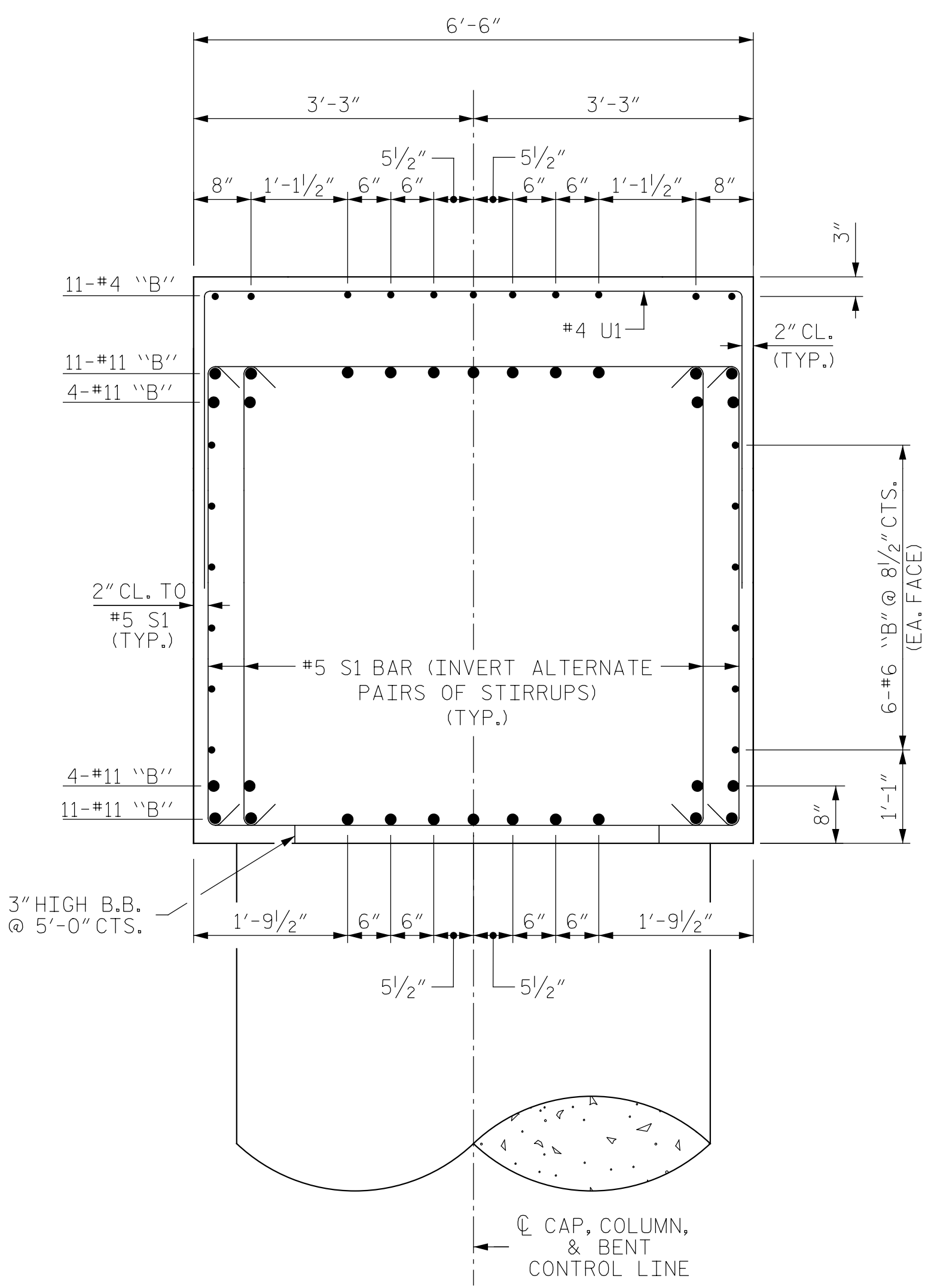
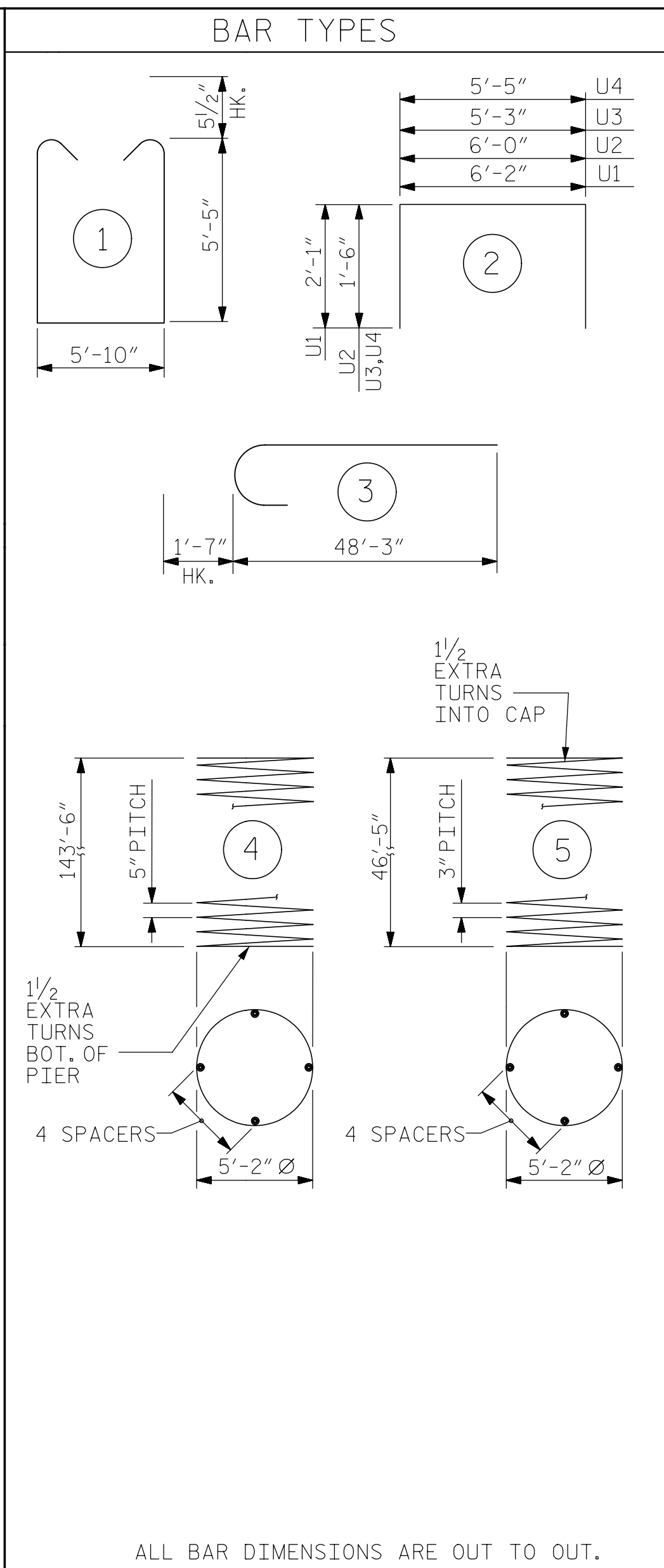


SECTION A-A



SECTION B-B
(STEPS NOT SHOWN FOR CLARITY)



ALL BAR DIMENSIONS ARE OUT TO OUT.

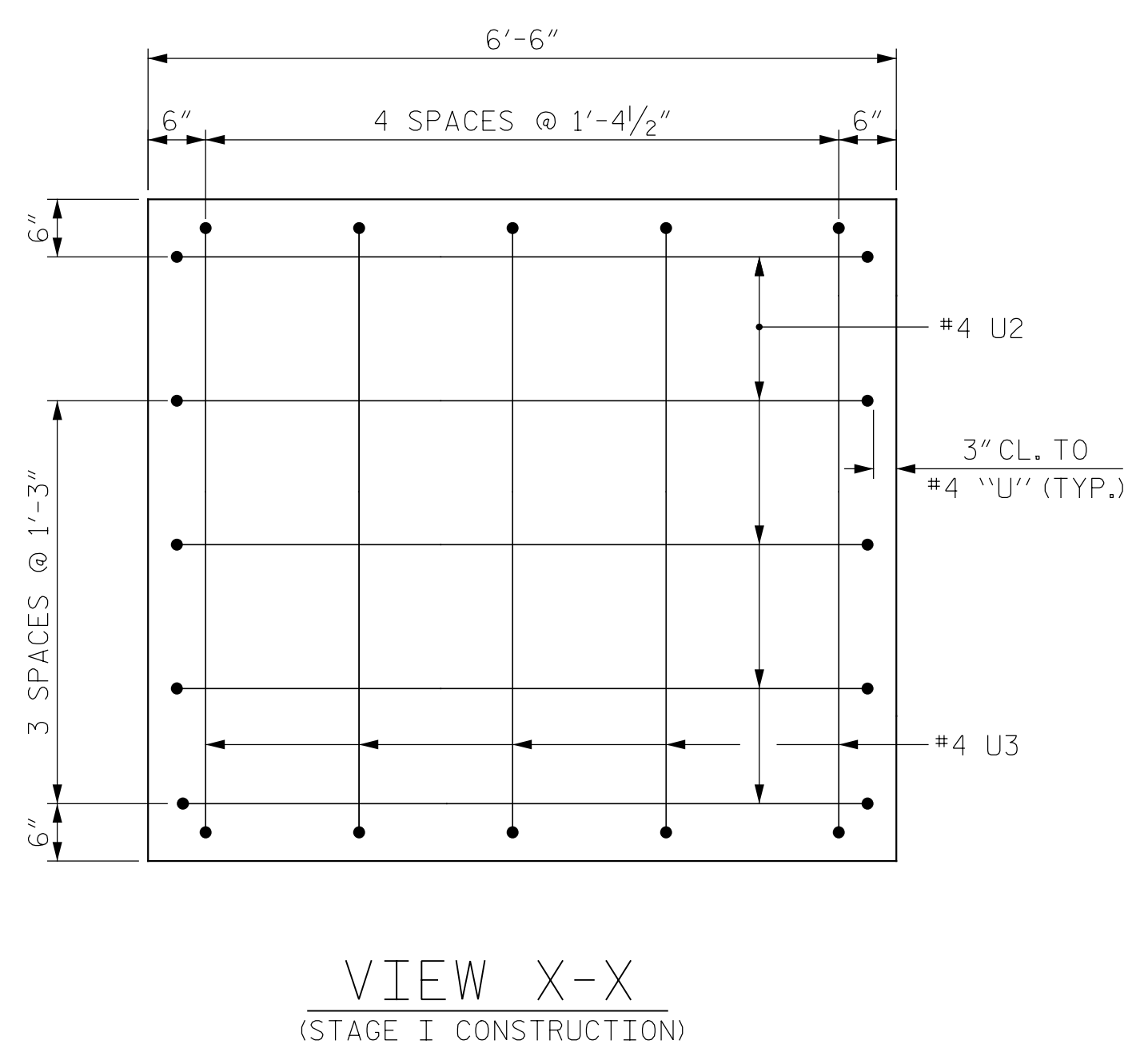
BILL OF MATERIAL											
BENT 5 - STAGE I					BENT 5 - STAGE II						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	30	11	STR	58' - 9"	9,364	B6	30	11	STR	22' - 5"	3,573
B2	12	6	STR	55' - 9"	1,005	B7	12	6	STR	22' - 6"	406
B3	11	4	STR	14' - 4"	105	B8	11	4	STR	13' - 10"	102
B4	22	4	STR	9' - 0"	132						
B5	11	4	STR	11' - 6"	85	S1	84	5	1	17' - 7"	1,541
M1	336	11	STR	53' - 11"	96,250	U1	35	4	2	10' - 4"	242
S1	172	5	1	17' - 7"	3,154	U2	5	4	2	9' - 0"	30
U1	74	4	2	10' - 4"	511	U4	5	4	2	8' - 3"	28
U2	5	4	2	9' - 0"	30	REINFORCING STEEL		LBS.		5,922	
U3	5	4	2	8' - 5"	28	CLASS "A" CONCRETE BREAKDOWN					
V1	112	11	3	49' - 10"	29,654	POUR #3 - CAP		C.Y.		32.5	
* SP-1	4	5	4	5555' - 9"	23,179	TOTAL CLASS "A" CONCRETE		C.Y.		32.5	
** SP-2	4	4	5	3016' - 3"	8,059	REINFORCING STEEL		LBS.		140,318	
		SPIRAL COLUMN REINFORCING STEEL		LBS.		31,238					
		CLASS "A" CONCRETE BREAKDOWN				POUR #2 - COLUMNS		C.Y.		162.5	
						POUR #3 - CAP		C.Y.		77.8	
						TOTAL CLASS "A" CONCRETE		C.Y.		240.3	
		DRILLED PIERS				POUR #1 - DRILLED PIERS		C.Y.		603.2	
						6'-0" Ø DRILLED PIERS LIN. FT.				576.0	
		PERMANENT STEEL CASING FOR				6'-0" Ø DRILLED PIERS		LIN. FT.		196.0	
		SID INSPECTIONS		EA.		2					
		CSL TUBES		LIN. FT.		3528.0					
		CSL TESTING		EA.		4					

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

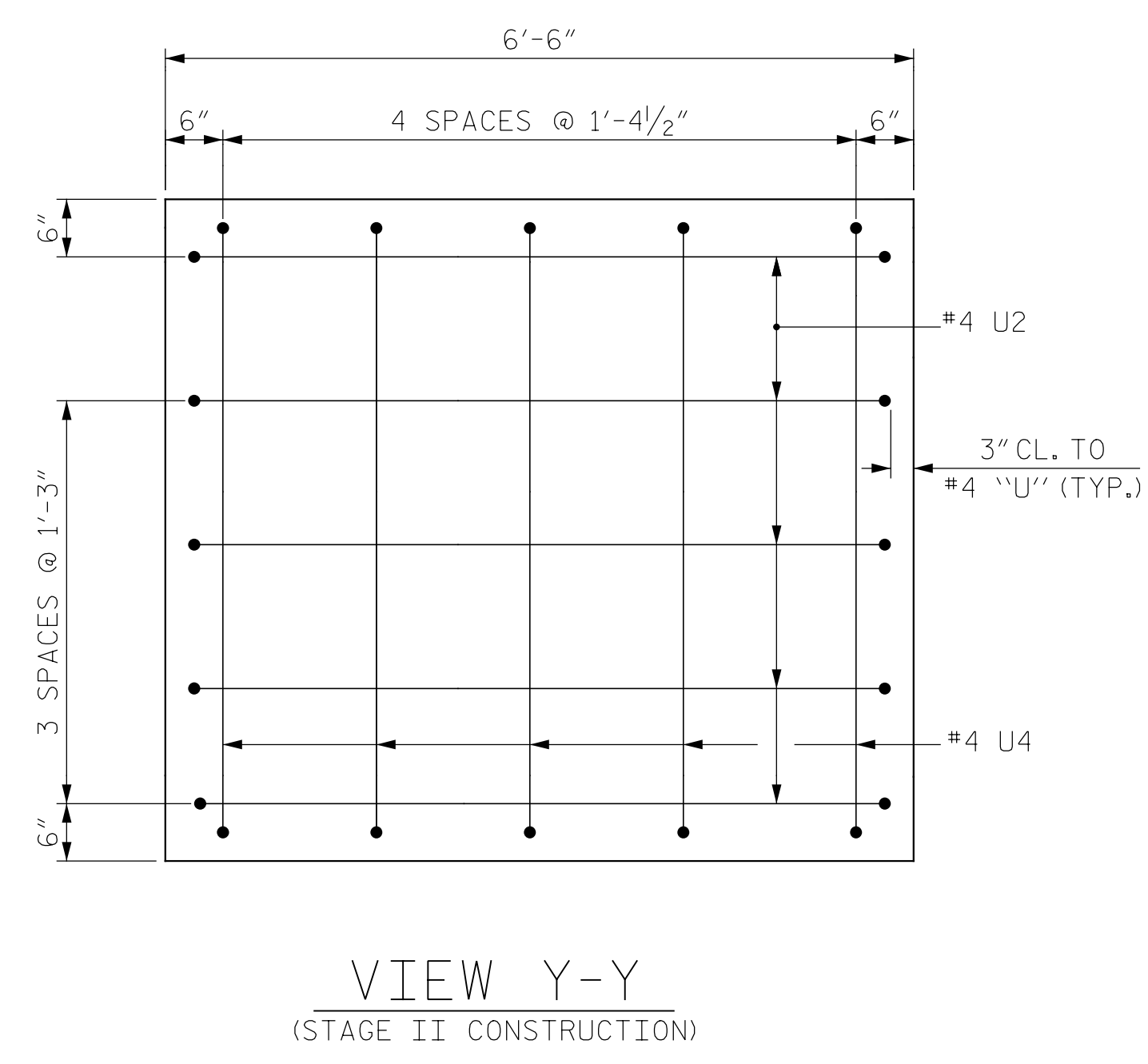
NOTES:

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 THE TOP SURFACE AREAS OF THE BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING," SHEET 4 OF 7.
 THE CONTRACTOR HAS THE OPTION TO POUR THE ENTIRE CAP IN STAGE I. NO PARTIAL DEMOLITION OF THE EXISTING BRIDGE 080017 WILL BE ALLOWED.

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 3



VIEW X-X
(STAGE I CONSTRUCTION)



VIEW Y-Y
(STAGE II CONSTRUCTION)

DRAWN BY : B. J. MANTEI DATE : 5-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-17-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

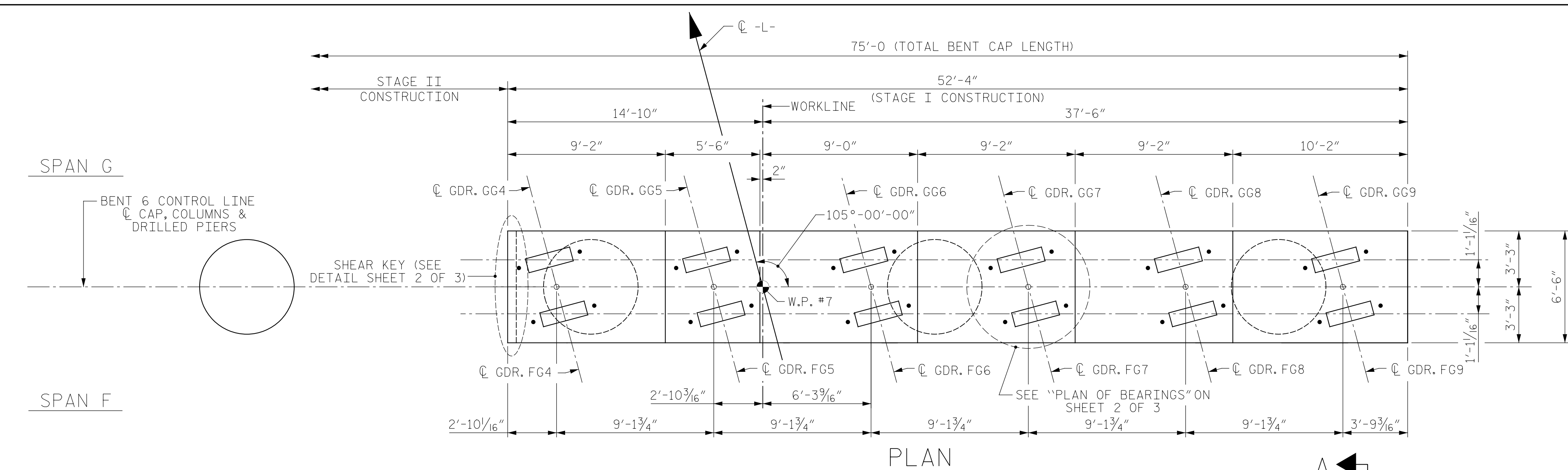
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Professional Engineer Seal for Paul R. Holshouser, License # BE6040810A143E, dated 8/12/2020.

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 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

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2			4			107

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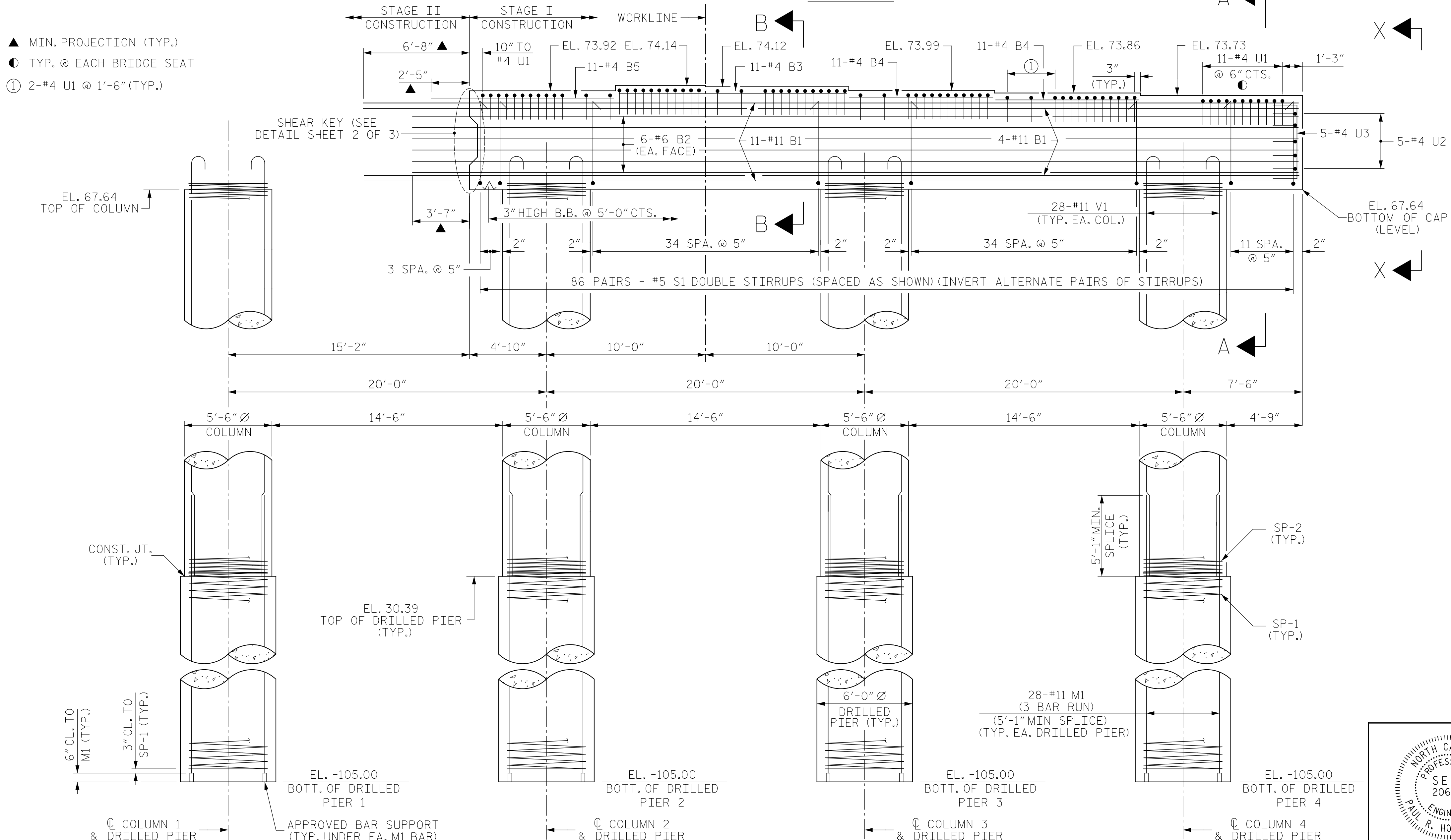
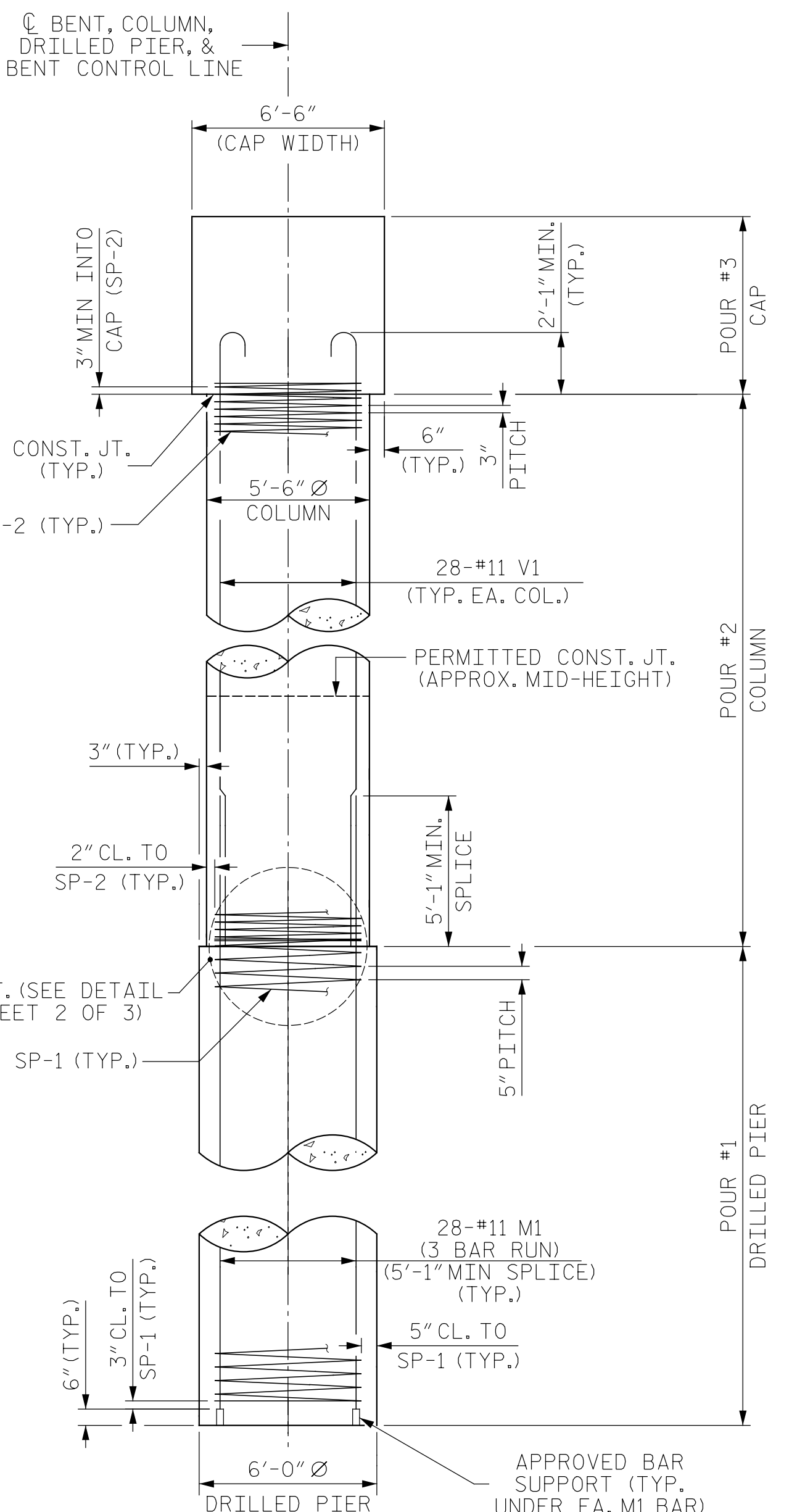


NOTES:

FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 3 OF 3.

FOR "VIEW X-X", SEE SHEET 3 OF 3

FOR NOTES, SEE SHEET 3 OF 3.



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2			4		

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Paul R. Holshouser
Professional Engineer
SEAL 20668
8/12/2020

Paul R. Holshouser
Professional Engineer
SEAL 20668
8/12/2020

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ALL DIMENSIONS AND DETAILS SHOWN FOR DRILLED PIERS ARE TYPICAL FOR EACH PIER UNLESS OTHERWISE NOTED.

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CHECKED BY: N. D'AIUTO DATE: 7-17-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

PROJECT NO. 48793.3.1

BLADEN COUNTY

STATION: 118+81.78 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 6

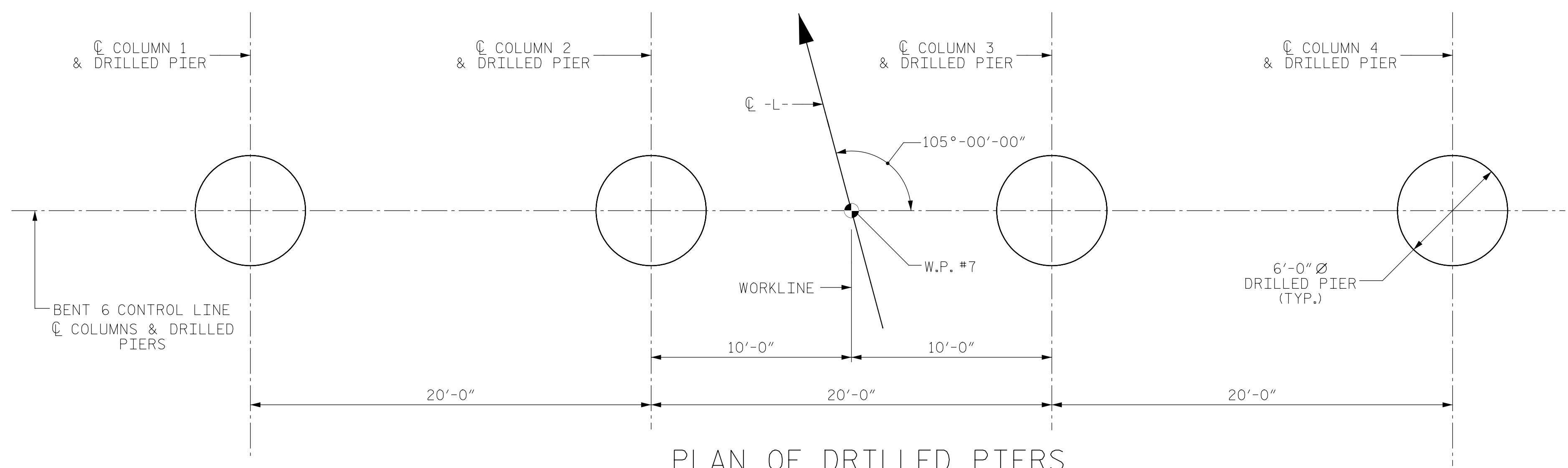
PLAN & ELEVATION

STAGE I CONSTRUCTION

SHEET NO. S-88

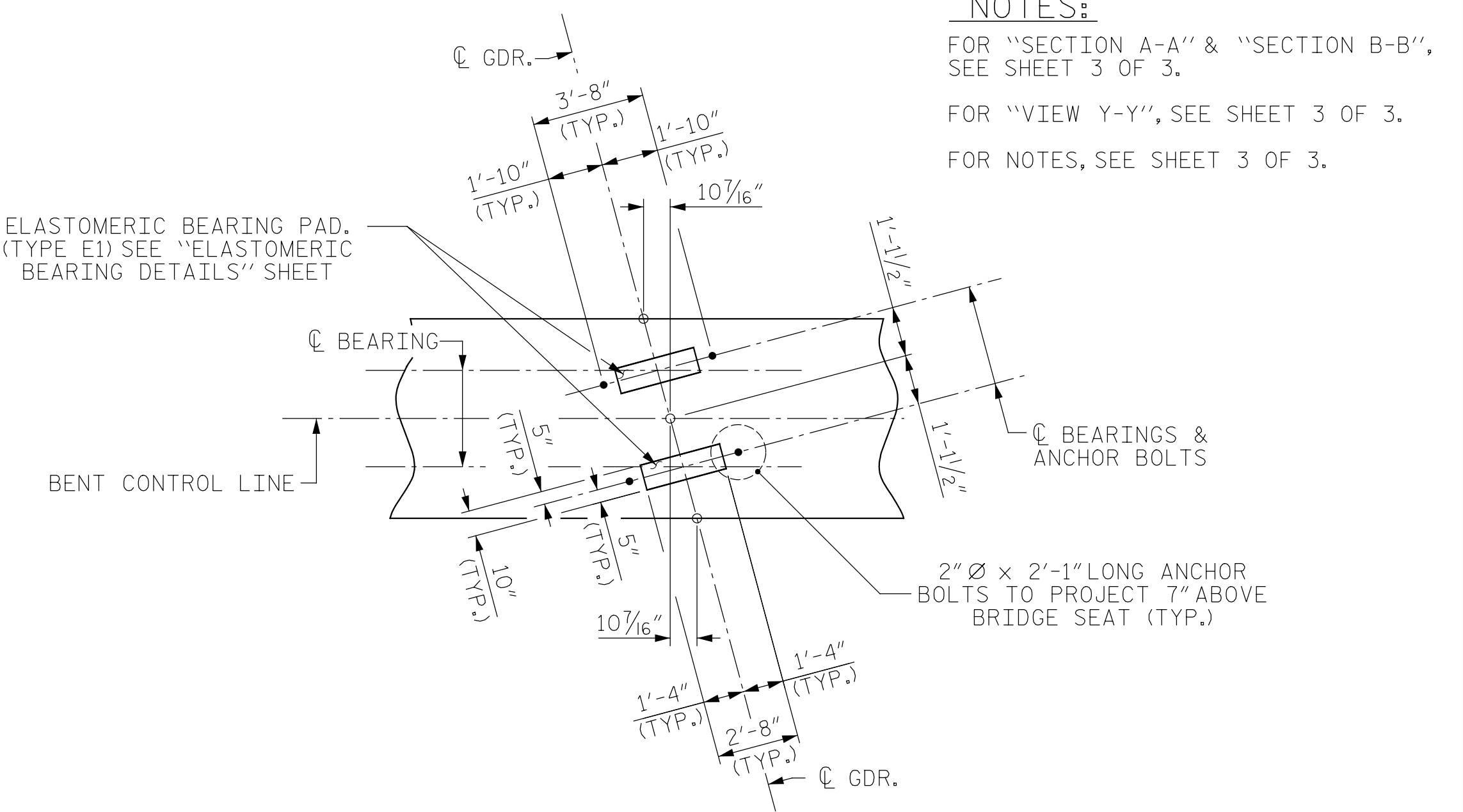
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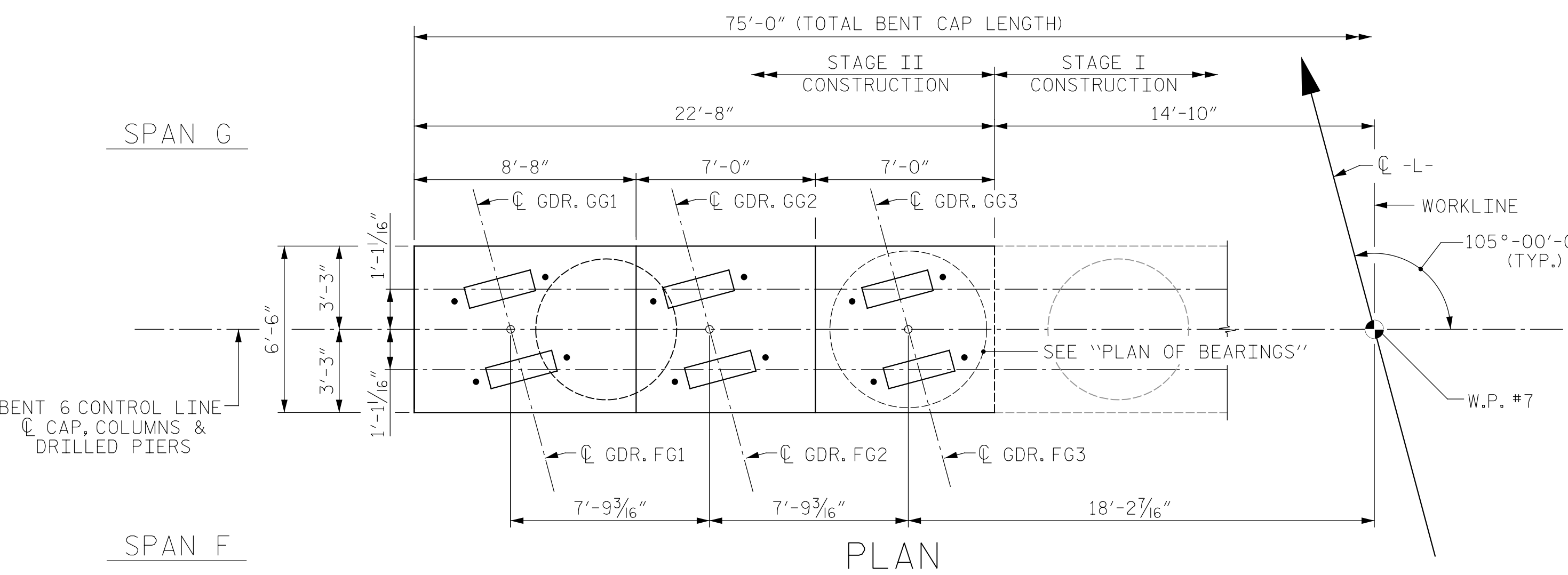
PLAN OF DRILLED PIERS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR DRILLED PIERS UNLESS NOTED OTHERWISE

