

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 2255(09)	SHEET F1	TOTAL SHEETS F21
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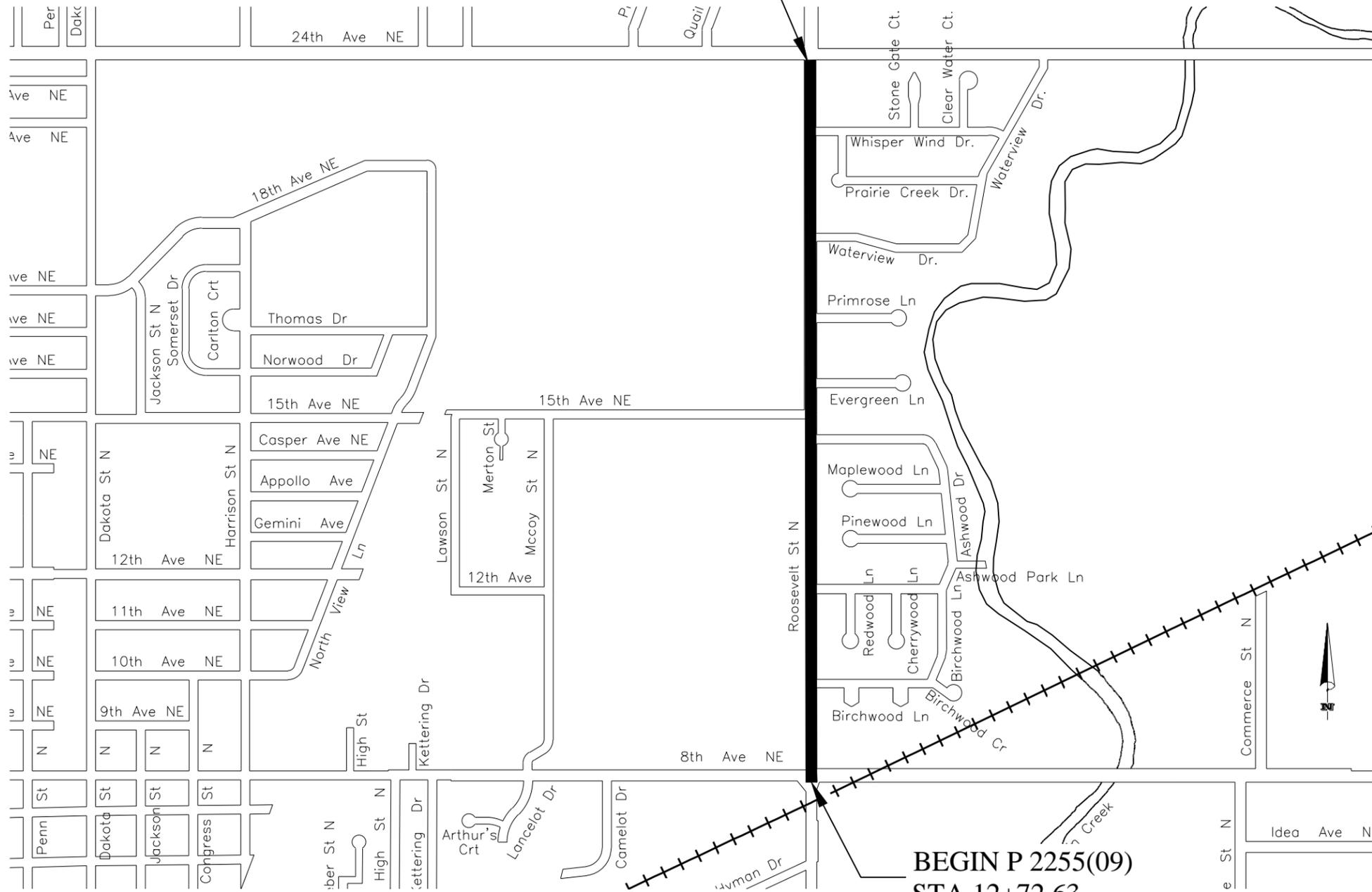
SECTION F: SURFACING PLANS

INDEX OF SHEETS

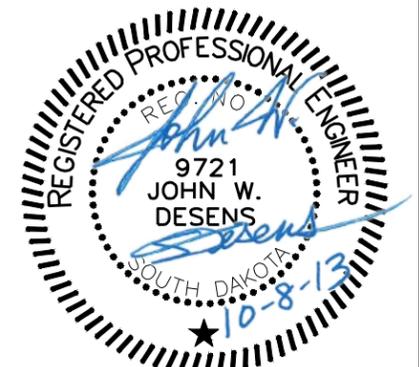
- F1 GENERAL LAYOUT W/INDEX
- F2-F4 ESTIMATE OF QUANTITIES
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- F16-F21 STANDARD PLATES

END P 2255(09)
STA 64+91.34

BEGIN P 2255(09)
STA 12+72.63



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PLANS BY: CLARK ENGINEERING, ABERDEEN, SD

Section F – Estimate of Quantities

Revised Feb. 12, 2014 by JWD

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	195.3	MGal
260E2010	Gravel Cushion	5234.3	Ton
260E2030	Gravel Cushion, Salvaged	11,480.3	Ton
260E3010	Gravel Surfacing	9.4	Ton
260E3030	Gravel Surfacing, Salvaged	39.2	Ton
270E0110	Salvage and Stockpile Granular Material	39.2	Ton
320E1200	Asphalt Concrete Composite	99.0	Ton
380E0050	8" Nonreinforced PCC Pavement	24,560.8	SqYd
380E3540	8" PCC Approach Pavement	512.6	SqYd
380E6000	Dowel Bar	16,258	Each
380E6110	Insert Steel Bar in PCC Pavement	49	Each
380E9000	Temporary Earth Crossing	8	Each
831E0200	Woven Geotextile Separator	29,904	SqYd

8" NONREINFORCED PCC PAVEMENT

The fine aggregate may require screening as determined by the Engineer.

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

The concrete used in the PCC Pavement shall conform to section 380, shall contain a minimum of 600 lbs of cement and fly ash at 20%. The concrete shall contain at least 55% coarse aggregate. The use of a water reducer at manufacturers recommendations will be required. The concrete shall obtain a minimum of 4,000 psi compressive strength at 28 days. The contractor is responsible for the mix design used. The contractor shall submit a mix design for approval at least 2 weeks prior to use.

In lieu of an automatic subgrader operating from a preset line, a motor grader or other suitable equipment may be used to bring 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.

Pavement blockouts are not anticipated during the construction of this project.

The surface of the mainline paving shall be given a final finish with a carpet drag conforming to Section 380.3 of the Standard Specifications.

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, except where shown otherwise. In locations where transverse joints are skewed, dowel bars shall remain parallel to centerline. 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 shall be removed at the Contractor's expense. Any method of placement that cannot produce these requirements shall not be allowed to continue.

8" NONREINFORCED PCC PAVEMENT (Continued)

In addition to traditional field inspection of reinforcement, a Ground Penetrating Radar (GPR) unit may be used to verify reinforcement locations in the hardened concrete. The GPR may be used anytime prior to the Acceptance of Field Work being issued. All costs related to corrective measures, including but not limited to concrete removal or cutting of reinforcement, price deducts, and delays to the project schedule shall be the responsibility of the Contractor.

Automatic dowel bar inserters will not be allowed on this project.

Curing compound shall be linseed oil based.

TIE BARS AND LONGITUDINAL JOINTS

The use of automatic tie bar inserters will only be allowed on the vertical edge of longitudinal construction joints. The use of automatic tie bar inserters will not be allowed on sawed longitudinal joints.

Tie bars shall be held in the specified position parallel to the slab surface and perpendicular to the centerline by a supporting device. Tie bars or tie bar baskets shall be securely staked to the roadbed and shall hold the bar at the correct spacing, alignment, and elevation.

Tie bars will not require supports if inserted into the side of the pavement during slip form paving of the longitudinal construction joint operation. Failure to acquire the correct tie bar locations or position in the construction joint shall require the bars to be corrected and a change made to the operation which may include drilling and epoxy bars or other methods as approved by the engineer.

The final position of each tie bar shall be within the following tolerances:

-- Vertical Placement: +/- T/6 for any part of the tie bar (T = slab thickness)

-- Transverse Placement (side shift): +/- 3 inches when measured perpendicular to the longitudinal joint line

If the tie bar does not meet the requirements and tolerances specified, corrective action shall be performed at the Contractor's expense to the satisfaction of the engineer.

ALKALI SILICA REACTIVITY -

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

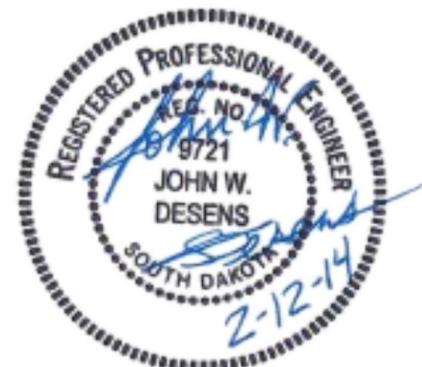
Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
B&B ready Mix	Flandreau, SD	0.113
Birdsall S&G	Blunt, SD	0.223
Birdsall S&G	Creston, SD	0.170
Birdsall S&G	Oral, SD	0.136
Birdsall S&G	Wasta, SD	0.177
Bitterman	Delmont, SD	0.314*
Concrete Materials	Corson, SD	0.158
Emme Sand & Gravel	Oneil, Nebraska	0.217
Fischer S&G	Fort Yates, ND	0.264*
Fischer S&G	Rapid City, SD	0.092
Fischer S&G	Spearfish, SD	0.053
Fischer S&G	Wasta	0.152
Fuchs	Pickstown, SD	0.275*
Henrick & Son	Bigstone, SD	0.140
Higman	Akron, IA	0.194
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.123
L.G. Everist	Hawarden, IA	0.179
L.G. Everist	Summit	0.163
McLaughlin	Watertown, SD	0.124
Mission Hills	Yankton, SD	0.261*
Morris – Richards pit	Onida	0.214
Morris – Schmitgen	Onida	0.158
Myrl & Roys Paving-Nelson Pit	Sioux Falls	0.158
Northern Concrete Agg.	Rauville, SD	0.105
Northern Concrete Agg.	Luverne, MN	0.124
Opperman - Gunvordahl Pit	Burke, SD	0.337*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.329*
Opperman – Randall Pit	Pickstown, SD	0.211
Sisseton Ready Mix	Sisseton, SD	0.106
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Wagner, SD	0.241

* 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.



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ALKALI SILICA REACTIVITY -(Continued)

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.

PCC PAVEMENT SMOOTHNESS

PCC Pavement at the following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with the SD DOT Special Provision for PCC Pavement Smoothness:

- Sta. 12+70 to Sta. 64+91 along Centerline
- Sta. 12+70 to Sta. 64+91 along a line 13' Left of Centerline
- Sta. 12+70 to Sta. 64+91 along a line 13' Right of Centerline.

GRAVEL CUSHION

Gravel Cushion shall be furnished by the Contractor and shall conform to the requirements of the Standard Specifications, Section 260.3 B and Section 882.

GRAVEL CUSHION, SALVAGED

Gravel Cushion, Salvaged, shall be obtained from the existing granular base and salvaged asphalt concrete stockpile site(s).

