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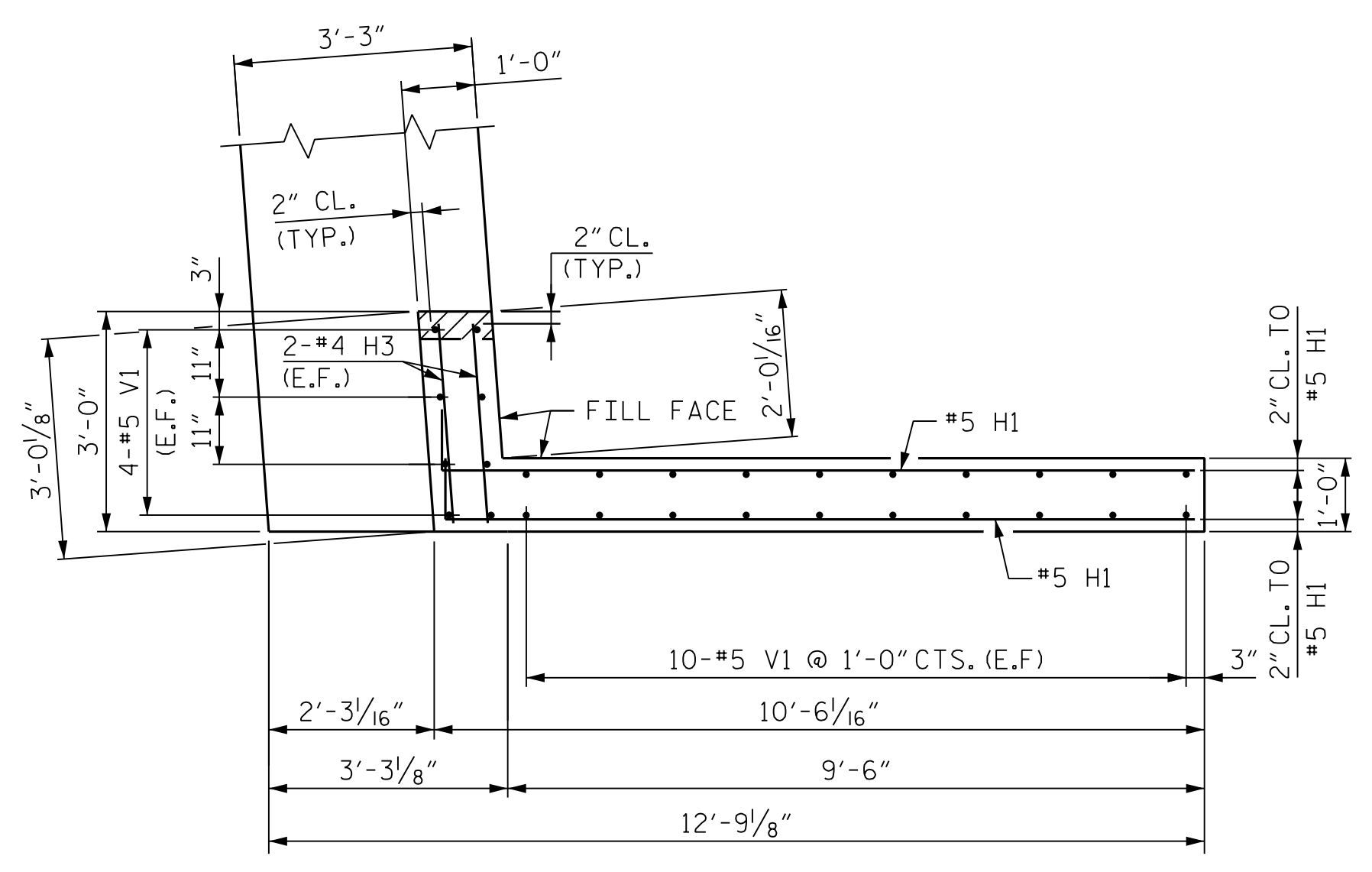
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