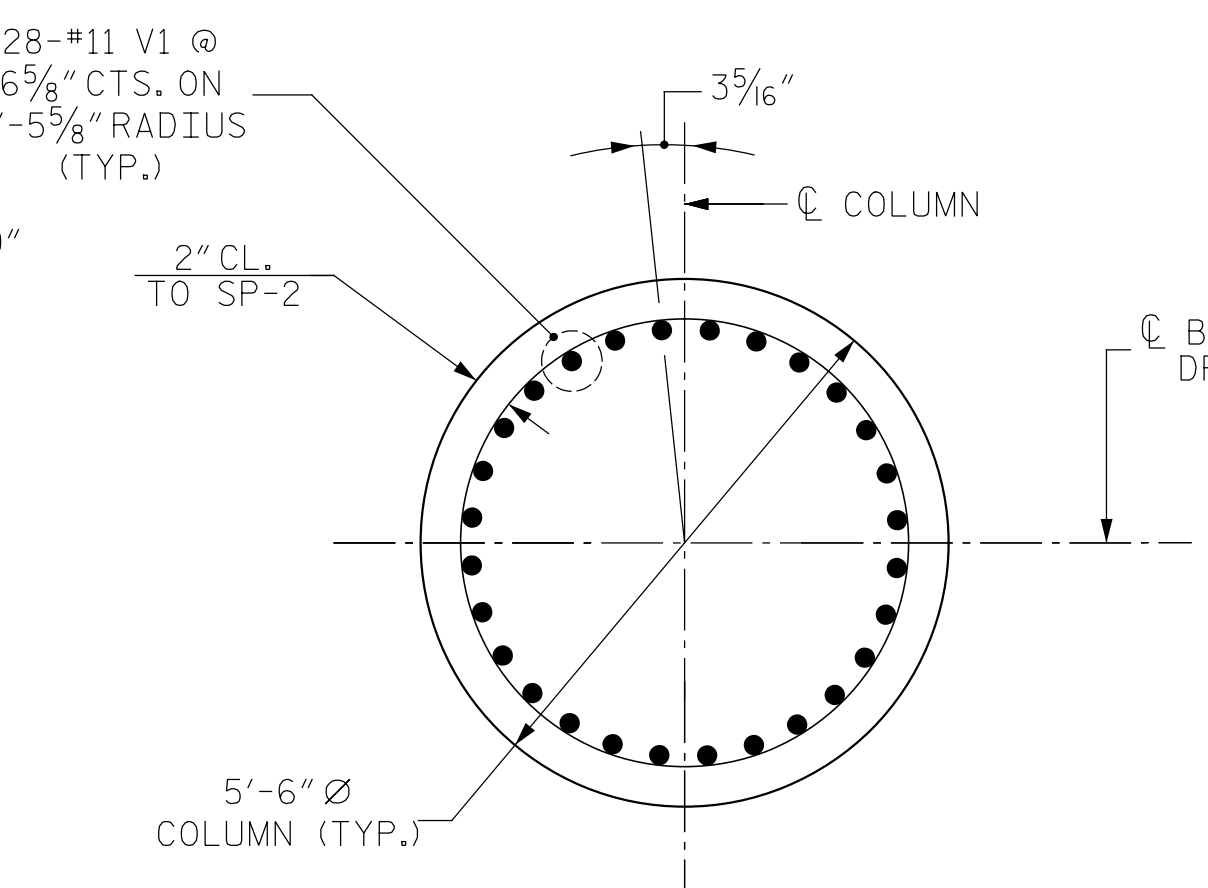


PLAN OF BEARINGS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

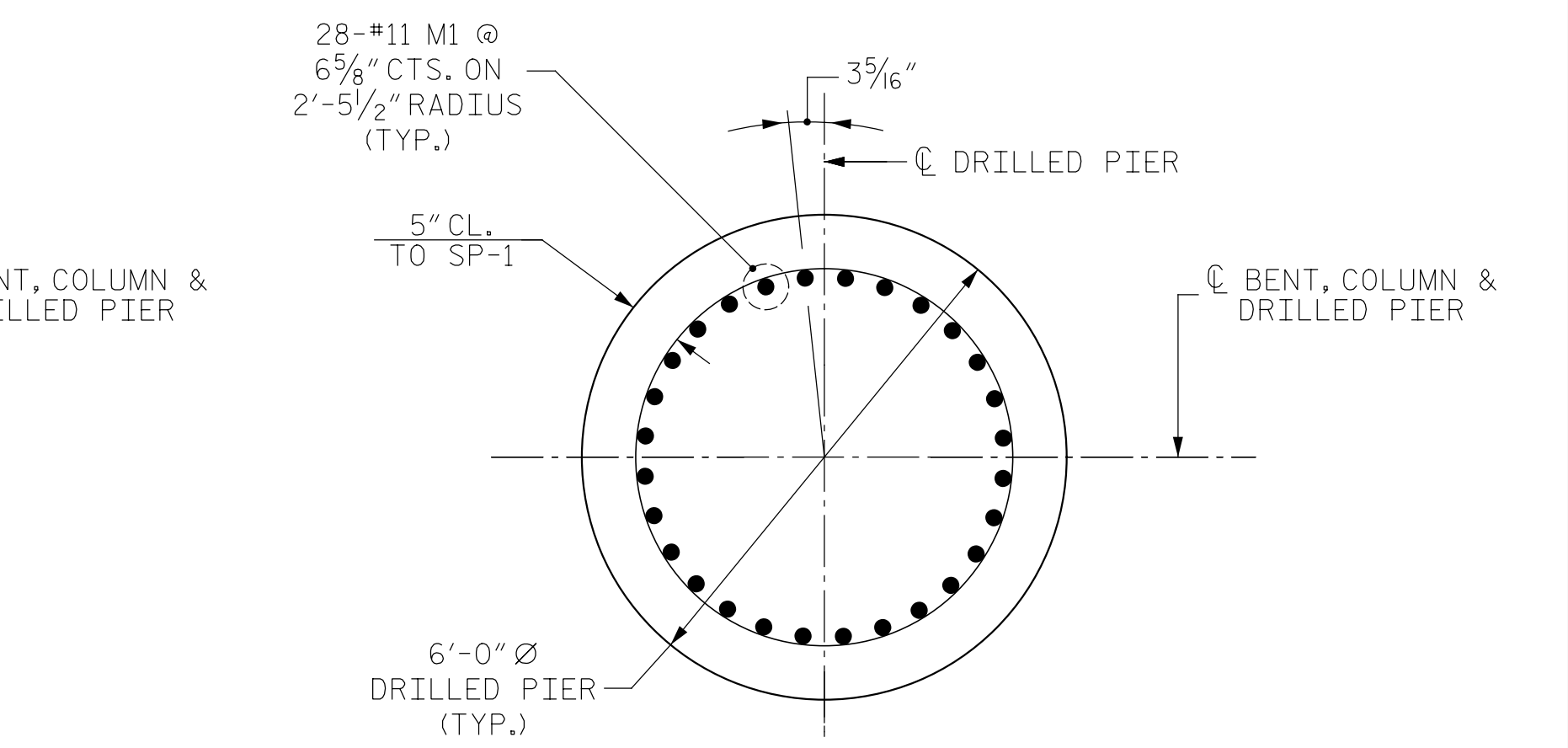


PLAN



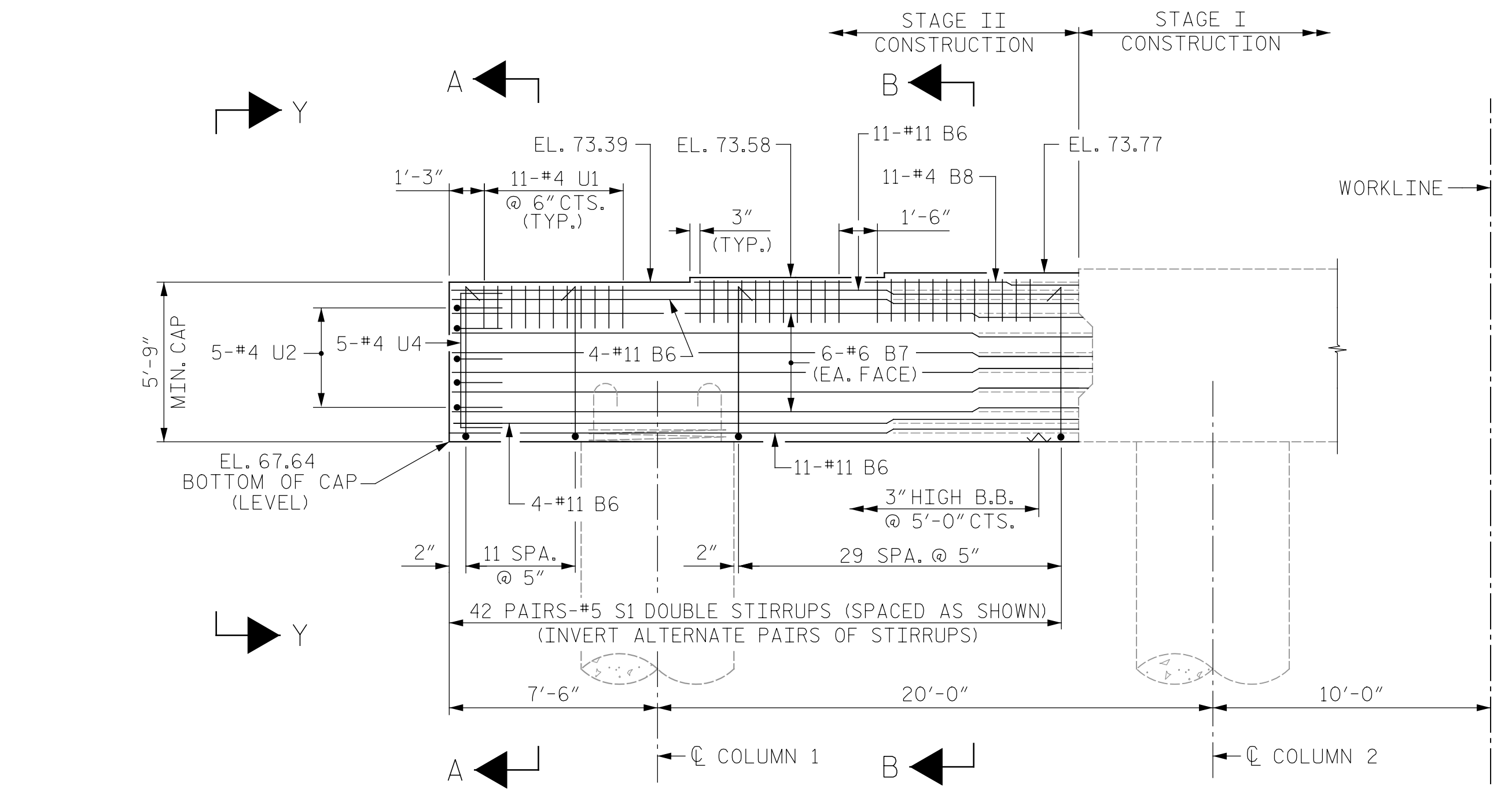
SECTION THRU COLUMN

(TYP. EA. COLUMN)

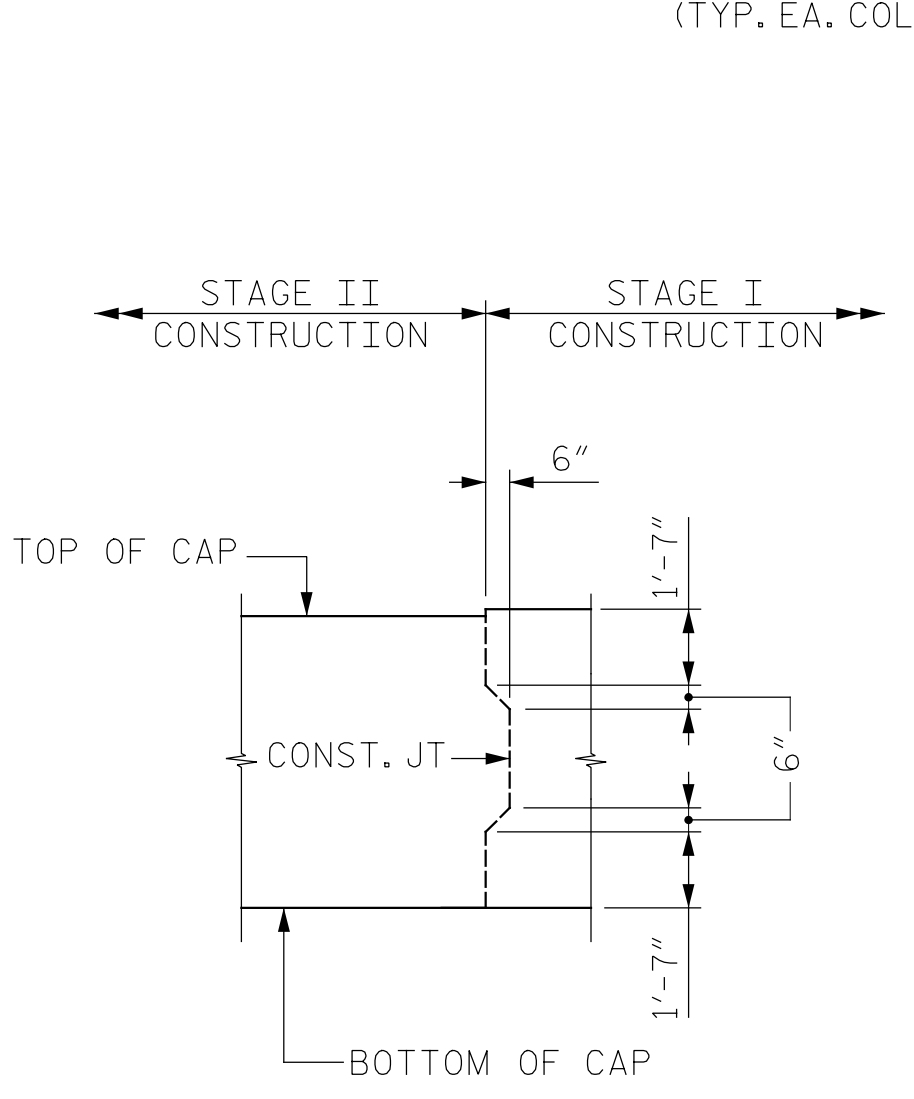


SECTION THRU DRILLED PIER

(TYP. EA. DRILLED PIER)

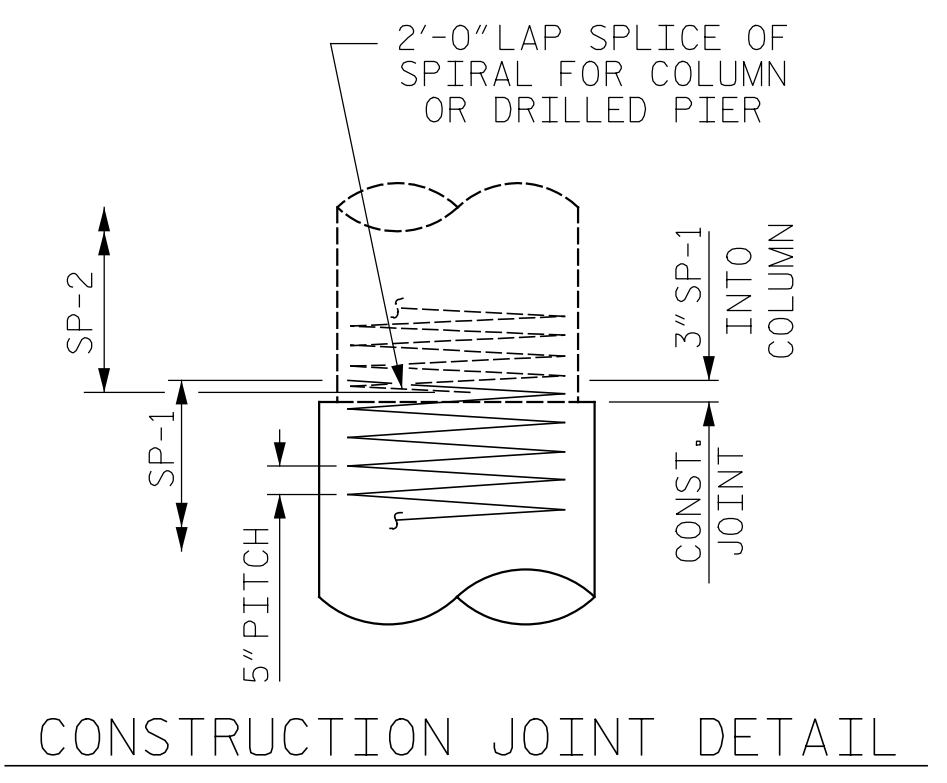


ELEVATION



SHEAR KEY DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE ELEVATION VIEW FOR LOCATION OF SHEAR KEY. REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.

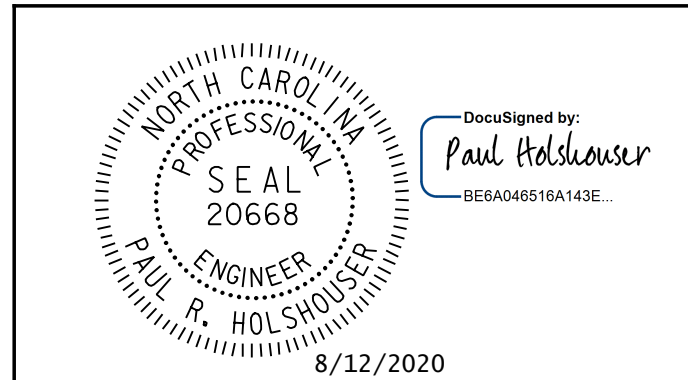


CONSTRUCTION JOINT DETAIL

NOTES:
 FOR "SECTION A-A" & "SECTION B-B", SEE SHEET 3 OF 3.
 FOR "VIEW Y-Y", SEE SHEET 3 OF 3.
 FOR NOTES, SEE SHEET 3 OF 3.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENT 6 DETAILS



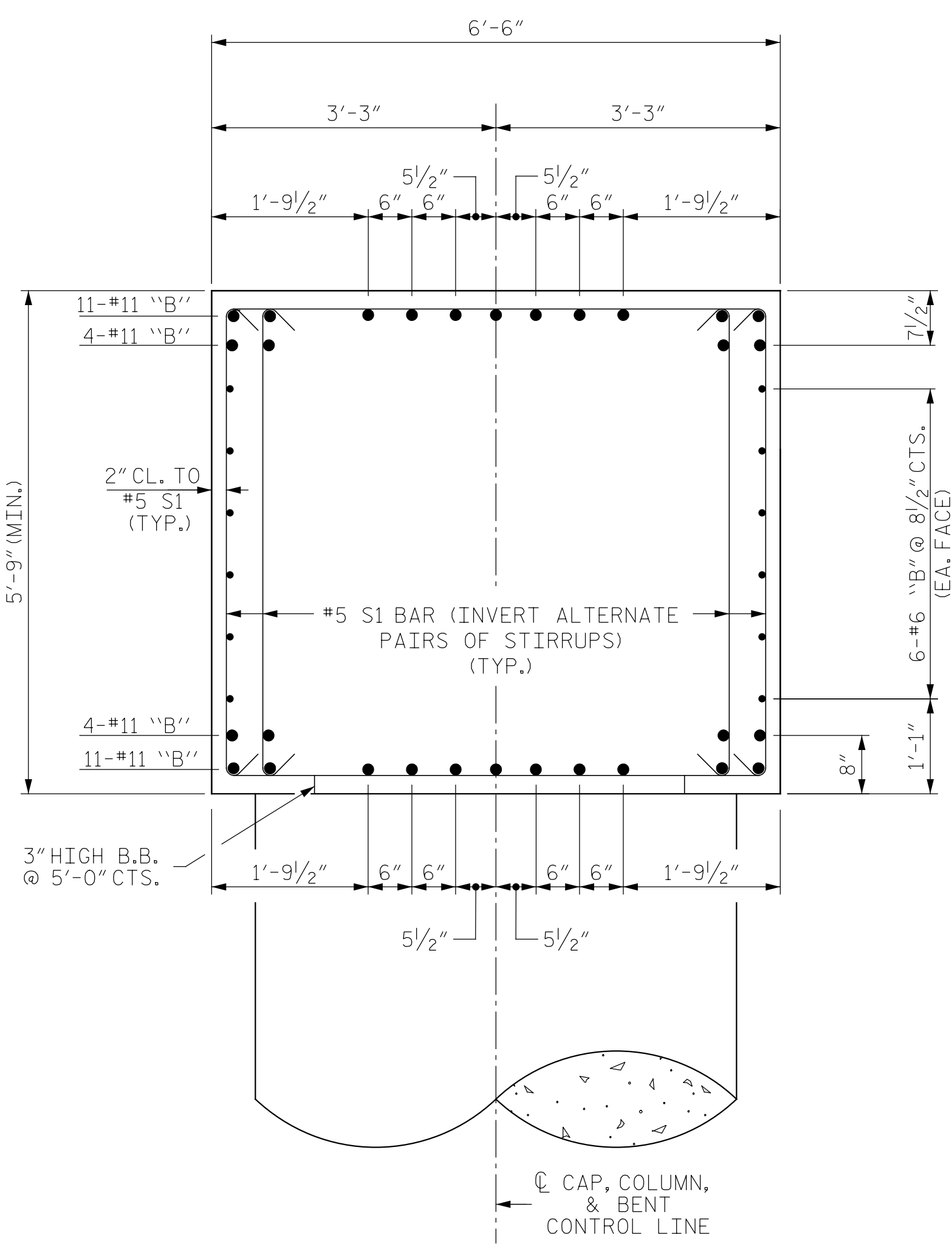
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 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-89
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2			4			107

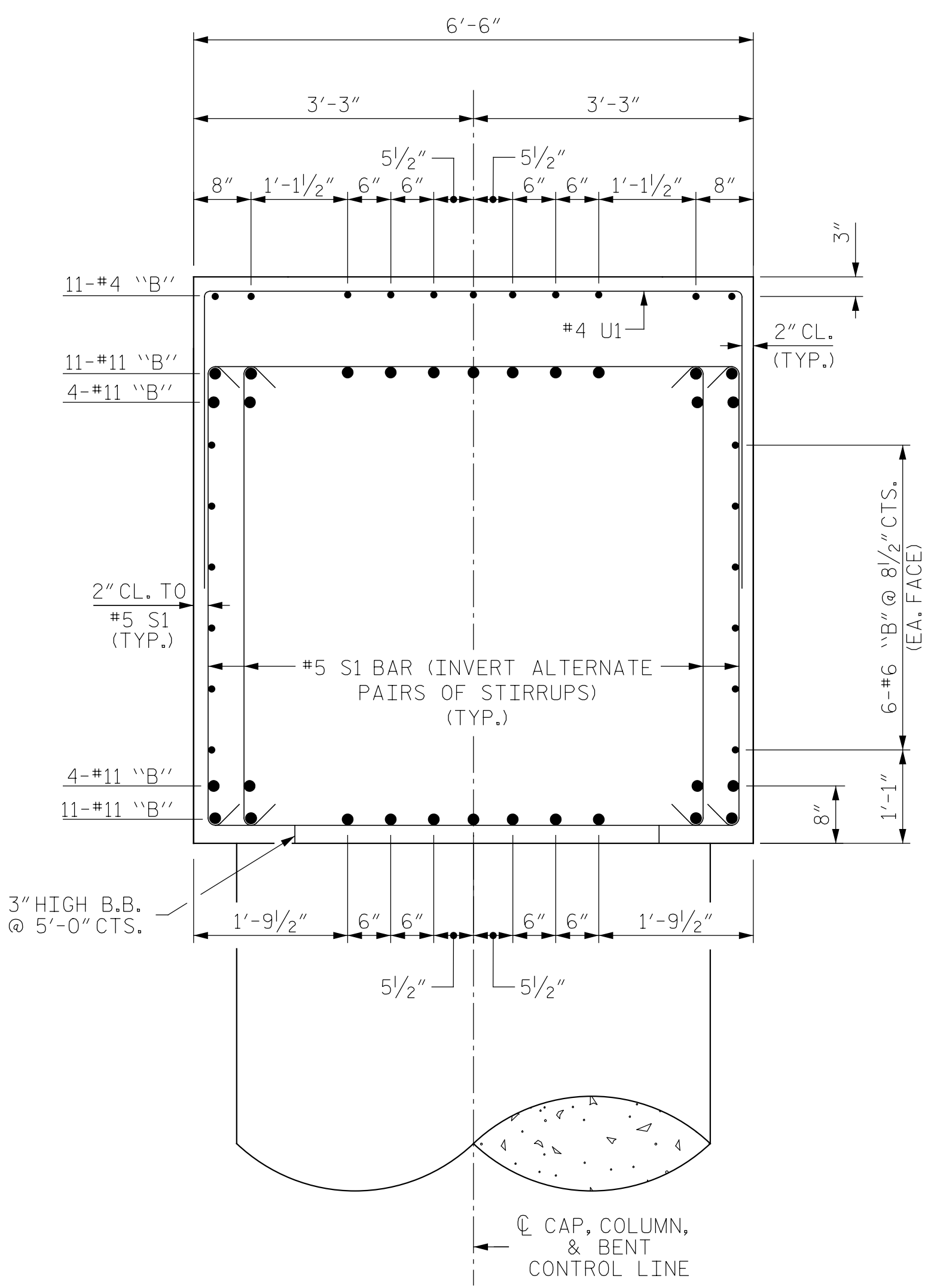
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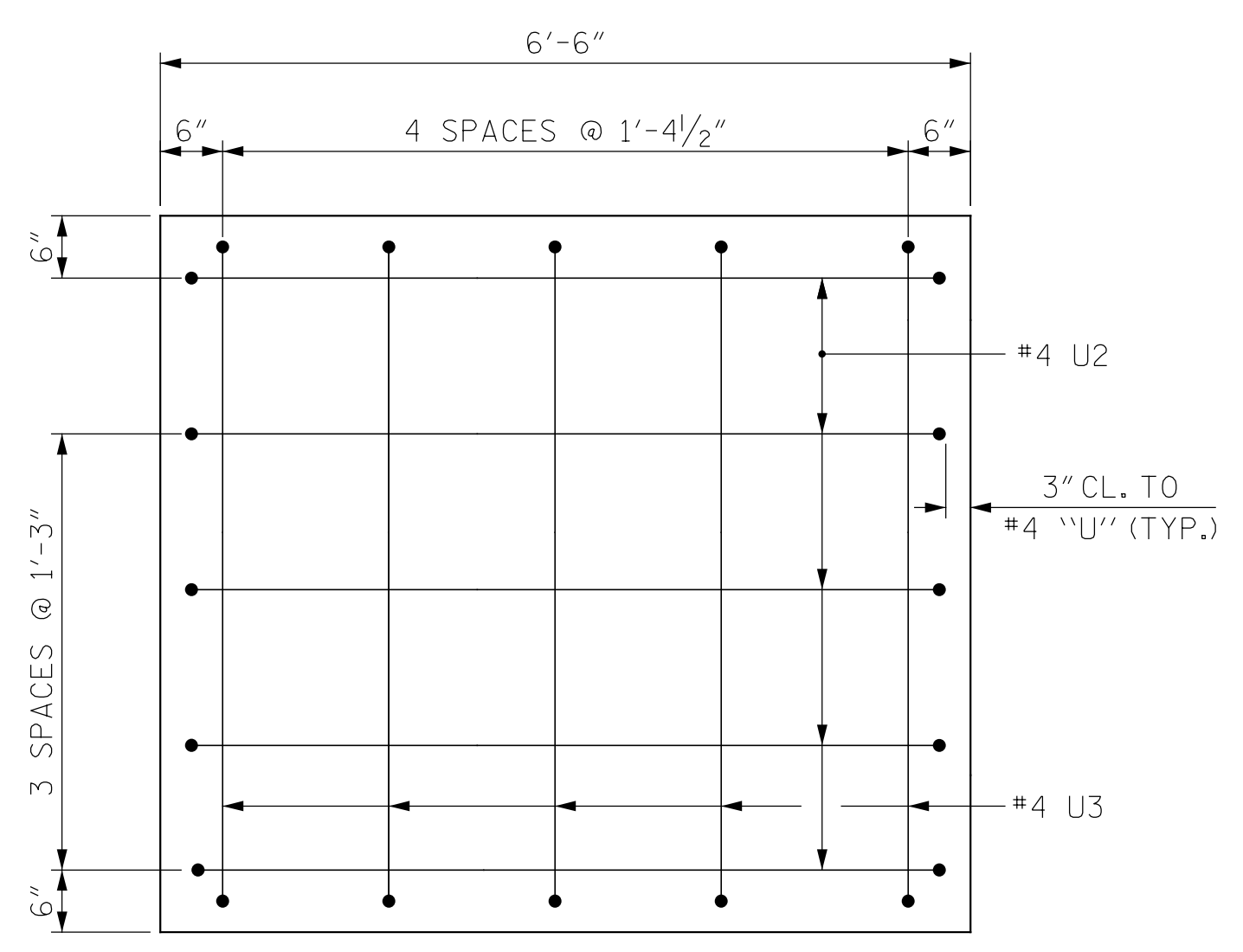
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 CHECKED BY: N. D'AIUTO DATE: 7-17-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



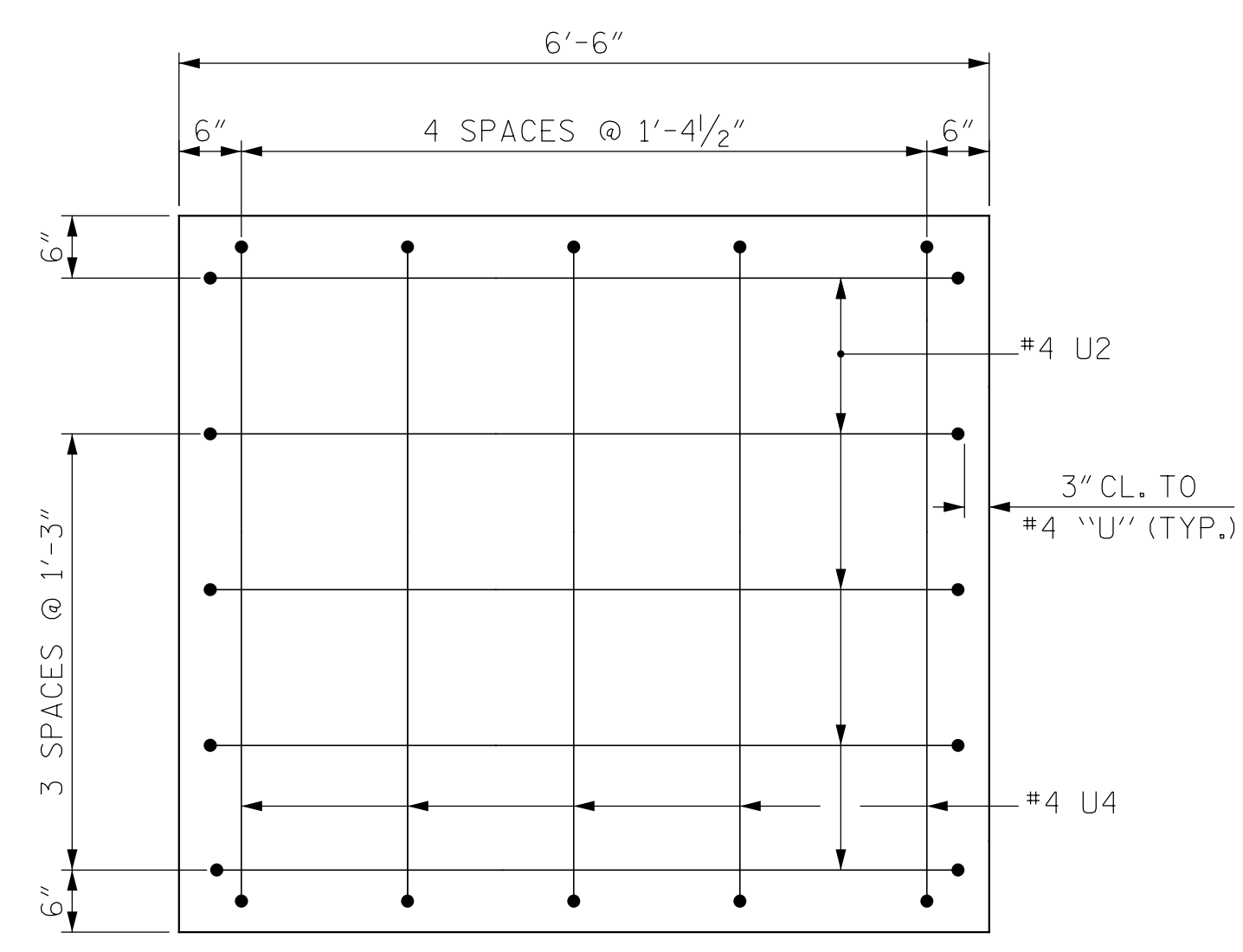
SECTION A-A



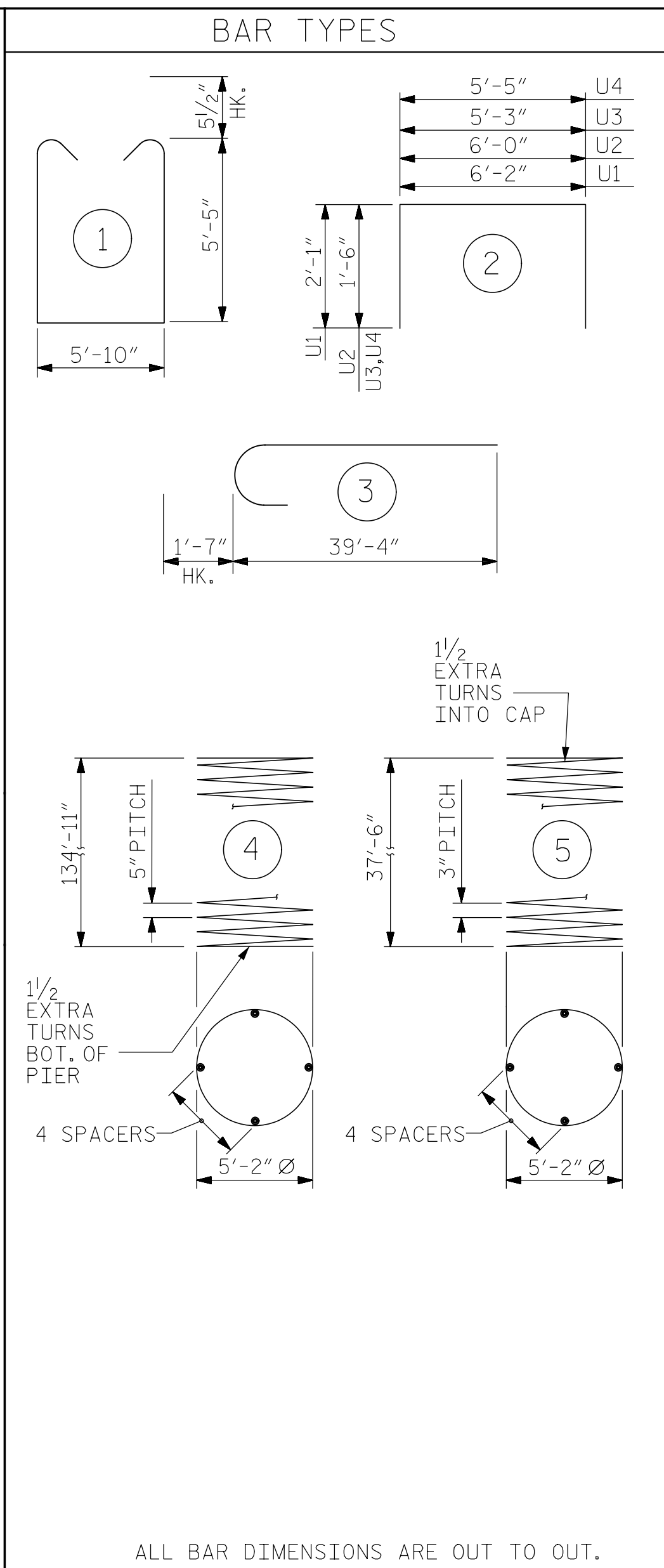
SECTION B-B
(STEPS NOT SHOWN FOR CLARITY)



VIEW X-X
(STAGE I CONSTRUCTION)



VIEW Y-Y
(STAGE II CONSTRUCTION)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
BENT 6 - STAGE I					BENT 6 - STAGE II						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	30	11	STR	58' - 9"	9,364	B6	30	11	STR	22' - 5"	3,573
B2	12	6	STR	55' - 9"	1,005	B7	12	6	STR	22' - 6"	406
B3	11	4	STR	14' - 4"	105	B8	11	4	STR	13' - 10"	102
B4	22	4	STR	9' - 0"	132						
B5	11	4	STR	11' - 6"	85	S1	84	5	1	17' - 7"	1,541
M1	336	11	STR	51' - 1"	91,192	U1	35	4	2	10' - 4"	242
S1	172	5	1	17' - 7"	3,154	U2	5	4	2	9' - 0"	30
U1	74	4	2	10' - 4"	511	U4	5	4	2	8' - 3"	28
U2	5	4	2	9' - 0"	30	REINFORCING STEEL		LBS.	5,922		
U3	5	4	2	8' - 5"	28	CLASS "A" CONCRETE BREAKDOWN					
V1	112	11	3	40' - 11"	24,348	POUR #3 - CAP		C.Y.	32.6		
*SP-1	4	5	4	5222' - 7"	21,789	TOTAL CLASS "A" CONCRETE		C.Y.	32.6		
**SP-2	4	4	5	2437' - 1"	6,512	REINFORCING STEEL		LBS.	129,954		
SPIRAL COLUMN REINFORCING STEEL		LBS.	28,301	CLASS "A" CONCRETE BREAKDOWN							
POUR #2 - COLUMNS		C.Y.	131.1	POUR #3 - CAP		C.Y.	79.1	TOTAL CLASS "A" CONCRETE		C.Y.	210.2
DRILLED PIERS				POUR #1 - DRILLED PIERS		C.Y.	567.1	6'-0" Ø DRILLED PIERS LIN. FT.		541.6	
PERMANENT STEEL CASING FOR 6'-0" Ø DRILLED PIERS		LIN. FT.	132.9	SID INSPECTIONS		EA.	2	CSL TUBES		LIN. FT.	3321.4
CSL TESTING		EA.	4								

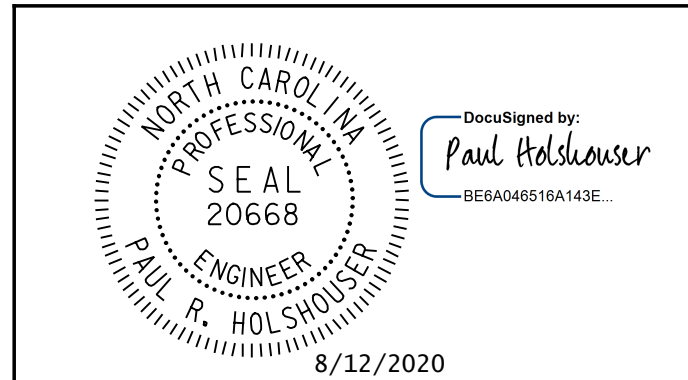
NOTES:

- * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.
- FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING," SHEET 4 OF 7.
- THE CONTRACTOR HAS THE OPTION TO POUR THE ENTIRE CAP IN STAGE I. NO PARTIAL DEMOLITION OF THE EXISTING BRIDGE 080017 WILL BE ALLOWED.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 6
 SECTION & DETAILS



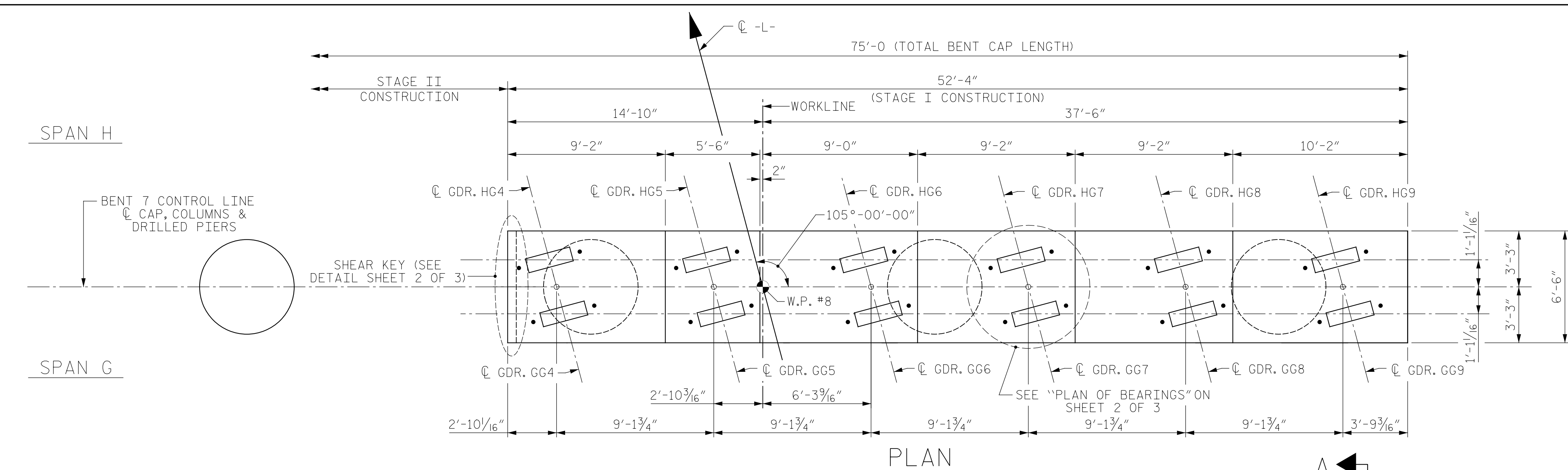
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REVISIONS						SHEET NO.
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2			4			107