The Gravel Cushion, Salvaged shall be obtained from the stockpile site(s) provided by the Contractor from the existing granular base and existing asphalt concrete salvaged on this project and may be used without further testing.

There is an estimated 11,480 tons of salvaged material available.

Gravel Cushion, Salvaged taken from stockpile sites shall be run over a 1 1/2 inch screen prior to placement.

Gravel Cushion, Salvaged shall be compacted according to the requirements of Section 260.3.B of the Standard Specifications.

Gravel Cushion, Salvaged that remains after the final surfacing has been brought to the typical section shall be either disposed of by the Contractor at a site approved by the Engineer or used as fill material for the project. The Contractor will be required to remove the excess material to the satisfaction of the Engineer at no additional cost to the City.

All other requirements for Gravel Cushion, Salvaged shall apply.

Material shall be weighed into and out of the stockpile site, no additional payment will be made for this. Payment will be for the actual weight of material that is placed as Gravel Cushion, Salvaged. No payment will be made for the portion of this material that is disposed of or placed as fill material.

GRAVEL SURFACING

Gravel Surfacing shall be furnished by the Contractor and shall conform to the requirements of the Standard Specifications, Section 260.3 C and Section 882.

GRAVEL SURFACING, SALVAGED

The Gravel Surfacing, Salvaged shall be obtained from the stockpile sites provided by the Contractor from the existing granular surfacing on this project and may be used without further testing.

Gravel Surfacing, Salvaged shall be compacted according to the requirements of Section 260.3.C of the Standard Specifications.

Gravel Surfacing, Salvaged that remains after the final surfacing has been brought to the finished grade shall be either disposed of by the Contractor at a site approved by the Engineer or used as fill material for the project. The Contractor will be required to remove the excess material to the satisfaction of the Engineer at no additional cost to the City.

All other requirements for Gravel Surfacing, Salvaged shall apply.

Material shall be weighed into and out of the stockpile sites, no additional payment will be made for this. Payment will be for the actual weight of material that is placed as Gravel Cushion, Salvaged. No payment will be made for the portion of this material that is disposed of or placed as fill material.

ASPHALT CONCRETE COMPOSITE

The Contractor shall furnish and install asphalt concrete composite. The mineral aggregate for the asphalt concrete composite shall conform to the Standard Specifications for Class E, Type 1. The asphalt binder used in the mixture shall be PG 64-22 or PG 64-28 Asphalt Binder. All other requirements in the Standard Specifications for Asphalt Concrete Composite shall apply.

SALVAGED MATERIAL

The quantity of salvaged asphalt mix and granular base material may vary from the plans. The Contractor shall use all the salvaged material on this project.

No adjustment in the contract unit price for salvage material or gravel cushion will be made because of a variation in salvaged material quantities.

SAWING IN EXISTING ASPHALT CONCRETE

Where new pavement meets existing asphalt concrete, the Contractor shall saw the asphalt concrete to full depth to a true line with a vertical face. No separate payment will be made for sawing existing asphalt surfacing.

SAWING IN EXISTING CONCRETE

Where new pavement meets existing concrete, the Contractor shall saw the concrete to full depth to a true line with a vertical face. No separate payment will be made for sawing existing concrete surfacing.

STEEL BAR INSTALLATION

The Contractor shall insert the Steel Bars (No. 5 x 24 inch epoxy coated deformed tie bar and 1 1/4 inch x 18 inch epoxy coated plain round dowel bar) 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 shall be cut to the specified length by sawing and shall be free from burring or other deformations. Shearing will not be permitted.

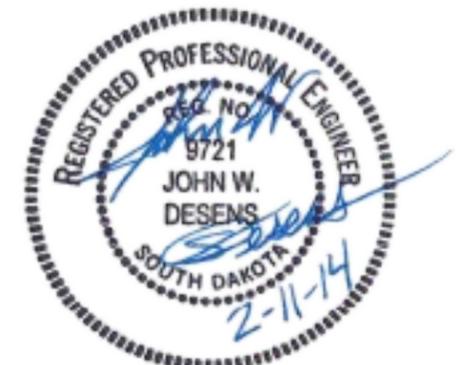
Epoxy resin adhesive shall be of the type intended for horizontal applications, and shall conform to the requirements of ASTM C 881, Type IV, Grade 3 (equivalent to AASHTO M235, Type IV, Grade 3).

The diameter of the drilled holes in the existing concrete pavement for the steel bars shall not be less than 1/8 inch nor more than 3/8 inch greater than the overall diameter of the steel bar. Holes drilled into the existing concrete pavement shall be located at mid-depth of the slab and true and normal. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the Engineer. If an epoxy pump is utilized, it shall be capable of metering the components at the manufacturers designated rate and be equipped with an automatic shut-off. The pump shall shut off when any of the components are not being metered at the designated rate. Fill the drilled holes 1/3 to 1/2 full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Care shall be taken to prevent epoxy from running out of the horizontal holes prior to steel bar insertion. Rotate the steel bar during insertion to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping method will not be allowed.

Cost for the epoxy resin adhesive, steel bars, drilling of holes, applying the adhesive, inserting the steel bars into the drilled holes and all other items incidental to the insertion of the steel bars shall be incidental to the contract unit price per each for INSERT STEEL BAR IN PCC PAVEMENT.

1 1/4 inch 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.



Revised Feb. 11, 2014 by JWD

TABLE OF STEEL BAR INSERTION

Location	No. 5 X 24" Epoxy Coated Deformed Tie Bar (Each)	1-1/4" X 18" Epoxy Coated Plain Round Steel Bar (Each)
64+87, 21.5'L to 64+91, 21.5'L	4 bars	
64+88, 19.9'R to 64+91, 19.9'R	4 bars	
64+91, 21.5'L to 64+91, 19.9'R		41 bars

WOVEN GEOTEXTILE SEPARATOR

The woven geotextile separator shall be placed under the mainline roadway and all intersections in accordance with Section 831.1 of the Standard Specifications.

Measurement for geotextile shall be per square yard of coverage and does not include overlaps. Geotextile shall be overlapped a minimum of one foot on all edges. Geotextile shall be measured to the nearest 0.1 square yard.

RATES OF MATERIALS

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

Gravel Cushion	158.28 tons
Gravel Cushion, Salvaged	158.28 tons
Water for Granular Material	3.74 Mgal

TABLE OF ADDITIONAL QUANTITIES

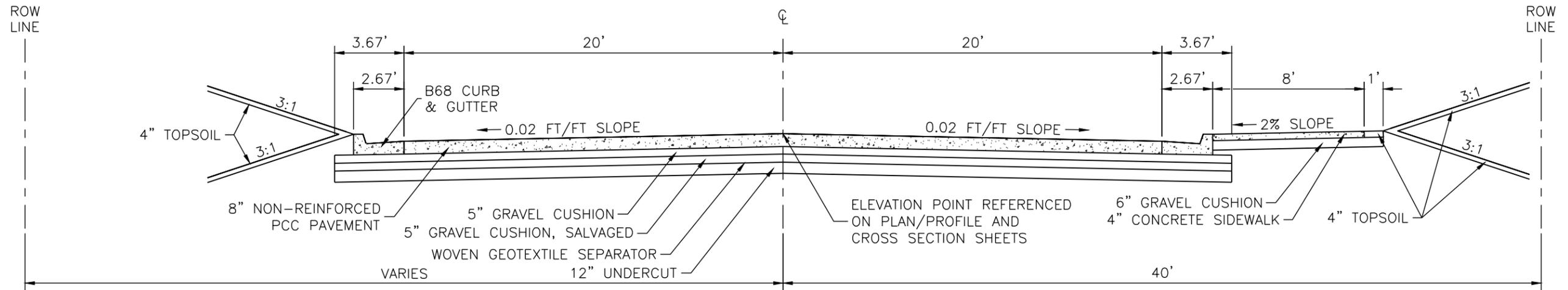
Location	Asphalt Concrete Composite (Ton)	Gravel Cushion (Ton)	Gravel Surfacing, Salvaged (Ton)	Gravel Surfacing (Ton)
12+70, L to 12+70, R	8.0	9.7	0	0
13+34, L to 13+82, L	14.3	17.3	0	0
14+49, L to 14+75, L	8.9	10.8	0	0
17+35, L to 17+51, L	5.6	6.9	0	0
19+09, R to 19+42, R	8.4	10.2	0	0
22+36, L to 22+67, L	11.4	13.9	0	0
23+34, L to 24+52, L	45.8	55.6	0	0
26+05, R to 26+38, R	8.7	10.5	0	0
30+28, R to 30+54, R	0	0	5.62	0
31+20, R to 31+48, R	0	0	5.78	0
37+03, R to 37+36, R	8.7	10.5	0	0
37+05, L to 37+35, L	0	0	0	9.38
38+84, L to 39+24, L	10.1	12.2	0	0
38+89, R to 39+18, R	0	0	5.54	0
41+14, R to 41+48, R	8.5	10.3	0	0
45+90, R to 46+23, R	8.4	10.2	0	0
48+04, L to 48+17, L	5.6	6.8	0	0
51+80, R to 52+13, R	8.4	10.2	0	0
55+82, R to 56+26, R	0	0	9.06	0
59+13, L to 59+25, L	0	0	2.04	0
59+49, R to 59+82, R	8.4	10.2	0	0
63+65, L to 64+04, L	0	0	11.12	0
Total:	169.2	205.3	39.16	9.38



