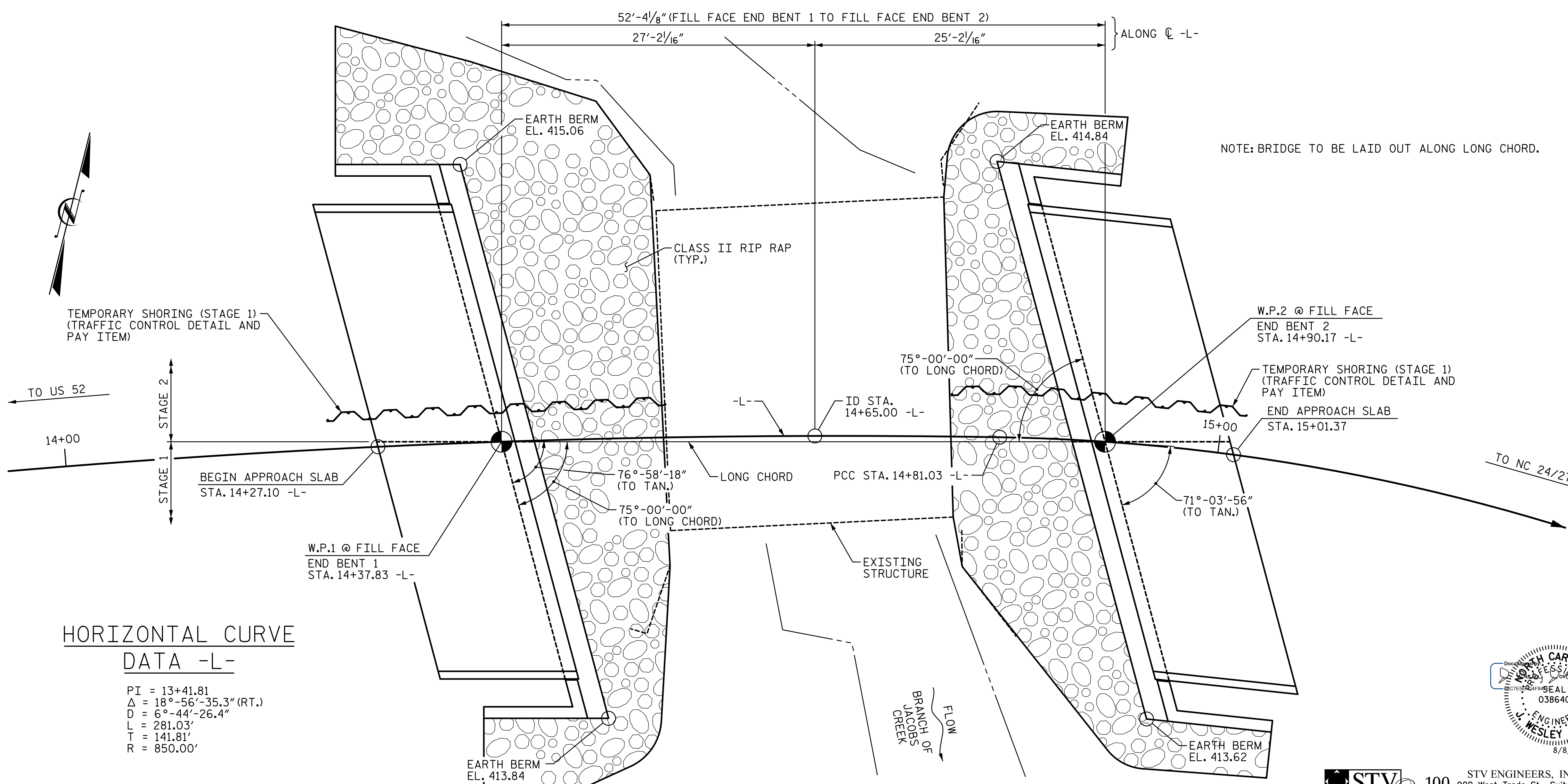


**SECTION ALONG -L-**  
(SECTION AT END BENTS TAKEN AT RIGHT ANGLES)



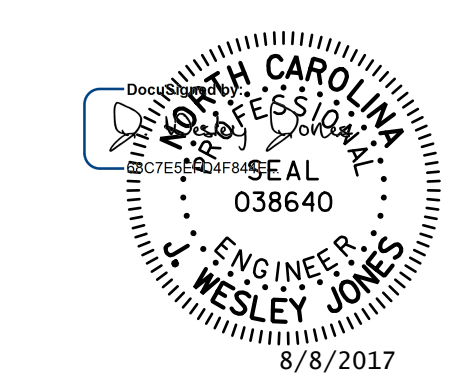
**PLAN**  
(STEEL PILES NOT SHOWN FOR CLARITY)

**VERTICAL CURVE DATA -L-**  
(-)4.0225% (-)0.4861%  
PI = 13+10.00  
EL = 422.30'  
VC = 220'

**HORIZONTAL CURVE DATA -L-**  
PI = 15+93.30  
Δ = 65°-21'-56.9" (RT.)  
D = 32°-44'-25.6"  
L = 199.65'  
T = 112.27'  
R = 175.00'

**HORIZONTAL CURVE DATA -L-**  
PI = 13+41.81  
Δ = 18°-56'-35.3" (RT.)  
D = 6°-44'-26.4"  
L = 281.03'  
T = 141.81'  
R = 850.00'

**STV** 100 YEARS  
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900 West Trade St., Suite 715  
Charlotte, NC 28202  
NC License Number F-0991



PROJECT NO. 17BP.10.R.103  
STANLY COUNTY  
STATION: 14+65.00 -L-  
SHEET 1 OF 2 REPLACES BRIDGE NO. 213

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
FOR BRIDGE ON SR 1720  
(STONY GAP RD.) OVER BRANCH  
OF JACOBS CREEK BETWEEN  
US 52 AND NC 24/27

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

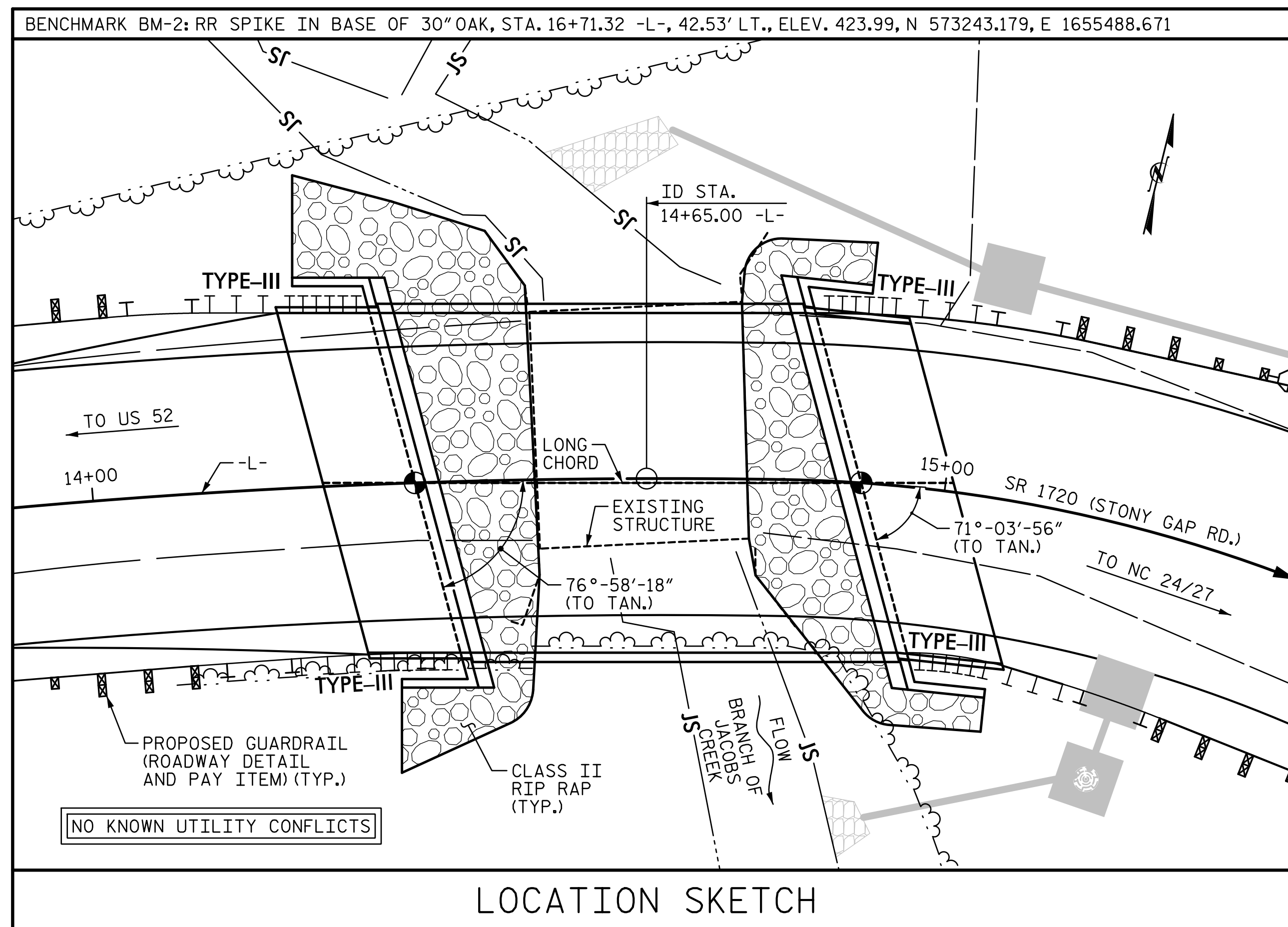
S-1  
TOTAL SHEETS 18

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DRAWN BY : LEM DATE : 4-17  
CHECKED BY : JWJ DATE : 6-17  
DESIGN ENGINEER OF RECORD : JWJ DATE : 8-17

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED





LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE: 900 CFS  
 FREQUENCY OF DESIGN FLOOD: 25 YRS.  
 DESIGN HIGH WATER ELEVATION: 419.5  
 DRAINAGE AREA: 2.45 SQ. MI.  
 BASE DISCHARGE (Q100): 1,300 CFS  
 BASE HIGH WATER ELEVATION: 420.51

OVERTOPPING DATA

OVERTOPPING DISCHARGE: 1,600 CFS  
 FREQUENCY OF OVERTOPPING: 200+ YRS.  
 OVERTOPPING FLOOD ELEVATION: 421.8

TOTAL BILL OF MATERIAL

		REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		ASBESTOS ASSESSMENT	
		LUMP SUM	LUMP SUM	CU. YD.	LUMP SUM	LBS.	NO.	LIN. FT.	EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LUMP SUM
SUPER-STRUCTURE	STAGE 1								50.0				7	350.0		
	STAGE 2								50.0				7	350.0		
END BENT 1	STAGE 1			13.0		1,609	4	80								
	STAGE 2			13.0		1,546	3	45		120	130					
END BENT 2	STAGE 1			13.2		1,620	4	80								
	STAGE 2			12.9		1,549	3	75		95	105					
TOTAL		LUMP SUM	LUMP SUM	52.1	LUMP SUM	6,324	14	280	14	100.0	215	235	LUMP SUM	14	700.0	LUMP SUM

GENERAL NOTES

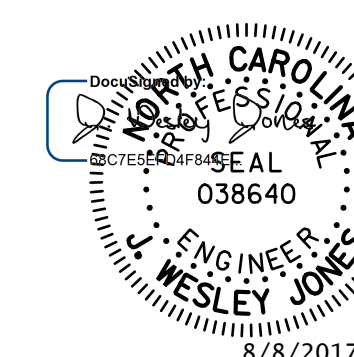
- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE "STANDARD NOTES" SHEET.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE EXISTING STRUCTURE CONSISTING OF (1) 25'-7"± STEEL PLANK DECK ON STEEL I-BEAMS SPAN WITH A CLEAR ROADWAY WIDTH OF 27'-11" ON TIMBER CAPS, TIMBER PILES ENCASED IN CONCRETE, AND TIMBER BULKHEADS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED IN STAGES. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION FOR REVIEW IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE".
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA (ON SHEET 1 OF 2) SHALL BE EXCAVATED FOR A DISTANCE FROM THE CENTERLINE OF ROADWAY OF APPROXIMATELY 34 FT± (LEFT) AND 29 FT± (RIGHT) AT END BENT 1 AND 29 FT± (LEFT AND RIGHT) AT END BENT 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- TEMPORARY SHORING WILL BE REQUIRED IN THE AREAS INDICATED IN THE PLAN VIEW. FOR TEMPORARY SHORING, SEE SPECIAL PROVISIONS.
- FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOUNDATION NOTES

- FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
- DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
- DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- REMOVE (EXCAVATE) ALL RIP RAP AT END BENT 2 PRIOR TO DRIVING PILES.

PROJECT NO. 17BP.10.R.103  
 STANLEY COUNTY  
 STATION: 14+65.00 -L-

SHEET 2 OF 2



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 NC License Number F-0991

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE ON SR 1720 (STONY GAP RD.) OVER BRANCH OF JACOBS CREEK BETWEEN US 52 AND NC 24/27

REVISIONS				SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS 18
2			4			

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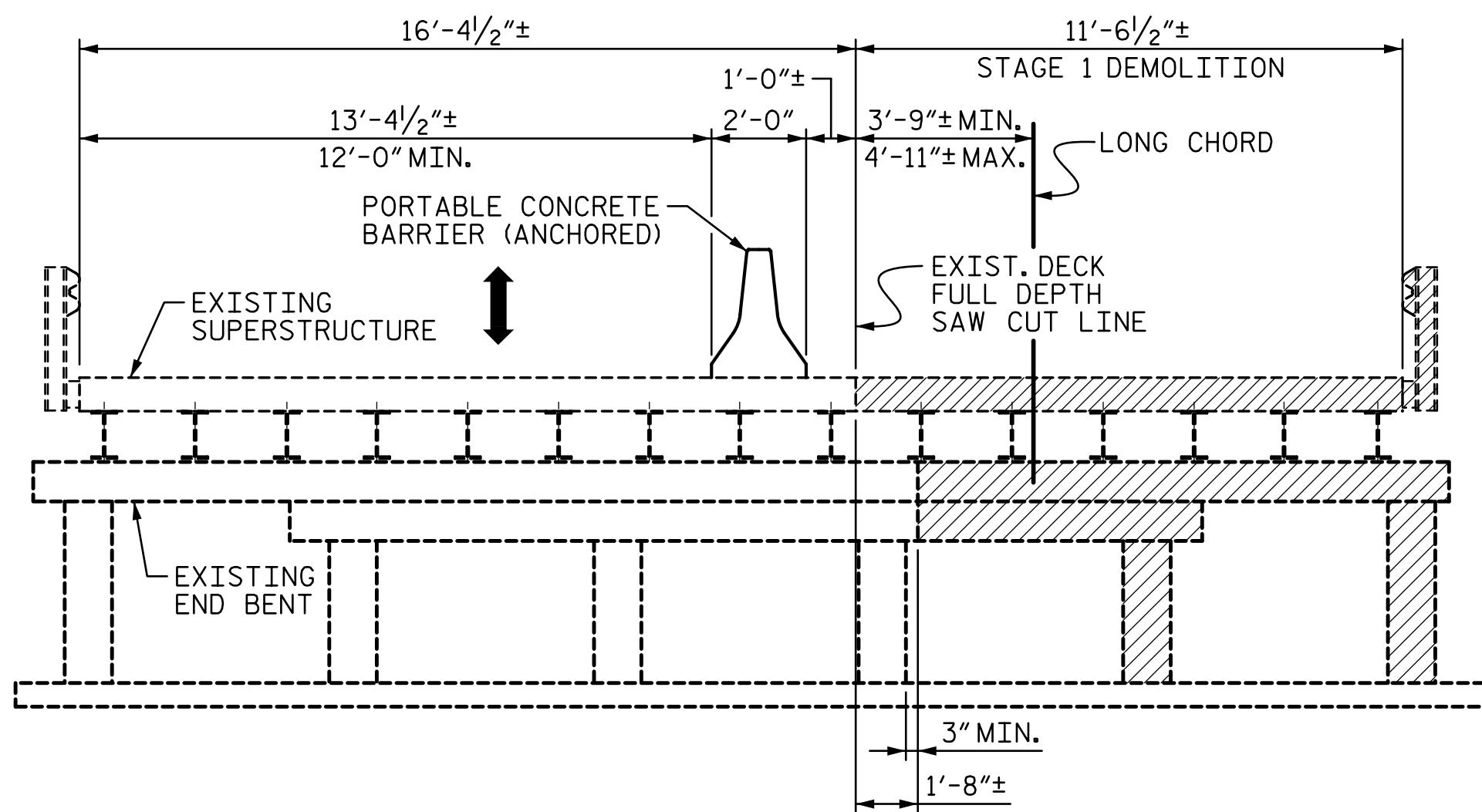
Jones

DRAWN BY : LEM DATE : 4-17  
 CHECKED BY : JWJ DATE : 6-17  
 DESIGN ENGINEER OF RECORD : JWJ DATE : 8-17



**NOTES:**

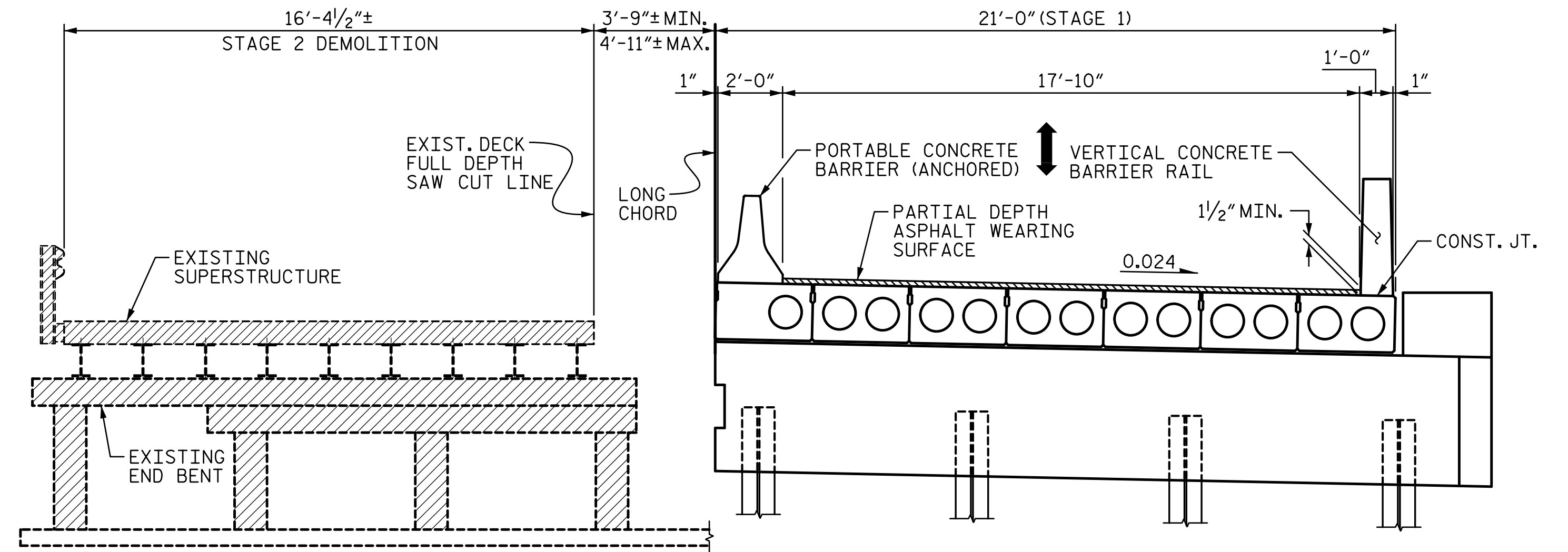
CONTRACTOR TO VERIFY LOCATION AND DIMENSIONS OF EXISTING BRIDGE.  
 STAGED DEMOLITION SHALL BE DETERMINED BY CONTRACTOR AND APPROVED BY THE ENGINEER.  
 DIMENSIONS ARE NORMAL TO @ BRIDGE UNLESS OTHERWISE NOTED.



**STAGE 1A**

LOOKING UPSTATION  
 (END BENT 2 SHOWN, END BENT 1 SIMILAR)

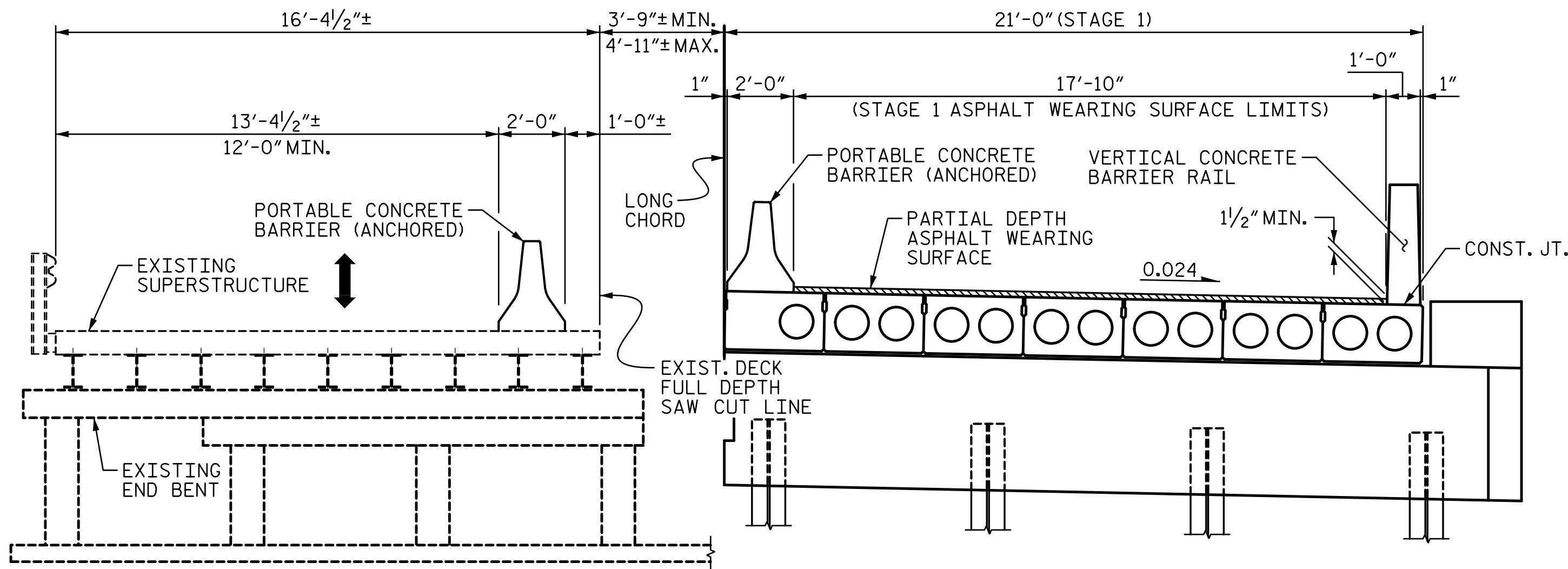
1. VERIFY EXISTING BRIDGE DIMENSIONS. CONTACT ENGINEER IF FIELD MEASUREMENTS VARY FROM PLAN DIMENSIONS.
2. ANCHOR PORTABLE CONCRETE BARRIER THROUGH EXISTING BRIDGE DECK AND TOP FLANGE OF STEEL BEAM.
3. SAW CUT AND REMOVE RIGHT PORTION OF EXISTING DECK AND END BENTS.



**STAGE 2A**

LOOKING UPSTATION  
 (END BENT 2 SHOWN, END BENT 1 SIMILAR)

1. SHIFT TRAFFIC TO NEWLY CONSTRUCTED BRIDGE.
2. REMOVE REMAINDER OF EXISTING SUPERSTRUCTURE AND END BENTS.



**STAGE 1B**

LOOKING UPSTATION  
 (END BENT 2 SHOWN, END BENT 1 SIMILAR)

1. CONSTRUCT RIGHT PORTION OF PROPOSED BRIDGE.
2. ANCHOR PORTABLE CONCRETE BARRIER TO NEW BRIDGE.
3. PAVE PARTIAL DEPTH ASPHALT WEARING SURFACE TO THE LIMITS SHOWN.

PROJECT NO. 17BP.10.R.103

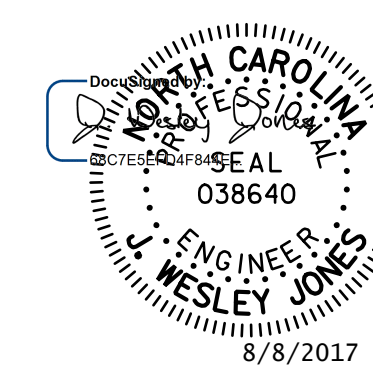
STANLY COUNTY

STATION: 14+65.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BRIDGE STAGING PLAN**



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 Charlotte, NC 28202  
 NC License Number F-0991

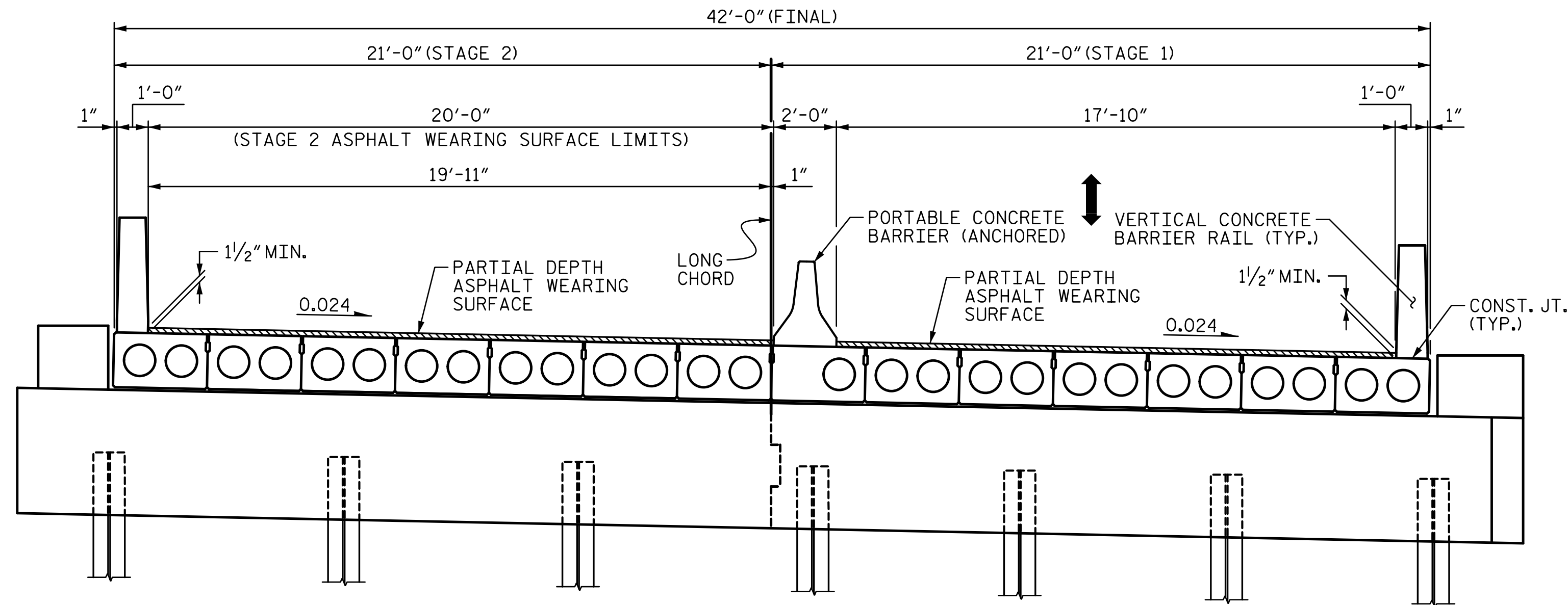
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 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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1			3		
2			4		

TOTAL SHEETS: 18

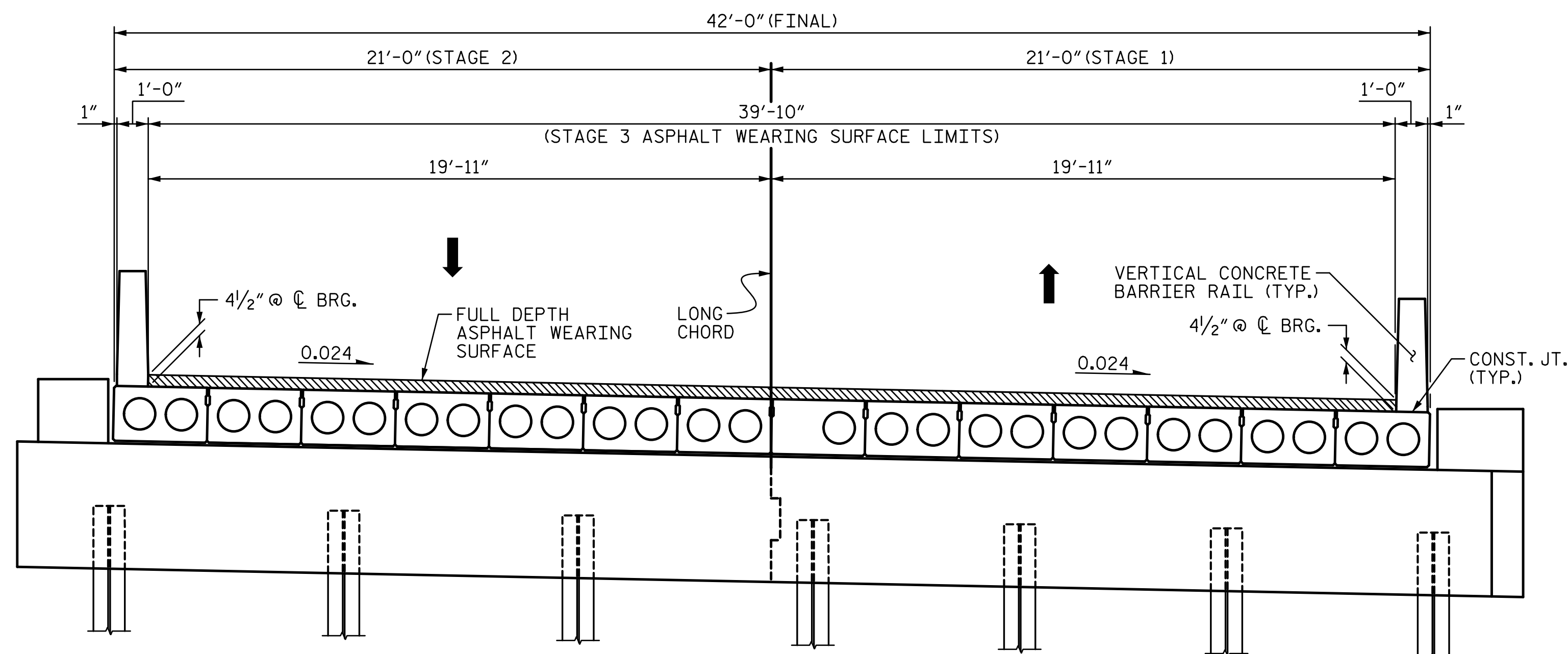
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CHECKED BY :	JWJ	DATE :	6-17
DESIGN ENGINEER OF RECORD :	JWJ	DATE :	8-17

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**STAGE 2B**

- LOOKING UPSTATION  
(END BENT 2 SHOWN, END BENT 1 SIMILAR)
1. CONSTRUCT LEFT PORTION OF PROPOSED BRIDGE.
  2. PAVE PARTIAL DEPTH ASPHALT WEARING SURFACE TO THE LIMITS SHOWN.



**STAGE 3**

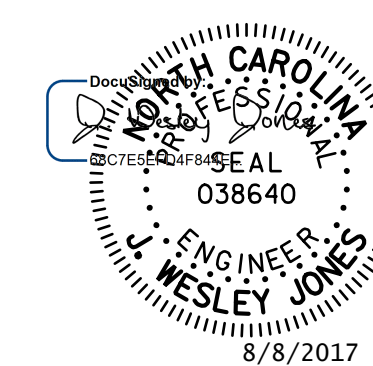
- LOOKING UPSTATION  
(END BENT 2 SHOWN, END BENT 1 SIMILAR)
1. REMOVE PORTABLE CONCRETE BARRIER.
  2. PAVE FULL DEPTH ASPHALT WEARING SURFACE TO THE LIMITS SHOWN.

