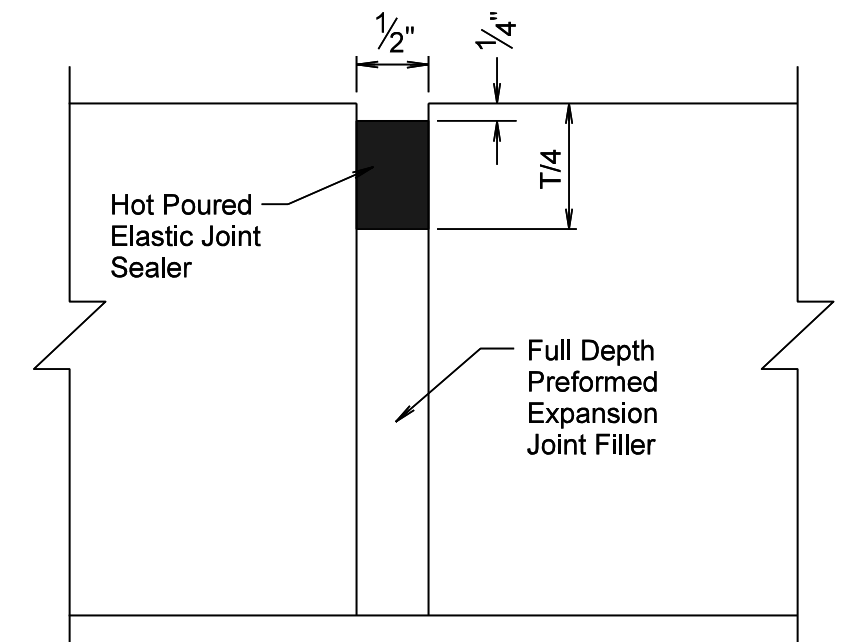
Where no Longitudinal or Transverse joints are present or at Longitudinal or Transverse joint.