TYPICAL SURFACING SECTION

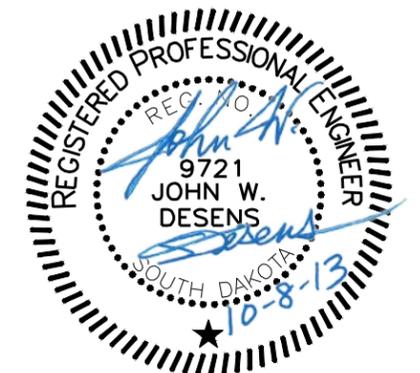
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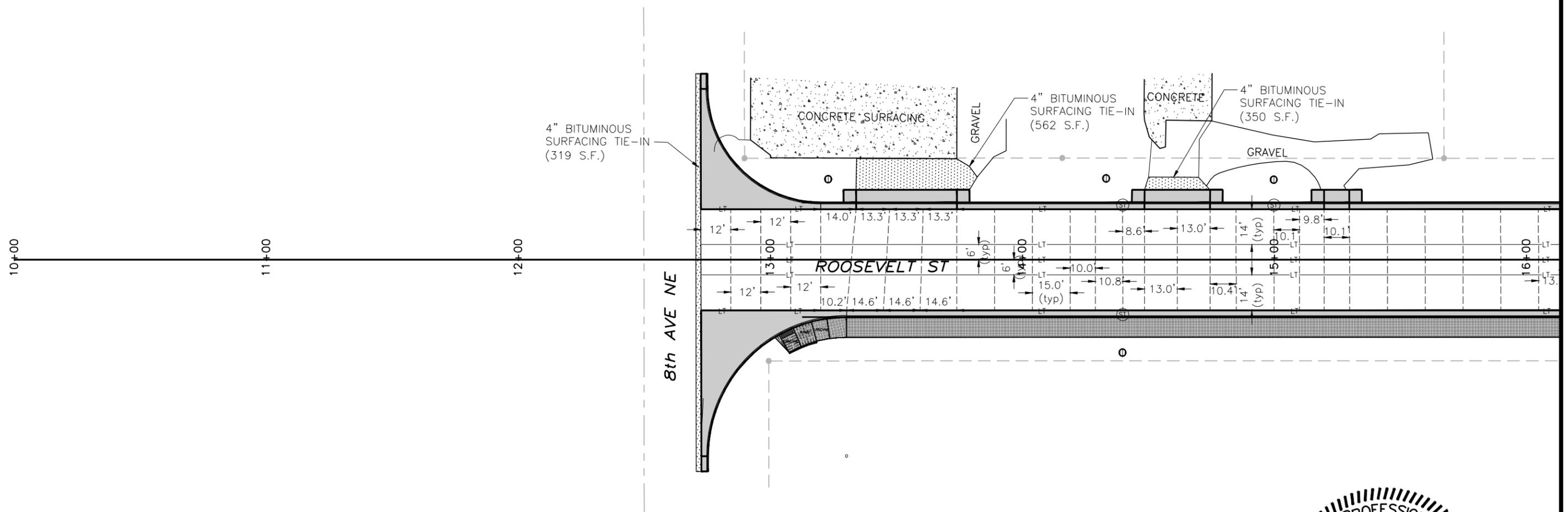
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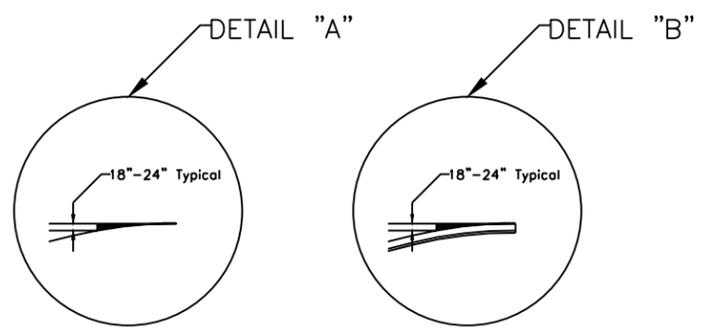
PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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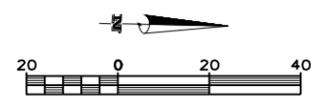


LEGEND:

- 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 shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.



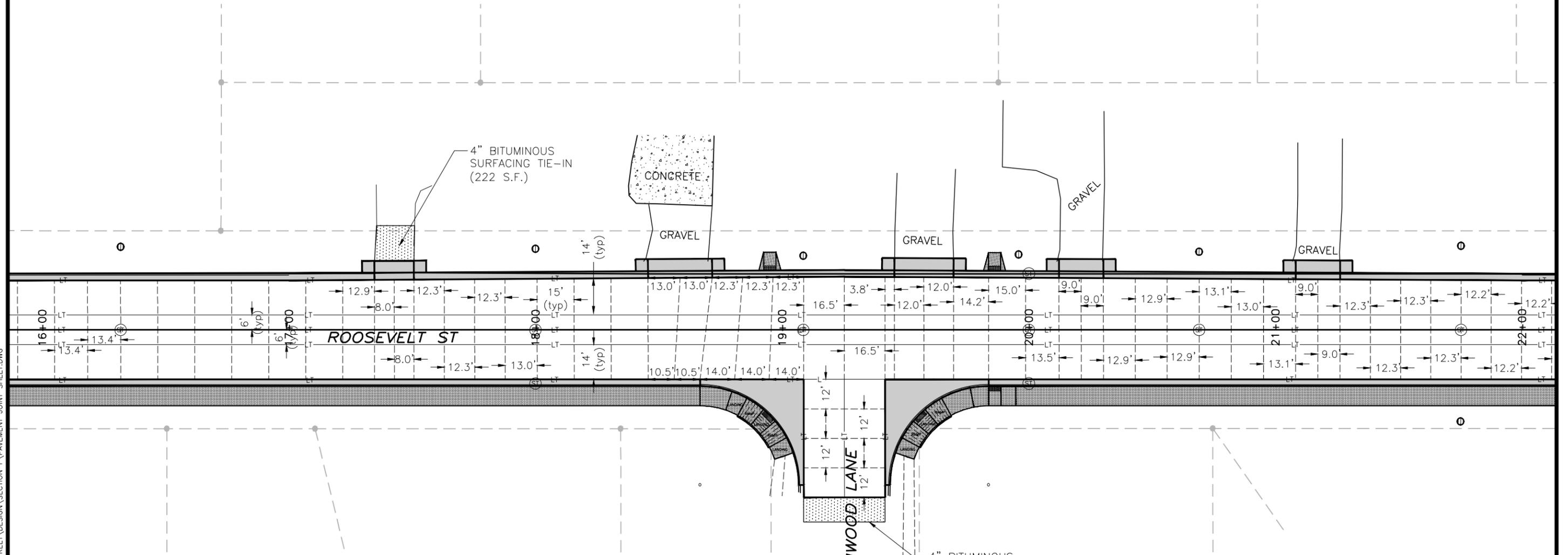
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PAVEMENT JOINT LAYOUT

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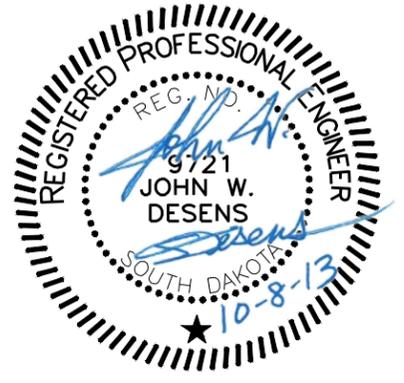
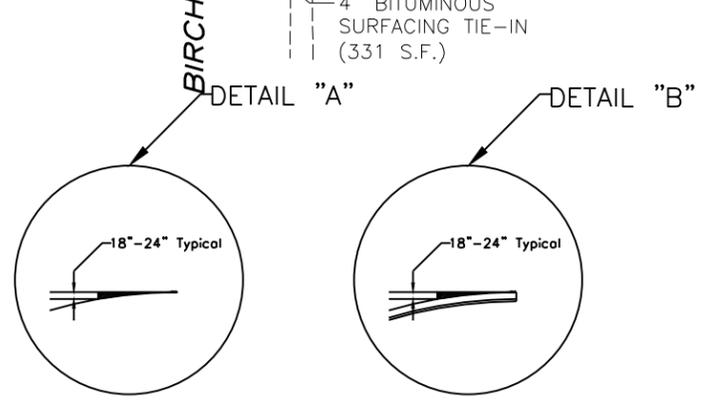
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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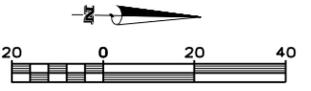
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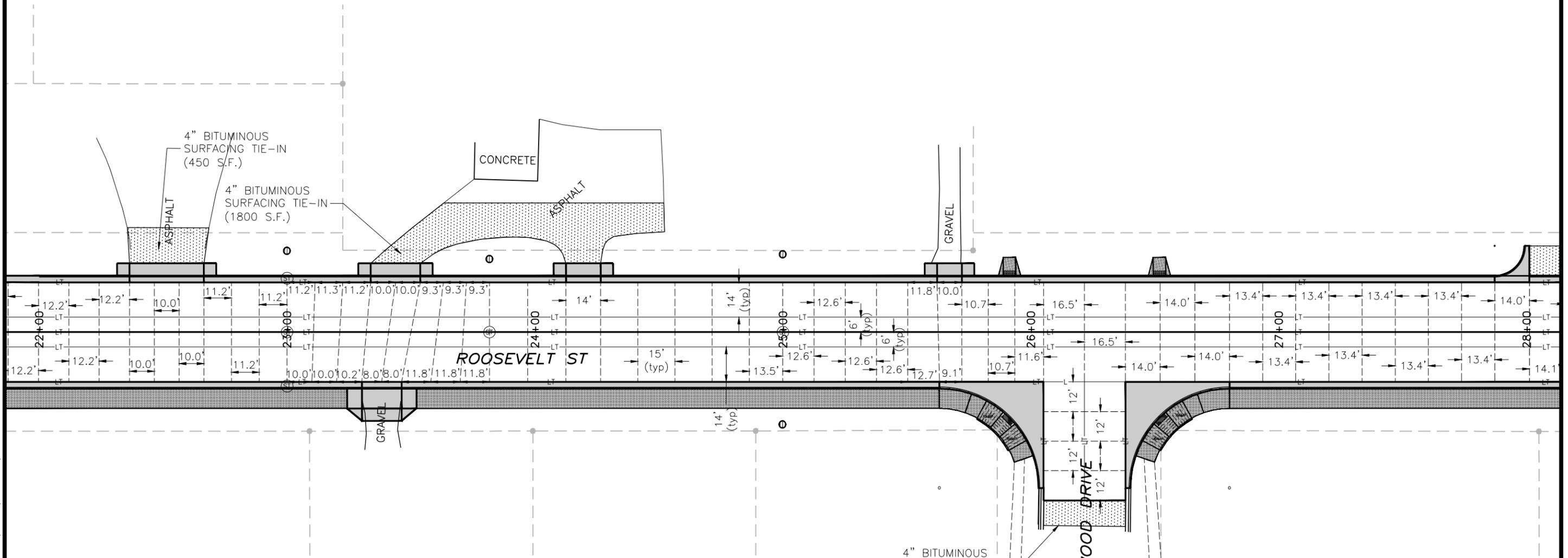


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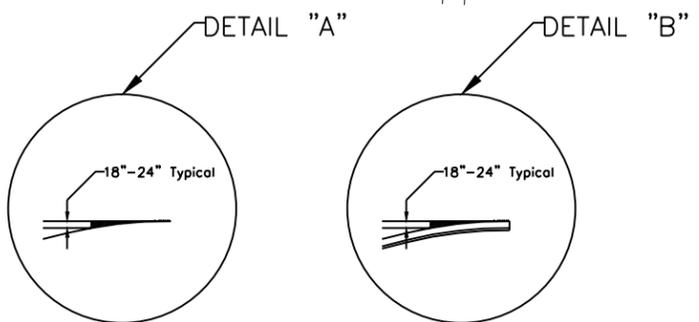


PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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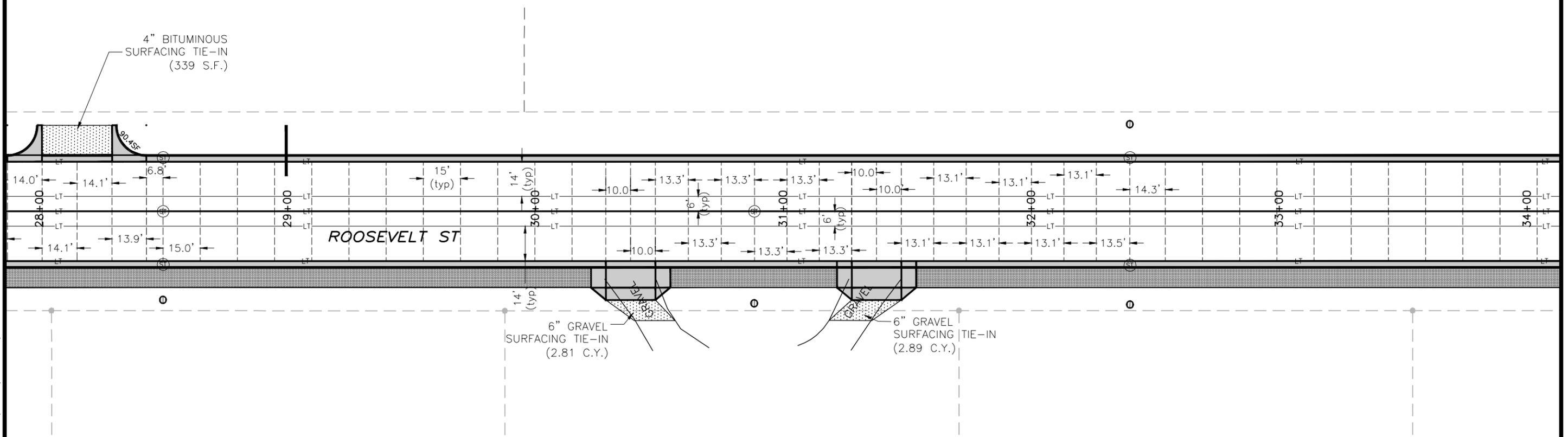
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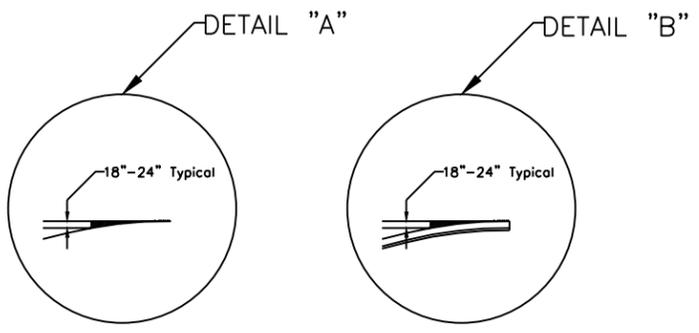
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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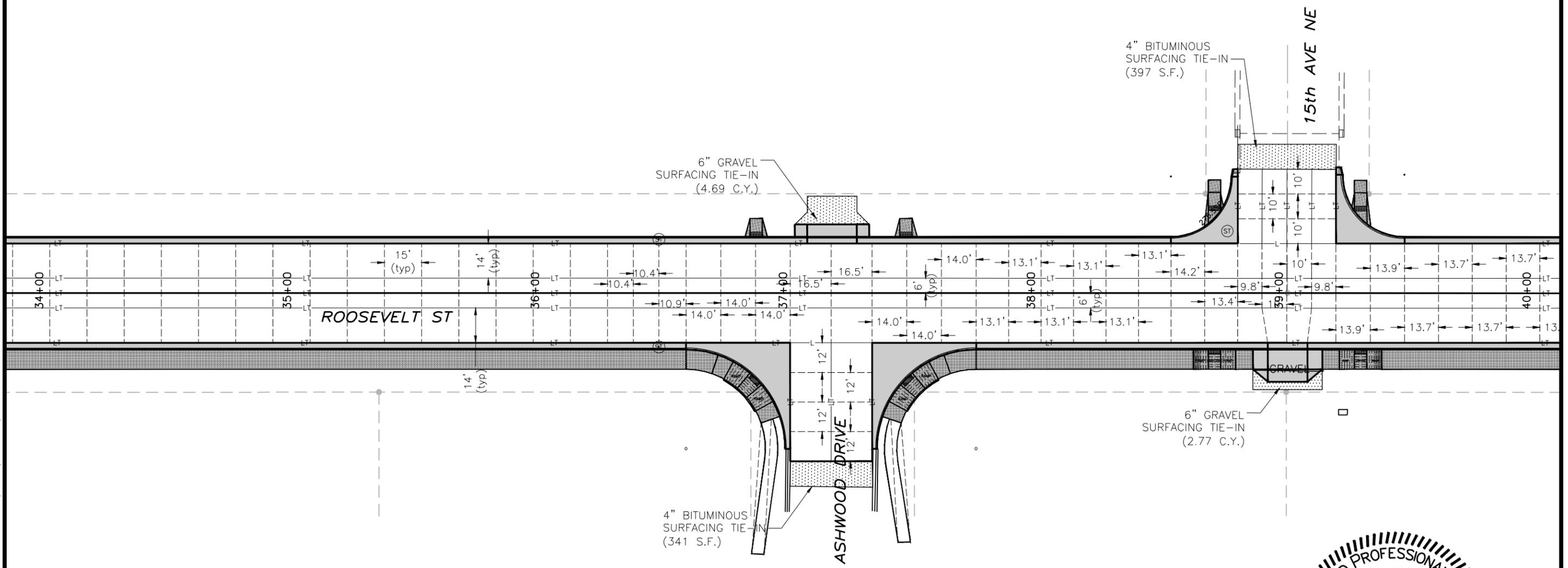
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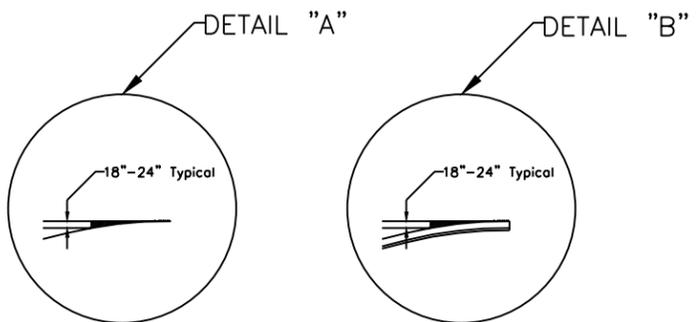
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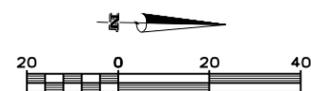
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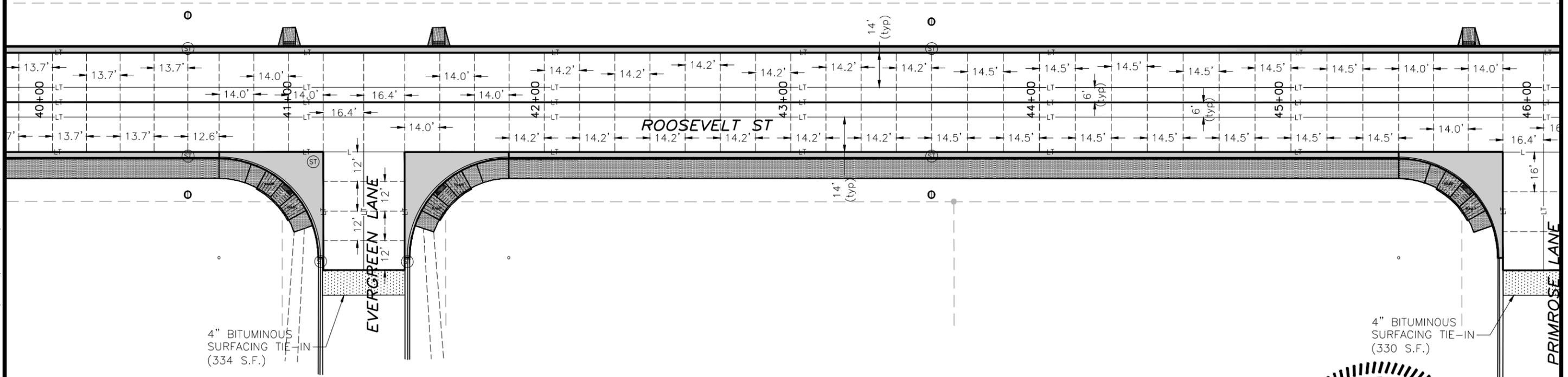


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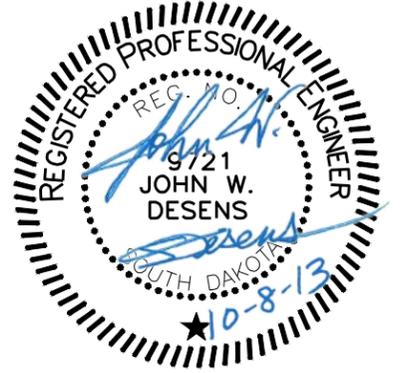
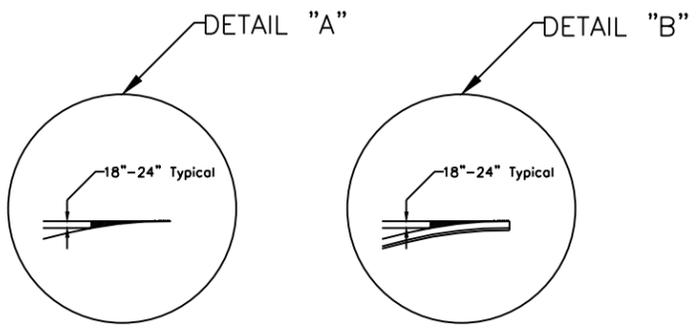
4" BITUMINOUS SURFACING TIE-IN (334 S.F.)

4" BITUMINOUS SURFACING TIE-IN (330 S.F.)

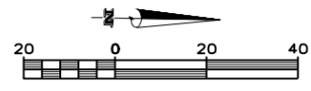
LEGEND:

- 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 shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.

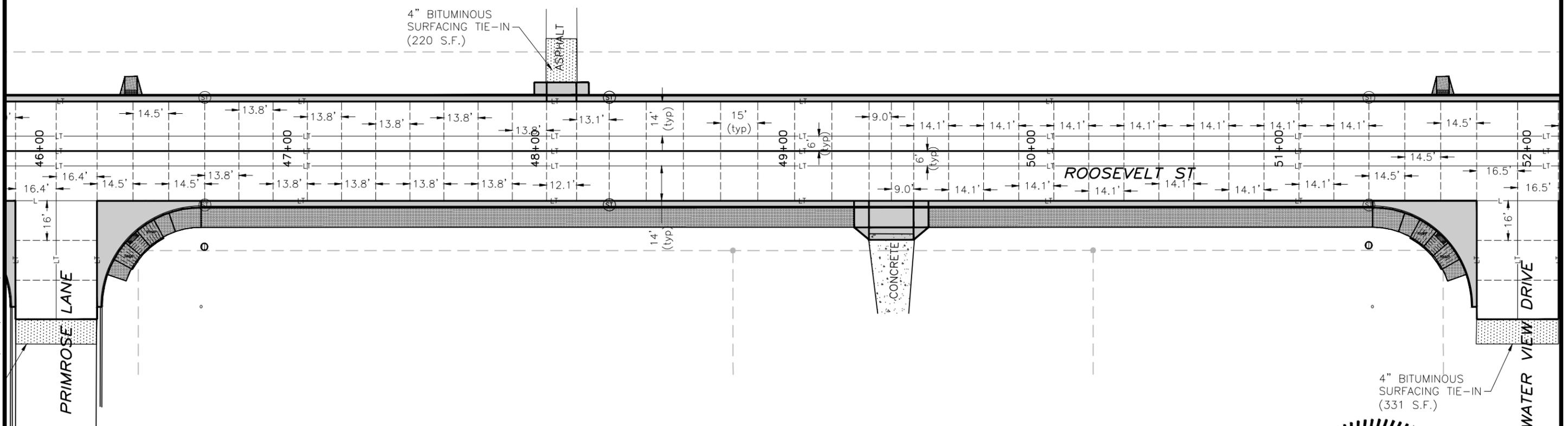


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PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