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8/8/2017

DRAWN BY :	LEM	DATE :	4-17
CHECKED BY :	JWJ	DATE :	6-17
DESIGN ENGINEER OF RECORD :	JWJ	DATE :	8-17



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Charlotte, NC 28202  
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PROJECT NO. 17BP.10.R.103

STANLY COUNTY

STATION: 14+65.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**BRIDGE STAGING  
PLAN**

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

S-4  
TOTAL SHEETS  
18



## LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.205	--	1.75	0.271	1.59	50'	EL	24.482	0.616	1.2	50'	EL	4.896	0.80	0.271	1.46	50'	EL	24.482		
	HL-93(Opr)	N/A	--	1.562	--	1.35	0.271	2.06	50'	EL	24.482	0.616	1.56	50'	EL	4.896	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.434	51.614	1.75	0.271	1.97	50'	EL	24.482	0.616	1.43	50'	EL	4.896	0.80	0.271	1.81	50'	EL	24.482		
	HS-20(Opr)	36.000	--	1.859	66.906	1.35	0.271	2.56	50'	EL	24.482	0.616	1.86	50'	EL	4.896	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.678	49.655	1.4	0.271	5.02	50'	EL	24.482	0.616	4	50'	EL	4.896	0.80	0.271	3.68	50'	EL	24.482	
		SNGARBS2	20.000	--	2.905	58.101	1.4	0.271	3.97	50'	EL	24.482	0.616	2.93	50'	EL	4.896	0.80	0.271	2.91	50'	EL	24.482	
		SNAGRIS2	22.000	--	2.748	60.456	1.4	0.271	3.83	50'	EL	19.586	0.616	2.75	50'	EL	4.896	0.80	0.271	2.81	50'	EL	24.482	
		SNCOTTS3	27.250	--	1.835	49.998	1.4	0.271	2.5	50'	EL	24.482	0.616	2.01	50'	EL	4.896	0.80	0.271	1.83	50'	EL	24.482	
		SNAGGRS4	34.925	--	1.595	55.714	1.4	0.271	2.18	50'	EL	24.482	0.616	1.72	50'	EL	4.896	0.80	0.271	1.60	50'	EL	24.482	
		SNS5A	35.550	--	1.556	55.303	1.4	0.271	2.12	50'	EL	24.482	0.616	1.77	50'	EL	4.896	0.80	0.271	1.56	50'	EL	24.482	
		SNS6A	39.950	--	1.455	58.112	1.4	0.271	1.99	50'	EL	24.482	0.616	1.64	50'	EL	4.896	0.80	0.271	1.45	50'	EL	24.482	
	TTST	TNAGRIT3	33.000	--	1.782	58.809	1.4	0.271	2.43	50'	EL	24.482	0.616	1.94	50'	EL	4.896	0.80	0.271	1.78	50'	EL	24.482	
		TNT4A	33.075	--	1.798	59.458	1.4	0.271	2.45	50'	EL	24.482	0.616	1.86	50'	EL	4.896	0.80	0.271	1.80	50'	EL	24.482	
		TNT6A	41.600	--	1.497	62.293	1.4	0.271	2.04	50'	EL	24.482	0.616	1.8	50'	EL	4.896	0.80	0.271	1.50	50'	EL	24.482	
		TNT7A	42.000	--	1.52	63.842	1.4	0.271	2.08	50'	EL	24.482	0.616	1.67	50'	EL	4.896	0.80	0.271	1.52	50'	EL	24.482	
		TNT7B	42.000	--	1.585	66.559	1.4	0.271	2.16	50'	EL	24.482	0.616	1.59	50'	EL	4.896	0.80	0.271	1.58	50'	EL	24.482	
		TNAGRIT4	43.000	--	1.504	64.667	1.4	0.271	2.05	50'	EL	24.482	0.616	1.53	50'	EL	4.896	0.80	0.271	1.50	50'	EL	24.482	
		TNAGT5A	45.000	--	1.405	63.217	1.4	0.271	1.92	50'	EL	24.482	0.616	1.56	50'	EL	4.896	0.80	0.271	1.40	50'	EL	24.482	
TNAGT5B	45.000	3	1.376	61.936	1.4	0.271	1.88	50'	EL	24.482	0.616	1.45	50'	EL	4.896	0.80	0.271	1.38	50'	EL	24.482			

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

- 1.
- 2.
- 3.
- 4.

**# CONTROLLING LOAD RATING**

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

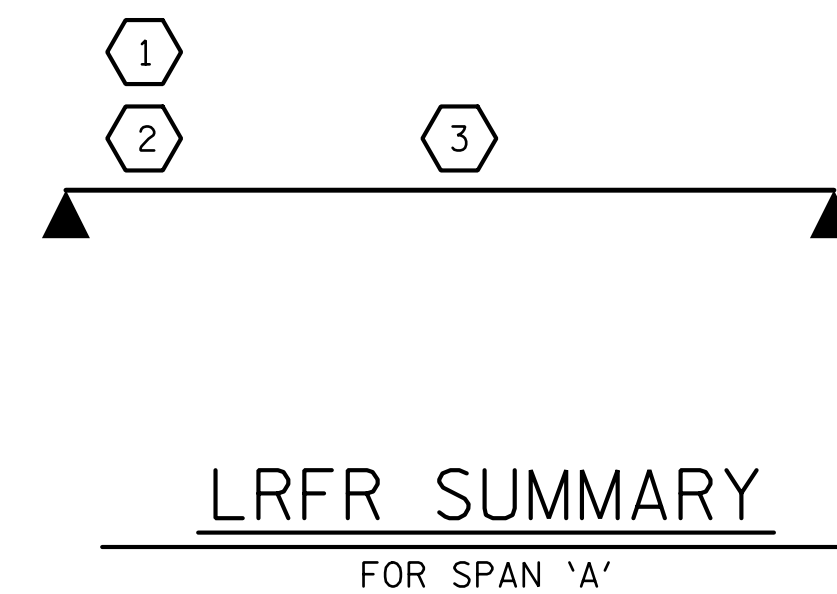
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

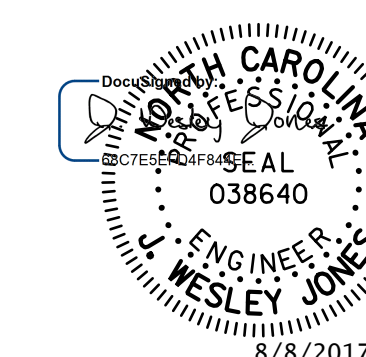
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**GIRDER LOCATION**

I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



PROJECT NO. 17BP.10.R.103  
STANLY COUNTY  
 STATION: 14+65.00 -L-



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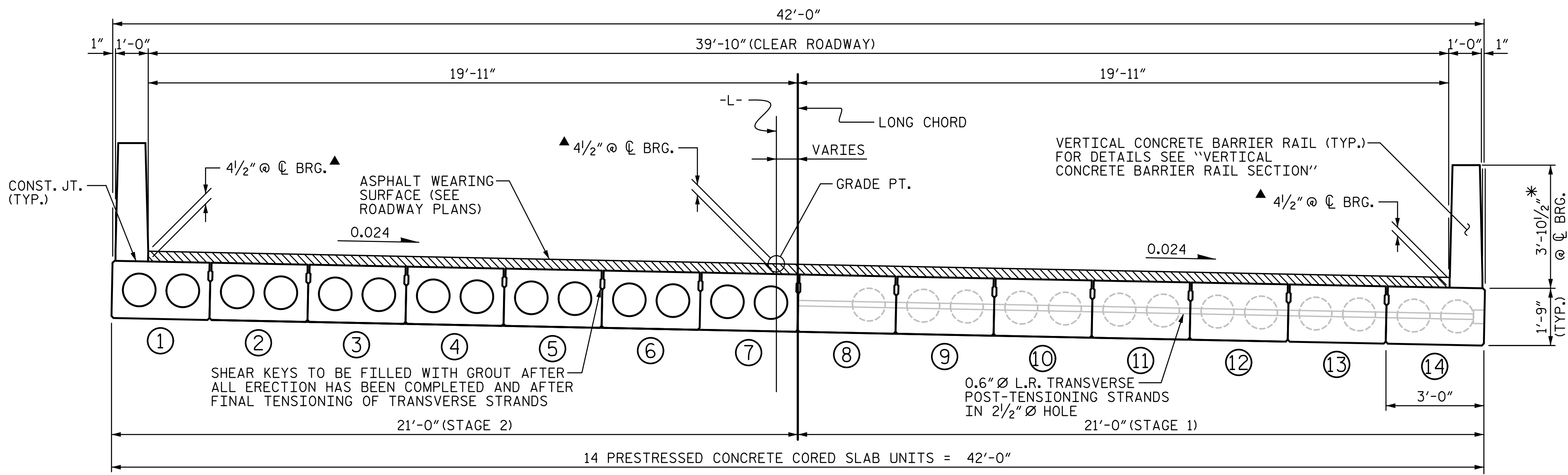
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 LRFR SUMMARY FOR  
 50' CORED SLAB UNIT  
 75° SKEW  
 (NON-INTERSTATE TRAFFIC)

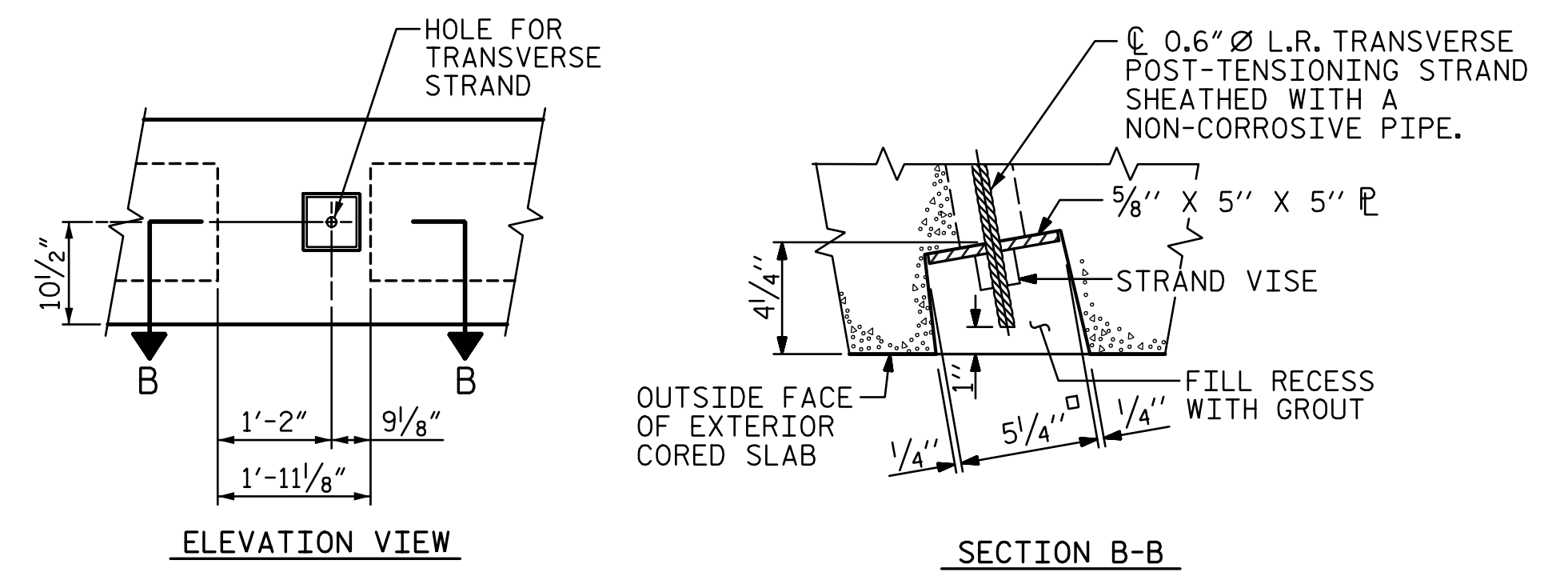
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NO.	BY:	DATE:	NO.	DATE:	S-5
1			3		TOTAL SHEETS
2			4		18

ASSEMBLED BY : LEM	DATE : 4-17
CHECKED BY : JWJ	DATE : 6-17
DESIGN ENGINEER OF RECORD : JWJ	DATE : 8-17
DRAWN BY : CVC 6/10	
CHECKED BY : DNS 6/10	

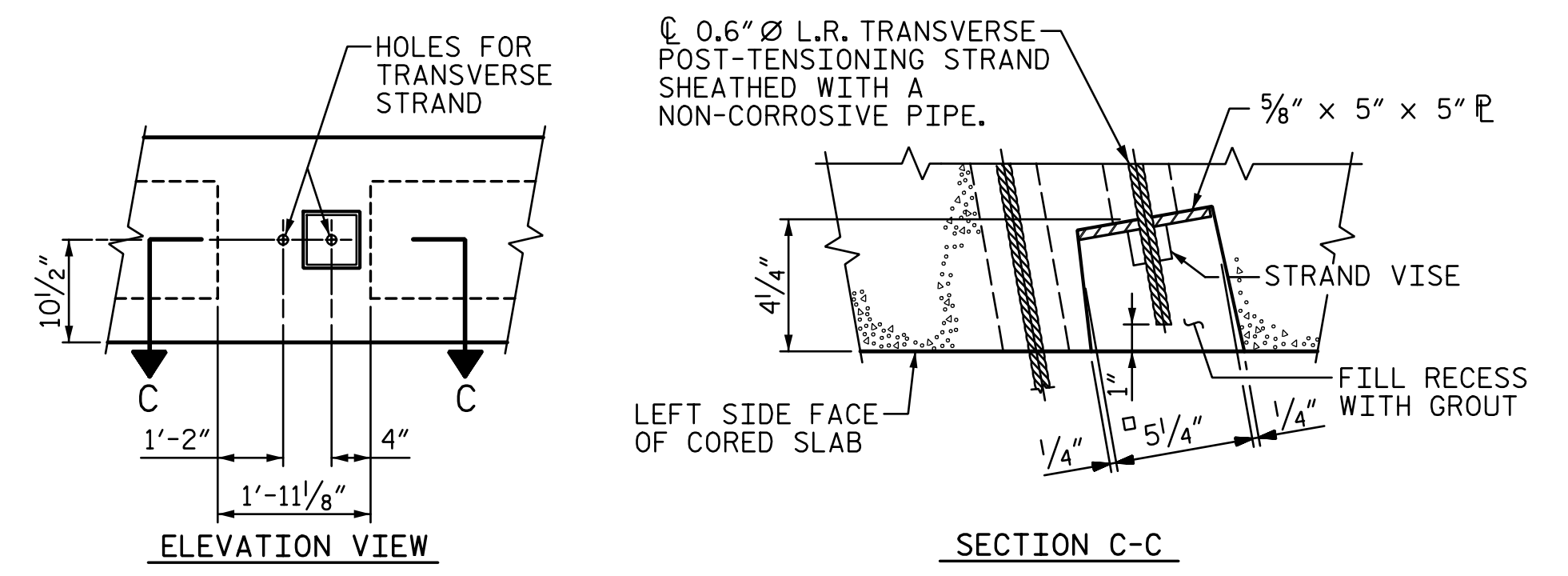




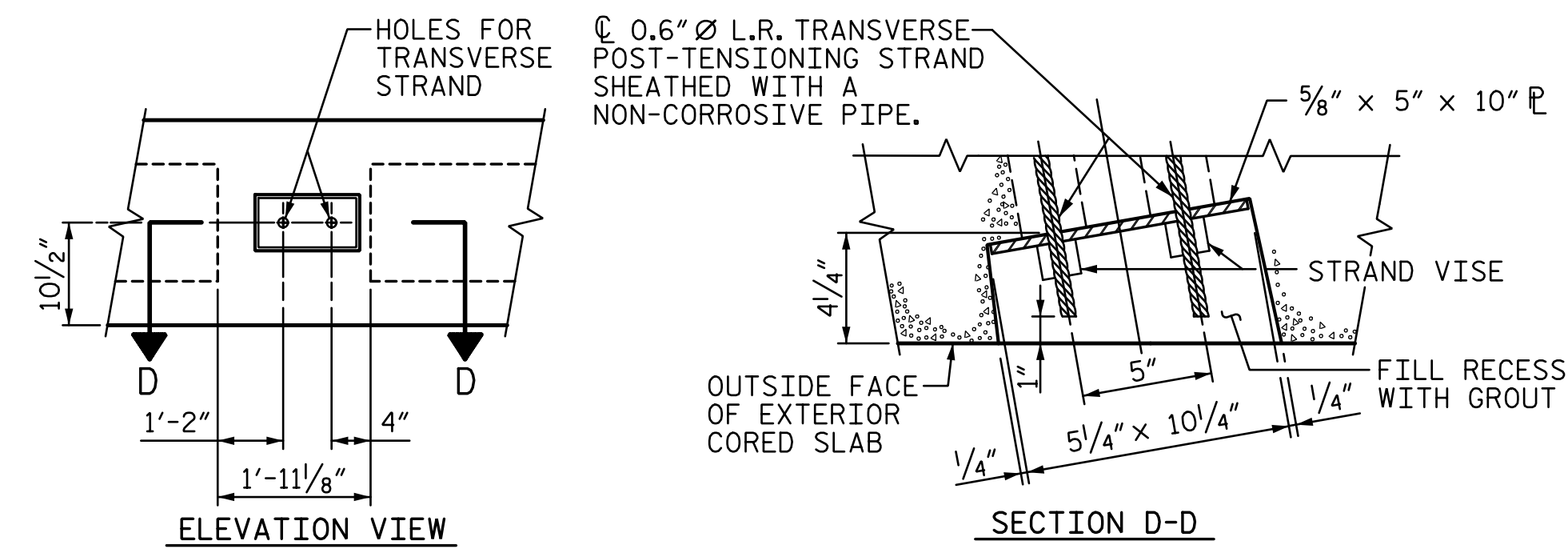
TYPICAL SECTION



CORED SLAB UNIT #1



CORED SLAB UNIT #8

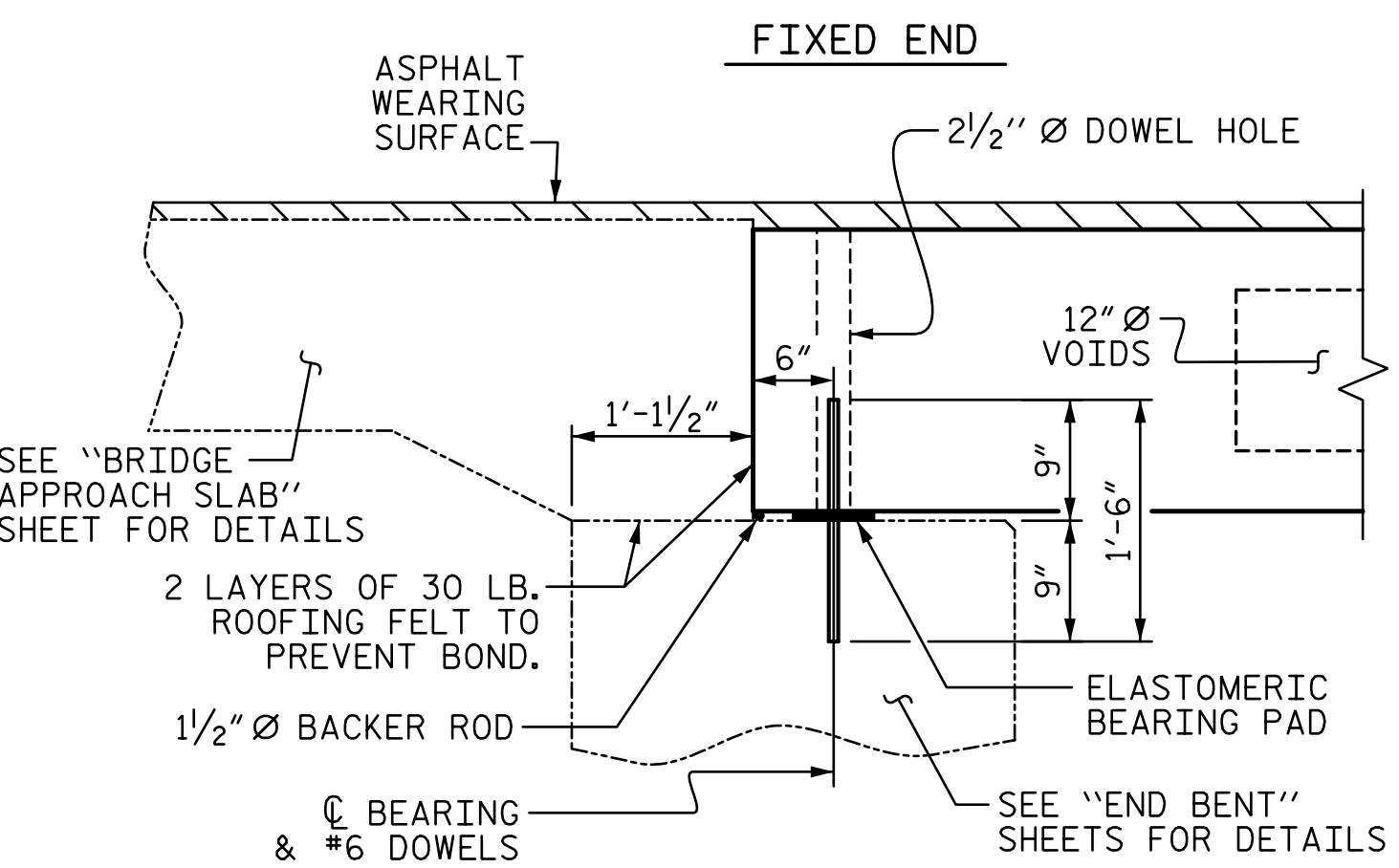


CORED SLAB UNIT #14

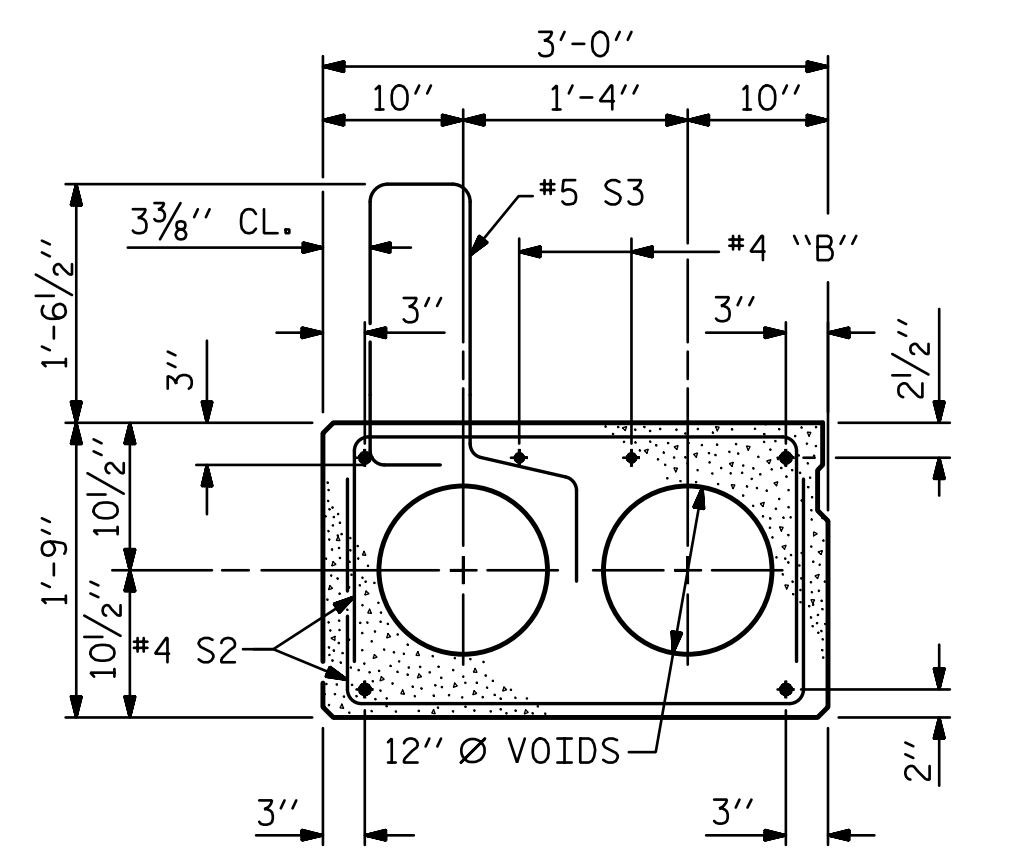
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

ASPHALT THICKNESS SHOWN IS FOR THE FINAL CONDITION. FOR ASPHALT THICKNESS AT STAGES, SEE "BRIDGE STAGING PLAN" SHEETS.

\* - THE MAXIMUM BARRIER HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

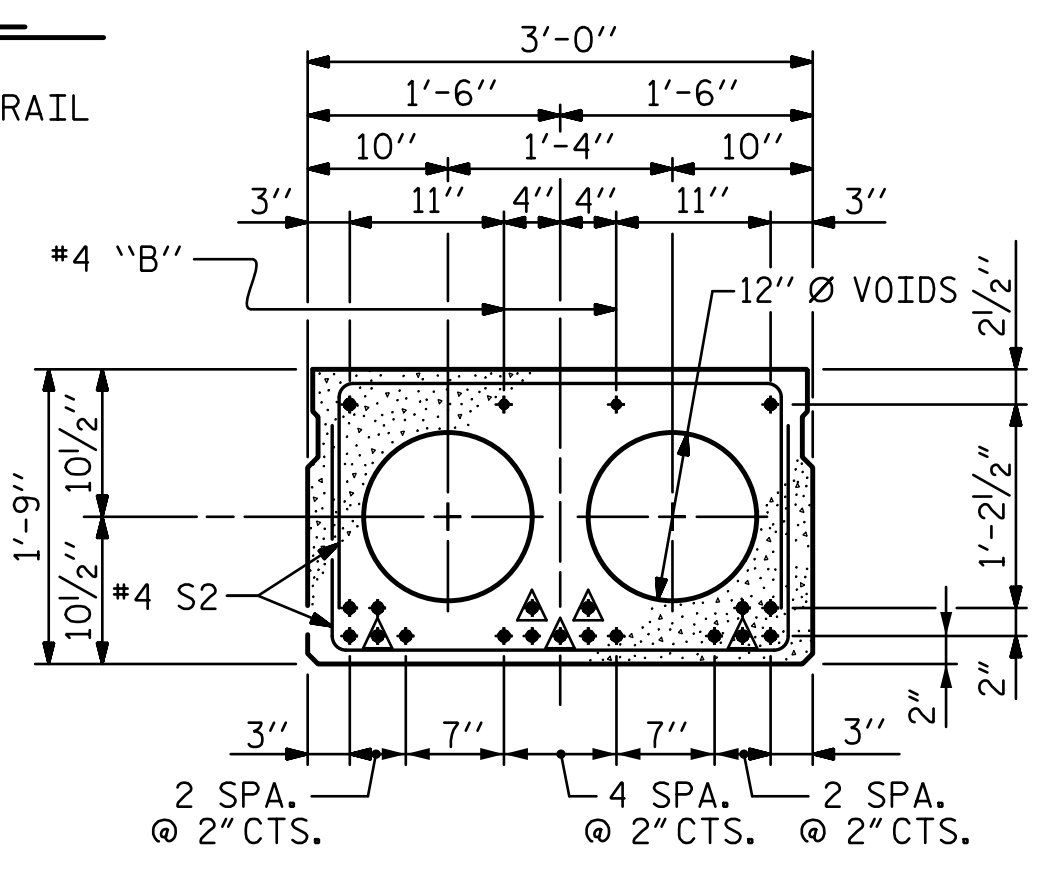


SECTION AT END BENT

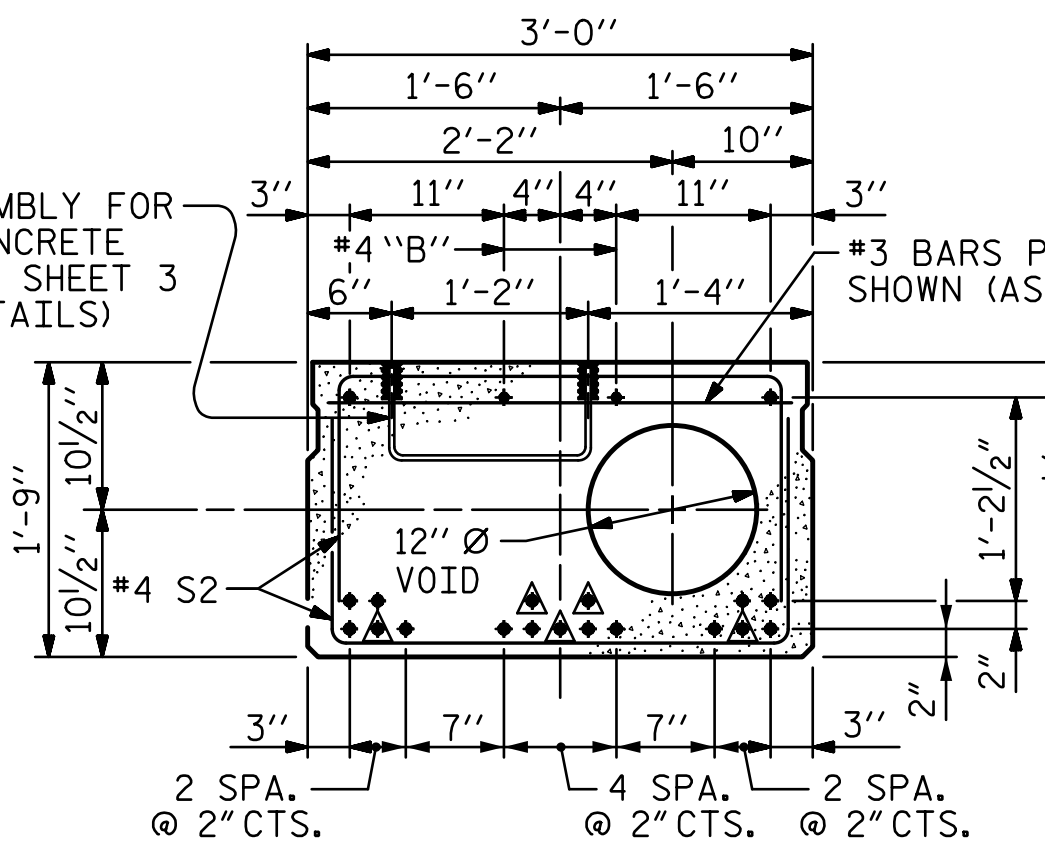


EXT. SLAB SECTION

ANCHOR ASSEMBLY FOR PORTABLE CONCRETE BARRIER (SEE SHEET 3 OF 4 FOR DETAILS)



INTERIOR SLAB SECTION (19 STRANDS REQUIRED)



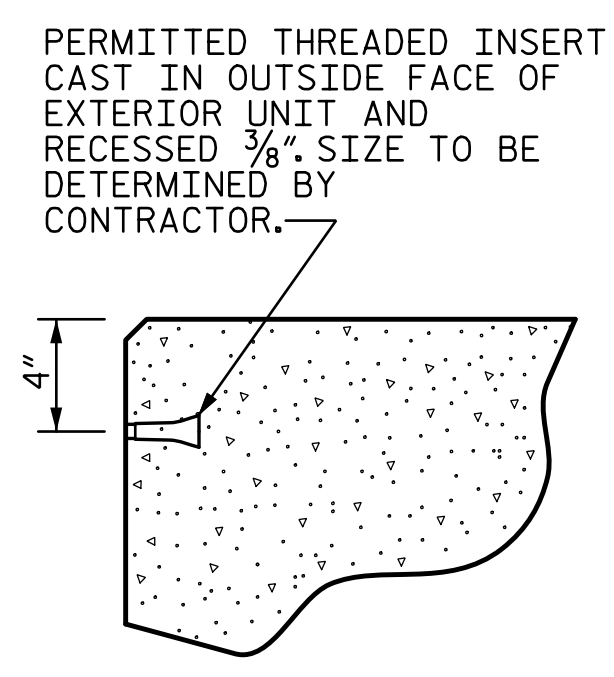
INTERIOR SLAB SECTION (CORED SLAB UNIT #8 ONLY)

THE #3 BARS ARE INCIDENTAL AND THE COST SHALL BE INCLUDED IN THE PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS

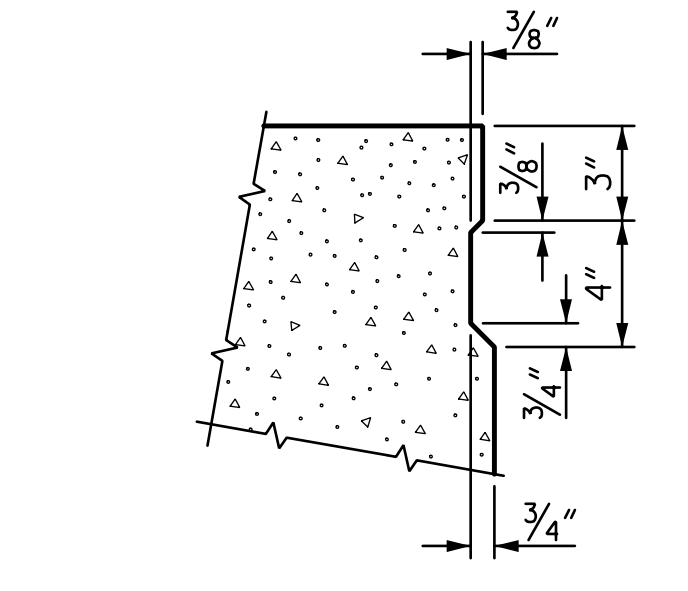
0.6" Ø LOW RELAXATION STRAND LAYOUT

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

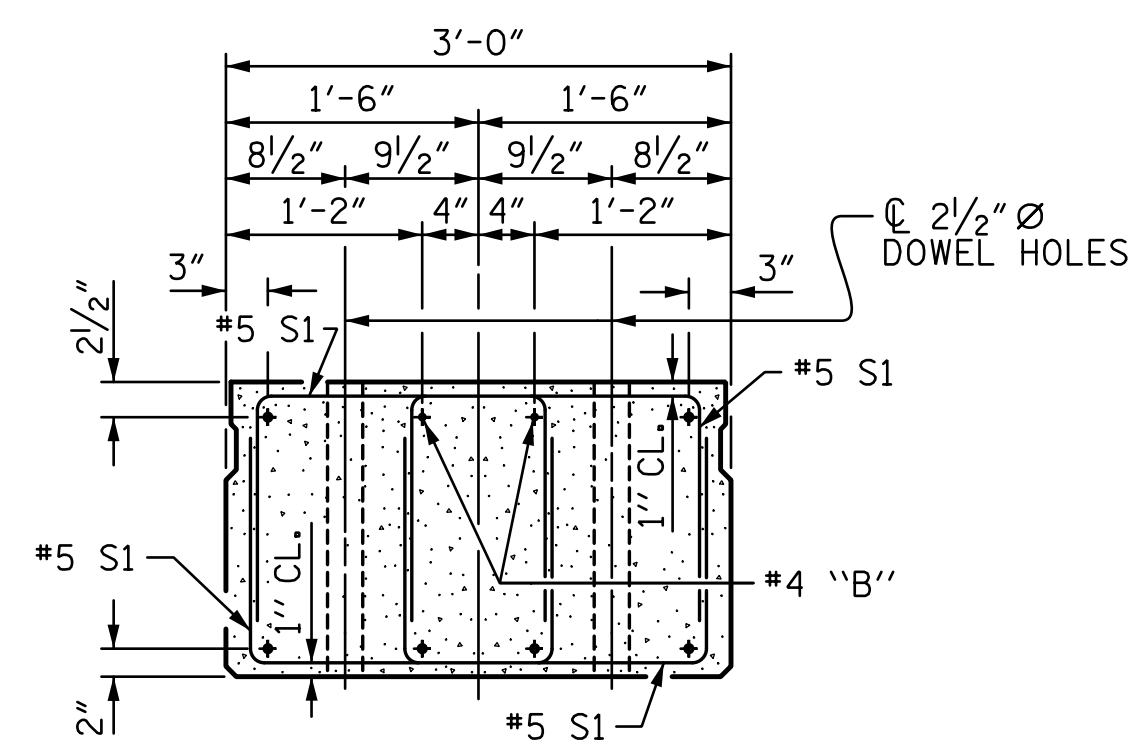


THREADED INSERT DETAIL



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



END ELEVATION

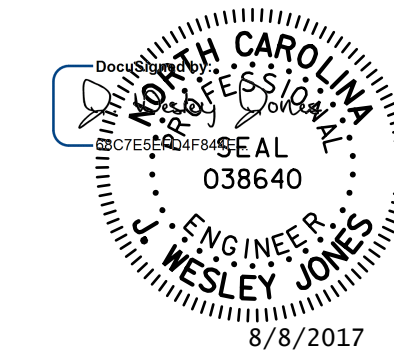
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. 17BP.10.R.103  
 STANLY COUNTY  
 STATION: 14+65.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 75° SKEW