REBAR LAYOUT IN PCC PAVEMENT WITHOUT BOX-OUT

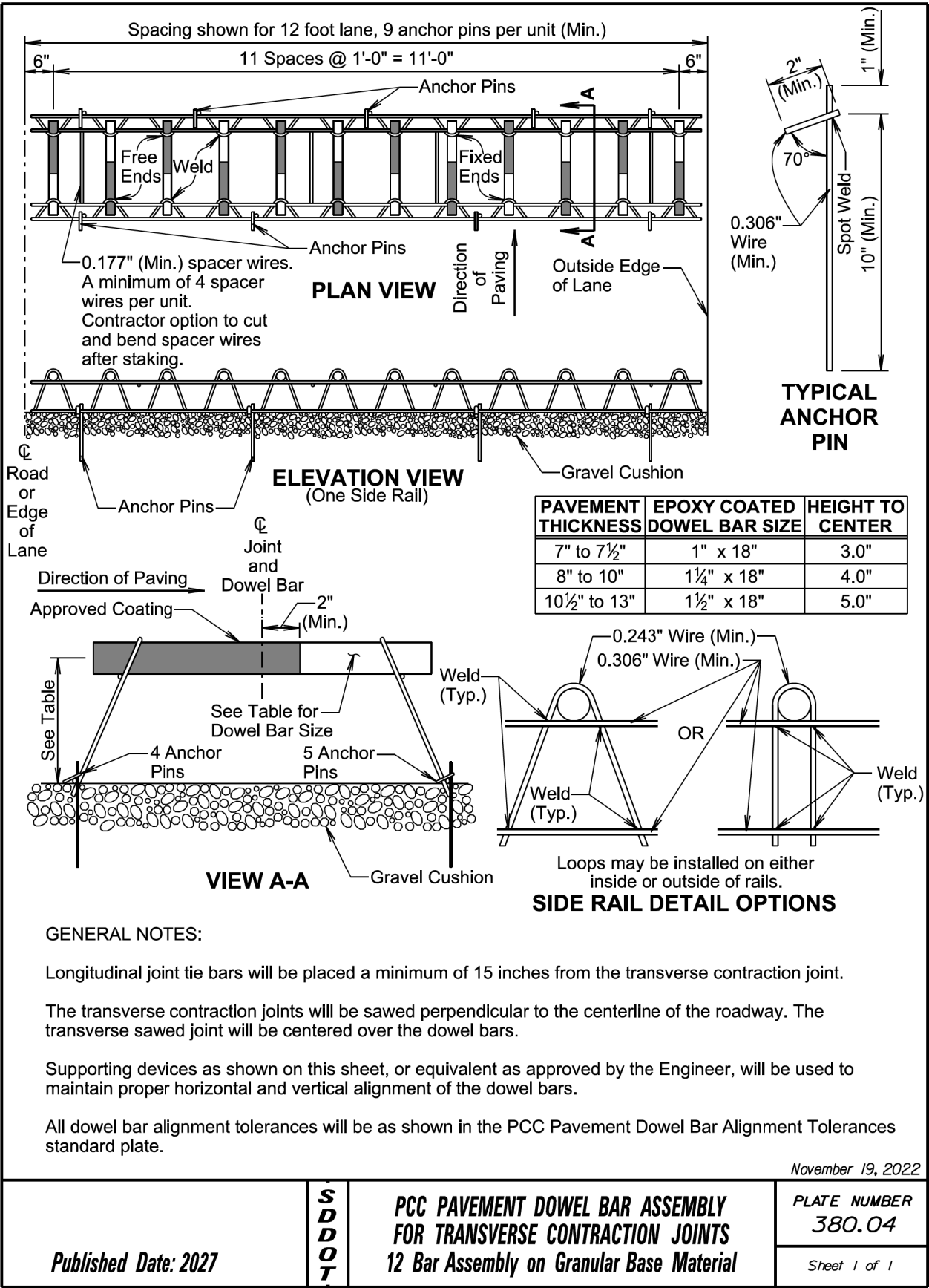
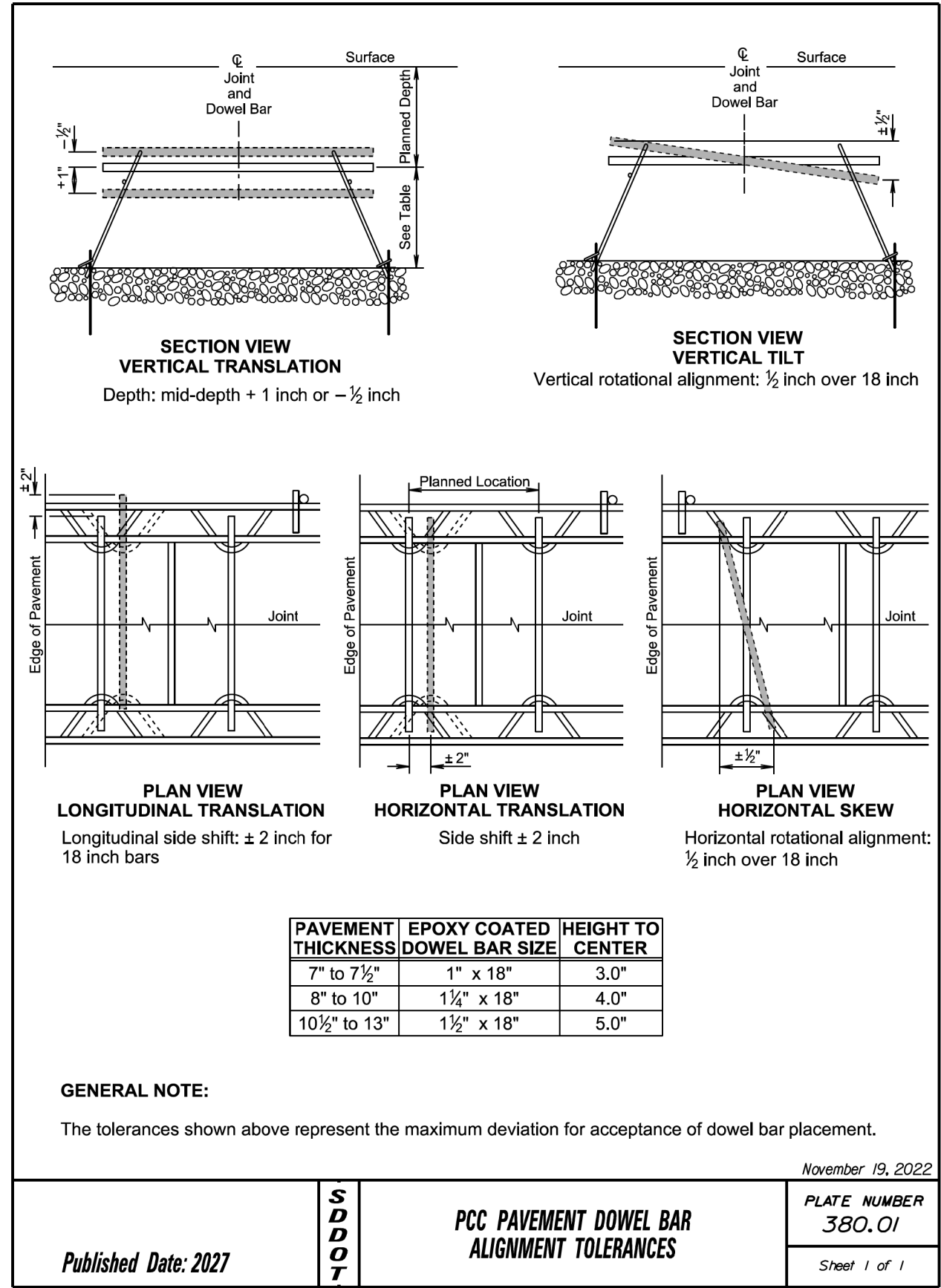


Note: The rebar shall not cross any joint in the concrete pavement. If manhole is next to a joint in the concrete pavement the Engineer shall approve a revised layout of the rebar.