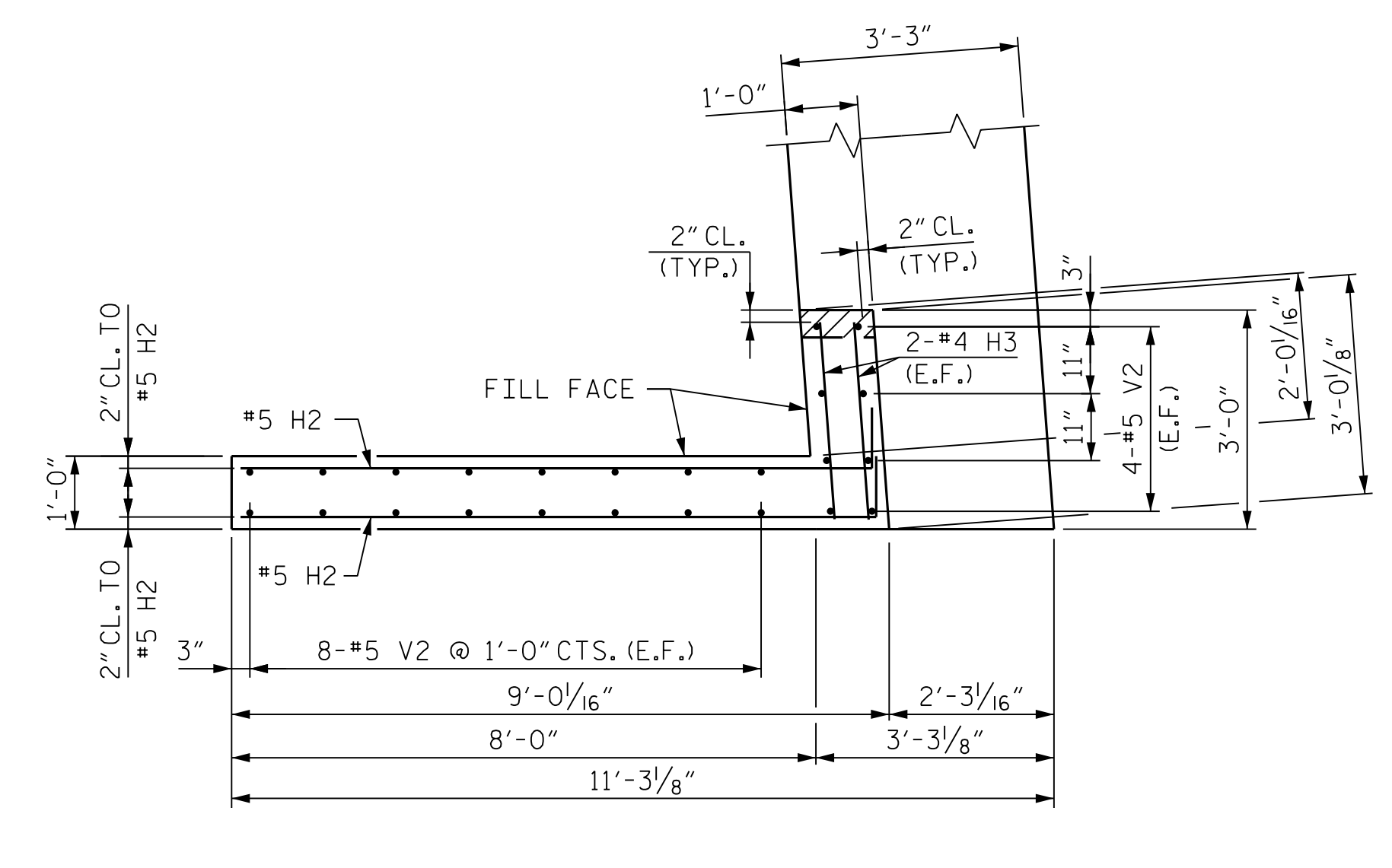
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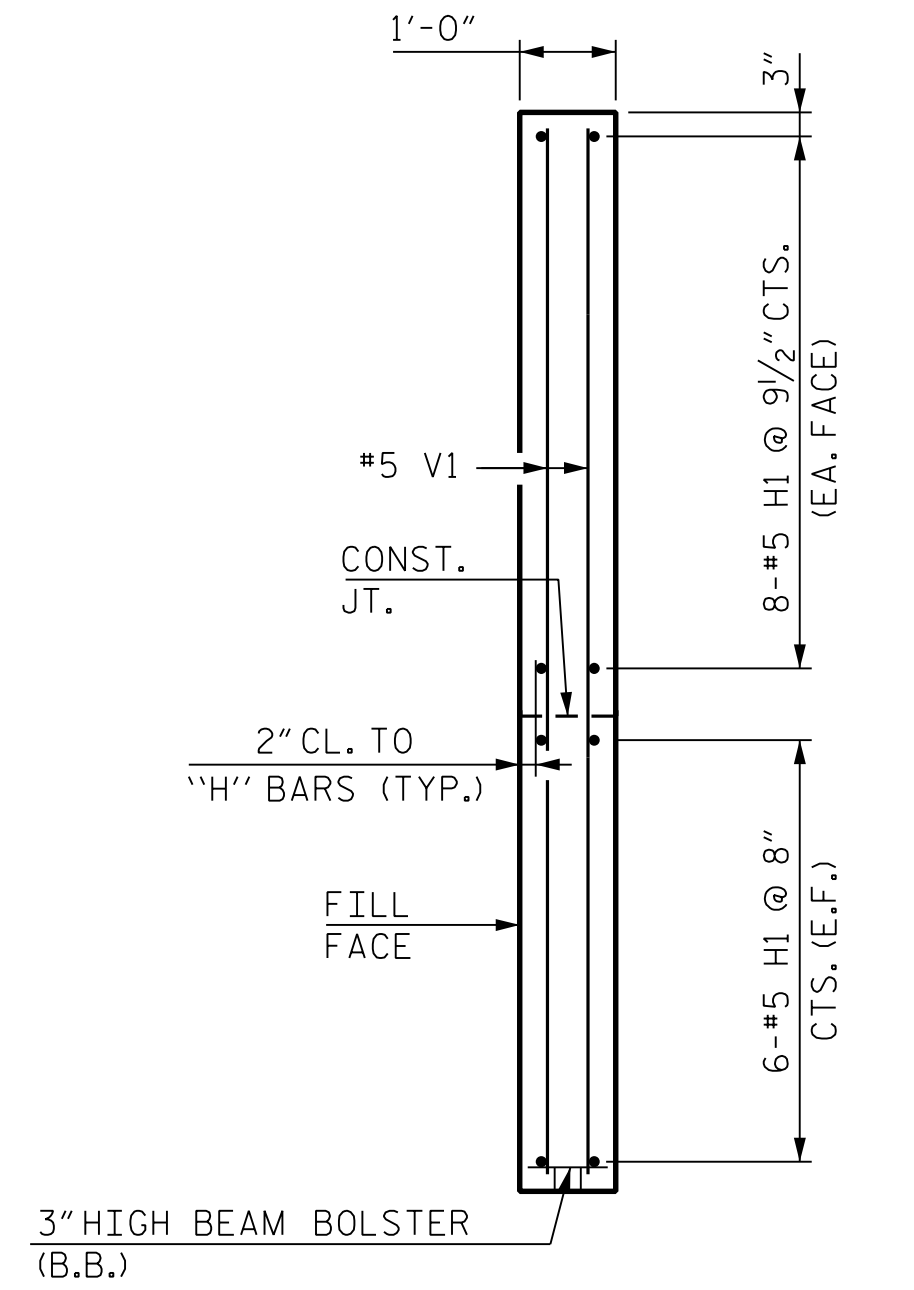