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 Charlotte, NC 28202  
 NC License Number F-0991

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2			4	

S-6  
 TOTAL SHEETS 18

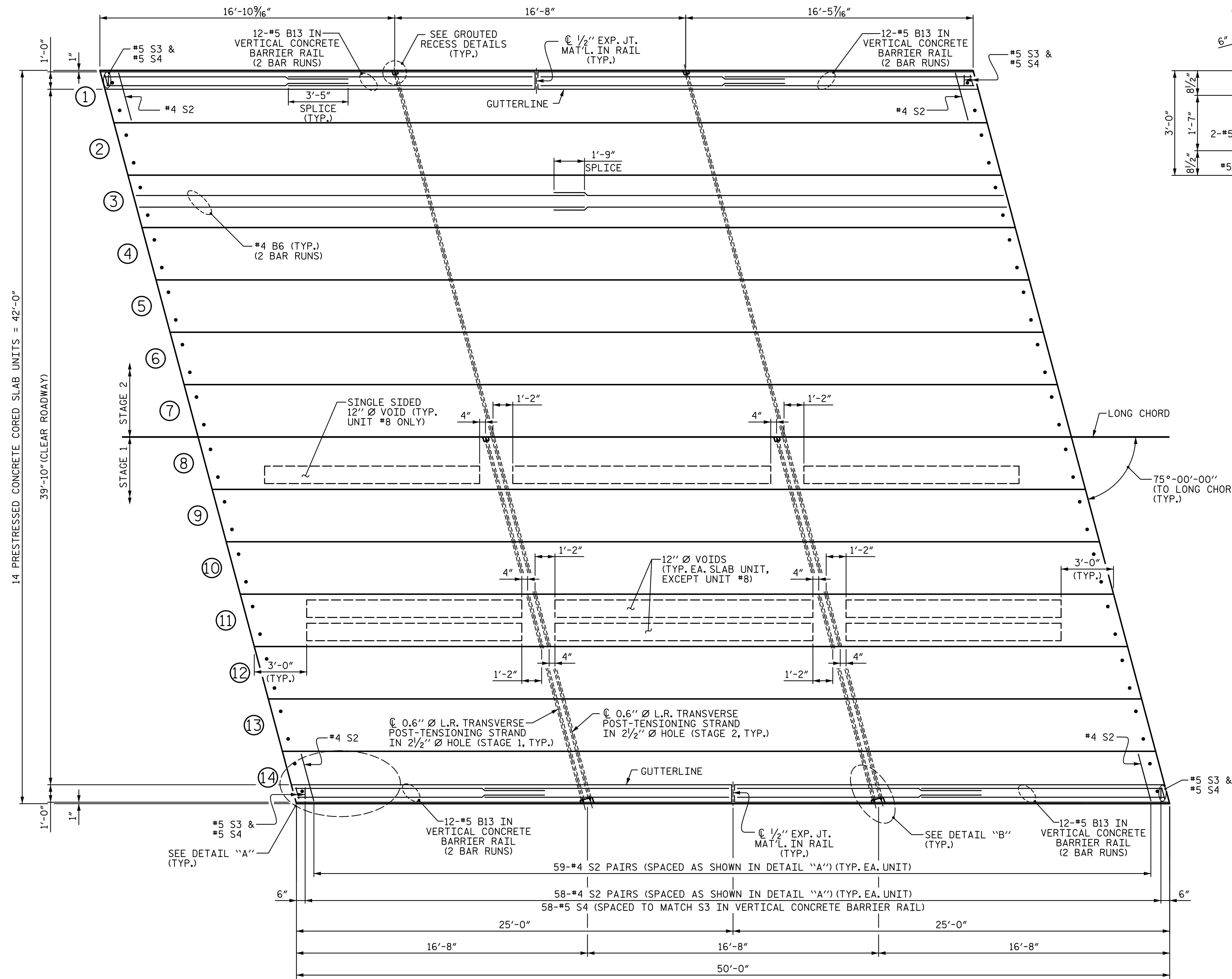
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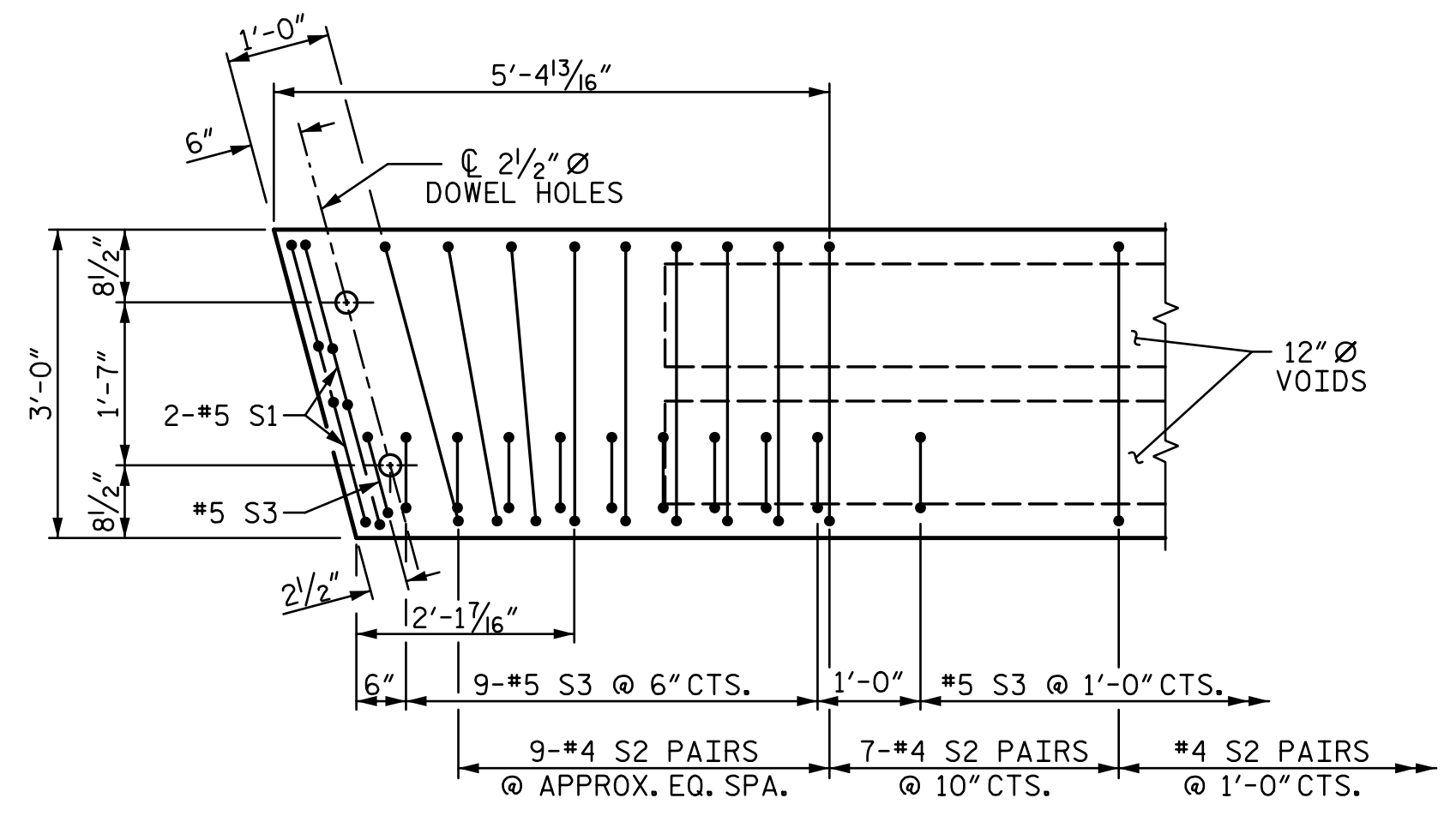
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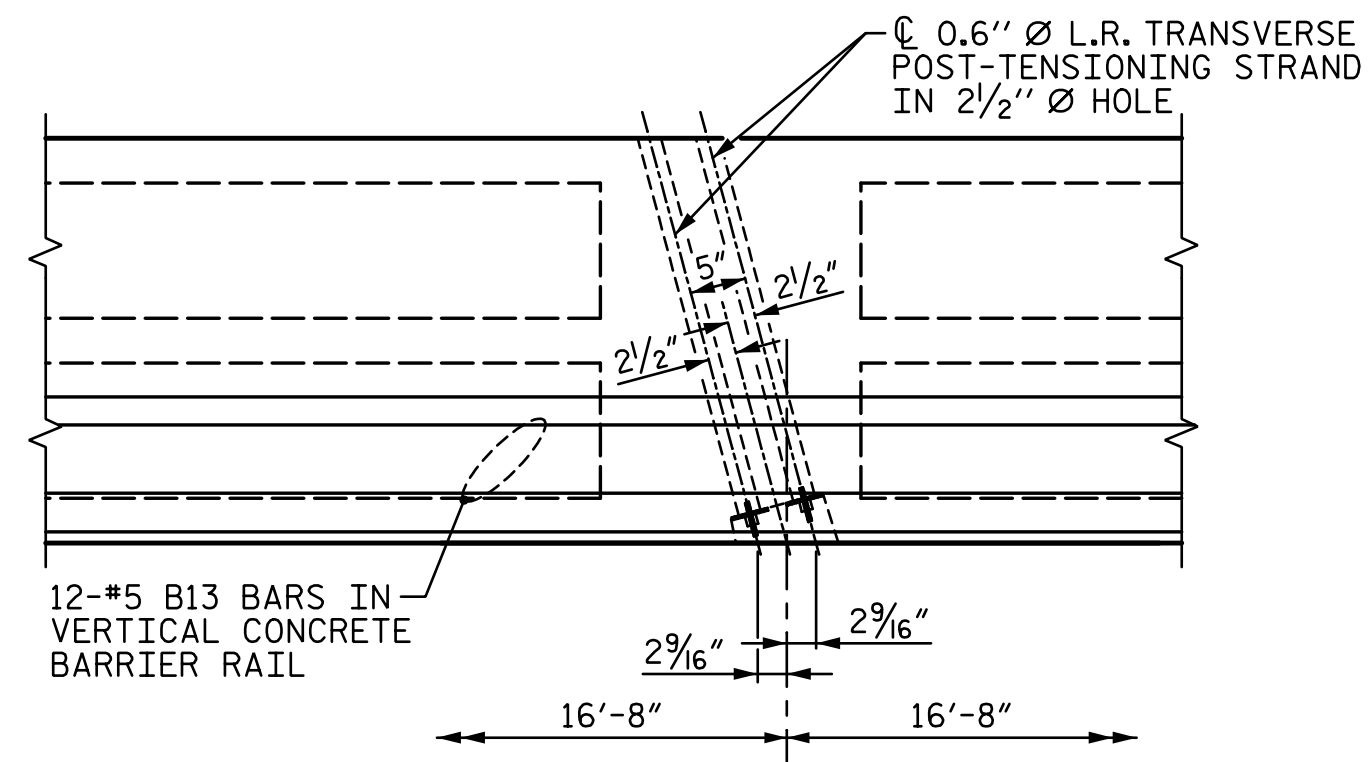
8/8/2017



PLAN OF UNIT

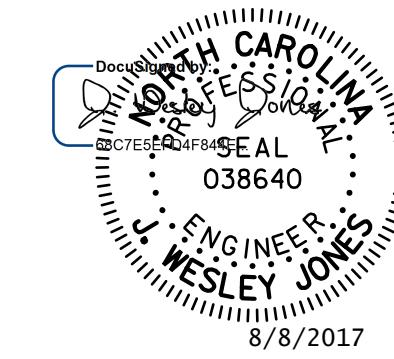


DETAIL "A"  
(SIMILAR EACH END OF UNIT)  
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.



DETAIL "B"  
#4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. 17BP.10.R.103  
STANLY COUNTY  
 STATION: 14+65.00 -L-  
 SHEET 2 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**PLAN OF 50' UNIT  
 39'-10" CLEAR ROADWAY  
 75° SKEW**

DRAWN BY : LEM DATE : 4-17  
 CHECKED BY : JWJ DATE : 6-17  
 DESIGN ENGINEER OF RECORD : JWJ DATE : 8-17

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 Charlotte, NC 28202  
 NC License Number F-0991

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REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 18

### ANCHOR ASSEMBLY NOTES

THE ANCHOR ASSEMBLY FOR PORTABLE CONCRETE BARRIER SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2 1/2".
- B. 2 - 7/8" Ø BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I.

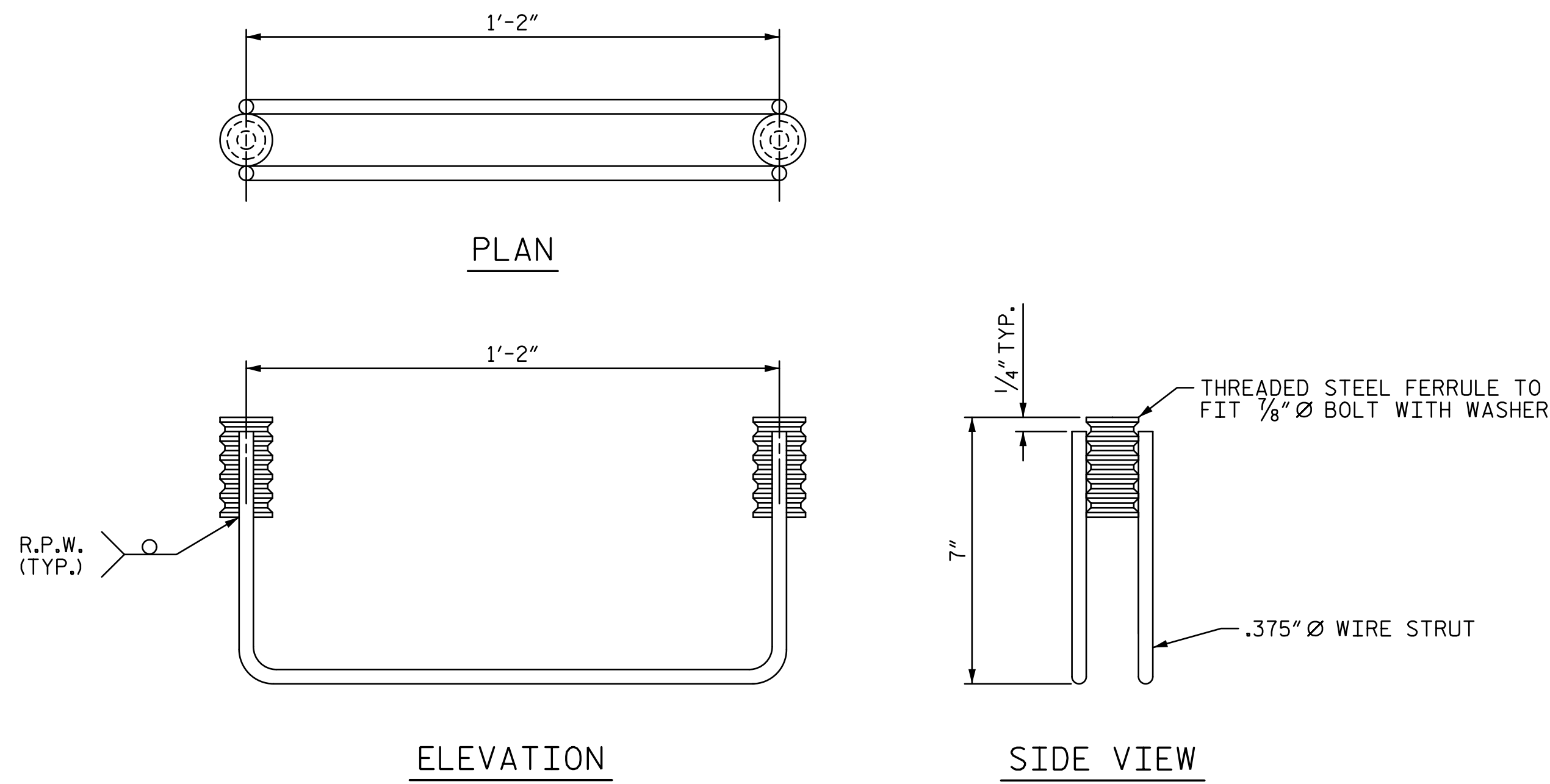
ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE ANCHOR ASSEMBLY COMPLETE IN PLACE SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS AND BRIDGE APPROACH SLABS.

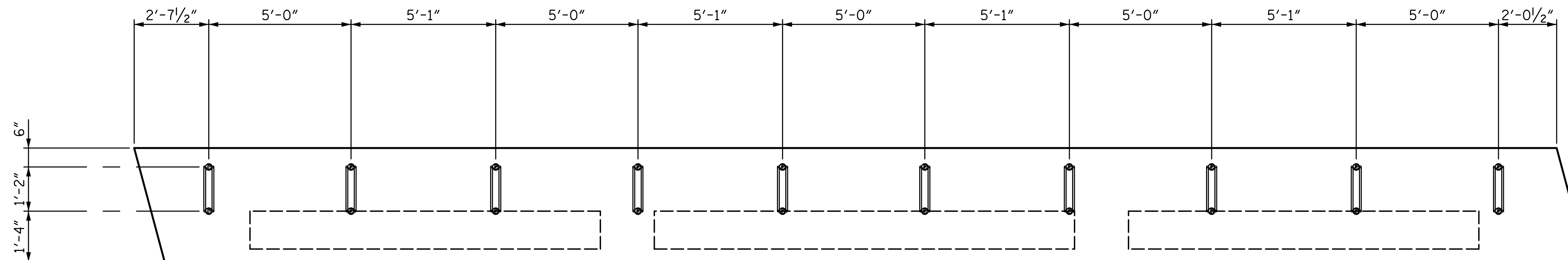
FERRULES TO BE PLUGGED DURING CASTING OF CORED SLAB UNIT AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR PORTABLE CONCRETE BARRIER RAIL IS INCLUDED IN THE TRAFFIC CONTROL PLANS.



### ANCHOR ASSEMBLY FOR PORTABLE CONCRETE BARRIER



### PLAN OF CORED SLAB UNIT #8

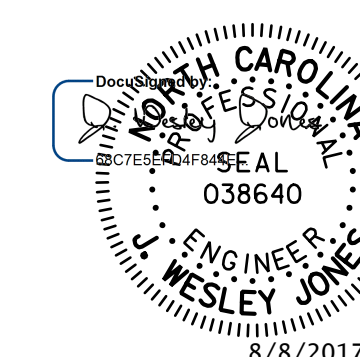
SHOWING ANCHOR ASSEMBLY SPACING  
 (10 ASSEMBLIES REQUIRED IN CORED SLAB UNIT)  
 (4 ASSEMBLIES REQUIRED IN APPROACH SLABS.  
 FOR LOCATIONS, SEE BRIDGE APPROACH SLAB SHEET.)

PROJECT NO. 17BP.10.R.103

STANLY COUNTY

STATION: 14+65.00 -L-

SHEET 3 OF 4



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 75° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-8
					TOTAL SHEETS 18

DRAWN BY :	LEM	DATE :	6-17
CHECKED BY :	JWJ	DATE :	6-17
DESIGN ENGINEER OF RECORD :	JWJ	DATE :	8-17

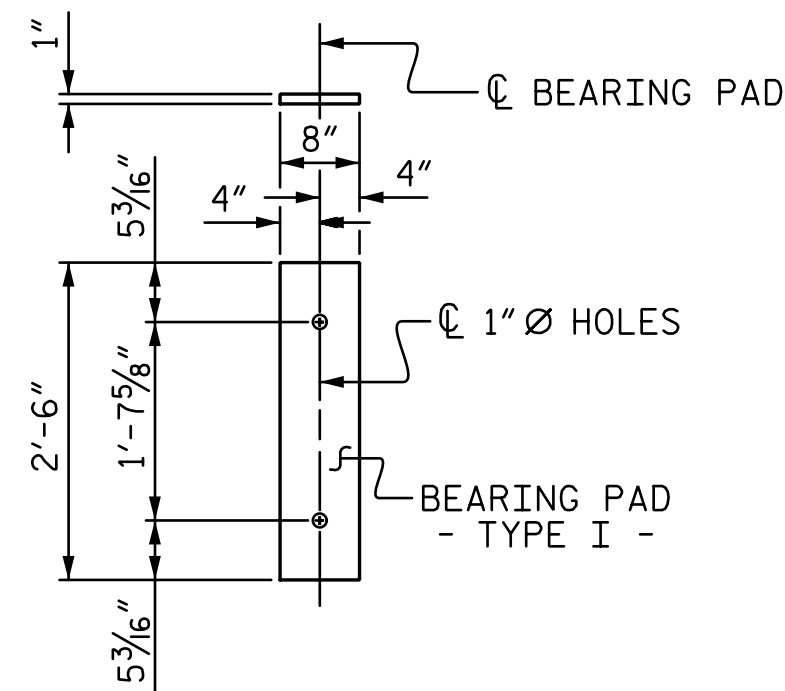
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8/8/2017

Jones





FIXED END  
(TYPE I - 28 REQ'D)

ELASTOMERIC BEARING DETAILS

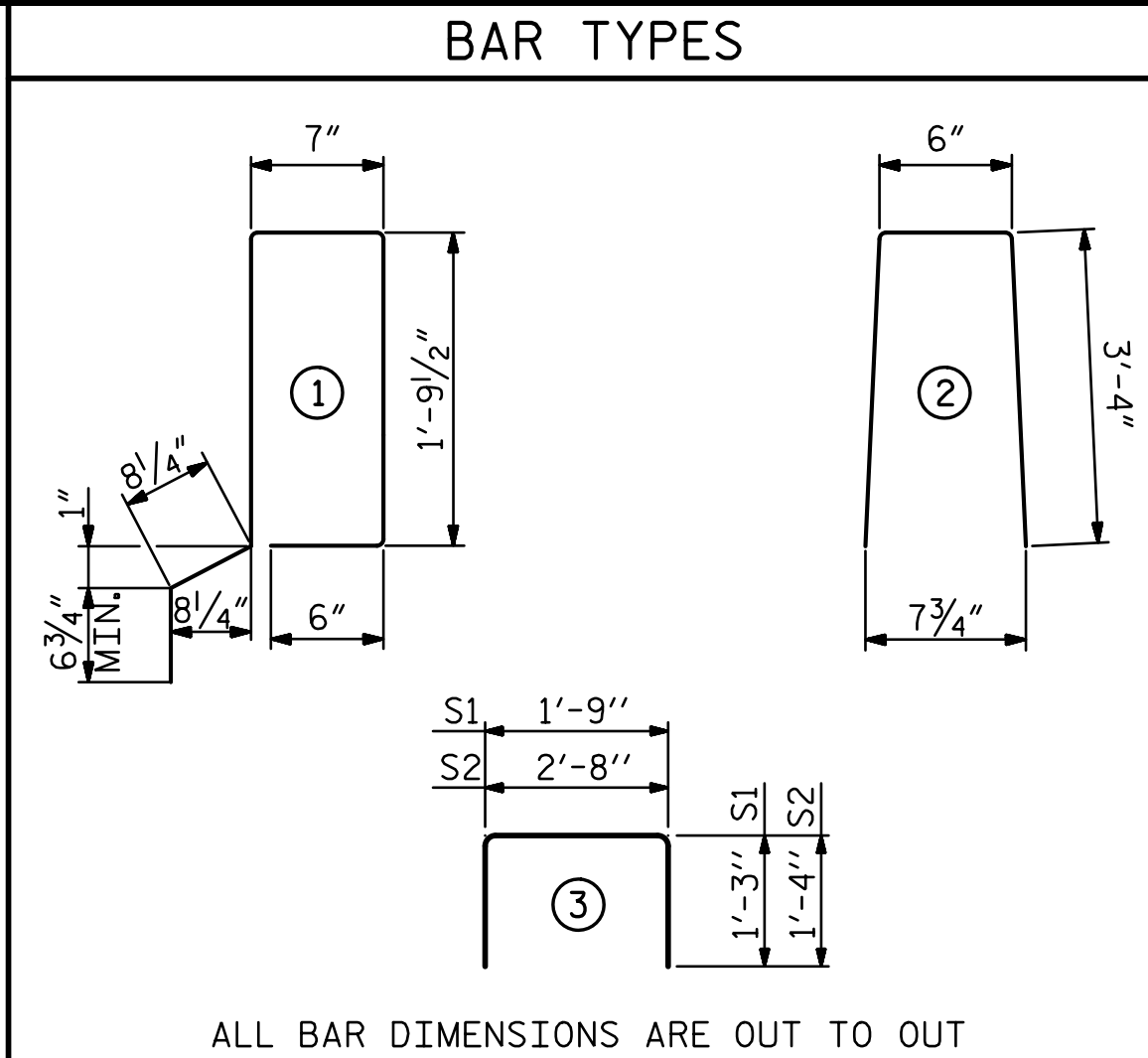
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT	
ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
50' UNITS ▲ 3 1/4"	3'-9 1/4"

▲ ASPHALT THICKNESS SHOWN IS FOR THE FINAL CONDITION. FOR ASPHALT THICKNESS AT STAGES, SEE "BRIDGE STAGING PLAN" SHEETS.

CORED SLABS REQUIRED				
STAGE NUMBER		NUMBER	LENGTH	TOTAL LENGTH
1	EXTERIOR C.S.	1	50'-0"	50'-0"
	INTERIOR C.S.	6	50'-0"	300'-0"
	TOTAL	7	—	350'-0"
2	EXTERIOR C.S.	1	50'-0"	50'-0"
	INTERIOR C.S.	6	50'-0"	300'-0"
	TOTAL	7	—	350'-0"

BILL OF MATERIAL FOR ONE 50' CORED SLAB UNIT									
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT	SINGLE VOID UNIT LENGTH	SINGLE VOID UNIT WEIGHT
B6	4	#4	STR	25'-9"	69	25'-9"	69	25'-9"	69
S1	8	#5	3	4'-3"	35	4'-3"	35	4'-3"	35
S2	118	#4	3	5'-4"	420	5'-4"	420	5'-4"	420
*S3	60	#5	1	5'-11"	370				
REINFORCING STEEL			LBS.		524		524		524
*EPOXY COATED REINFORCING STEEL			LBS.		370				
6500 P.S.I. CONCRETE			CU. YDS.		7.4		7.4		8.5
0.6" Ø L.R. STRANDS			No.		19		19		19



DEAD LOAD DEFLECTION AND CAMBER	
50' CORED SLAB UNIT	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1 1/8" ↑

\*\* INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
50' UNIT						
*B13	96	96	#5	STR	14'-2"	1418
*S4	120	120	#5	2	7'-2"	897
*EPOXY COATED REINFORCING STEEL			LBS.	2315		
CLASS AA CONCRETE			CU.YDS.	13.3		
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.	100.0		

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

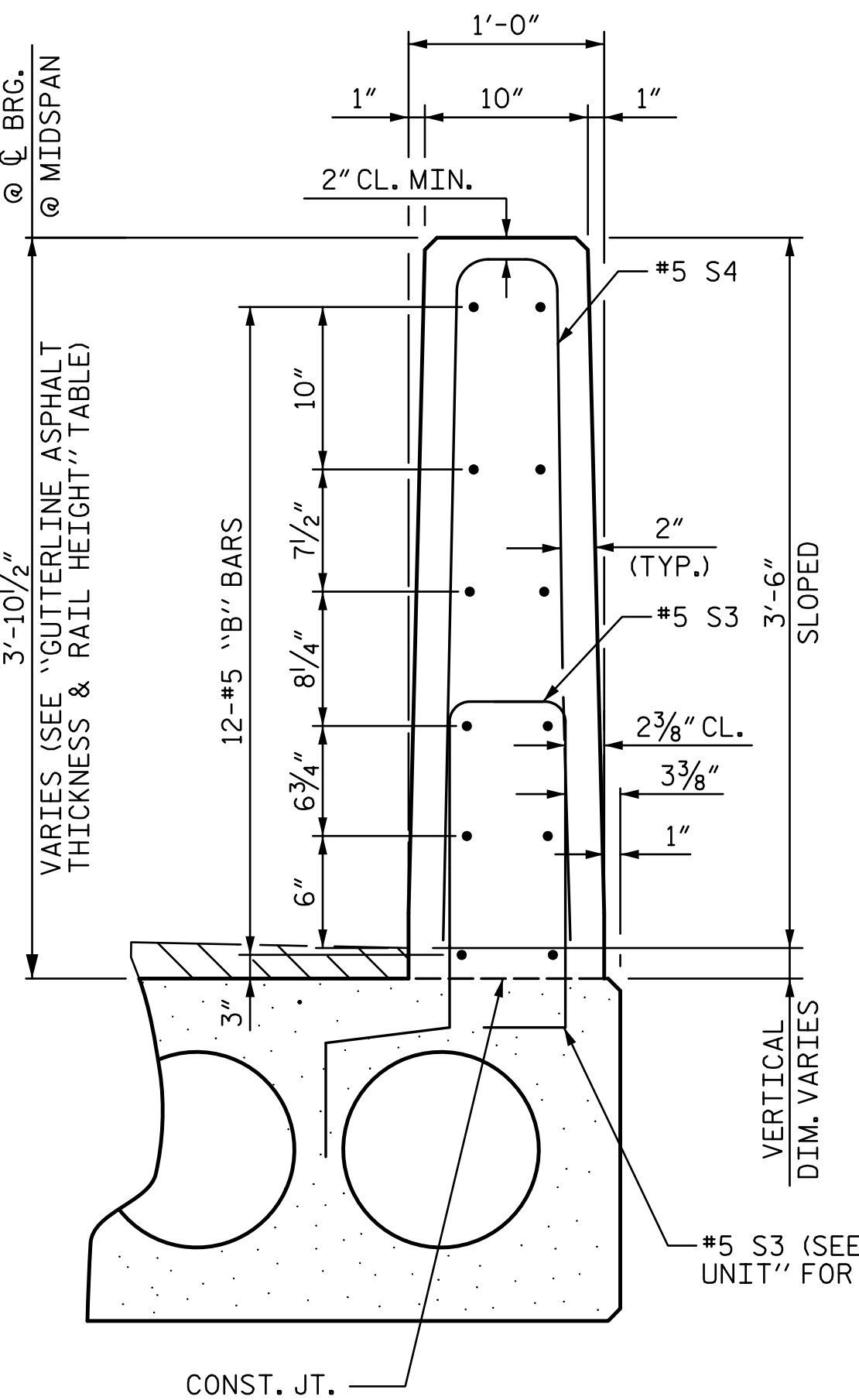
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

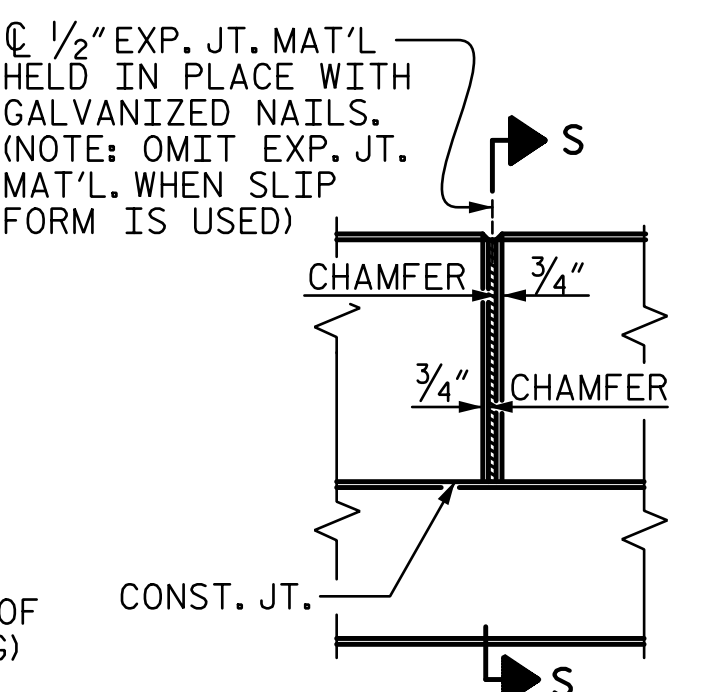
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