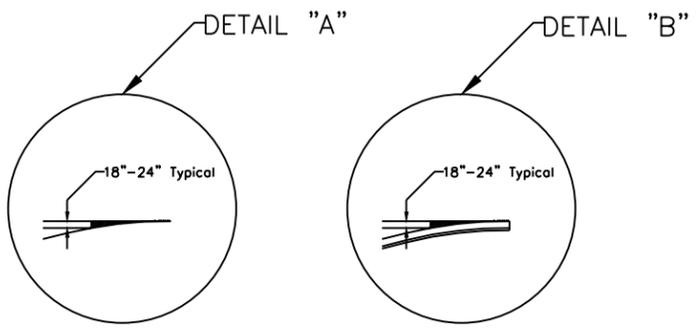
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 2255(09)	F12	F21



LEGEND:

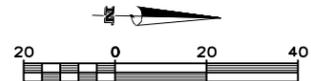
- Longitudinal Joint Without Tie Bars (Construction or Sawed) — L — L —
- Longitudinal Joint With Tie Bars (Construction or Sawed) — LT — LT —
- Transverse Contraction Joint — — — — —
- Steel Bar Installation in Longitudinal or Transverse Joint — SB — SB —
- Areas to be poured monolithically with adjacent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

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



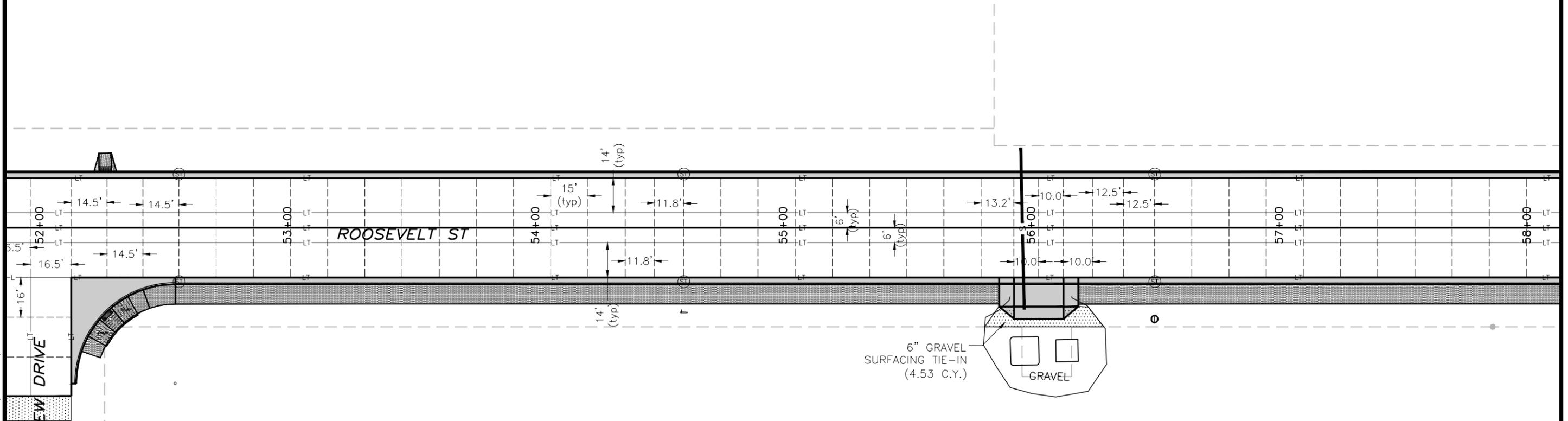
PLANS BY: CLARK ENGINEERING, ABERDEEN, SD

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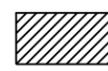
PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

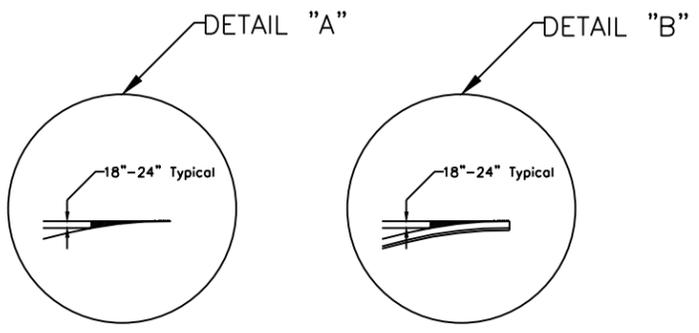
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 2255(09)	F13	F21



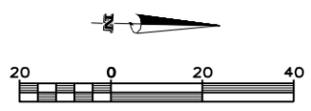
LEGEND:

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- 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 shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.

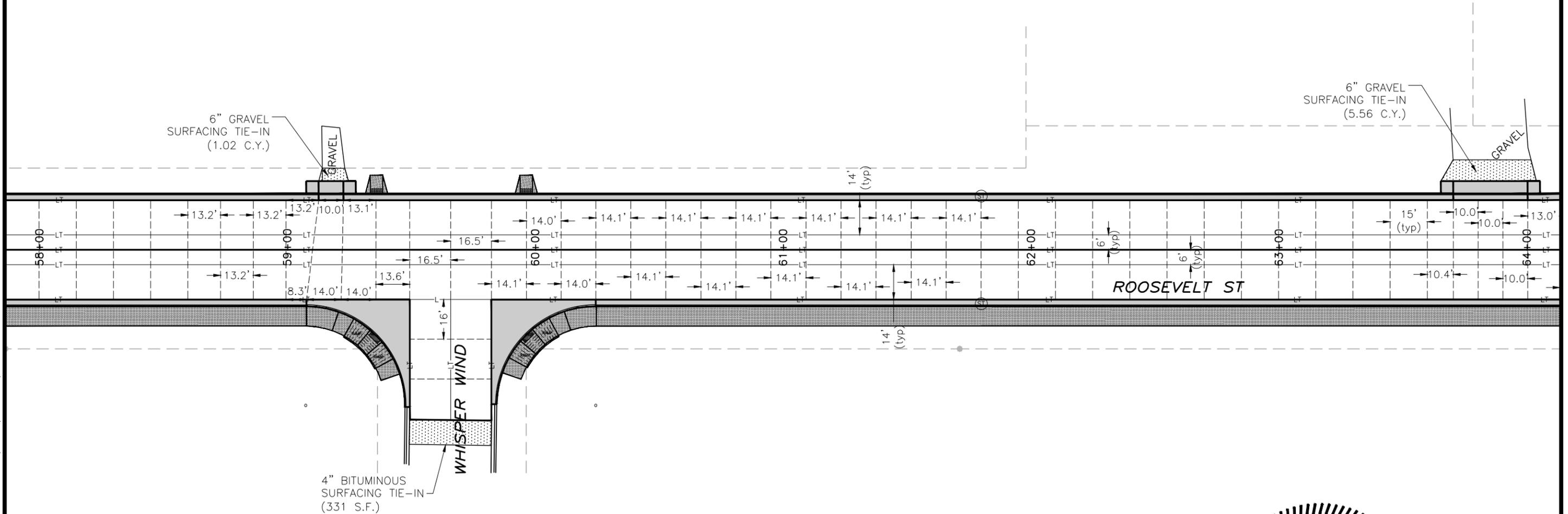


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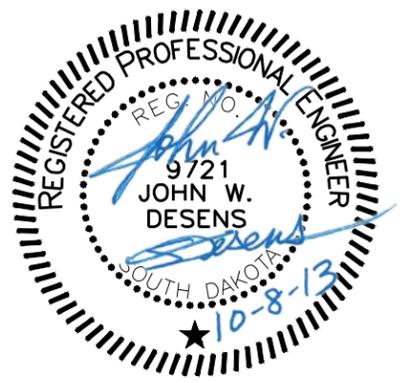
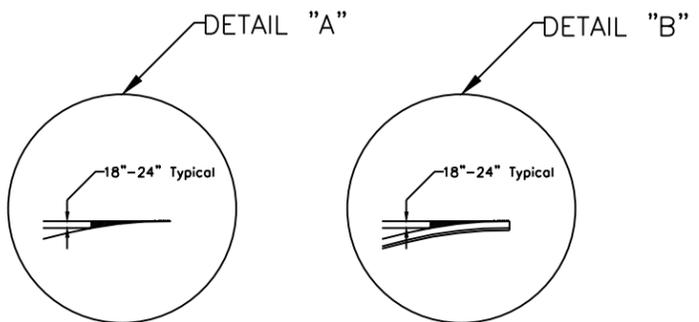


PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 2255(09)	F14	F21

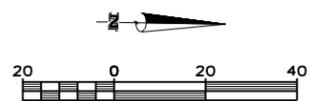


- LEGEND:**
- Longitudinal Joint Without Tie Bars (Construction or Sawed) — L — L —
 - Longitudinal Joint With Tie Bars (Construction or Sawed) — LT — LT —
 - Transverse Contraction Joint — — — —
 - Steel Bar Installation in Longitudinal or Transverse Joint — SB — SB —
 - Areas to be poured monolithically 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 shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.



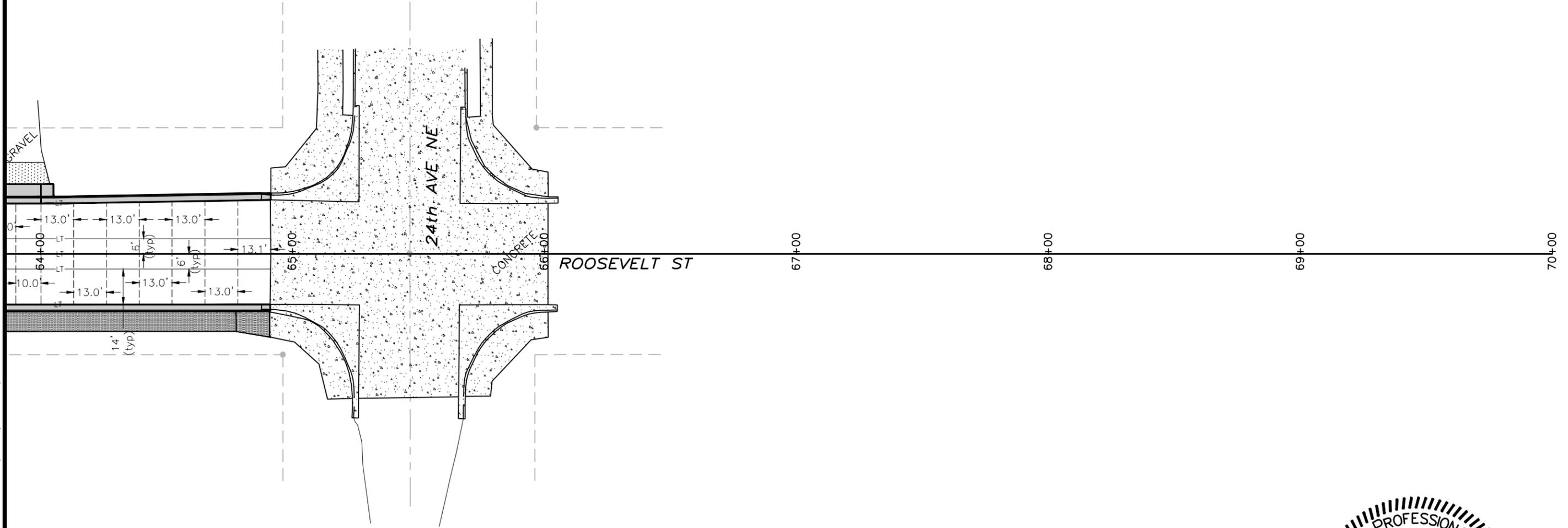
PLANS BY: CLARK ENGINEERING, ABERDEEN, SD