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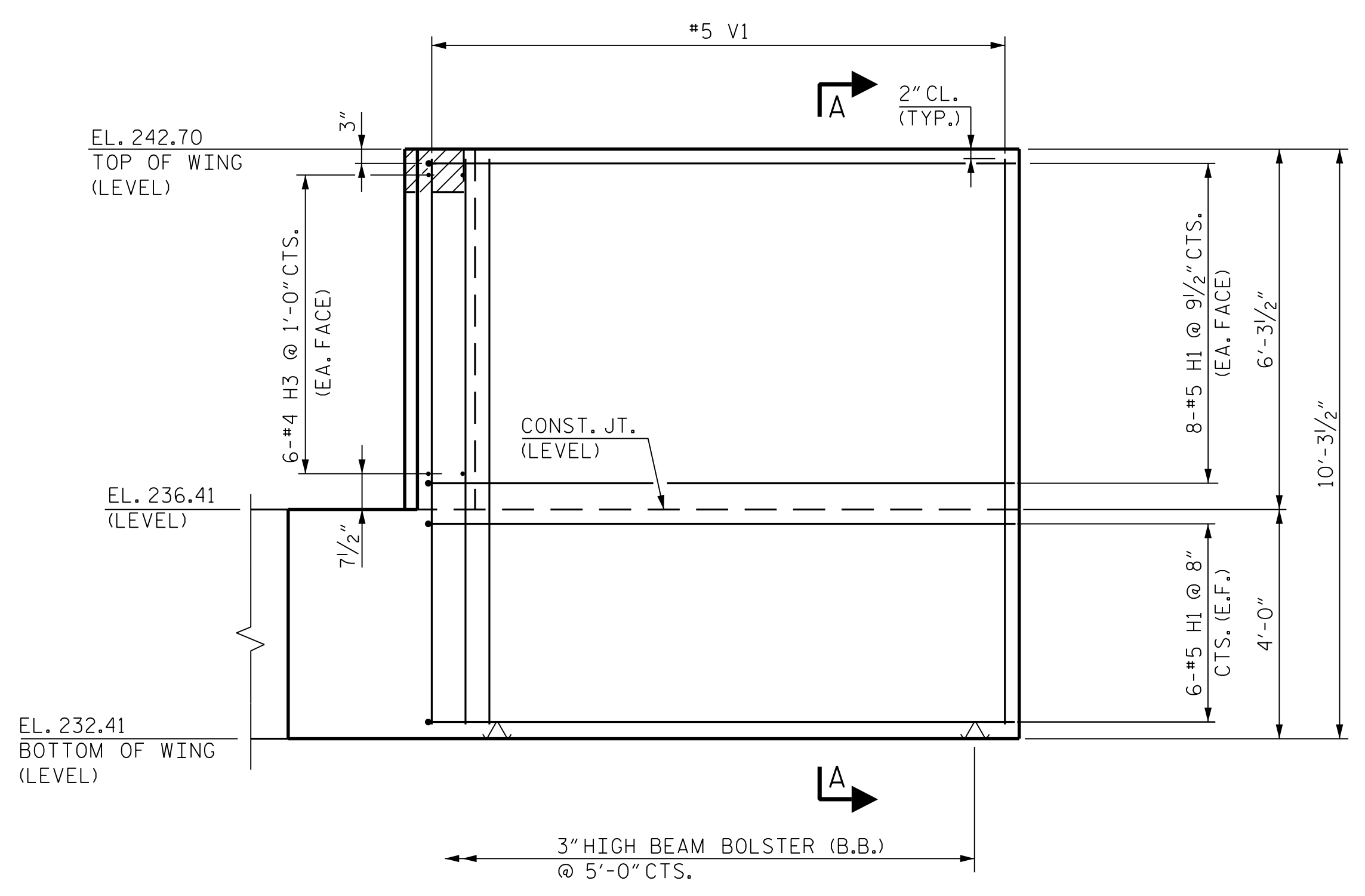
PLAN OF LEFT WINGWALL