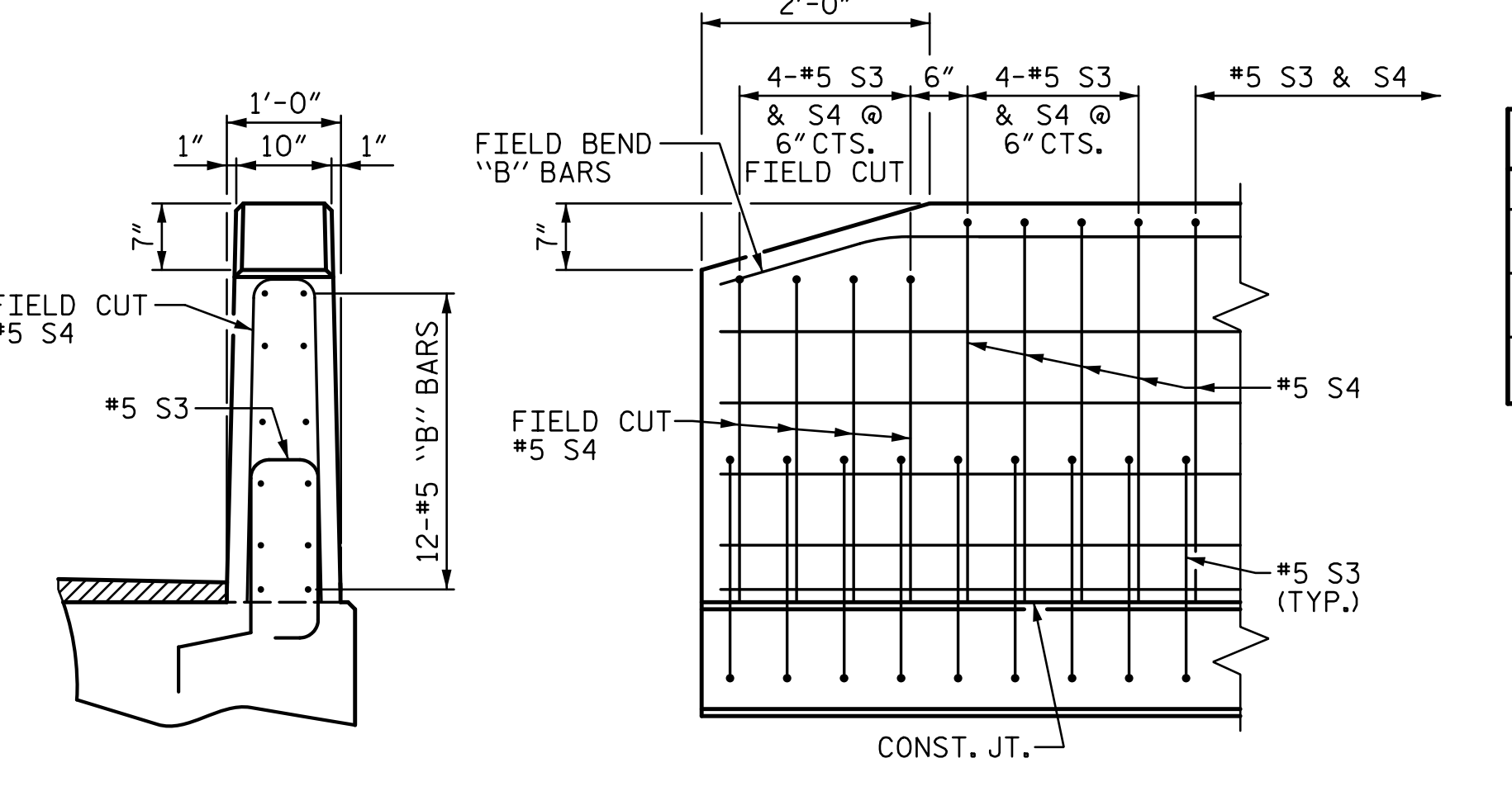
CONCRETE RELEASE STRENGTH	
UNIT	PSI
50' UNITS	4900



SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

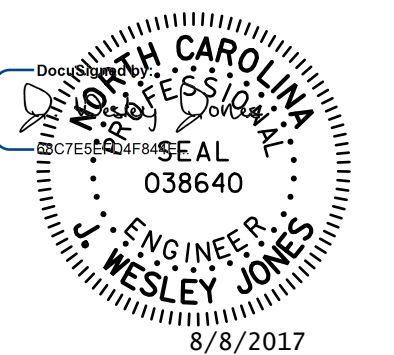


END VIEW

SIDE VIEW

END OF RAIL DETAILS

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



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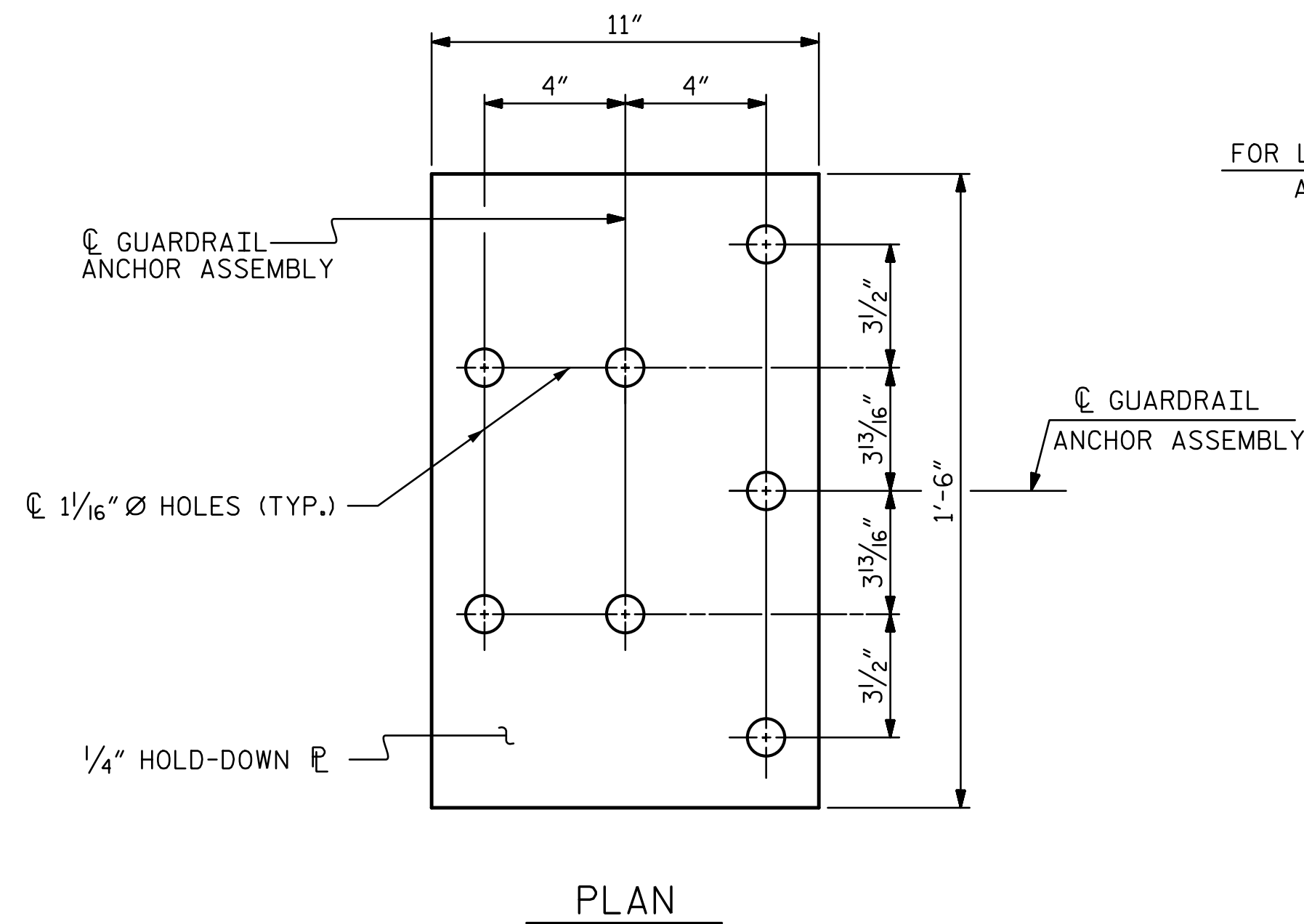
SHEET 4 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
3'-0" X 1'-9"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
75° SKEW

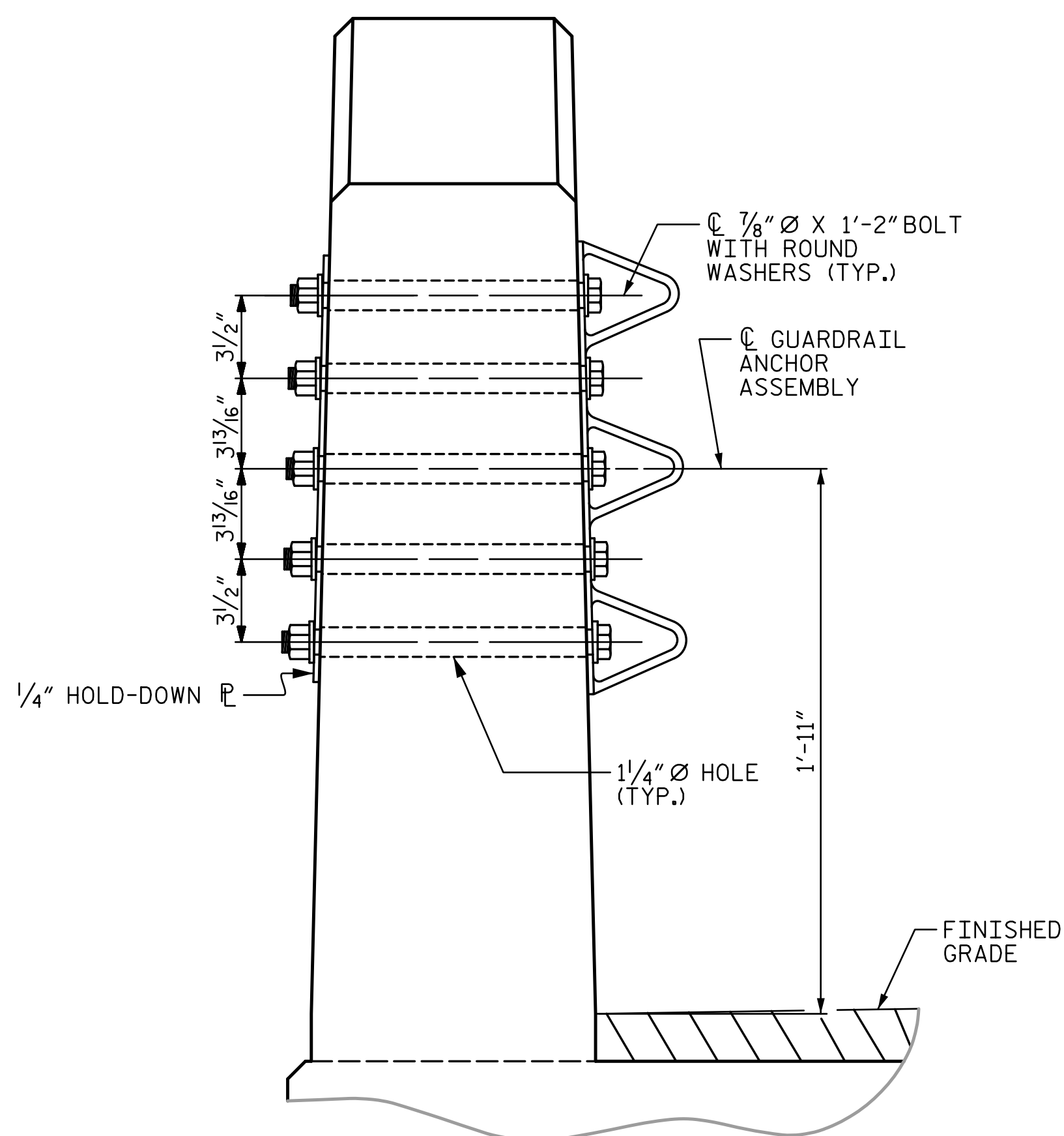
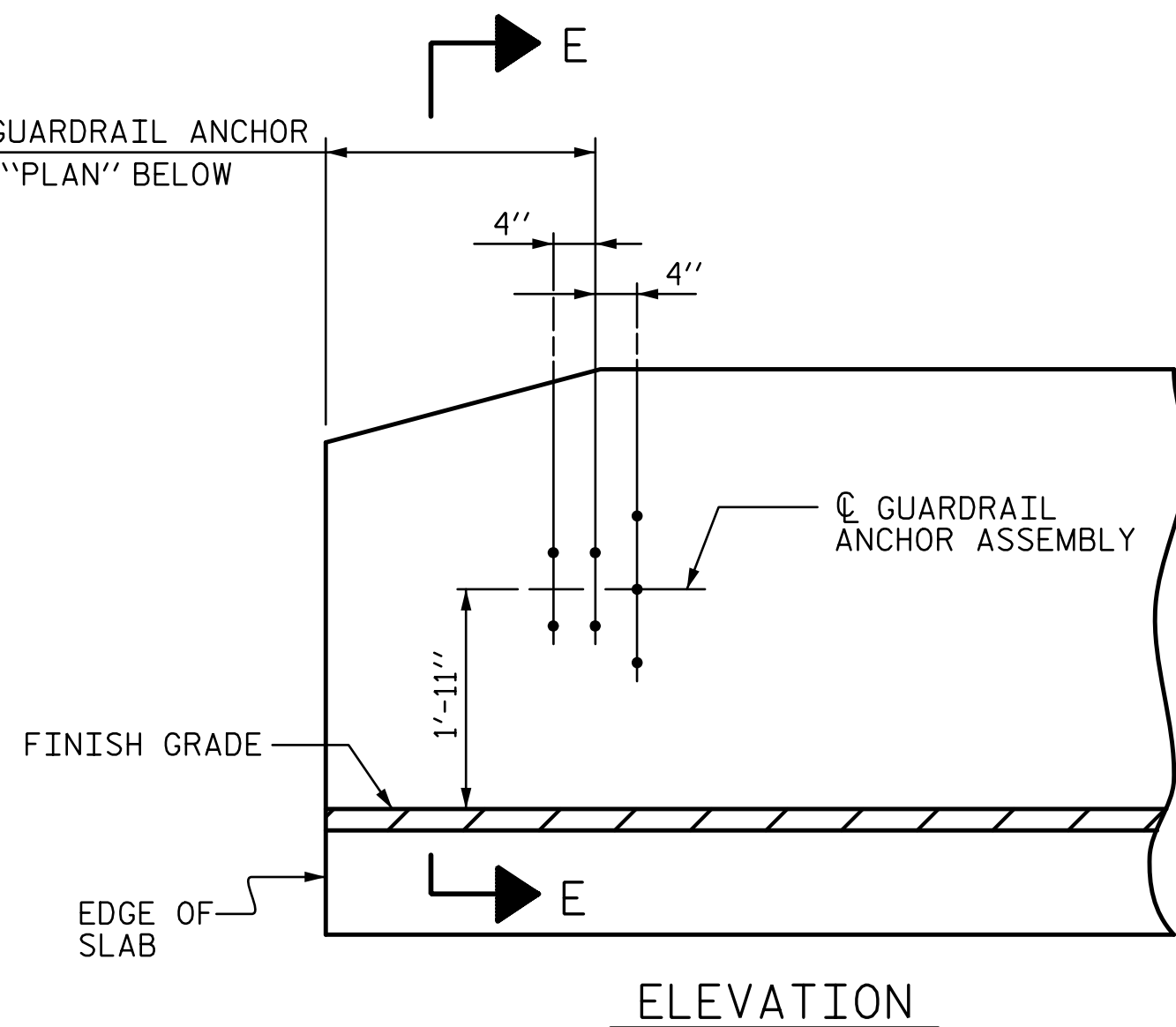
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2			4			18



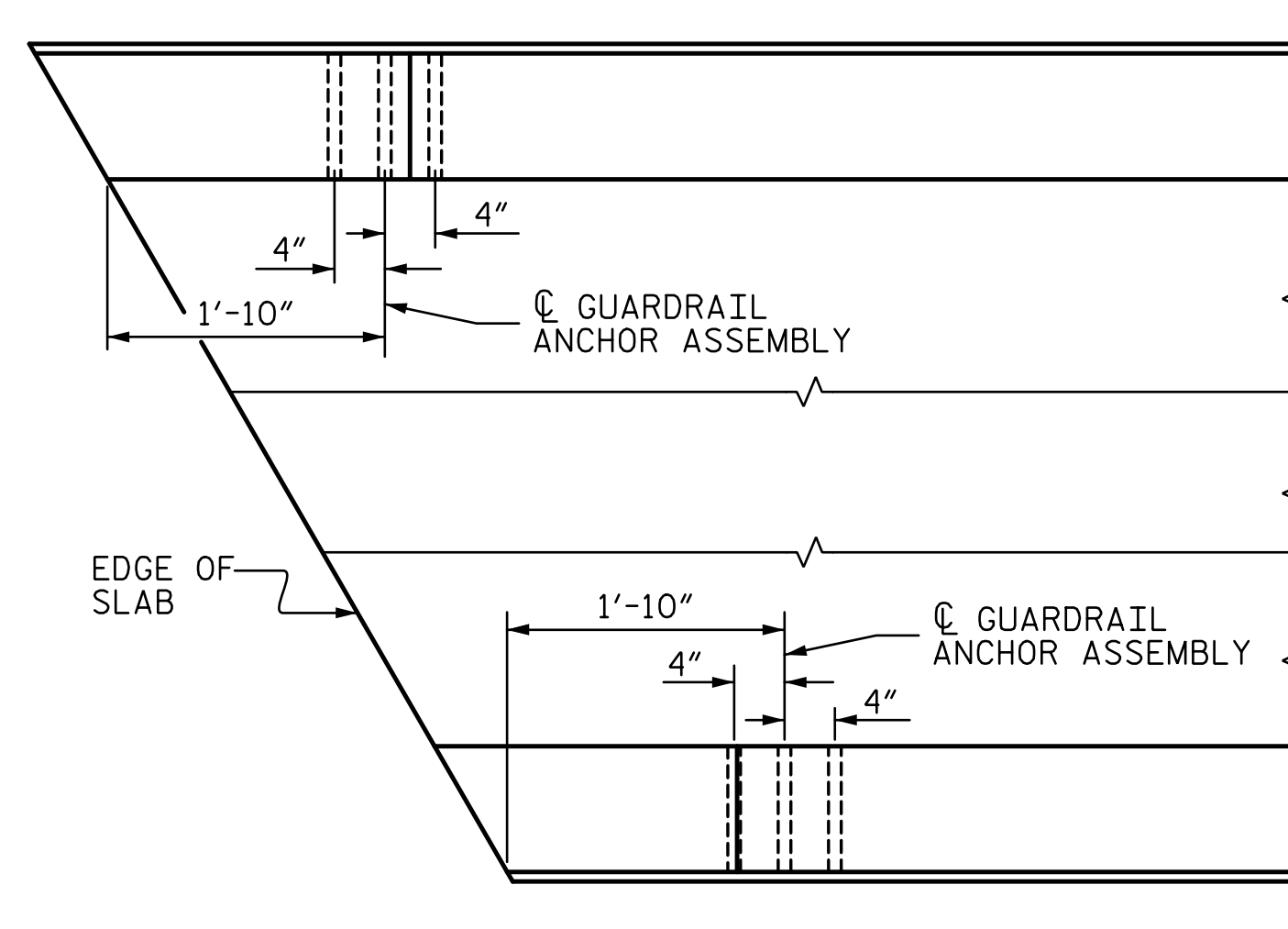
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FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

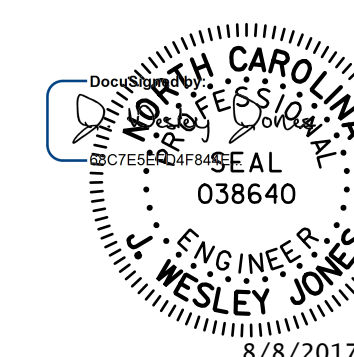
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

PROJECT NO. 17BP.10.R.103

STANLEY COUNTY

STATION: 14+65.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
GUARDRAIL ANCHORAGE  
DETAILS FOR VERTICAL  
CONCRETE BARRIER RAIL

ASSEMBLED BY : LEM	DATE : 4-17
CHECKED BY : JWJ	DATE : 6-17
DESIGN ENGINEER OF RECORD : JWJ	DATE : 8-17
DRAWN BY : MAA 5/10	REV. 12/5/11 MAA/GM
CHECKED BY : GM 5/10	REV. 6/13 MAA/GM
	REV. 1/15 MAA/TMG

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1			3		
2			4		

TOTAL SHEETS 18



**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

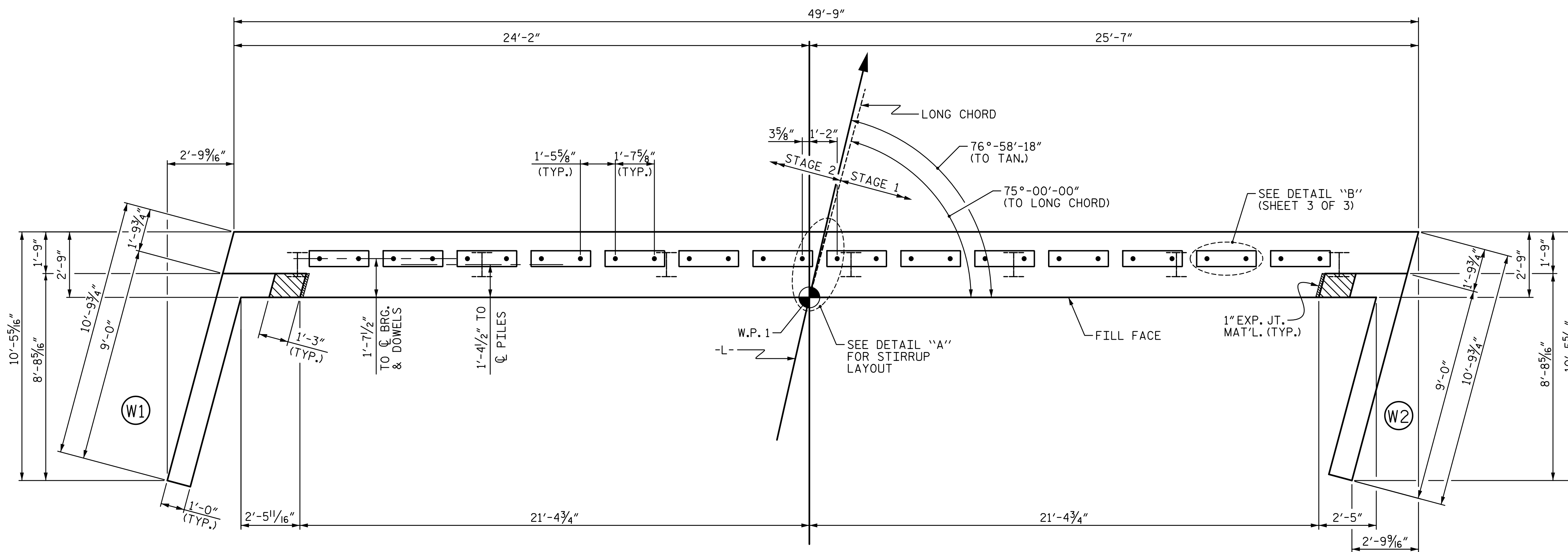
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.

FOR CONSTRUCTION JOINT DETAILS, SEE SHEET 3 OF 3.

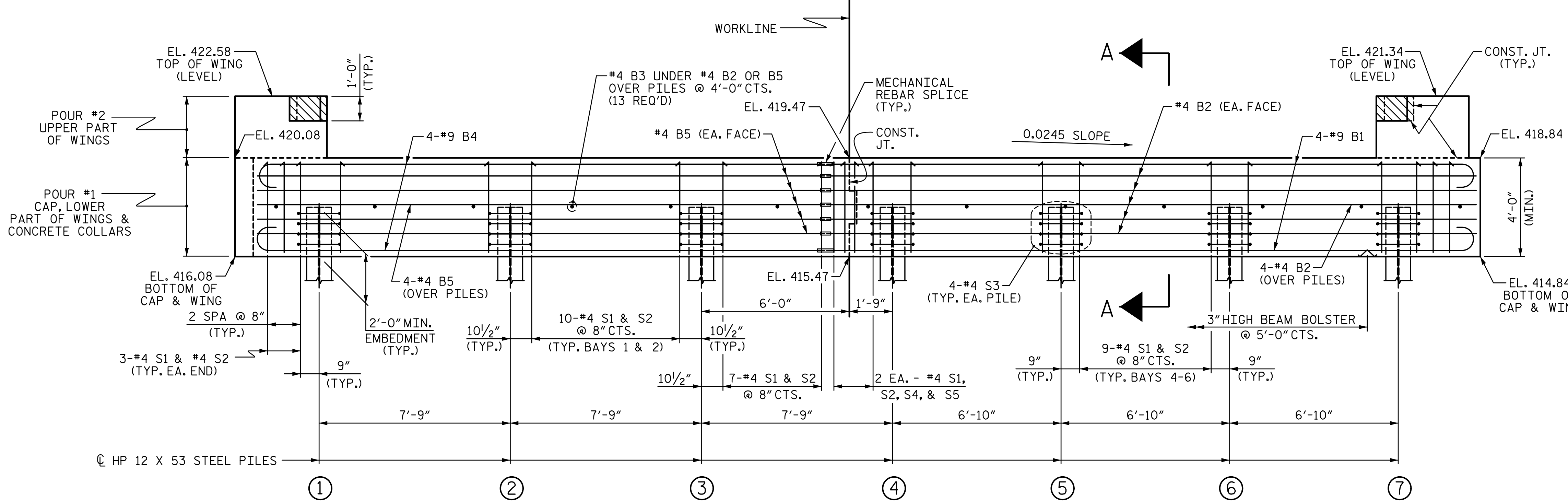
FOR MECHANICAL SPLICES, SEE SECTION 425-5(B) OF THE STANDARD SPECIFICATIONS.



**PLAN**

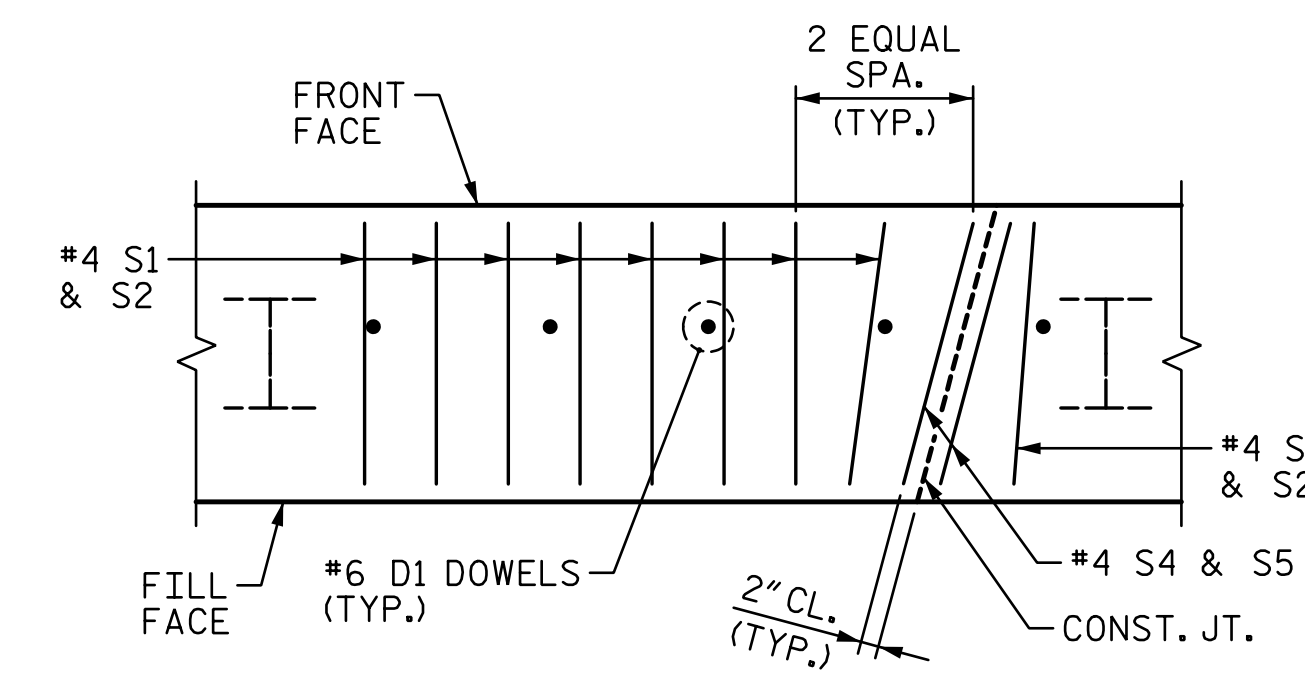
**TOP OF PILE ELEVATIONS**

①	418.01
②	417.82
③	417.63
④	417.44
⑤	417.27
⑥	417.10
⑦	416.93



**ELEVATION**

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 3 OF 3.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.



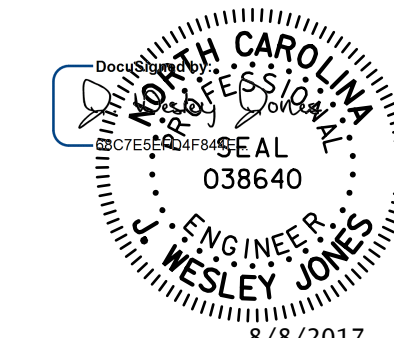
**DETAIL "A"**

PROJECT NO. 17BP.10.R.103

STANLY COUNTY

STATION: 14+65.00 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE  
 END BENT No. 1**

**STV** 100 YEARS  
 STV ENGINEERS, INC.  
 900 West Trade St., Suite 715  
 Charlotte, NC 28202  
 NC License Number F-0991

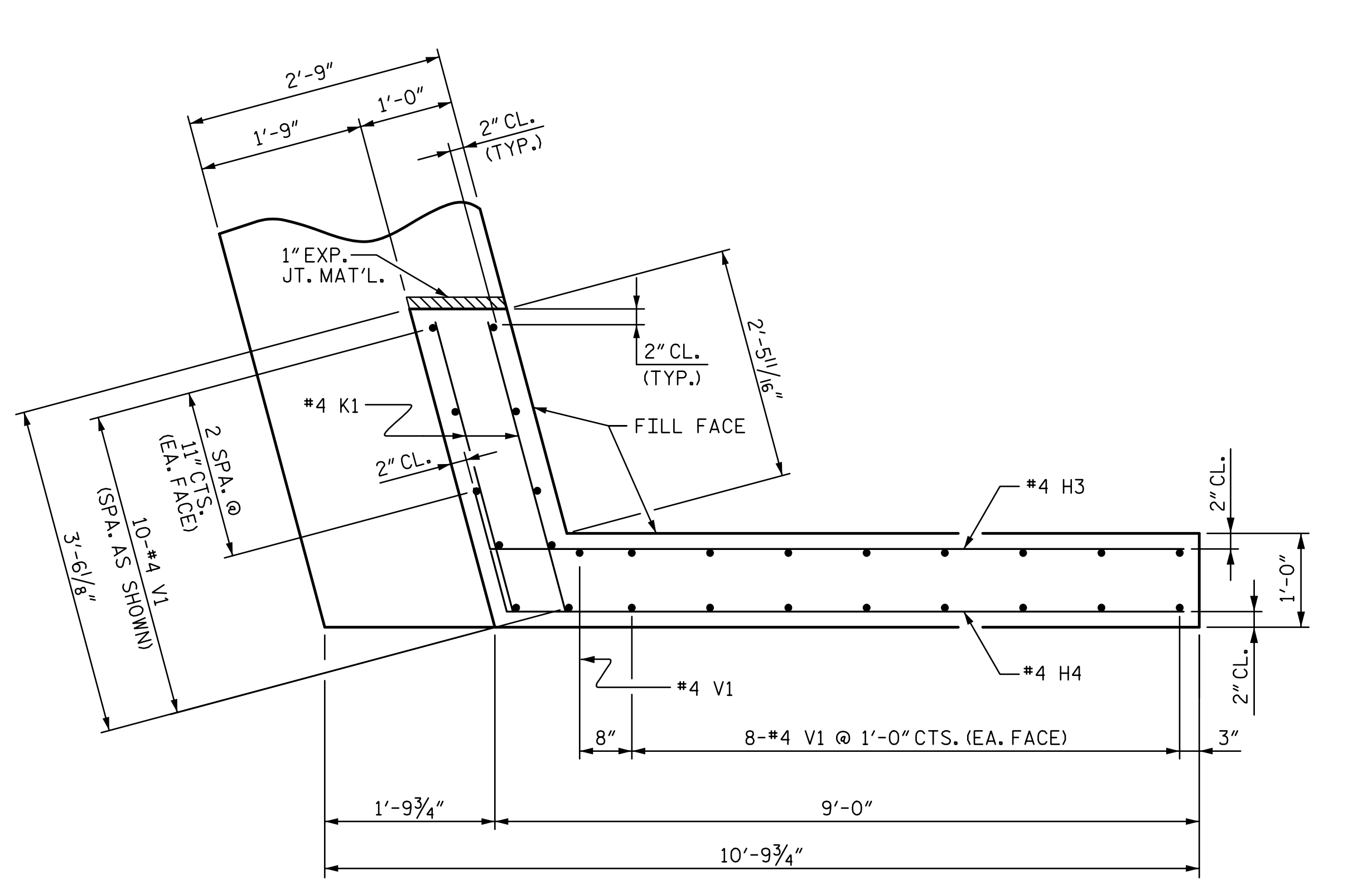
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 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			18