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DRAWN BY: B. J. MANTEI DATE: 5-20-20
 CHECKED BY: N. D'AIUTO DATE: 7-17-20
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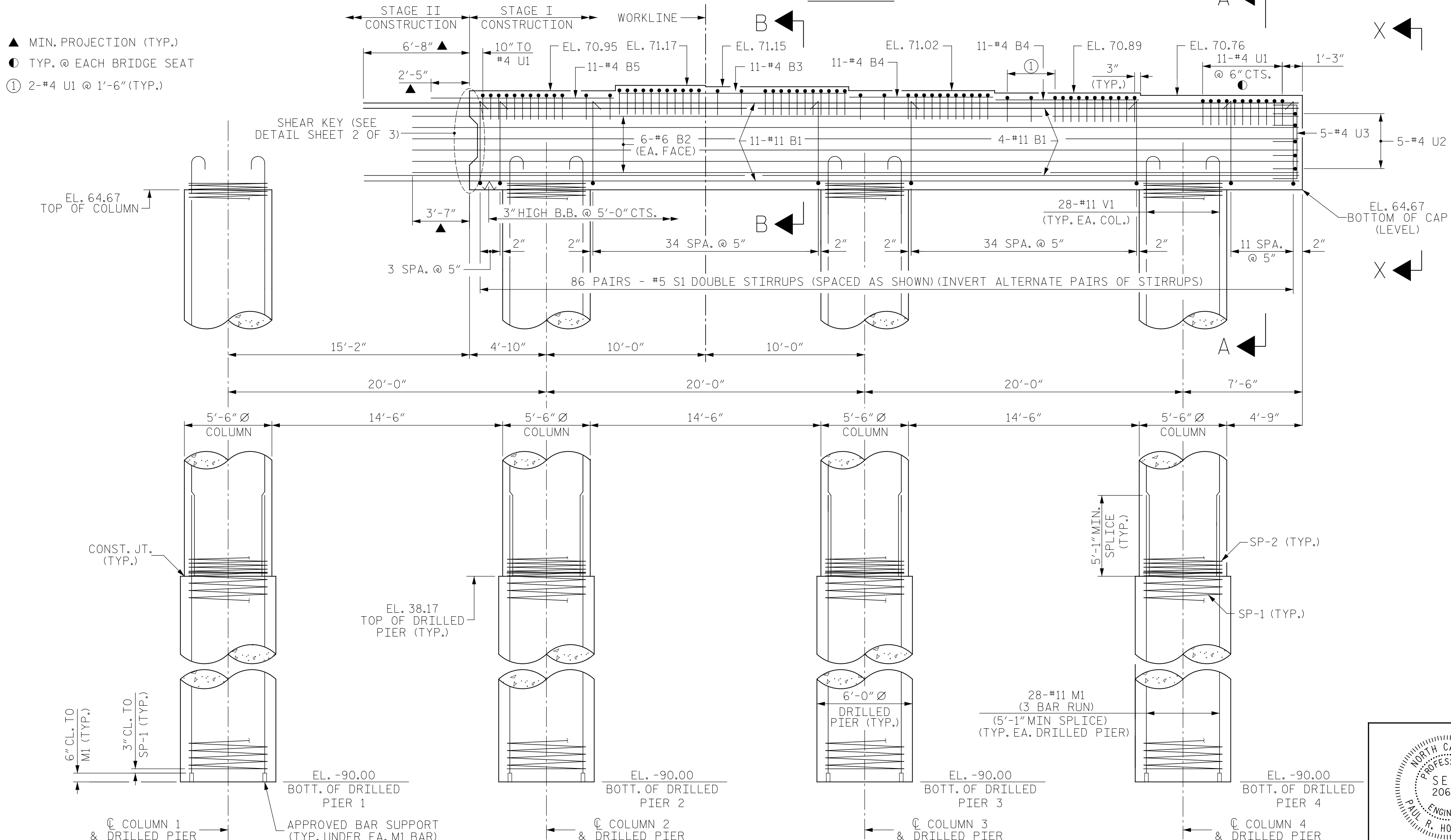
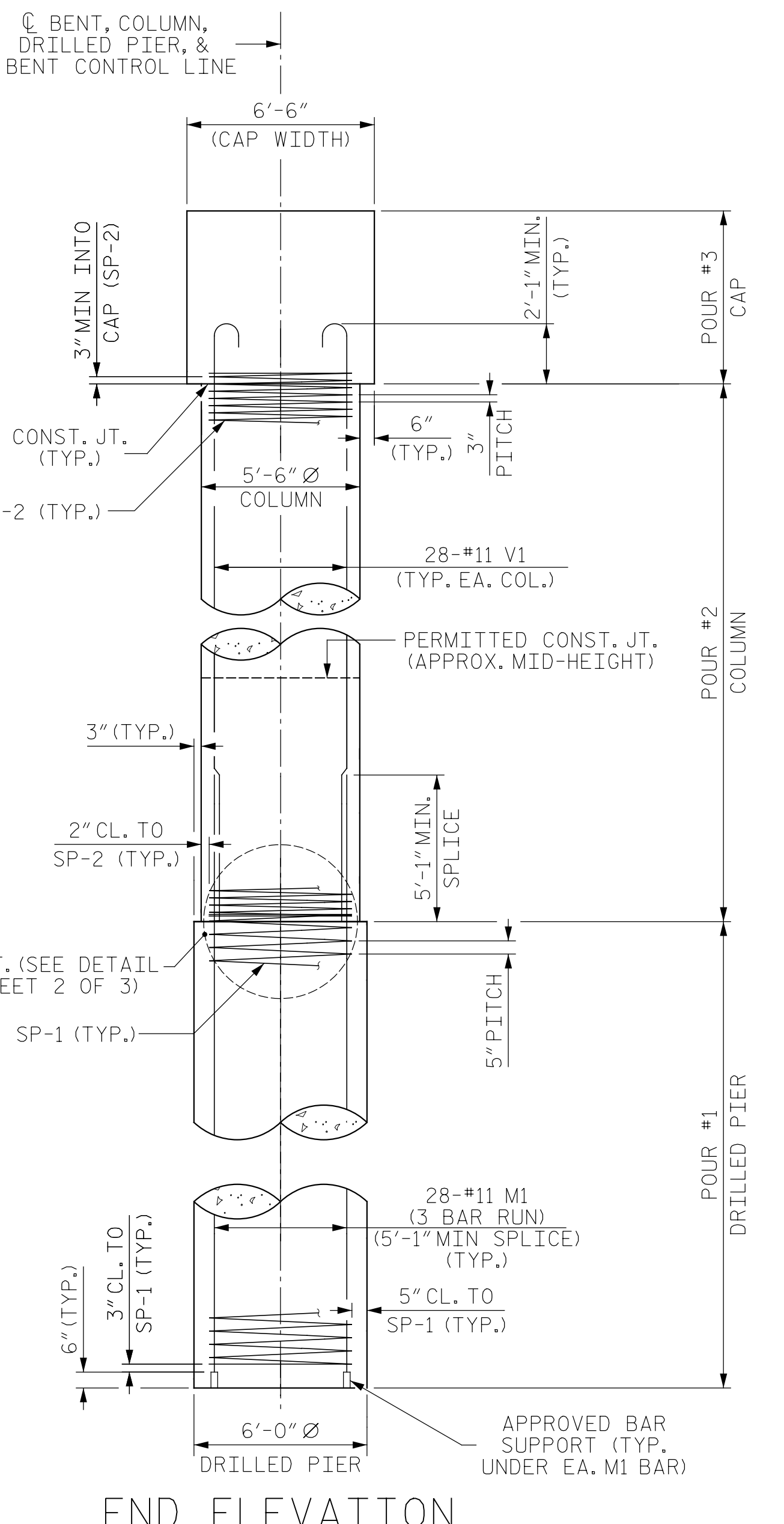


NOTES:

FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 3 OF 3.

FOR "VIEW X-X", SEE SHEET 3 OF 3

FOR NOTES, SEE SHEET 3 OF 3.



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Paul R. Holshouser
Professional Engineer
8/12/2020

8/12/2020

PROJECT NO. 48793.3.1

BLADEN COUNTY

STATION: 118+81.78 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 7

PLAN & ELEVATION

STAGE I CONSTRUCTION

REVISIONS

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

SHEET NO. S-91

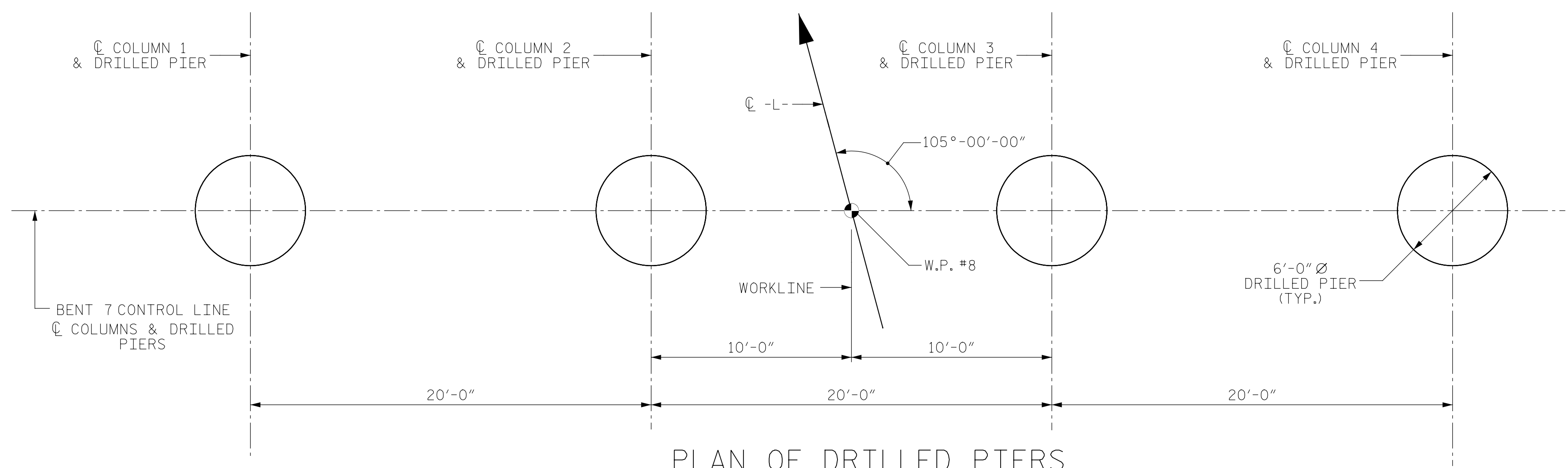
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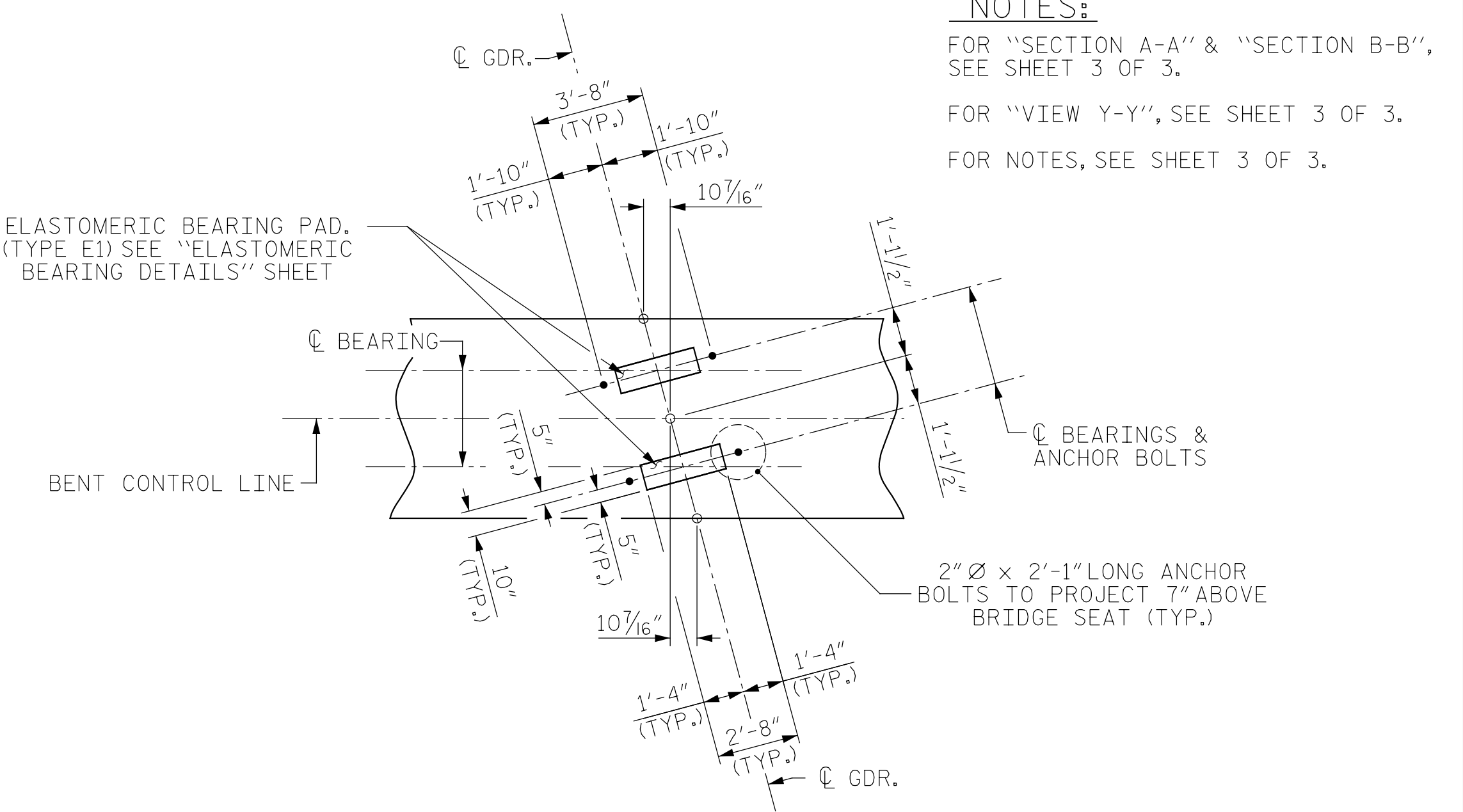
ALL DIMENSIONS AND DETAILS SHOWN FOR DRILLED PIERS ARE TYPICAL FOR EACH PIER UNLESS OTHERWISE NOTED.

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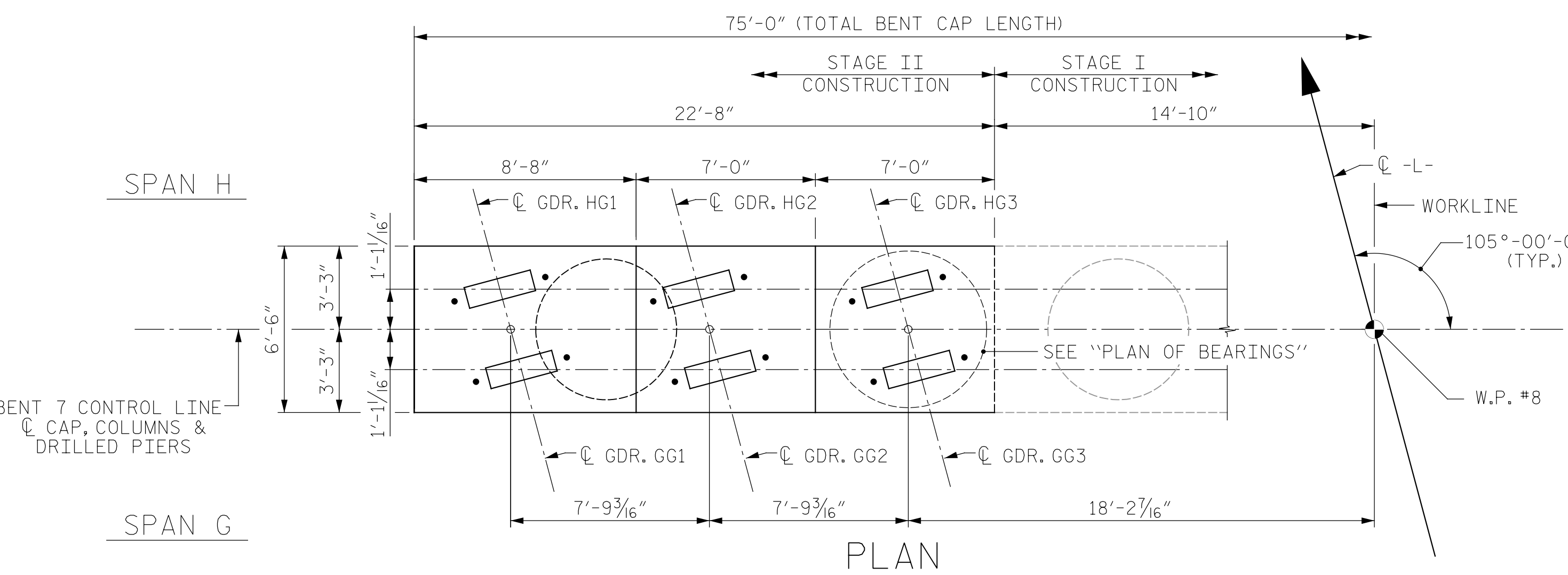
PLAN OF DRILLED PIERS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR DRILLED PIERS UNLESS NOTED OTHERWISE

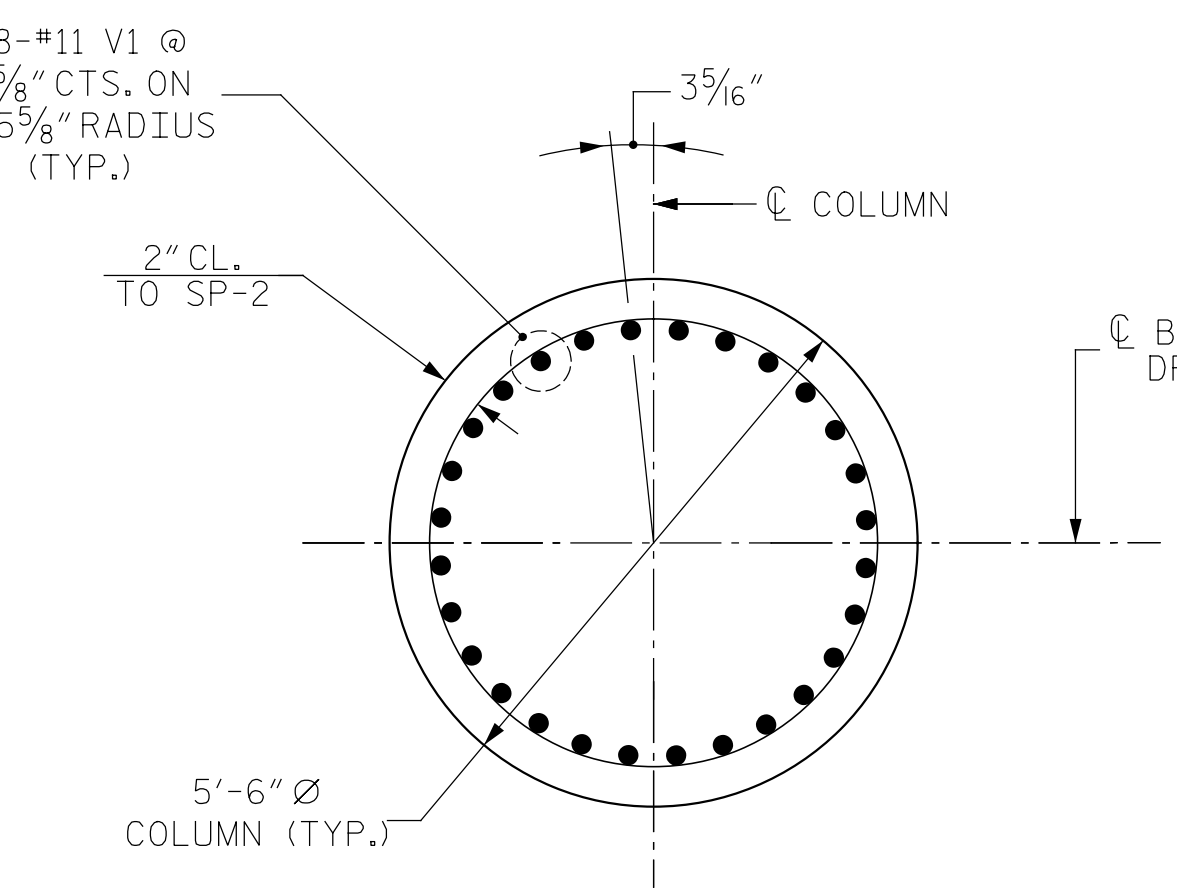


PLAN OF BEARINGS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

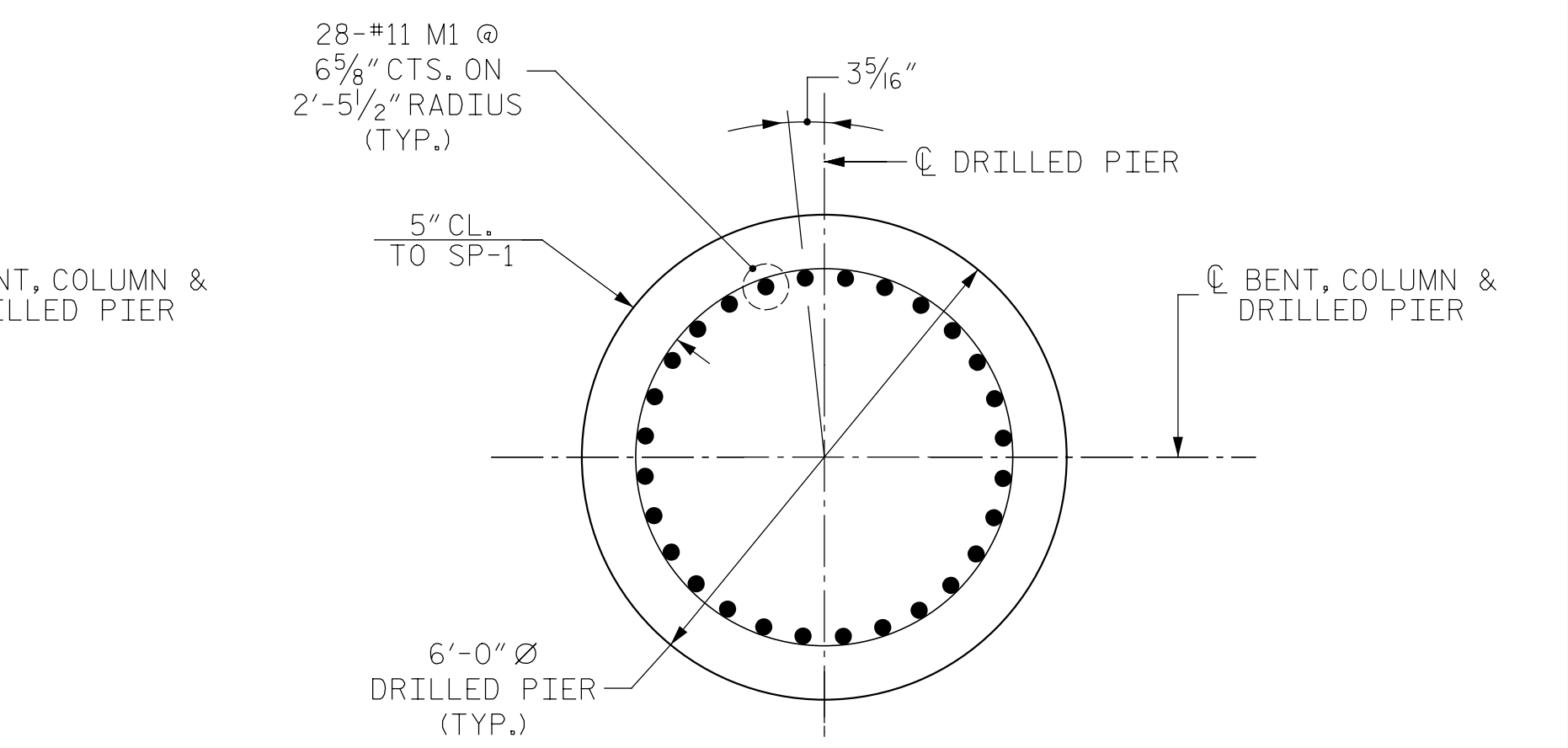


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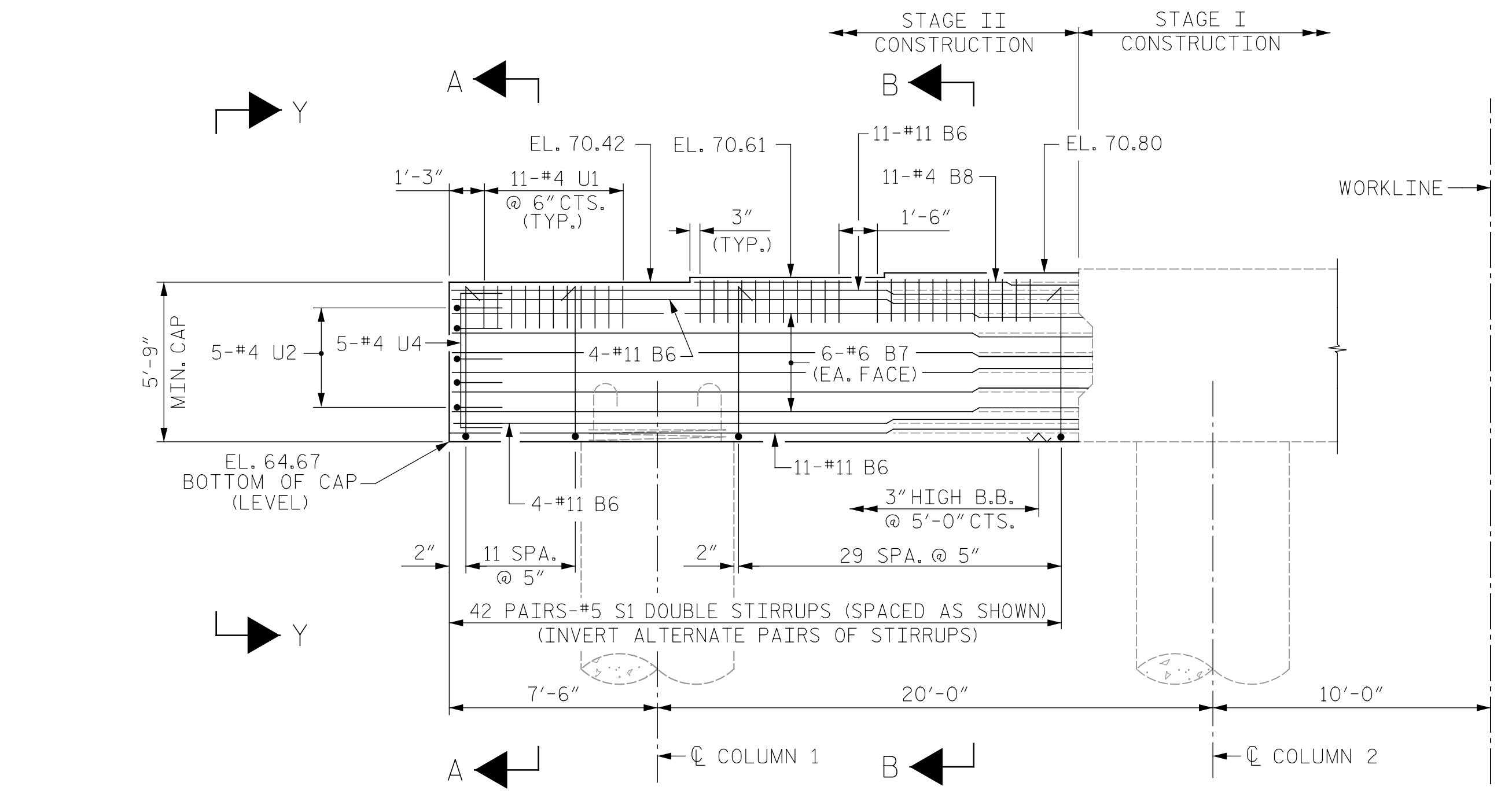
SECTION THRU COLUMN

(TYP. EA. COLUMN)

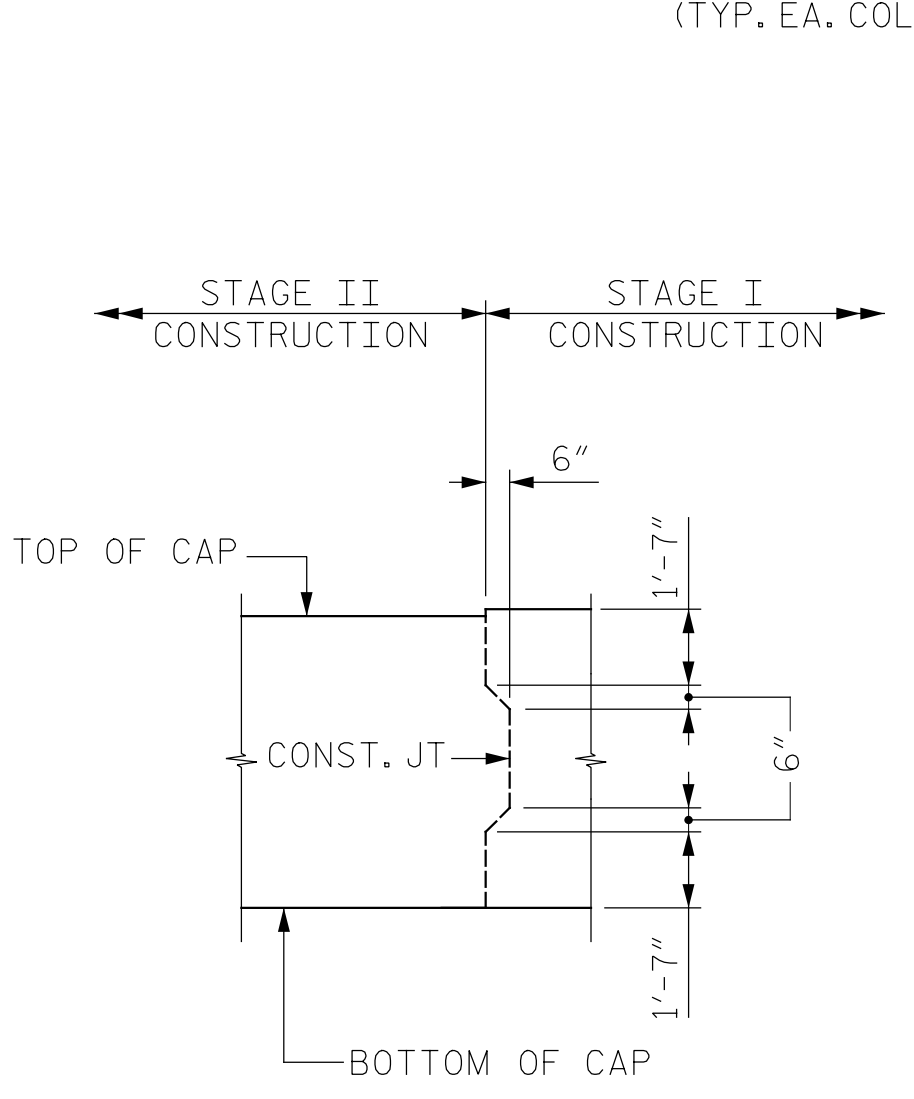


SECTION THRU DRILLED PIER

(TYP. EA. DRILLED PIER)

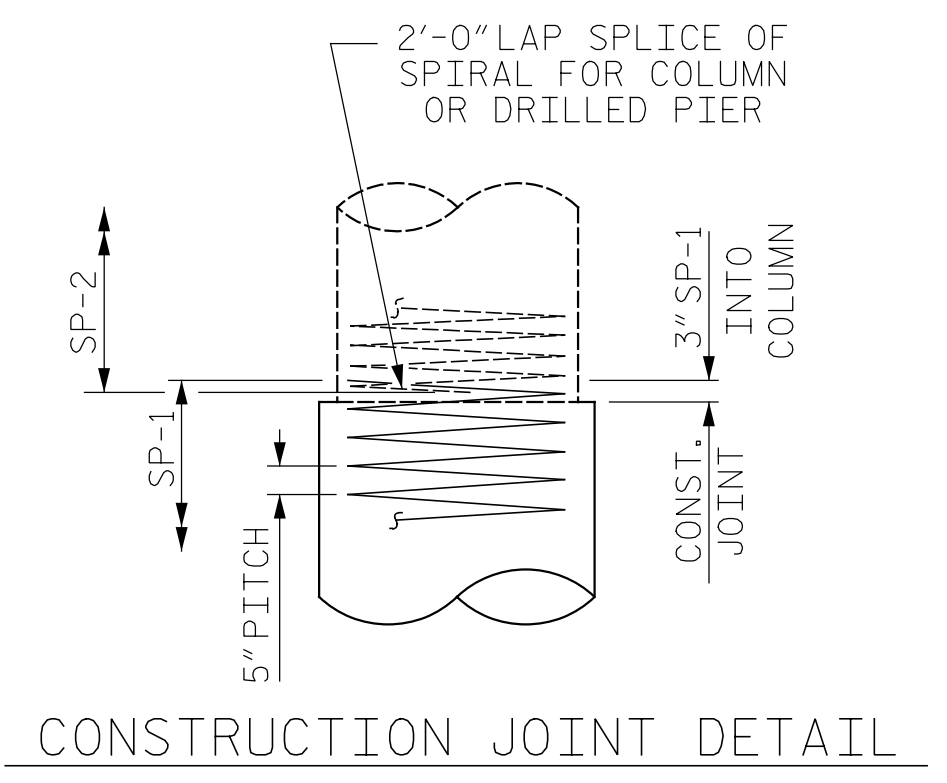


ELEVATION



SHEAR KEY DETAIL

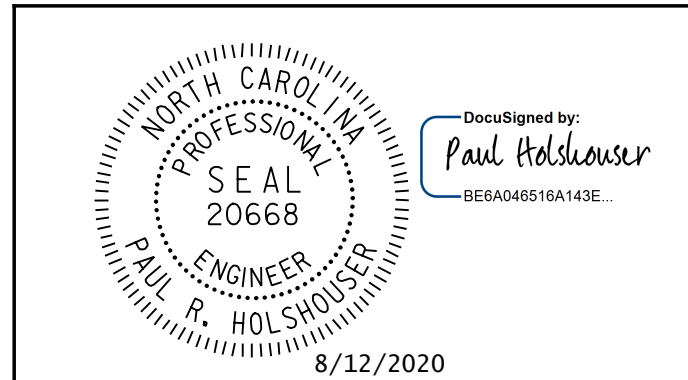
REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE ELEVATION VIEW FOR LOCATION OF SHEAR KEY. REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.



CONSTRUCTION JOINT DETAIL

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 7 DETAILS



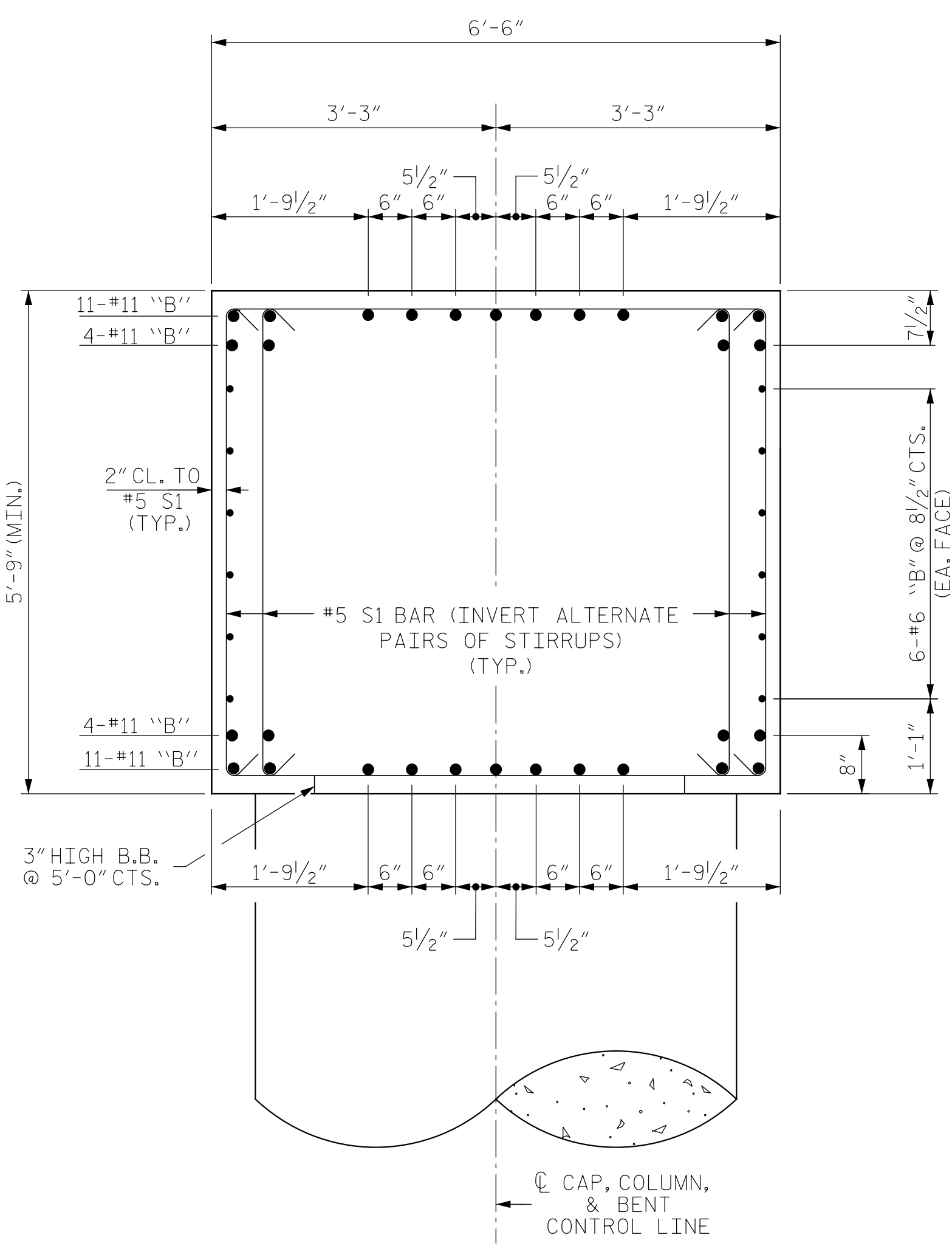
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 Phone: 919-822-0333
 License #: P-0999

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-92
1			3			TOTAL SHEETS
2			4			107