PLAN OF RIGHT WINGWALL

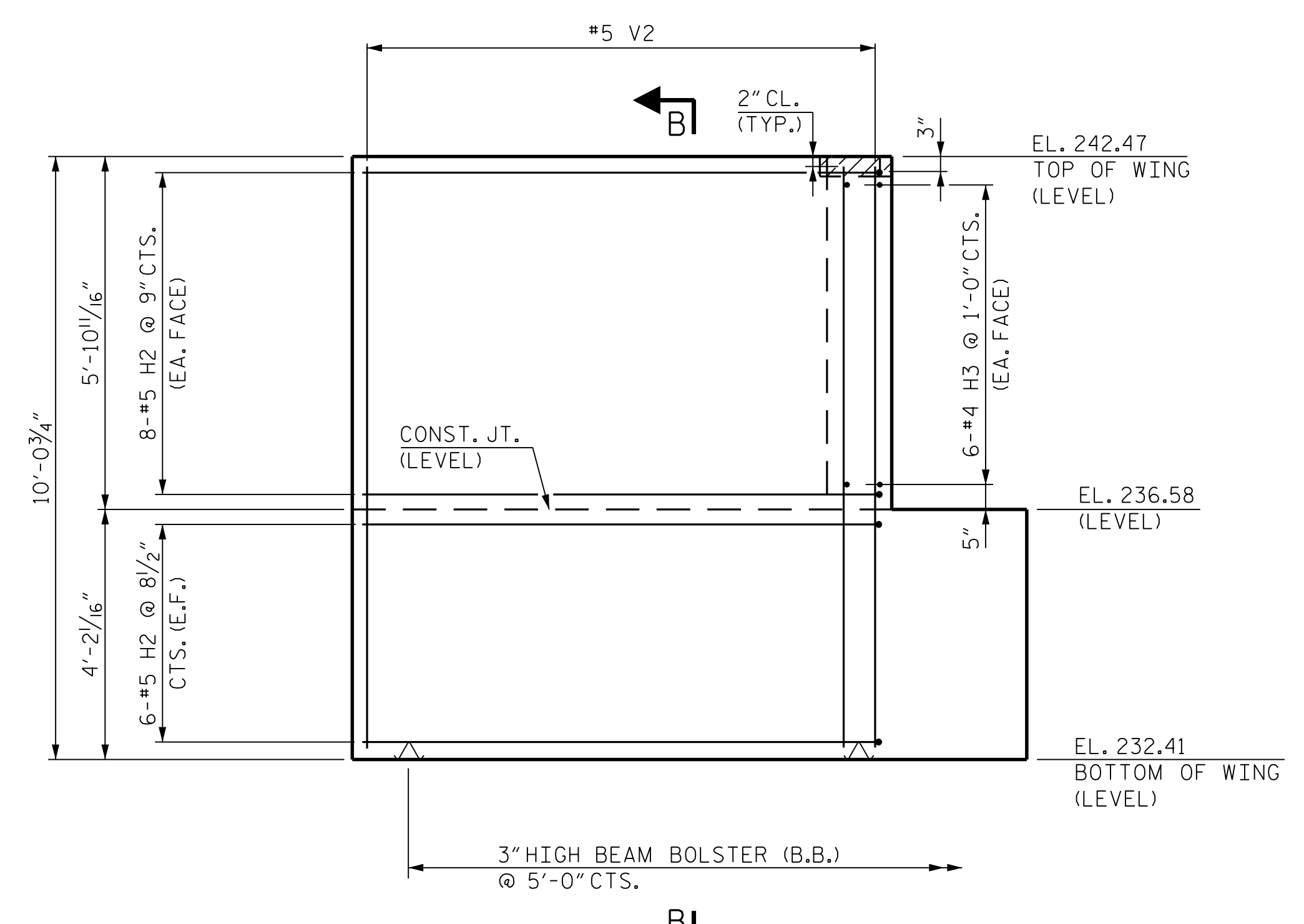


SECTION A-A



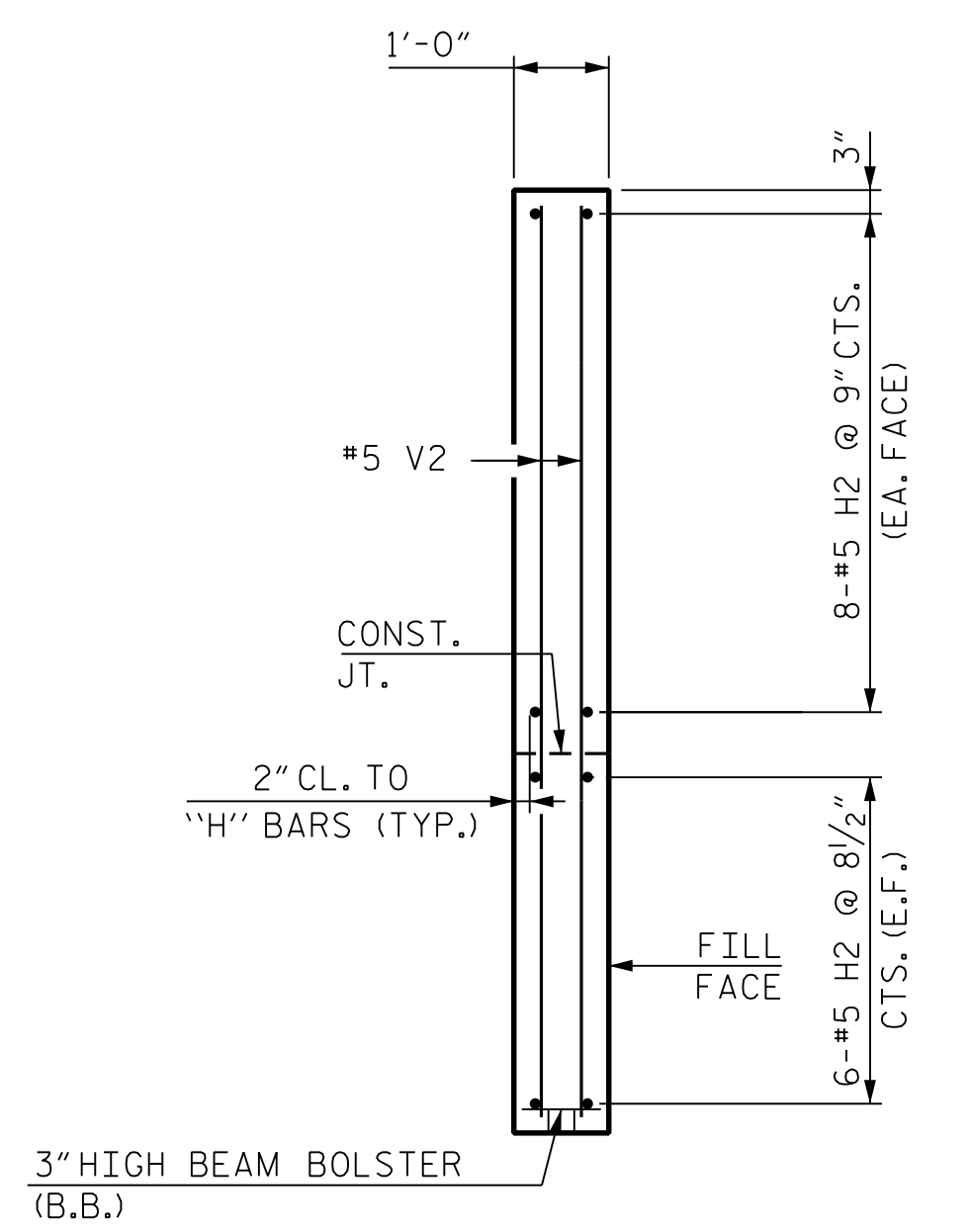
ELEVATION OF LEFT WINGWALL

LEFT WINGWALL DETAILS (W1)