MANHOLE EXPANSION JOINT DETAIL



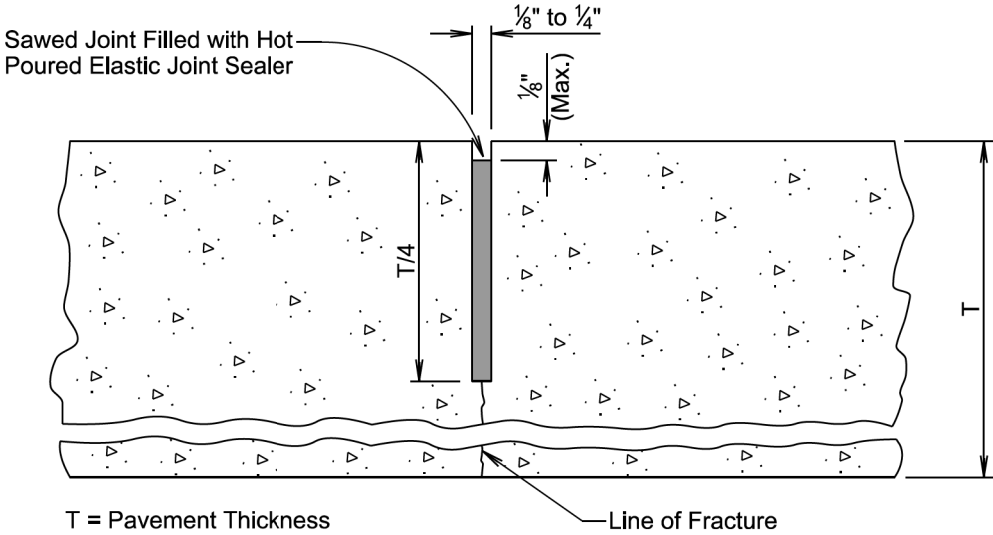
* Rebar will be placed at the midpoint depth of the PCC Pavement. Cost for furnishing & installing rebar and constructing box-outs shall be incidental to the contract unit price per square yard for 8.5" Nonreinforced PCC Pavement.



Plotted From: - TRPR13462 Plot Scale - 1:200

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F20	F24

Plotting Date: 09/11/2026



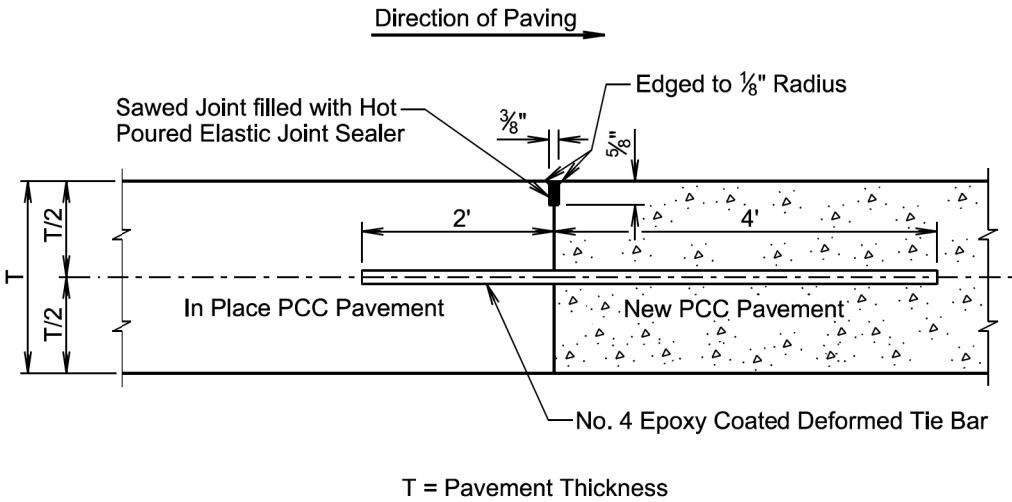
GENERAL NOTES:

If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum 1/4 of the thickness of the pavement.