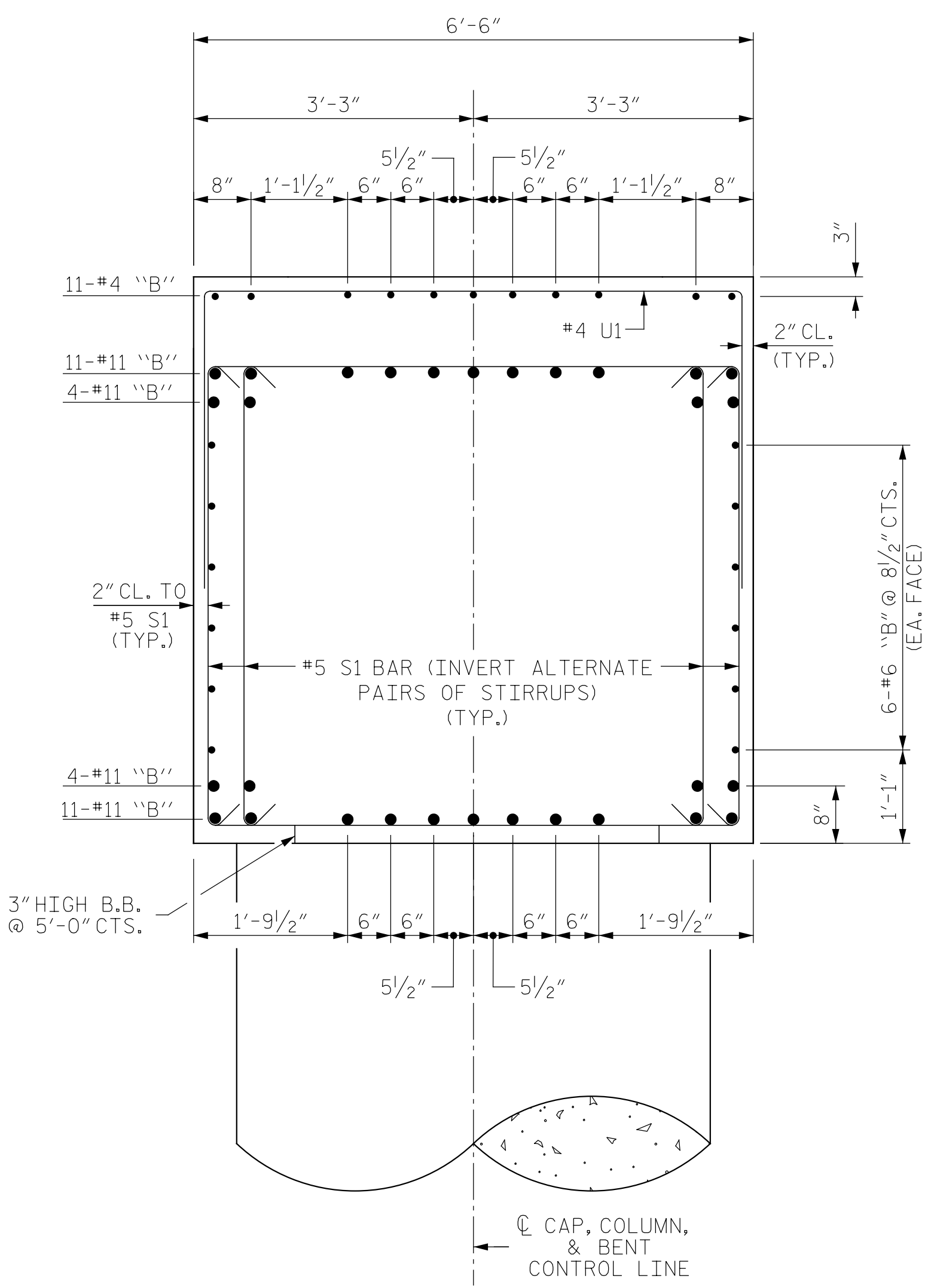
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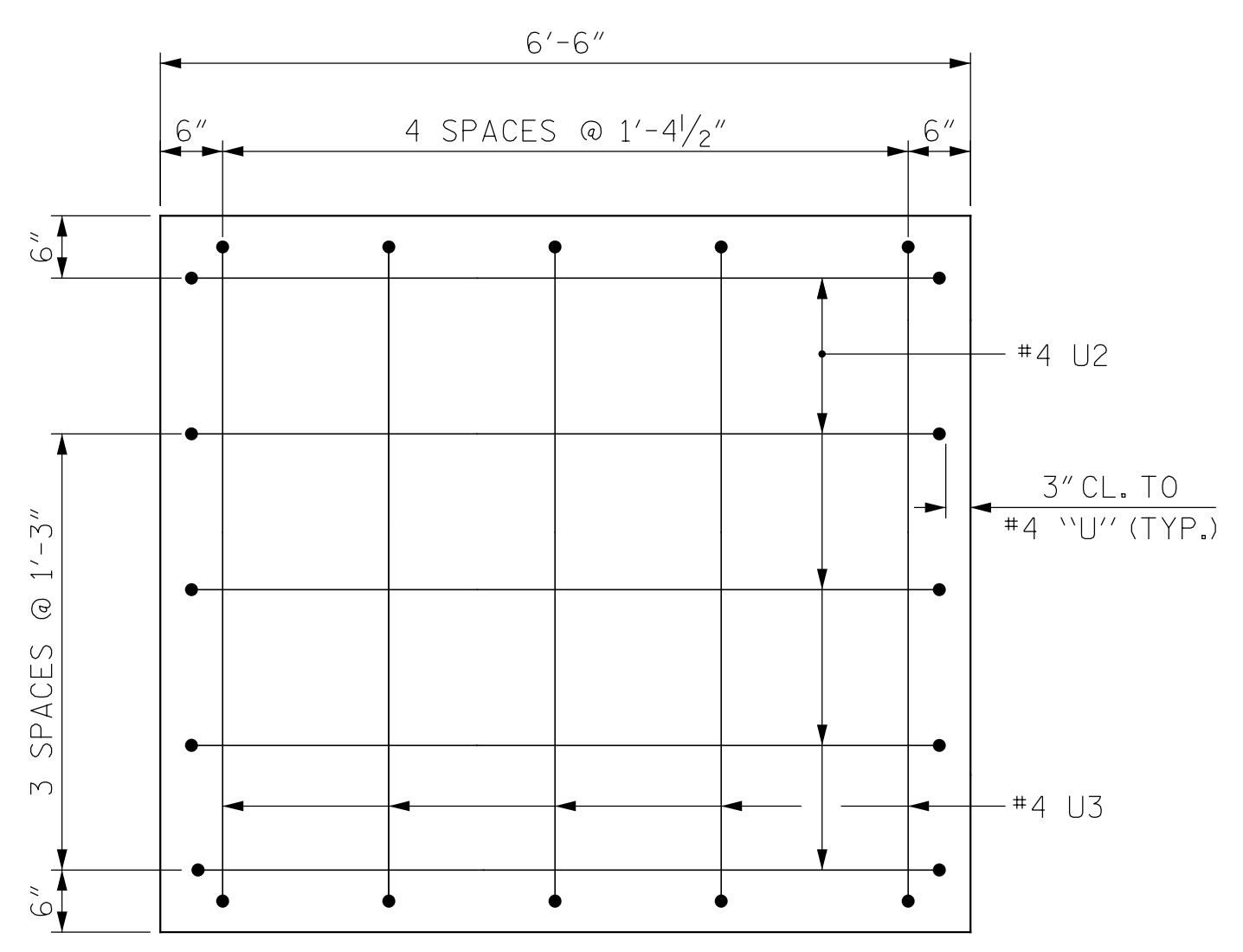
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 CHECKED BY: N. D'AIUTO DATE: 7-17-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



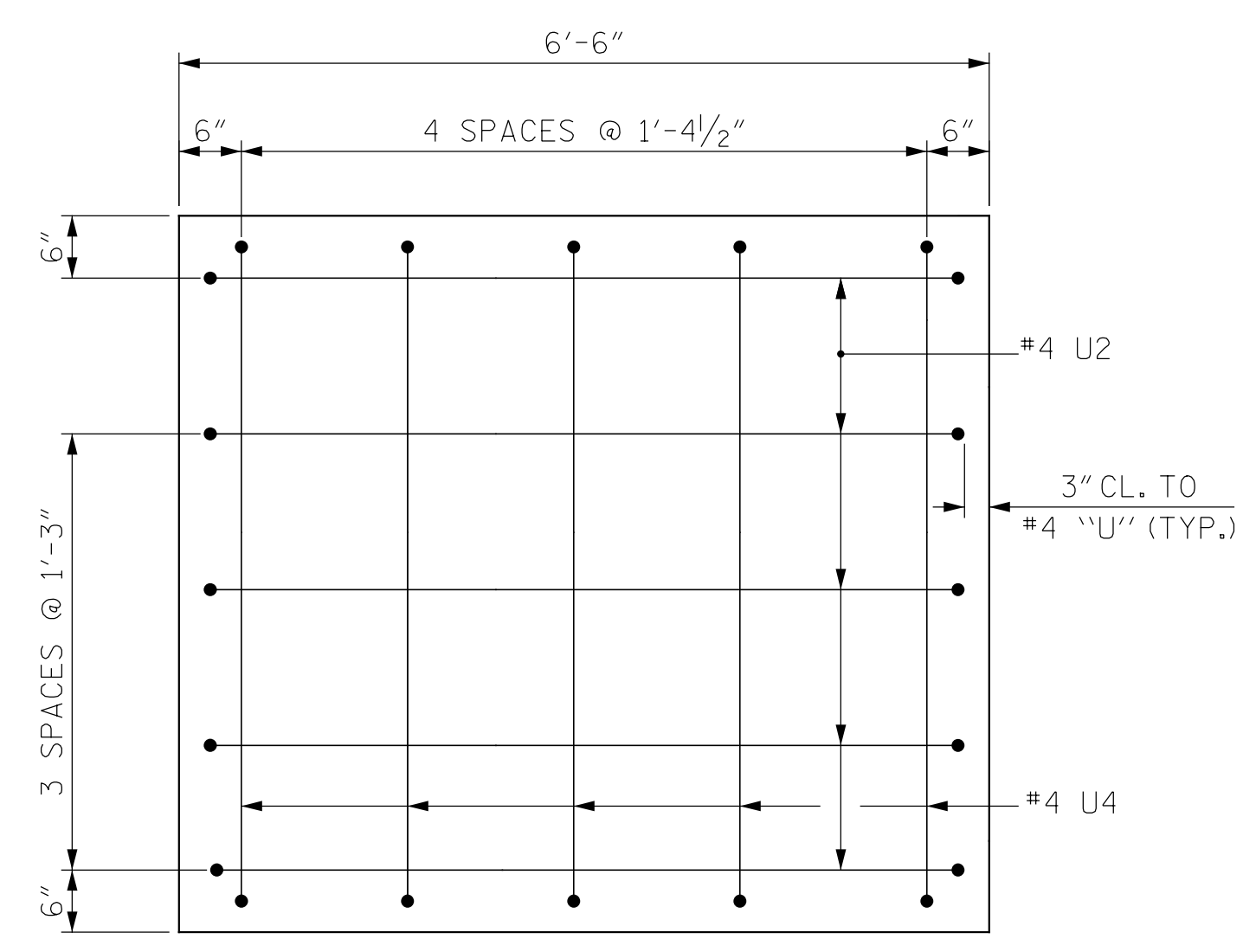
SECTION A-A



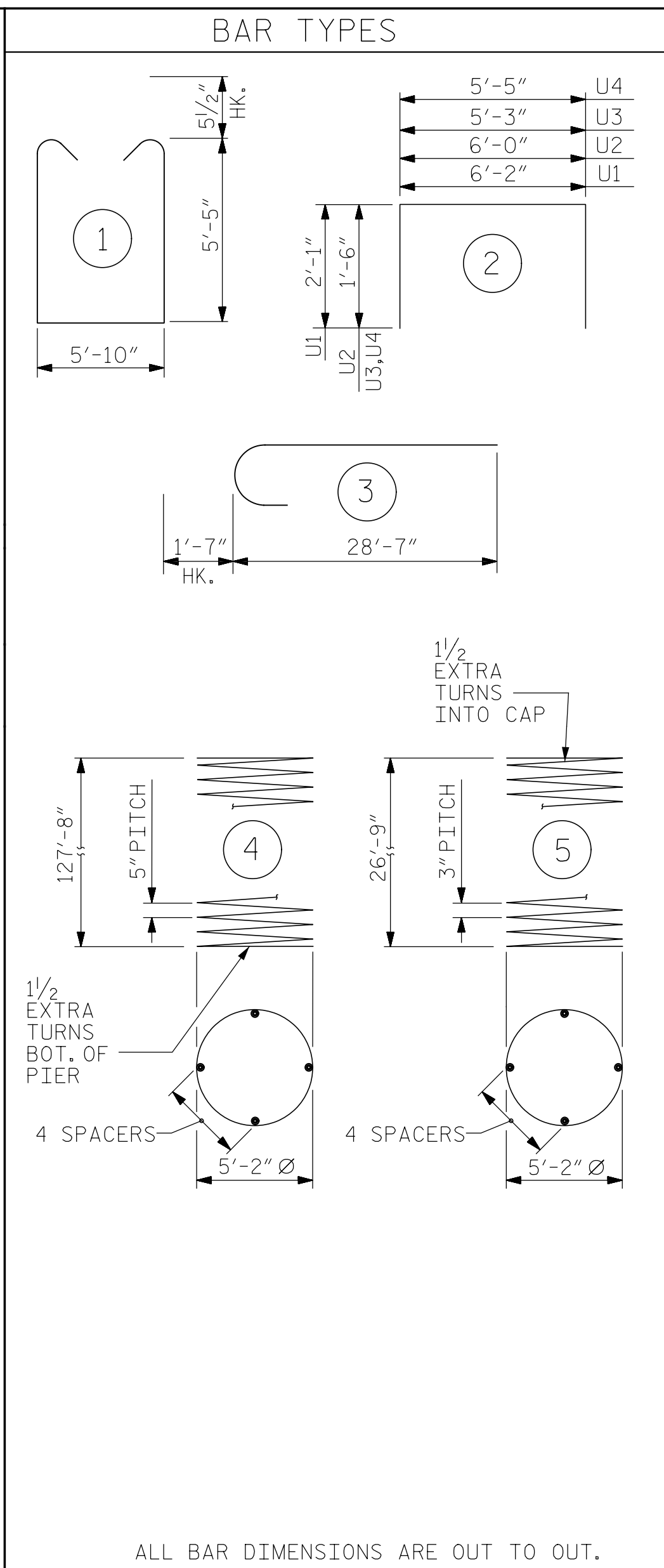
SECTION B-B
(STEPS NOT SHOWN FOR CLARITY)



VIEW X-X
(STAGE I CONSTRUCTION)



VIEW Y-Y
(STAGE II CONSTRUCTION)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
BENT 7 - STAGE I					BENT 7 - STAGE II						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	30	11	STR	58' - 9"	9,364	B6	30	11	STR	22' - 5"	3,573
B2	12	6	STR	55' - 9"	1,005	B7	12	6	STR	22' - 6"	406
B3	11	4	STR	14' - 4"	105	B8	11	4	STR	13' - 10"	102
B4	22	4	STR	9' - 0"	132	S1	84	5	1	17' - 7"	1,541
B5	11	4	STR	11' - 6"	85	U1	35	4	2	10' - 4"	242
M1	336	11	STR	48' - 8"	86,878	U2	5	4	2	9' - 0"	30
S1	172	5	1	17' - 7"	3,154	U4	5	4	2	8' - 3"	28
U1	74	4	2	10' - 4"	511	REINFORCING STEEL				LBS.	5,922
U2	5	4	2	9' - 0"	30	CLASS "A" CONCRETE BREAKDOWN					
U3	5	4	2	8' - 5"	28	V1	112	11	3	30' - 2"	17,951
* SP-1	4	5	4	4945' - 7"	20,633	POUR #3 - CAP				C.Y.	32.6
** SP-2	4	4	5	1745' - 5"	4,664	TOTAL CLASS "A" CONCRETE				C.Y.	32.6
REINFORCING STEEL				LBS.	119,243	SPIRAL COLUMN REINFORCING STEEL				LBS.	25,297
CLASS "A" CONCRETE BREAKDOWN						POUR #2 - COLUMNS				C.Y.	93.3
POUR #3 - CAP				C.Y.	79.1	TOTAL CLASS "A" CONCRETE				C.Y.	172.4
DRILLED PIERS						POUR #1 - DRILLED PIERS				C.Y.	536.9
6'-0" Ø DRILLED PIERS LIN. FT.				512.7	PERMANENT STEEL CASING FOR 6'-0" Ø DRILLED PIERS				LIN. FT.	157.5	
SID INSPECTIONS				EA.	2	CSL TUBES				LIN. FT.	3148.1
CSL TESTING				EA.	4						

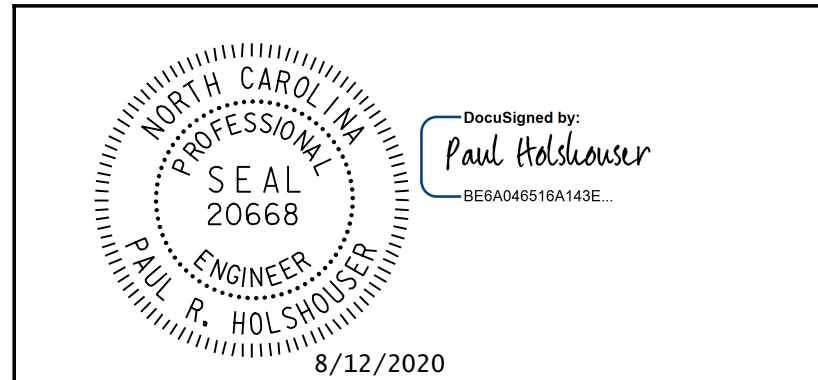
NOTES:

- * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.
- FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING," SHEET 4 OF 7.
- THE CONTRACTOR HAS THE OPTION TO POUR THE ENTIRE CAP IN STAGE I. NO PARTIAL DEMOLITION OF THE EXISTING BRIDGE 080017 WILL BE ALLOWED.

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 7
SECTION & DETAILS



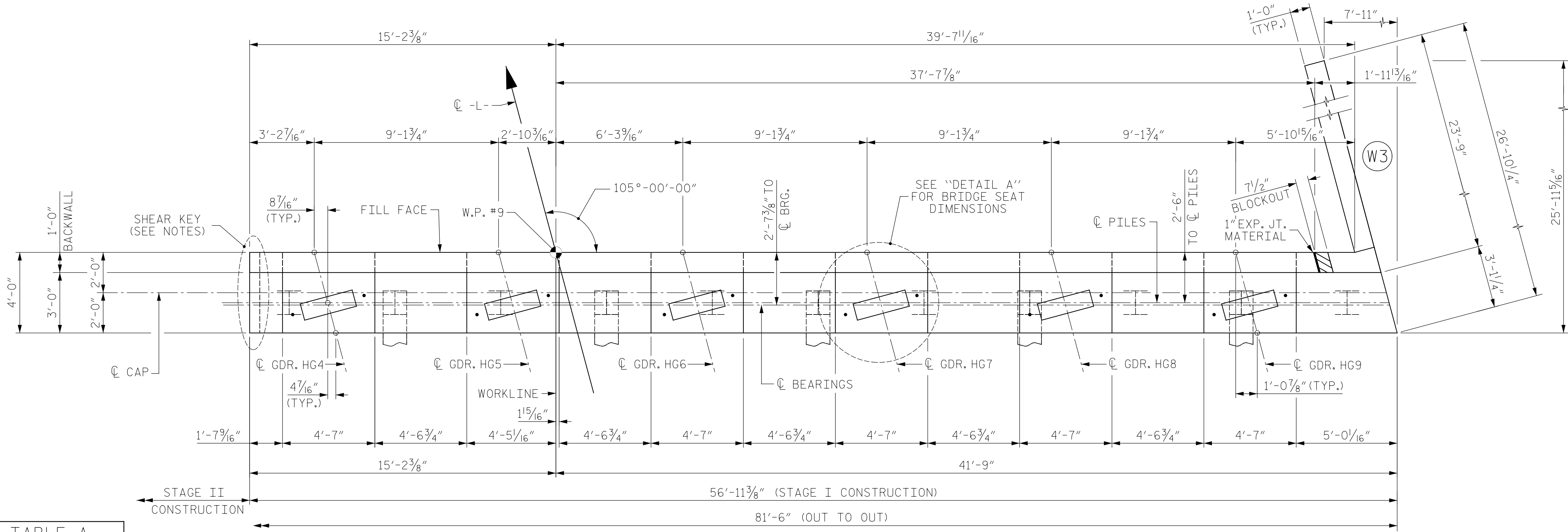
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CHECKED BY: N. D'AIUTO DATE: 7-17-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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1			3			TOTAL SHEETS
2			4			107

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BAR	MIN. PROJ./MIN. SPLICE
#10 B1	6'-0"
#4 B4	2'-5"
#4 K2	2'-5"
#5 B2	3'-0"
#4 B6	2'-5"

PLAN
WING (W3) BRACE PILE NOT SHOWN FOR CLARITY.

NOTES:

STIRRUPS MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR PILE SPLICE DETAILS, SEE SHEET 6 OF 6.

BACKWALL SHALL BE PLACED BEFORE APPLYING EPOXY PROTECTIVE COATING.

THE TOP SURFACE OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE CAP, EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE FRONT FACE AT A RATE OF 2%.

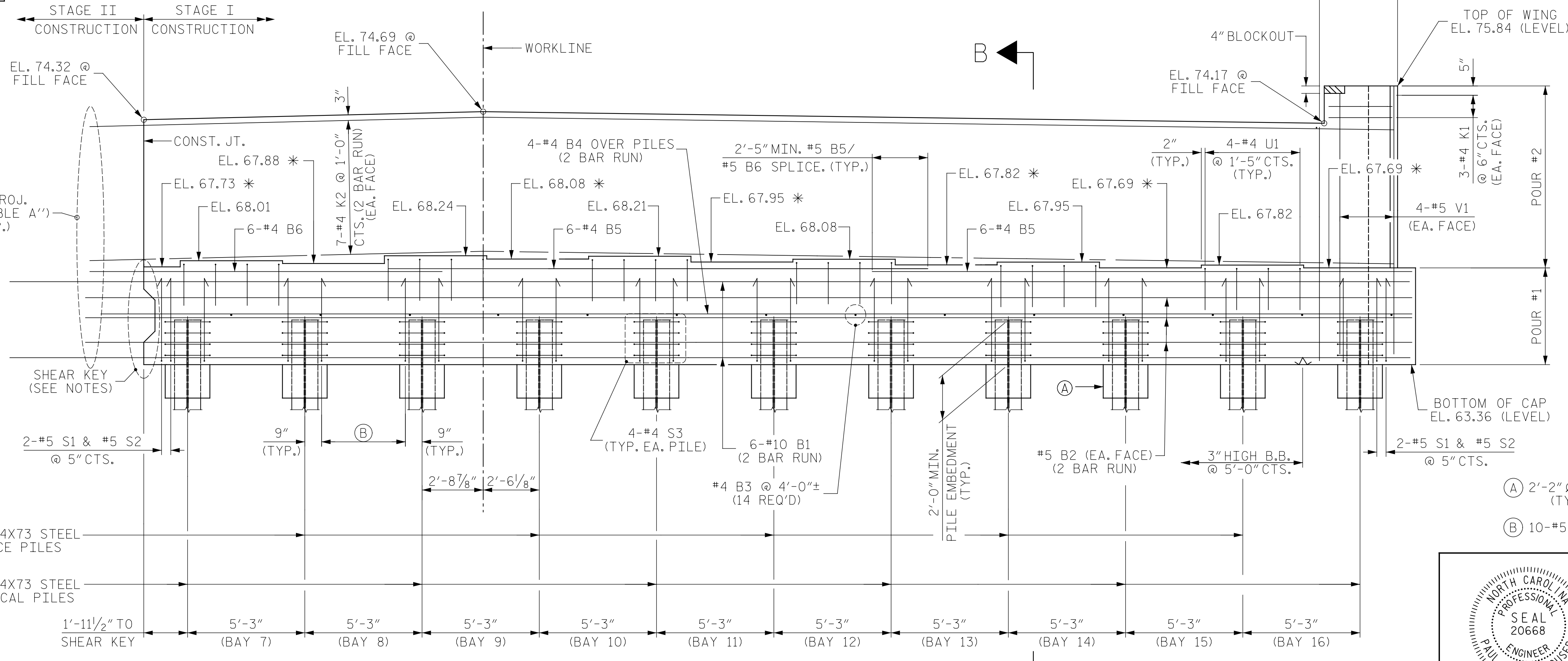
HATCHED AREA OF THE BACKWALL SHALL NOT BE POURED UNTIL THE CONCRETE PARAPET RAIL HAS BEEN CAST IF SLIP FORM CONSTRUCTION OF THE CONCRETE PARAPET IS USED.

FOR LOCATION OF ELEVATION BETWEEN BRIDGE SEATS, SEE "SECTION A-A" OR "SECTION B-B", SHEET 5 OF 6.

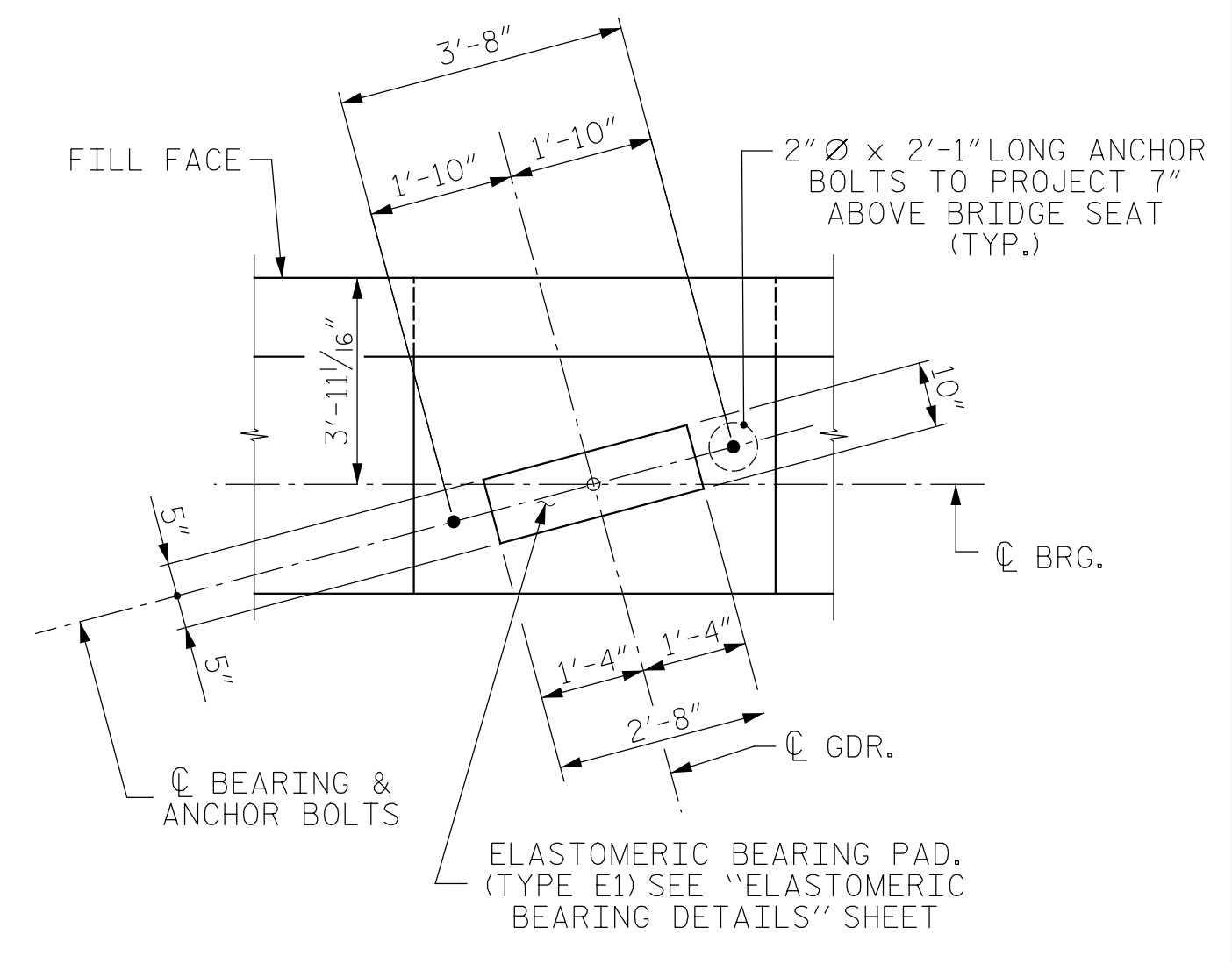
FOR SHEAR KEY DETAIL, SEE SHEET 2 OF 6.

FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING", SHEET 4 OF 7.

FOR WING (W3) DETAILS, SEE SHEET 3 OF 6.



ELEVATION
BAR SPLICES NOT SHOWN FOR CLARITY.

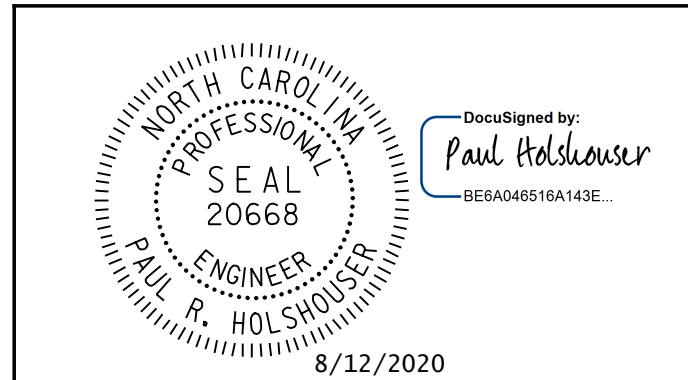


DETAIL A
ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 2
STAGE I CONSTRUCTION



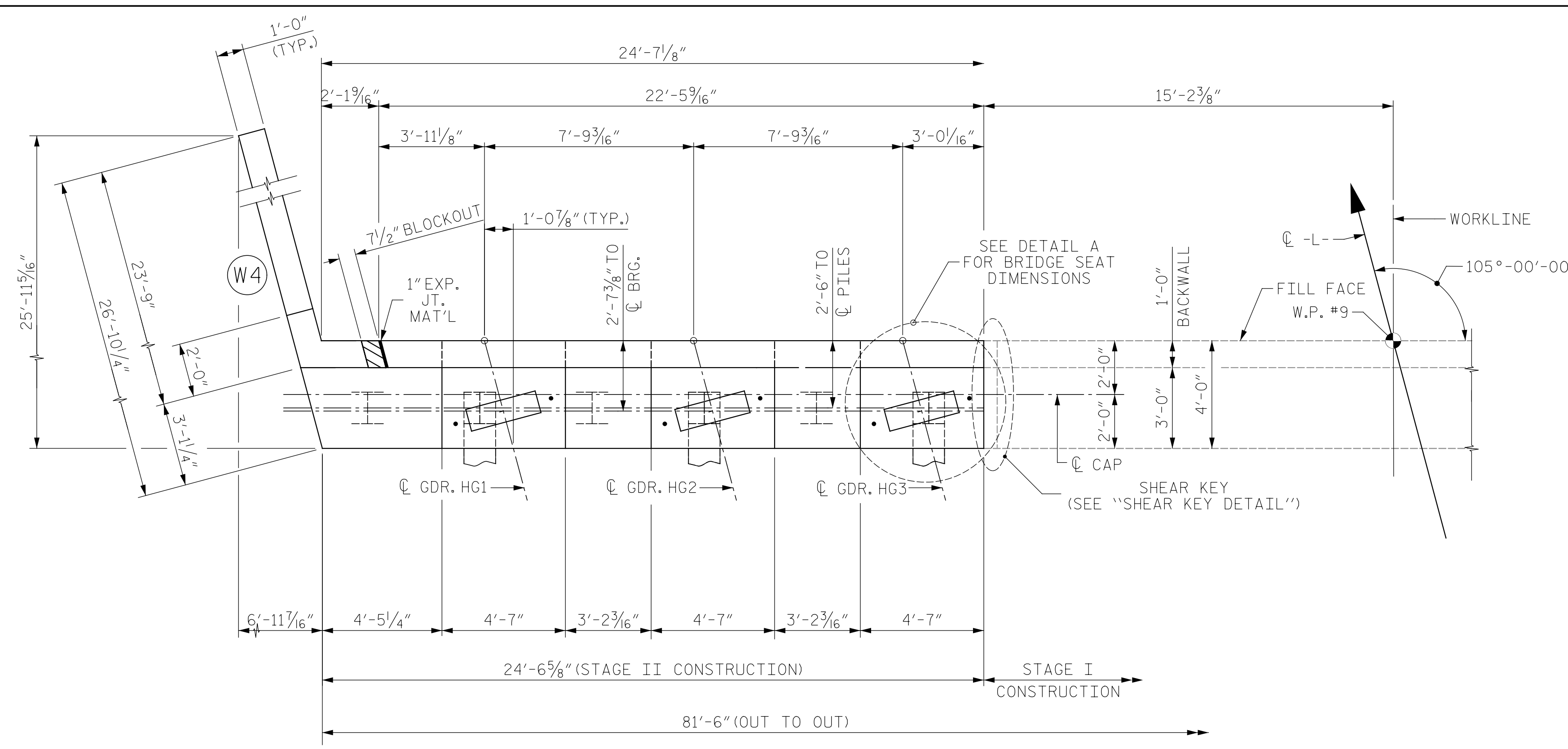
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2			4			

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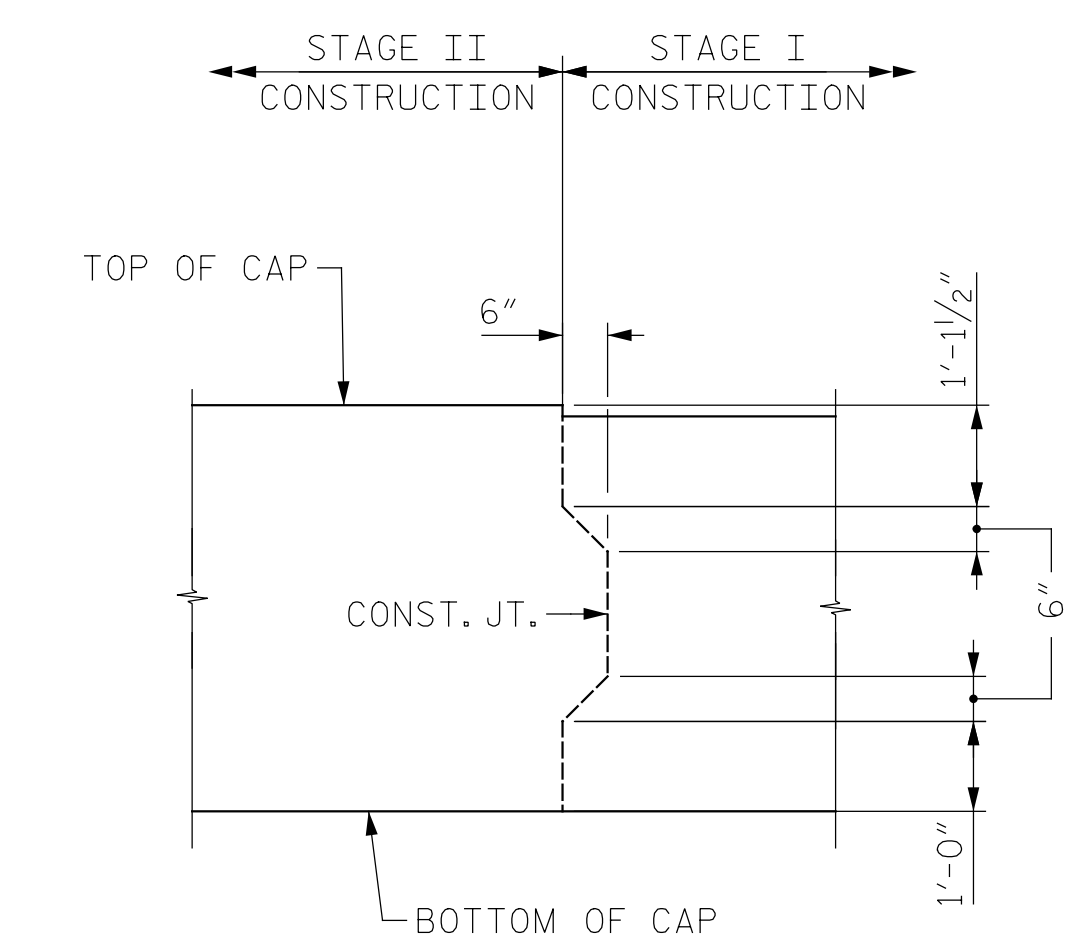
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DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

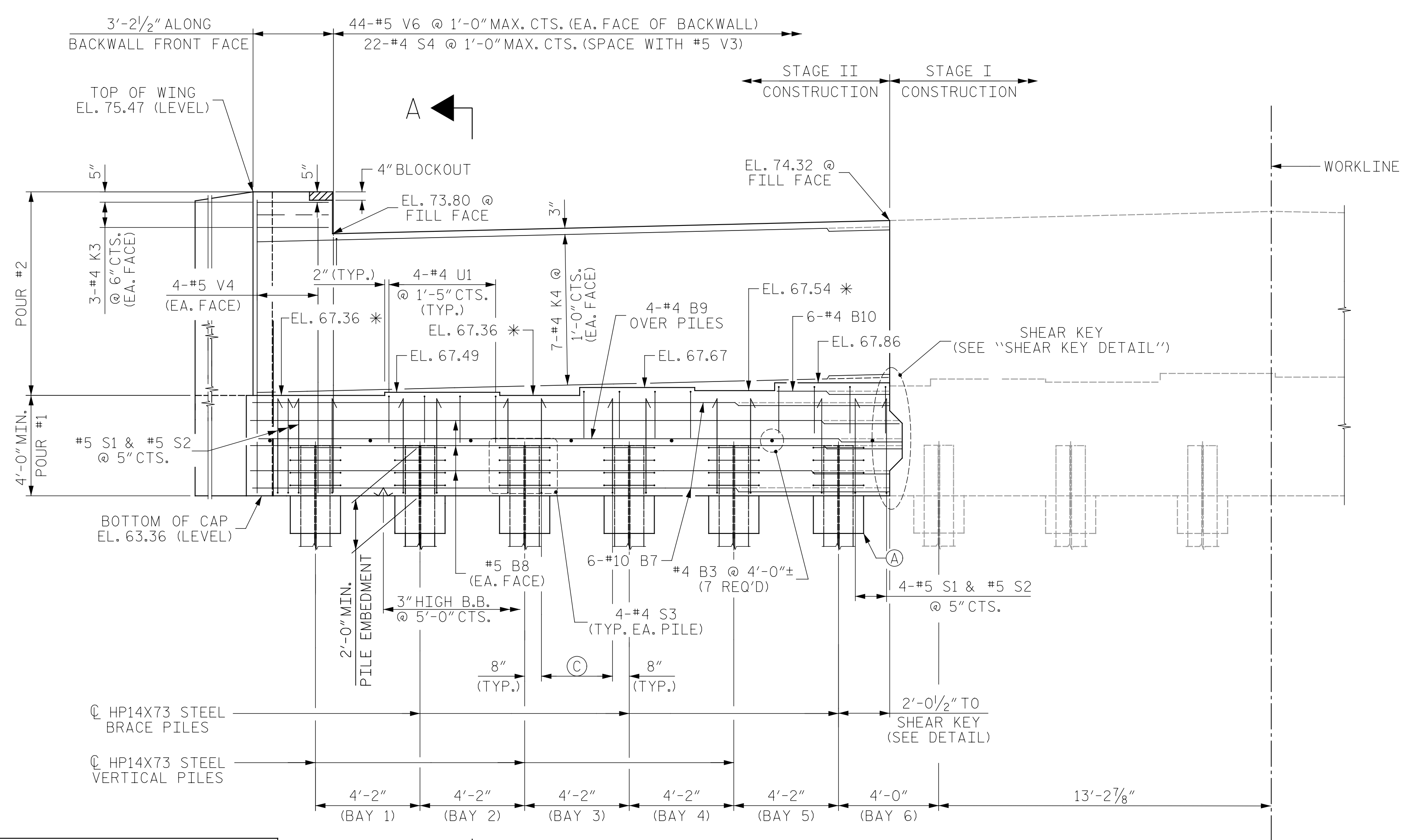


PLAN
WING (W4) BRACE PILE NOT SHOWN FOR CLARITY.

NOTES:
FOR ADDITIONAL NOTES, SEE SHEET 1 OF 6
FOR "DETAIL A", SEE SHEET 1 OF 6



SHEAR KEY DETAIL
REINFORCING STEEL NOT SHOWN FOR CLARITY.
SEE ELEVATION VIEW ON SHEET 1 OF 6 FOR LOCATION OF SHEAR KEY.
REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.