ELEVATION OF RIGHT WINGWALL

RIGHT WINGWALL DETAILS (W2)



SECTION B-B

PROJECT NO. U-2519BA
CUMBERLAND COUNTY
 STATION: 24+41.38 -Y16-

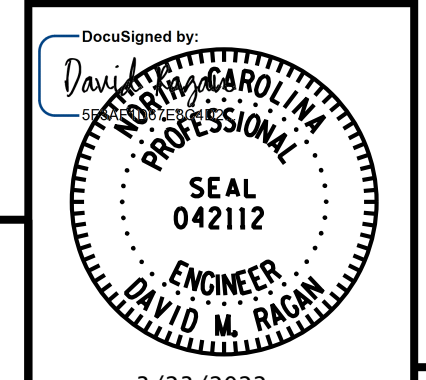
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT 1 WINGWALL DETAILS

SITE 4 DWG. NO. 29



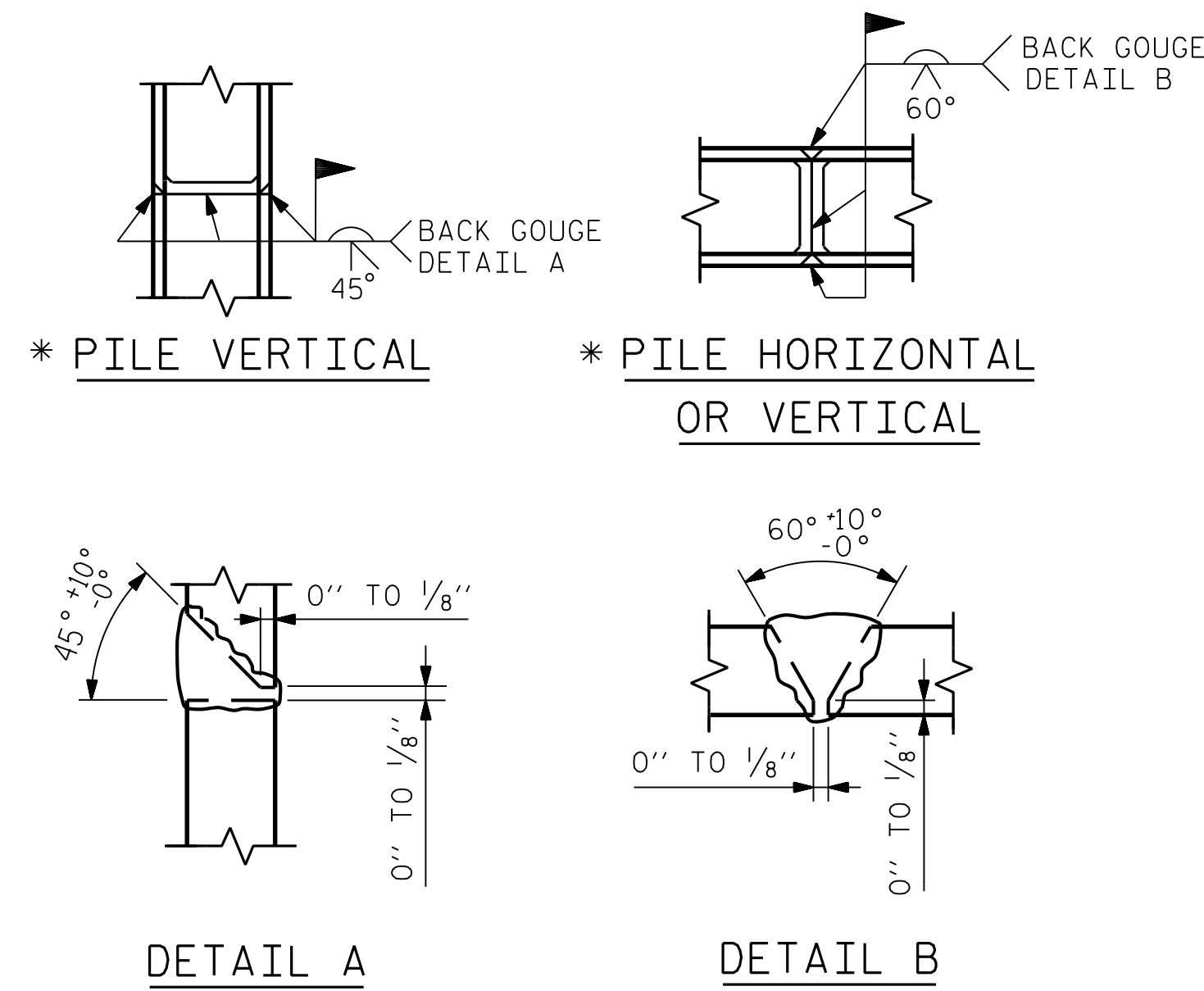
RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 8601 SIX FORKS RD., FORUM 1 | SUITE 700
 RALEIGH, NC 27615 (919) 878-9560
 NC LICENSE NUMBER: F-0112

DRAWN BY : B. A. HAAG DATE : FEB 2022
 CHECKED BY : D. M. RAGAN DATE : FEB 2022
 DESIGN ENGINEER OF RECORD : D. M. RAGAN DATE : FEB 2022