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

November 19, 2022

<i>Published Date: 2027</i>	S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.12
			Sheet 1 of 1



GENERAL NOTES:

No. 4 epoxy coated deformed tie bars will be spaced 12 inches center to center and will 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 will be 5 feet.

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

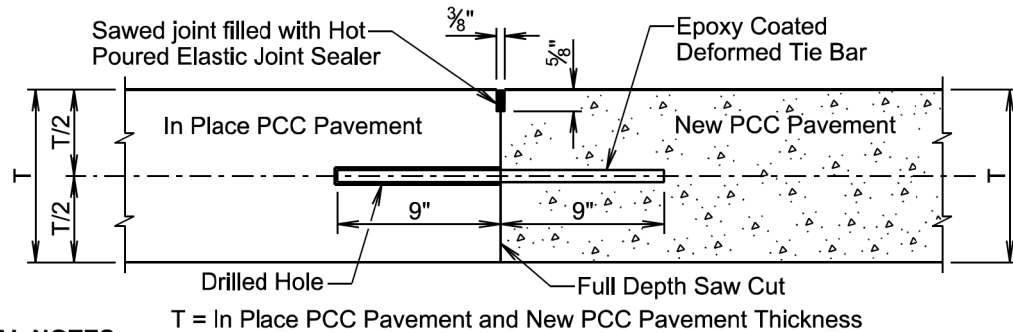
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

March 31, 2024

<i>Published Date: 2027</i>	S D D O T	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.14
			Sheet 1 of 1

File - ...bead06\A\StdPlateSectionF.dgn

DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



GENERAL NOTES:

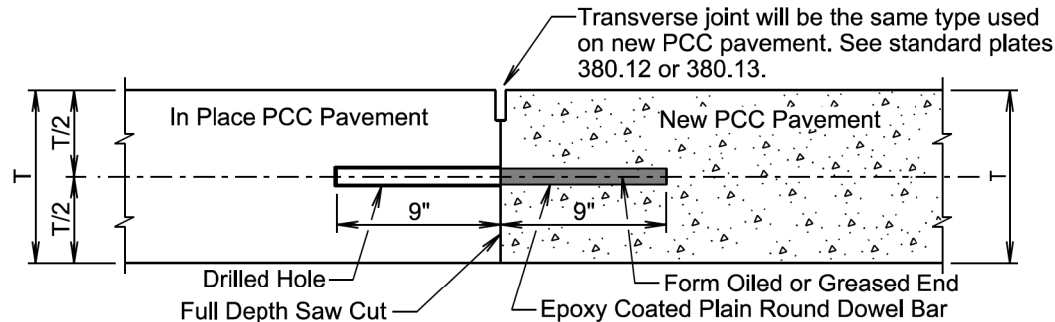
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

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

The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

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

DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



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 will be used.

The plain round dowel bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

The epoxy coated plain round dowel bar size, number, and spacing will be the same as detailed on the corresponding dowel bar assembly standard plate (380.04, 380.05, 380.06, or 380.07). The epoxy coated plain round dowel bars will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

January 22, 2023

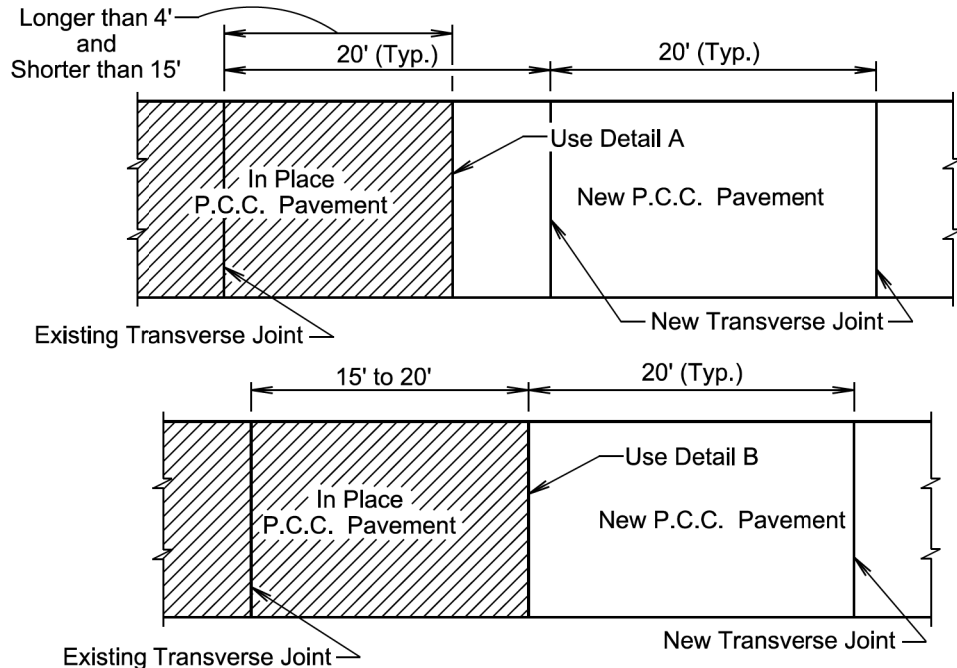
Published Date: 2027

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**PCC PAVEMENT TRANSVERSE CONSTRUCTION
JOINTS WITH TIE BARS OR DOWEL BARS**

