FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F1	F44

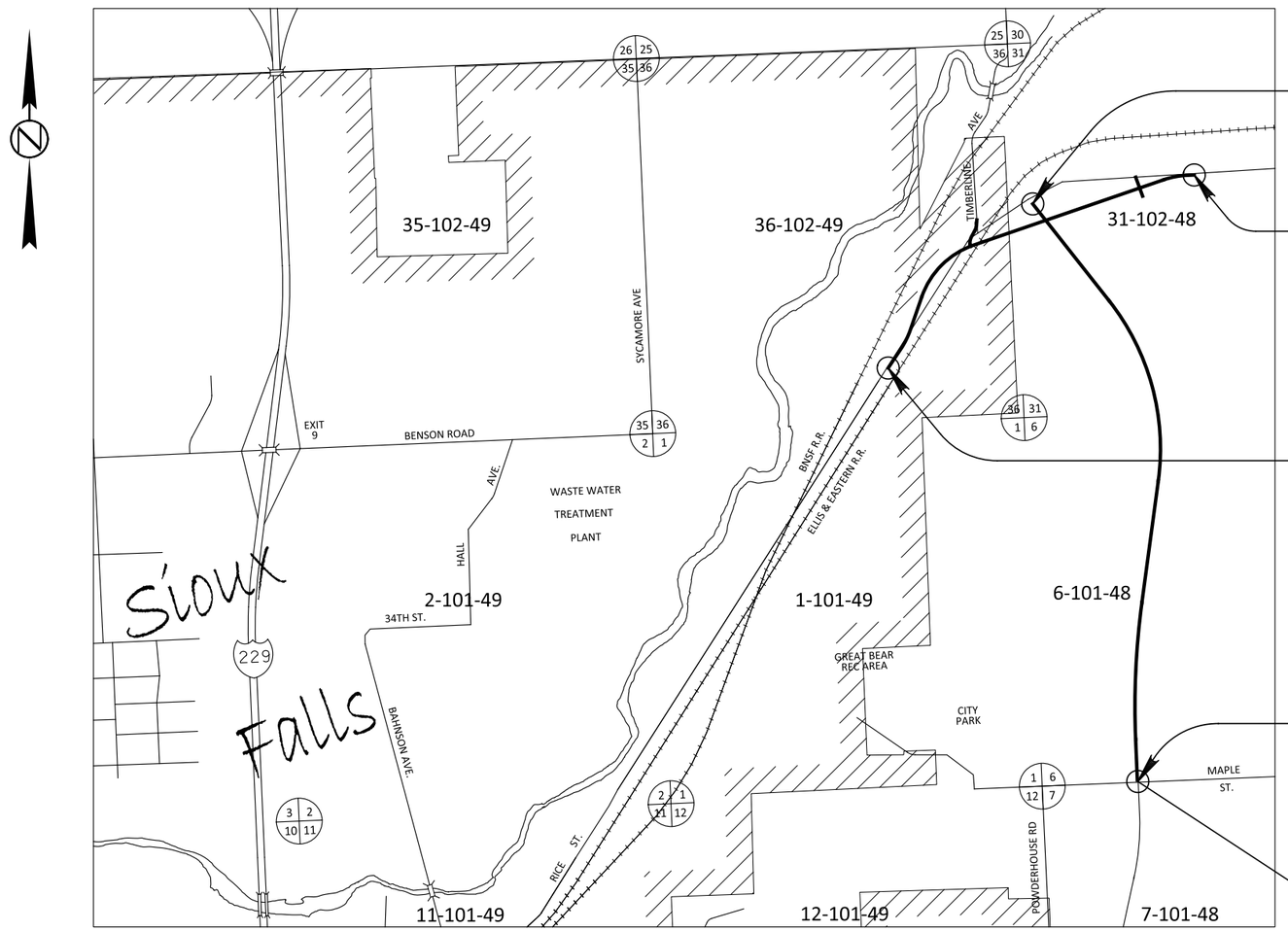
FILE: F01 Title.dgn
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Section F: Surfacing Plans

INDEX OF SHEETS

F1	General Layout with Index
F2 TO F4	General Notes & Tables
F5 TO F10	Typical Surfacing Sections
F11 TO F37	Surfacing Plans
F38 TO F44	Standard Plates & Details



END NH 0100(105)419
HWY 100
Station 872+50.00

END NH 0100(105)419
Rice Street
Station 56+50.00

BEGIN NH 0100(105)419
Rice Street
Station 0+00.00

BEGIN NH 0100(105)419
HWY 100
Station 787+09.87

EQUATION
786+00.00 PCN 00KB
= 787+09.87 PCN 01V5

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

SECTION F ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
120E6200	Water for Granular Material	809.6	MGal
260E1010	Base Course	33,477	Ton
260E2010	Gravel Cushion	33,509	Ton
260E3010	Gravel Surfacing	379	Ton
320E0007	PG 64-28 Asphalt Binder	910.2	Ton
320E1050	Class E Asphalt Concrete	16,253.1	Ton
320E3000	Compaction Sample	3	Each
330E0100	SS-1h or CSS-1h Asphalt for Tack Coat	19.1	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	9.9	Ton
330E2000	Sand for Flush Seal	187.0	Ton
380E0090	10" Nonreinforced PCC Pavement	76,137	SqYd
380E1070	10" Miscellaneous PCC Pavement	227	SqYd
380E6000	Dowel Bar	44,938	Each
380E6110	Insert Steel Bar in PCC Pavement	26	Each

SURFACING THICKNESS DIMENSIONS

Plans quantity 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 quantity may be varied to achieve the required elevation.

10" NONREINFORCED PCC PAVEMENT

The fine aggregate shall be screened over a 1 inch square opening screen just prior to introduction into the concrete paving mix. The Contractor will screen all of the aggregate to prevent the incorporation of foreign materials (i.e.: mud balls) into the concrete mix.

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

The concrete used in Portland Cement Concrete Pavement shall meet the requirements in the Special Provision for PCCP Contractor Mix Design.

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

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.

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. Trimming shall be performed as required by Section 380.3 C. of the Specifications.

The surface of the mainline paving shall be longitudinally tined. All other areas shall be tined as directed by the Engineer. The surface of the mainline paving shall be tined to within 2 or 3 feet of the face of the curb.

The following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with Section 380.3 O 2 of the Standard Specifications:
All mainline pavement from Station 786+09.87 to Station 872+50 including shoulders

TABLE OF 10" MISCELLANEOUS PCC PAVEMENT

Station	Width	Quantity (SqYd)	Gravel Cushion (Tons) *	Water (MGal)
SW corner Hwy 100 & Rice St.	Varies	106	50	1
NE corner Hwy 100 & Rice St.	Varies	120	59	1
	Total:	227	109	1

* Includes gravel cushion under adjacent curb and gutter

TABLE OF 10" NON-REINFORCED PCC PAVEMENT

Station	to Station	L/R	Width	Quantity (SqYd)	Gravel Cushion (Tons) *	Water (Mgal)	Dowel Bars (each)
786+10	787+10	L/R	104'	1,156	386	5	515
787+10	788+00	L/R	104'	1,040	369	4	515
788+00	870+45	L	60'-36'	34,254	14,898	179	20,094
788+00	870+45	R	36'-72'	34,908	15,149	182	20,366
870+45	872+50	L/R	104'	2,376	822	10	1,827
31+27	32+45	L/R	varies	1,204	415	5	764
33+55	34+69	L/R	varies	1,199	429	5	857
			Total:	76,137	32,470	390	44,938

TIE BARS AND 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.

LOCATION OF CONCRETE PAVEMENT JOINTS

The location of joints, as shown on the surfacing plan sheets, are only approximate locations to be used as a guide in the final location of joints and to afford bidders a basis for estimating the construction costs of the joints. The final locations of the joints are to be designated by the Engineer during construction.

STEEL BAR INSTALLATION

The Contractor shall install the Steel Bars (#10 x 18 inch epoxy coated smooth tie bars) as per special detail into drilled holes in the existing concrete pavement for the transverse joints at the locations shown in the Table of Steel Bar Installation.

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.

LANE/LOCATION	from Station	to Station	Total Joint Length (Ft)	# of Bars (Each)
NB & SB	786+10, 52' L	786+10, 52' R	104	26
			Total:	26

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
8-4-16

HDR

ALKALI SILICA REACTIVITY -

Fine aggregate shall conform to Section 800.2 D Alakali 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*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.170
Croell	Quinn, SD	0.089
Emme Sand & Gravel	Oneil, NE	0.217
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	0.198
Higman	Hudson, SD	0.187
Hilde	Madison, SD	0.116
Jensen	Herried, SD	0.276*
L.G. Everist	Brookings, SD	0.186
L.G. Everist	Hawarden, IA	0.166
L.G. Everist	Summit, SD	0.178
Morris	Blunt, SD	0.192
Morris - Richards Pit	Onida, SD	0.188
Myrl & Roys Paving- Nelson Pit	Sioux Falls, SD	0.156
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.133
Opperman - Gunvordahl Pit	Burke, SD	0.362*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.321*
Opperman - Randall Pit	Pickstown, SD	0.239
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.129
Pete Lien & Sons	Wasta, SD	0.192
Thorpe Pit	Britton, SD	0.098
Wagner Building Supplies	Pickstown (Wagner), SD	0.241
Winter Brothers- Whitehead Pit	Brookings, SD	0.197

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

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

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

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

4" OR 6" BARRIER TYPE COLORED MEDIAN PCC PAVEMENT

This work consists of installing colored PCC pavement at the locations shown on the surfacing plan sheets. In general the colored concrete shall be used for median and boulevard splashguards, boulevard between the curb and the sidewalk, and at raised islands. Payment for all labor and materials needed, including reinforcing bars, shall be included in the contract unit price per square yard for 4" Barrier Type Colored Median PCC Pavement".

Section 651 (Concrete Sidewalk) of the Specifications shall apply to the concrete median pavement except as modified below:

1. The concrete shall have a maximum slump of 4".
2. 100% shall pass the ½" sieve for the aggregate size.
3. The concrete shall be integrally colored per manufacturer recommendations. The pavement color shall be "Quarry Rose" and shall match the median color on Hwy100 from Madison Street to Maple Street.
4. Release agent (liquid or powder) shall be applied per manufacturer recommendations. Release agent is required only on areas to be stamped.
5. Broom finish shall be used.
6. All areas of colored concrete shall be sealed with 2 coats of Brickform Masterseal – Premium Acrylic Sealer as manufactured by Rafco Products-Brickform or equal. The timing and method of application shall be per manufacturer recommendations.
7. The Contractor shall submit a sample piece of colored concrete to the Engineer for approval.
8. Place preformed expansion joint filler per the Section 651 requirements except the spacing for the preformed expansion joints shall be a maximum of 50'. All costs for furnishing and placing the expansion joint filler shall be incidental to the pavement costs. A double thickness of expansion joint filler shall be placed against the back of curb when adjacent to the colored concrete.

See Section B notes for quantity table.

TABLE OF GRAVEL SURFACING

Station to	Station	L/R	Width (Feet)	Depth (Inches)	Gravel Surfacing (Tons)	Base Course (Tons)	Water (MGal)
Maple Street driveway							
787+00	787+30	R	24'	4	27	53	1
300+53	302+75	L/R	24'	4	165	330	6
Rice Street driveways							
47+00	47+00	L	varies	4	163	327	6
47+00	47+00	R	24	4	24	48	1
				Total:	379	758	14

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

Rev 6/21/2016 JHU

CLASS E ASPHALT CONCRETE

Mineral aggregate for the Class E Asphalt Concrete shall conform to the requirements for Class E, Type 1.

All other requirements in the Specifications for Class E shall apply.

TABLE OF ASPHALT AND BASE COURSE QUANTITIES

Station to	Station	L/R	Width (Feet)	Asphalt Depth (In)	Number of lifts (#)	Base course depth (in)	Class E Asphalt total (Tons)	Class E Asphalt avg per sta (Tons)	Asphalt Binder [1] total (Tons)	Asphalt Binder [1] avg per sta (Tons)	Asphalt for Tack Coat [2] total (Tons)	Asphalt for Tack Coat [2] avg per sta (Tons)	Asphalt for Flush Seal [3] total (Tons)	Asphalt for Flush Seal [3] avg per sta (Tons)	Sand for Flush Seal [4] total (Tons)	Sand for Flush Seal [4] avg per sta (Tons)	Base Course total (Tons)	Base Course avg per sta (Tons)	Water total (Mgal)	Water avg per sta (Mgal)
Maple Street																				
786+10	787+10	L	24	4	2	12	52.6	52.6	2.9	2.9	0.05	0.05	0.04	0.04	0.79	0.79	165	165	2.0	2.0
786+10	787+10	R	24	4	2	12	52.5	52.5	2.9	2.9	0.05	0.05	0.04	0.04	0.78	0.78	164	164	2.0	2.0
Hwy 100 driveway																				
839+87	840+10	L	24'	6	2	12	20.1		1.1		0.01		0.01		0.20		42		0.5	
Rice Street																				
0+00	22+71	L/R	40'	6	3	12	4,096.1	180.4	229.4	10.1	5.21	0.23	2.17	0.10	40.85	1.80	8,548	376	102.6	4.5
22+89	31+27	L/R	40'-88'	6	3	12	2,377.9	283.8	133.2	15.9	3.02	0.36	1.26	0.15	23.72	2.83	4,963	592	59.6	7.1
34+69	56+50	L/R	88'-40'	6	3	12	4,762.3	218.4	266.7	12.2	6.06	0.28	2.52	0.12	47.50	2.18	9,939	456	119.3	5.5
Temporary Rice Street Widening																				
-2+60	7+73	R	10'-30'	4	2	8	666.8	64.5	37.3	3.6	0.64	0.06	0.53	0.05	9.98	0.97	1,392	135	16.7	1.6
14+25	21+84	L	10'-30'	4	2	8	482.7	63.6	27.0	3.6	0.46	0.06	0.38	0.05	7.22	0.95	1,007	133	12.1	1.6
45+23	59+25	R	10'-30'	4	2	8	974.7	69.5	54.6	3.9	0.93	0.07	0.77	0.06	14.58	1.04	2,034	145	24.4	1.7
Timberline Avenue																				
69+56	72+12	L/R	24	4	2	8	256.7	100.3	14.4	5.6	0.24	0.10	0.20	0.08	3.84	1.50	536	209	6.4	2.5
Bike path																				
786+10	786+32	R	10	4	2	6	6.8	30.8	0.4	1.7	0.01	0.03	0.01		0.10		11	48	0.1	
786+96	870+32	R	10	4	2	6	2,491.0	29.9	139.5	1.7	2.38	0.03	1.98		37.27		3,899	47	46.8	0.6
872+07	872+50	R	10	4	2	6	13.0	30.3	0.7	1.7	0.01	0.03	0.01		0.19		20	47	0.2	
						Totals:	**16,253.1**		**910.2**		**19.1**		**9.9**		**187.0**		**32,719**		**392.6**	

[1] PG 64-28 Asphalt Binder - 5.60% of total mixture weight

[2] Asphalt for Tack Coat - 0.06 gallons per square yard between lifts @ 8.5 pounds per gallon

[3] Asphalt for Flush Seal - 0.05 gallons per square yard on final surface @ 8.5 pounds per gallon

[4] Sand for Flush Seal - 8 pounds per square yard on flushed surface

TABLE OF ADDITIONAL GRAVEL CUSHION

Under PCC median

Station to	Station	L/R	Width (ft)	Gravel Cushion (Tons)	Water (MGal)
788+05	792+92	R	2.67'-7'	240	3
792+92	865+50	L	2'	225	3
792+92	865+50	R	2'	225	3
865+50	870+40	L	7'-2.67'	240	3
			Total:	930	12

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-21-16

HDR

FOR BIDDING PURPOSES ONLY

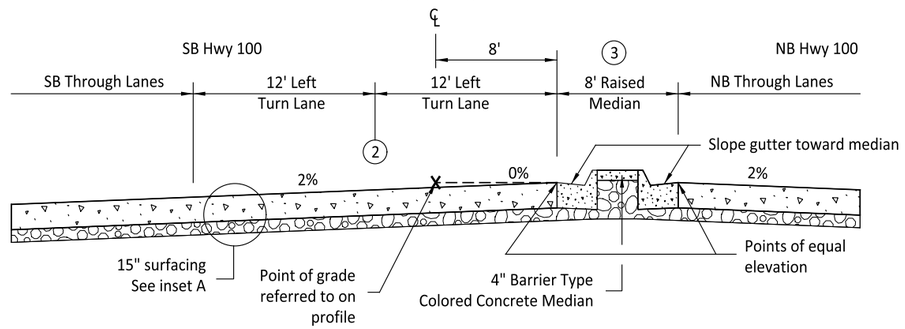
Typical Surfacing Sections

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F5	F44

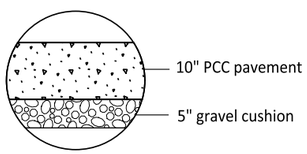
FILE: F05-F10.dgn
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SB Dual Left Turn Lanes
787+09.9 (Maple Street) to 793+70.1

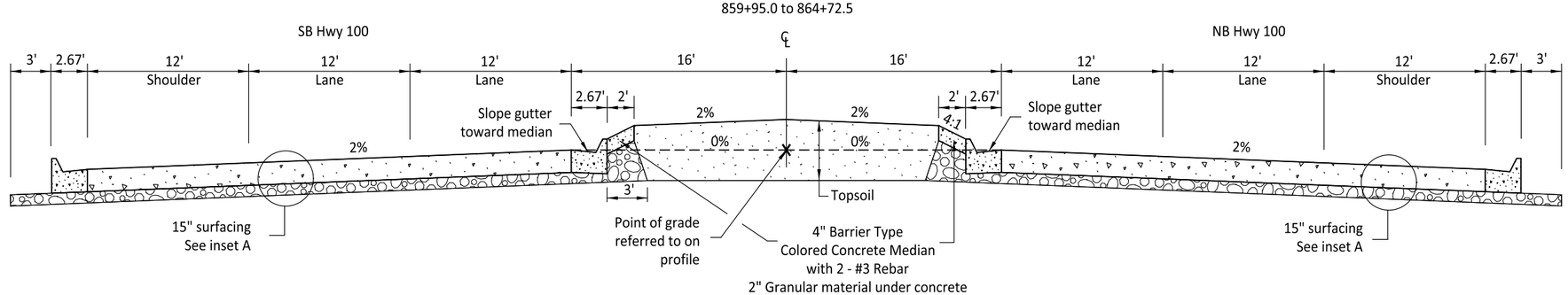


1. Left turn lanes taper from 24' at 792+49.9 to 0' at 793+70.1
2. Raised median tapers from 8' at 792+49.9 to 32' at 793+70.1