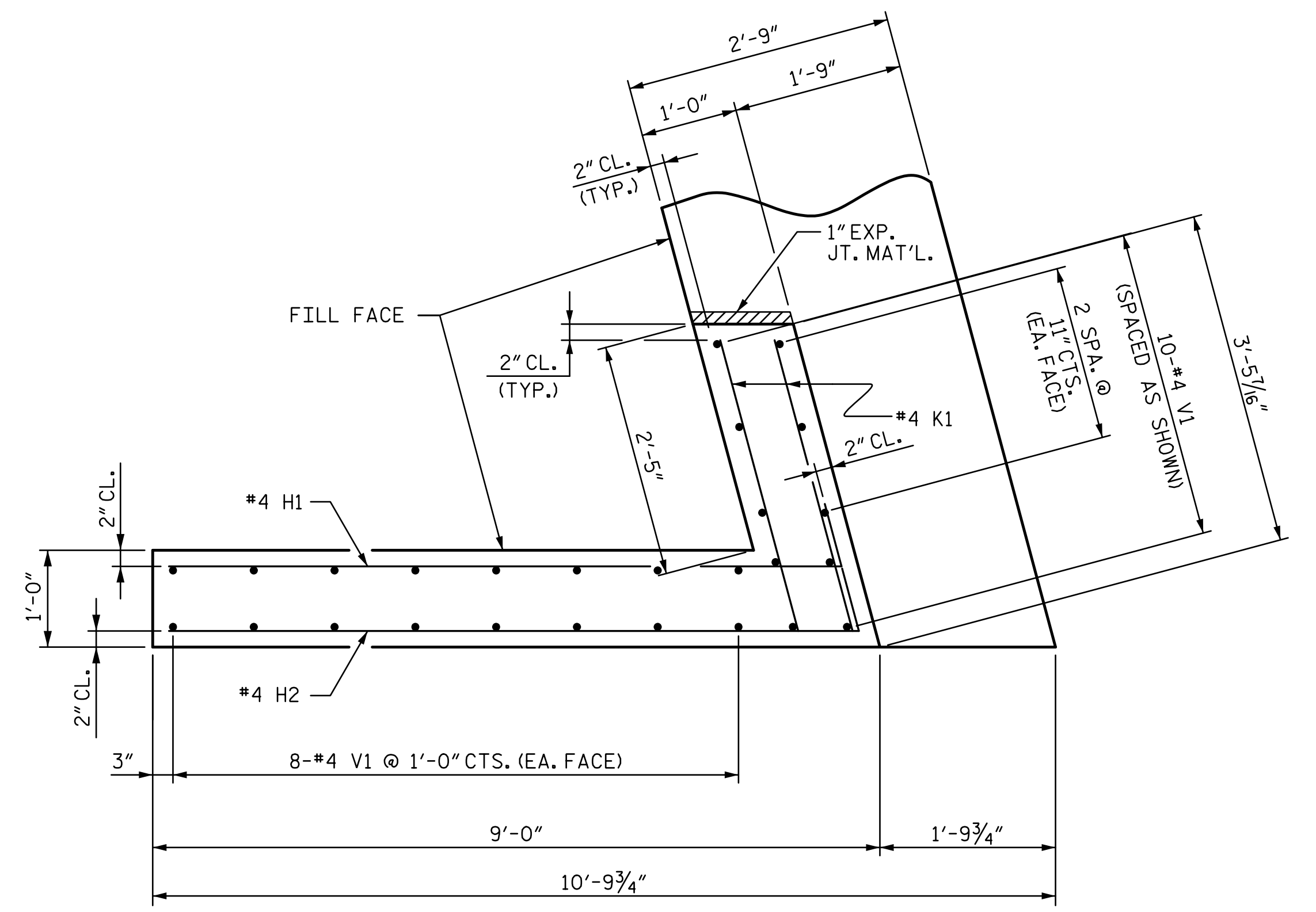
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 DESIGN ENGINEER OF RECORD : JWJ DATE : 8-17

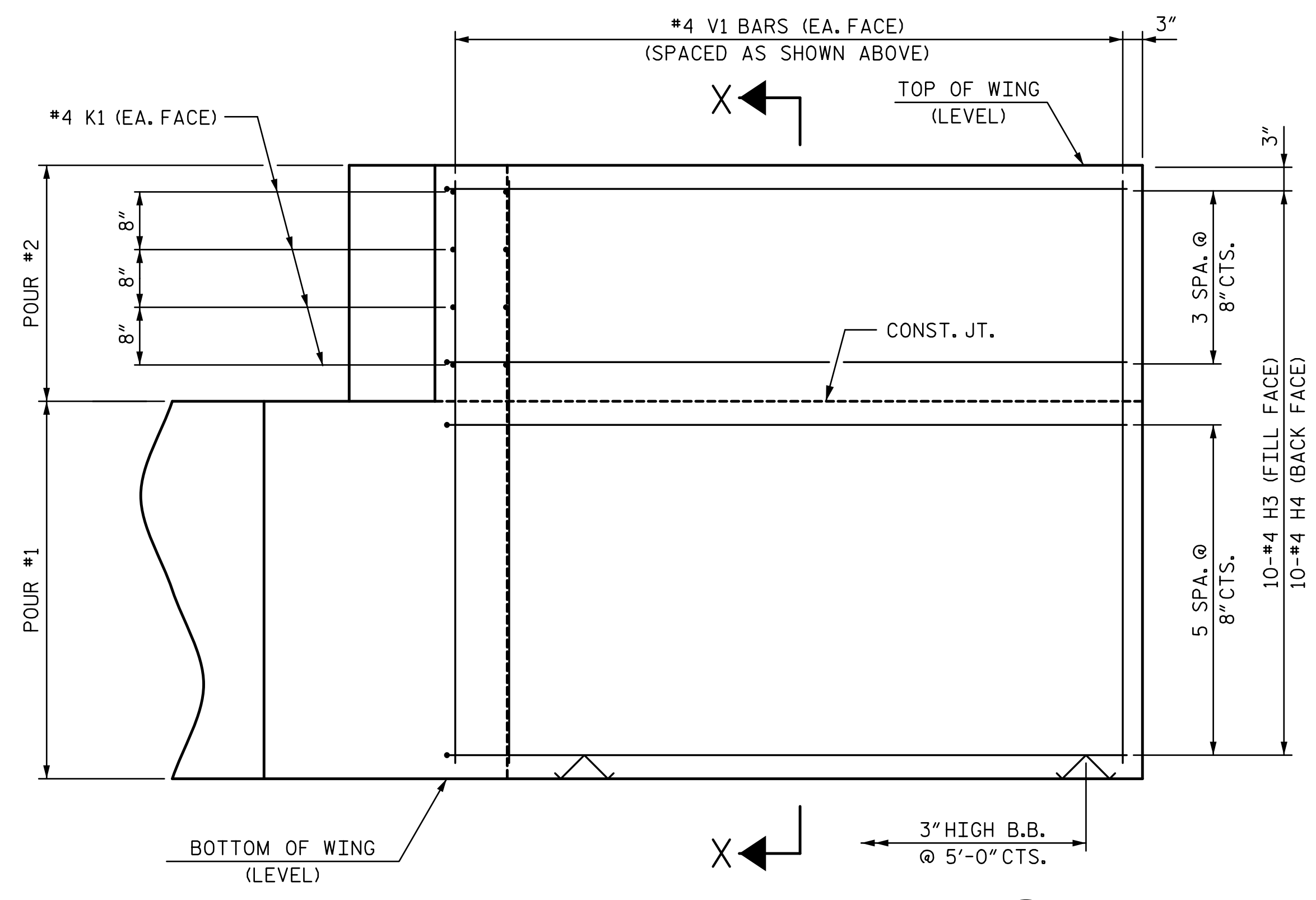
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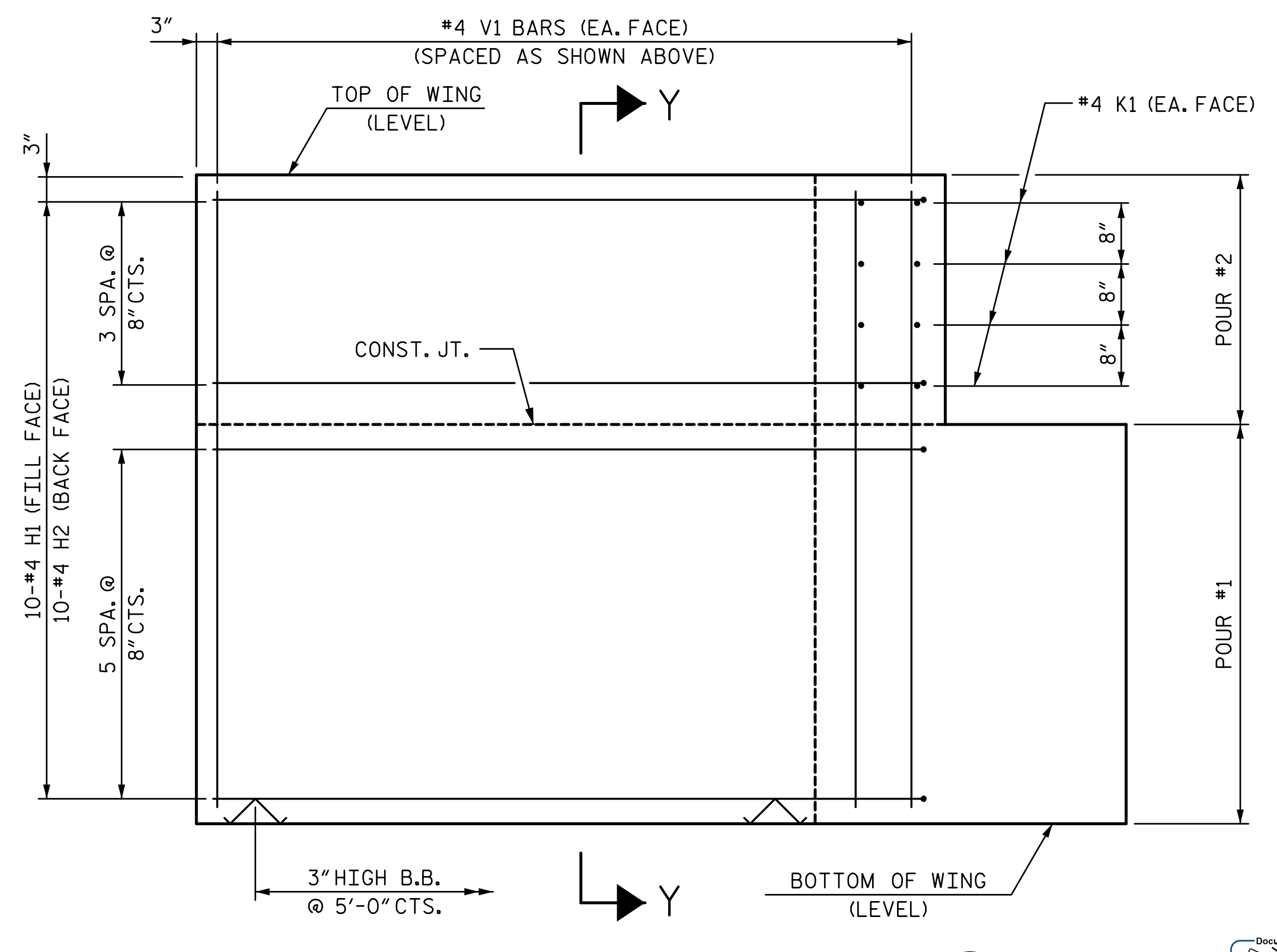
PLAN OF WING (W1)  
STAGE 2



PLAN OF WING (W2)  
STAGE 1

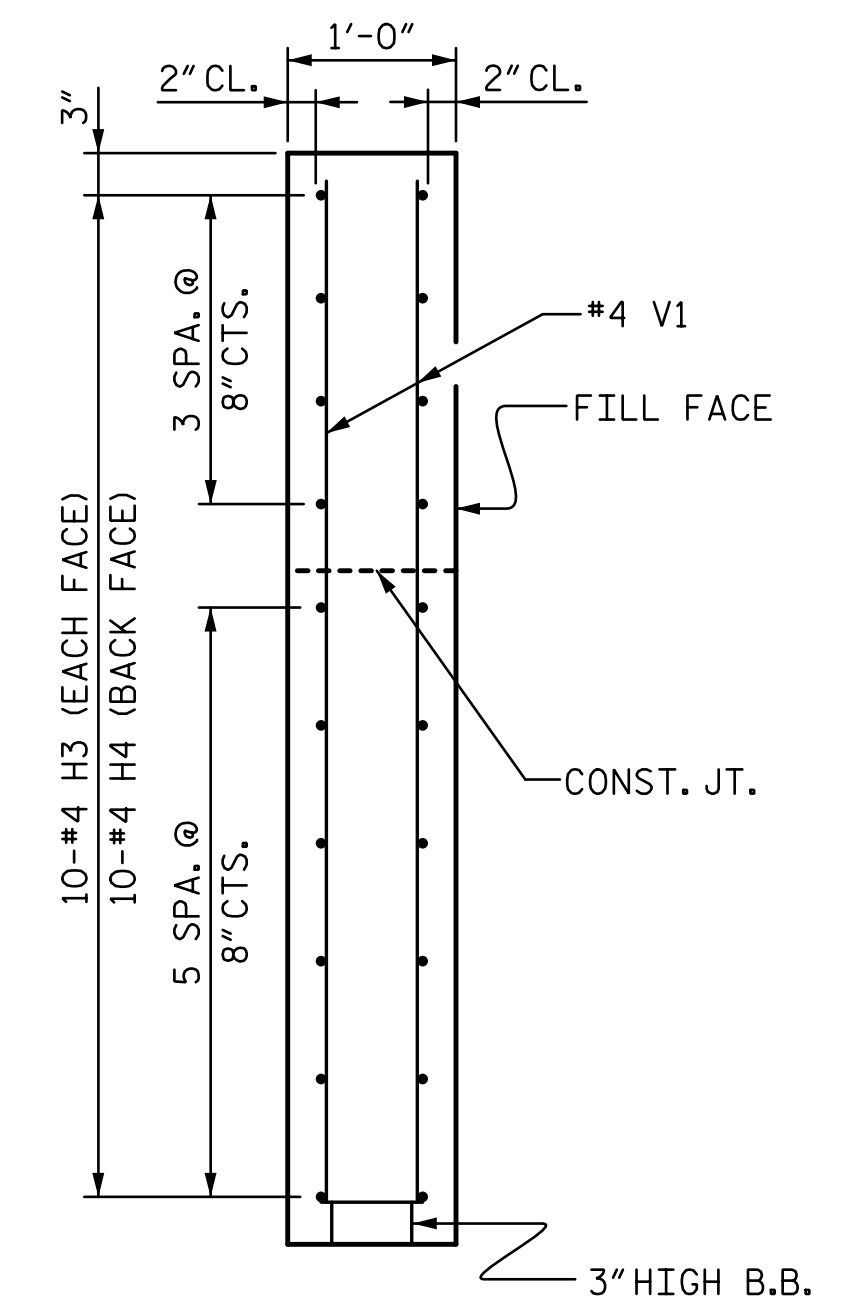


ELEVATION OF WING (W1)  
STAGE 2

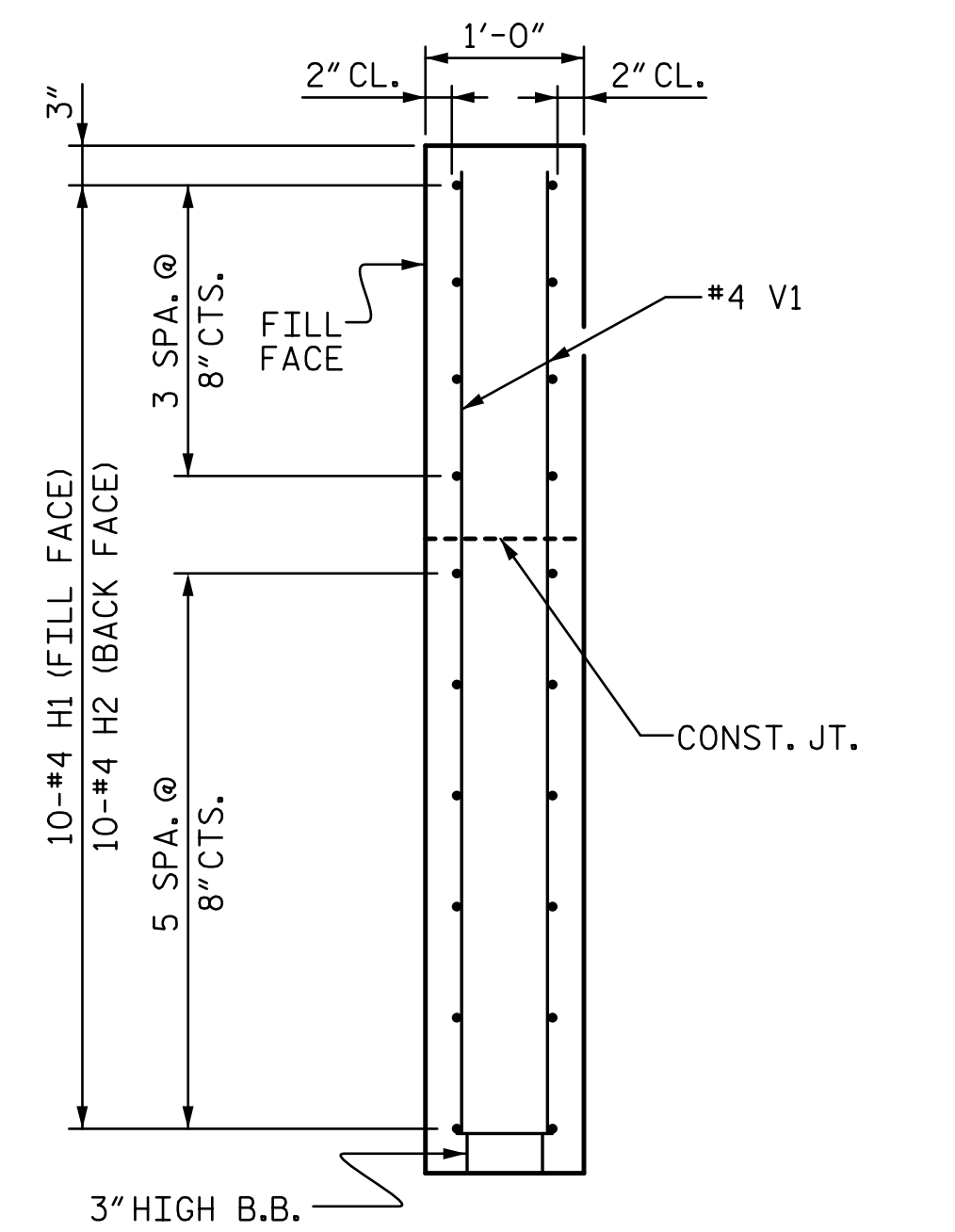


ELEVATION OF WING (W2)  
STAGE 1

WING DETAILS



SECTION X-X  
STAGE 2



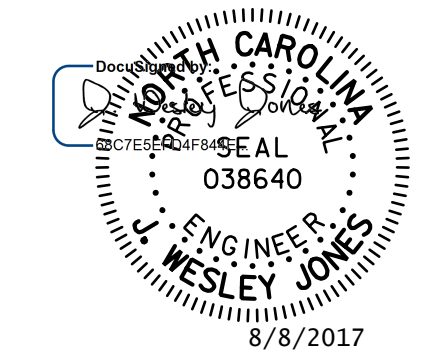
SECTION Y-Y  
STAGE 1

PROJECT NO. 17BP.10.R.103  
STANLY COUNTY  
 STATION: 14+65.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT No. 1  
 WING DETAILS



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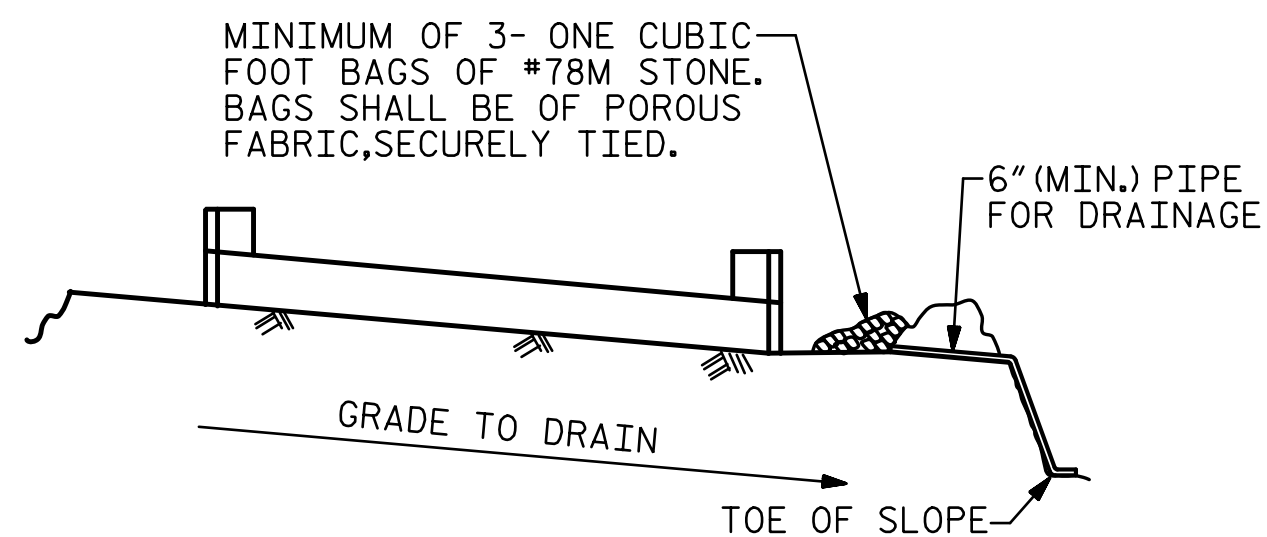
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CHECKED BY :	JWJ	DATE :	6-17
DESIGN ENGINEER OF RECORD :	JWJ	DATE :	8-17

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 18



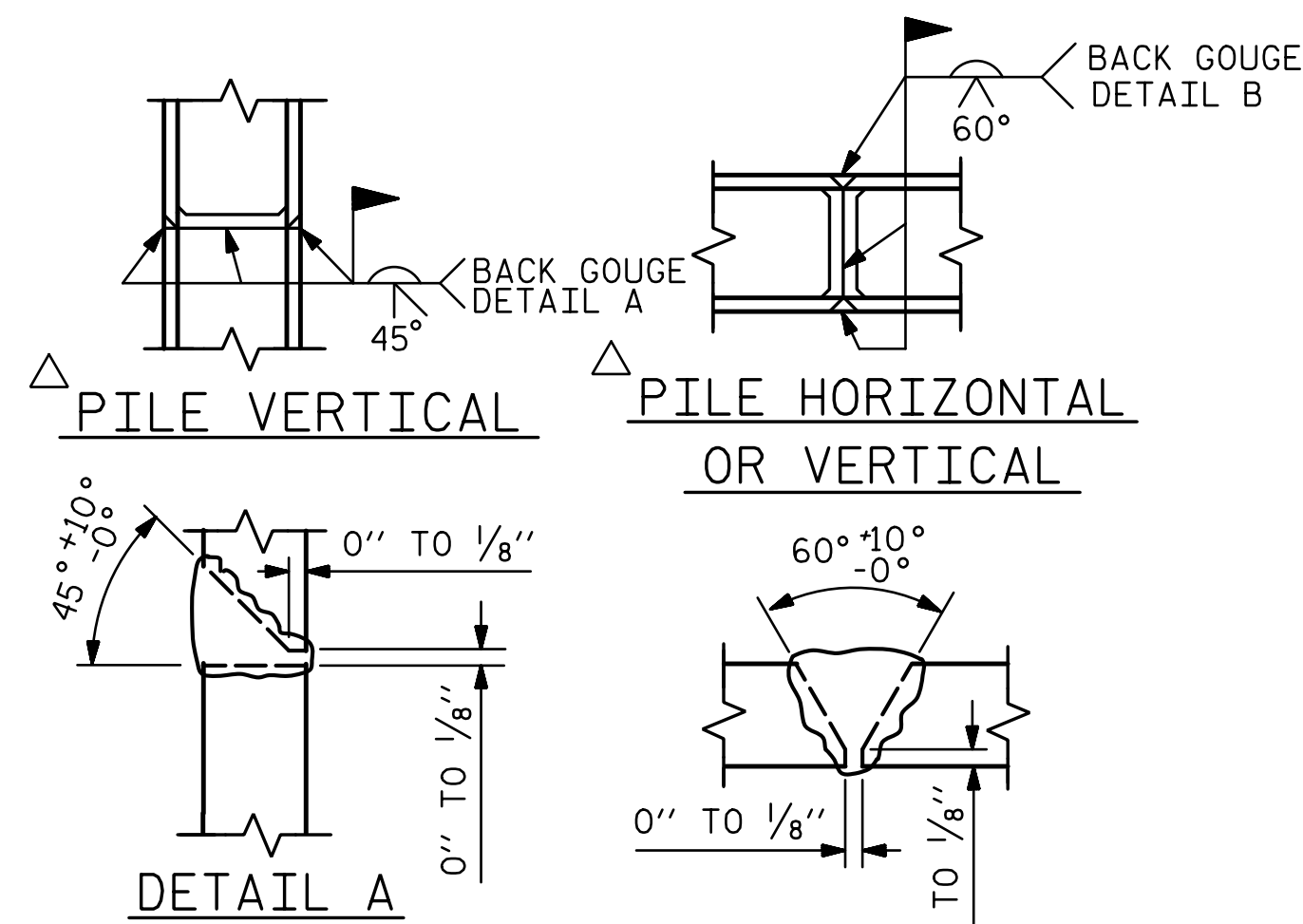


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

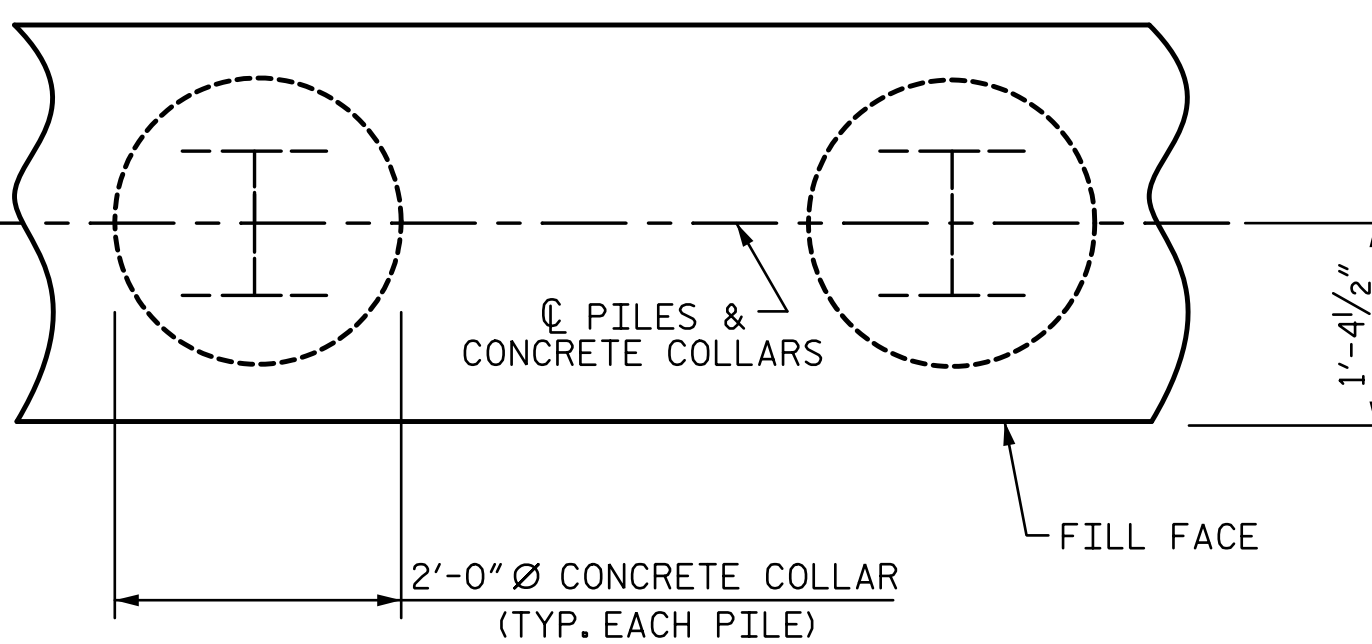
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

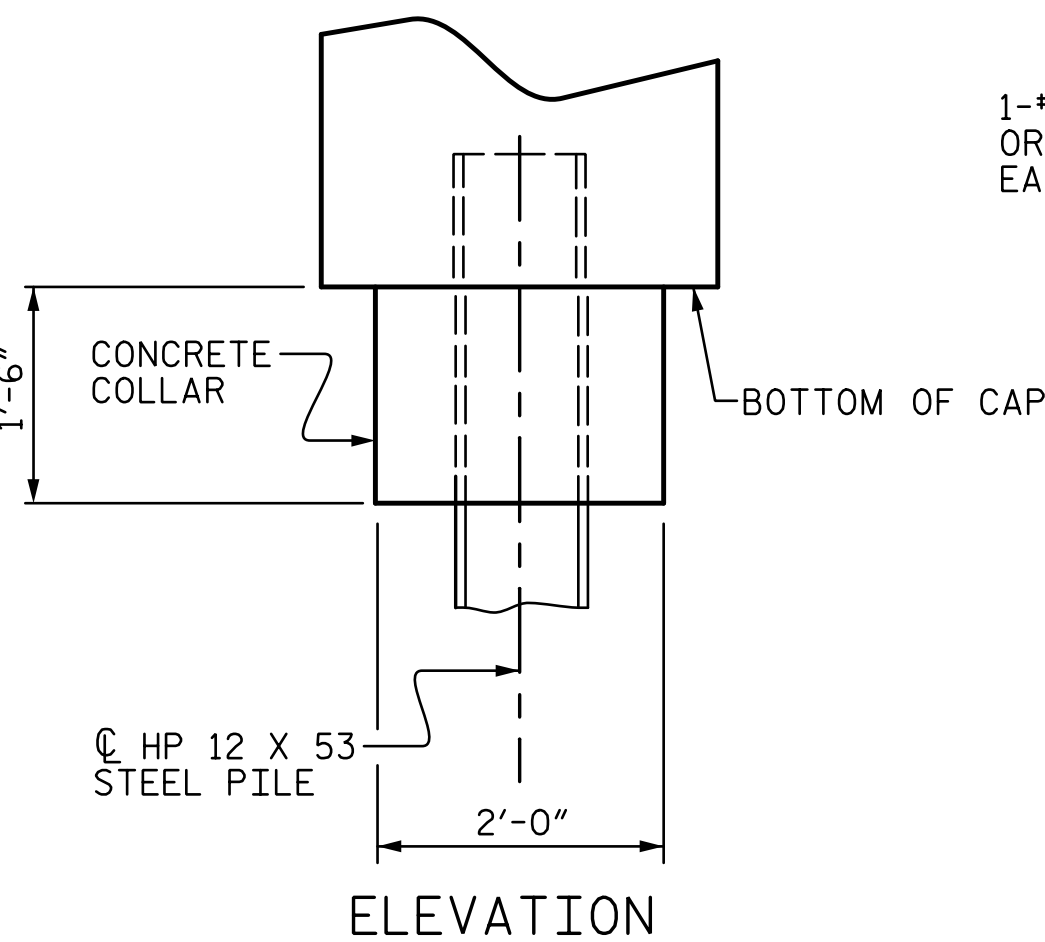
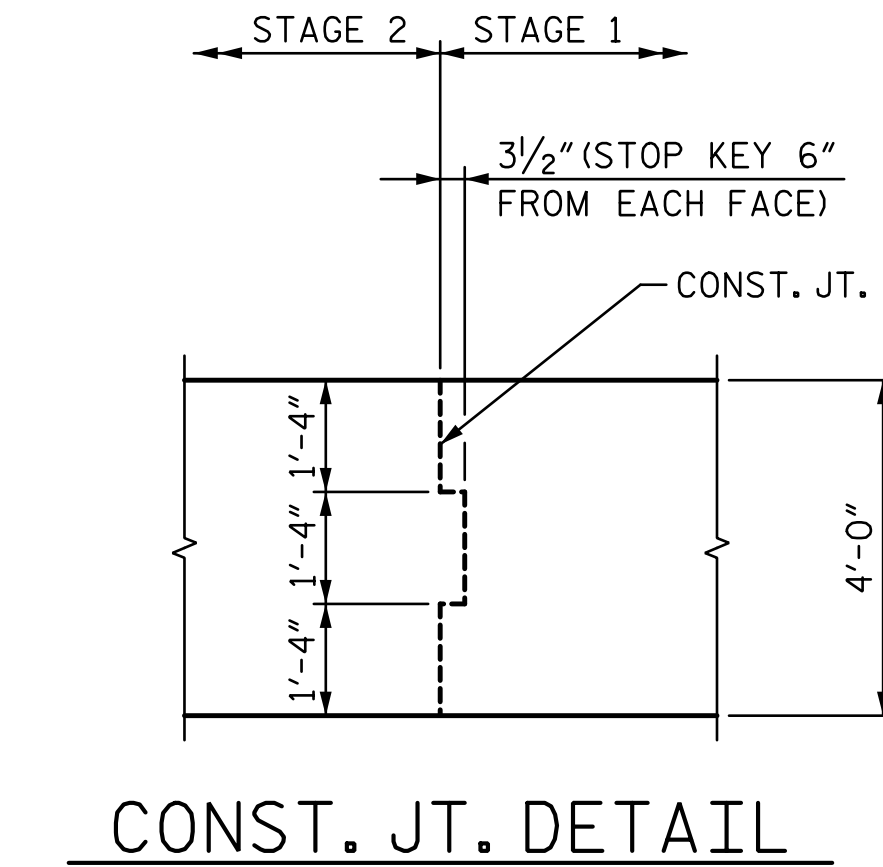
### TEMPORARY DRAINAGE AT END BENT