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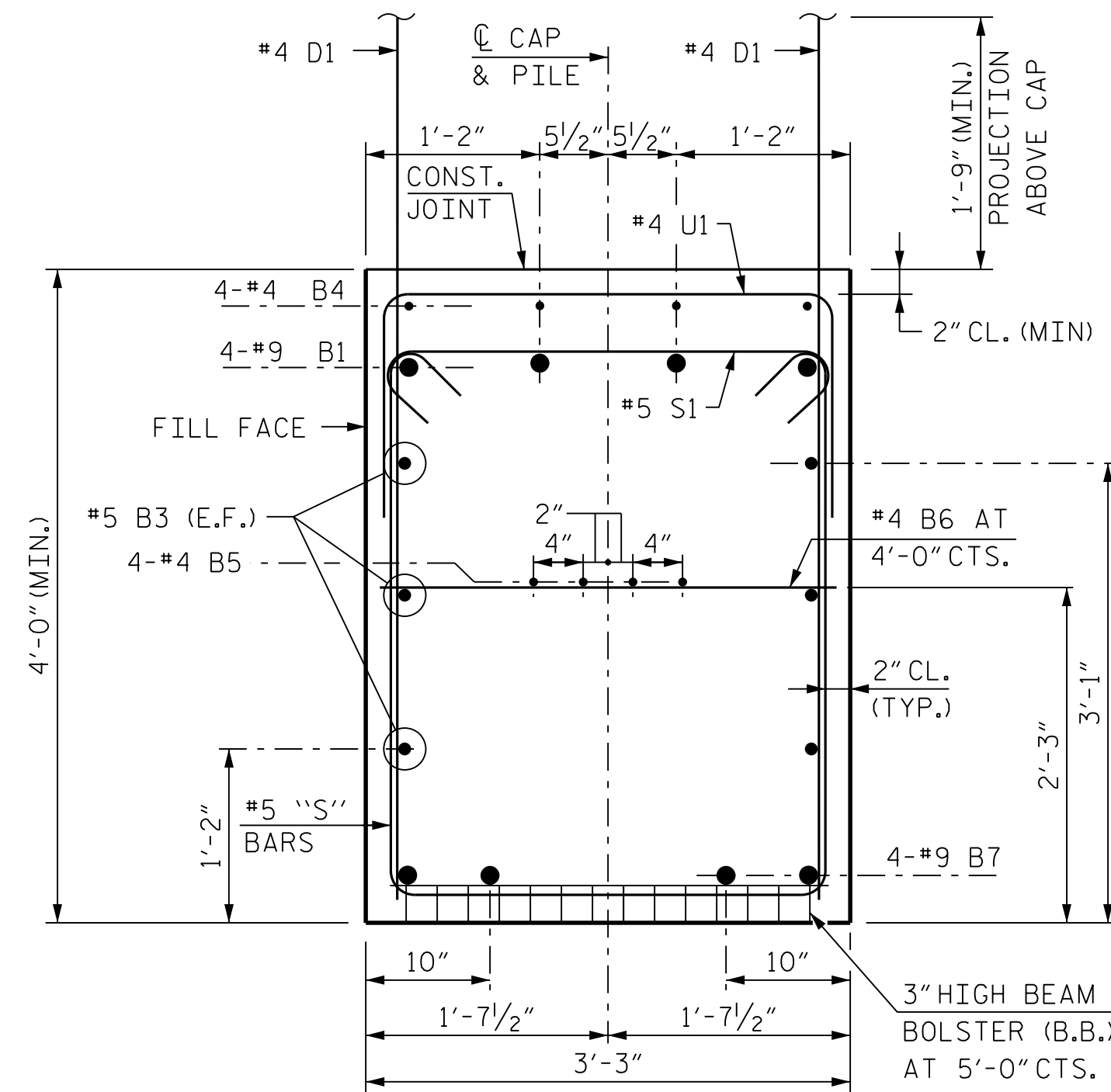
REVISIONS		SHEET NO.	
NO.	BY:	DATE:	NO.
1			3
2			4
			S5-29
			TOTAL SHEETS 39