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PAVEMENT JOINT LAYOUT FOR BIDDING PURPOSES ONLY

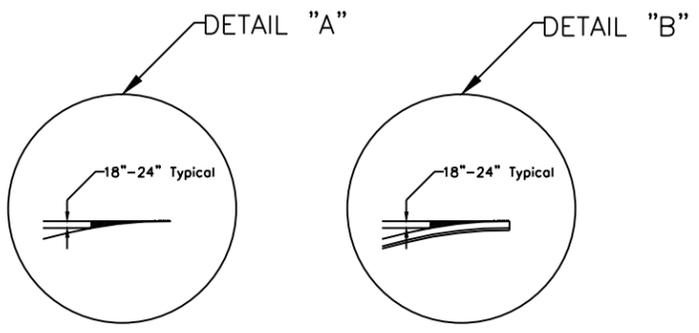
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 2255(09)	F15	F21



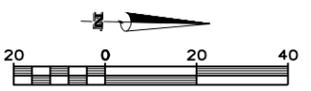
LEGEND:

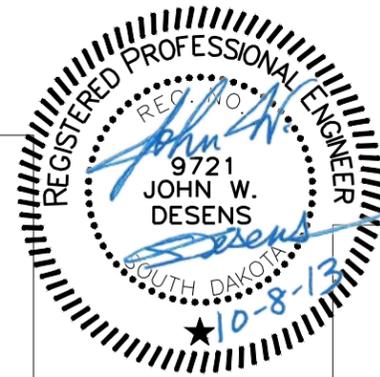
- Longitudinal Joint Without Tie Bars (Construction or Sawed) — L — L —
- Longitudinal Joint With Tie Bars (Construction or Sawed) — LT — LT —
- Transverse Contraction Joint — — — — —
- Steel Bar Installation in Longitudinal or Transverse Joint — SB — SB —
- Areas to be poured monolithically with adjacent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

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

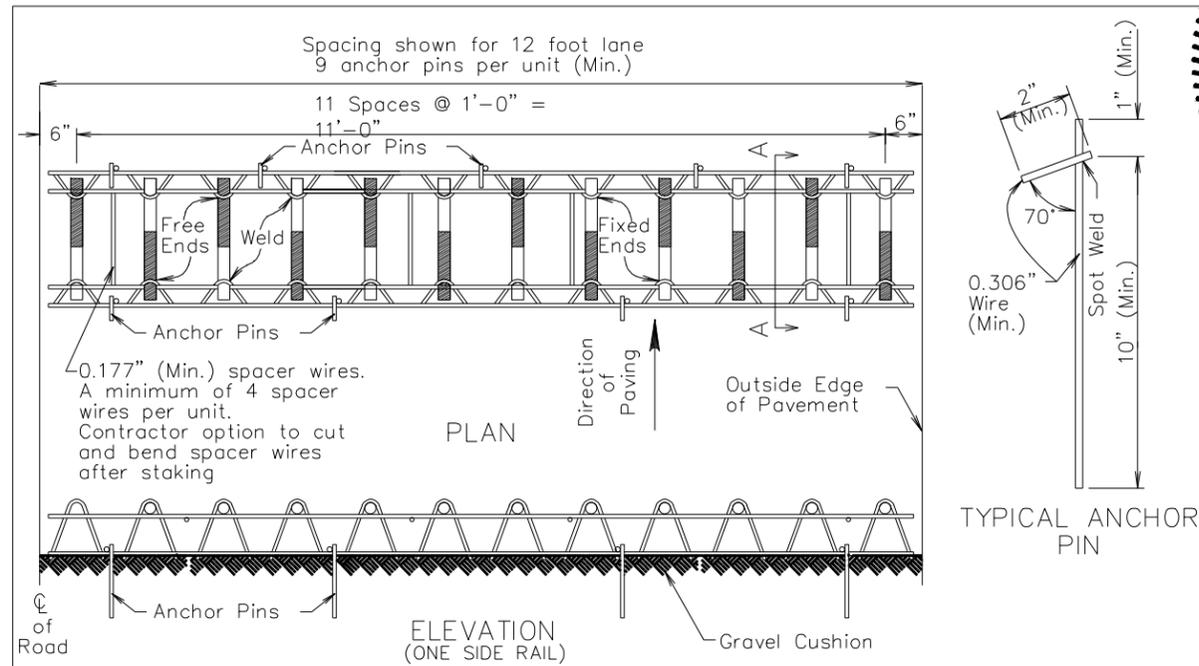


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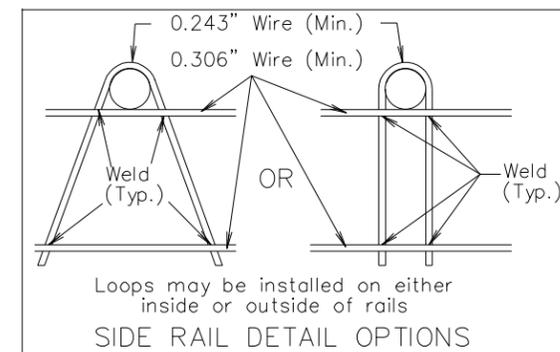
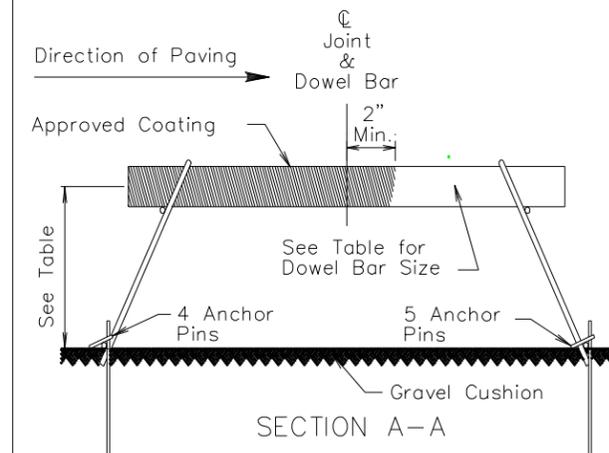




SPECIAL DETAIL



Pavement Thickness	Epoxy Coated Dowel Bar Size	Height to Center
8" to 10"	1 1/4" x 18"	4"
10 1/2" to 12"	1 1/2" x 18"	5"



GENERAL NOTES:

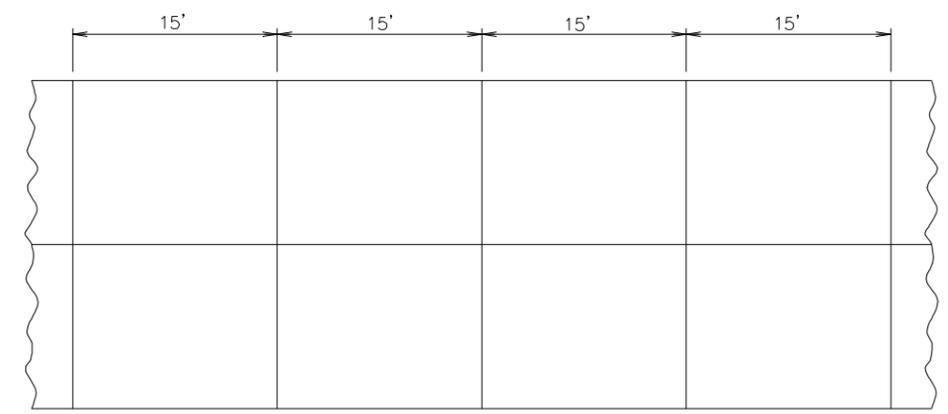
Longitudinal joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

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 of the type 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.

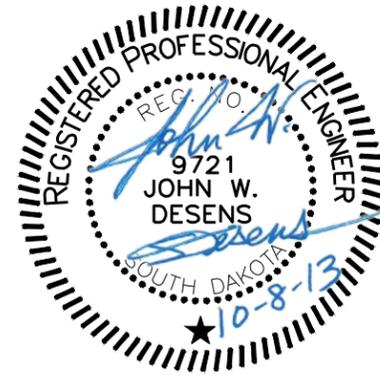


PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING

SPECIAL DETAIL FOR PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS

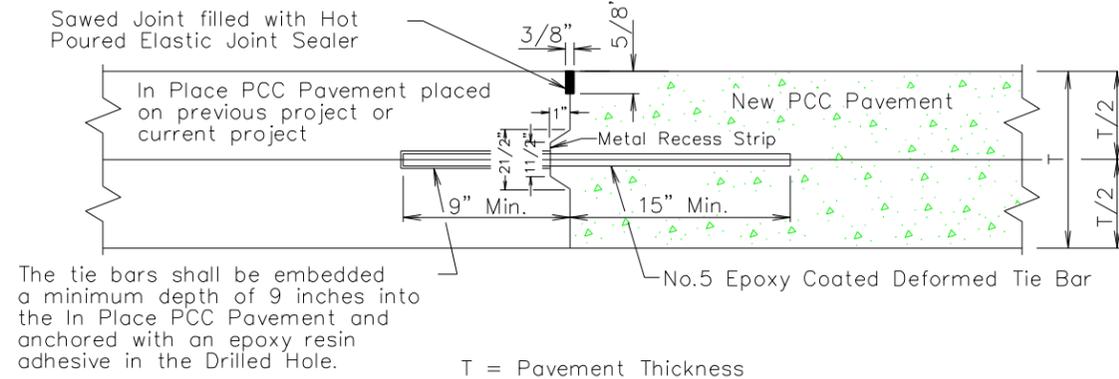
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SPECIAL DETAIL PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS

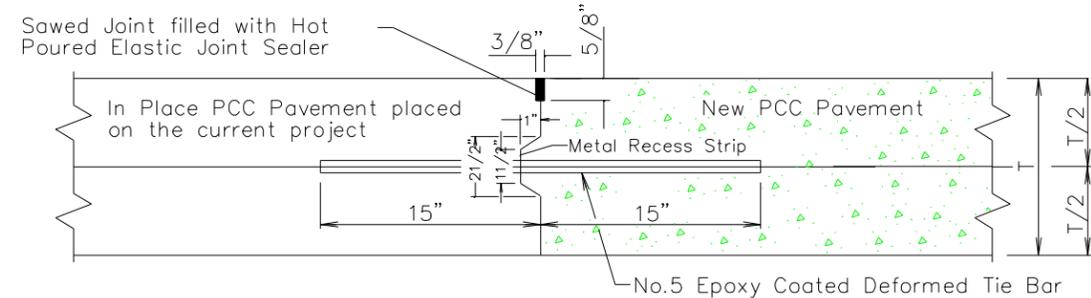


SPECIAL DETAIL PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(DRILLED IN BARS)



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(INSERTED OR FORMED IN BARS)



The epoxy coated deformed tie bars shall be spaced according to the following table.