INSET A

793+70.1 to 827+60.0
859+95.0 to 864+72.5



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

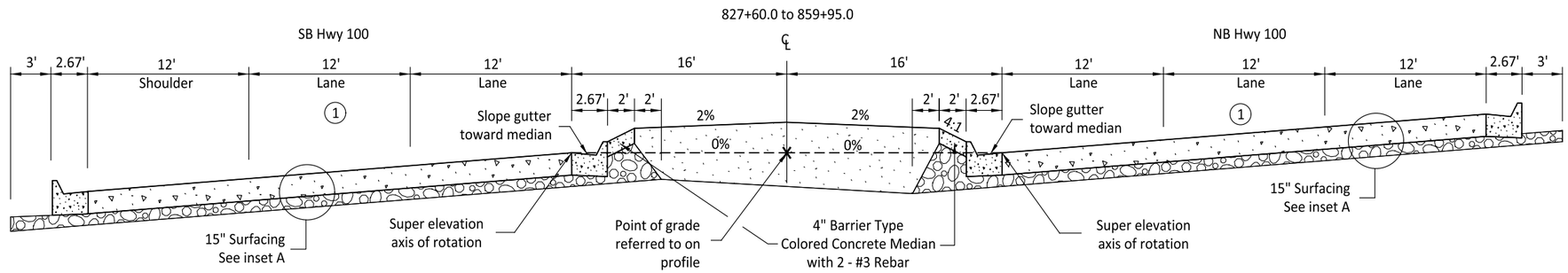
FOR BIDDING PURPOSES ONLY

Typical Surfacing Sections

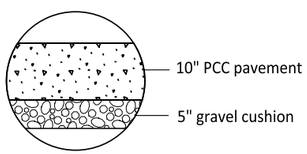
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F6	F44

FILE: F05-F10.dgn
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

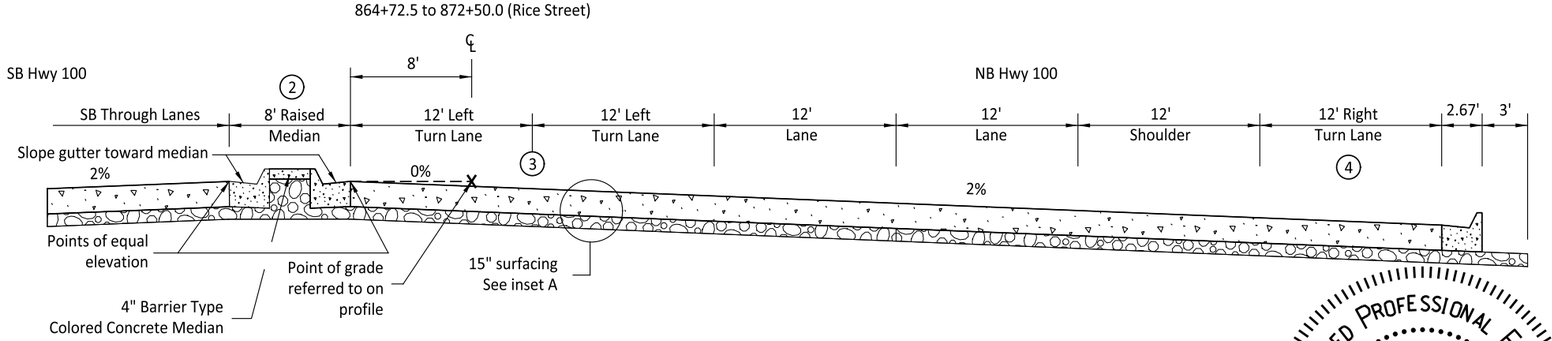


(1) See Superelevation Table and Pavement Layout Sheets for Superelavation Rates and Transitions



INSET A

NB Dual Left Turn Lanes and Right Turn Lane
864+72.5 to 872+50.0 (Rice Street)



(2) Raised median tapers from 32' at 864+72.5 to 8' at 865+92.5

(3) Left turn lanes taper from 0' at 864+72.5 to 0' at 865+92.5

(4) Right turn lane tapers from 0' at 866+36.3 to 12' at 867+78.5

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

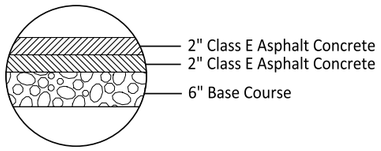
Typical Surfacing Sections

FOR BIDDING PURPOSES ONLY

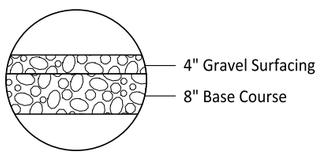
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F7	F44

FILE: F05-F10.dgn
PLOTTING DATE: 06-21-2016

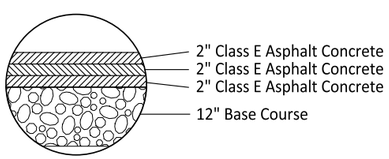
REV DATE: 6/21/2016
INITIAL: JHU



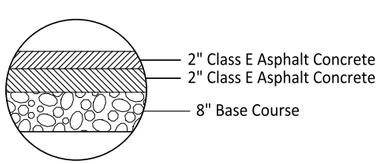
INSET C - Bike Trail



INSET D - Gravel Surfacing

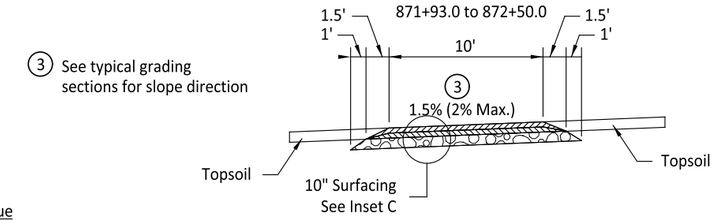


INSET E - Rice Street Surfacing



INSET F - Timberline Ave, Maple Street, and Temporary Rice Street Surfacing

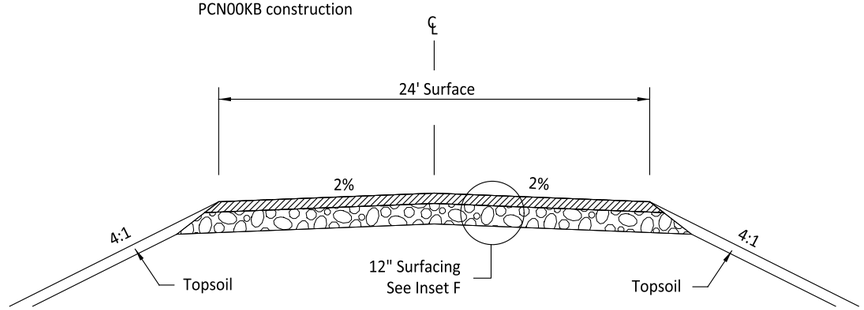
Bike Path
786+80.0 to 870+49.4
871+93.0 to 872+50.0



3 See typical grading sections for slope direction

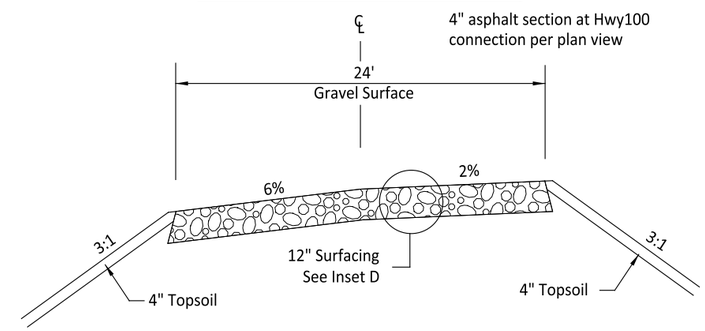
Maple Street
Shifted from project PCN00KB construction

Timberline Avenue
68+50.0 to 72+ 00.0

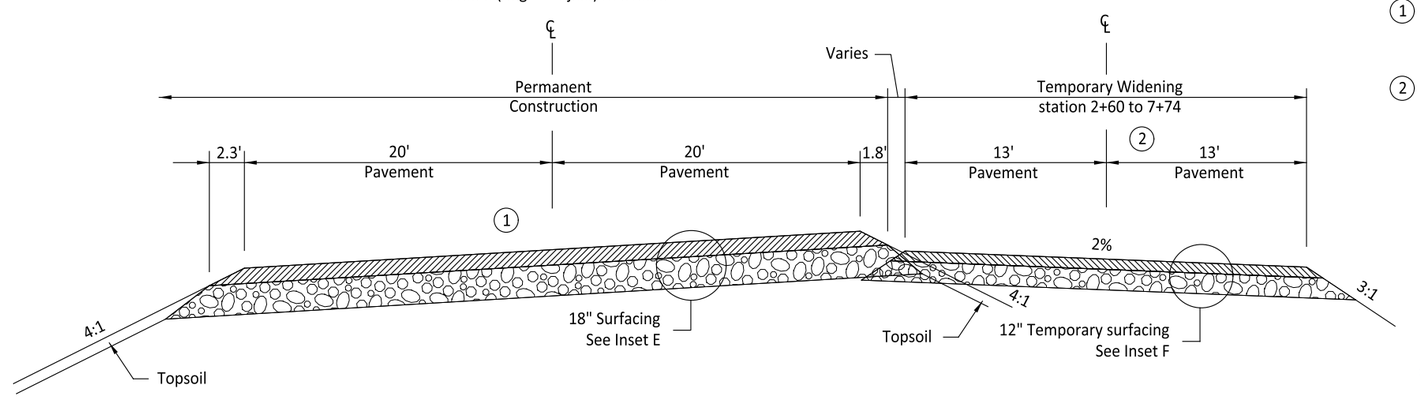


Station 839+92.9 L Entrance (West Cactus Hills)

4" asphalt section at Hwy100 connection per plan view



Rice Street
0+00.0 (Begin Project) to 6+00.0



1 See Asphalt Concrete and PCC Pavement Layout Sheets and super elevation table for pavement slopes.

2 Temporary widening asphalt, granular base, and embankment to be salvaged and utilized in project Minn00X8 (Hwy 100 construction from Rice Street to I-90)

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-21-16

HDR

FOR BIDDING PURPOSES ONLY

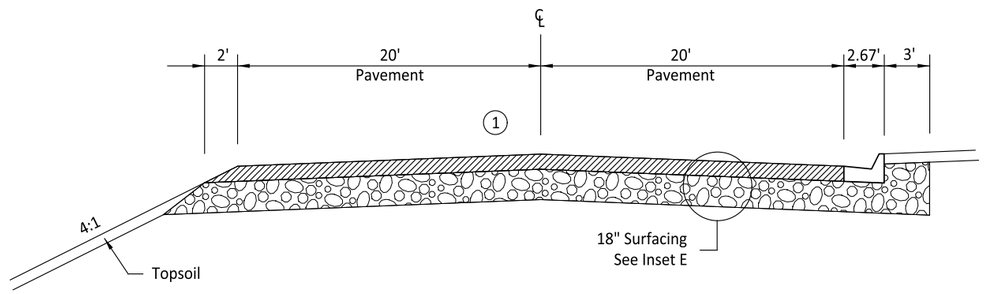
Typical Surfacing Sections

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F8	F44

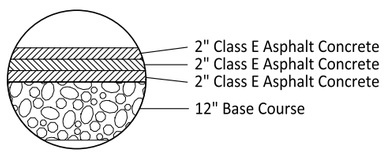
FILE: F05-F10.dgn
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

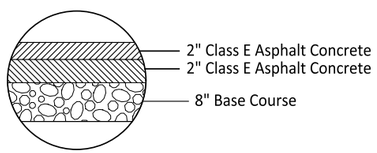
Rice Street
6+00.0 to 12+50.0 and 22+70.0 to 28+64.4



1 See Asphalt Concrete and PCC Pavement Layout Sheets and super elevation table for pavement slopes.

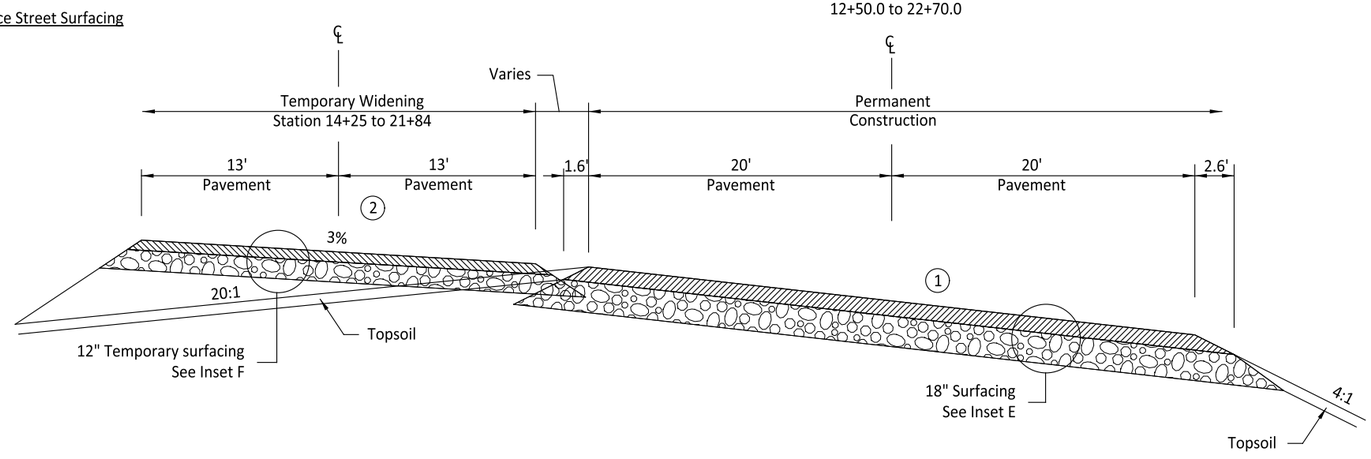


INSET E - Rice Street Surfacing



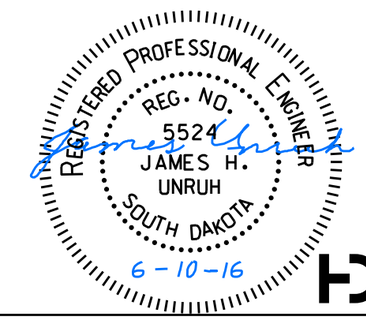
INSET F - Temporary Rice Street Surfacing

Rice Street
12+50.0 to 22+70.0



1 See Asphalt Concrete and PCC Pavement Layout Sheets and super elevation table for pavement slopes.

2 Temporary widening asphalt, granular base, and embankment to be salvaged and utilized in project Minn00X8 (Hwy 100 construction from Rice Street to I-90)



FOR BIDDING PURPOSES ONLY

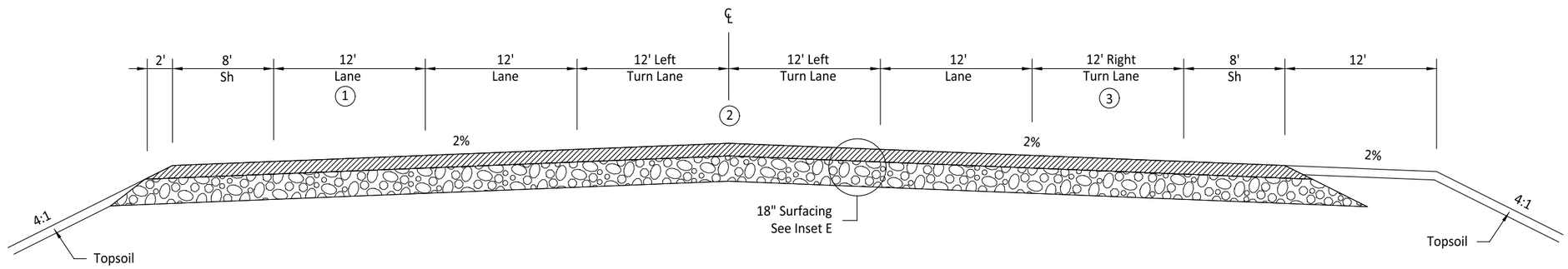
Typical Surfacing Sections

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F9	F44

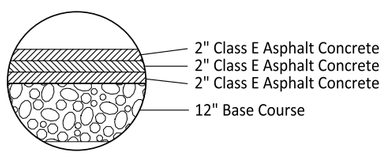
FILE: F05-F10.dgn
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Rice Street
28+64.4 to 33+00.0 (Hwy 100)

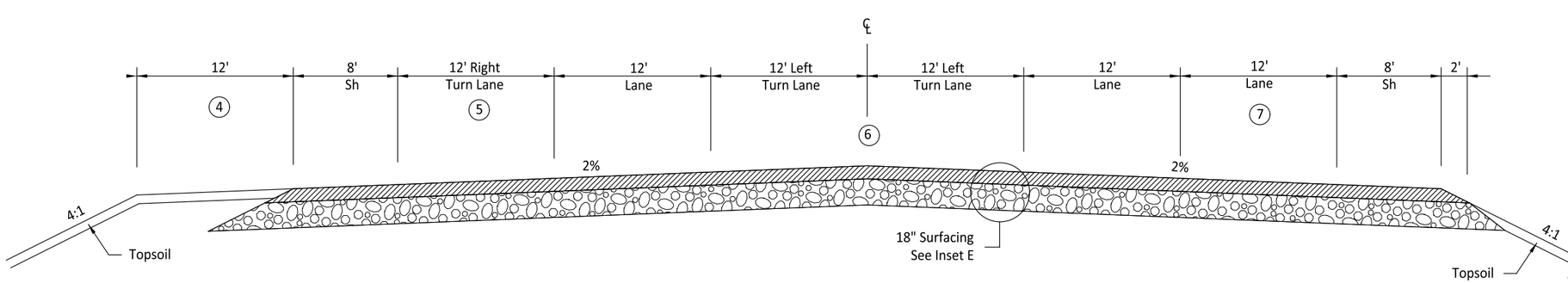


1. Lane tapers from 0' at 24+23.0 to 12' at 29+72.2
2. Turn lanes taper from 0' at 24+23.0 to 24' at 29+72.2
3. Turn lane tapers from 0' at 28+53.9 to 12' at 29+73.9



INSET E - Rice Street Surfacing

Rice Street
33+00.0 (Hwy 100) to 41+81.8



4. 12' from 33+00 (Hwy 100) to 37+61.1 Tapers to 0' at 39+00.0
5. Turn lane tapers from 12' at 36+32.5 to 0' at 37+52.8
6. Turn lanes taper from 24' at 36+32.5 to 0' at 41+81.8
7. Lane tapers from 12' at 36+32.5 to 0' at 41+81.8

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

FOR BIDDING PURPOSES ONLY

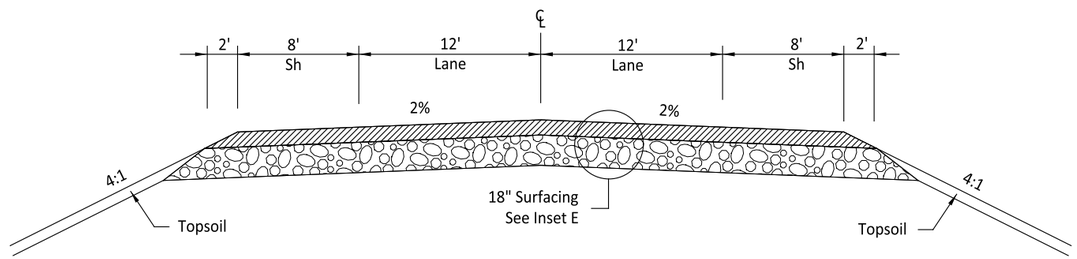
Typical Surfacing Sections

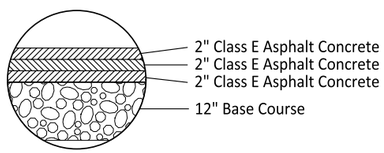
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F10	F44

FILE: F05-F10.dgn
PLOTTING DATE: 06-09-2016

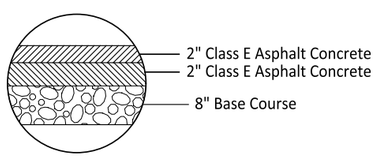
REV DATE:
INITIAL:

Rice Street
41+81.8 to 49+10.0



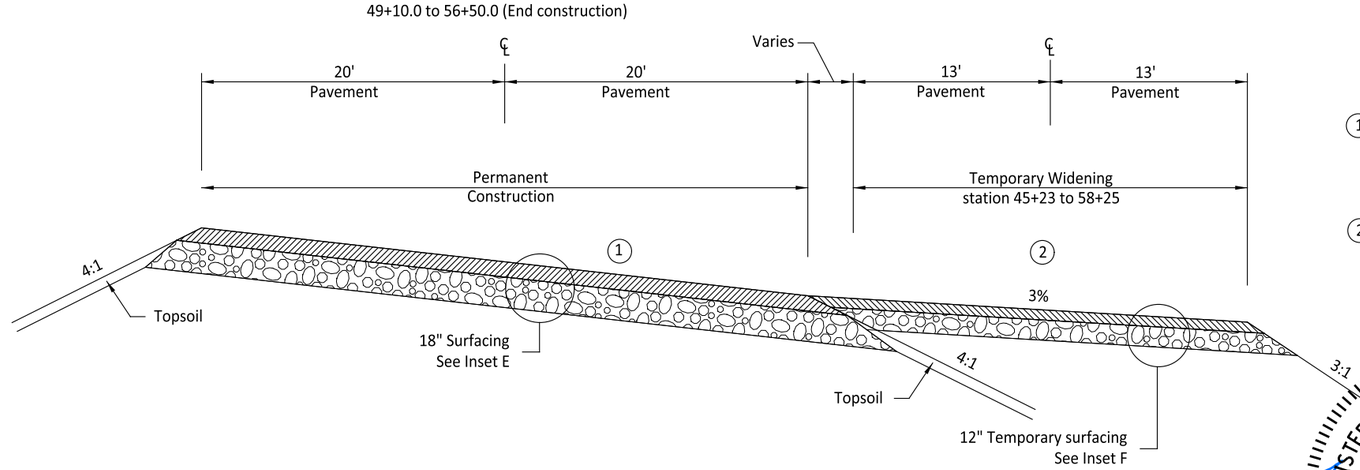


INSET E - Rice Street Surfacing



INSET F - Temporary Rice Street Surfacing

Rice Street
49+10.0 to 56+50.0 (End construction)



1. See Asphalt Concrete and PCC Pavement Layout Sheets and super elevation table for pavement slopes.

2. Temporary widening asphalt, granular base, and embankment to be salvaged and utilized in project Minn00X8 (Hwy 100 construction from Rice Street to I-90)

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

FOR BIDDING PURPOSES ONLY

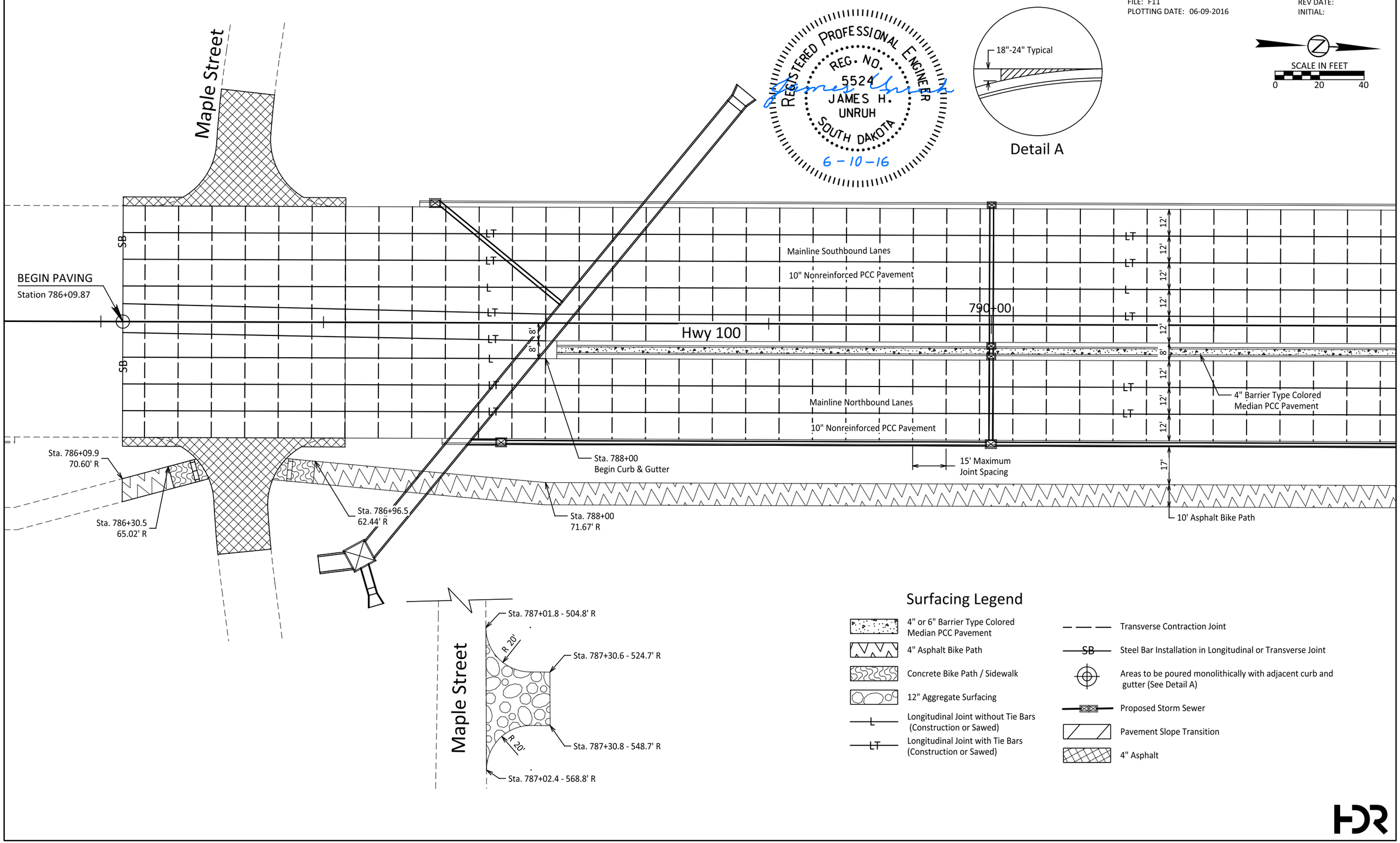
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F11	F44

FILE: F11
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16



FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

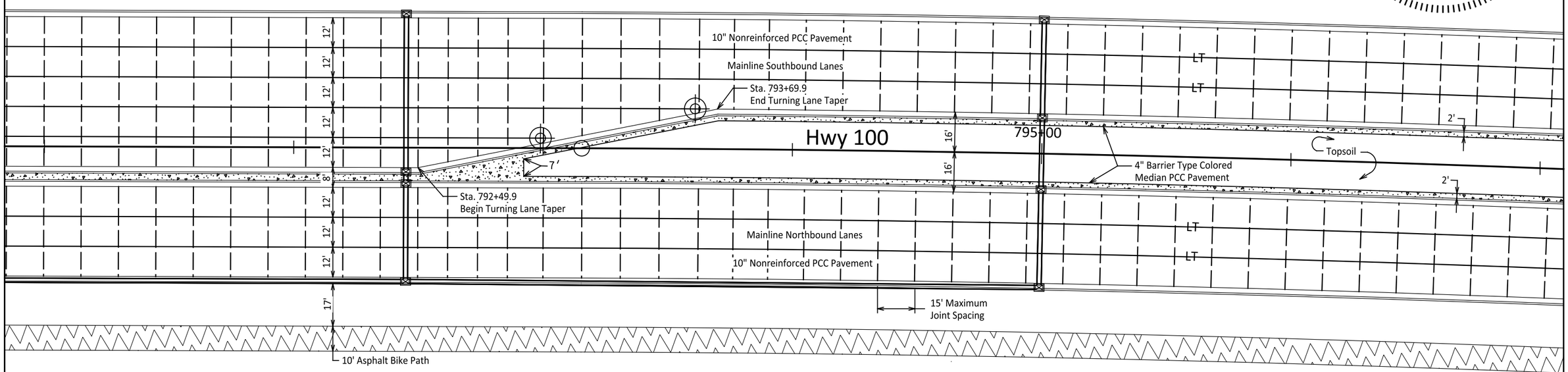
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F12	F44

FILE: F12
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

HDR

FOR BIDDING PURPOSES ONLY

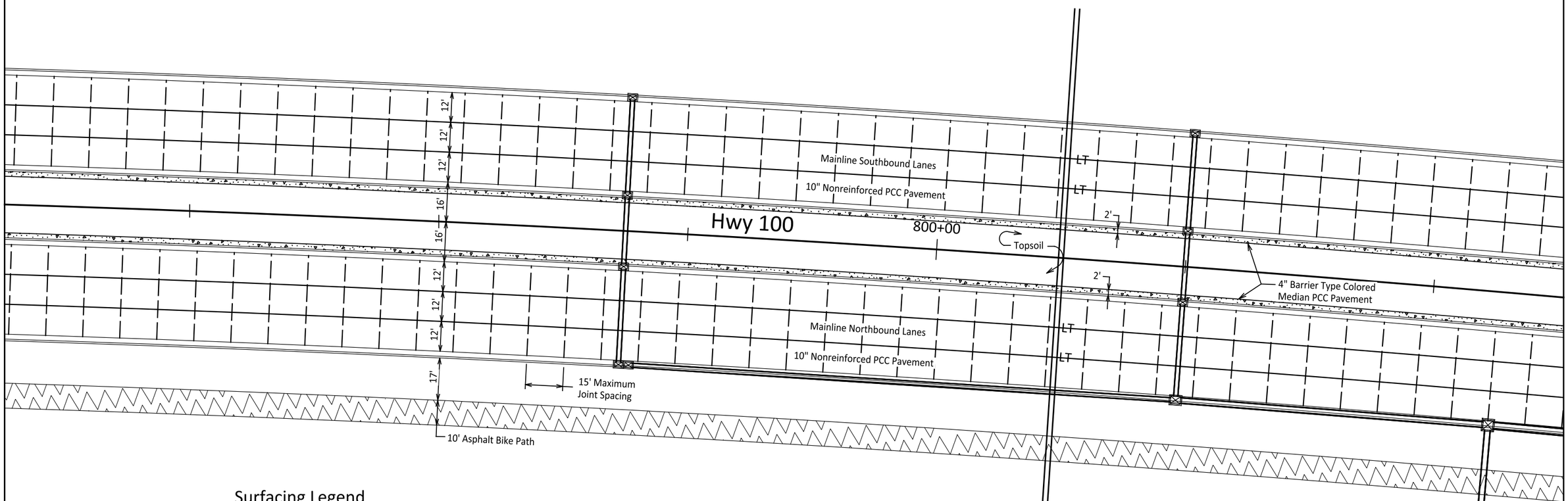
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F13	F44

FILE: F13
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

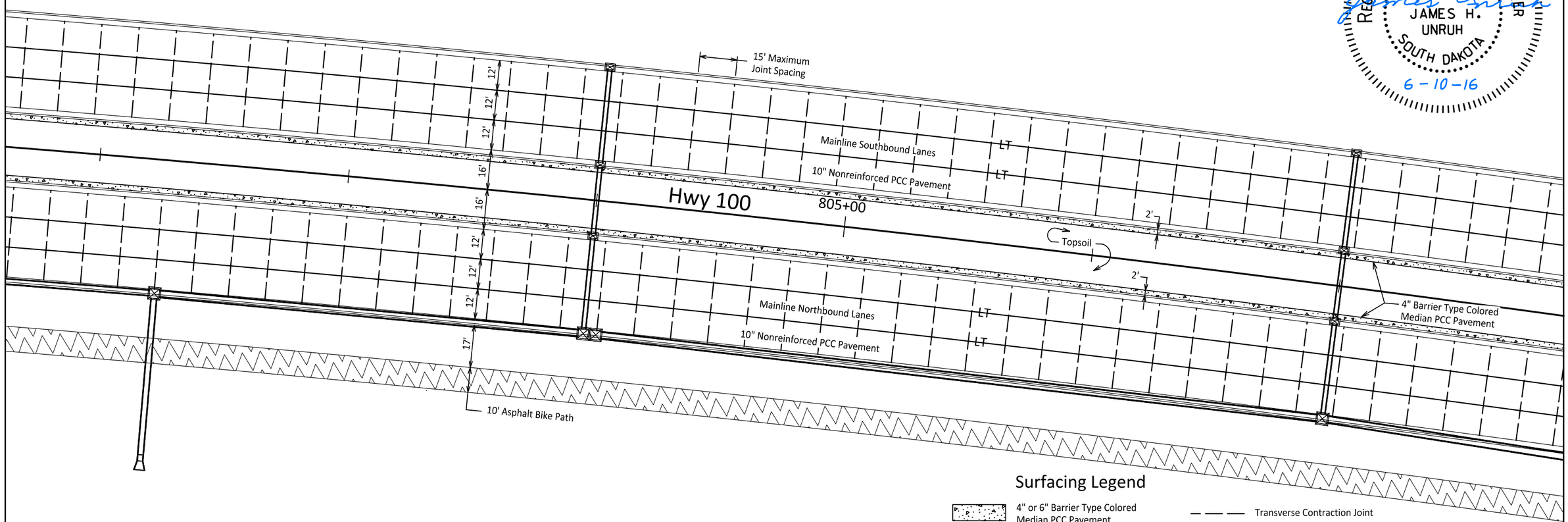
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F14	F44

FILE: F14
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

HDR

FOR BIDDING PURPOSES ONLY

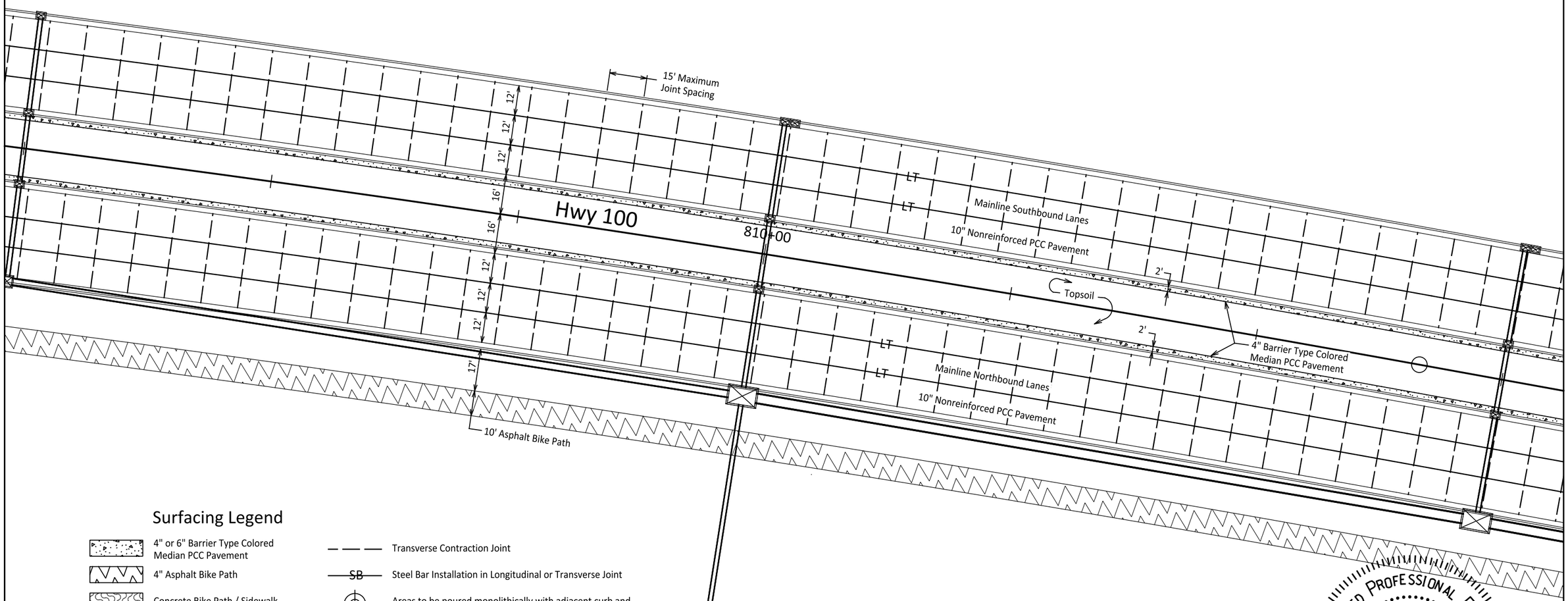
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F15	F44

FILE: F15
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

HDR

FOR BIDDING PURPOSES ONLY

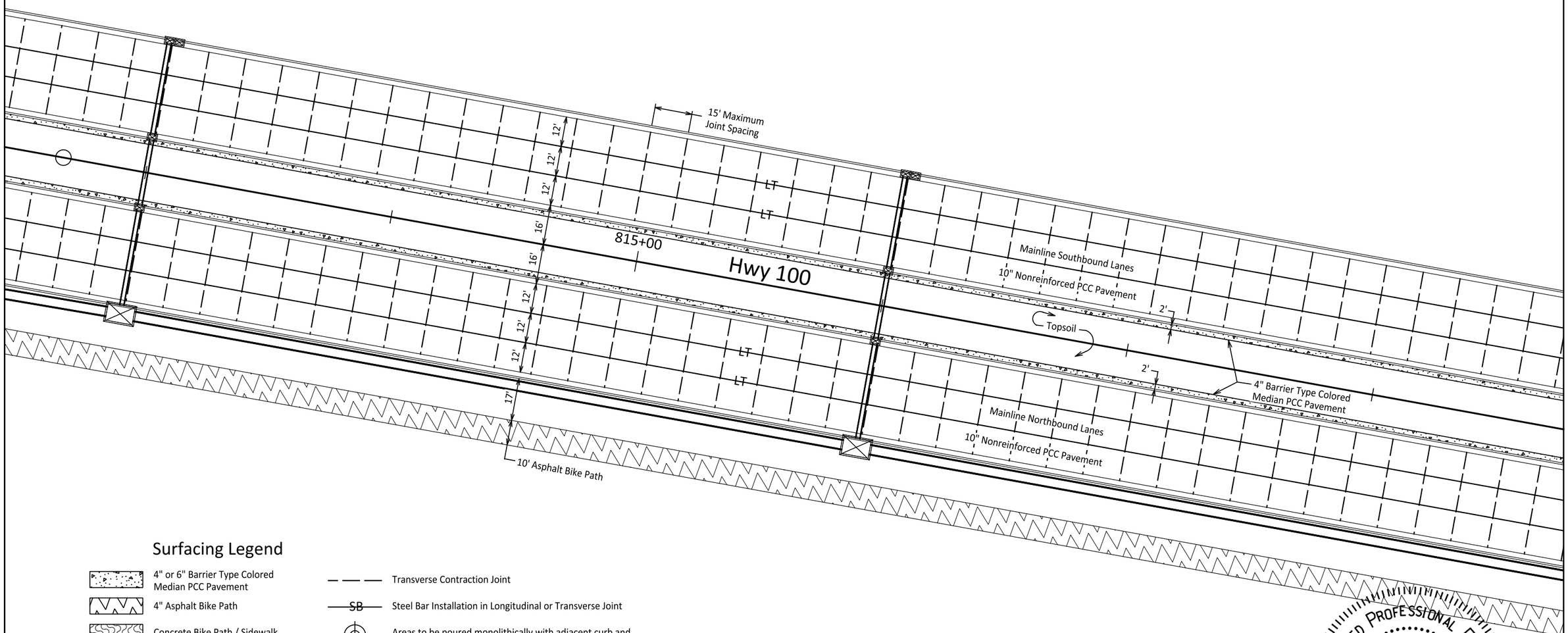
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F16	F44