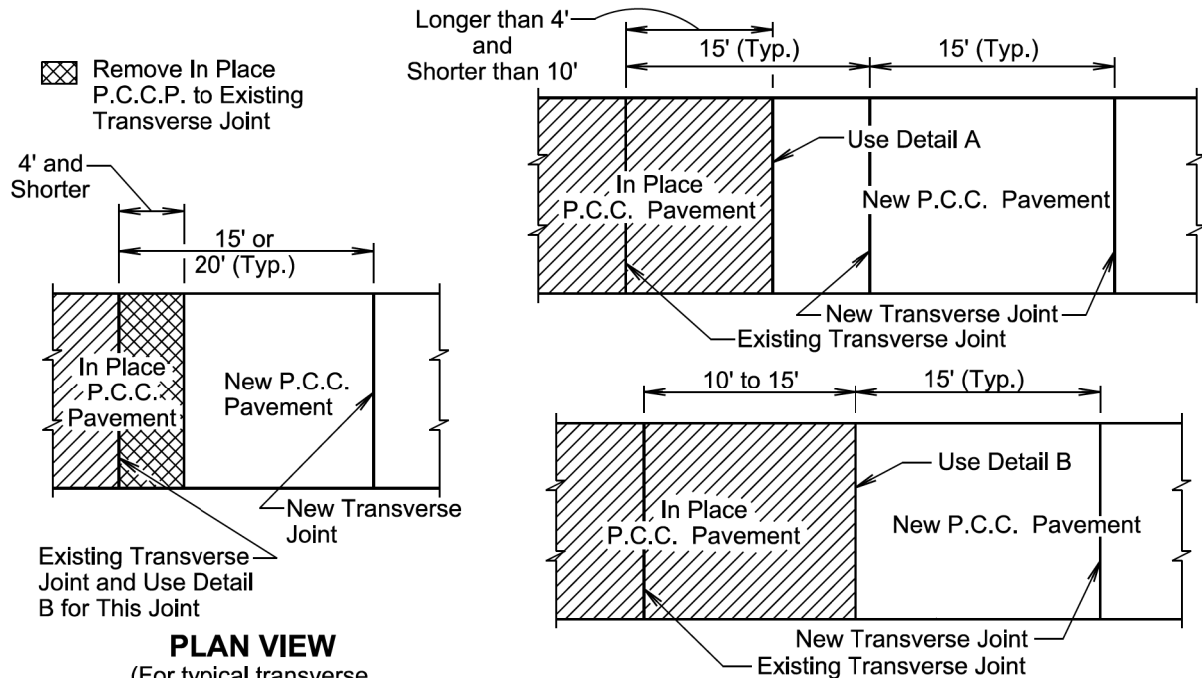
PLATE NUMBER
380.15

Sheet 1 of 2



PLAN VIEW

(For typical transverse joint spacing of 20' on the current project)



PLAN VIEW

(For typical transverse joint spacing of 15' or 20' on the current project)

PLAN VIEW

(For typical transverse joint spacing of 15' on the current project)

January 22, 2023

Published Date: 2027

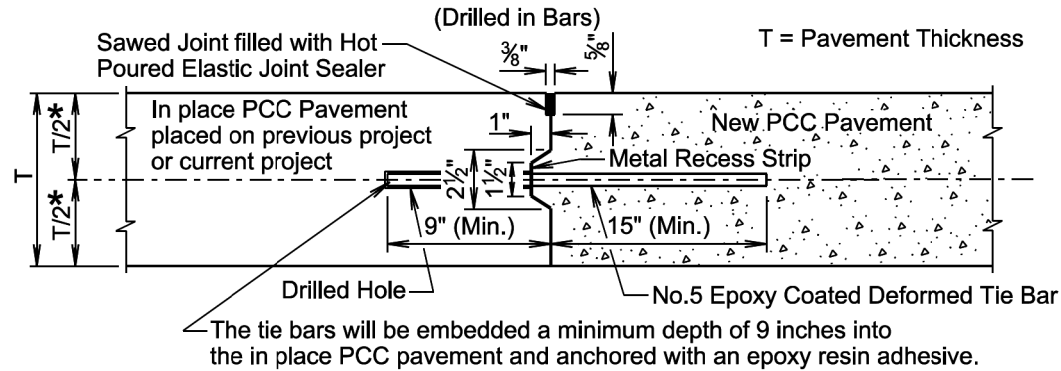
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**PCC PAVEMENT TRANSVERSE CONSTRUCTION
JOINTS WITH TIE BARS OR DOWEL BARS**