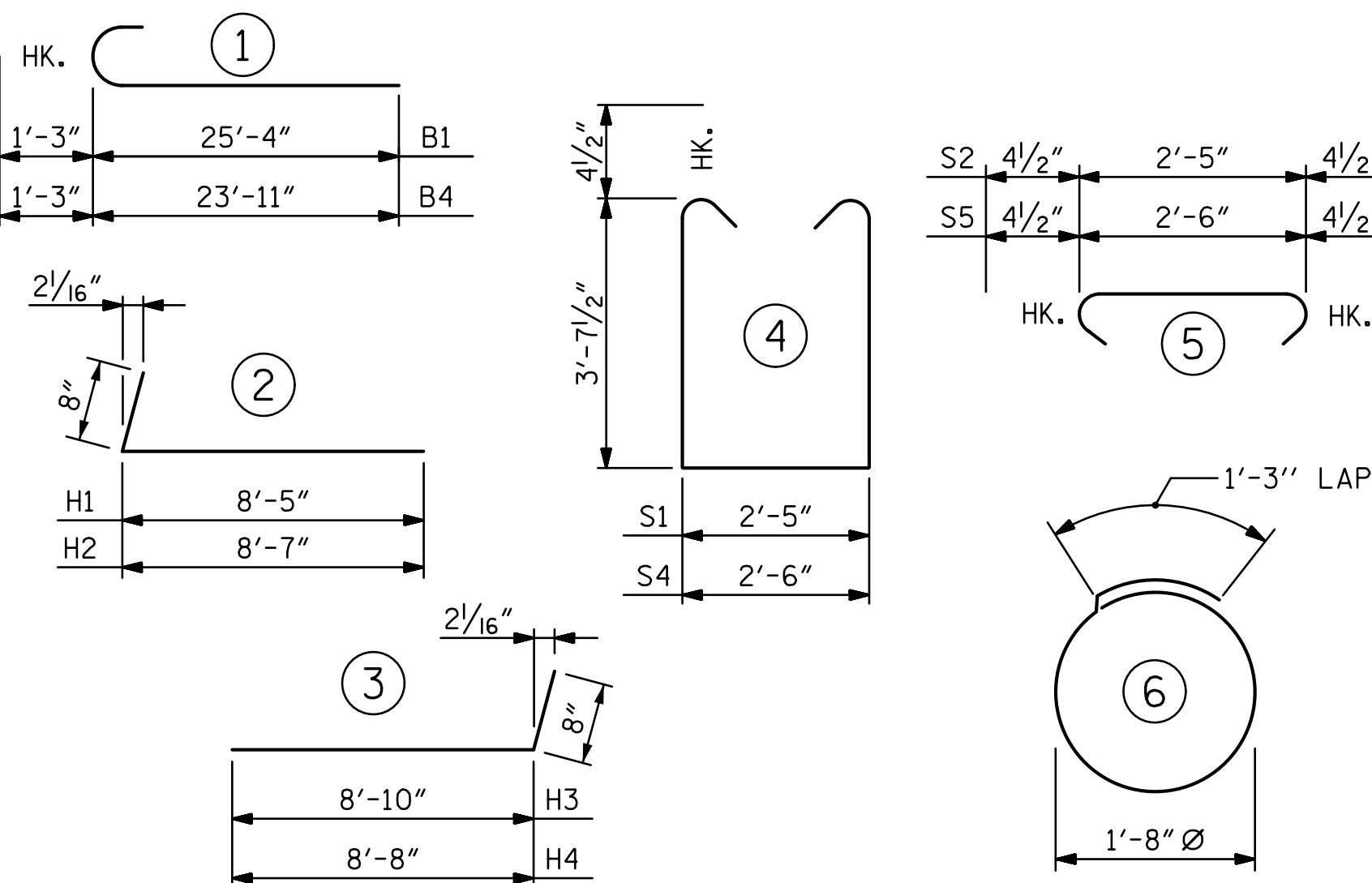
### PILE SPLICE DETAILS



### CORROSION PROTECTION FOR STEEL PILES DETAIL



### BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

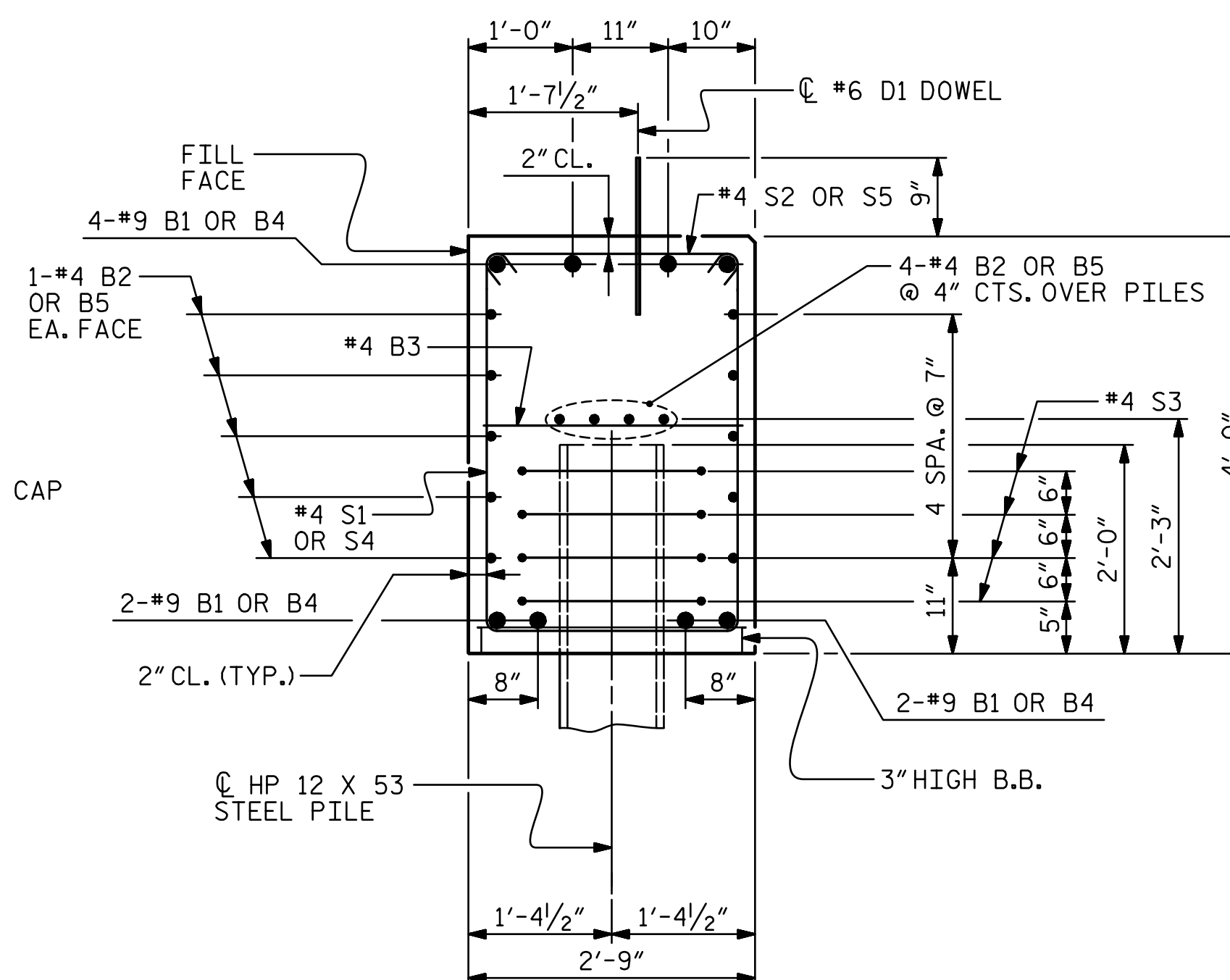
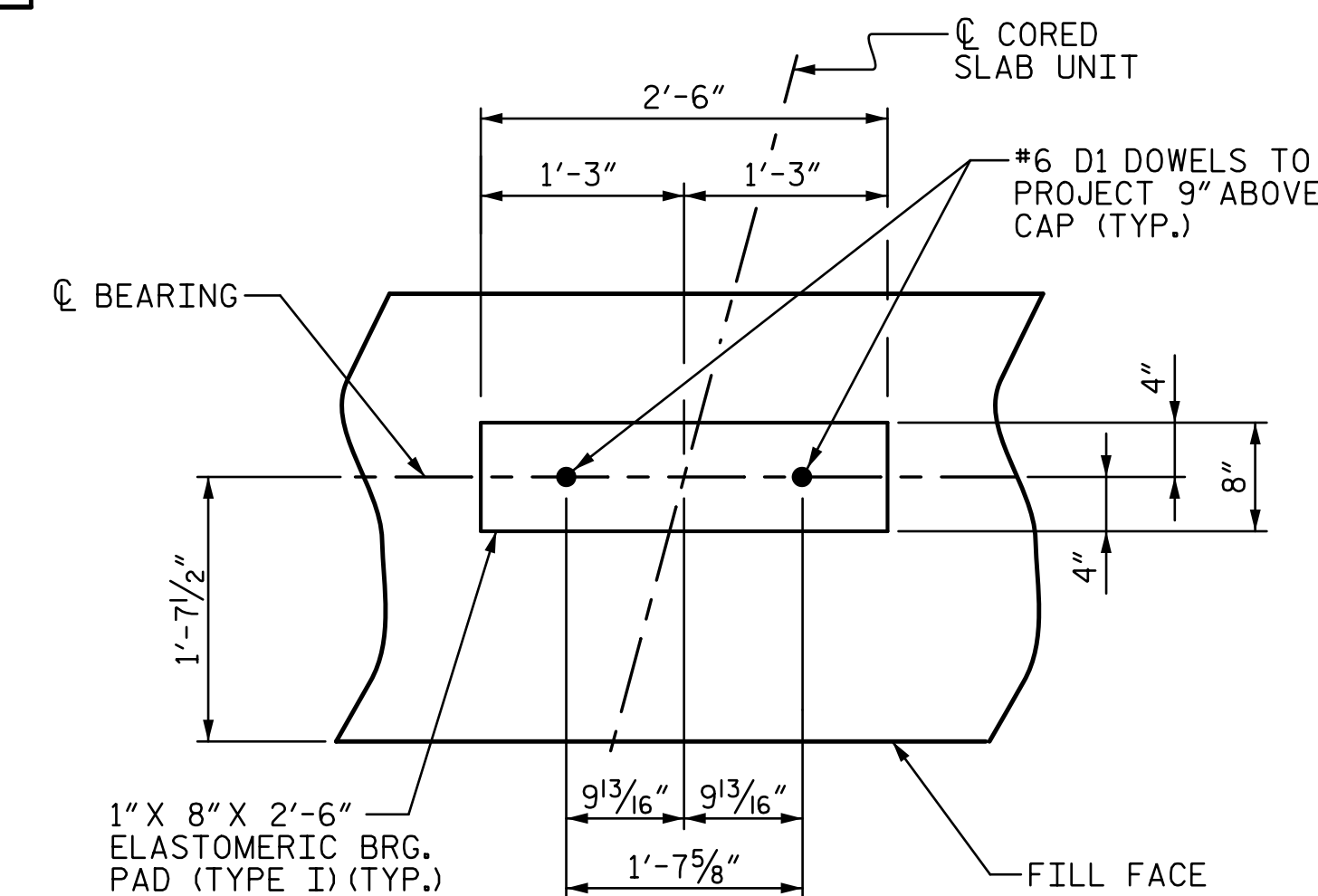
END BENT No. 1 (STAGE 1) HP 12 X 53 STEEL PILES NO: 4 LIN. FT. = 80	END BENT No. 1 (STAGE 2) HP 12 X 53 STEEL PILES NO: 3 LIN. FT. = 45
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 4	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 3

### BILL OF MATERIAL

END BENT 1 (STAGE 1)					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#9	1	26'-7"	723	
B2	#4	STR	25'-4"	237	
B3	#4	STR	2'-5"	11	
D1	#6	STR	1'-6"	32	
H1	#4	2	9'-1"	61	
H2	#4	2	9'-3"	62	
K1	#4	STR	3'-1"	16	
S1	#4	4	10'-5"	216	
S2	#4	5	3'-2"	66	
S3	#4	6	6'-6"	69	
S4	#4	4	10'-6"	7	
S5	#4	5	3'-3"	2	
V1	#4	STR	6'-2"	107	
REINFORCING STEEL				1609 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS		12.0 C.Y.		
POUR #2	UPPER PART OF WINGS		1.0 C.Y.		
TOTAL CLASS A CONCRETE			13.0 C.Y.		

### BILL OF MATERIAL

END BENT 1 (STAGE 2)					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B3	#4	STR	2'-5"	10	
B4	#9	1	25'-2"	685	
B5	#4	STR	24'-0"	224	
D1	#6	STR	1'-6"	32	
H3	#4	3	9'-6"	63	
H4	#4	3	9'-4"	62	
K1	#4	STR	3'-1"	16	
S1	#4	4	10'-5"	216	
S2	#4	5	3'-2"	66	
S3	#4	6	6'-6"	52	
S4	#4	4	10'-6"	7	
S5	#4	5	3'-3"	2	
V1	#4	STR	6'-2"	111	
REINFORCING STEEL				1546 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS		11.9 C.Y.		
POUR #2	UPPER PART OF WINGS		1.1 C.Y.		
TOTAL CLASS A CONCRETE			13.0 C.Y.		



(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

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PROJECT NO. 17BP.10.R.103  
STANLY COUNTY  
STATION: 14+65.00 -L-  
SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 1 DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-13
					TOTAL SHEETS 18

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DESIGN ENGINEER OF RECORD: JWJ DATE: 8-17

**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

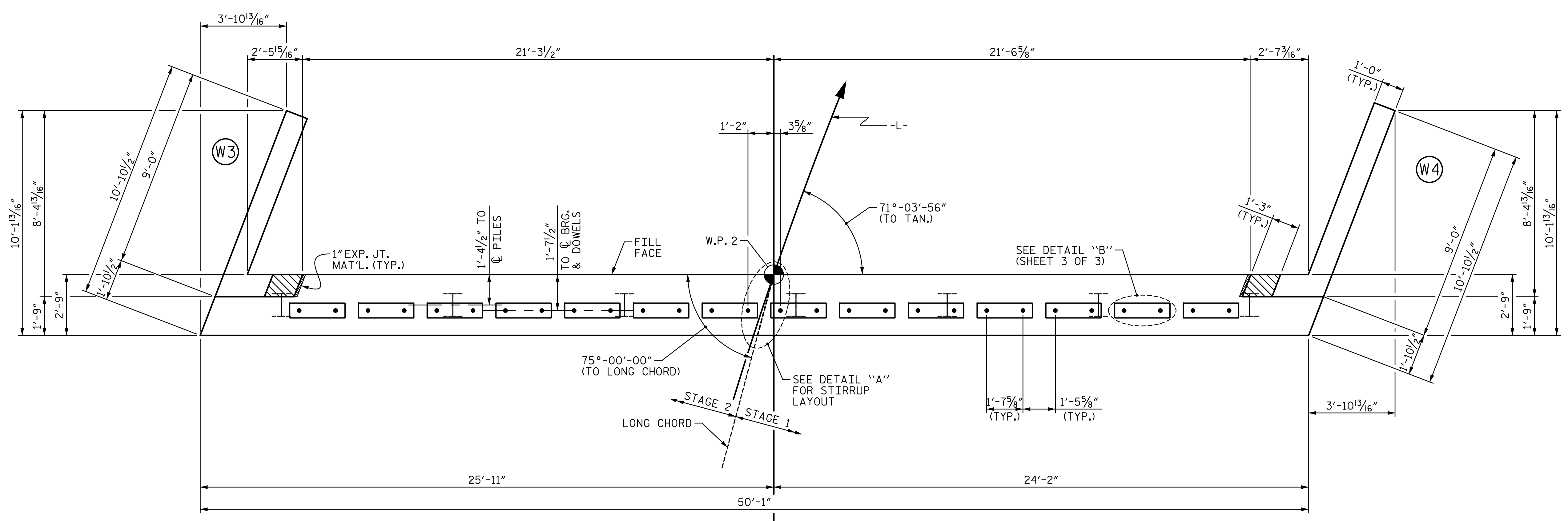
FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.

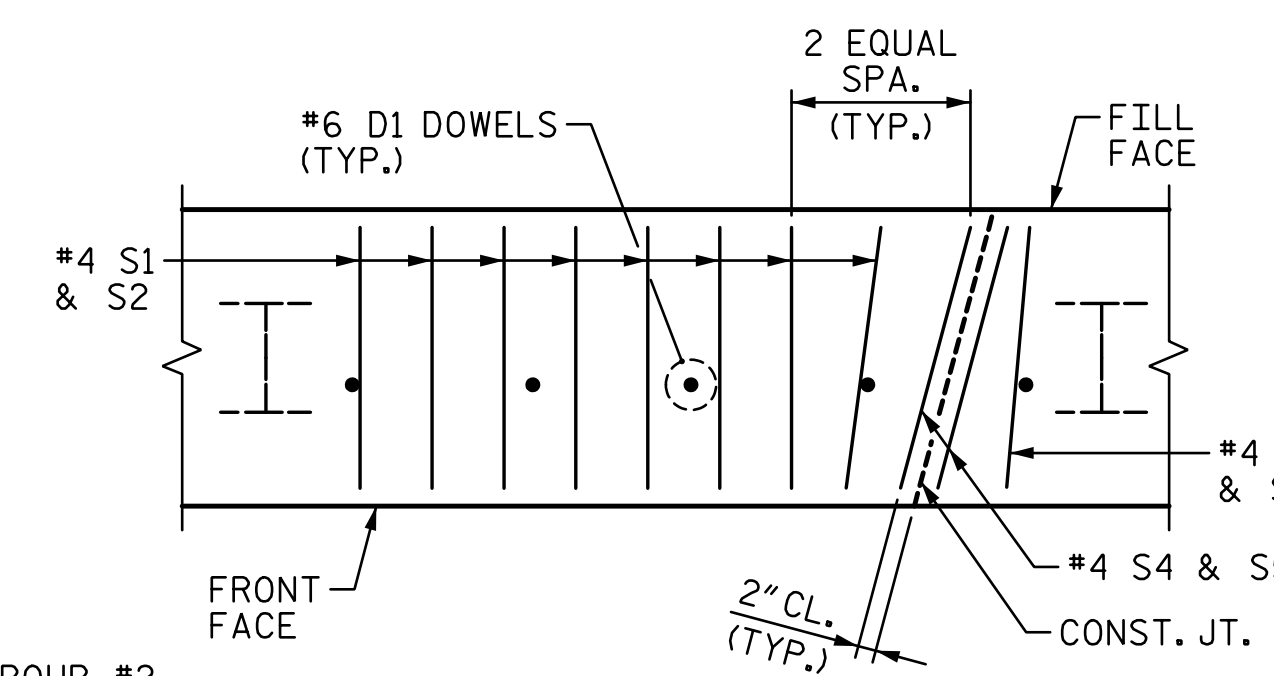
FOR CONSTRUCTION JOINT DETAILS, SEE SHEET 3 OF 3.

FOR MECHANICAL SPLICES, SEE SECTION 425-5(B) OF THE STANDARD SPECIFICATIONS.

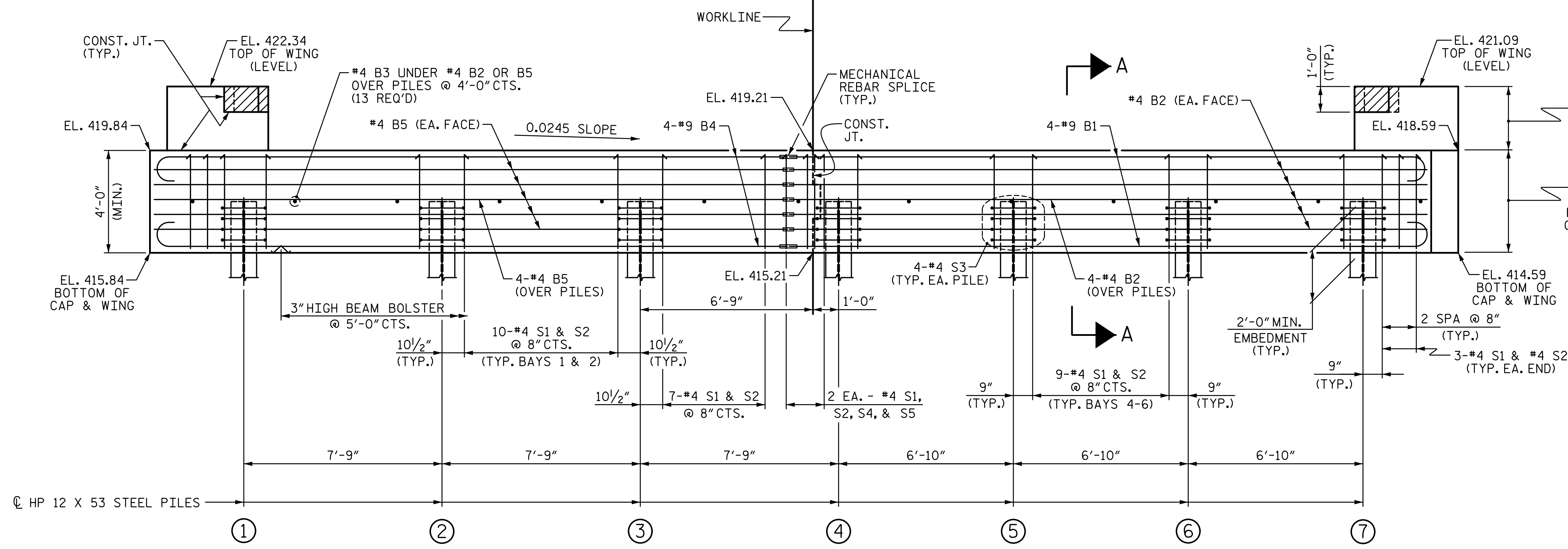
TOP OF PILE ELEVATIONS	
①	417.76
②	417.57
③	417.38
④	417.19
⑤	417.02
⑥	416.85
⑦	416.68



**PLAN**



**DETAIL "A"**

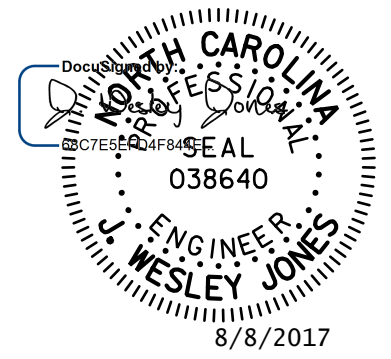


**ELEVATION**

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 3 OF 3.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

PROJECT NO. 17BP.10.R.103  
 STANLY COUNTY  
 STATION: 14+65.00 -L-  
 SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE  
 END BENT No. 2**



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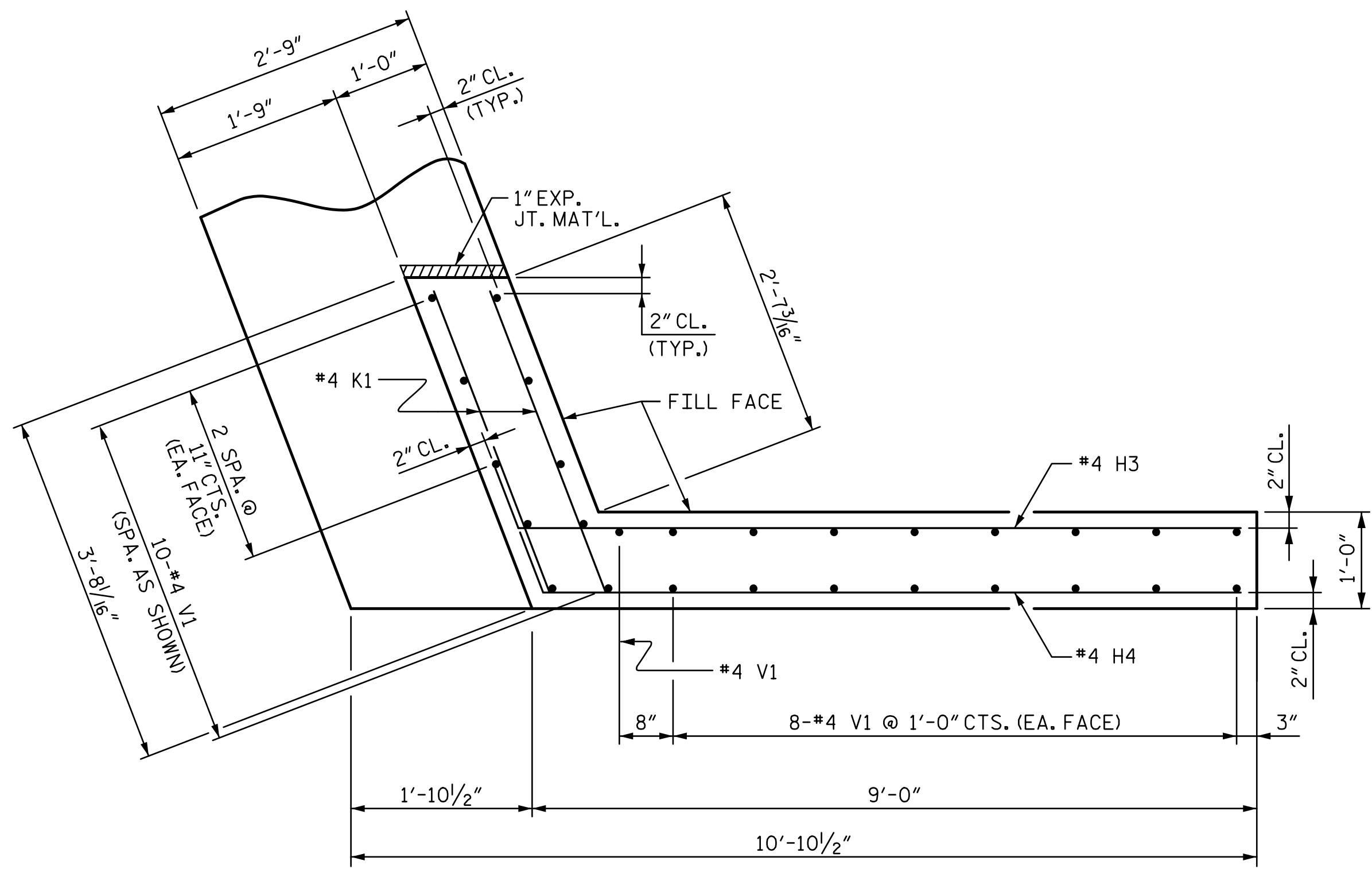
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
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S-14  
 TOTAL SHEETS 18

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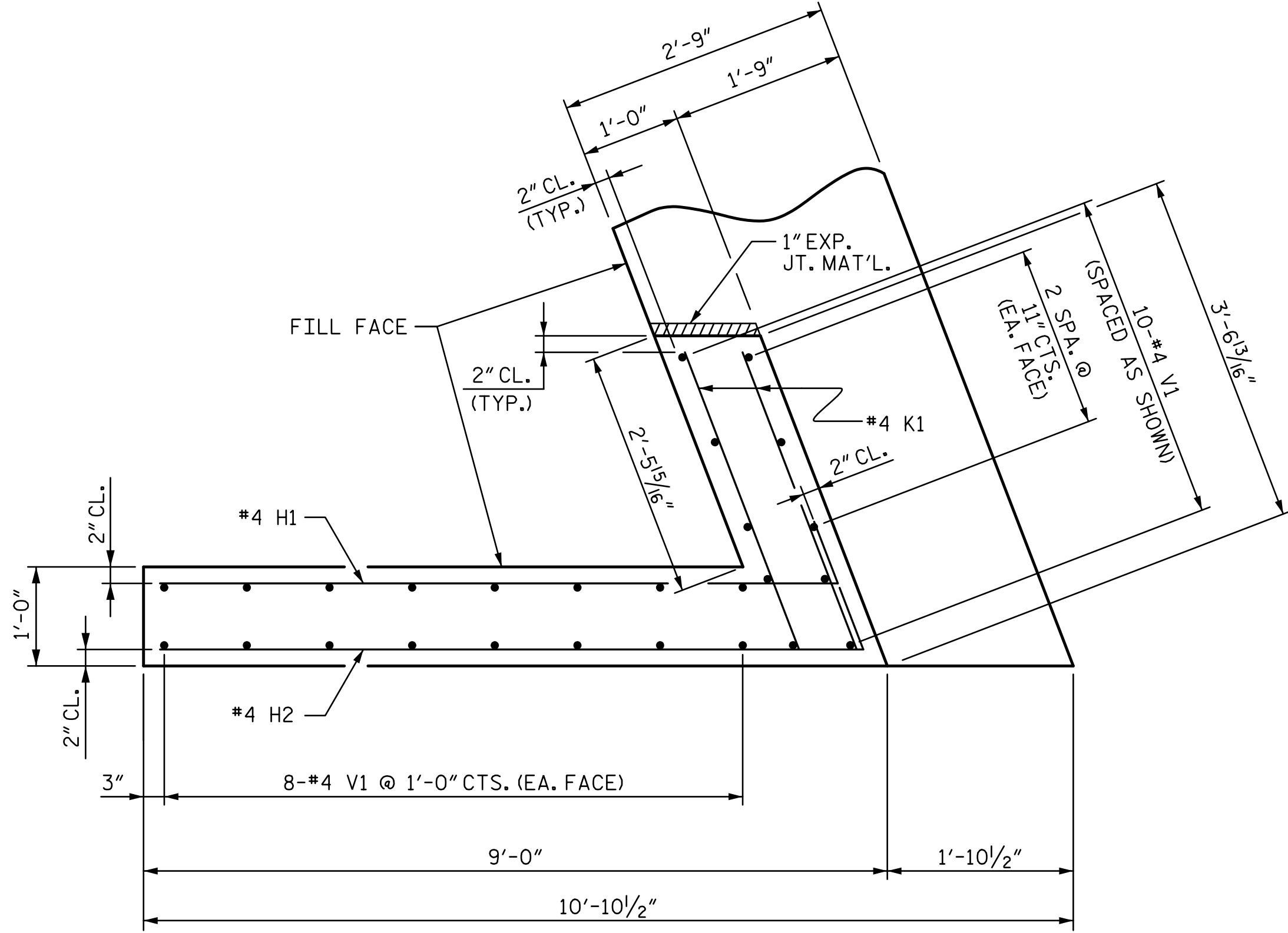
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 CHECKED BY : JWJ DATE : 6-17  
 DESIGN ENGINEER OF RECORD : JWJ DATE : 8-17





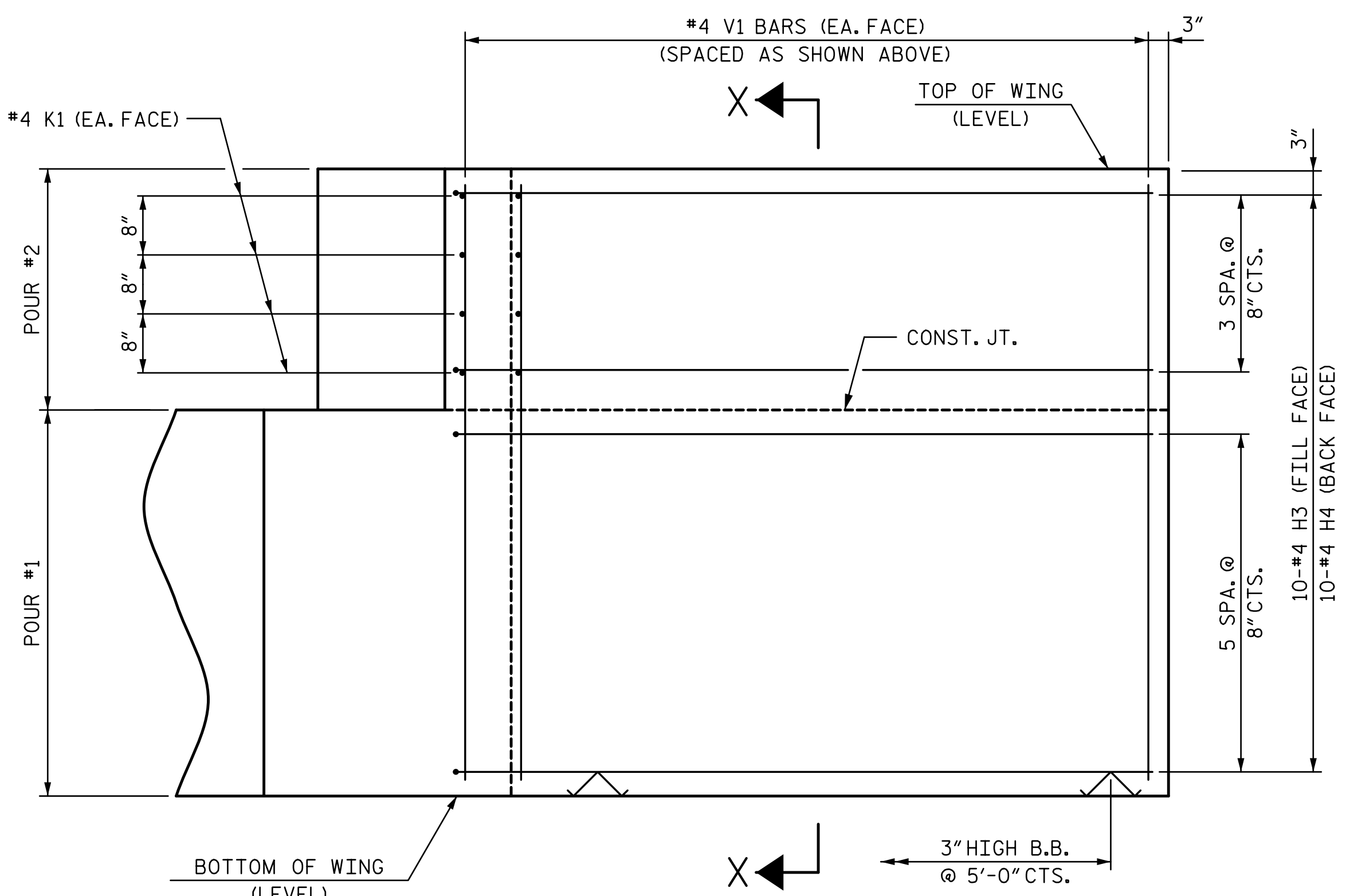
PLAN OF WING (W4)