FILE: F16
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

FOR BIDDING PURPOSES ONLY

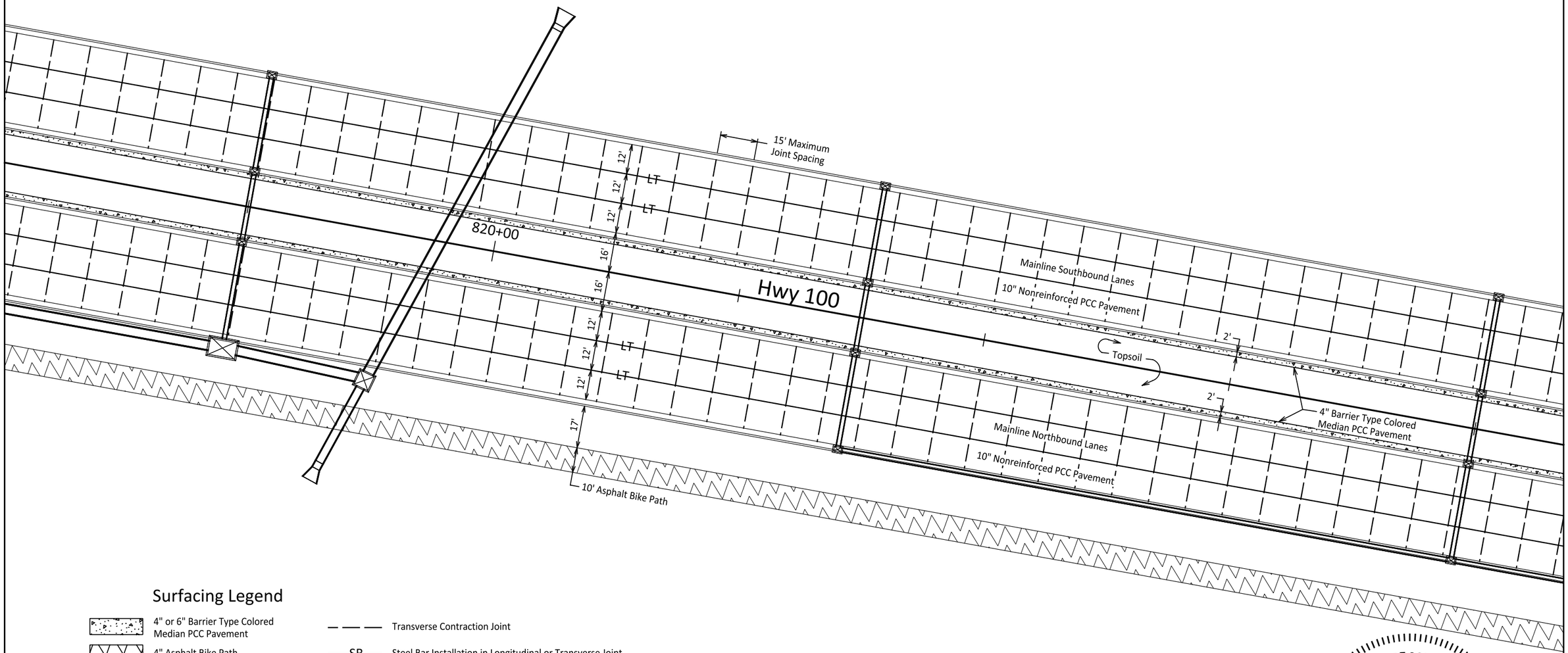
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F17	F44

FILE: F17
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

HDR

FOR BIDDING PURPOSES ONLY

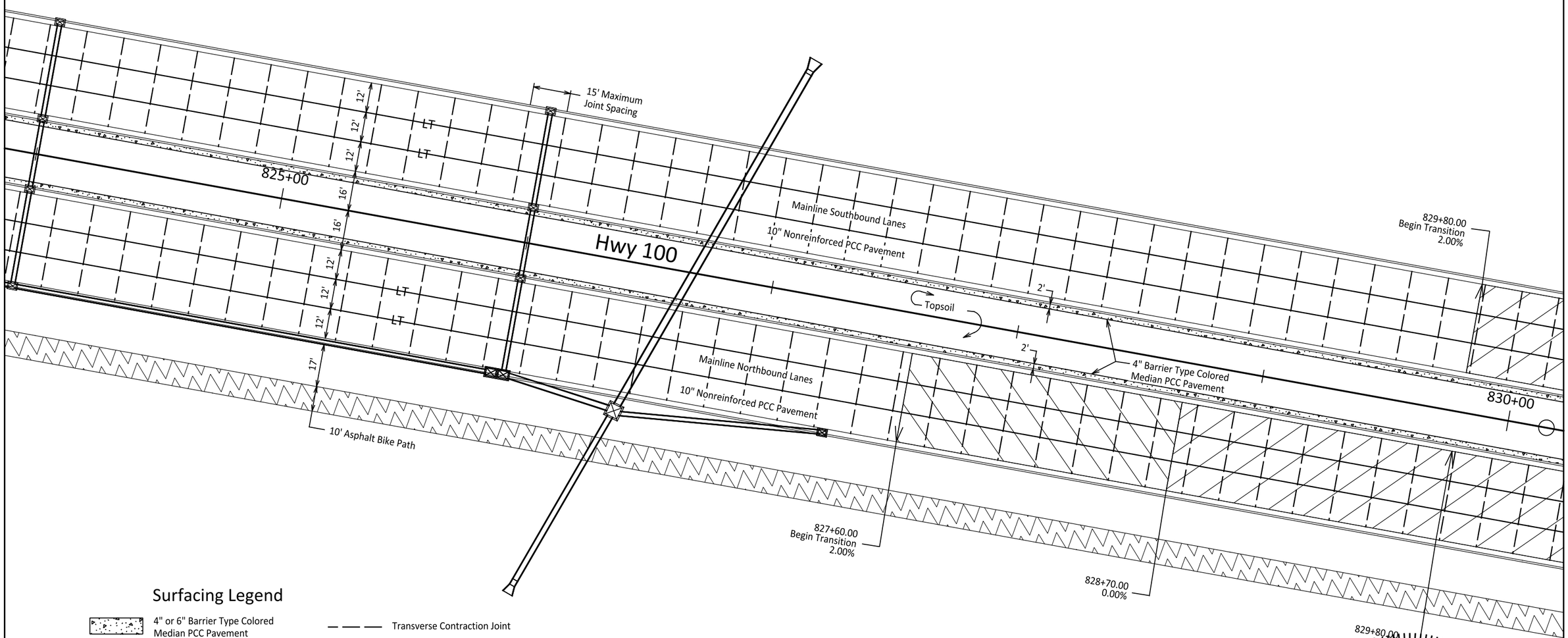
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F18	F44

FILE: F18
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

HDR

FOR BIDDING PURPOSES ONLY

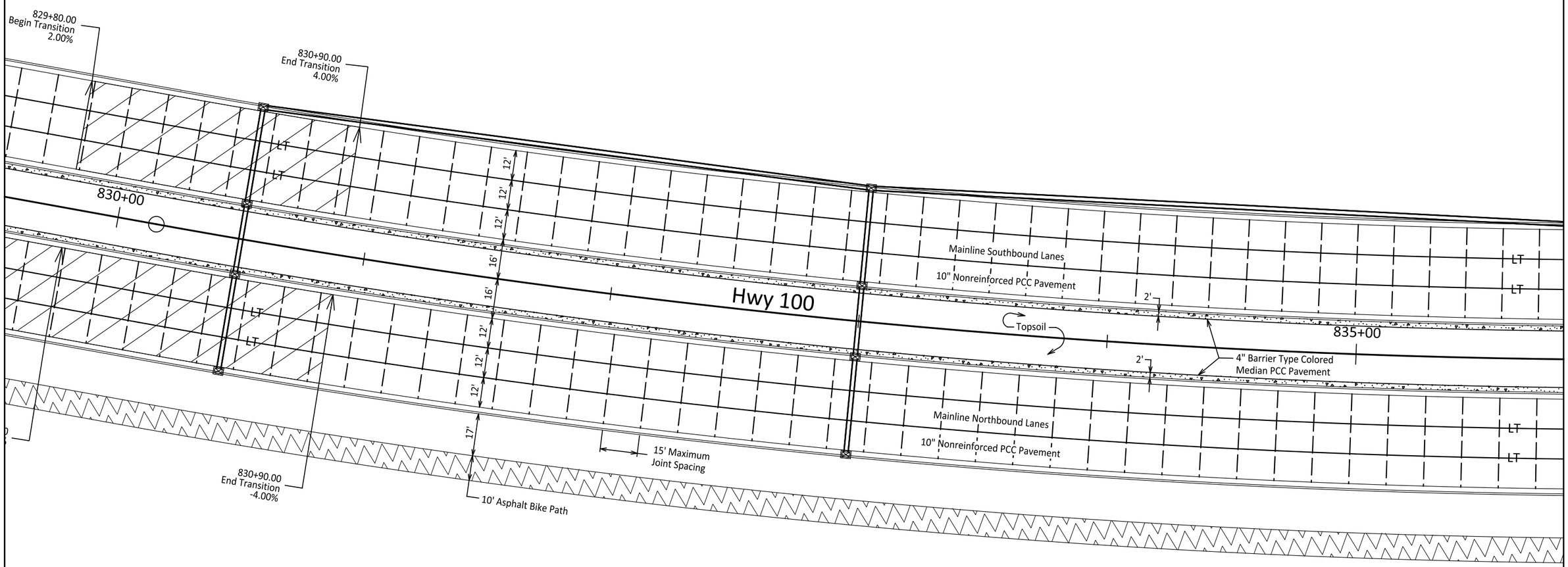
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F19	F44

FILE: F19
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

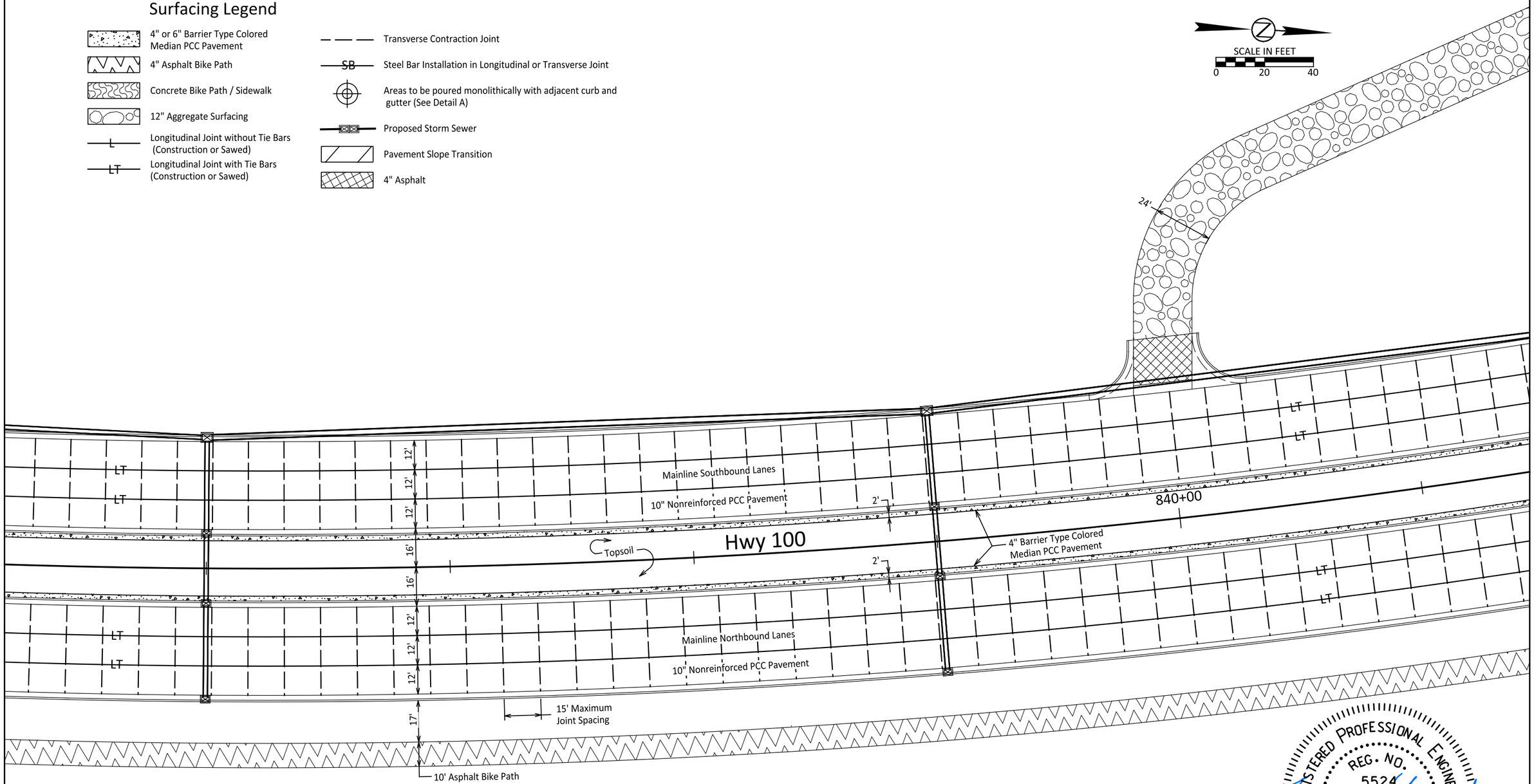
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F20	F44

FILE: F20
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 4" Asphalt



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

FOR BIDDING PURPOSES ONLY

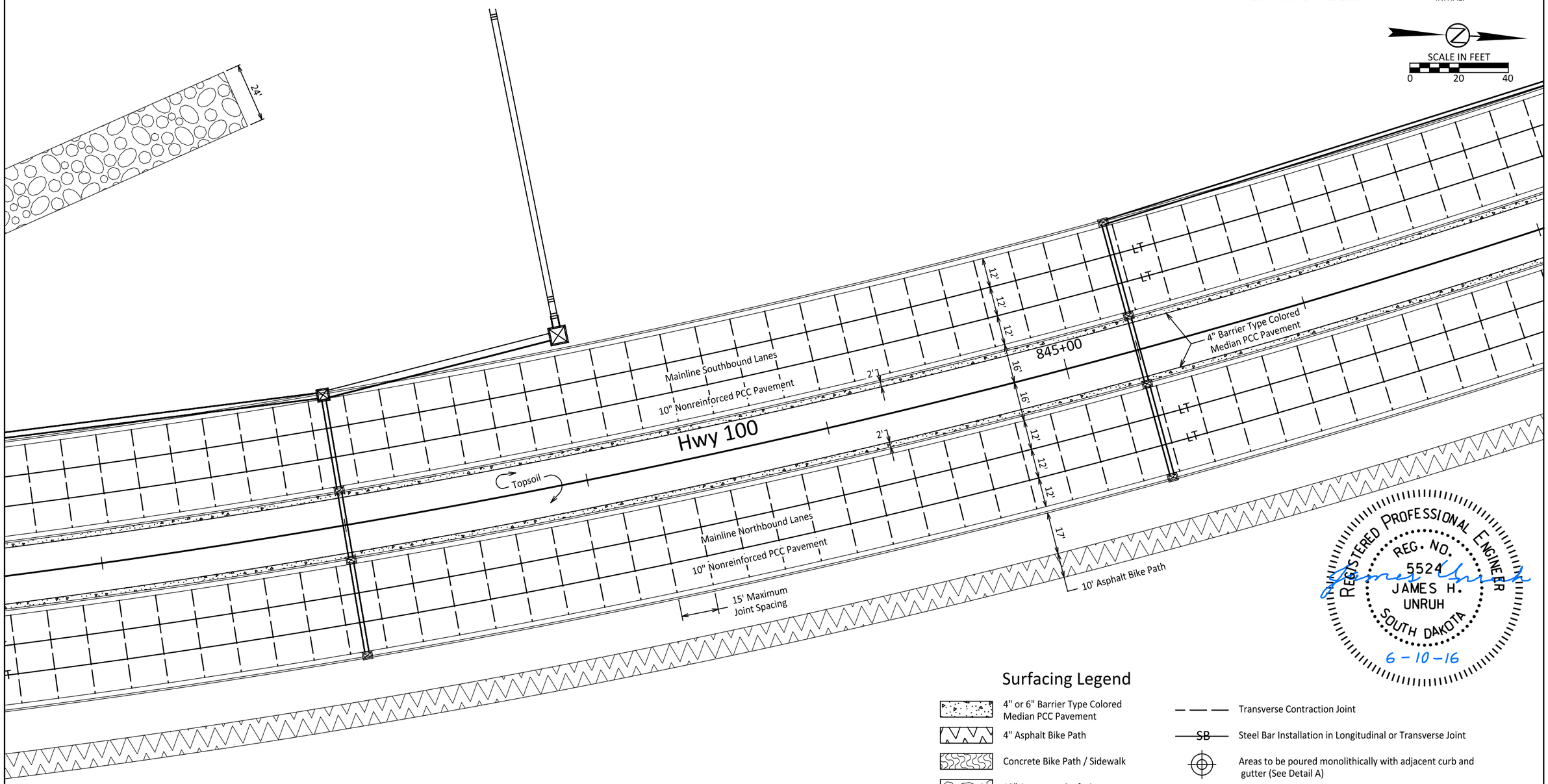
Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F21	F44

FILE: F21
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

HDR

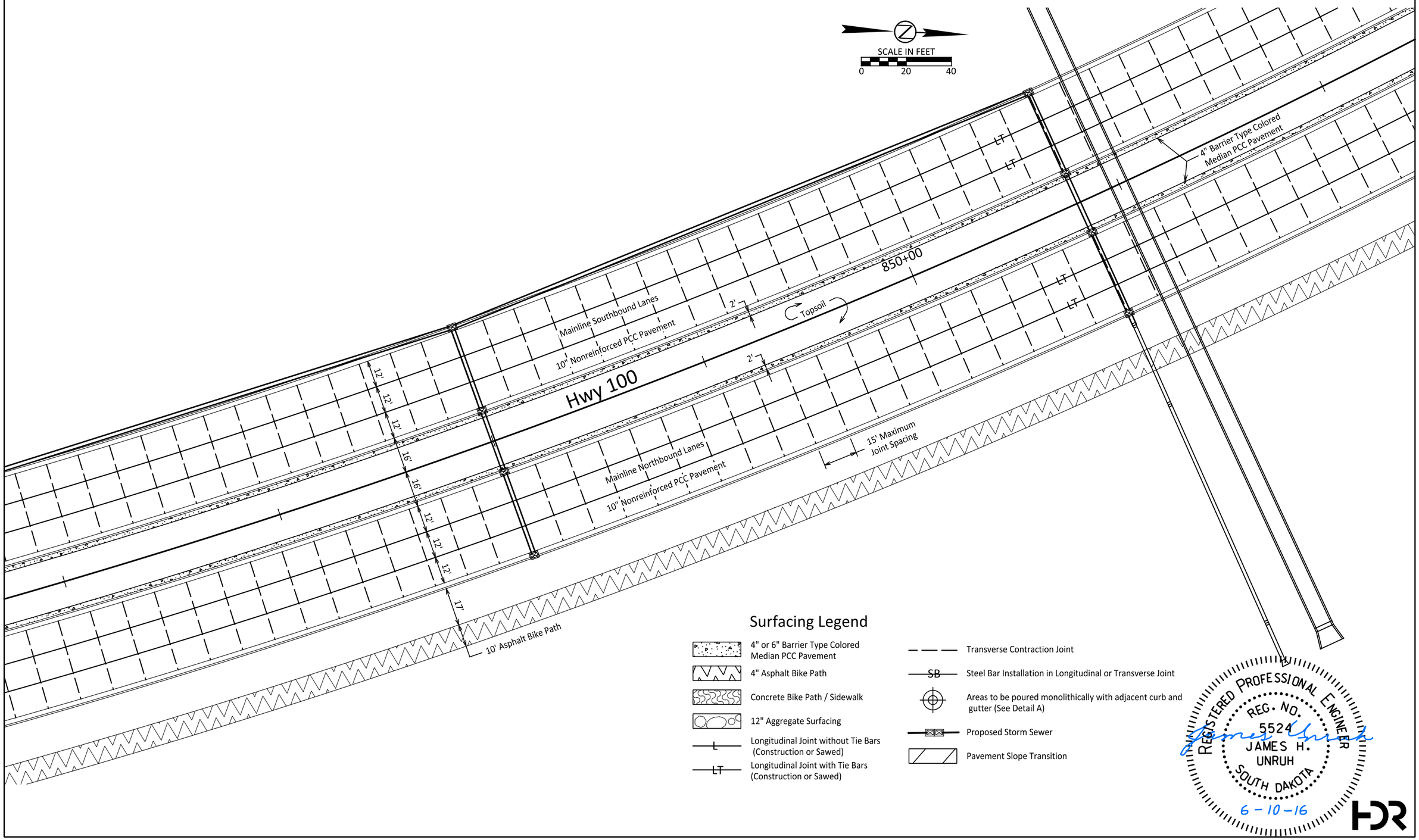
FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F22	F44