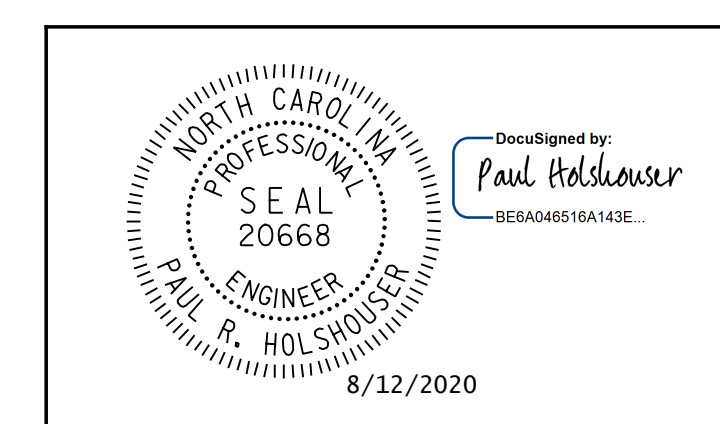
ELEVATION

- (A) 2'-2" Ø PILE COLLAR (TYP. EA. PILE)
- (B) 8-#5 S1 & #5 S2 @ 5" CTS. (TYP. EA. BAY)

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 2
STAGE II CONSTRUCTION



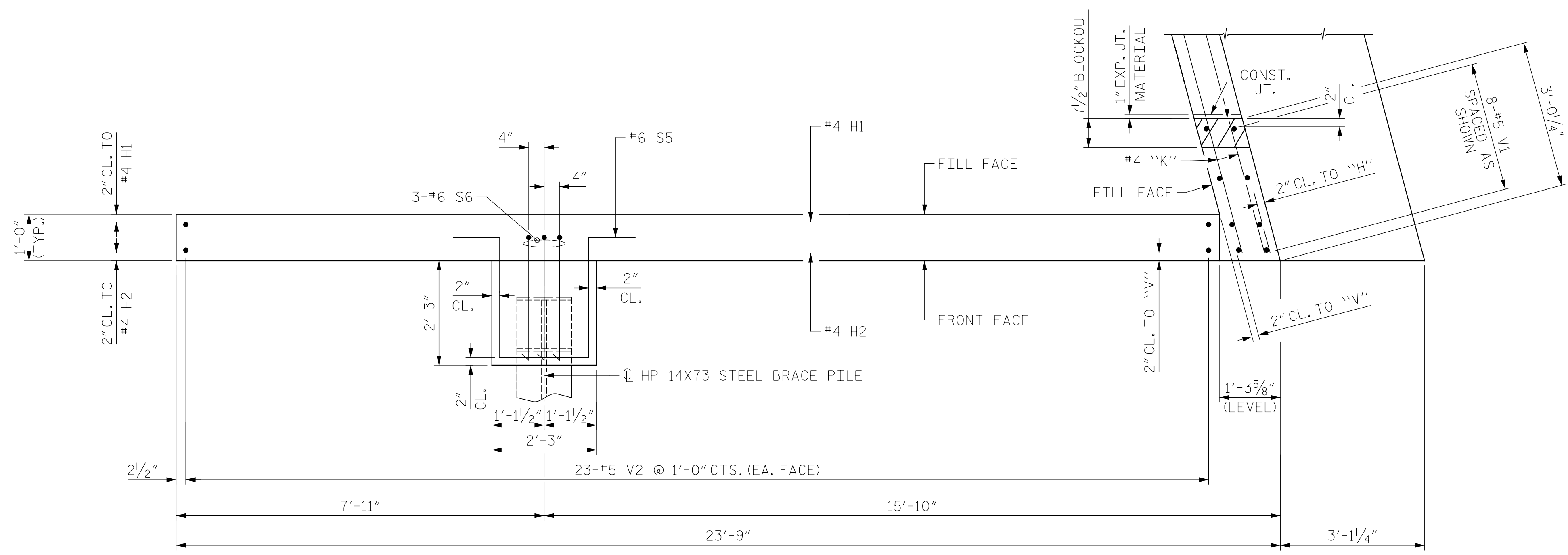
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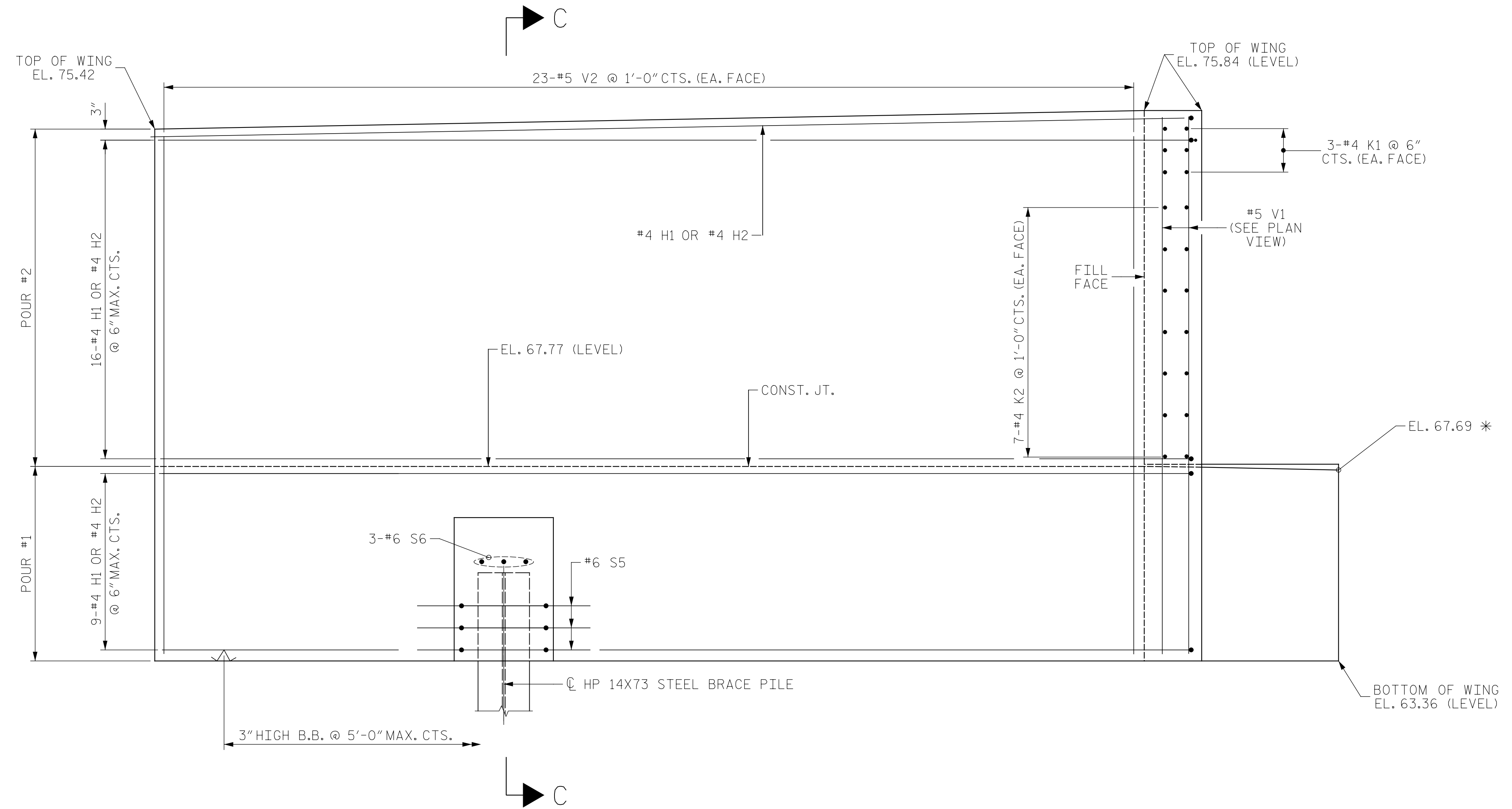
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2			4			107

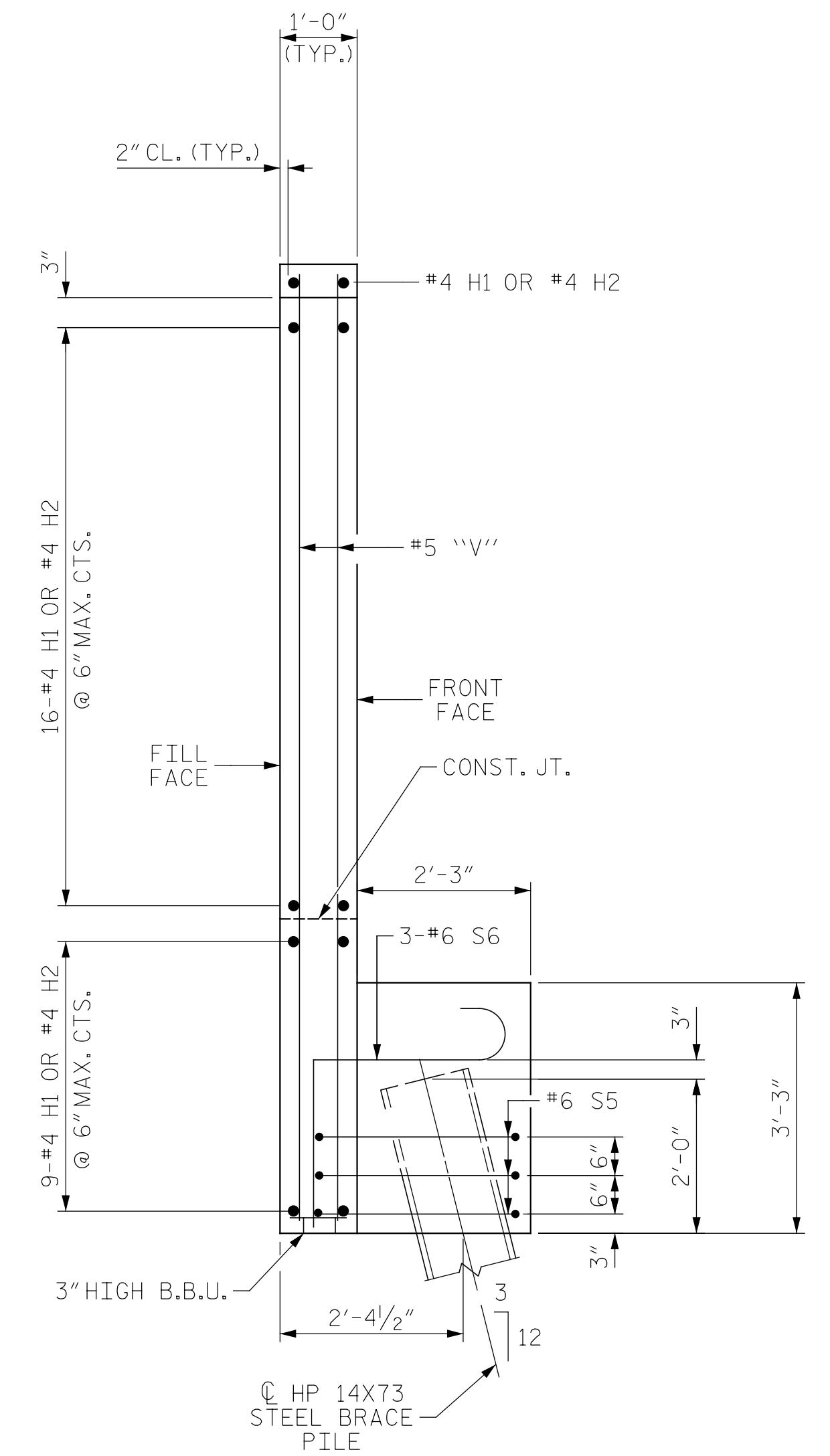
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PLAN OF RIGHT WING (W3)



ELEVATION OF RIGHT WING (W3)

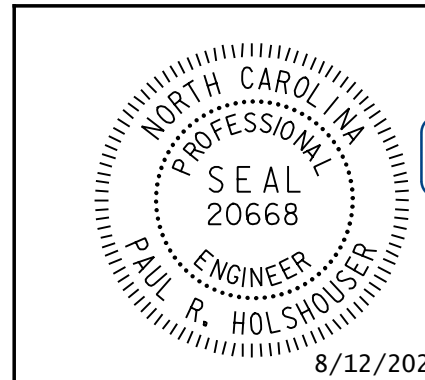


SECTION C-C

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 WING WALL (W3)

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			107



DocuSigned by:
 Paul Holshouser
 BE6A048516A143E

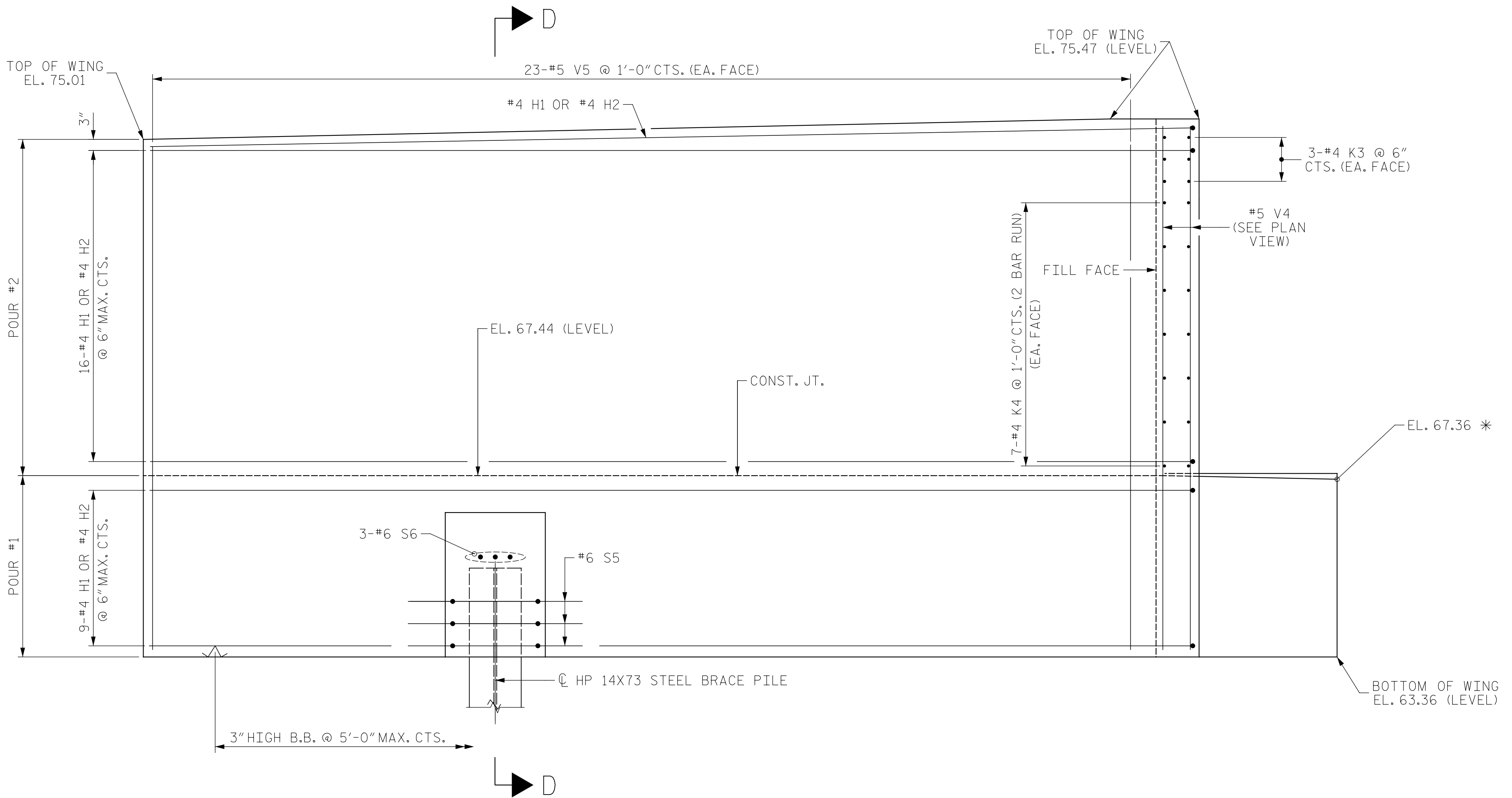
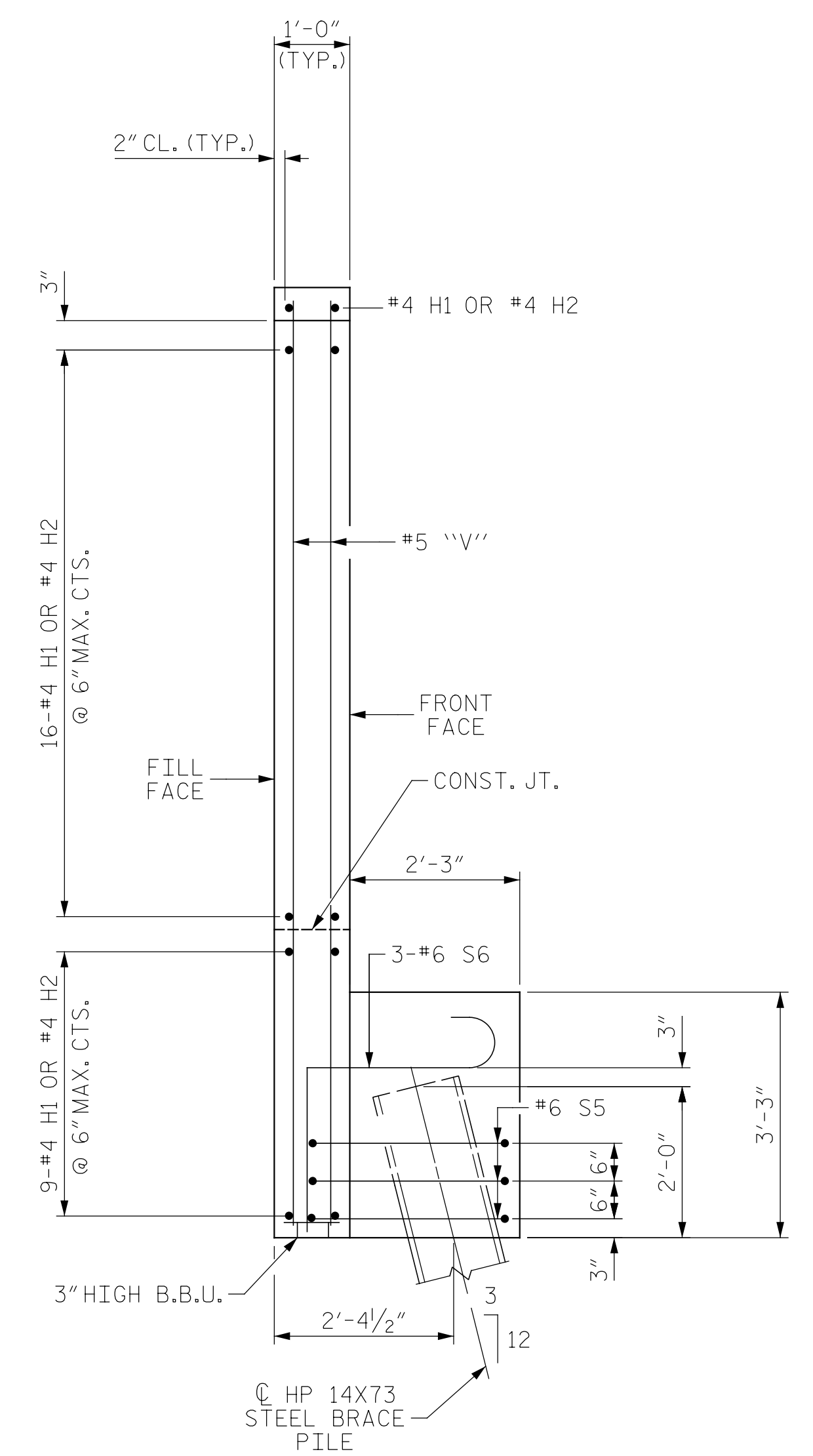
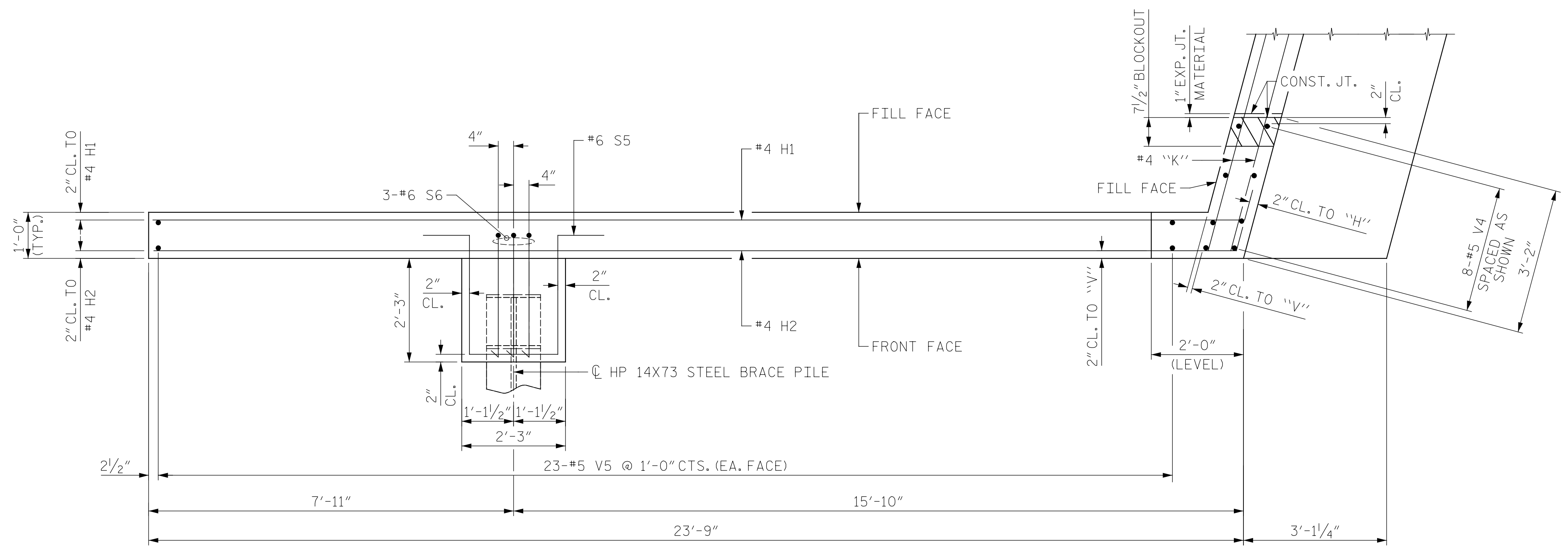


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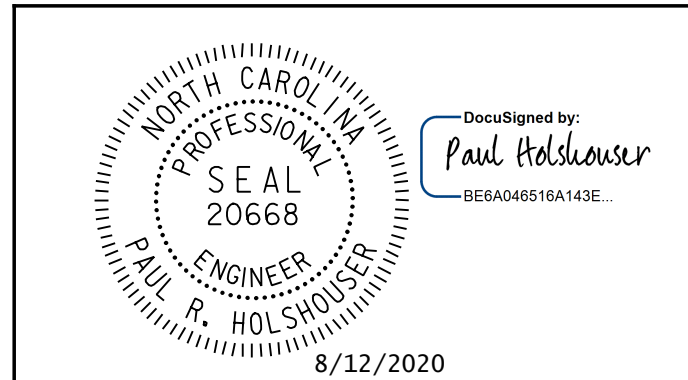
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 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 WING WALL (W4)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-97
1			3			TOTAL SHEETS
2			4			107

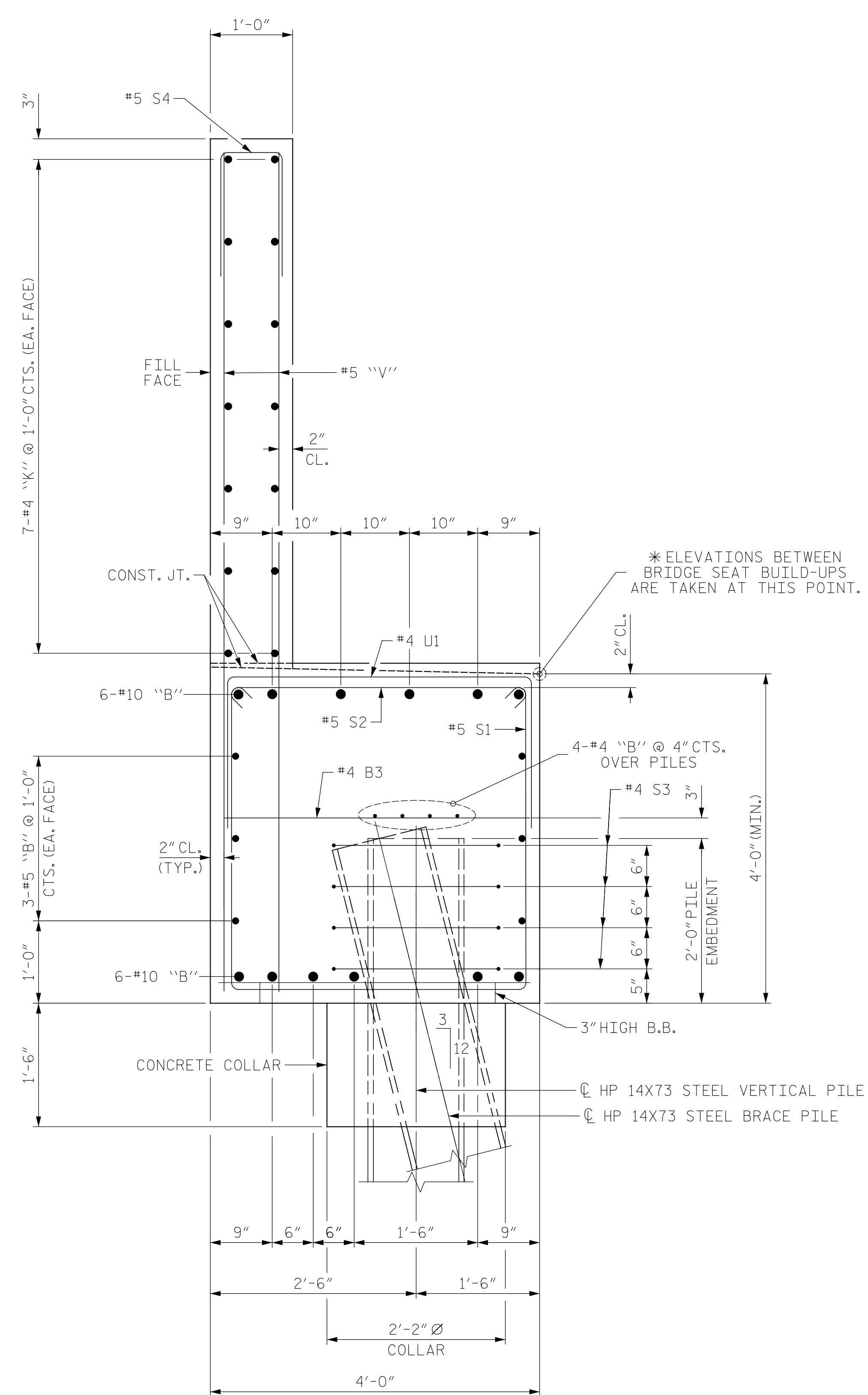


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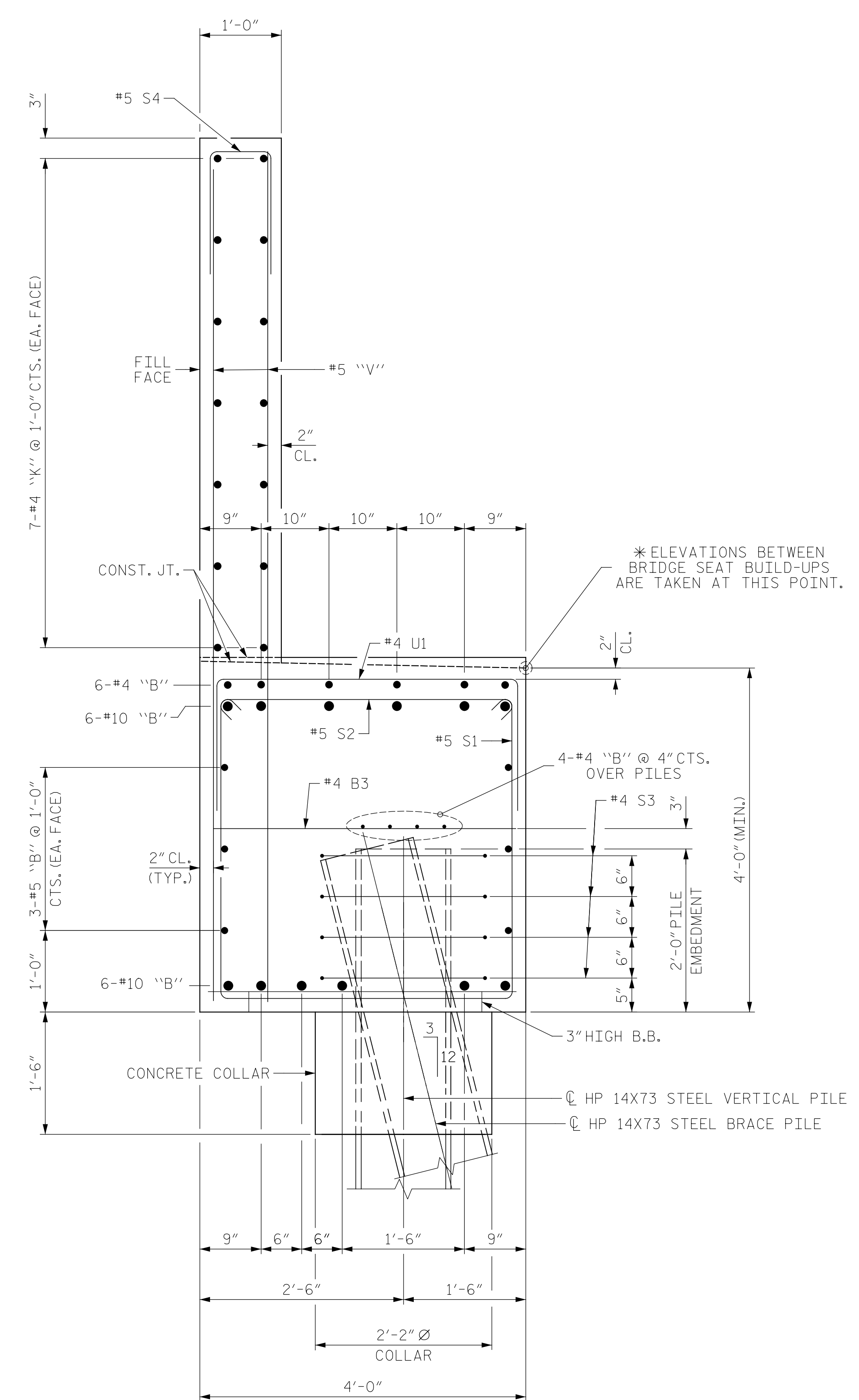
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 CHECKED BY: K. C. SAMUDRALA DATE: 7-09-20
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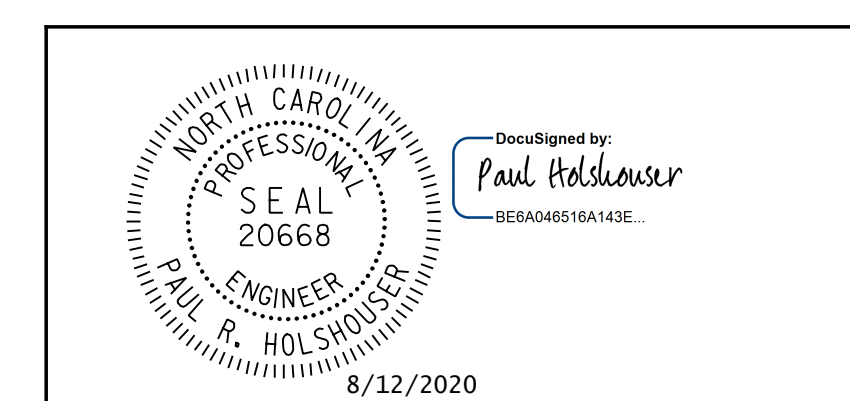
SECTION A-A



SECTION B-B

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



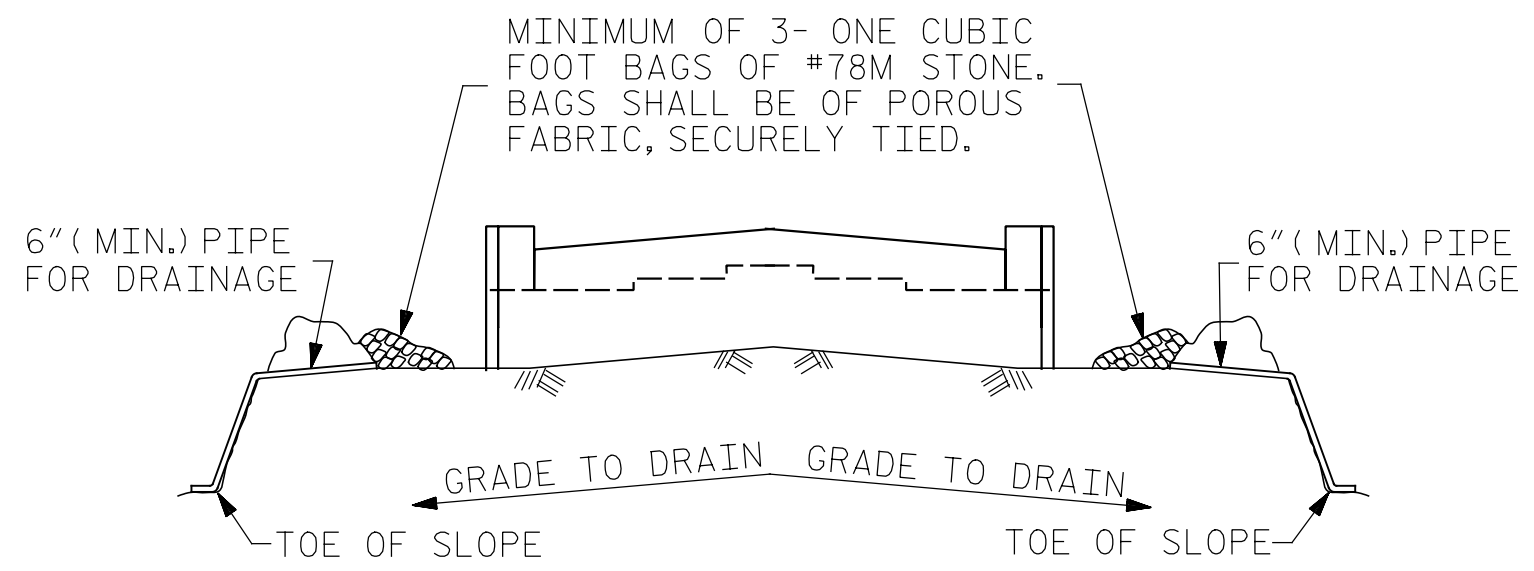
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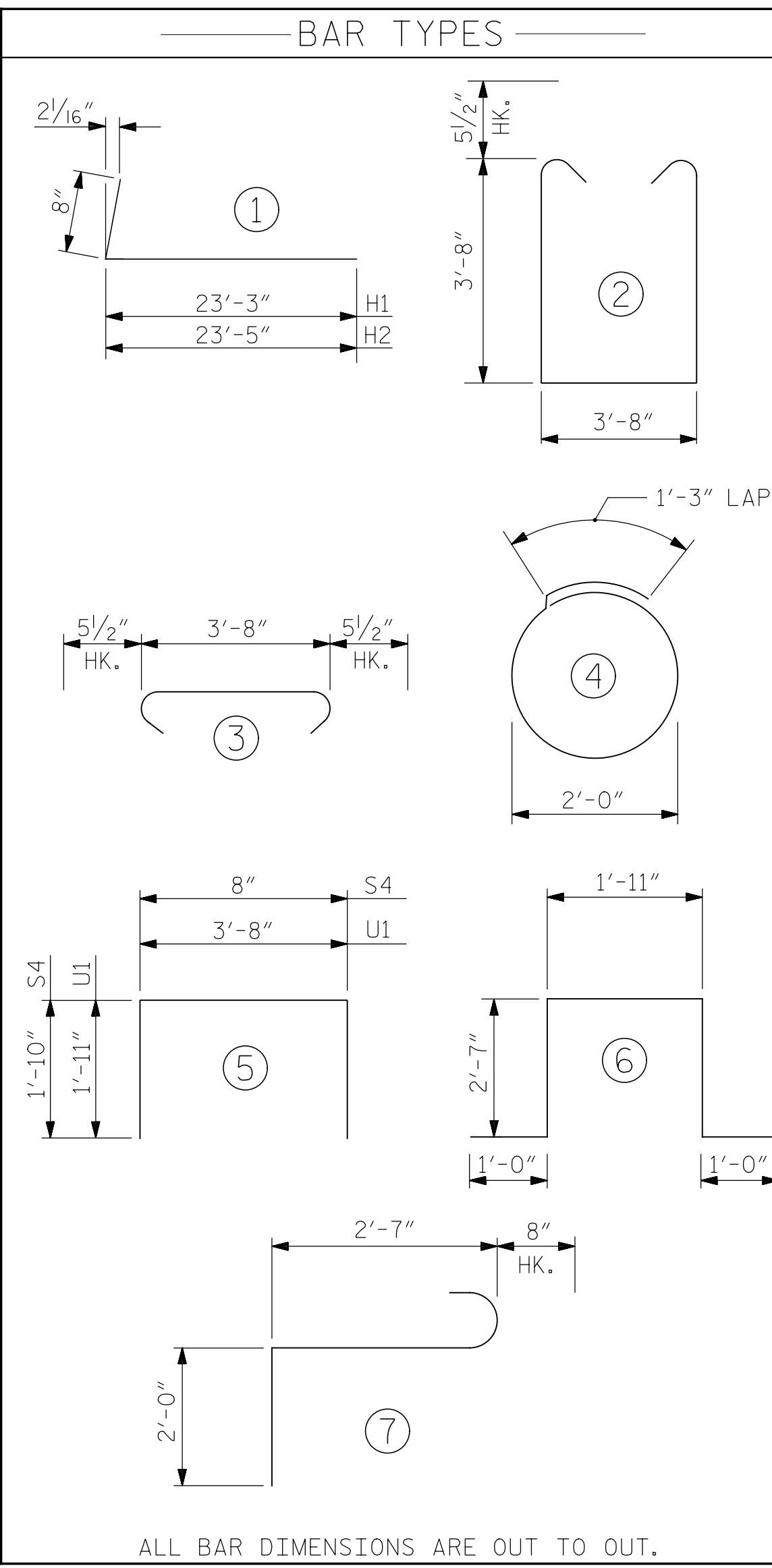


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

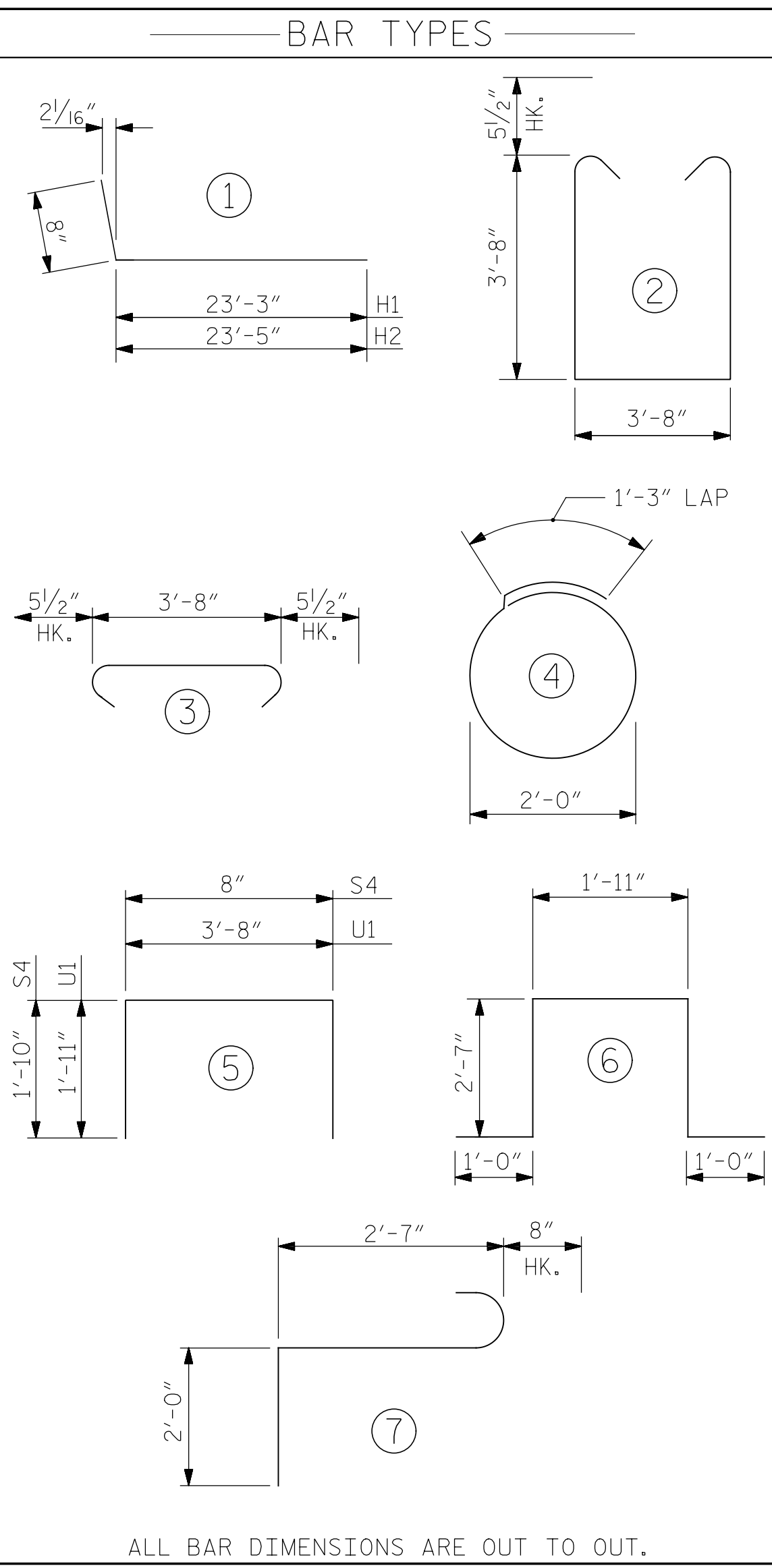
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