STAGE 1



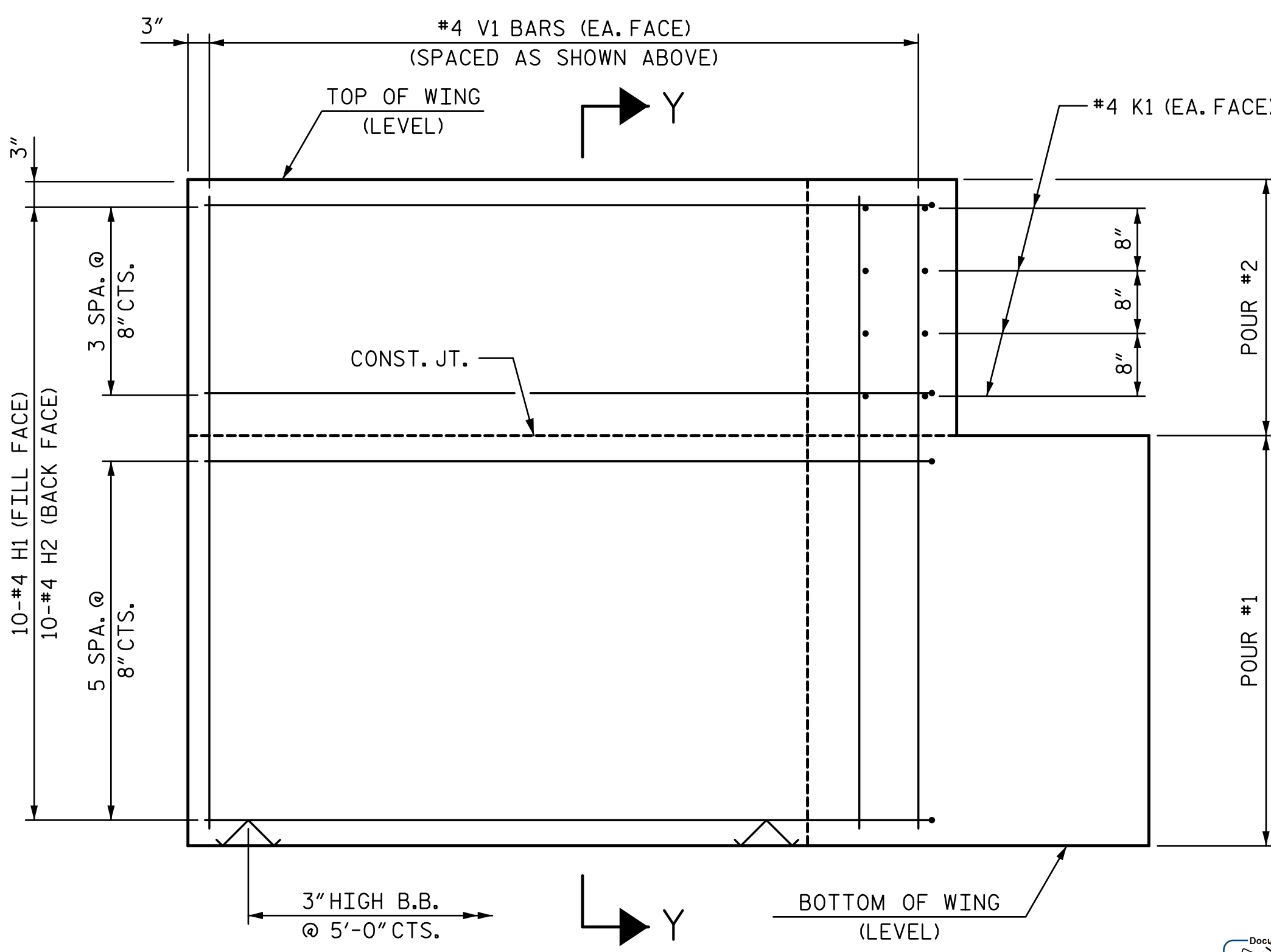
PLAN OF WING (W3)

STAGE 2



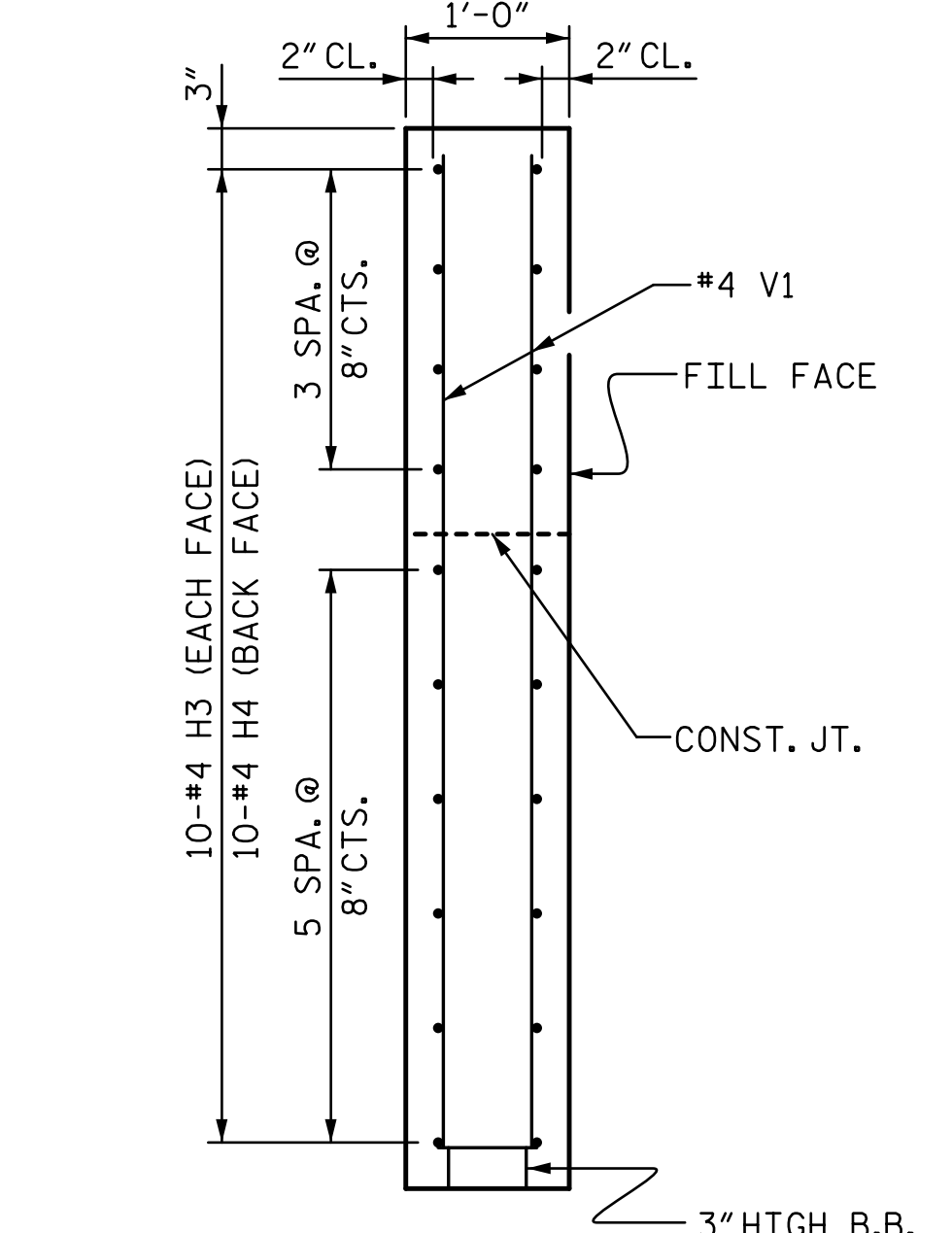
ELEVATION OF WING (W4)

STAGE 1



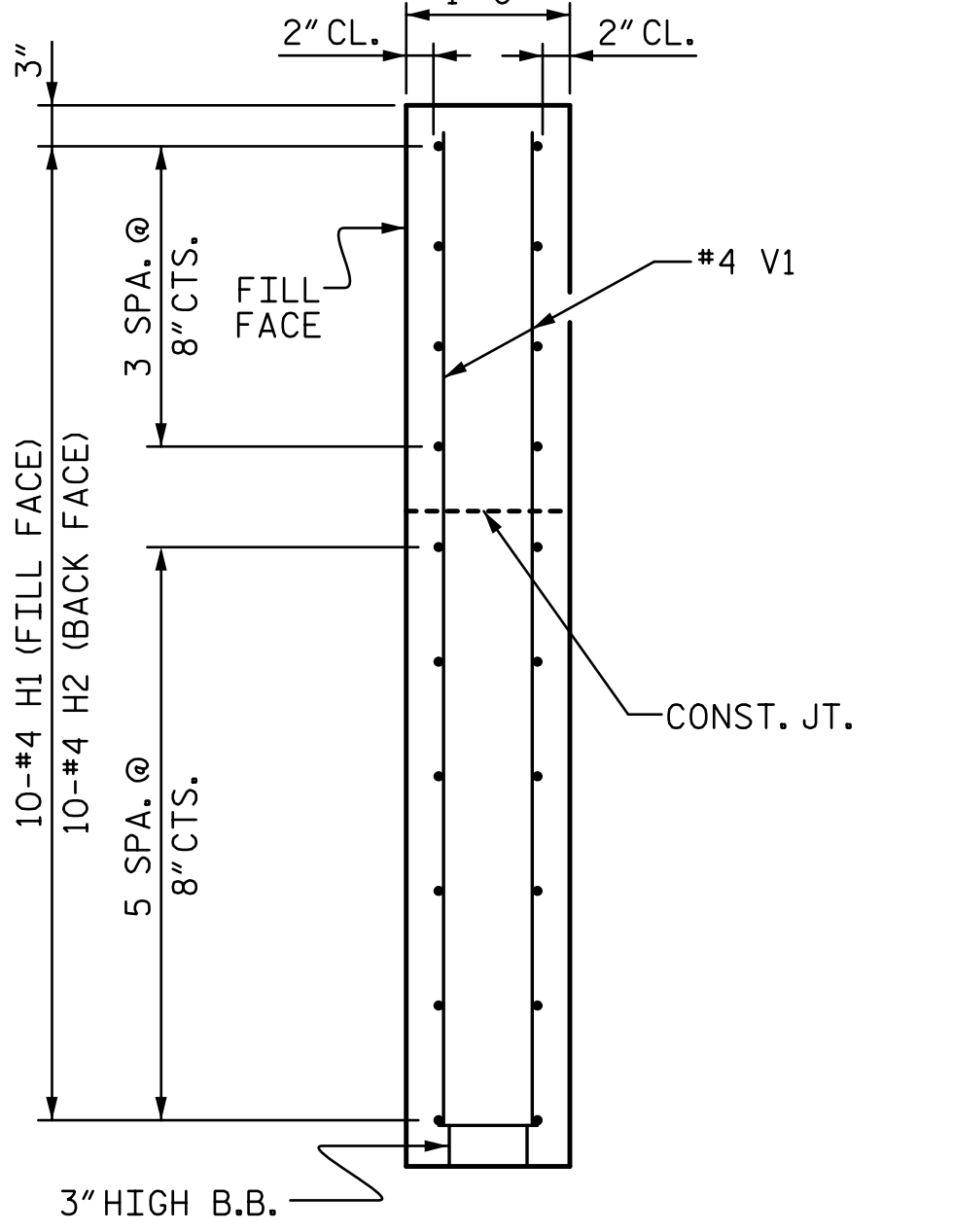
ELEVATION OF WING (W3)

STAGE 2



SECTION X-X

STAGE 1



SECTION Y-Y

STAGE 2

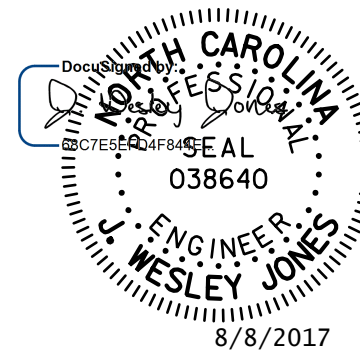
WING DETAILS

PROJECT NO. 17BP.10.R.103  
 STANLY COUNTY  
 STATION: 14+65.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT No. 2  
 WING DETAILS



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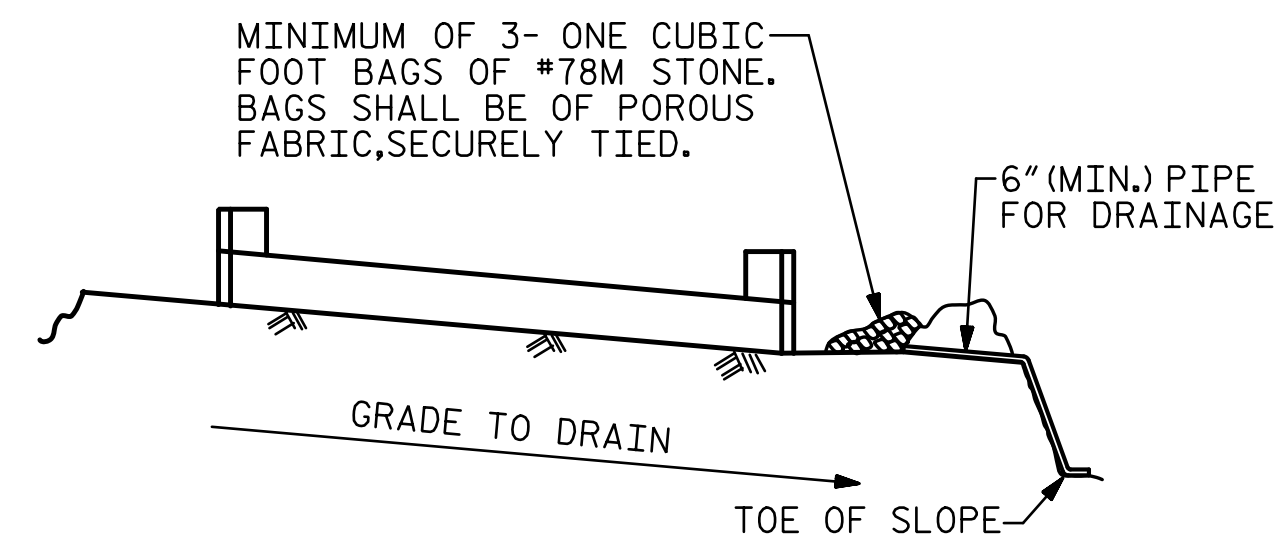
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2			4		

S-15  
 TOTAL SHEETS 18

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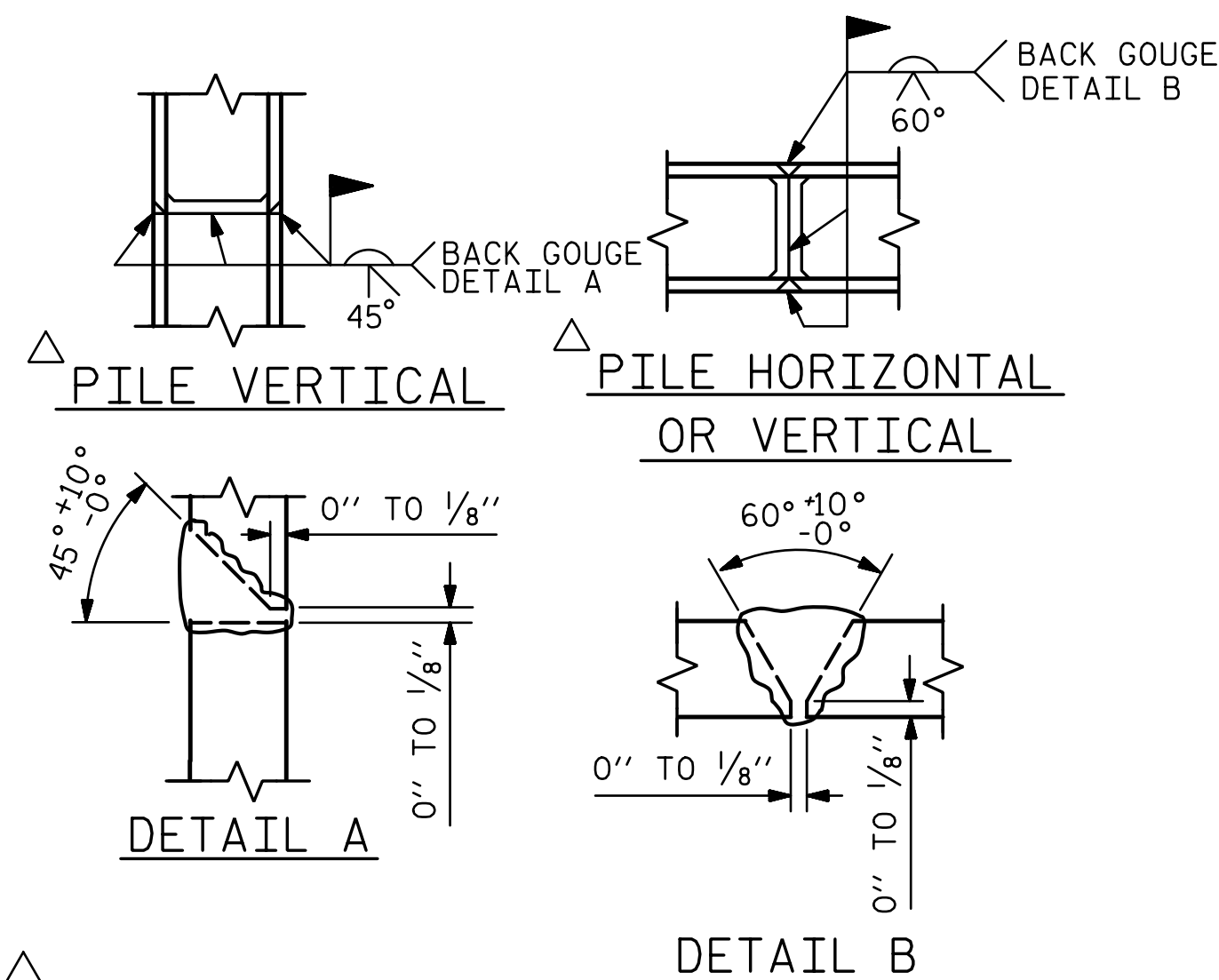


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

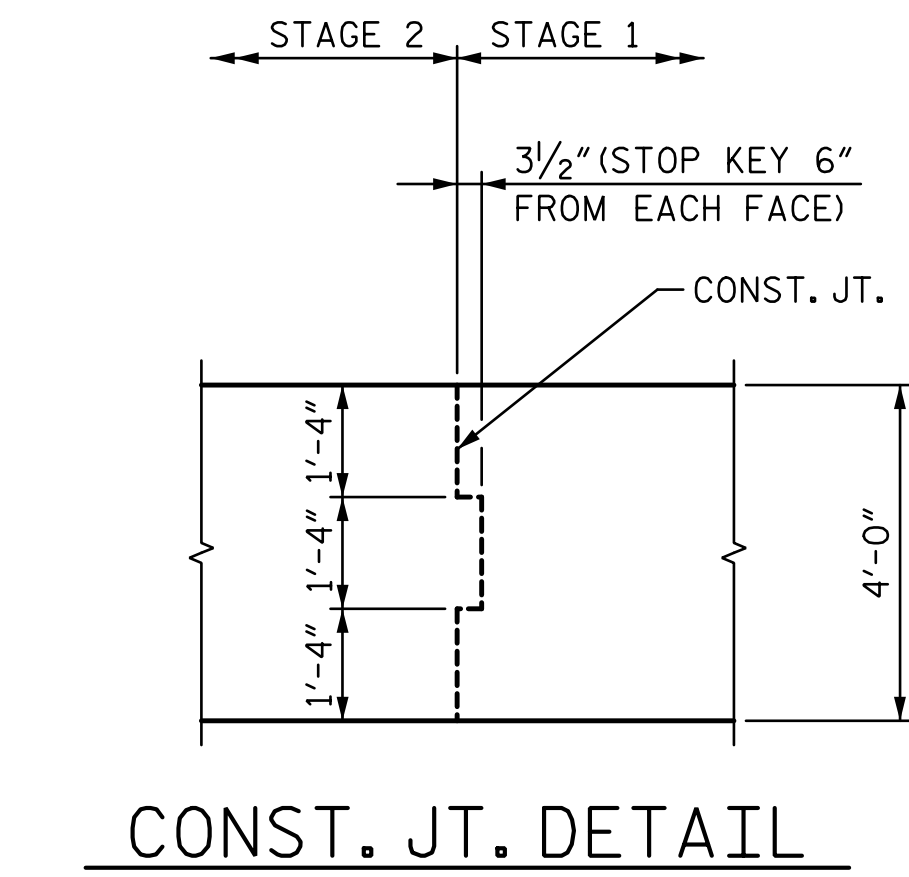
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

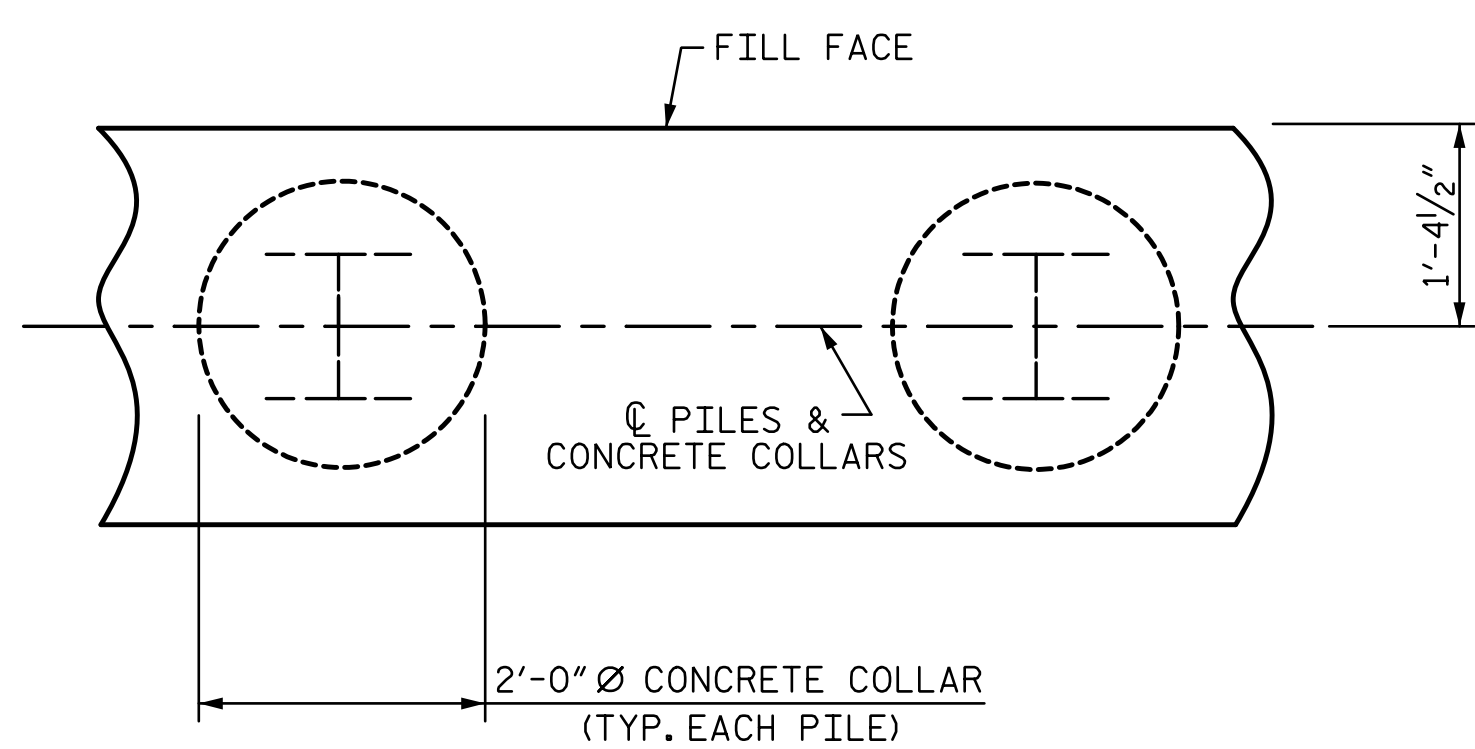
### TEMPORARY DRAINAGE AT END BENT



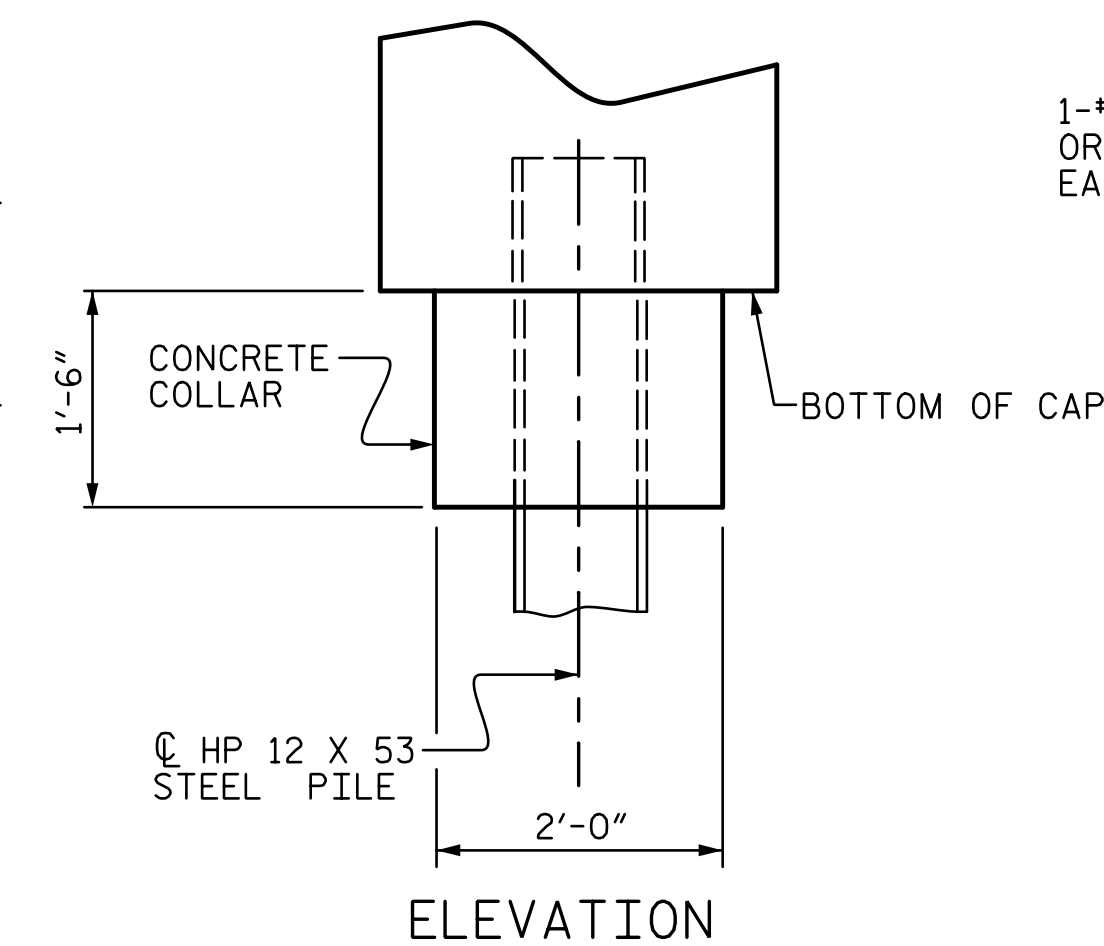
### PILE SPLICE DETAILS



### CONST. JT. DETAIL



### PLAN

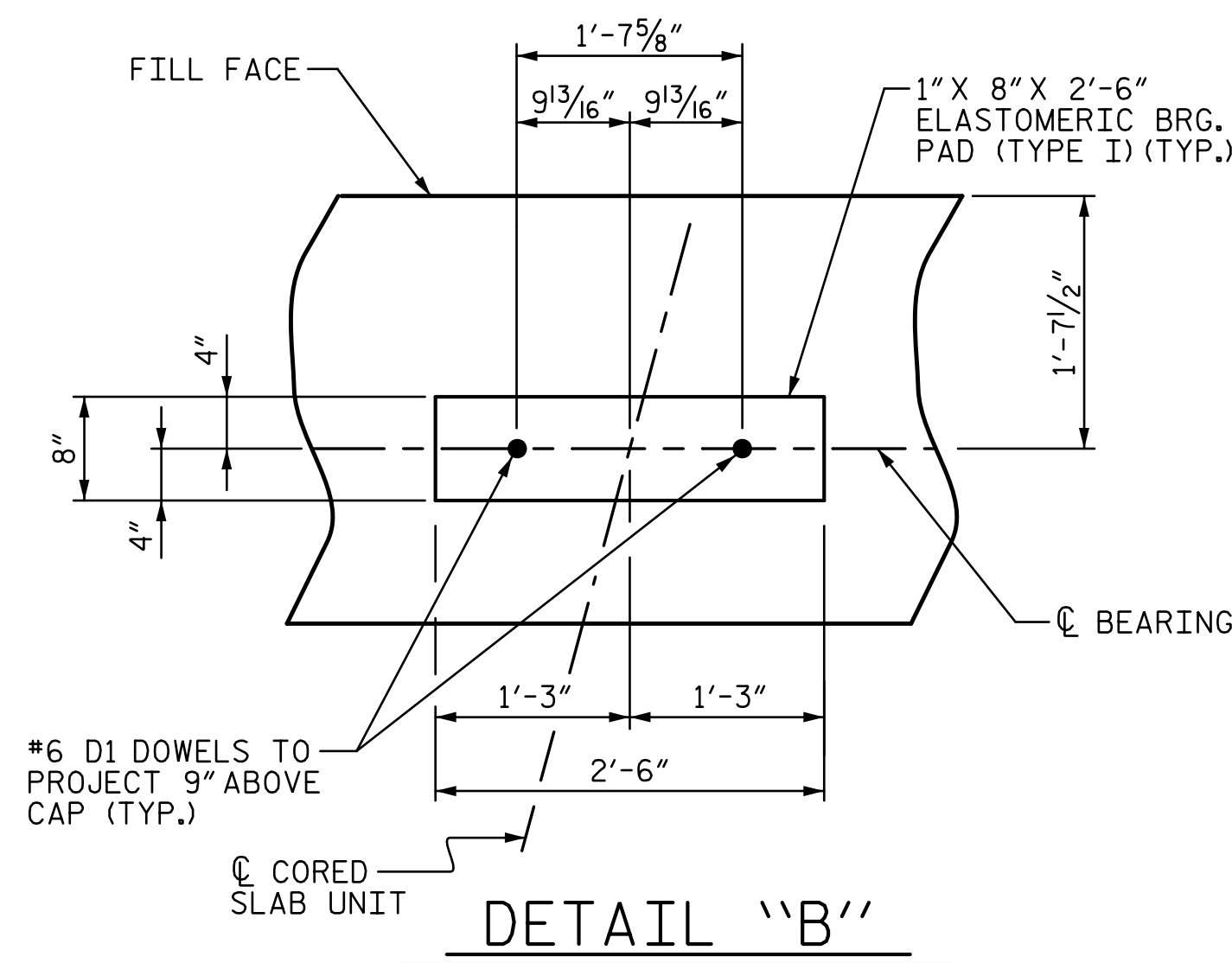


### ELEVATION

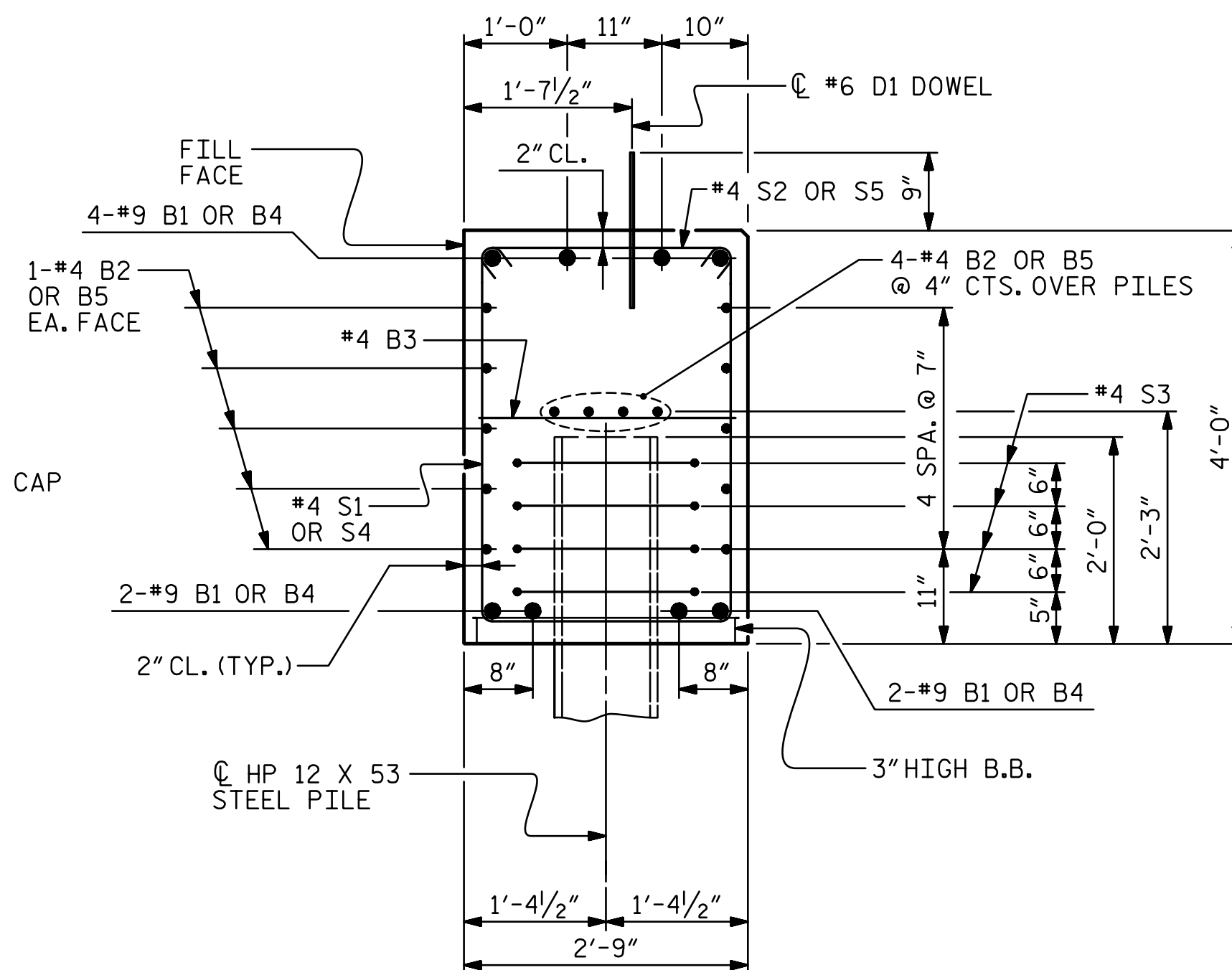
### CORROSION PROTECTION FOR STEEL PILES DETAIL

BAR TYPES		BILL OF MATERIAL		BILL OF MATERIAL					
		END BENT 2 (STAGE 1)		END BENT 2 (STAGE 2)					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#9	1	26'-8"	725	B3	#4	STR	2'-5"	10
B2	#4	STR	25'-5"	238	B4	#9	1	25'-5"	691
B3	#4	STR	2'-5"	11	B5	#4	STR	24'-3"	227
D1	#6	STR	1'-6"	32	D1	#6	STR	1'-6"	32
H3	#4	3	9'-7"	64	H1	#4	2	9'-0"	60
H4	#4	3	9'-4"	62	H2	#4	2	9'-3"	62
K1	#4	STR	3'-2"	17	K1	#4	STR	3'-2"	17
S1	#4	4	10'-5"	216	S1	#4	4	10'-5"	216
S2	#4	5	3'-2"	66	S2	#4	5	3'-2"	66
S3	#4	6	6'-6"	69	S3	#4	6	6'-6"	52
S4	#4	4	10'-6"	7	S4	#4	4	10'-6"	7
S5	#4	5	3'-3"	2	S5	#4	5	3'-3"	2
V1	#4	STR	6'-2"	111	V1	#4	STR	6'-2"	107
REINFORCING STEEL				1620 LBS.	REINFORCING STEEL				1549 LBS.
CLASS A CONCRETE BREAKDOWN					CLASS A CONCRETE BREAKDOWN				
POUR #1		CAP, LOWER PART OF WINGS & COLLARS		12.1 C.Y.	POUR #1		CAP, LOWER PART OF WINGS & COLLARS		11.9 C.Y.
POUR #2		UPPER PART OF WINGS		1.1 C.Y.	POUR #2		UPPER PART OF WINGS		1.0 C.Y.
TOTAL CLASS A CONCRETE				13.2 C.Y.	TOTAL CLASS A CONCRETE				12.9 C.Y.
END BENT No. 1 (STAGE 1)		HP 12 X 53 STEEL PILES		NO: 4	END BENT No. 1 (STAGE 2)		HP 12 X 53 STEEL PILES		NO: 3
PILE DRIVING EQUIPMENT SETUP		FOR HP 12 X 53 STEEL PILES		NO: 4	PILE DRIVING EQUIPMENT SETUP		FOR HP 12 X 53 STEEL PILES		NO: 3

ALL BAR DIMENSIONS ARE OUT TO OUT.