FILE: F22
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:



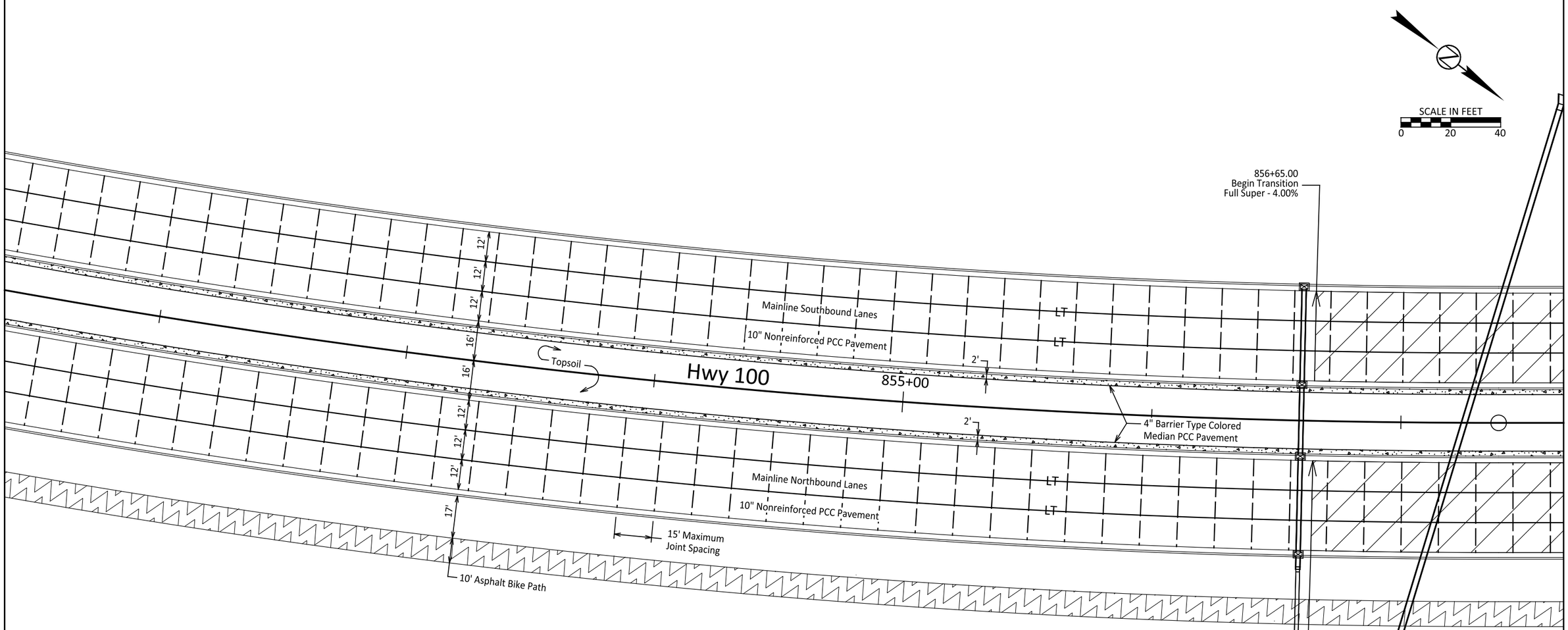
FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F23	F44

FILE: F23
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

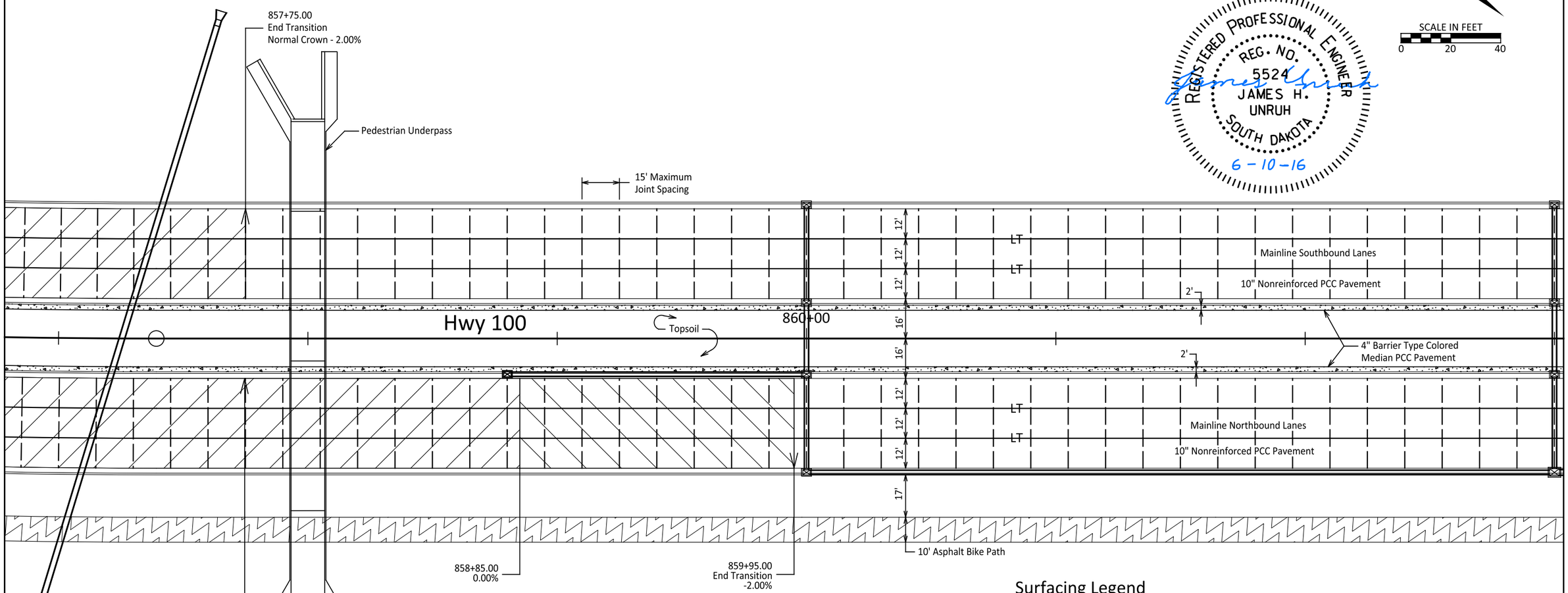
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F24	F44

FILE: F24
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

HDR

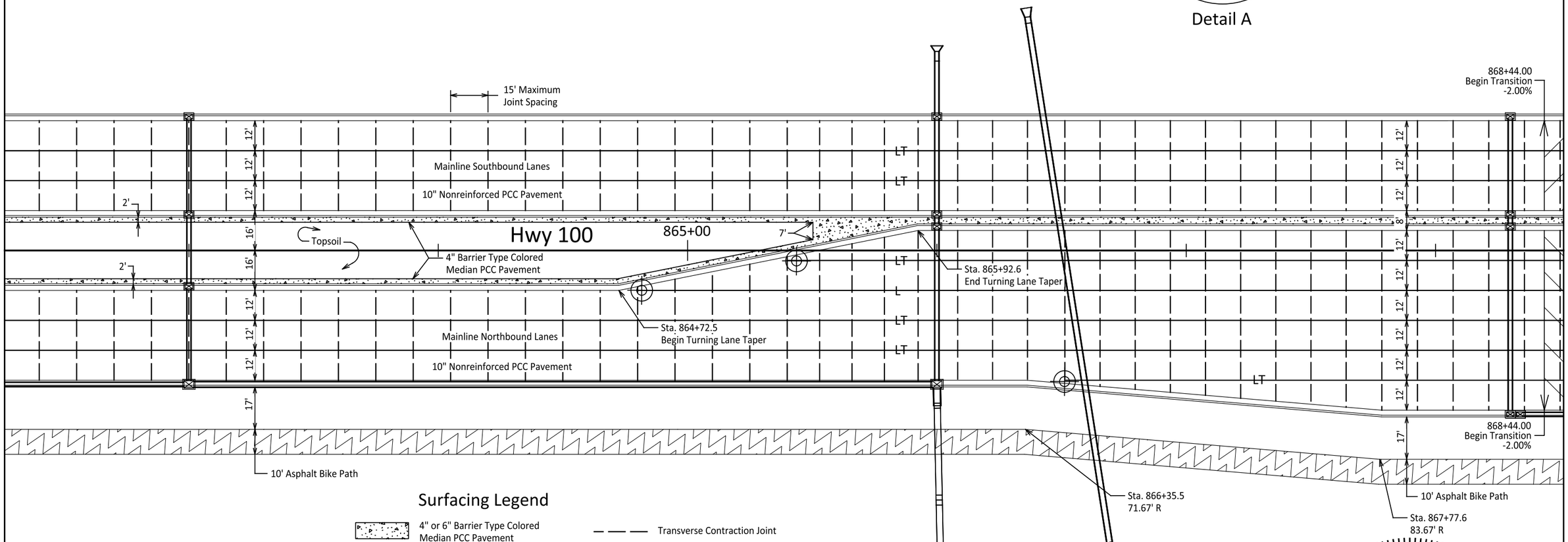
FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F25	F44

FILE: F25
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

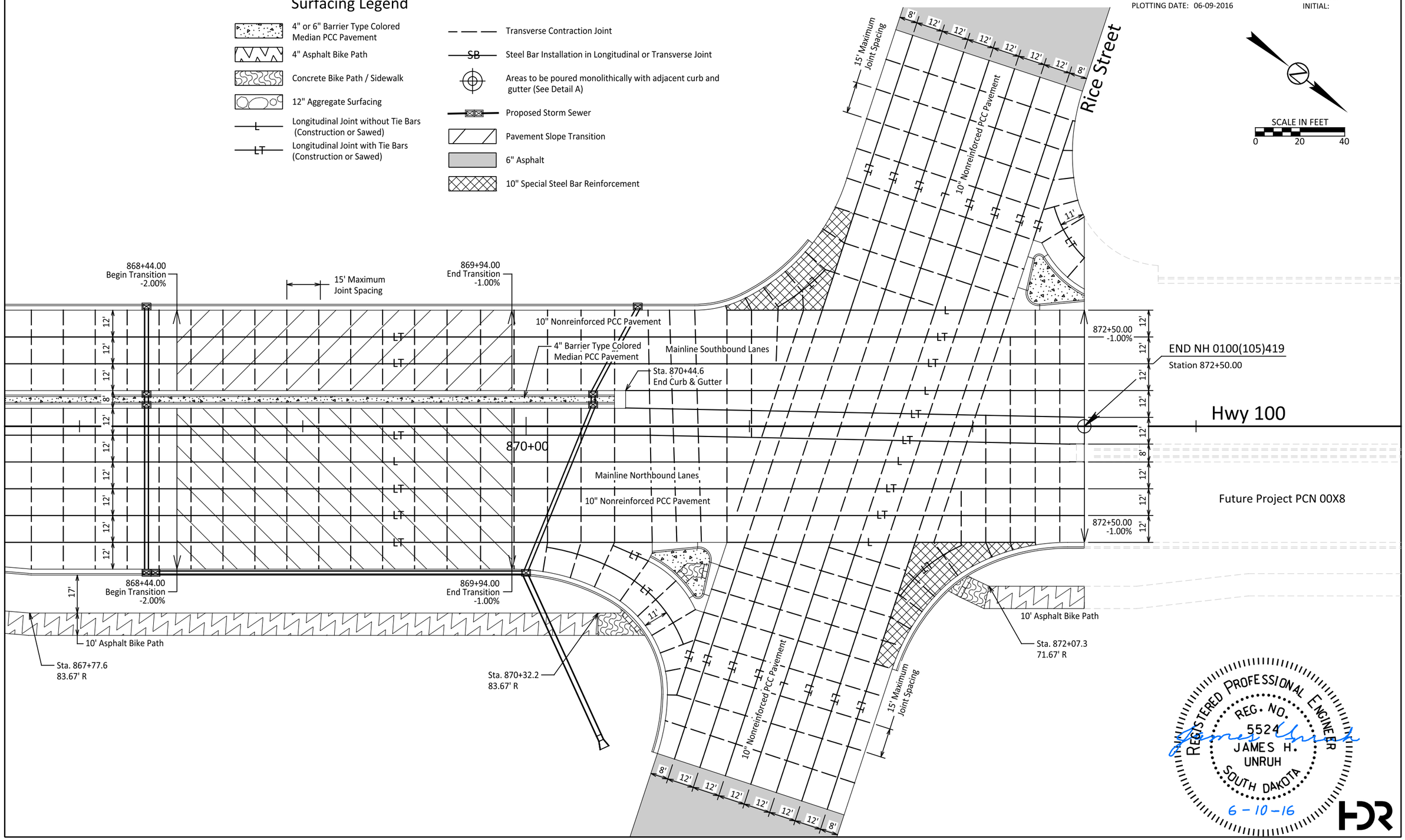
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F26	F44

FILE: F26
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt
- 10" Special Steel Bar Reinforcement



FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

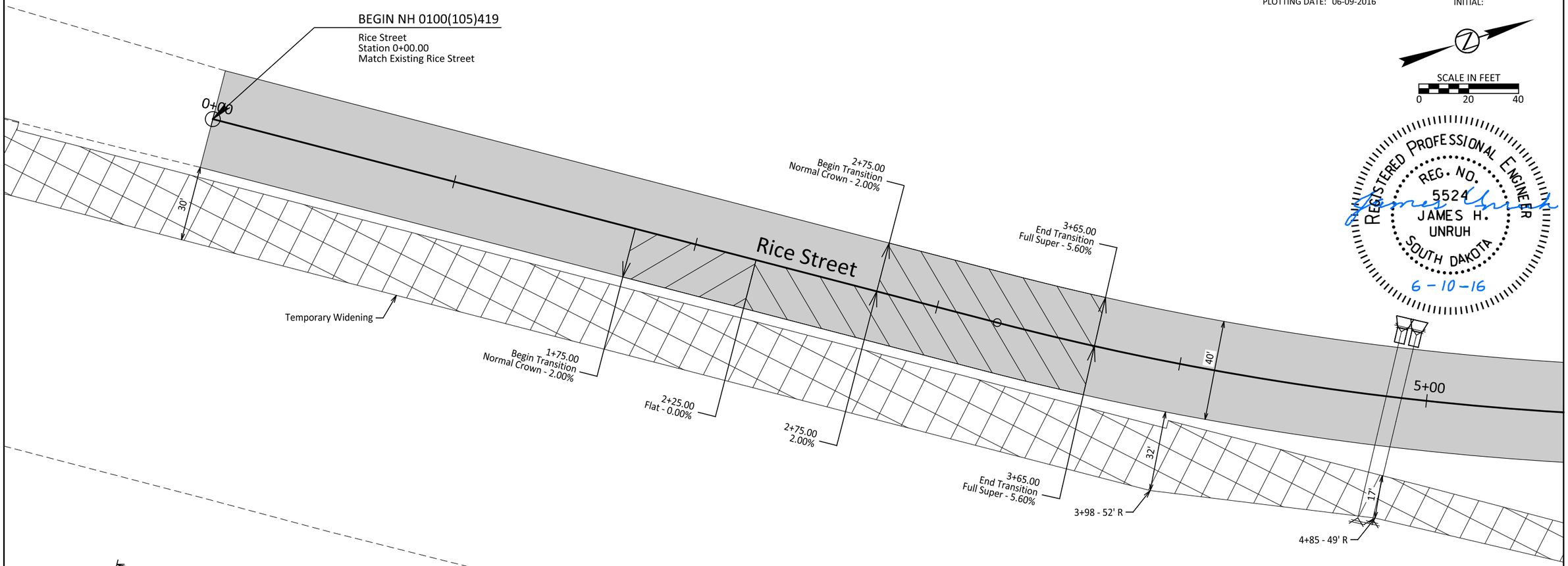
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F27	F44

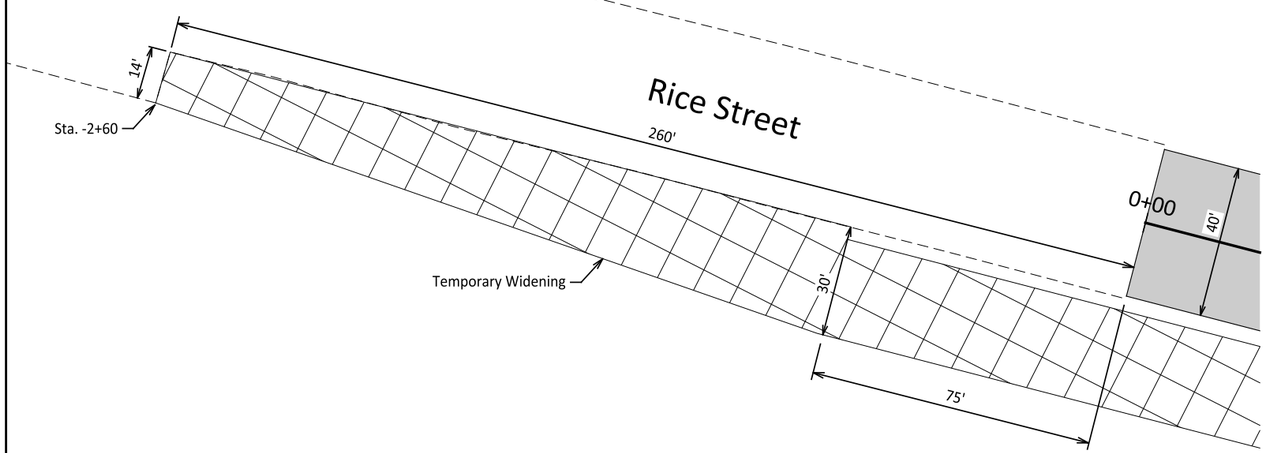
FILE: F27
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