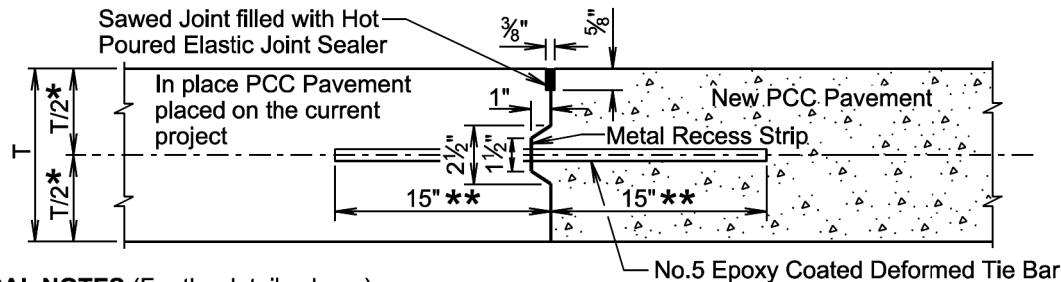
PLATE NUMBER
380.15

Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Inserted or Formed in Bars)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars will 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 will be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel. The uniformly spaced tie bars will be spaced a maximum of 48 inches center to center for a female keyway and will be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing will 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 will be used. When concrete pavement is slip formed, a metal recess strip is not required.

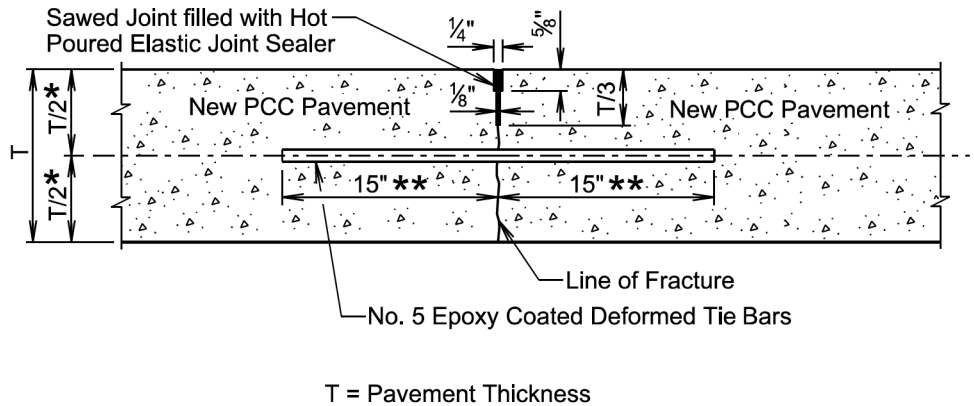
* The vertical placement tolerance for any part of the tie bar will be $\pm T/6$.

** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2027	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS
(Poured Monolithically)



GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars will 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 will be placed a minimum of 15 inches from the transverse contraction joints.

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

The first saw cut to control cracking will 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.

* The vertical placement tolerance for any part of the tie bar will be $\pm T/6$.

** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2027	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 2 of 2

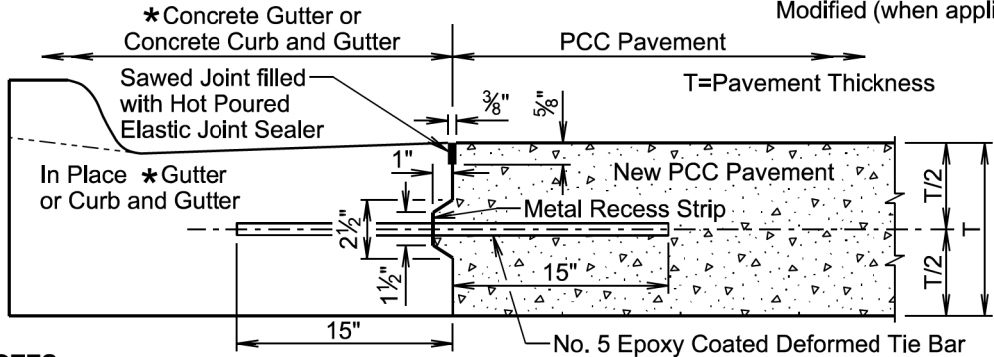
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F23	F24

Plotting Date: 09/11/2026

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Individually Formed)

* Standard (shown) or
Modified (when applicable)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center. The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints. The keyway shown above is a female keyway.