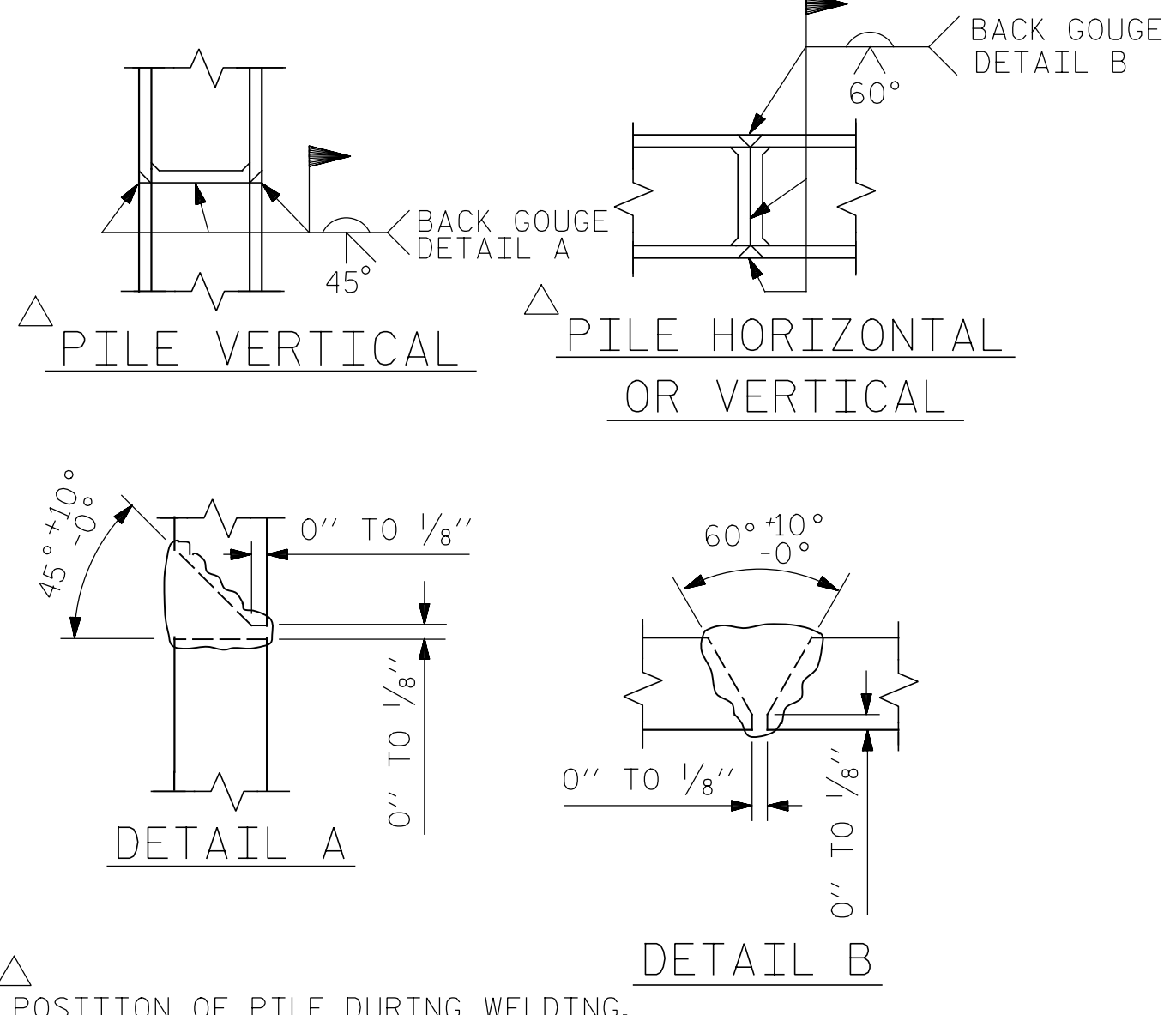
BILL OF MATERIAL FOR END BENT 2 - STAGE I

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	24	10	STR 34' - 4"	3,546
B2	12	5	STR 31' - 5"	393
B3	14	4	STR 3' - 8"	34
B4	8	4	STR 30' - 7"	163
B5	12	4	STR 24' - 2"	194
B6	6	4	STR 15' - 10"	63
H1	26	4	1 23' - 11"	415
H2	26	4	1 24' - 1"	418
K1	6	4	STR 2' - 8"	11
K2	28	4	STR 28' - 10"	539
S1	104	5	2 11' - 11"	1,293
S2	104	5	3 4' - 7"	497
S3	44	4	4 7' - 7"	223
S4	54	4	5 4' - 4"	156
S5	3	6	6 9' - 1"	41
S6	3	6	7 5' - 3"	24
U1	24	4	5 7' - 6"	120
V1	8	5	STR 12' - 1"	101
V2	46	5	STR 11' - 8"	560
V3	108	5	STR 10' - 5"	1,173
REINFORCING STEEL			LBS.	9,964
CLASS "A" CONCRETE BREAKDOWN				
POUR #1 - CAP, COLLARS & LOWER WING WALLS			C.Y.	44.7
POUR #2 - BACKWALL & UPPER WING WALLS			C.Y.	21.1
TOTAL CLASS "A" CONCRETE			C.Y.	65.8
HP 14X73 STEEL PILES				
NO. 12			LIN. FT.	1260.00
PDA TESTING			EA.	1
PILE REDRIVES			EA.	4
PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES			EA.	12

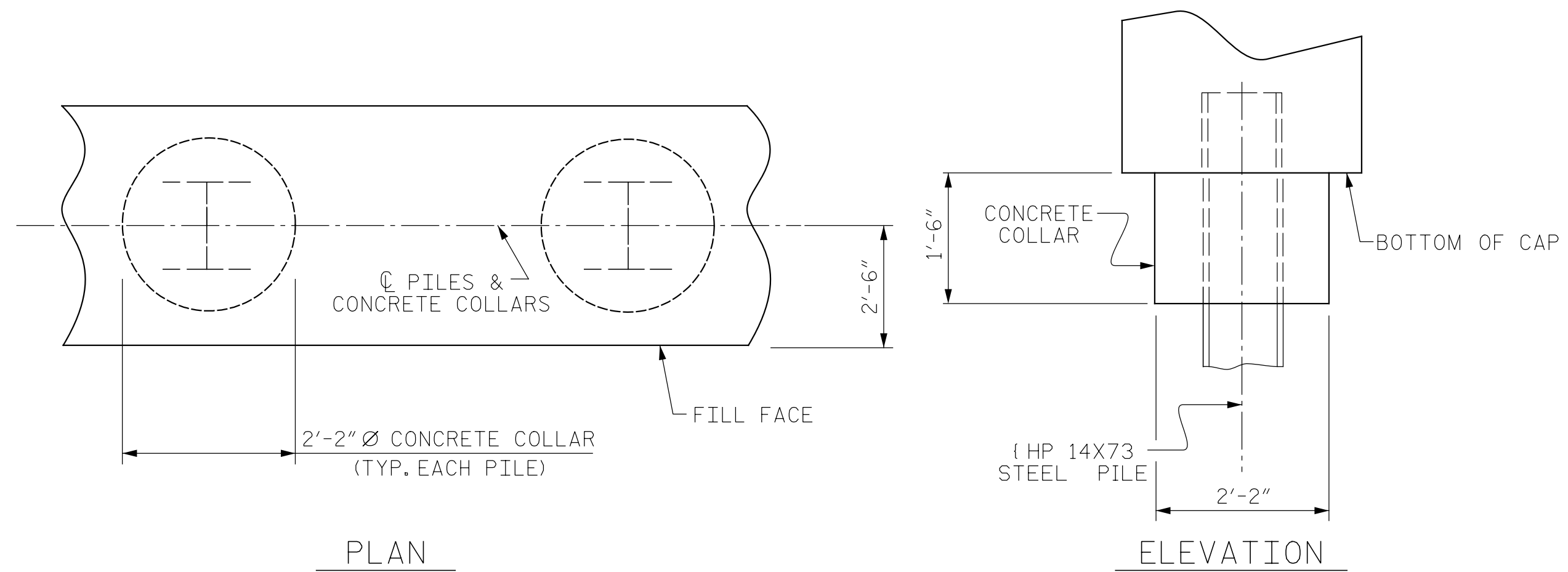


BILL OF MATERIAL FOR END BENT 2 - STAGE II

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B7	12	10	STR 25' - 3"	1,304
B8	6	5	STR 25' - 4"	159
B3	7	4	STR 3' - 8"	17
B9	4	4	STR 24' - 10"	66
B10	6	4	STR 4' - 5"	18
H1	26	4	1 23' - 11"	415
H2	26	4	1 24' - 1"	418
K3	6	4	STR 2' - 10"	11
K4	14	4	STR 22' - 2"	207
S1	47	5	2 11' - 11"	584
S2	47	5	3 4' - 7"	225
S3	24	4	4 7' - 7"	122
S4	22	4	5 4' - 4"	64
S5	3	6	6 9' - 1"	41
S6	3	6	7 5' - 3"	24
U1	12	4	5 7' - 6"	60
V4	8	5	STR 11' - 9"	98
V5	46	5	STR 11' - 3"	540
V6	44	5	STR 10' - 1"	463
REINFORCING STEEL			LBS.	4,836
CLASS "A" CONCRETE BREAKDOWN				
POUR #1 - CAP, COLLARS & LOWER WING WALLS			C.Y.	20.5
POUR #2 - BACKWALL & UPPER WING WALLS			C.Y.	13.2
TOTAL CLASS "A" CONCRETE			C.Y.	33.7
HP 14X73 STEEL PILES				
NO. 7			LIN. FT.	735.00
PDA TESTING			EA.	1
PILE REDRIVES			EA.	4
PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES			EA.	7



PILE SPLICE DETAILS



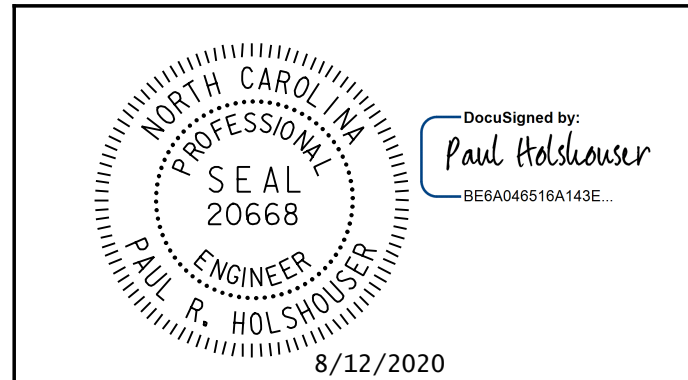
CORROSION PROTECTION FOR STEEL PILES DETAIL

PROJECT NO. 48793.3.1

BLADEN COUNTY

STATION: 118+81.78 -L-

SHEET 6 OF 6



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

END BENT 2

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

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DRAWN BY : N.D'AIUTO DATE : 7-01-20
 CHECKED BY : K. C. SAMUDRALA DATE : 7-09-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

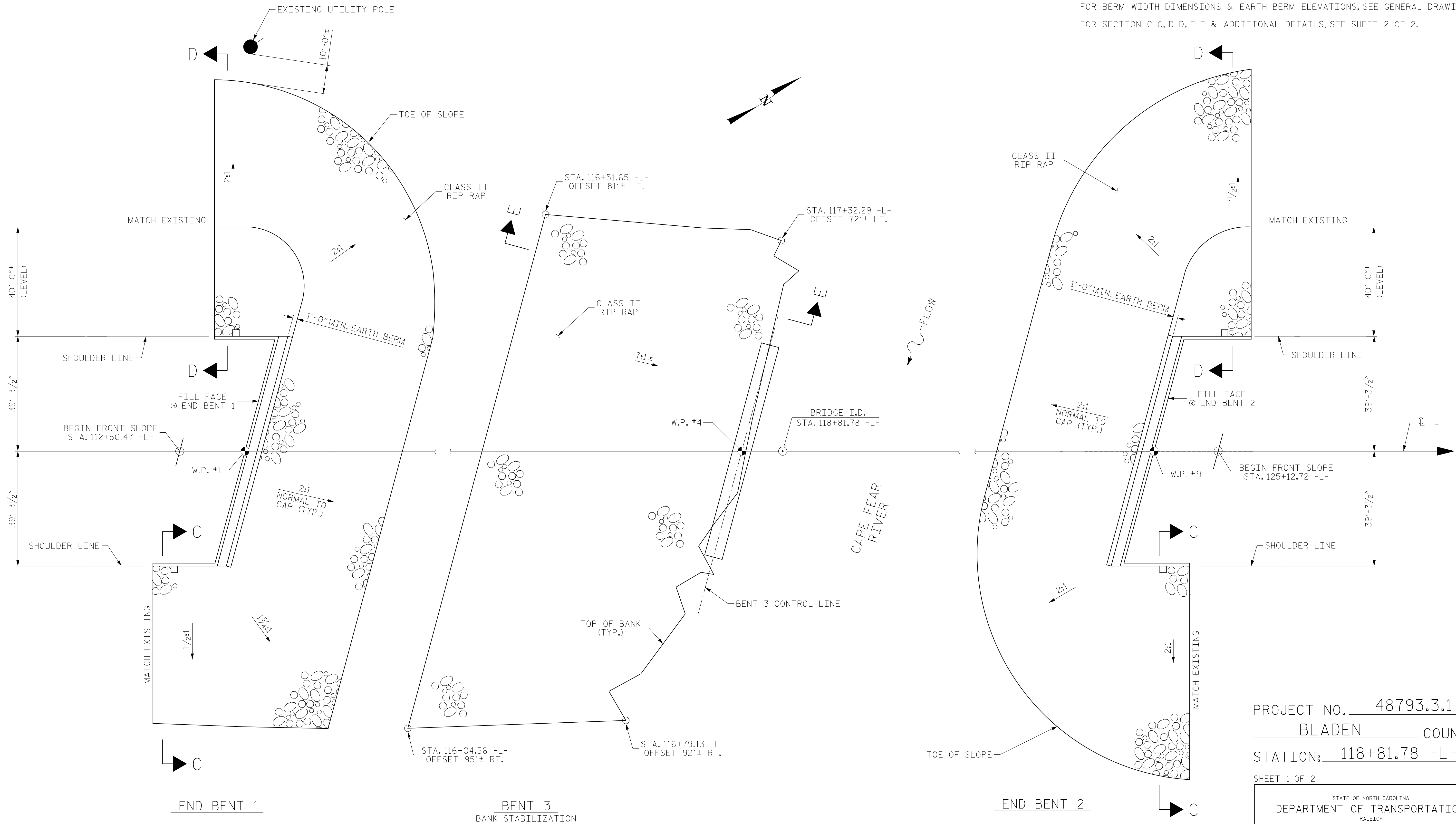
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SHEET NO. S-99

TOTAL SHEETS 107

NOTES:
FOR BERM WIDTH DIMENSIONS & EARTH BERM ELEVATIONS, SEE GENERAL DRAWINGS.
FOR SECTION C-C, D-D, E-E & ADDITIONAL DETAILS, SEE SHEET 2 OF 2.

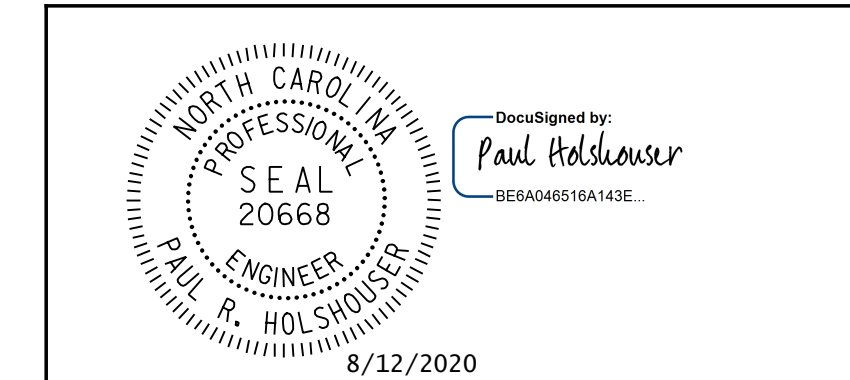


PLAN

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS



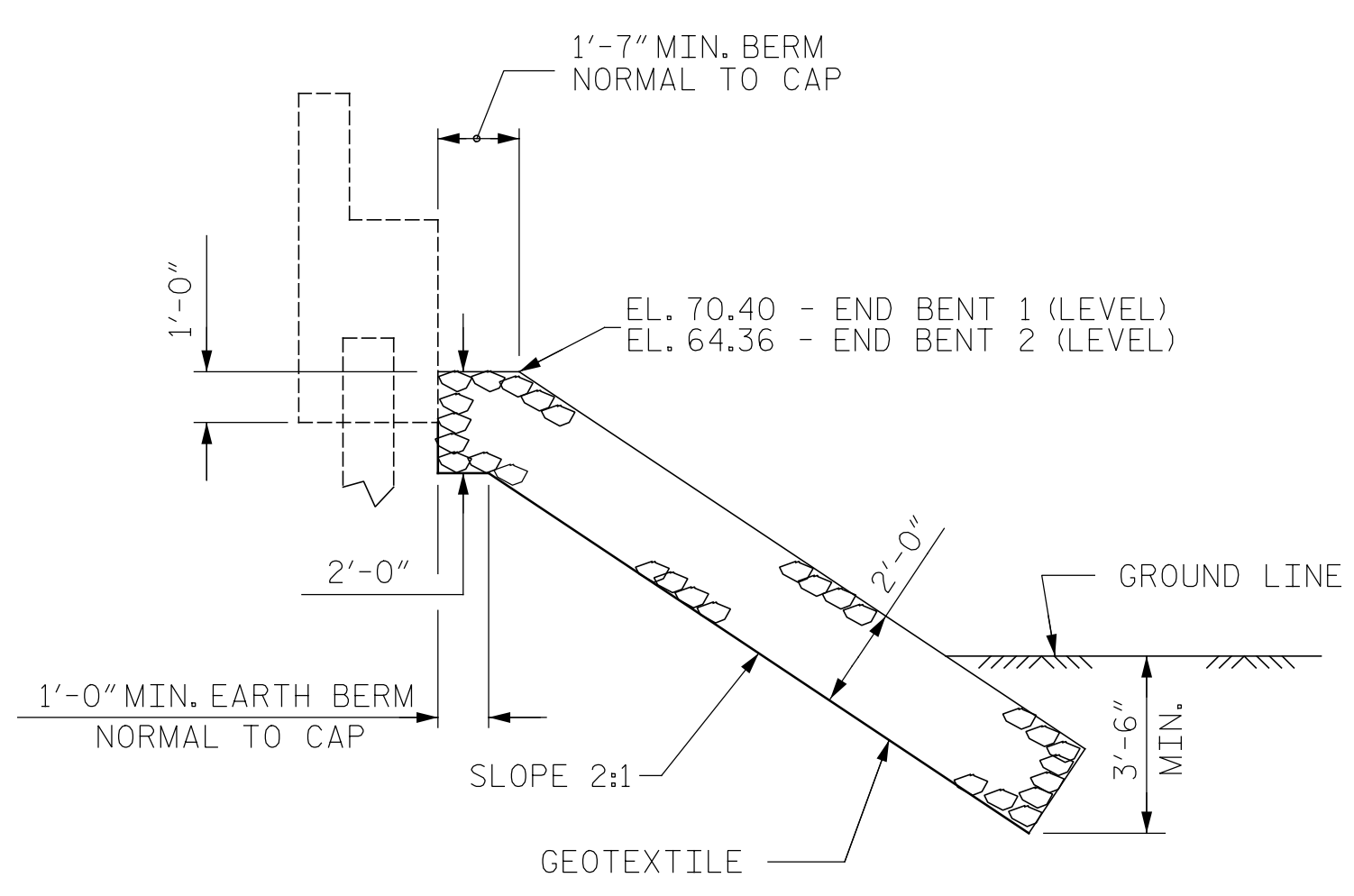
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License #: P-0999

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2			4		

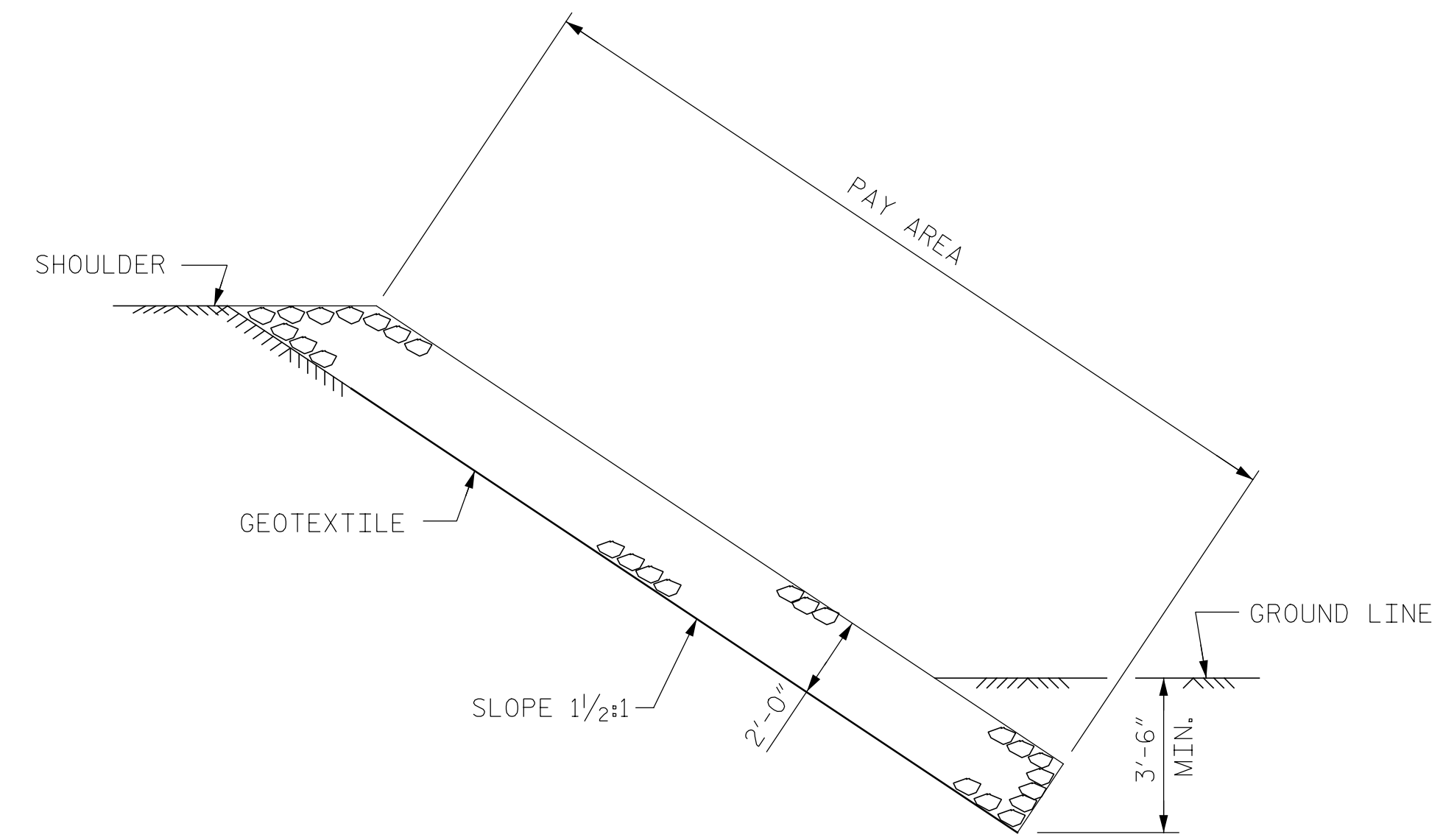
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TOTAL SHEETS 107

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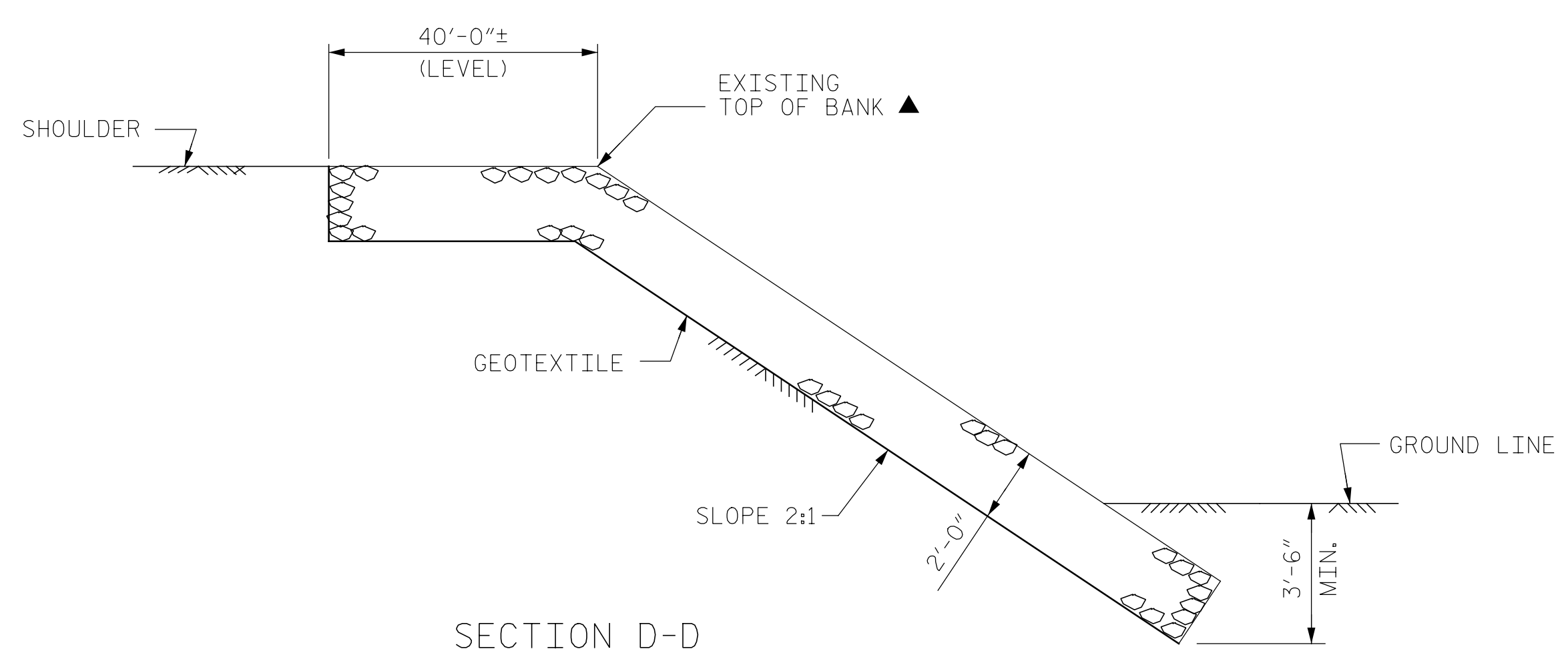
SECTION C-C
BERM RIP RAPPED



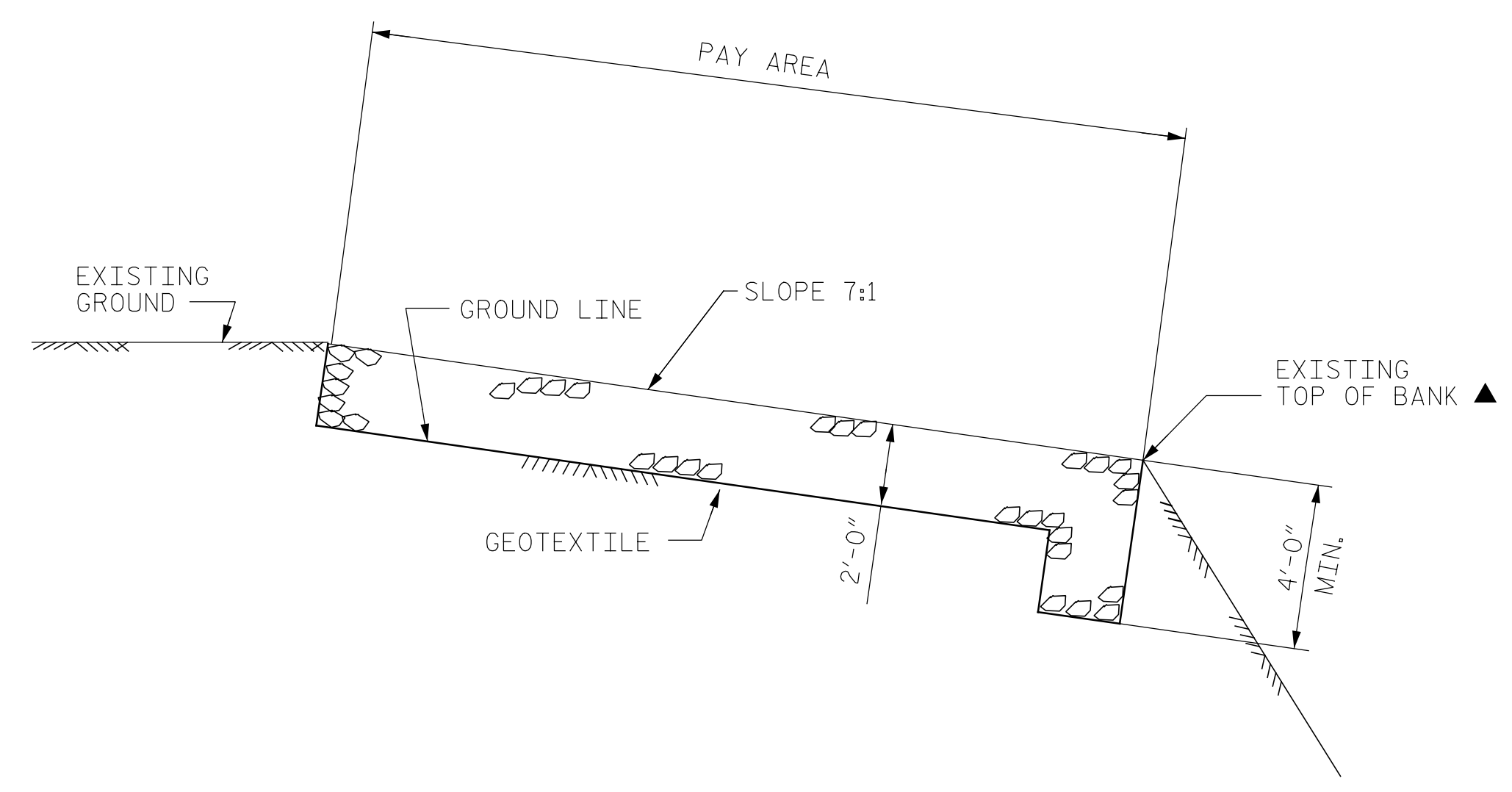
SECTION C-C

ESTIMATED QUANTITIES		
BRIDGE @ STA. 118+81.78 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	1,616	1,796
BENT 3 BANK STABILIZATION	1,608	1,787
END BENT 2	1,608	1,787
TOTAL	4,832	5,370

NOTES:
▲ MATCH EXISTING TOP OF BANK PER ROADWAY CROSS SECTIONS



SECTION D-D



SECTION E-E

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

DocuSigned by:
Paul Holshouser
BEE6A08518A143E

8/12/2020

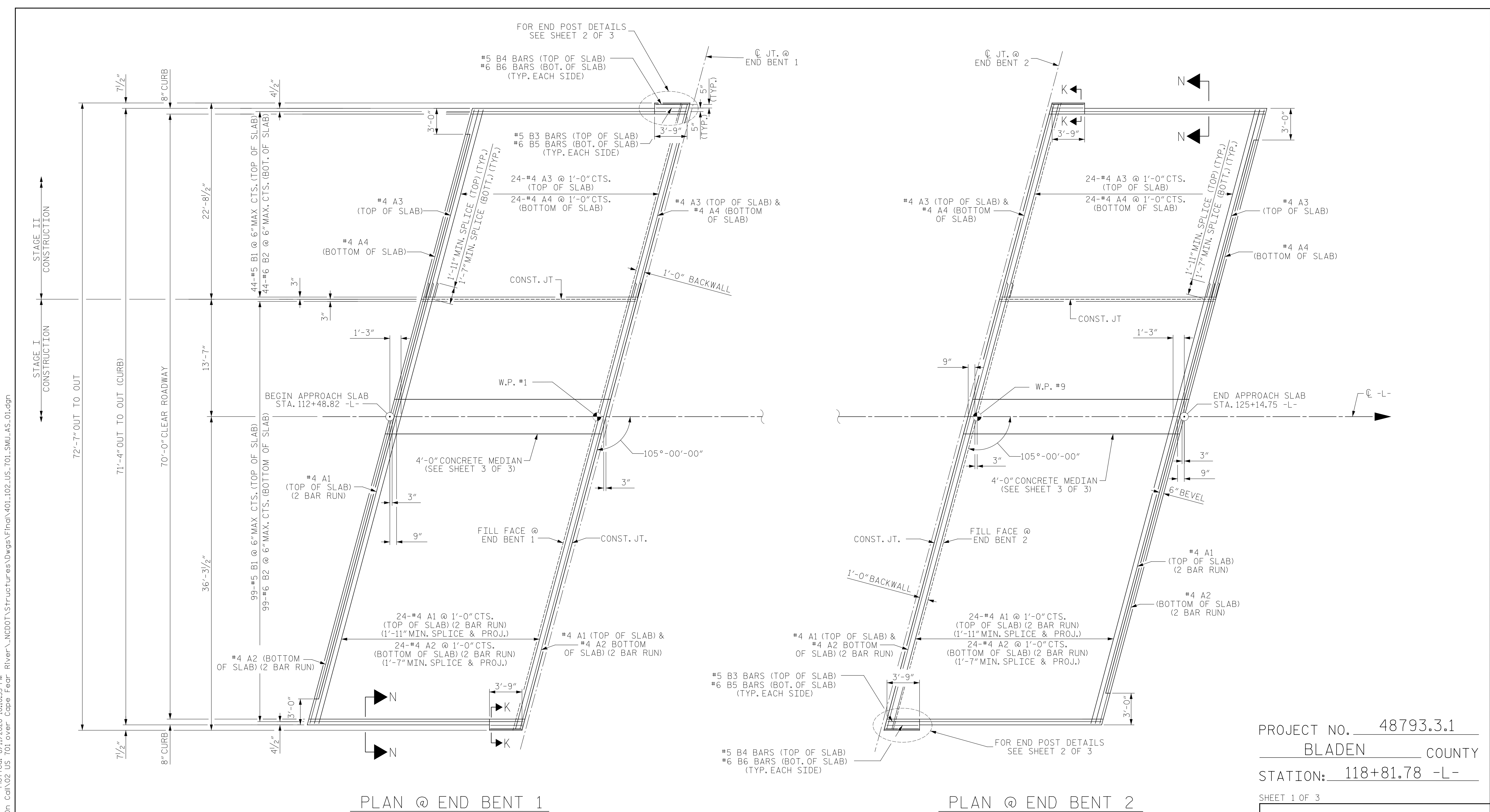
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1			3			TOTAL SHEETS
2			4			107

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DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



PLAN @ END BENT 1

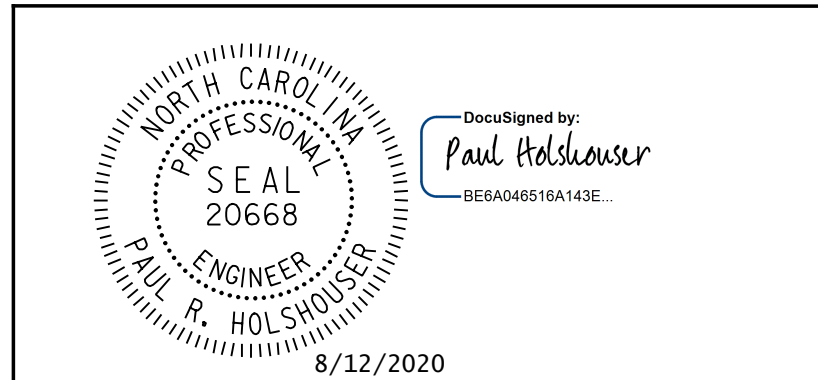
PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 1 OF 3