SCALE IN FEET
0 20 40

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16





Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt
- Temporary Asphalt Concrete Pavement for Maintenance of Traffic

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F28	F44

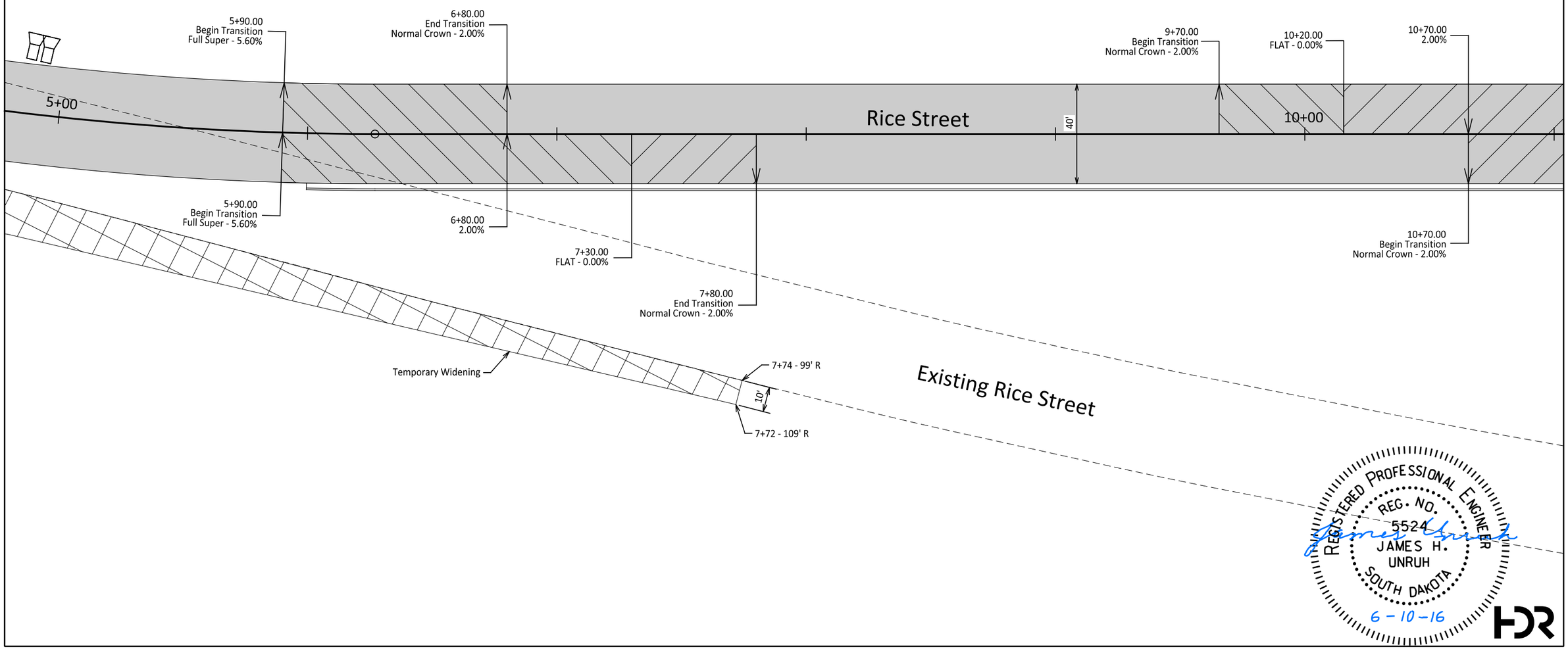
FILE: F28
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt
- Temporary Asphalt Concrete Pavement for Maintenance of Traffic

SCALE IN FEET
0 20 40



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

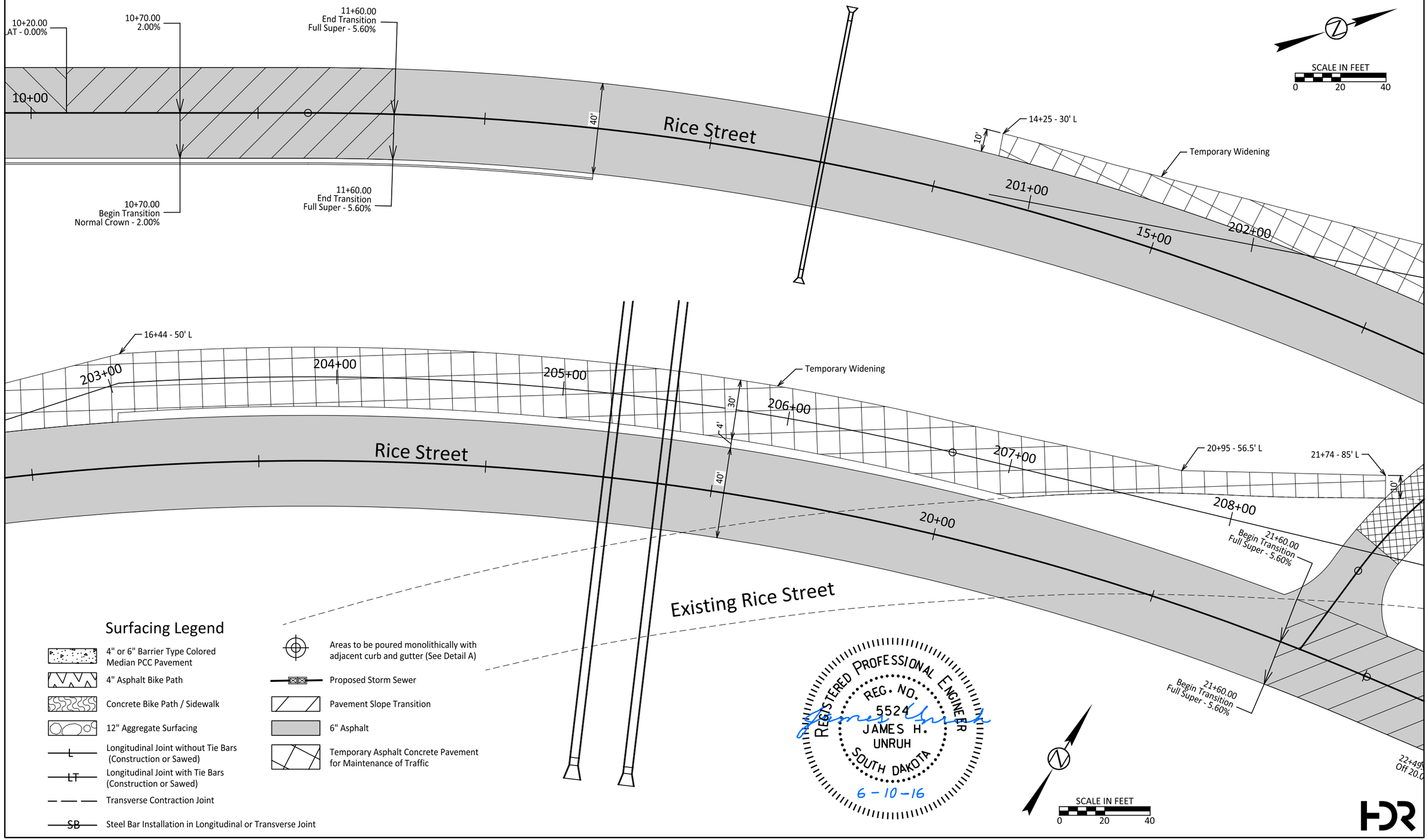
FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F29	F44

FILE: F29
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt
- Temporary Asphalt Concrete Pavement for Maintenance of Traffic

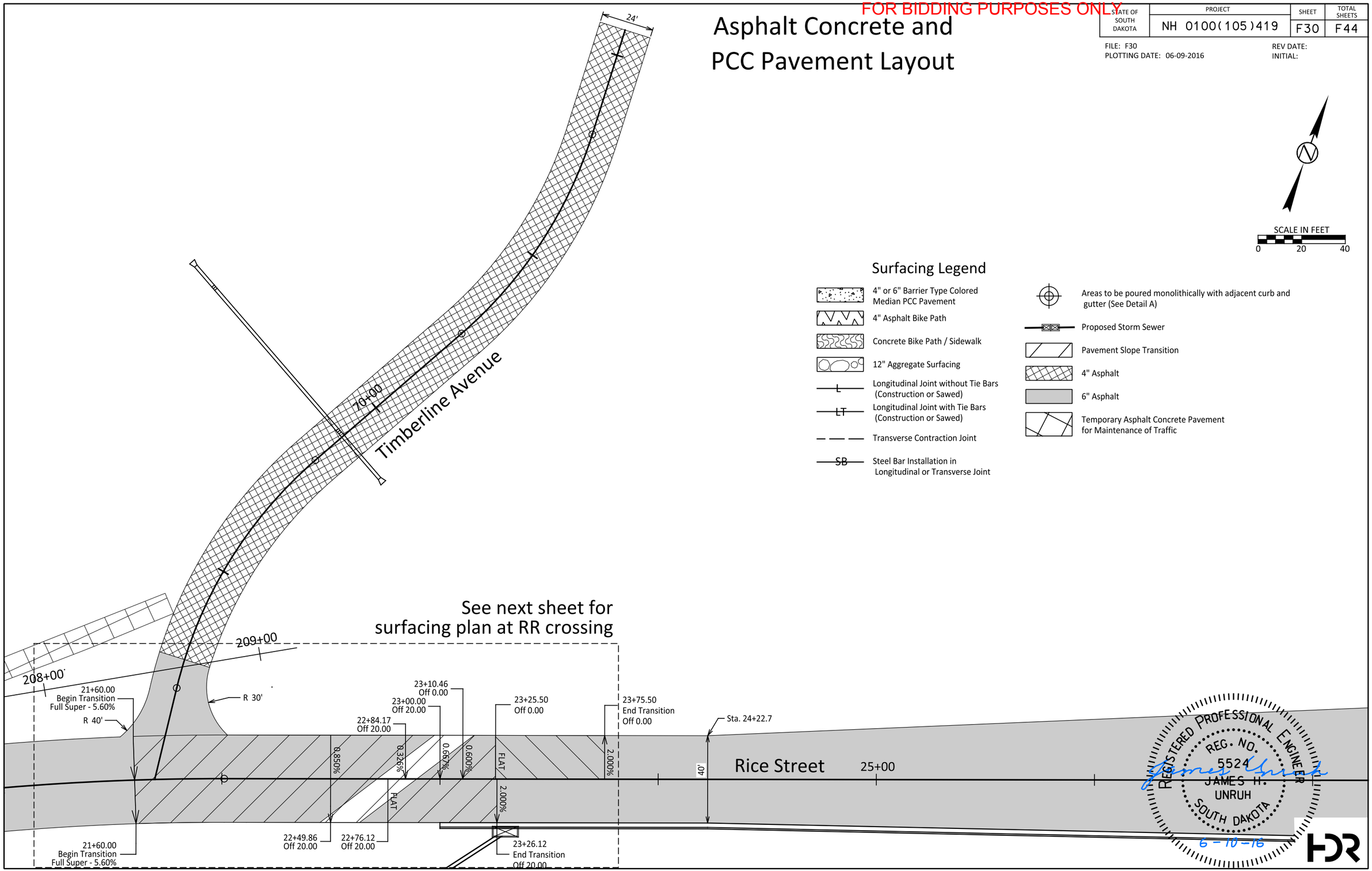
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F30	F44

FILE: F30
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Asphalt Concrete and PCC Pavement Layout



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 4" Asphalt
- 6" Asphalt
- Temporary Asphalt Concrete Pavement for Maintenance of Traffic

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F31	F44

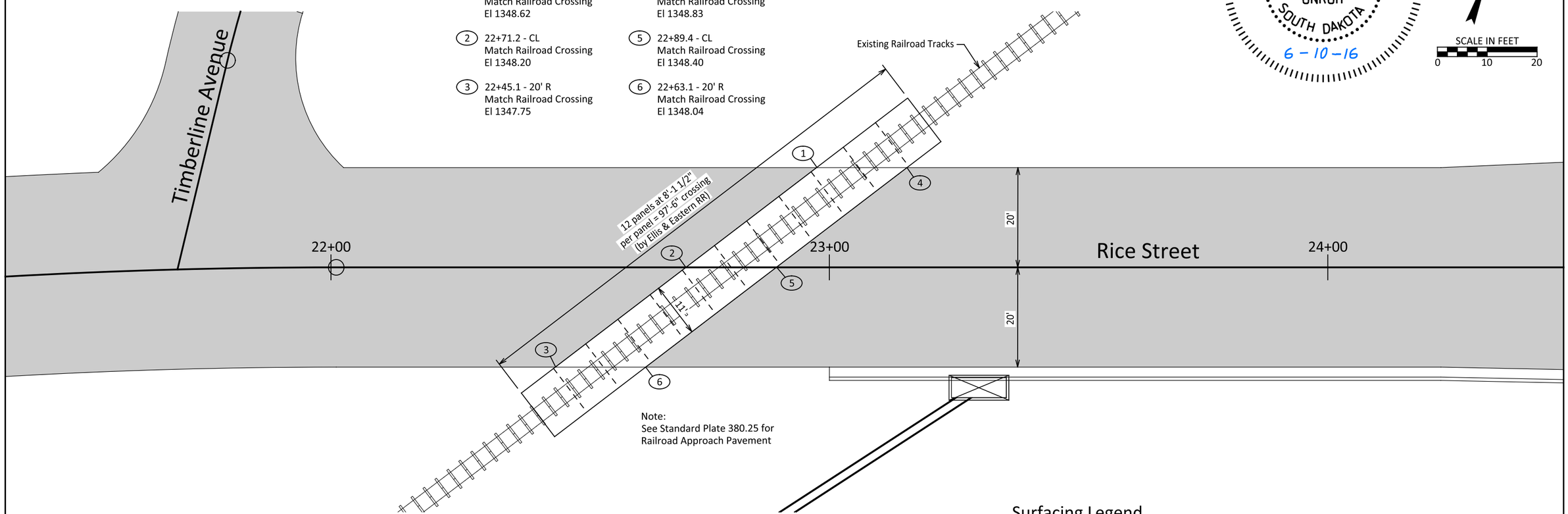
FILE: F31
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

SCALE IN FEET
0 10 20

1. 22+97.6 - 20' L
   Match Railroad Crossing
   El 1348.62
2. 22+71.2 - CL
   Match Railroad Crossing
   El 1348.20
3. 22+45.1 - 20' R
   Match Railroad Crossing
   El 1347.75
4. 23+15.6 - 20' L
   Match Railroad Crossing
   El 1348.83
5. 22+89.4 - CL
   Match Railroad Crossing
   El 1348.40
6. 22+63.1 - 20' R
   Match Railroad Crossing
   El 1348.04



Note:
See Standard Plate 380.25 for Railroad Approach Pavement

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Railroad Crossing
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

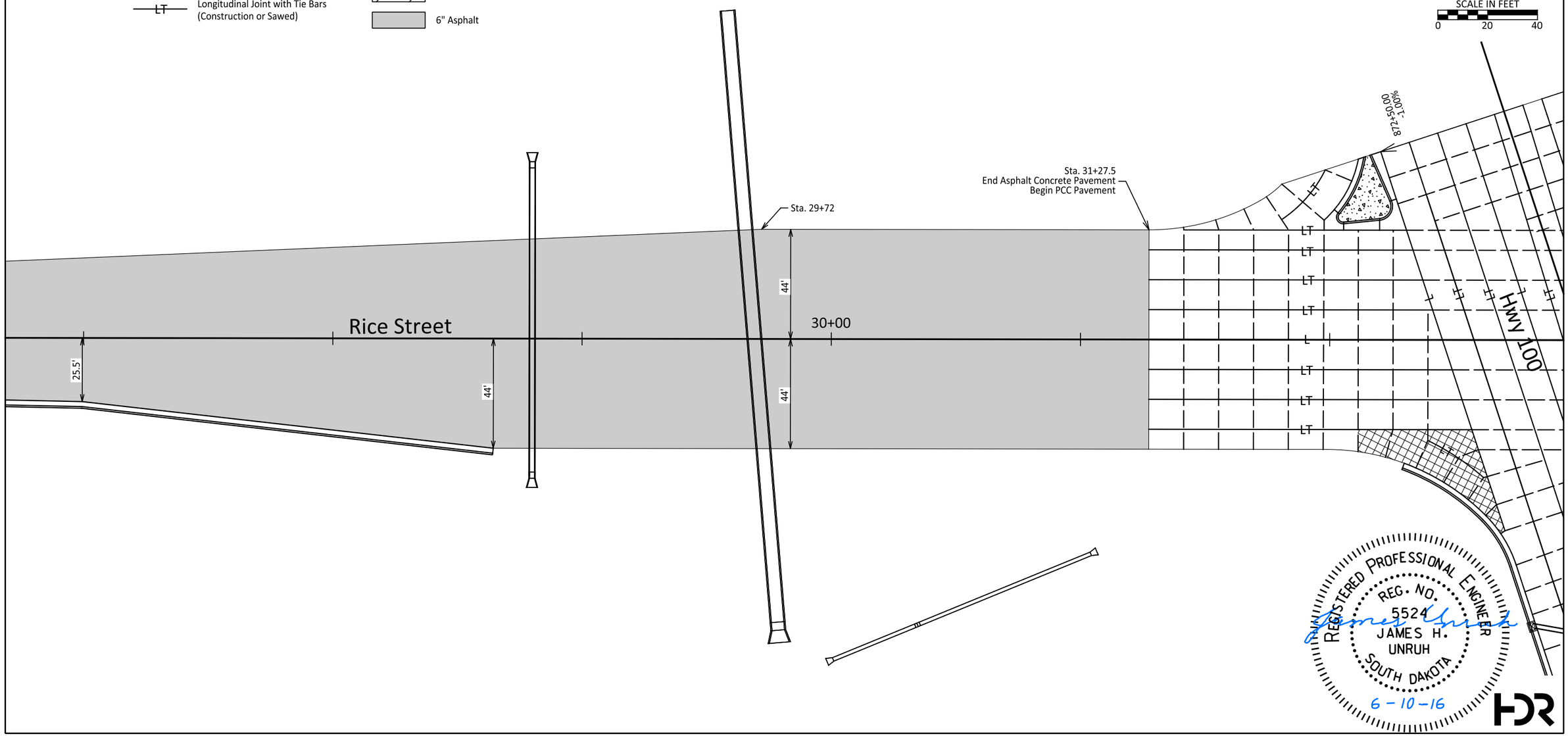
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F32	F44