Tie Bar Spacing 30"	
Joint Spacing	# of 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
22.5' to 24.5'	9

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

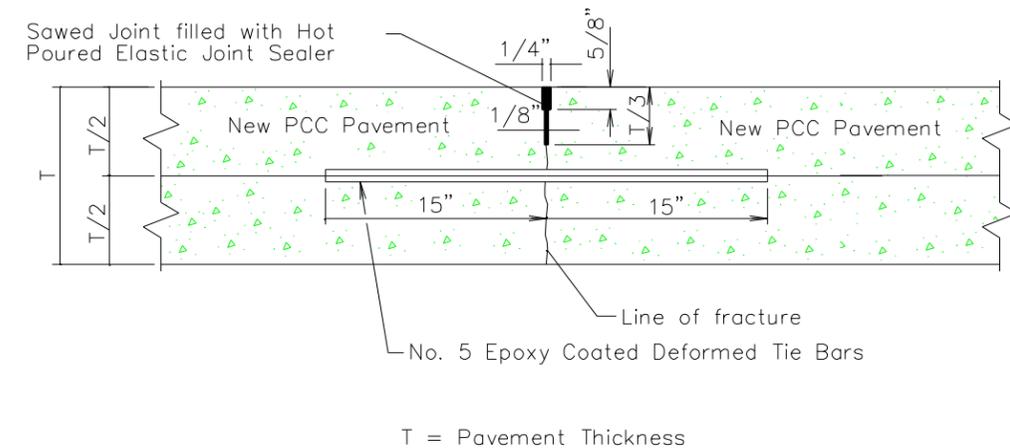
GENERAL NOTES FOR SHEET 1:

The tie bars shall be placed a minimum of 15 inches from any transverse contraction joints. Tie bars shall not be machine placed.

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 required number of No. 5 epoxy coated deformed tie bars shall be uniformly spaced within each panel. The tie bars shall be evenly spaced a maximum of 48" center to center for a female keyway or a maximum of 30" center to center for a vertical face and male keyway. The keyway shown is a female keyway. The maximum spacing shall apply to tie bars within each panel.

SAWED LONGITUDINAL JOINT WITH TIE BARS
(POURED MONOLITHICALLY)



The epoxy coated deformed tie bars shall be spaced according to the following table.

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

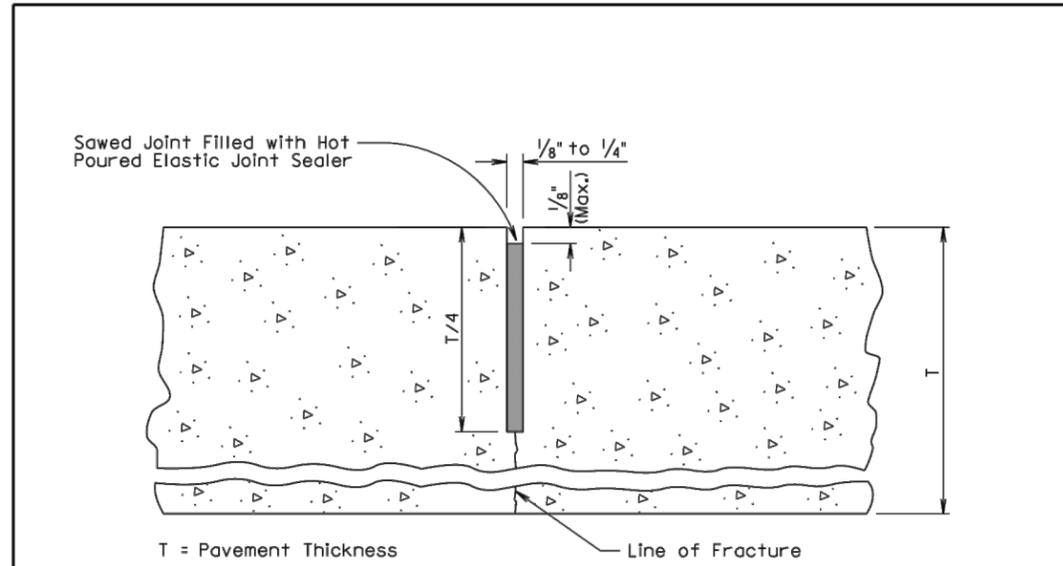
GENERAL NOTES FOR SHEET 2:

The tie bars shall be placed a minimum of 15 inches from any transverse contraction joints. Tie bars shall not be machine placed.

The required number of No. 5 epoxy coated deformed tie bars shall be uniformly spaced within each panel. The tie bars shall be evenly spaced a maximum of 48" center to center. The maximum spacing shall apply to tie bars within each panel.

The first saw cut to control cracking shall be a minimum depth 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.

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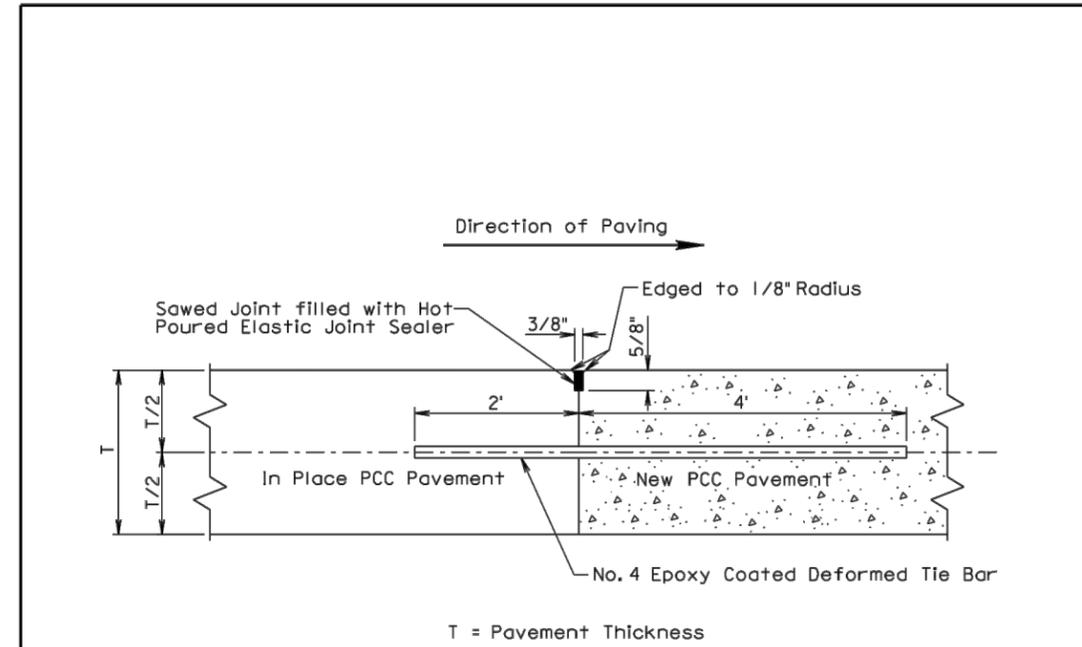


GENERAL NOTES:

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.

December 23, 2007

Published Date: 2nd Qtr. 2013	S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.03
			Sheet 1 of 1



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.

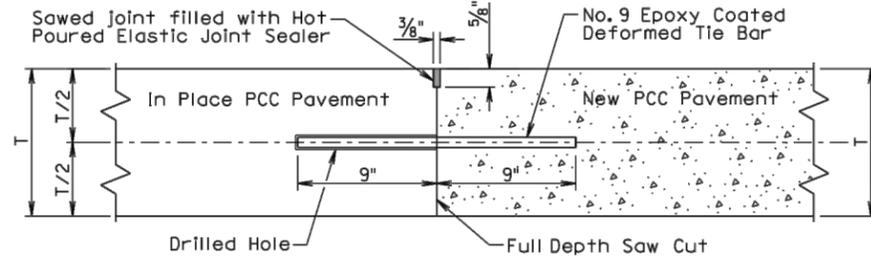
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

September 14, 2001

Published Date: 2nd Qtr. 2013	S D D O T	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.05
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT P 2255(09)	SHEET F19	TOTAL SHEETS F21
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TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

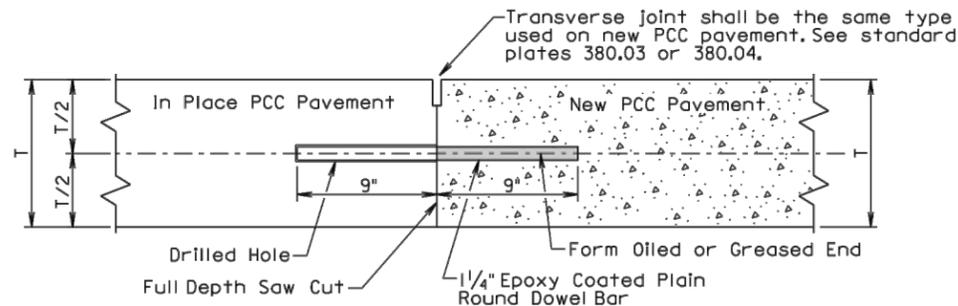
This detail shall be used when the transverse joint is less than 15 feet from the existing transverse contraction joint.

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 spaced 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

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

TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

This detail shall be used when the transverse joint is 15 feet or greater from the existing transverse contraction joint.

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 1 1/4 inch epoxy coated plain round dowel 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.

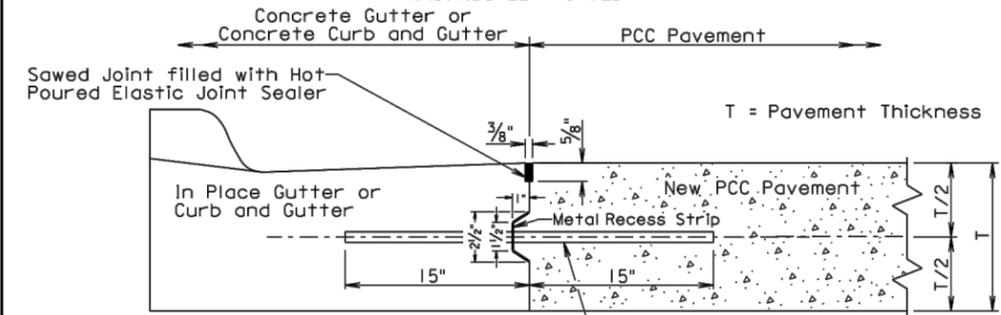
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

September 6, 2006

S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.06
		Sheet 1 of 1

Published Date: 2nd Qtr. 2013

**LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(INDIVIDUALLY FORMED)**



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars shall be spaced 48" 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 1/2 inch 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.