### DETAIL "B"



### SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

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PROJECT NO. 17BP.10.R.103  
STANLY COUNTY  
STATION: 14+65.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

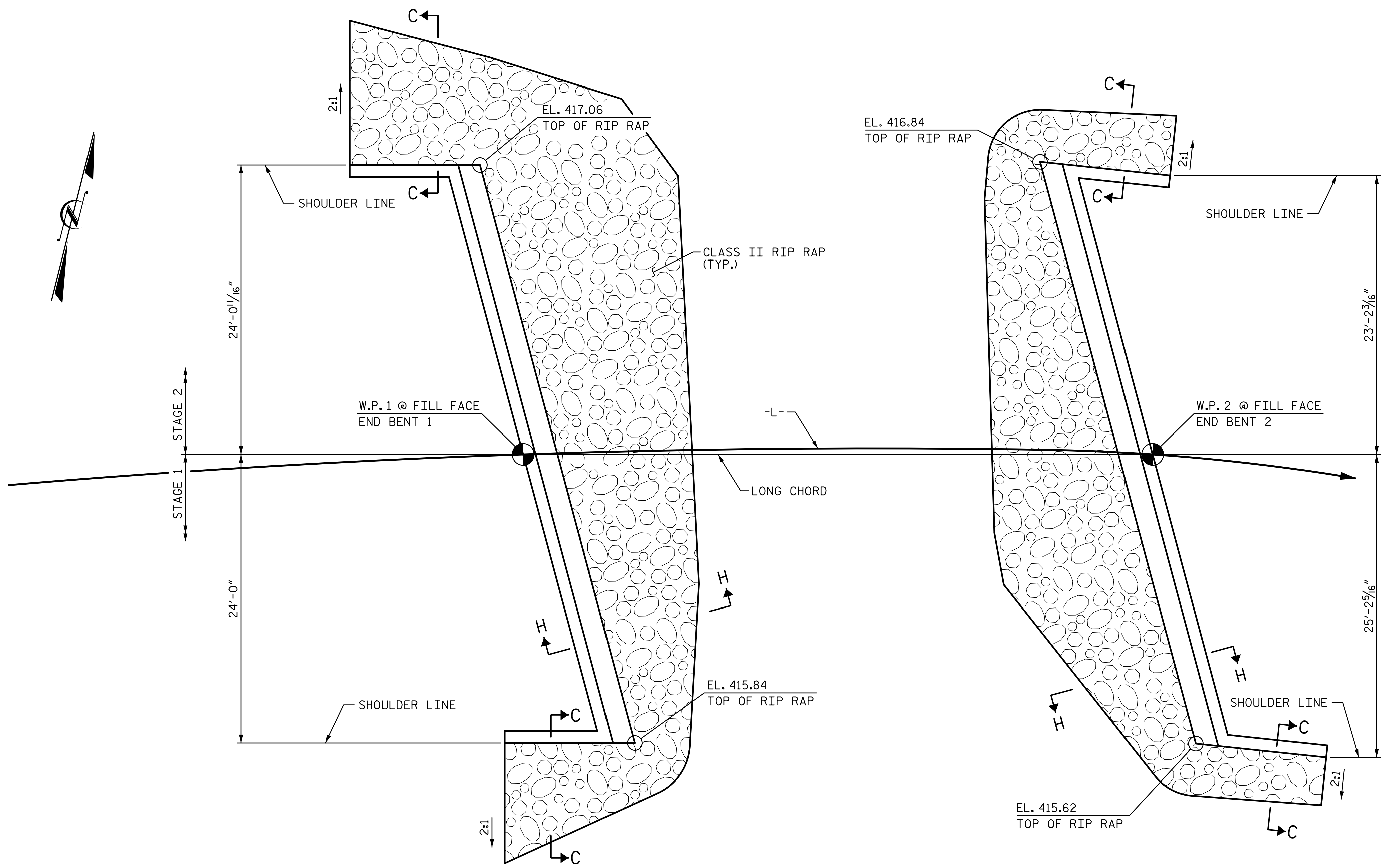
SUBSTRUCTURE  
END BENT No. 2  
DETAILS

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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TOTAL SHEETS 18



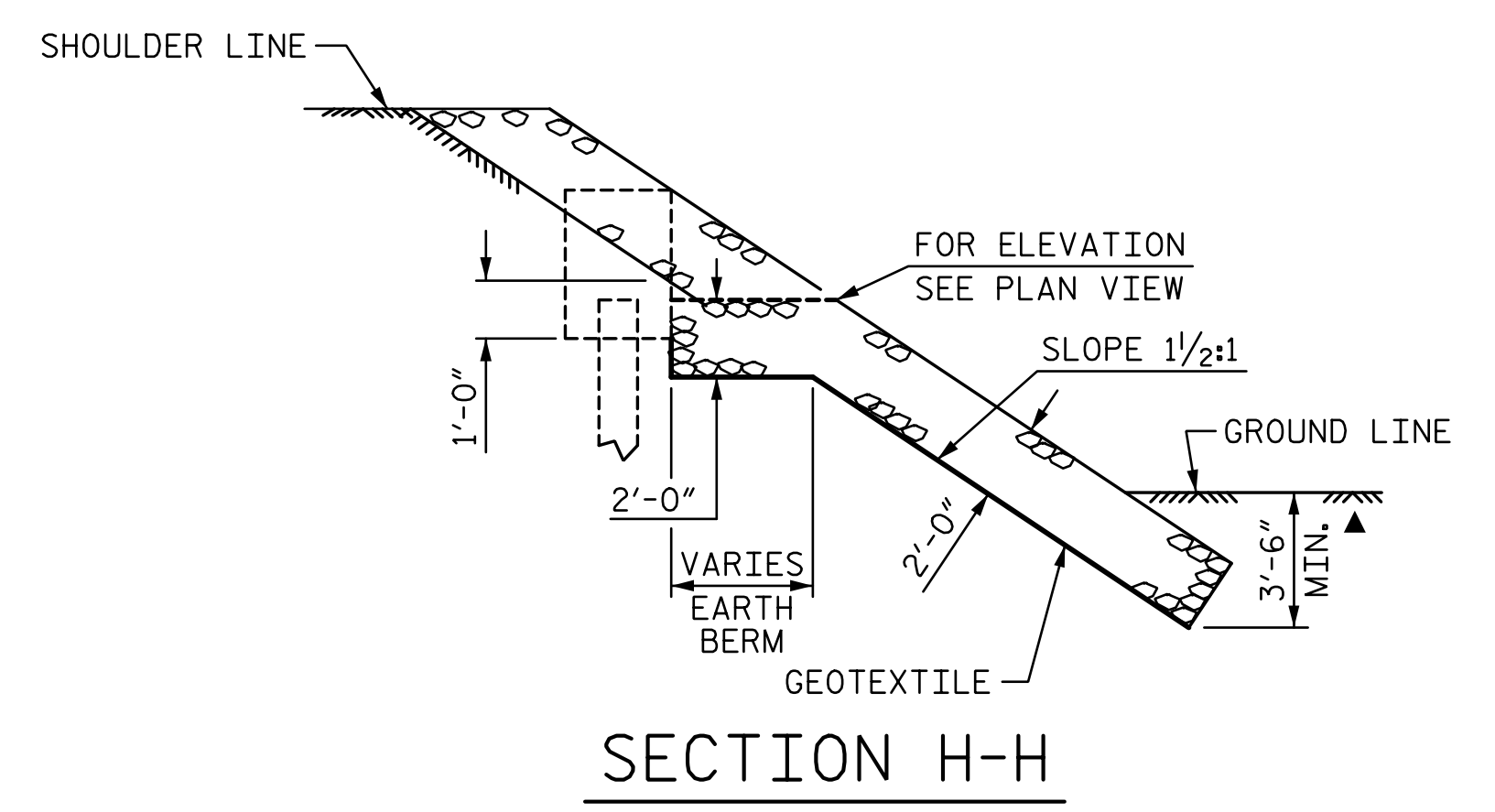
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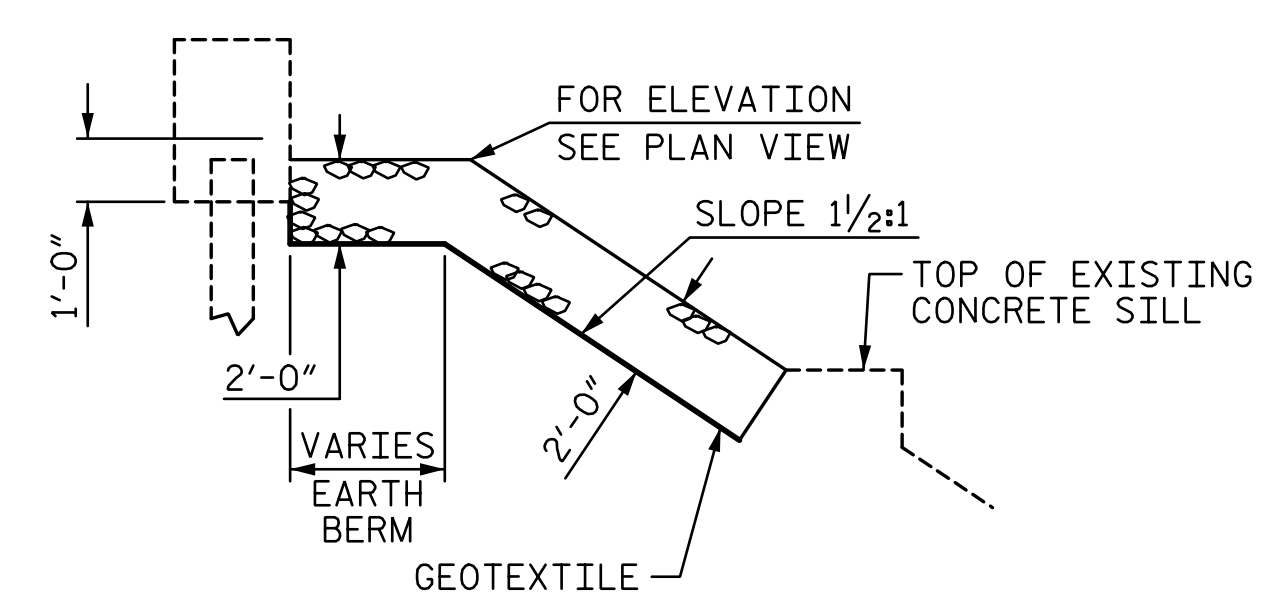
PLAN - END BENT 1

PLAN - END BENT 2

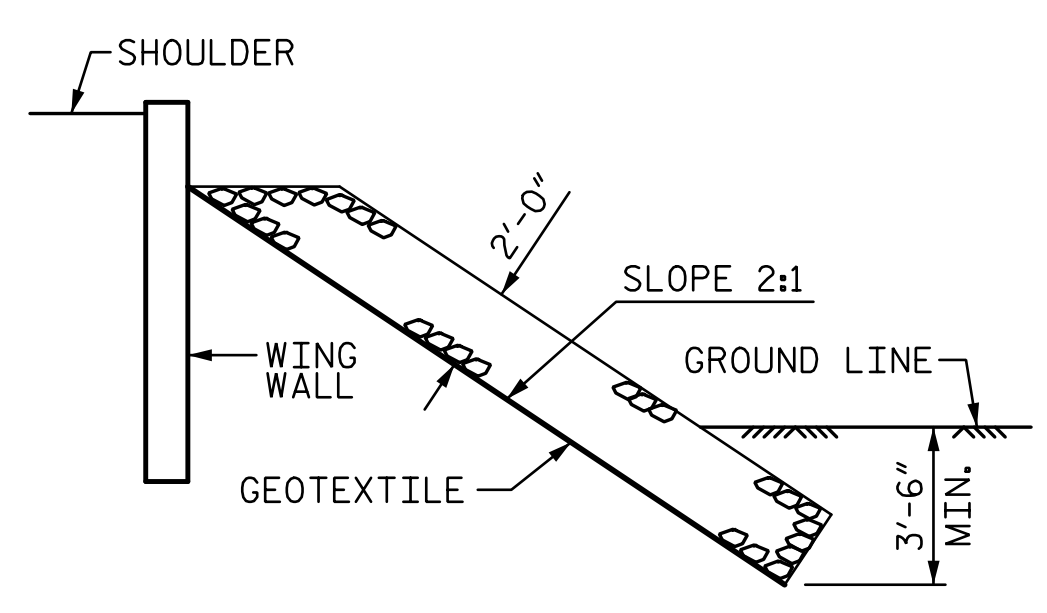
ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+65.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	120	130
END BENT 2	95	105



SECTION H-H



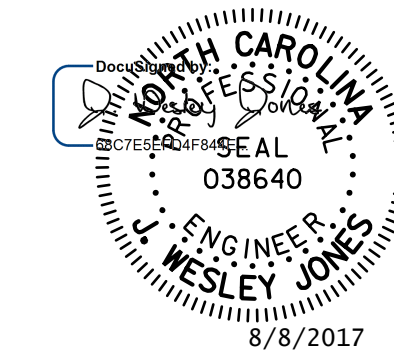
LONG CHORD SECTION  
BERM RIP RAPPED



SECTION C-C

▲ 3'-6" EMBEDMENT NOT REQUIRED IN AREAS WHERE RIP RAP SLOPE ENDS AT TOP OF EXISTING CONCRETE SILL

PROJECT NO. 17BP.10.R.103  
STANLY COUNTY  
 STATION: 14+65.00 -L-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

RIP RAP DETAILS

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 Charlotte, NC 28202  
 NC License Number F-0991

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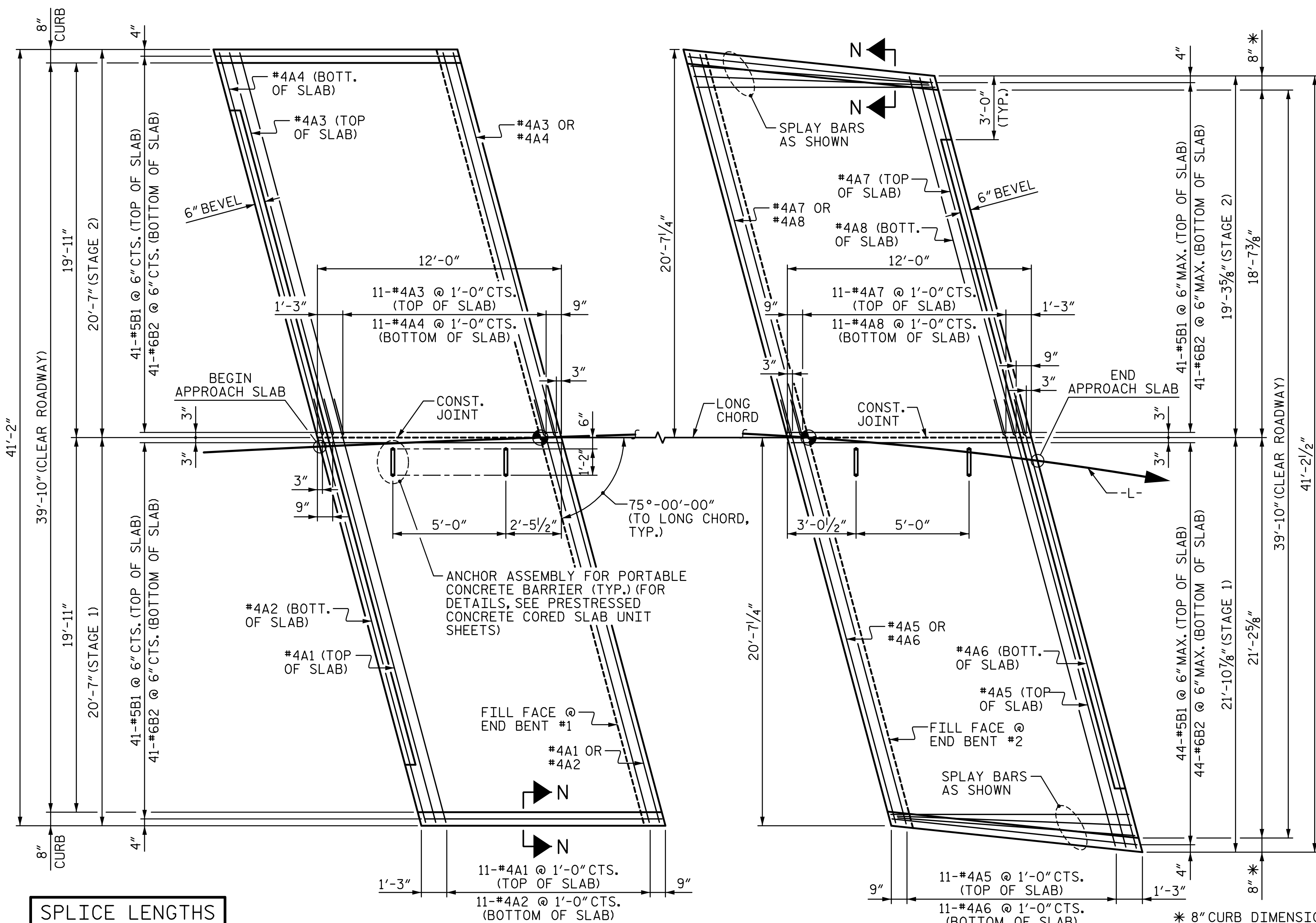
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 18

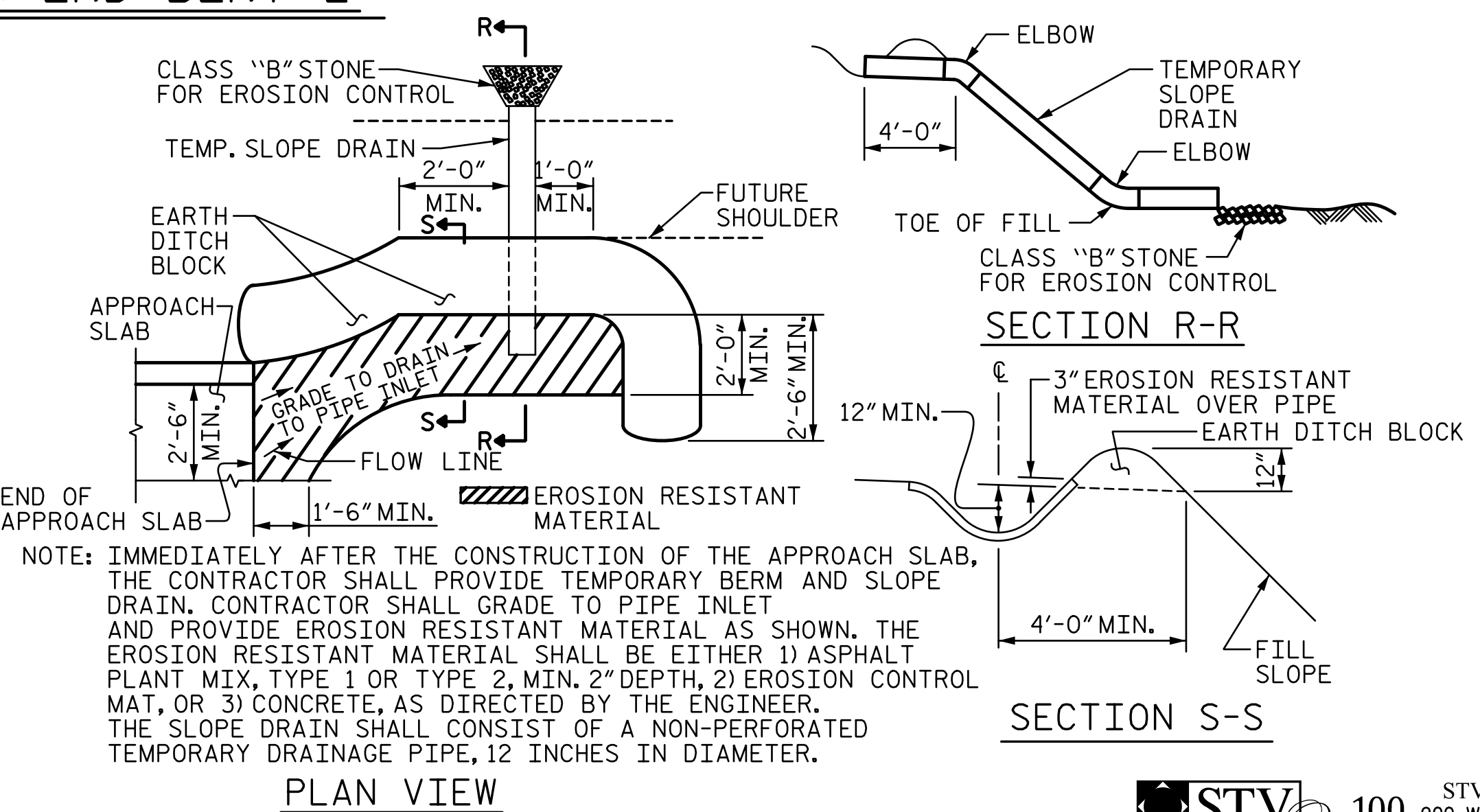
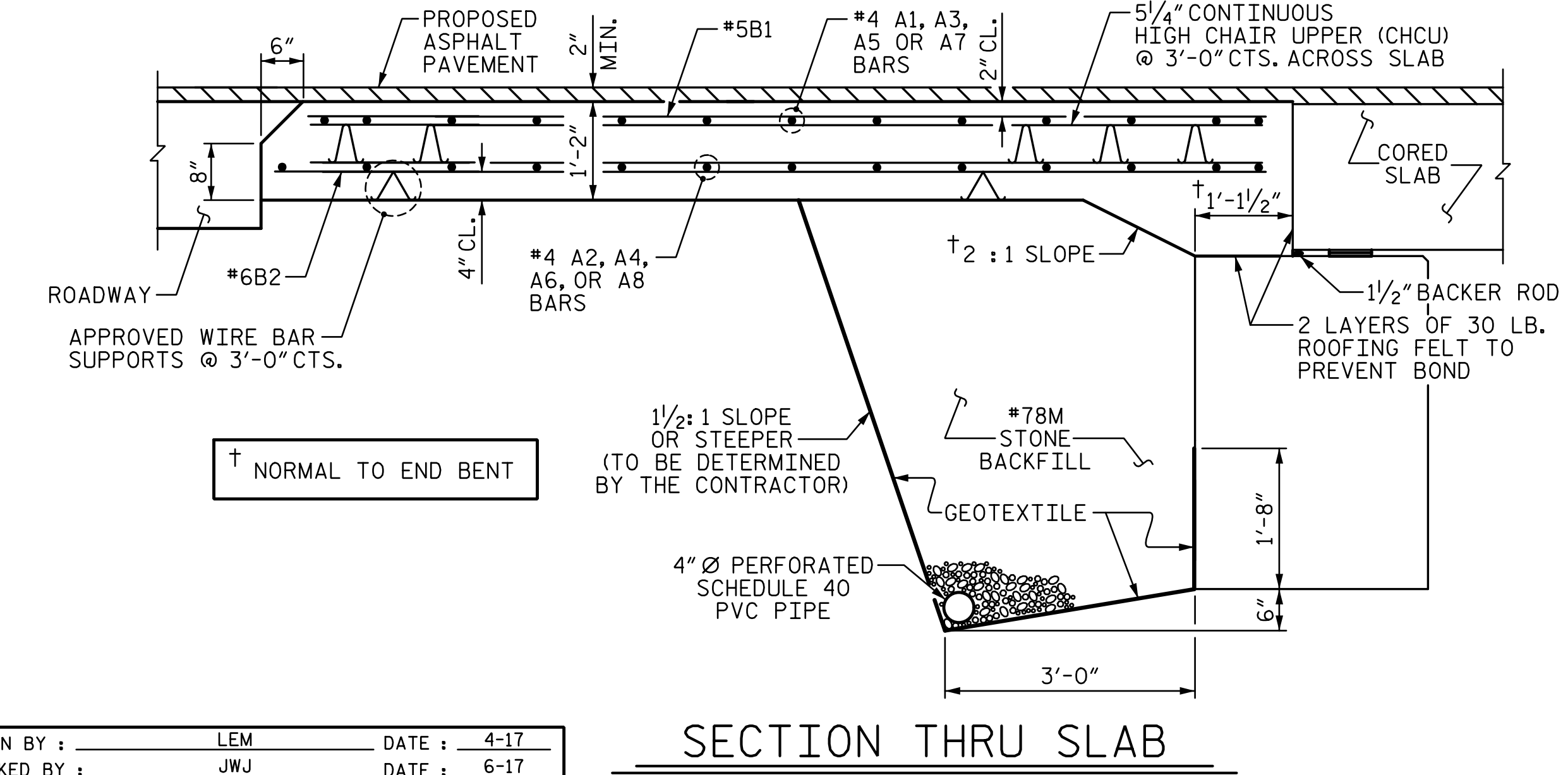
DRAWN BY : LEM DATE : 4-17  
 CHECKED BY : JWJ DATE : 6-17  
 DESIGN ENGINEER OF RECORD : JWJ DATE : 8-17



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SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



**NOTES**

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

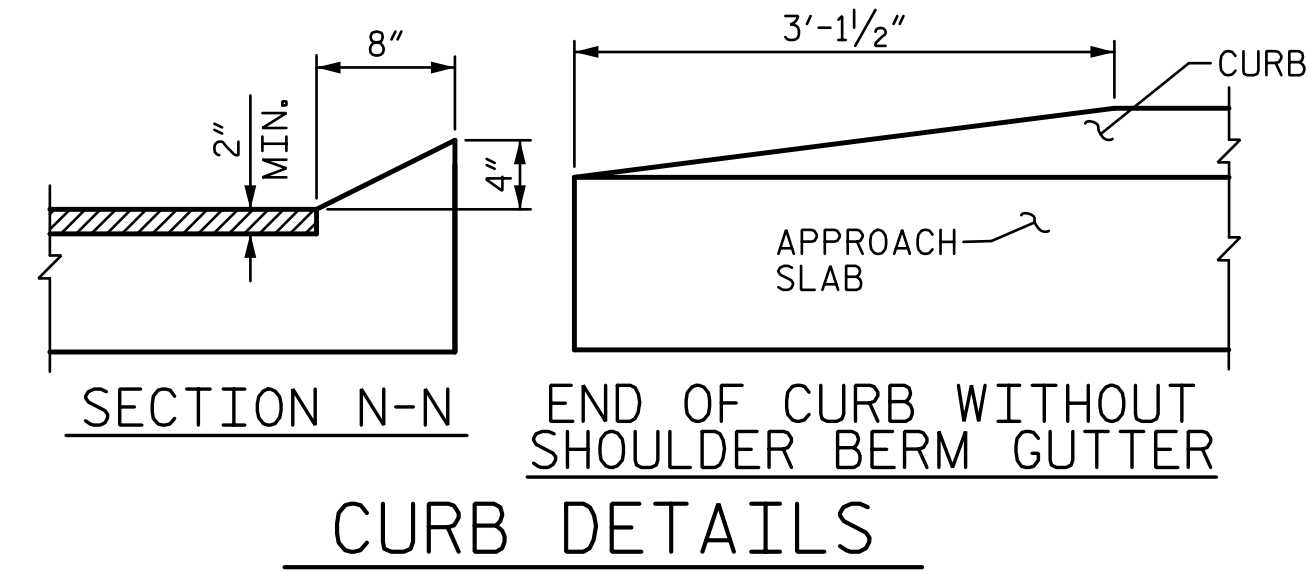
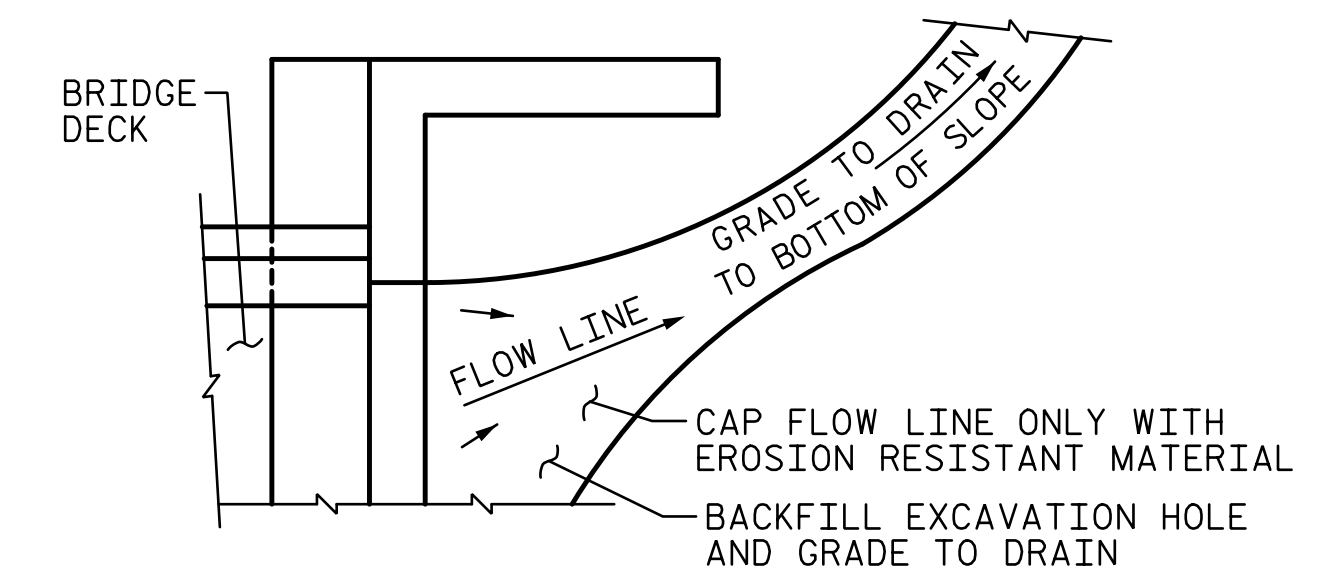
#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

CUT #4A5 THRU #4A8 BARS AS NECESSARY TO MAINTAIN THE SPECIFIED SPLICE LENGTH. FOR ALL #4 "A" BARS IN STAGE 1, IF ADEQUATE SPLICE LENGTH IS NOT ACHIEVABLE DUE TO TEMPORARY SHORING, CUT REINFORCING BARS WITH ADEQUATE PROJECTION INTO STAGE 2 FOR A MECHANICAL REBAR SPLICE.

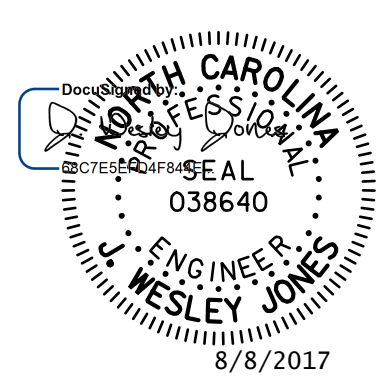


BILL OF MATERIAL						
<b>APPROACH SLAB AT EB 1 (STAGE 1)</b>						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	23'-3"	202	
A2	13	#4	STR	23'-0"	200	
*B1	41	#5	STR	11'-1"	474	
B2	41	#6	STR	11'-7"	713	
REINFORCING STEEL					LBS.	913
*EPOXY COATED REINFORCING STEEL					LBS.	676
CLASS AA CONCRETE					C. Y.	12.1
<b>APPROACH SLAB AT EB 1 (STAGE 2)</b>						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A3	13	#4	STR	21'-0"	182	
A4	13	#4	STR	21'-0"	182	
*B1	41	#5	STR	11'-1"	474	
B2	41	#6	STR	11'-7"	713	
REINFORCING STEEL					LBS.	895
*EPOXY COATED REINFORCING STEEL					LBS.	656
CLASS AA CONCRETE					C. Y.	12.1
<b>APPROACH SLAB AT EB 2 (STAGE 1)</b>						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A5	13	#4	STR	24'-7"	213	
A6	13	#4	STR	24'-4"	211	
*B1	44	#5	STR	11'-1"	509	
B2	44	#6	STR	11'-7"	766	
REINFORCING STEEL					LBS.	977
*EPOXY COATED REINFORCING STEEL					LBS.	722
CLASS AA CONCRETE					C. Y.	12.4
<b>APPROACH SLAB AT EB 2 (STAGE 2)</b>						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A7	13	#4	STR	20'-10"	181	
A8	13	#4	STR	20'-10"	181	
*B1	41	#5	STR	11'-1"	474	
B2	41	#6	STR	11'-7"	713	
REINFORCING STEEL					LBS.	894
*EPOXY COATED REINFORCING STEEL					LBS.	655
CLASS AA CONCRETE					C. Y.	11.8

PROJECT NO. **17BP.10.R.103**

STANLY COUNTY

STATION: **14+65.00 -L-**



**STV** 100 YEARS

STV ENGINEERS, INC.  
900 West Trade St., Suite 715  
Charlotte, NC 28202  
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : LEM DATE : 4-17

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DESIGN ENGINEER OF RECORD : JWJ DATE : 8-17

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 75° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-18
					TOTAL SHEETS 18



## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	- -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

JANUARY, 1990