FILE: F32
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt



FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

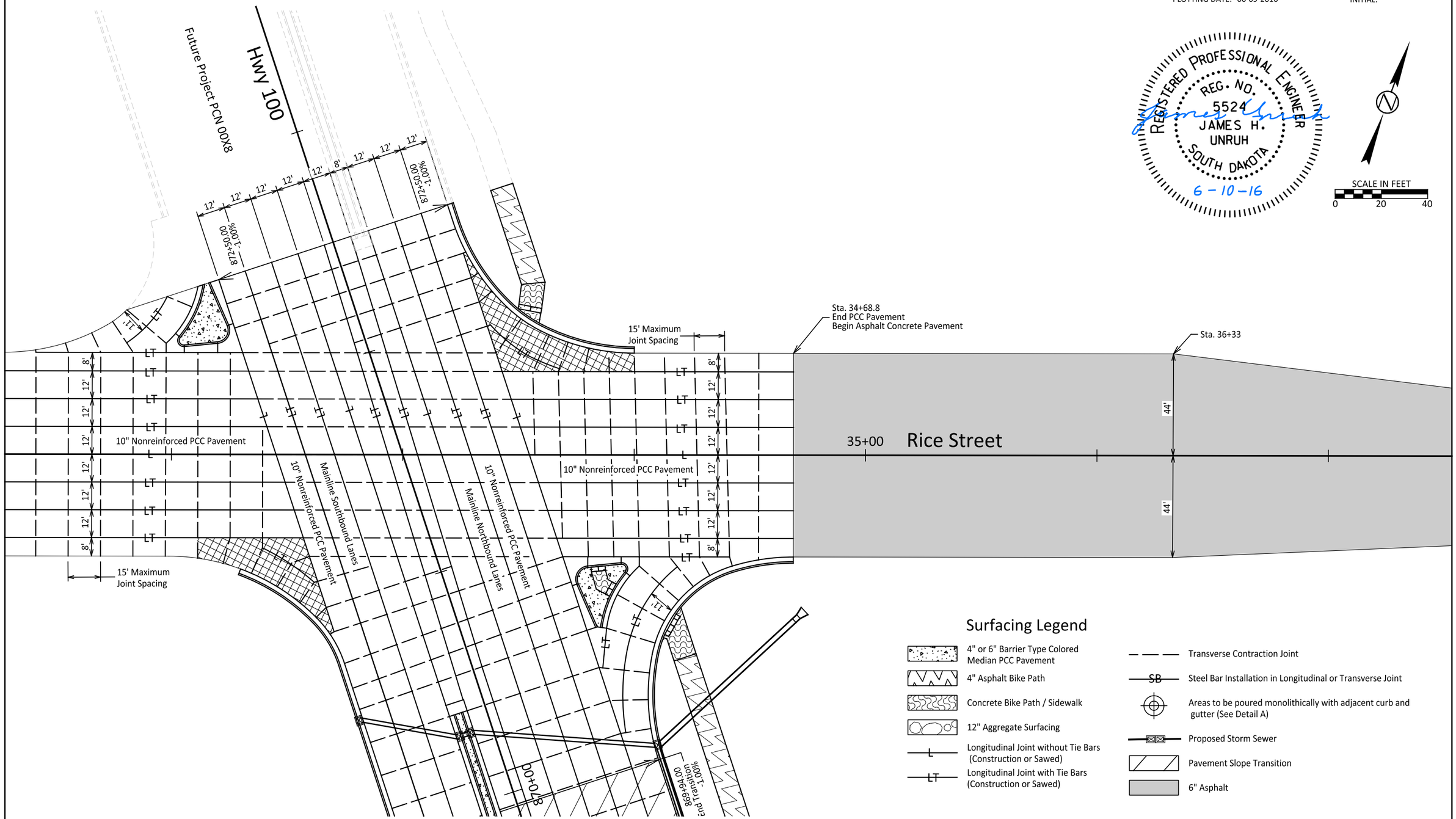
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F33	F44

FILE: F33
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

SCALE IN FEET
0 20 40



Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F34	F44

FILE: F34
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16

SCALE IN FEET
0 20 40

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt

HDR

FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

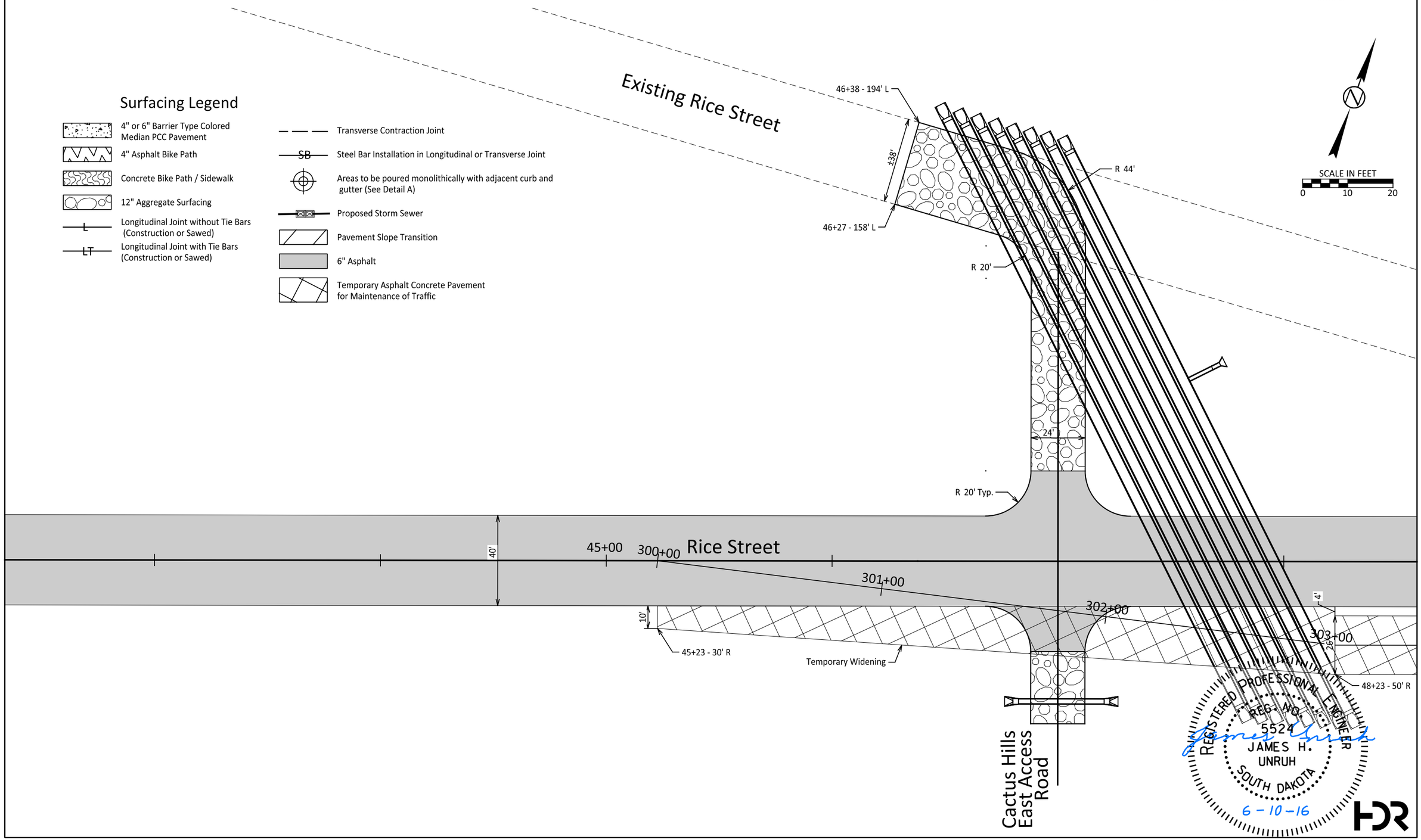
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F35	F44

FILE: F35
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

Surfacing Legend

- 4" or 6" Barrier Type Colored Median PCC Pavement
- 4" Asphalt Bike Path
- Concrete Bike Path / Sidewalk
- 12" Aggregate Surfacing
- L — Longitudinal Joint without Tie Bars (Construction or Sawed)
- LT — Longitudinal Joint with Tie Bars (Construction or Sawed)
- Transverse Contraction Joint
- SB — Steel Bar Installation in Longitudinal or Transverse Joint
- Areas to be poured monolithically with adjacent curb and gutter (See Detail A)
- Proposed Storm Sewer
- Pavement Slope Transition
- 6" Asphalt
- Temporary Asphalt Concrete Pavement for Maintenance of Traffic



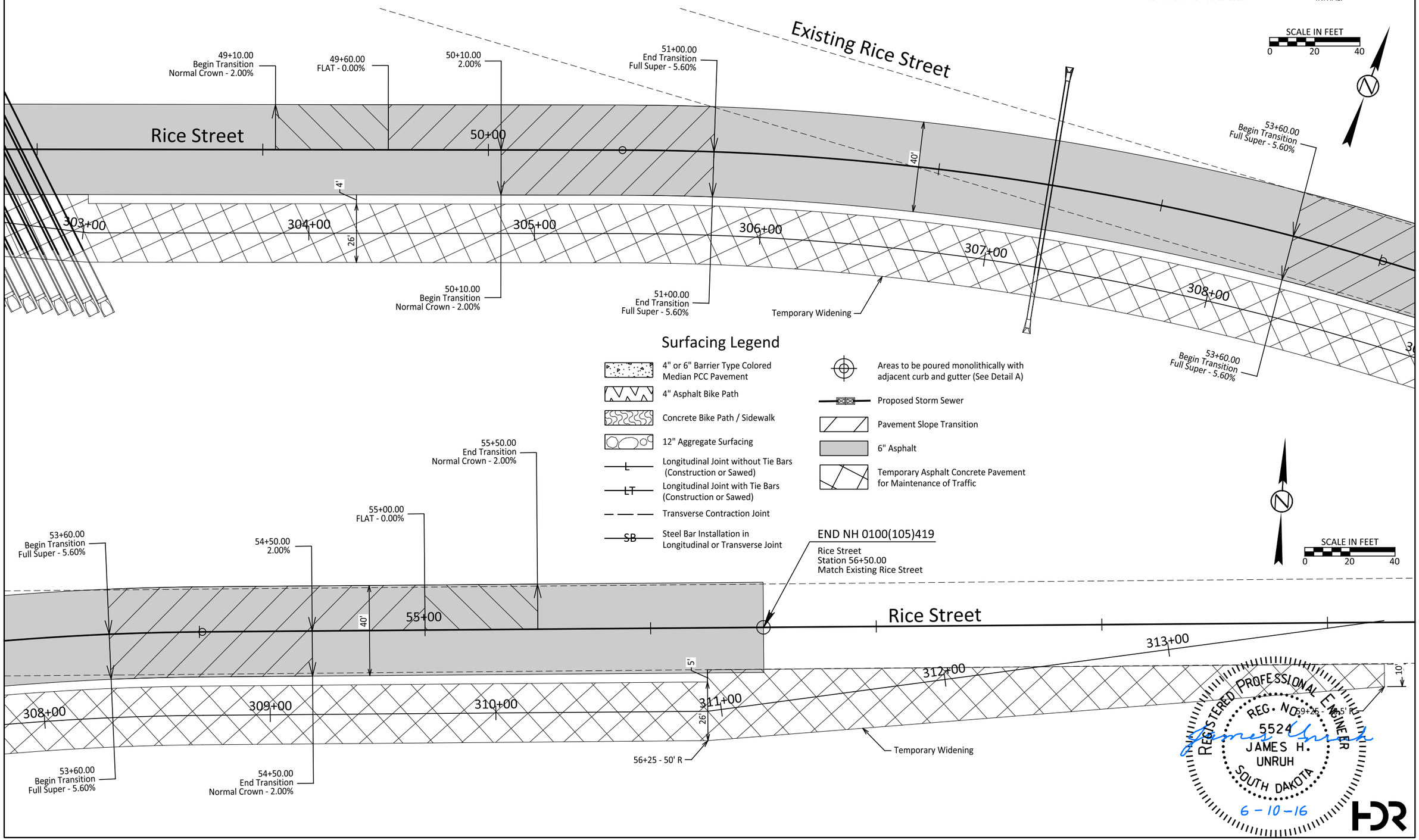
FOR BIDDING PURPOSES ONLY

Asphalt Concrete and PCC Pavement Layout

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F36	F44

FILE: F36
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:



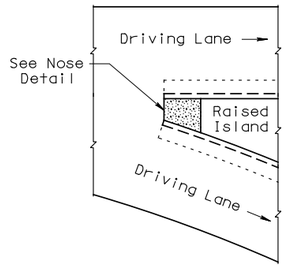
FOR BIDDING PURPOSES ONLY

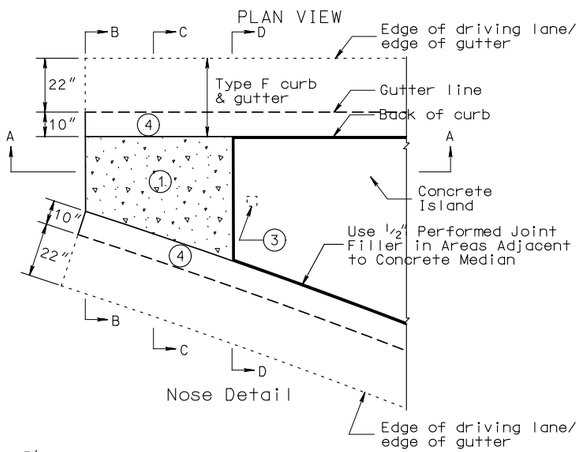
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F37	F44

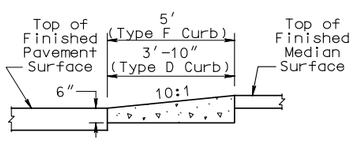
FILE: F37
PLOTTING DATE: 06-09-2016

REV DATE:
INITIAL:

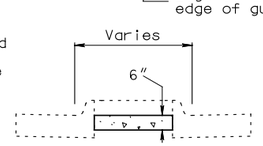
Special Surfacing Details



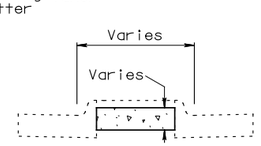




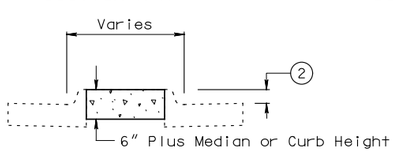
Section A-A



Section B-B



Section C-C

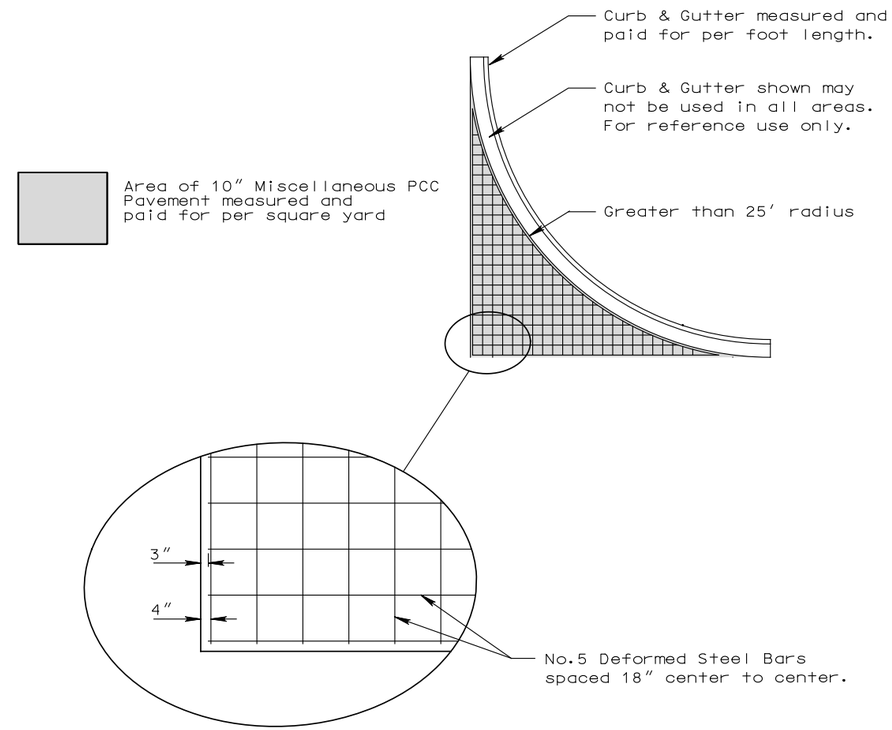


Section D-D

NOTES:

1. This area shall be placed monolithically with curb and gutter. Paid for as part of curb & gutter.
2. Median or curb height.
3. Provide one 6" x 6" opening in island for signing if required.
4. Curb height to taper at same rate as sloped median nose.

Concrete Approach Nose Detail

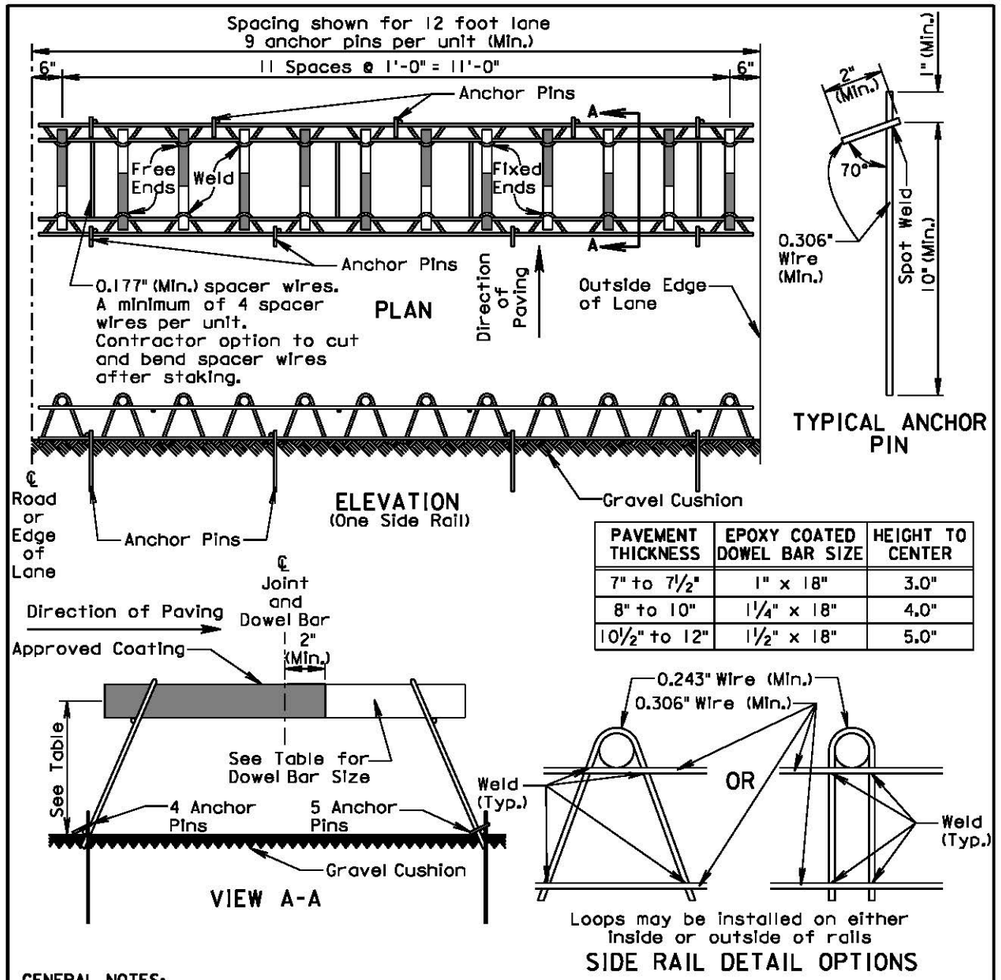


NOTE:
Use this detail only if indicated on PCC Pavement Layout Sheets.
All other fillets refer to Standard Plates 380.16 or 380.17.

This item shall be paid for as 10" Miscellaneous PCC Pavement.

Special Steel Bar Reinforcement Detail for Large Radius Turning Areas

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5524
JAMES H. UNRUH
SOUTH DAKOTA
6-10-16



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.