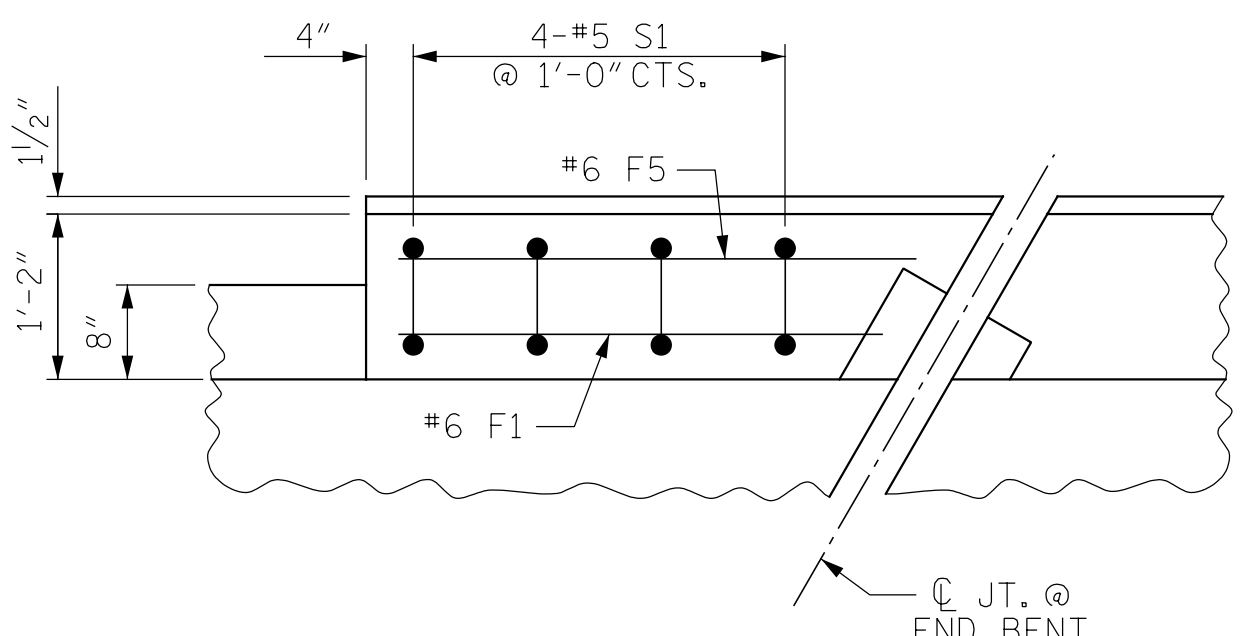
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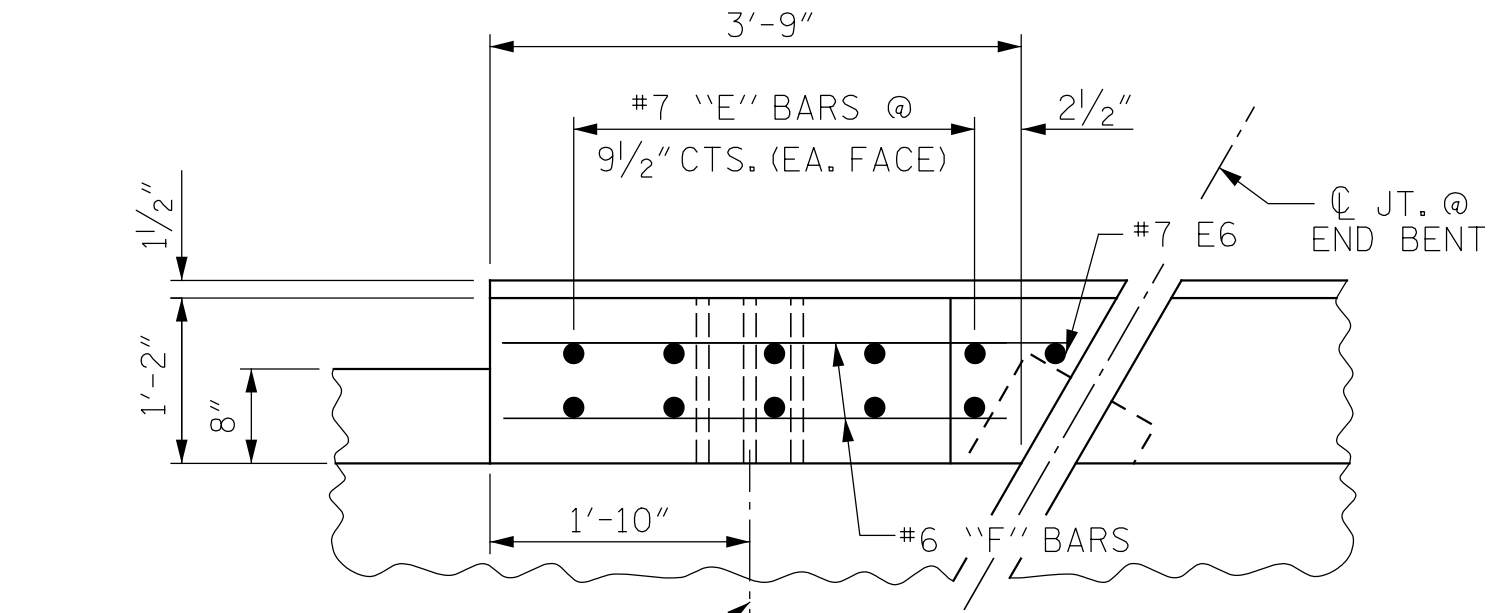
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PLAN OF PARAPET

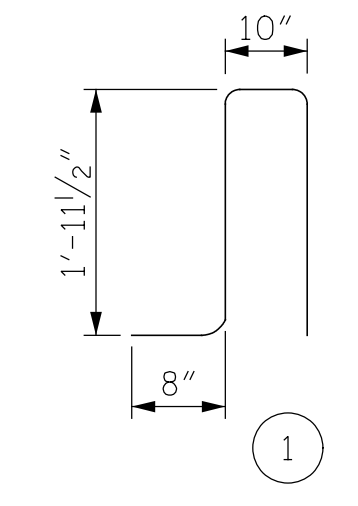


PLAN OF END POST

NOTES

THE COST OF THE END POST ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "1'-2\"/>

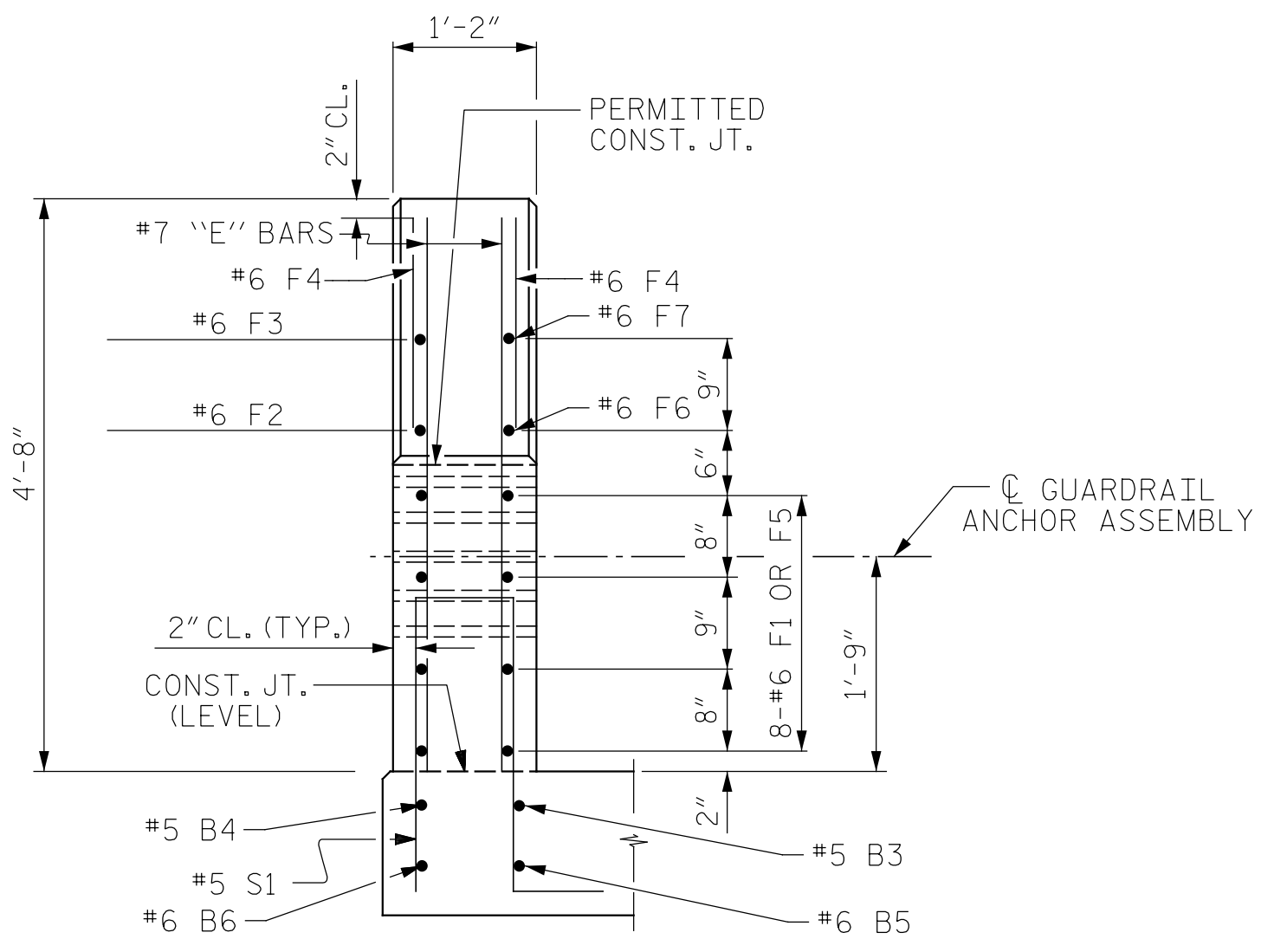
BAR TYPES



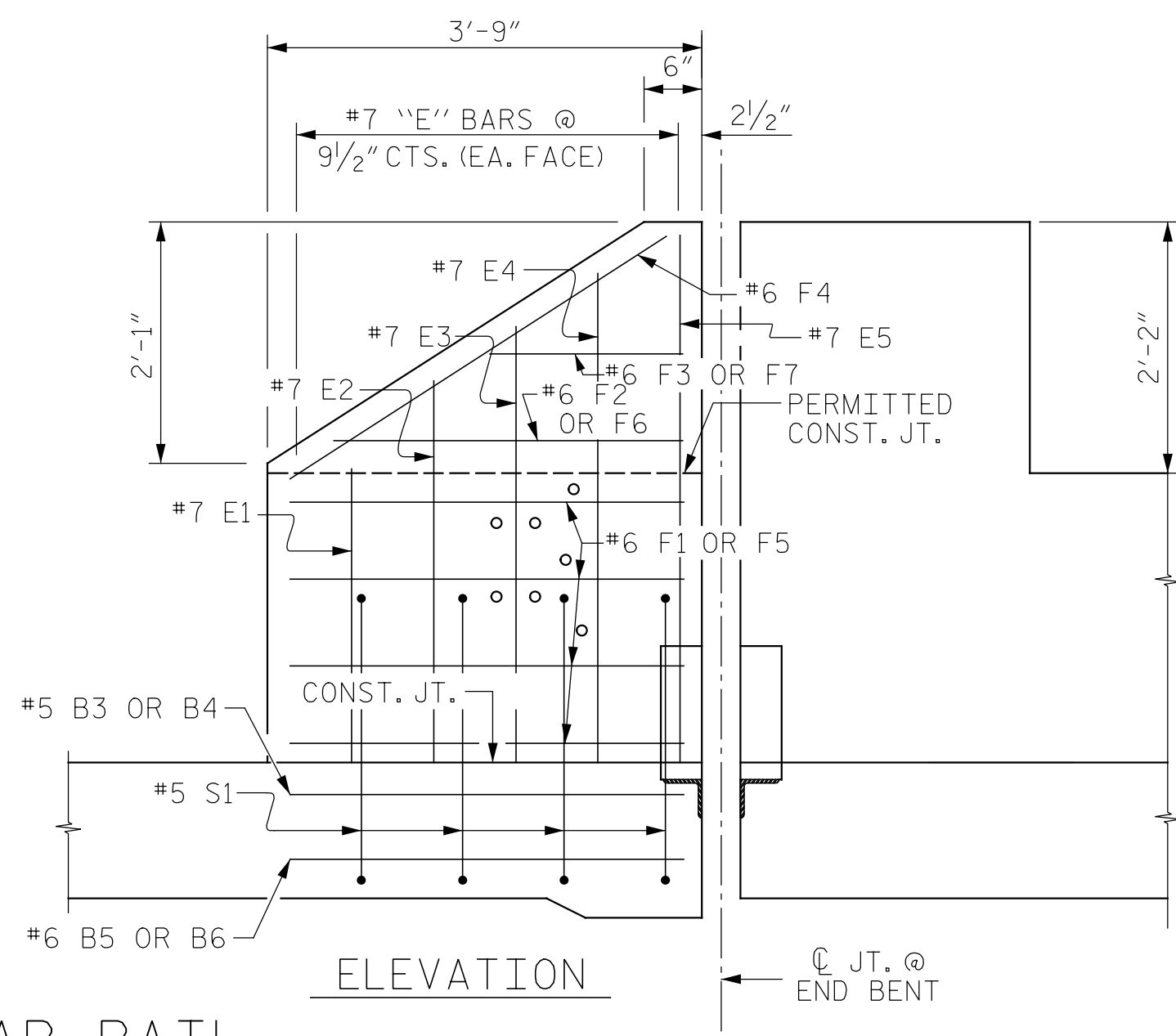
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR 4 END POSTS

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
*E1	8	7	STR 2'-6"	41
*E2	8	7	STR 3'-0"	49
*E3	8	7	STR 3'-6"	57
*E4	8	7	STR 4'-0"	65
*E5	8	7	STR 4'-4"	71
*E6	4	7	STR 4'-6"	37
*F1	16	6	STR 3'-5"	82
*F2	4	6	STR 3'-3"	20
*F3	4	6	STR 2'-0"	12
*F4	8	6	STR 3'-8"	44
*F5	16	6	STR 3'-8"	88
*F6	4	6	STR 3'-0"	18
*F7	4	6	STR 1'-9"	11
*S1	16	5	1 5'-5"	90
*EPOXY COATED REINFORCING STEEL				LBS. 685
CLASS "AA" CONCRETE				C.Y. 2.6
TOTAL LIN. FT. OF CONCRETE END POST				LIN. FT. 15.00

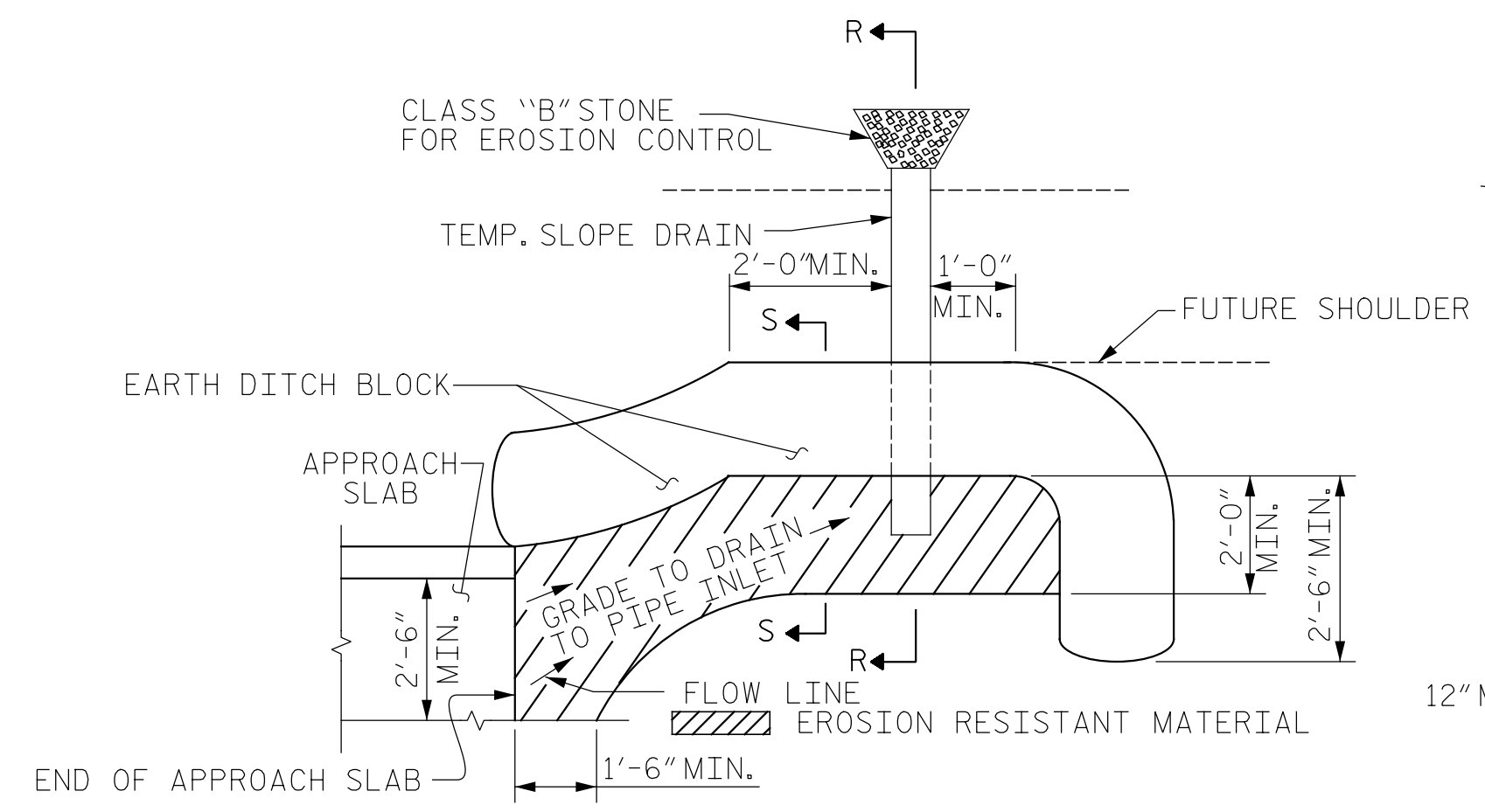


END VIEW

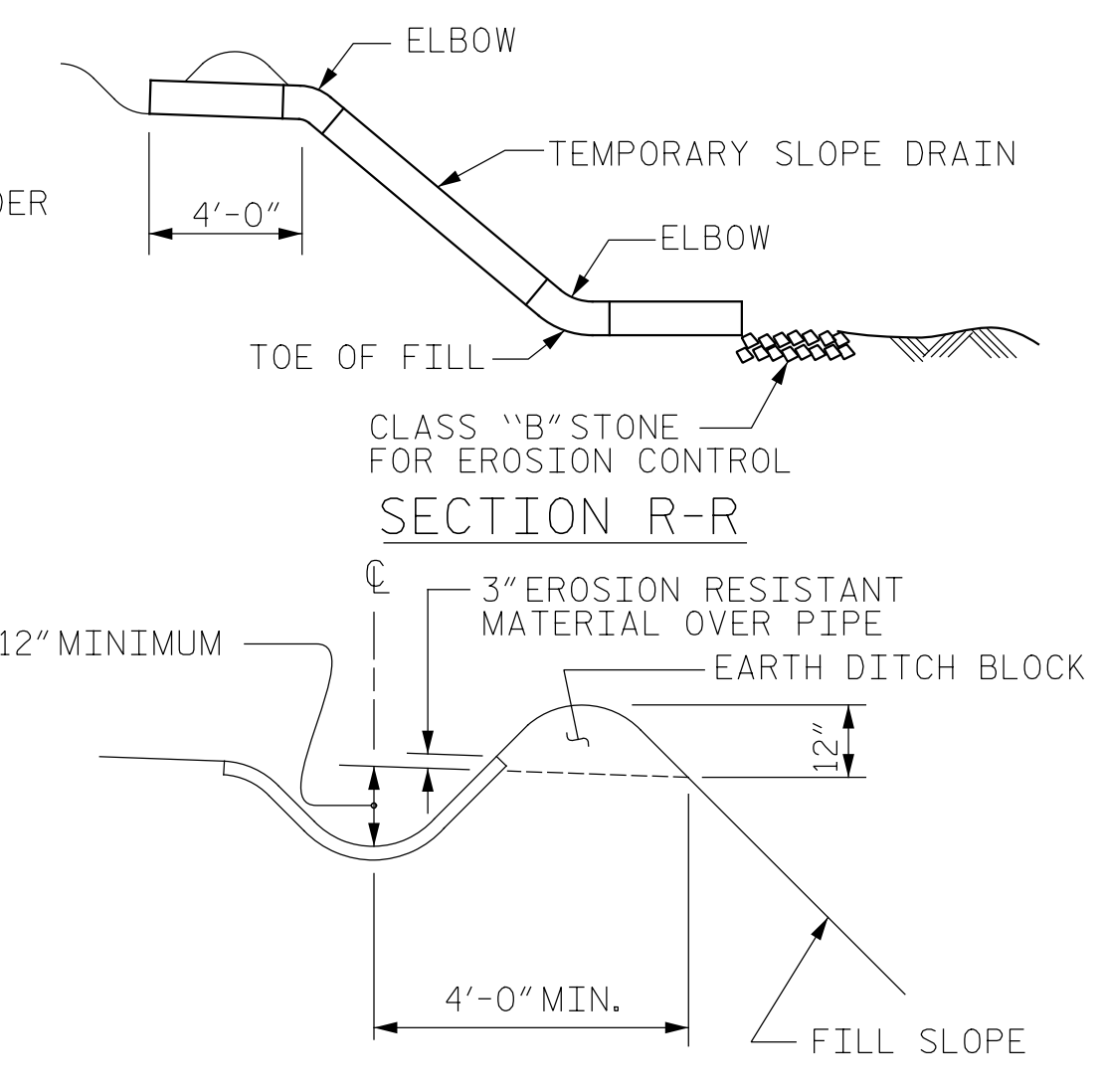


ELEVATION

END POST FOR TWO BAR RAIL



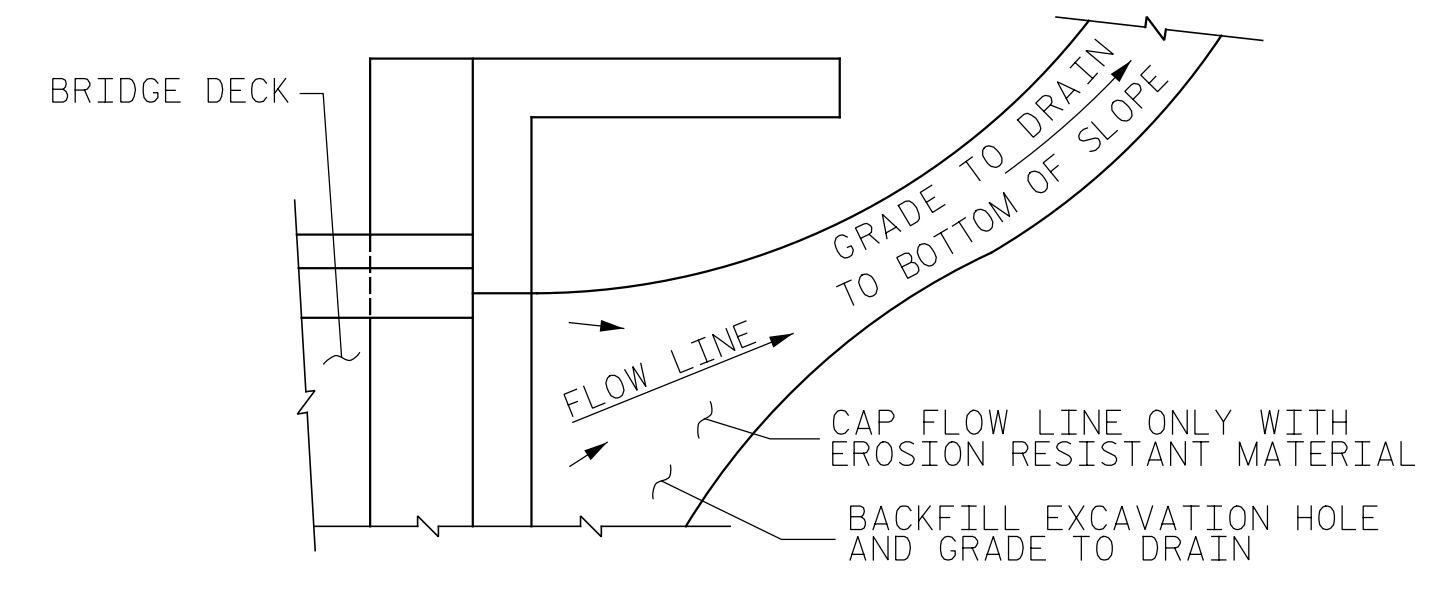
PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



TEMPORARY DRAINAGE DETAIL

NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) DIVISION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PROJECT NO. 48793.3.1

BLADEN COUNTY

STATION: 118+81.78 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

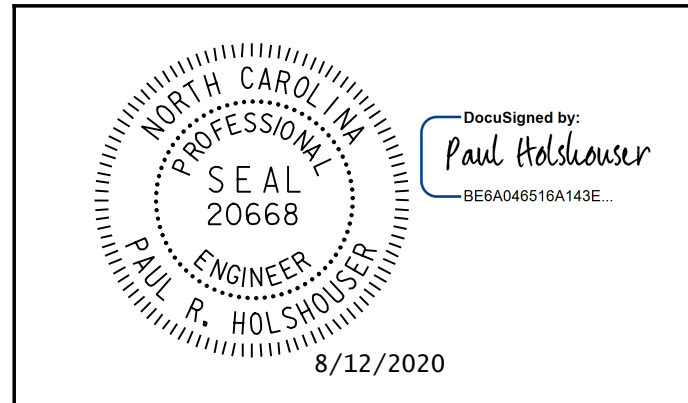
BRIDGE APPROACH SLAB DETAILS

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

SHEET NO. S-103

TOTAL SHEETS 107

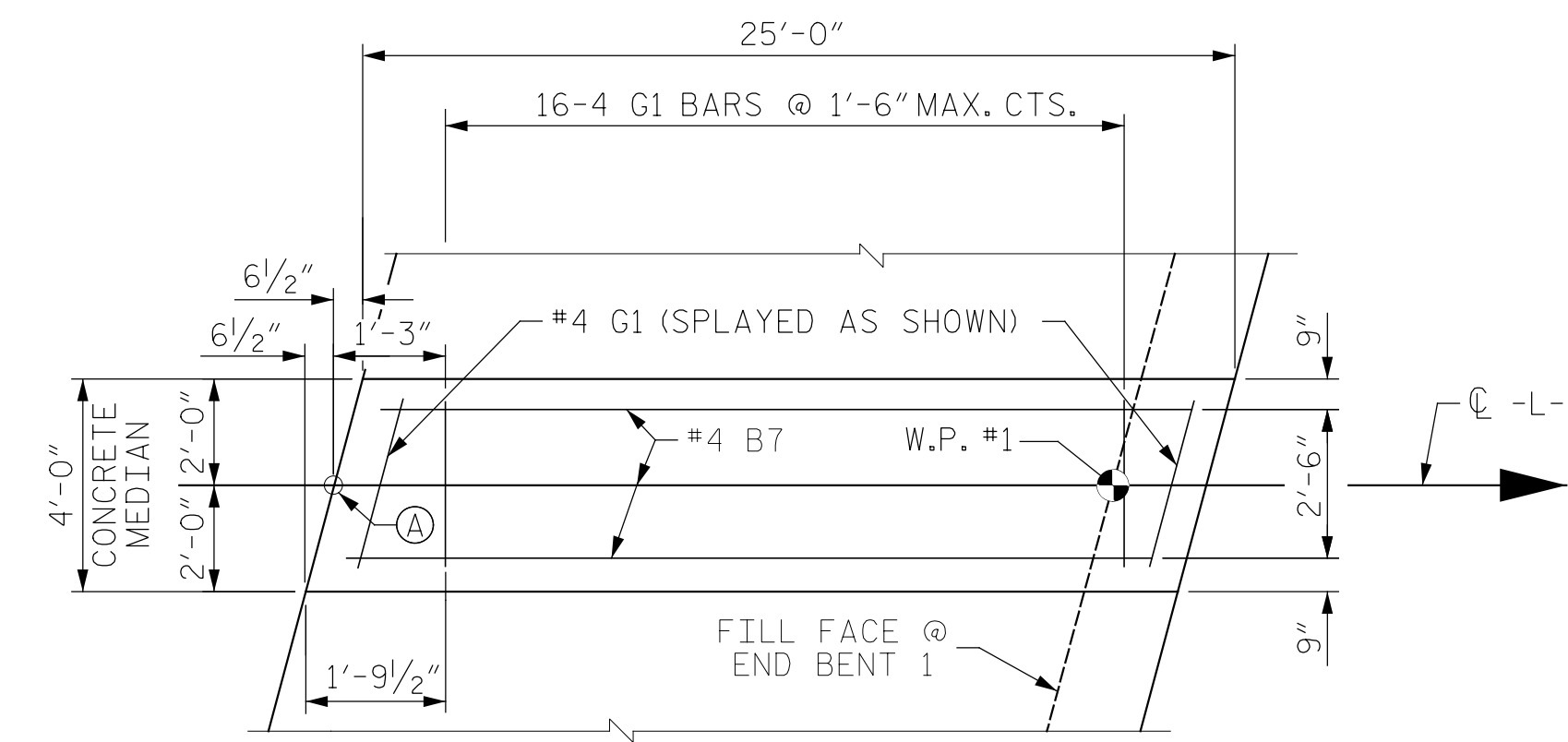


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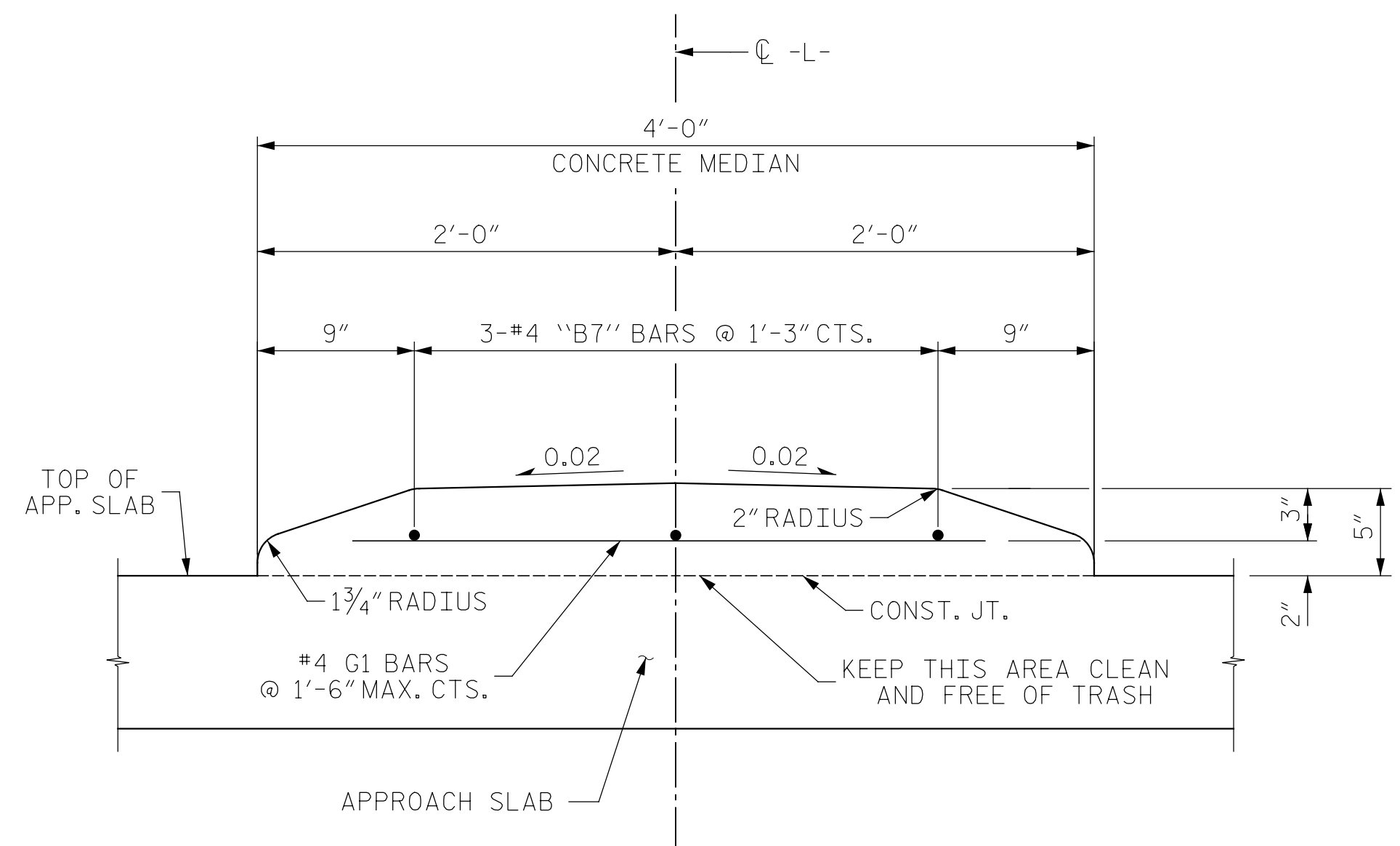
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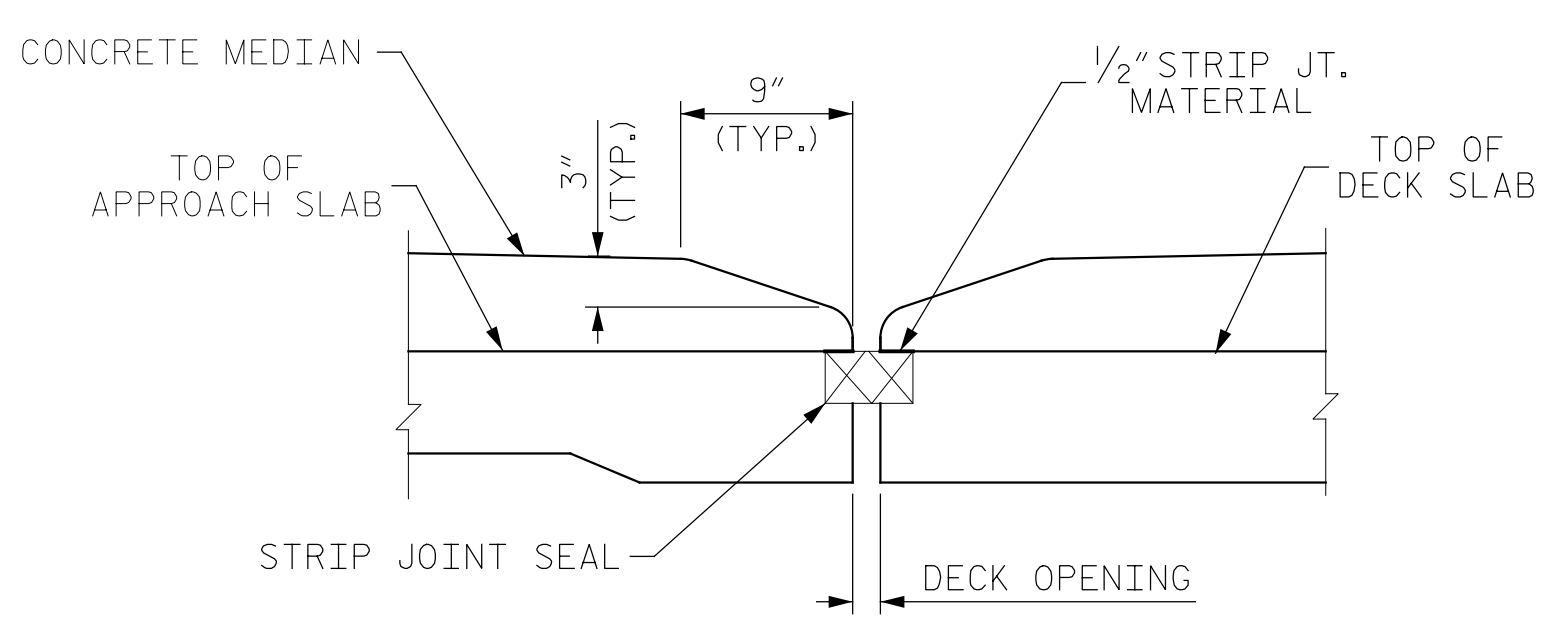
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CHECKED BY: K. C. SAMUDRALA DATE: 7-14-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



PLAN OF CONCRETE MEDIAN ON APPROACH SLAB 1
APPROACH SLAB 2 SIMILAR

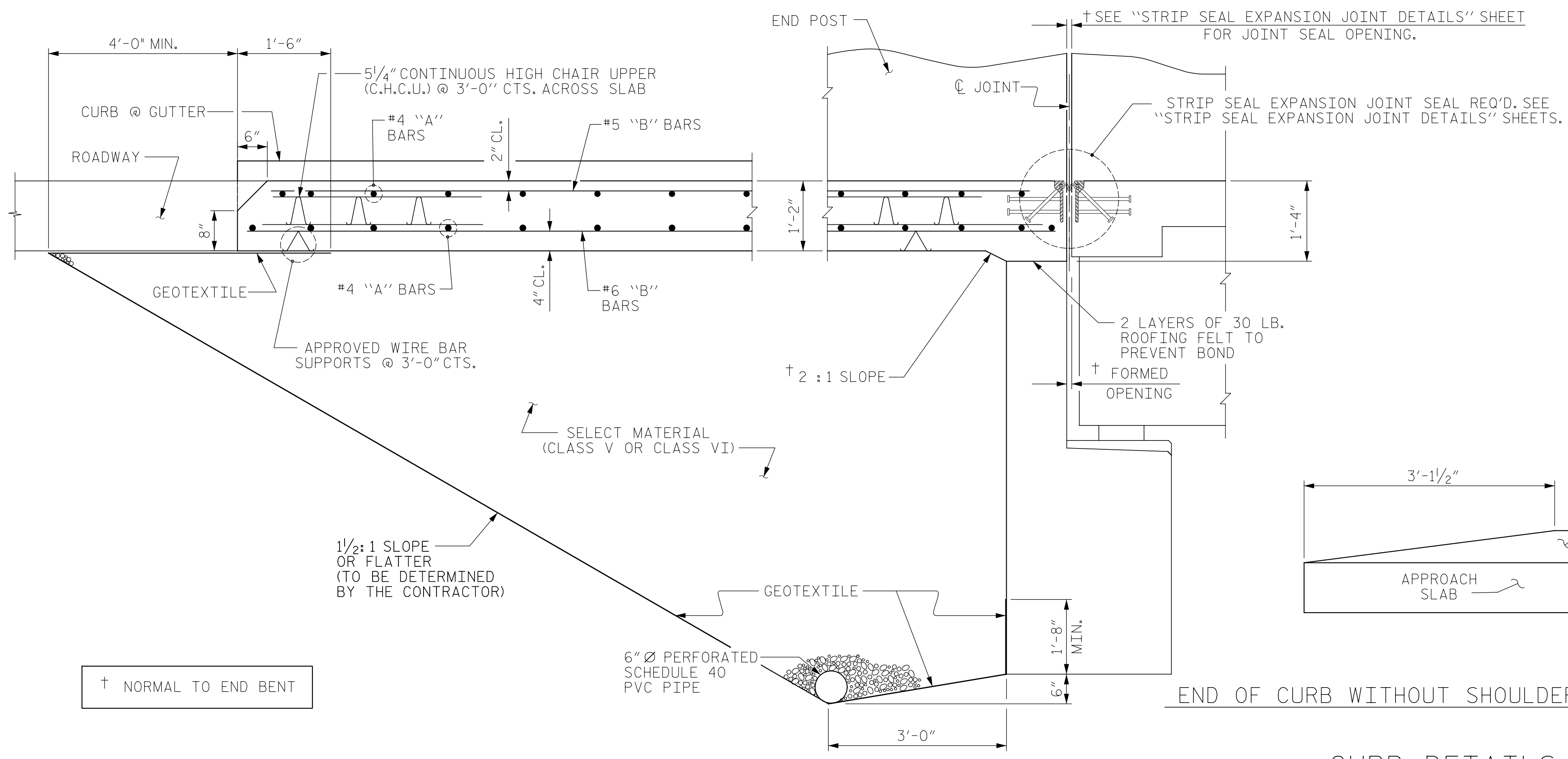


SECTION THRU MEDIAN

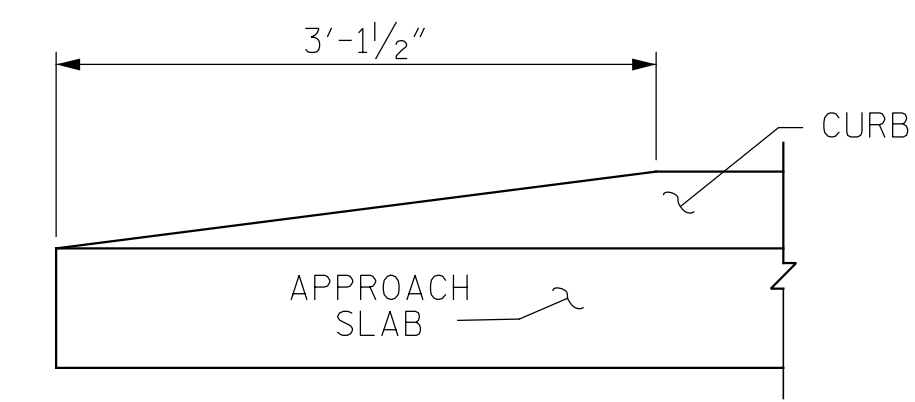


DETAILS AT STRIP SEAL EXP. JOINT

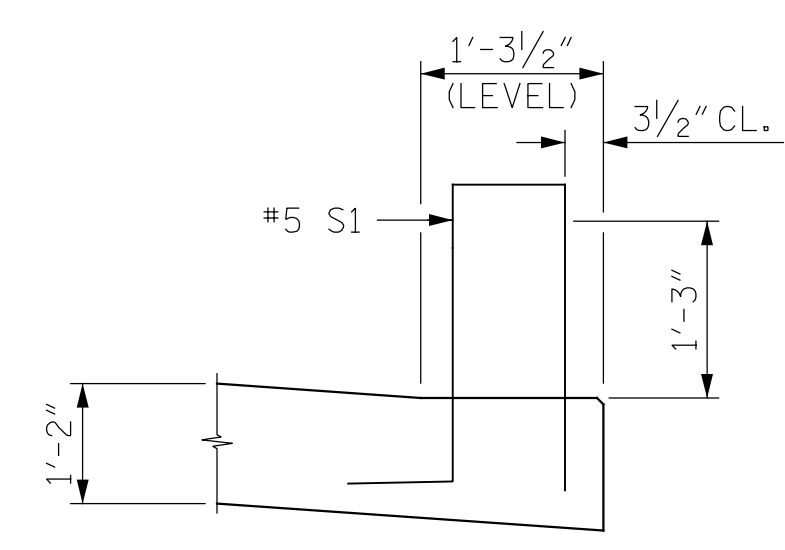
CONCRETE MEDIAN DETAILS



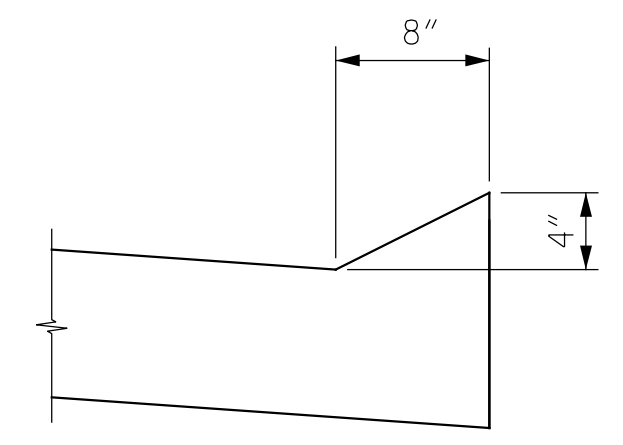
SECTION THRU SLAB (TYPE I - STANDARD APPROACH FILL)



CURB DETAILS

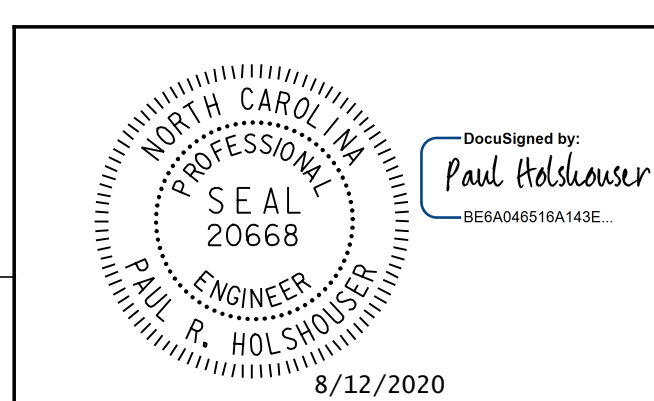


SECTION K-K



SECTION N-N

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"



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NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

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

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FOR THE 6" 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.