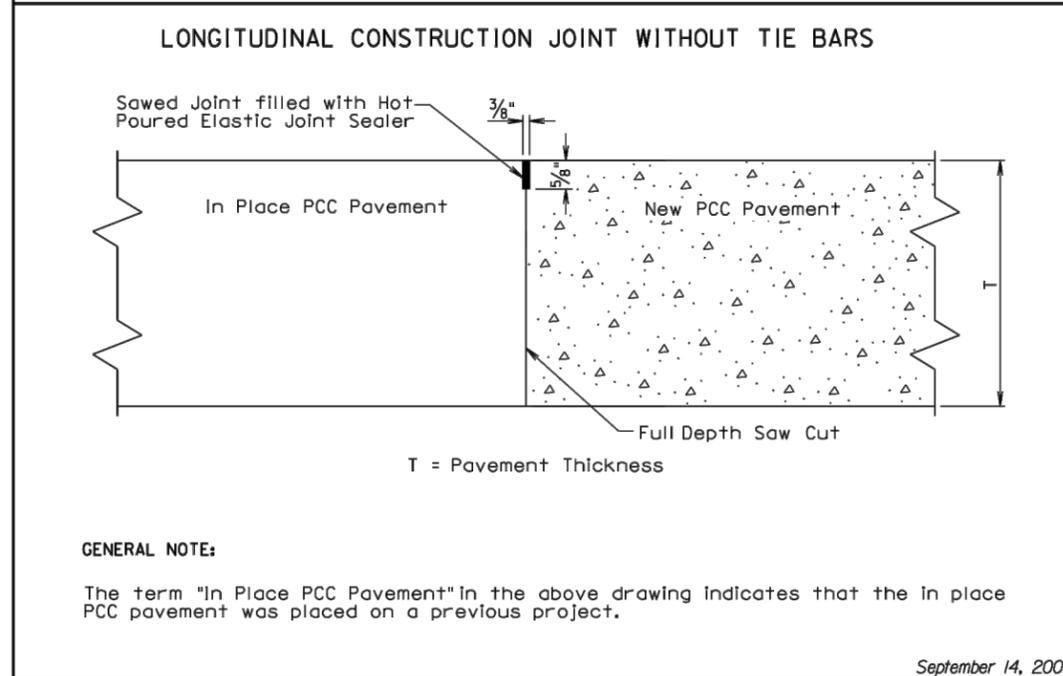
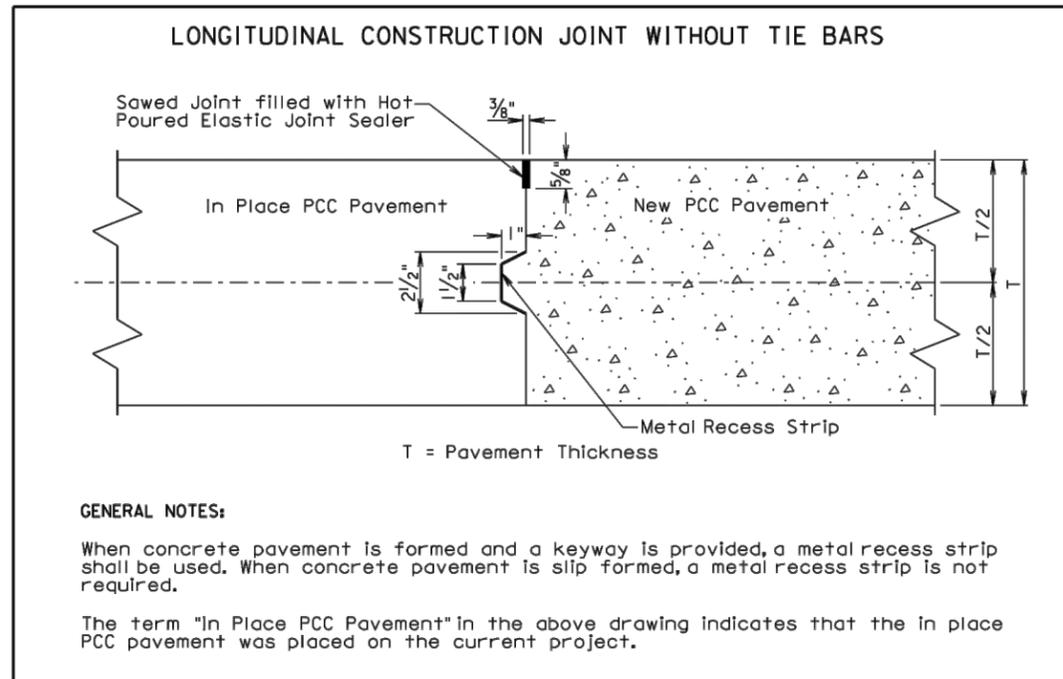
The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

September 14, 2005

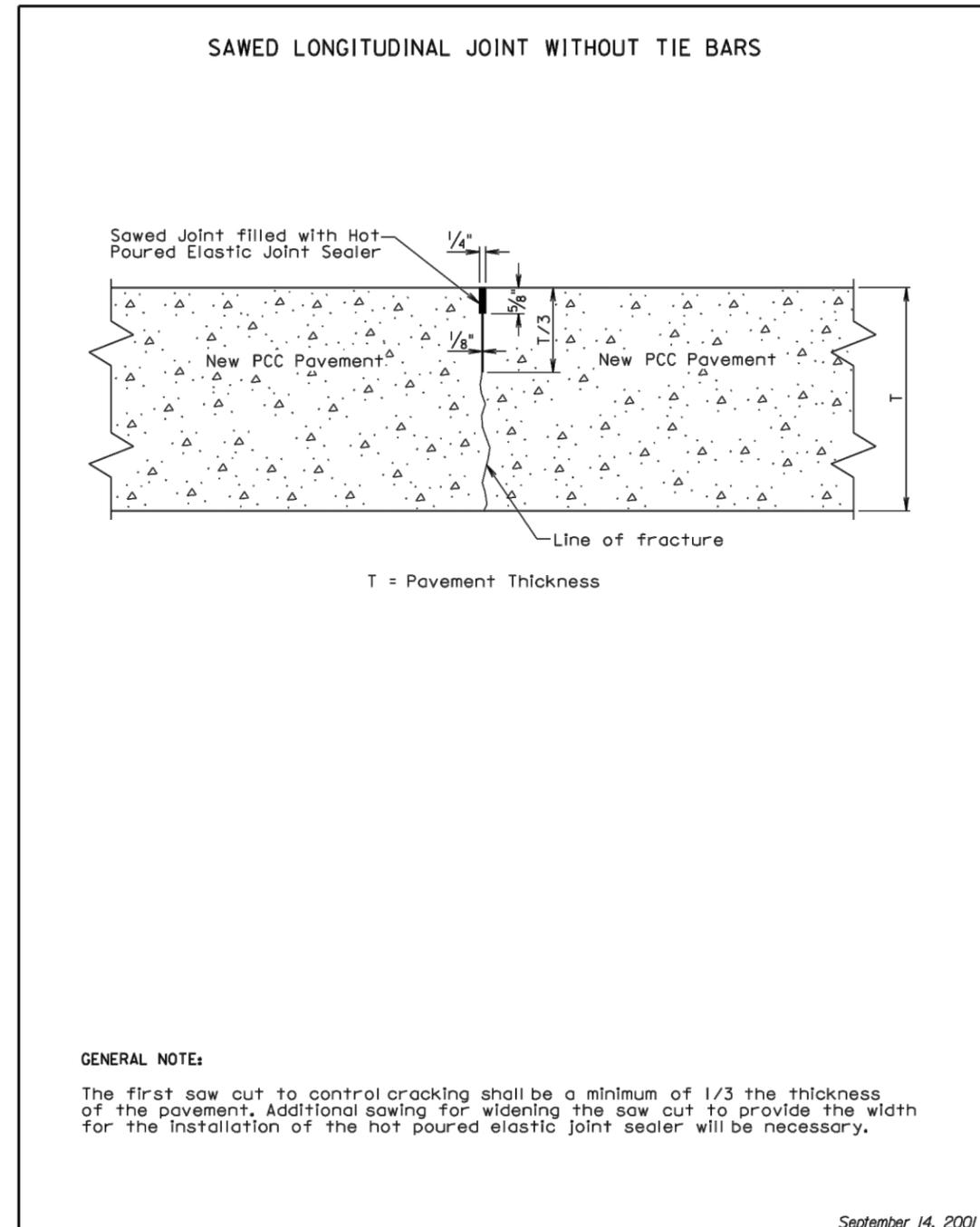
S D D O T	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.11
		Sheet 1 of 1

Published Date: 2nd Qtr. 2013

STATE OF SOUTH DAKOTA	PROJECT P 2255(09)	SHEET F20	TOTAL SHEETS F21
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<i>Published Date: 2nd Qtr. 2013</i>	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	September 14, 2001 PLATE NUMBER 380.12 Sheet 1 of 2
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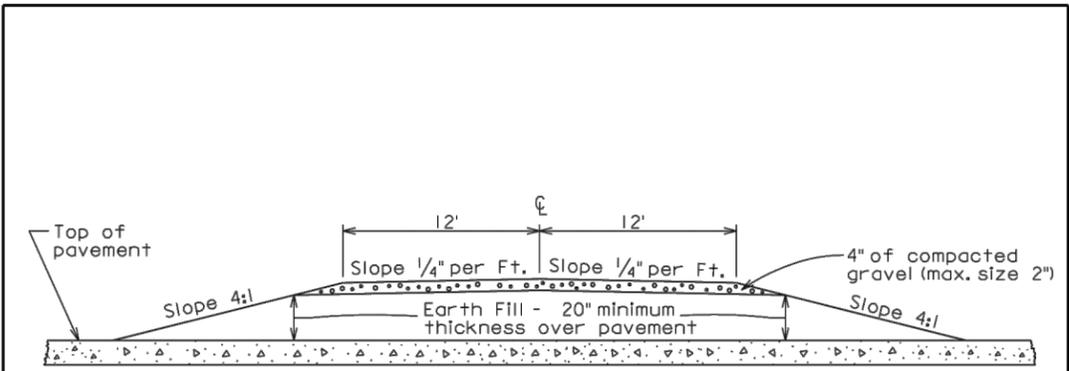


<i>Published Date: 2nd Qtr. 2013</i>	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	September 14, 2001 PLATE NUMBER 380.12 Sheet 2 of 2
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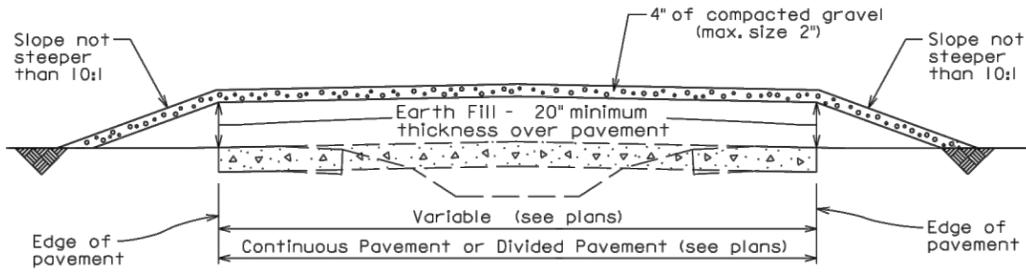
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 2255(09)	F21	F21



TRANSVERSE SECTION OF CROSSING



LONGITUDINAL SECTION ALONG CENTERLINE OF CROSSING

GENERAL NOTES:

Temporary Earth Crossing shall be constructed and satisfactorily maintained in accordance with the details shown above. When the need for the crossing no longer exists the contractor shall, at the direction of the Engineer, remove the crossing and dispose of the materials therein to the satisfaction of the Engineer.

All costs for furnishing and placing all materials, labor, and equipment necessary for constructing and removing the Temporary Earth Crossing shall be incidental to the contract unit price per Each for "Temporary Earth Crossing."

When the plans specify that the fill over the pavement be entirely of gravel, instead of earth and gravel as shown by the details above, all except the upper 4 inches of the gravel may be pit run material. In these cases the item becomes "Temporary Gravel Crossing" instead of "Temporary Earth Crossing", but otherwise the requirements stated above for "Temporary Earth Crossing" shall apply.

March 31, 2000

Published Date: 2nd Qtr. 2013	S D D O T	TEMPORARY EARTH OR GRAVEL CROSSING	PLATE NUMBER 380.30
			Sheet 1 of 1

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