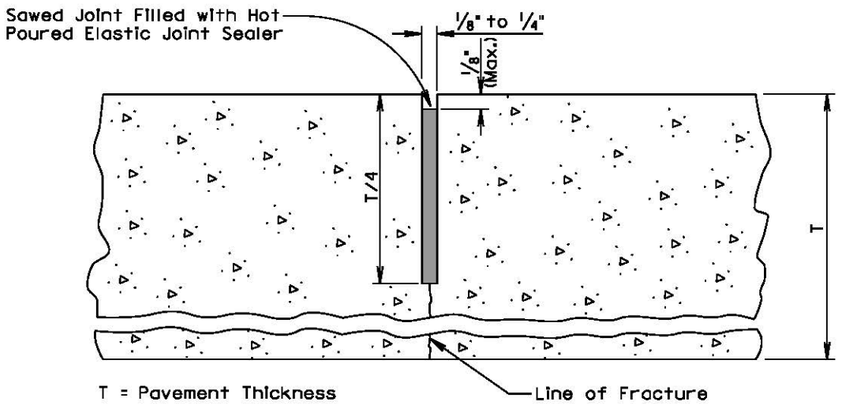
Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

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



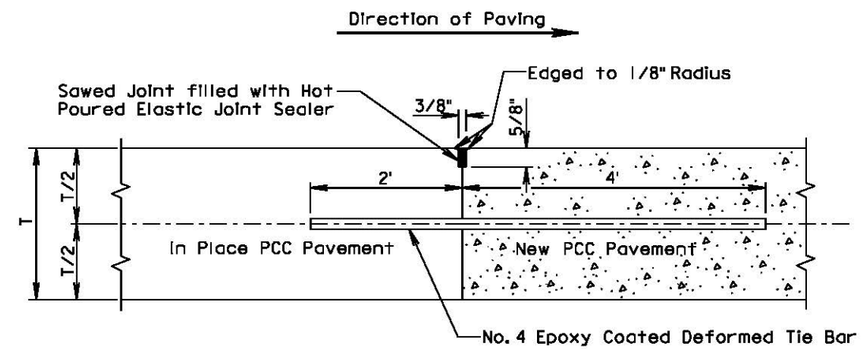
GENERAL NOTES:

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



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.

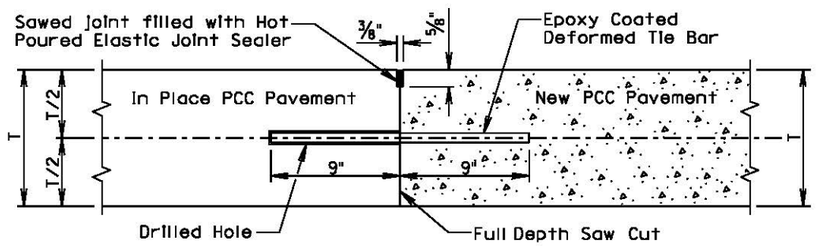
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

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:

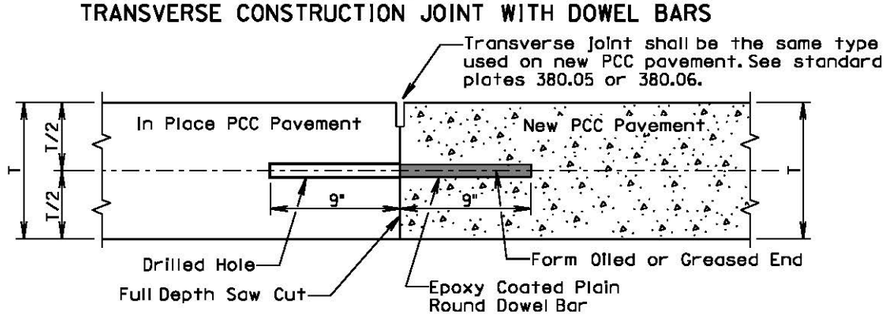
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

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.

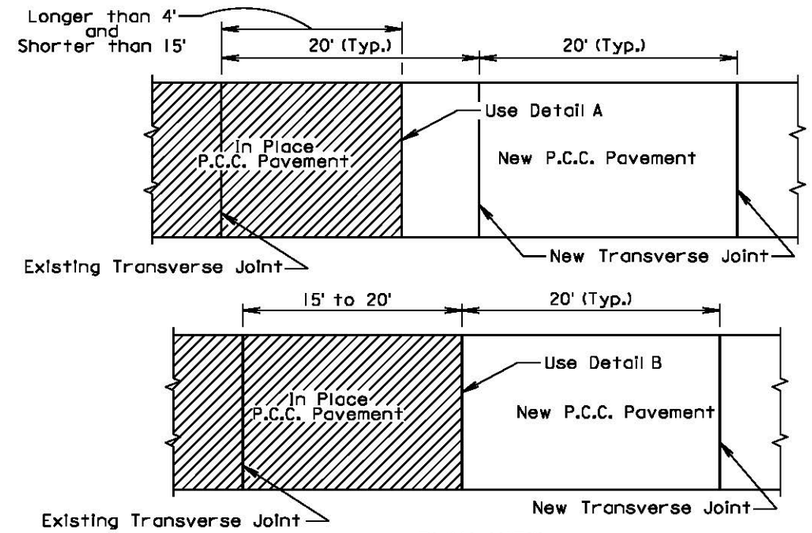
See sheet 2 of 2 of this standard plate to determine if Detail B shall be used.

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.

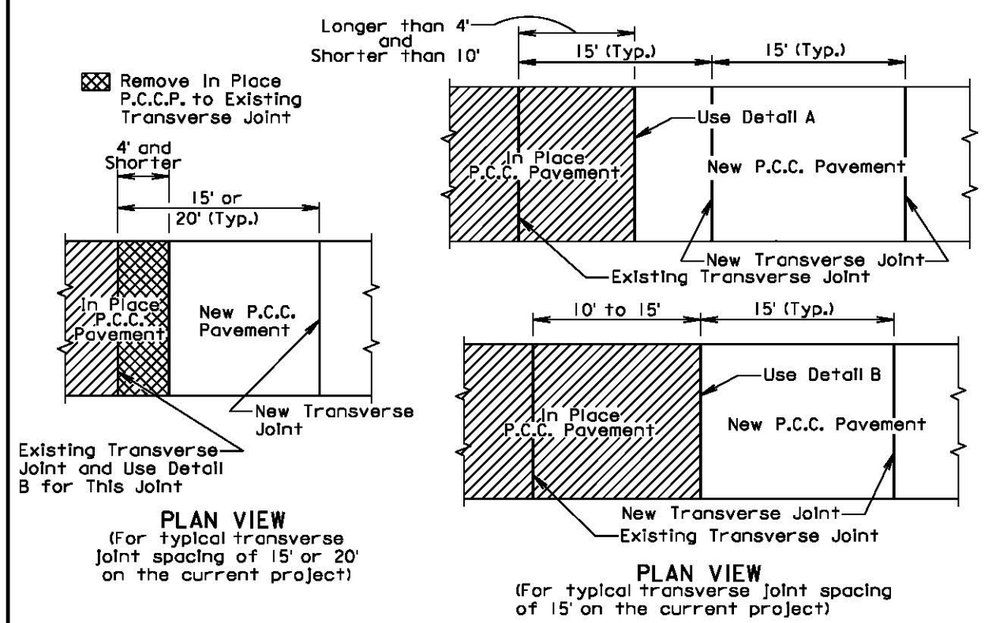
The epoxy coated plain round dowel bar size, number, and spacing shall be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars shall be a minimum of 3 inches and a maximum of 6 inches from the pavement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



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



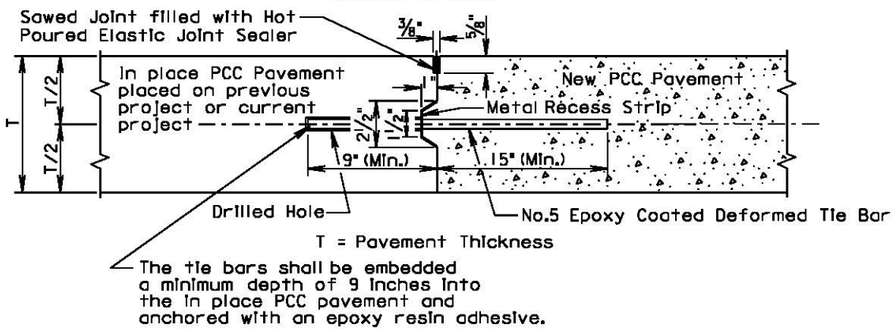
PLAN VIEW
(For typical transverse joint spacing of 15' or 20' on the current project)

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

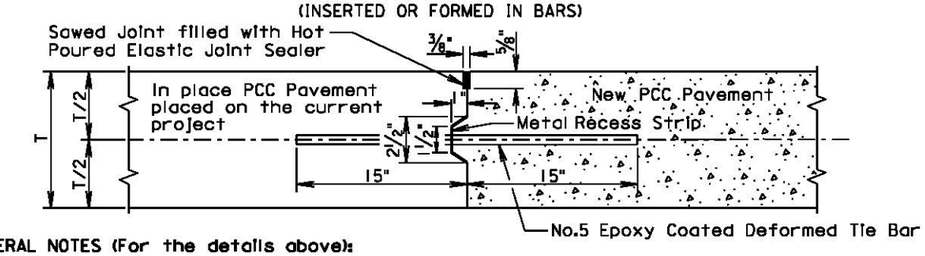
September 6, 2013

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

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.

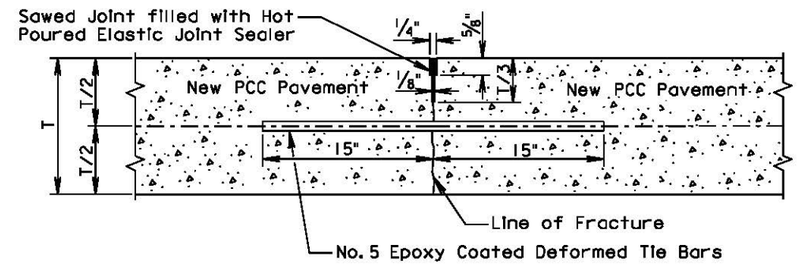
The required number of tie bars as shown in the table shall be uniformly spaced within each panel. The uniformly spaced tie bars shall be spaced a maximum of 48 inches center to center for a female keyway and shall be spaced a maximum of 30 inches center to center for a vertical face and male keyway.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

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

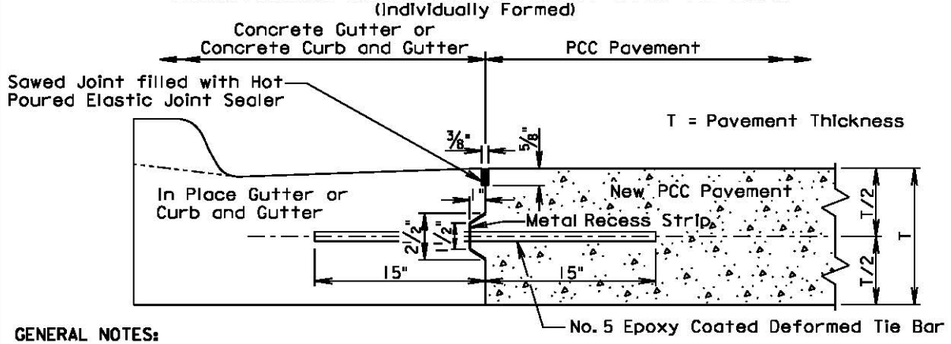
The tie bars shall be placed a minimum of 15 inches from the transverse contraction joints.

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

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.

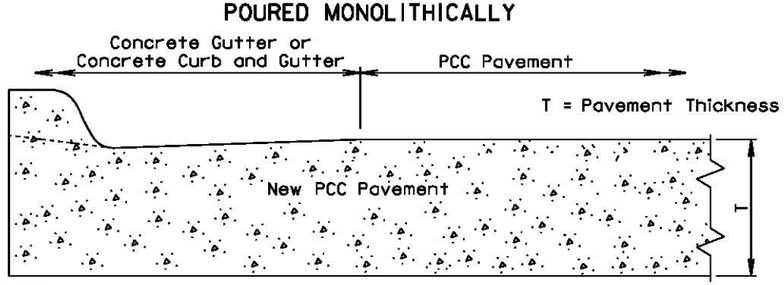
The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

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.

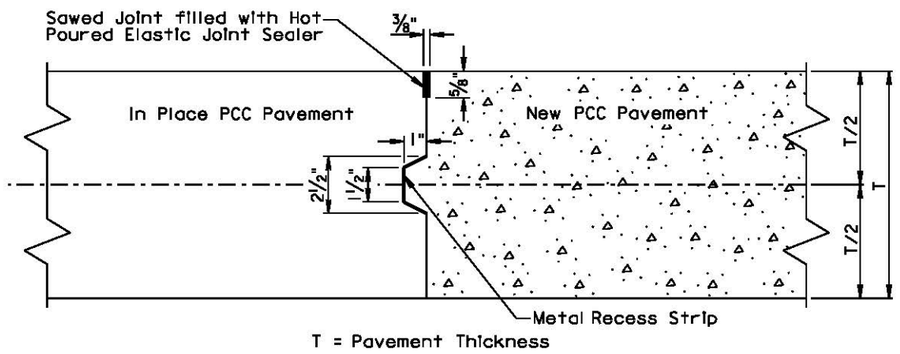
The gutter or curb and gutter shall be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter shall be sawed and sealed same as the transverse contraction joints in the PCC pavement.

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



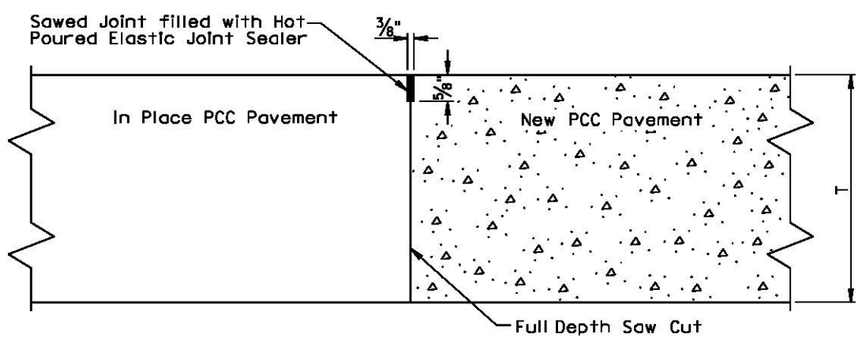
T = Pavement Thickness

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



T = Pavement Thickness

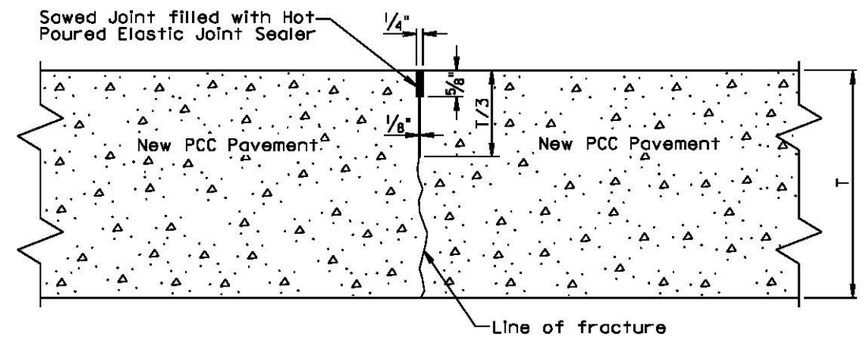
GENERAL NOTE:

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

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



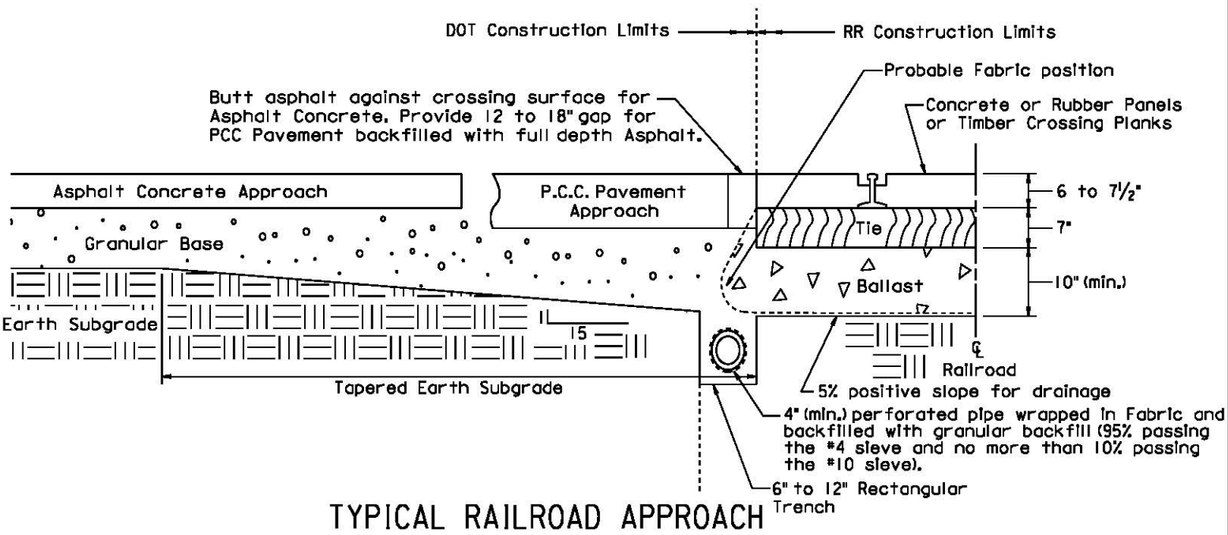
T = Pavement Thickness

GENERAL NOTE:

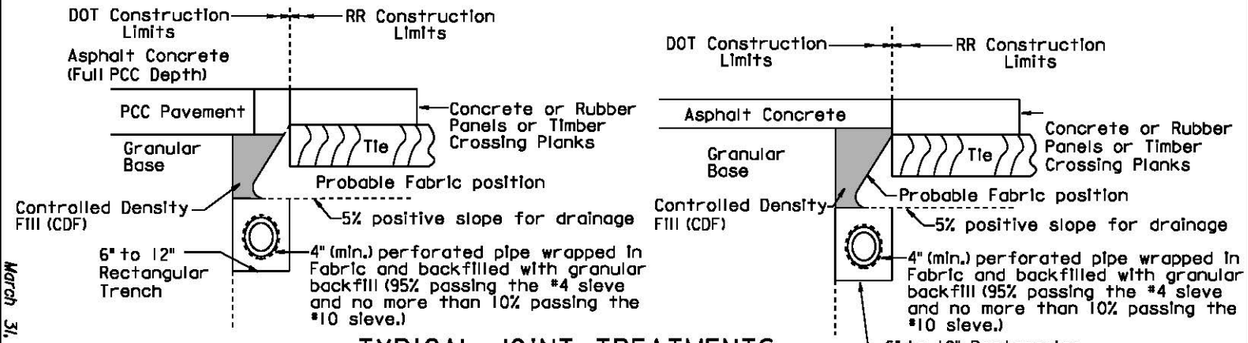
The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

September 14, 2001

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



TYPICAL RAILROAD APPROACH
(NEW CONSTRUCTION)



TYPICAL JOINT TREATMENTS
(CROSSING RECONSTRUCTION)

Published Date: 2nd Qtr. 2016

SDDOT

TYPICAL RAILROAD APPROACH AND JOINT TREATMENTS

March 31, 2000

PLATE NUMBER 380.25

Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

Plotting Date: 6/9/2016

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0100(105)419	F44	F44