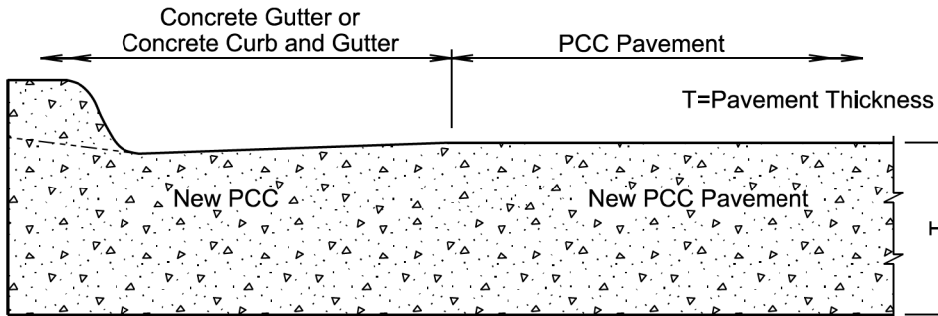
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter will be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter will be 1 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 will be at least 1/4 the thickness of the concrete gutter or concrete curb and gutter.

Standard curb and gutter may not be placed monolithically with PCC pavement if the mainline lane width is greater than 12 feet.

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 (Standard Concrete Curb and Gutter)



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 will be eliminated.

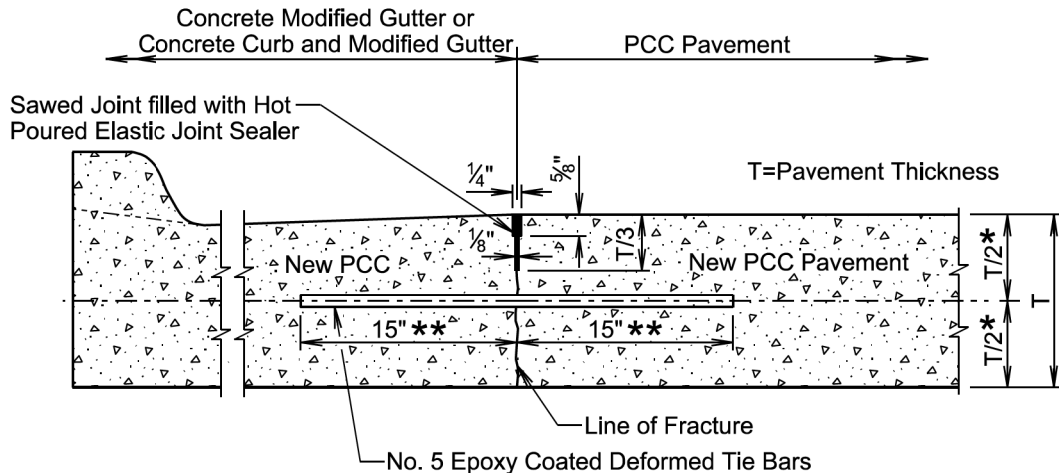
The gutter or curb and gutter will be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter will be sawed and sealed same as the transverse contraction joints in the PCC pavement.

The slope of the gutter will 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 will be constructed at the same slope as the mainline concrete pavement.

March 31, 2024

Published Date: 2027	S D D O T	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.21
			Sheet 1 of 2

POURED MONOLITHICALLY (Concrete Curb and Modified Gutter)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center.

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

The mainline curb and modified gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 14 feet.

The first saw cut to control cracking will 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.

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

The slope of the gutter will 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 will be constructed at the same slope as the mainline concrete pavement.

* The vertical placement tolerance for any part of the tie bar will be $\pm T/6$.

** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

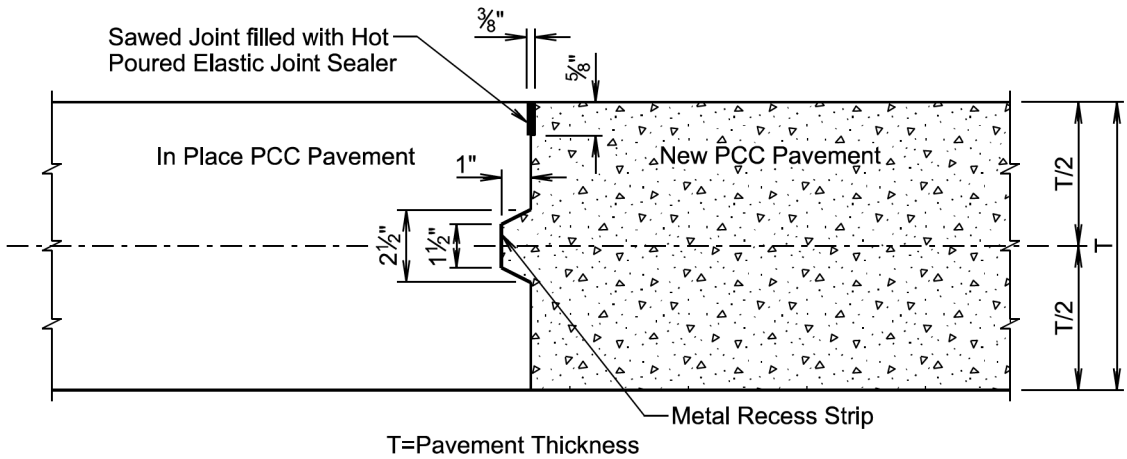
March 31, 2024

Published Date: 2027	S D D O T	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.21
			Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR-EM 0037(156)125	F24	F24

Plotting Date: 09/11/2026

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS

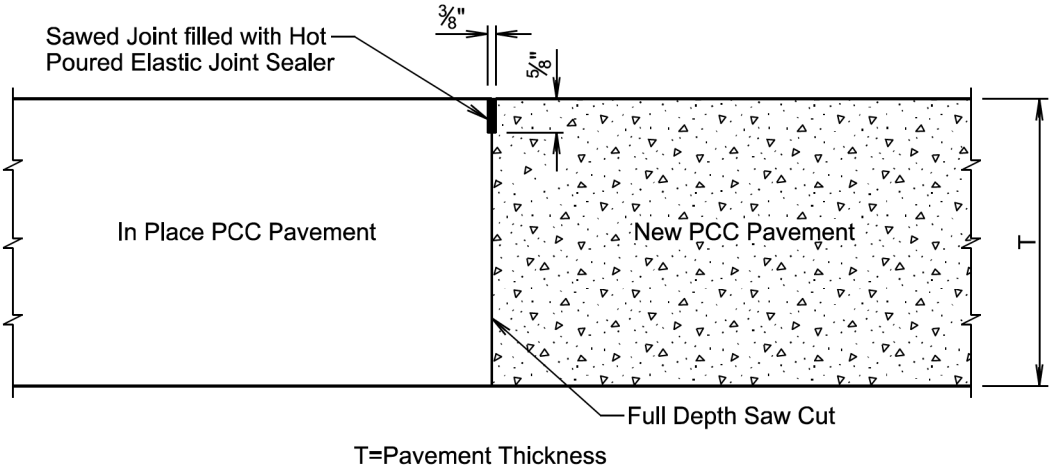


GENERAL NOTES:

When concrete pavement is formed and a keyway is provided, a metal recess strip will 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



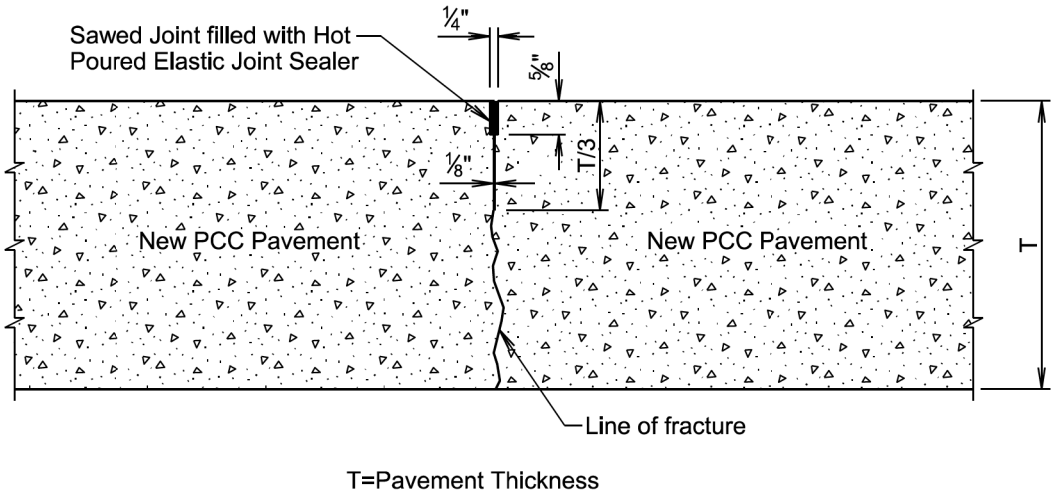
GENERAL NOTE:

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

November 19, 2022

Published Date: 2027	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.22
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



GENERAL NOTE:

The first saw cut to control cracking will 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.

November 19, 2022

Published Date: 2027	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.22
			Sheet 2 of 2