FOR STRIP SEAL EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR MATERIALS OR LABOR TO CONSTRUCT THE PERMANENT CONCRETE MEDIAN. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE REINFORCED CONCRETE APPROACH SLAB.

ALL REINFORCING STEEL IN PERMANENT CONCRETE MEDIANS SHALL BE EPOXY COATED.

GROOVED CONTRACTION CONCRETE JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE MEDIAN IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR PERMANENT CONCRETE MEDIAN ON BRIDGE, SEE SUPERSTRUCTURE PLANS, "CONCRETE PARAPET AND MEDIAN DETAILS" SHEET.

BILL OF MATERIAL FOR ONE APPROACH SLAB					
STAGE I CONSTRUCTION					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	52	4	STR 28' - 0"	973	
A2	52	4	STR 27' - 8"	961	
*B1	99	5	STR 24' - 8"	2,547	
B2	99	6	STR 24' - 8"	3,668	
*B3	1	5	STR 3' - 5"	4	
*B4	1	5	STR 3' - 8"	4	
B5	1	6	STR 3' - 5"	5	
B6	1	6	STR 3' - 8"	6	
REINFORCING STEEL **				LBS.	4,640
*EPOXY COATED REINFORCING STEEL **				LBS.	3,528
CLASS "AA" CONCRETE				C.Y.	55.7
STAGE II CONSTRUCTION					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A3	26	4	STR 22' - 8"	394	
A4	26	4	STR 22' - 8"	394	
*B1	44	5	STR 24' - 8"	1,132	
B2	44	6	STR 24' - 8"	1,630	
*B3	1	5	STR 3' - 5"	4	
*B4	1	6	STR 3' - 8"	6	
B5	1	5	STR 3' - 5"	4	
B6	1	6	STR 3' - 8"	6	
REINFORCING STEEL **				LBS.	2,034
*EPOXY COATED REINFORCING STEEL **				LBS.	1,536
CLASS "AA" CONCRETE				C.Y.	25.1
CONCRETE MEDIAN FOR ONE APPROACH SLAB					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B7	3	4	STR 24' - 8"	49	
*G1	18	4	STR 3' - 0"	36	
*EPOXY COATED REINFORCING STEEL				LBS.	85
CLASS "AA" CONCRETE				C.Y.	1.4

** QUANTITIES FOR END POST ARE NOT INCLUDED. SEE SHEET 2 OF 3.

PROJECT NO. 48793.3.1
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STATION: 118+81.78 -L-

SHEET 3 OF 3

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BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			107

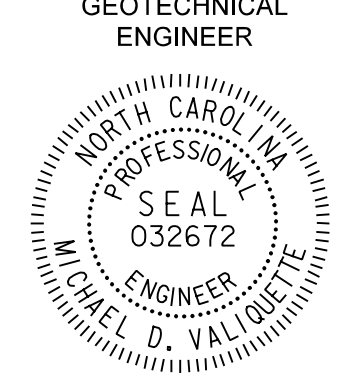
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GEOTECHNICAL ENGINEER

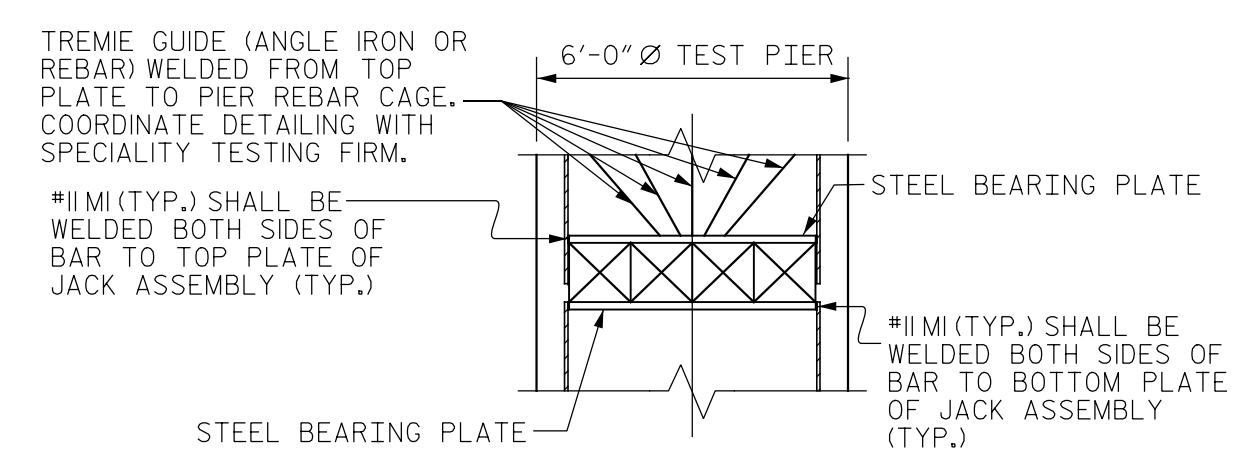
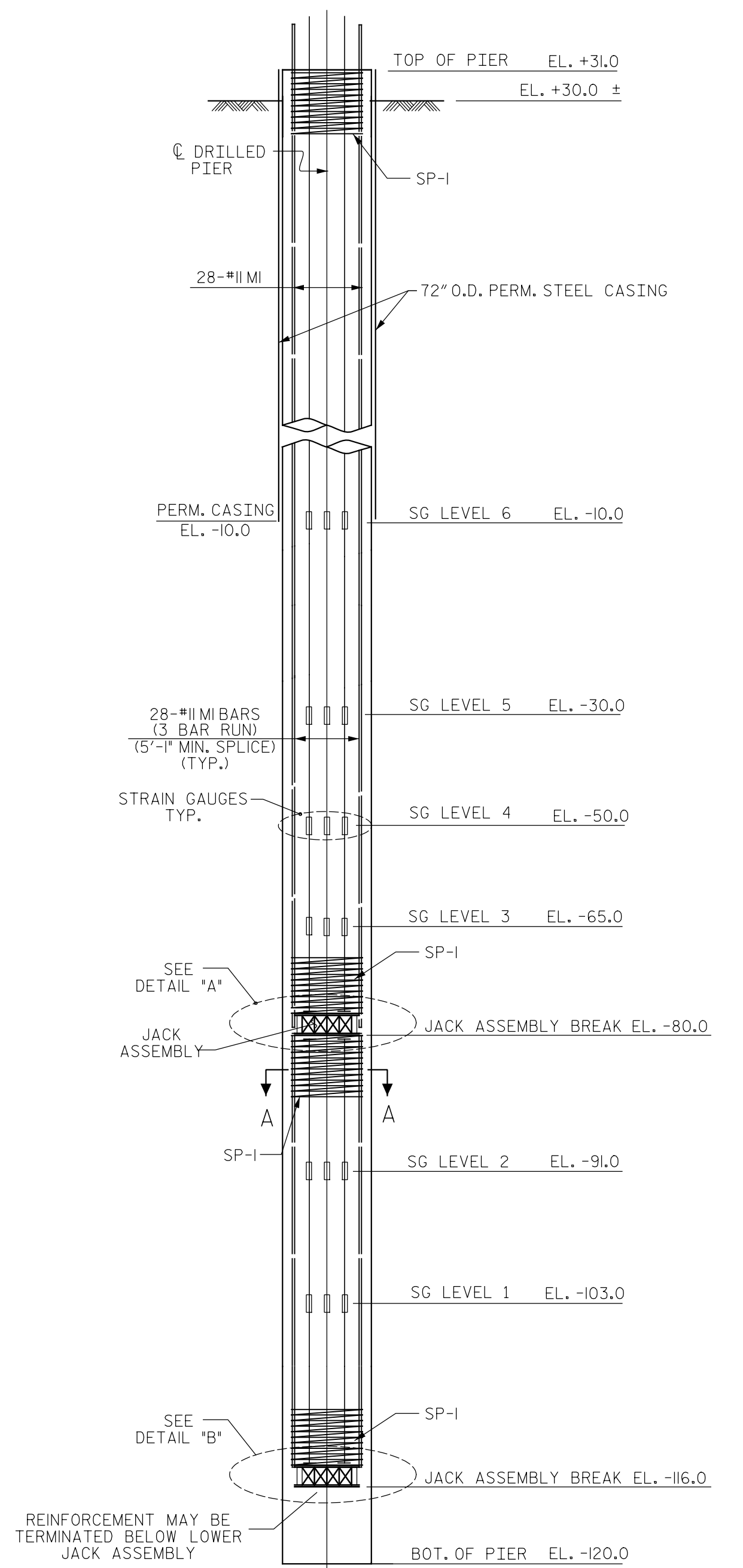
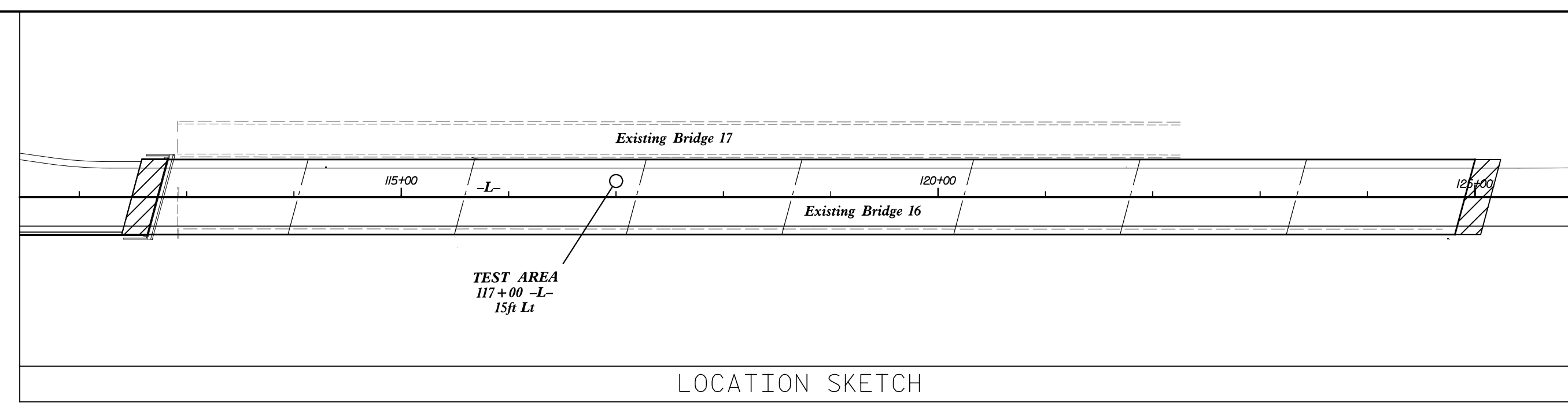
ENGINEER



DocuSigned by:
Michael Valiquette 9/2/2020

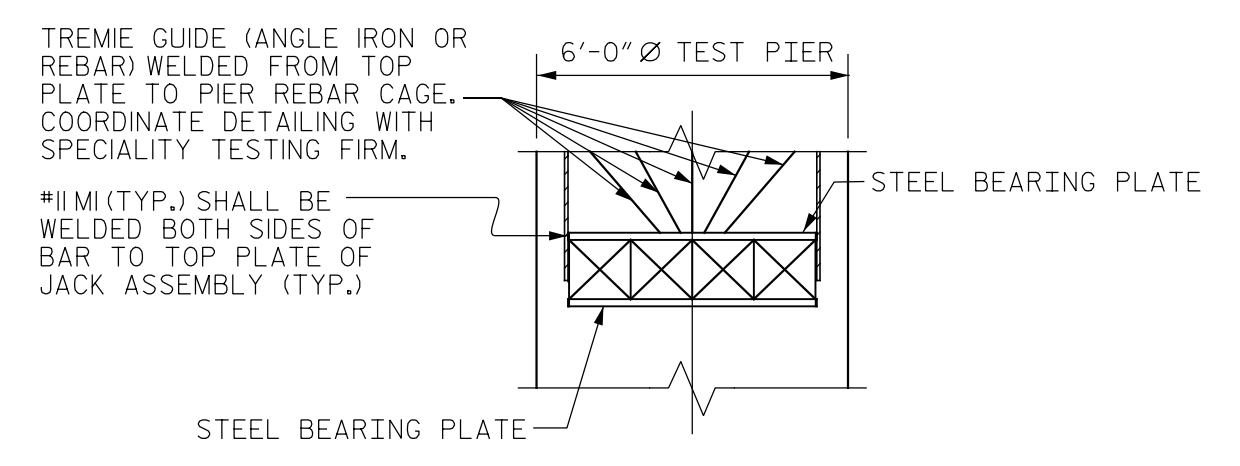
DATE: 9/2/2020

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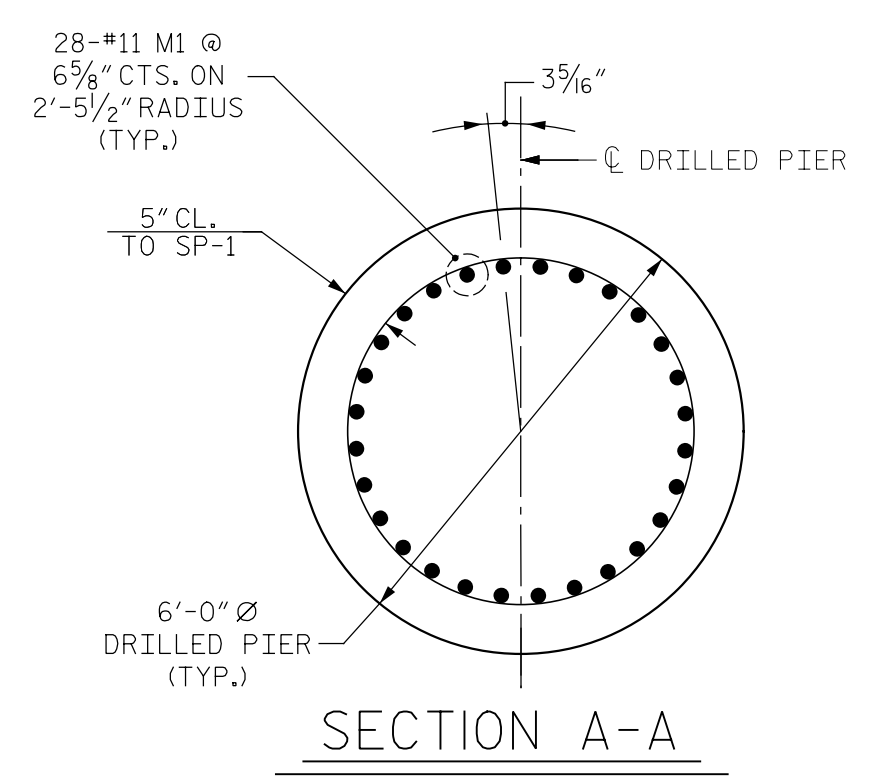
- ASSEMBLY STEPS:
1. BI-DIRECTIONAL JACKS FITTED WITH TOP AND BOTTOM STEEL PLATES.
 2. TOP AND BOTTOM STEEL PLATES OF JACK ASSEMBLY WELDED TO NON-CONTINUOUS REINFORCING CAGE. SEE PROJECT SPECIAL PROVISION FOR ADDITIONAL DETAILS.
 3. CONSTRUCT TREMIE GUIDE TO DIRECT TREMIE PAST THE JACK ASSEMBLY.

DETAIL "A"



- ASSEMBLY STEPS:
1. BI-DIRECTIONAL JACKS FITTED WITH TOP AND BOTTOM STEEL PLATE.
 2. TOP STEEL PLATE OF JACK ASSEMBLY WELDED TO NON-CONTINUOUS REINFORCING CAGE. SEE PROJECT SPECIAL PROVISION FOR ADDITIONAL DETAILS.
 3. CONSTRUCT TREMIE GUIDE TO DIRECT TREMIE PAST THE JACK ASSEMBLY.

DETAIL "B"

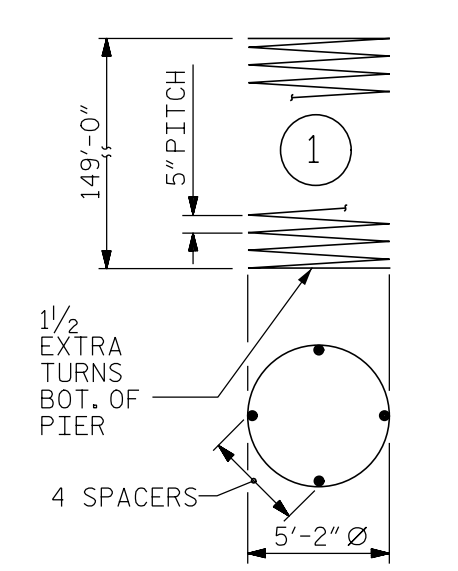


FOR CLARITY, SECTION "A-A" OMITTED DETAILS OF TEST INSTRUMENTATION AND CSL TUBES.

NOTES

- FOR DRILLED PIERS, SEE SECTION 411 OF THE NCDOT STANDARD SPECIFICATIONS.
- SEE AXIAL BI-DIRECTIONAL STATIC LOAD PROJECT TEST SPECIAL PROVISION FOR ADDITIONAL INSTRUMENTATION AND TESTING REQUIREMENTS.
- PERMANENT STEEL CASING IS REQUIRED FOR AXIAL LOAD TEST PIER. DO NOT EXTEND PERMANENT STEEL CASING BELOW ELEVATION -10 FT.
- SLURRY IS REQUIRED FOR THE AXIAL LOAD TEST PIER. SEE SECTION 411 OF THE NCDOT STANDARD SPECIFICATIONS.
- SID INSPECTIONS ARE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE AXIAL LOAD TEST PIER. SEE SECTION 411 OF THE NCDOT STANDARD SPECIFICATIONS.
- CSL TUBES AND CSL TESTING ARE REQUIRED FOR THE AXIAL LOAD TEST PIER. SEE SECTION 411 OF THE NCDOT STANDARD SPECIFICATIONS.
- AXIAL LOAD TEST PIER SHALL EXTEND TO ELEVATION -120 FT.
- FOR MATERIAL PROPERTIES, SEE SECTION 411 OF THE NCDOT STANDARD SPECIFICATIONS.
- CONSTRUCT AXIAL LOAD TEST PIER IN ACCORDANCE WITH THE SECTION 411 OF THE NCDOT STANDARD SPECIFICATIONS AND THE AXIAL BI-DIRECTIONAL STATIC LOAD TEST PROJECT SPECIAL PROVISION.
- CALIPER LOGGING OF TEST PIER IS REQUIRED TO INSPECT THE VERTICALITY AND DIAMETER OF THE AXIAL LOAD TEST PIER. CALIPER LOGGING OF TEST PIER IS INCIDENTAL TO AXIAL BI-DIRECTIONAL STATIC LOAD TEST. SEE PROJECT SPECIAL PROVISION FOR ADDITIONAL DETAILS.
- FIELD CUT #11 MI BARS AND WELD TO TOP AND BOTTOM PLATES OF JACK ASSEMBLY AS SHOWN IN DETAILS "A" AND "B".
- THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ADJUST LOCATION OF CSL ACCESS TUBES AS NECESSARY FOR PROPER PLACEMENT THROUGH THE JACK ASSEMBLIES AND PROPER PLACEMENT OF STRAIN GAUGES. ADJUST LENGTHS AS NECESSARY TO ACCOMMODATE THE JACK ASSEMBLIES.
- SCORE THE CSL ACCESS TUBES AT THE BOTTOM PLATE OF THE JACK ASSEMBLY WITH PIPE CUTTER OR EQUIVALENT, OR SPLICE WITH SHORT SECTION OF PVC PIPE OR FLEXIBLE NEOPRENE SHIELDED COUPLING. THIS IS TO CREATE WEAK POINTS AT THE JACK ASSEMBLIES. COORDINATE WITH THE SPECIALTY TESTING FIRM FOR PREFERRED METHOD. PROTECT THE SCORE AREAS OR COUPLINGS WITH WATERPROOF TAPE.
- SLIP JOINTS OR EQUIVALENT FOR ALL TELLTALE PROTECTION PIPE/CASINGS PASSING THROUGH THE MID-RANGE JACK ASSEMBLY SHALL BE PROVIDED. COORDINATE WITH THE SPECIALTY TESTING FIRM FOR PREFERRED METHOD. PROTECT THE SLIP JOINTS WITH WATERPROOF TAPE, GREASE, OR COMBINATION THEREOF.
- ADJUST DIMENSION AS NECESSARY TO ACCOMMODATE JACK ASSEMBLIES.
- LOWER REINFORCING CAGE INTO EXCAVATION AND SECURE AT REQUIRED ELEVATION.
- PUMP CONCRETE IN A TREMIE PIPE THAT ALLOWS THE PIPE TO PASS THROUGH THE CENTER OF THE JACK ASSEMBLY BEARING PLATES TO THE BOTTOM OF THE AXIAL LOAD TEST PIER. SEE PROJECT SPECIAL PROVISION FOR ADDITIONAL DETAILS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

DEMONSTRATION PIER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
M1	84	11	STR.	54'-5"	24,286
SP-1	1	5	1	5786'-5"	6,035

REINFORCING STEEL	(LBS.)	24,286
SPIRAL REINFORCING STEEL	(LBS.)	6,035
6'-0" Ø TEST PIER	(L.F.)	151
SID INSPECTIONS	EACH	1
CSL TESTING	EACH	1
CALIPER LOGGING OF TEST PIER	EACH	1*
PERMANENT STEEL CASING	(L.F.)	41
AXIAL BI-DIRECTIONAL STATIC LOAD TEST	LUMP SUM	

* CALIPER LOGGING OF TEST PIER IS INCIDENTAL TO AXIAL LOAD TEST

PROJECT NO.: 48793.3.1

BLADEN COUNTY

STATION: 118+81.78 -L-

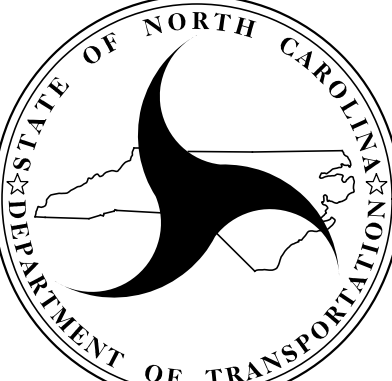
SHEET 1 OF 1

PREPARED BY: M. SNYDER	DATE: 7/20
REVIEWED BY: J. BAILEY	DATE: 7/20

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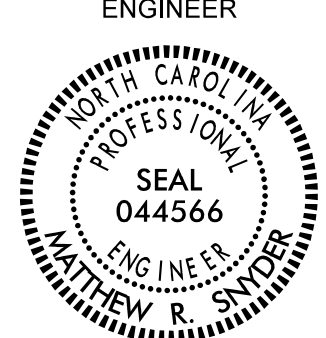
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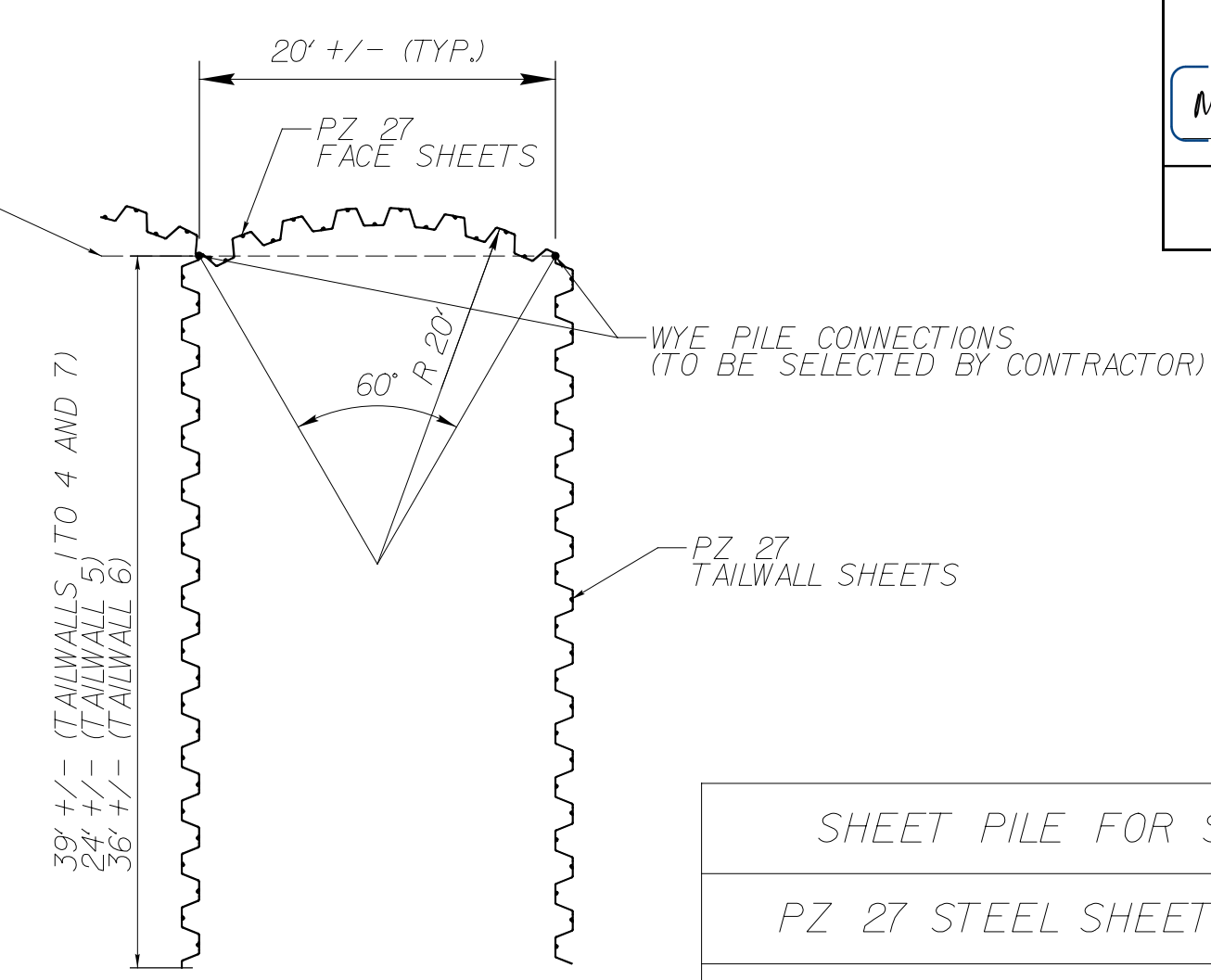
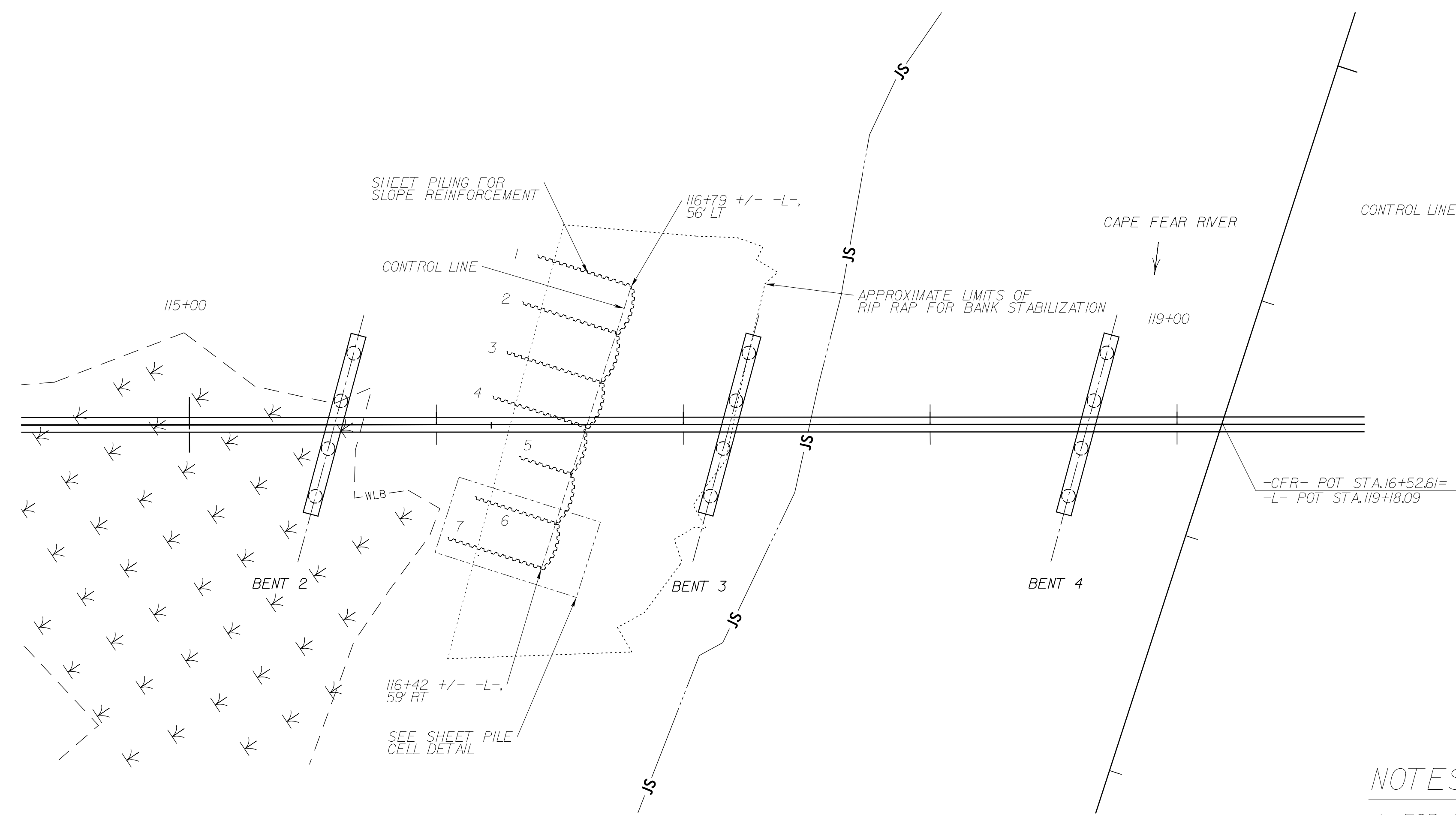
GEOTECHNICAL ENGINEERING UNIT



AXIAL BI-DIRECTIONAL STATIC LOAD TEST					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-105

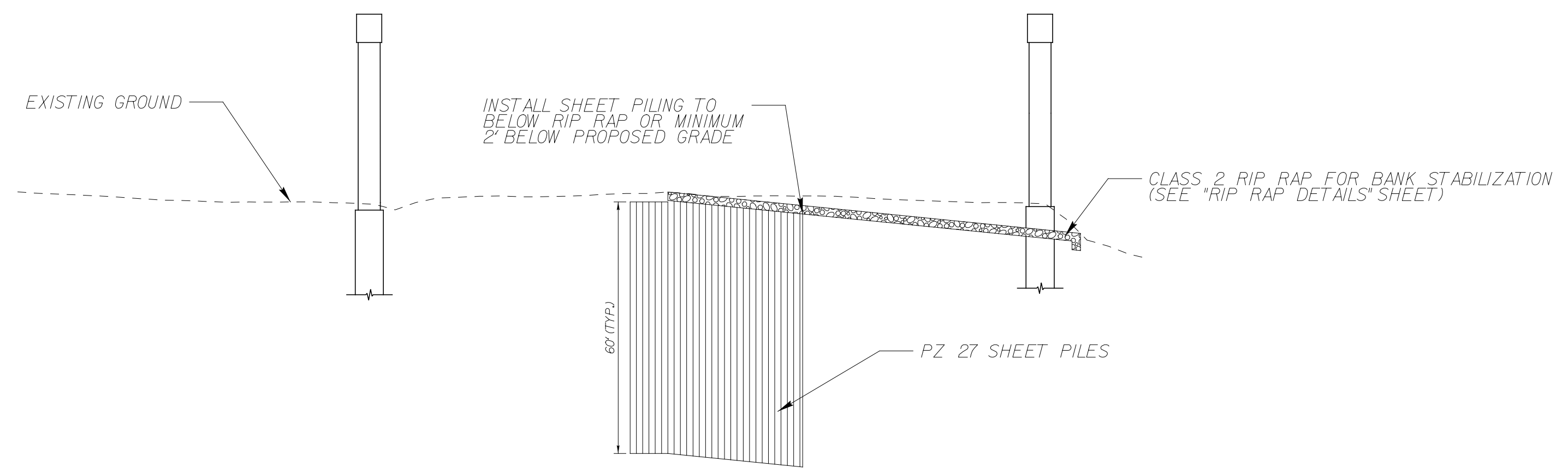
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SHEET PILE FOR SLOPE REINFORCEMENT QUANTITIES	
PZ 27 STEEL SHEET PILES - COFFERDAM (EA)	104
PZ 27 STEEL SHEET PILES - STORAGE YARD (EA)	156
WYE PILE CONNECTIONS (EA)	7

NOTE: QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. SHEET PILING FOR SLOPE REINFORCEMENT WILL BE PAID AS LUMP SUM

SHEET PILING FOR SLOPE REINFORCEMENT PLAN



SHEET PILING FOR SLOPE REINFORCEMENT PROFILE

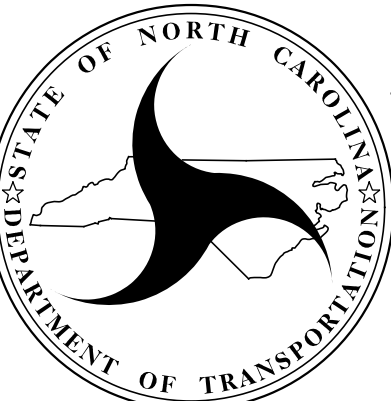
NOTES:

- FOR SHEET PILING FOR SLOPE REINFORCEMENT, SEE SHEET PILING FOR SLOPE REINFORCEMENT SPECIAL PROVISION
- CONTRACTOR SHALL BE RESPONSIBLE FOR EXTRACTING AND HANDLING SHEET PILING FROM BENT 5 COFFERDAM FOR USE IN SHEET PILING FOR SLOPE REINFORCEMENT
- ALL PZ SHEET PILING WILL BE PROVIDED BY NCDOT. REUSE PZ SHEET PILING FROM BENT 5 COFFERDAM. REMAINING PZ SHEET PILING TO BE PICKED UP BY THE CONTRACTOR AT THE STORAGE LOCATION. SEE SHEET PILING FOR SLOPE REINFORCEMENT SPECIAL PROVISION FOR STORAGE LOCATION
- CONDUCT PRECONSTRUCTION MEETING PRIOR TO BEGINNING INSTALLATION OF SHEET PILING FOR SLOPE REINFORCEMENT
- WYE PILE SHALL BE SELECTED BY CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION OF SHEET PILING FOR SLOPE REINFORCEMENT
- INSTALL SHEET PILING FOR SLOPE REINFORCEMENT AFTER COMPLETION OF UNCLASSIFIED STRUCTURE EXCAVATION AND PRIOR TO PLACEMENT OF CLASS 2 RIP RAP FOR BANK STABILIZATION
- INSTALL FULL PROVIDED LENGTH OF SHEET PILING FOR SLOPE REINFORCEMENT BY DRIVING OR VIBRATING TOP OF SHEET PILES BELOW PROPOSED BOTTOM OF CLASS 2 RIP RAP OR MINIMUM 2' BELOW PROPOSED GRADE
- FOR SHEET PILING LOCATED OUTSIDE LIMITS OF CLASS 2 RIP RAP, EXCAVATE A TRENCH TO A MINIMUM DEPTH OF 2' BELOW PROPOSED GRADE PRIOR TO INSTALLATION OF SHEETING. COVER TOP OF SHEET PILE WITH PREVIOUSLY EXCAVATED MATERIAL ONCE SHEET PILING IS INSTALLED TO FULL PROVIDED LENGTH

PROJECT NO.: 48793.3.1
BLADEN COUNTY
 STATION: Varies
 SHEET 1 OF 1

PREPARED BY: M. SNYDER DATE: 7/20
 REVIEWED BY: C. KREIDER DATE: 7/20

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**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

**GEOTECHNICAL
ENGINEERING UNIT**

REVISIONS						SHEET NO. S-106
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

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 2018 "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 $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " 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 $\frac{1}{4}$ " 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 DEFLECTIONS, 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 STELL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset 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 $\frac{5}{16}$ " 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 $\frac{1}{16}$ " 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.

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD NOTES					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-107
					TOTAL SHEETS 107

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DRAWN BY : <u>J. N. AUSTIN</u> DATE : <u>5/10/20</u>	
CHECKED BY : <u>P. R. HOLSHOUSER</u> DATE : <u>5/10/20</u>	
DESIGN E.O.R. : <u>P. R. HOLSHOUSER</u> DATE : <u>7-23-20</u>	

REV. 6-16-95	EEM	(R)RGW	REV. 5-7-03	RWW	(R)JTE	REV. 10-1-11	MAA	(R)GM
REV. 8-16-99	RWW	(R)LES	REV. 5-1-06	TLA	(R)GM	REV. 12-17	MAA	(R)THC