STR. #5



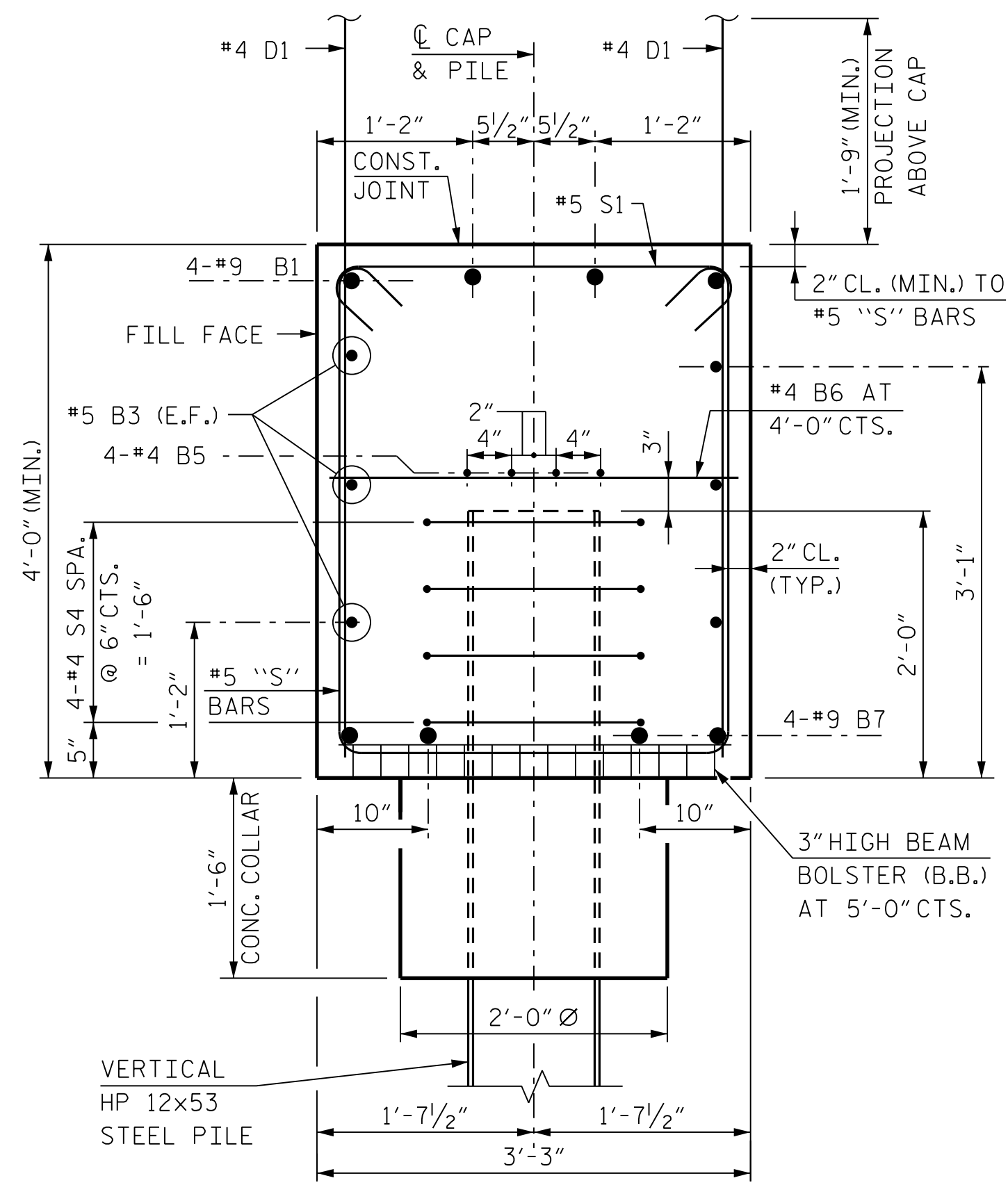
PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.



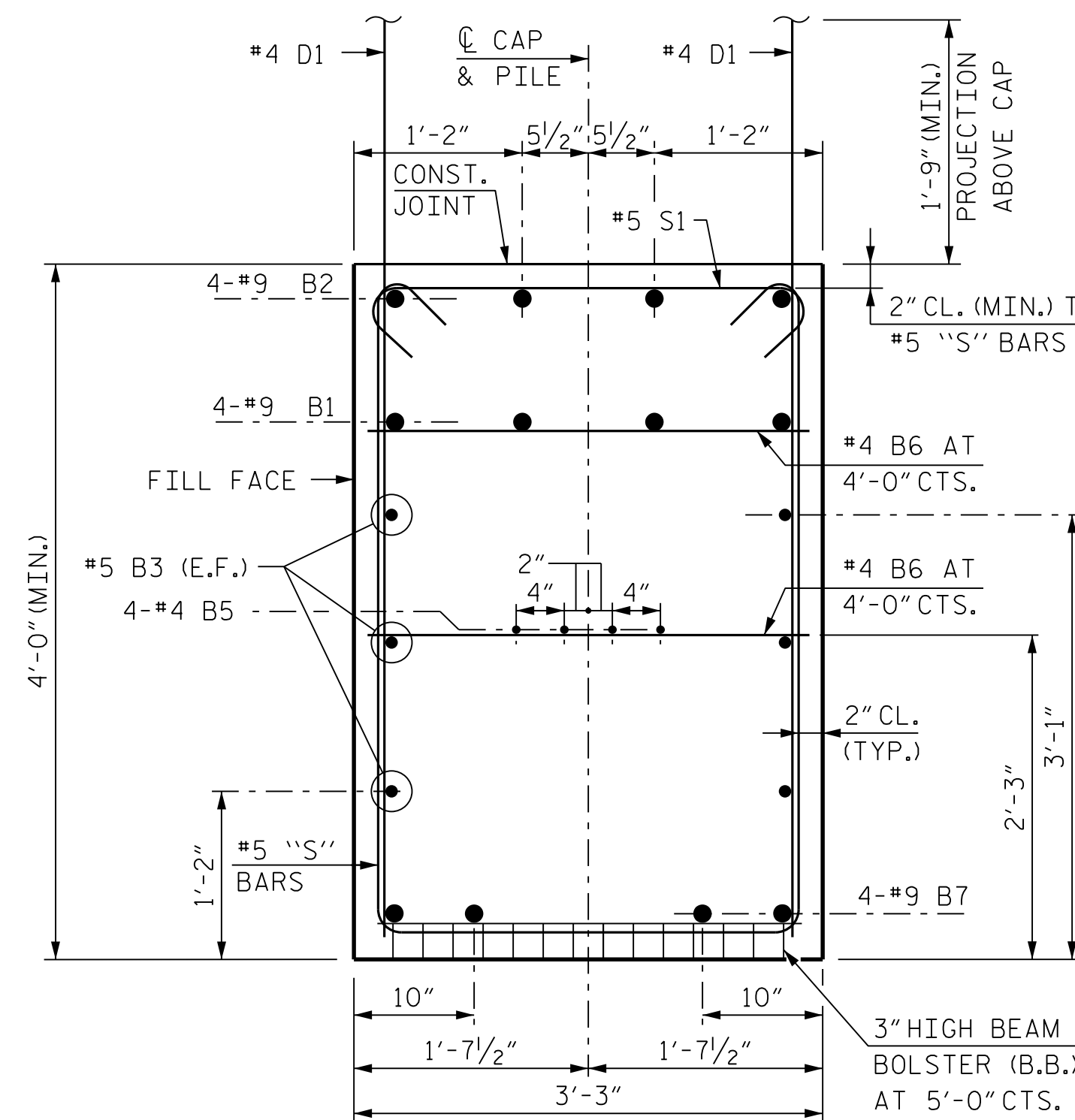
SECTION B-B

(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT)



SECTION A-A

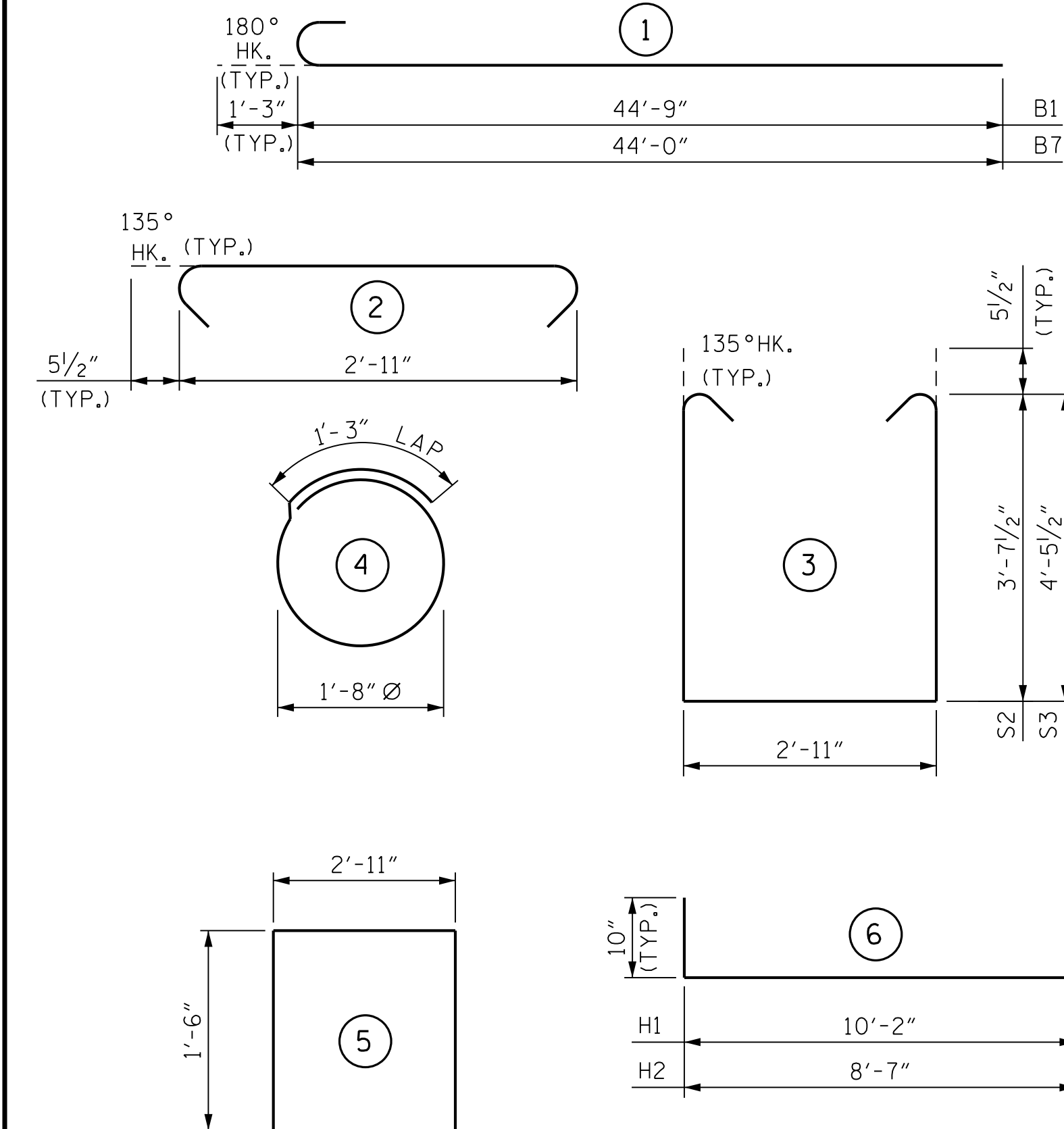
(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT)



SECTION C-C

(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT)

BAR TYPES



NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	46'-0"	1,251
B2	4	#9	STR.	12'-7"	171
B3	12	#5	STR.	43'-6"	544
B4	8	#4	STR.	17'-9"	95
B5	12	#4	STR.	29'-8"	238
B6	25	#4	STR.	2'-11"	49
B7	8	#9	1	45'-3"	1,231
D1	124	#4	STR.	6'-5"	532
H1	28	#5	6	11'-0"	321
H2	28	#5	6	9'-5"	275
H3	24	#4	STR.	2'-8"	43
S1	92	#5	2	3'-10"	368
S2	78	#5	3	11'-1"	902
S3	14	#5	3	12'-9"	186
S4	48	#4	4	6'-6"	208
U1	24	#4	5	5'-11"	95
V1	28	#5	STR.	9'-10"	287
V2	24	#5	STR.	9'-7"	240
REINFORCING STEEL					7,036 LB.
CLASS "A" CONCRETE					
POUR 1 (CAP & LOWER WINGS)					49.4 C.Y.
POUR 2 (UPPER WINGS)					5.4 C.Y.
TOTAL					54.8 C.Y.
HP 12 x 53 STEEL PILES					
NO.					12
LIN. FEET					660
PILE REDRIVES					6 EA.
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES					12 EA.

PROJECT NO. U-2519BA

CUMBERLAND COUNTY

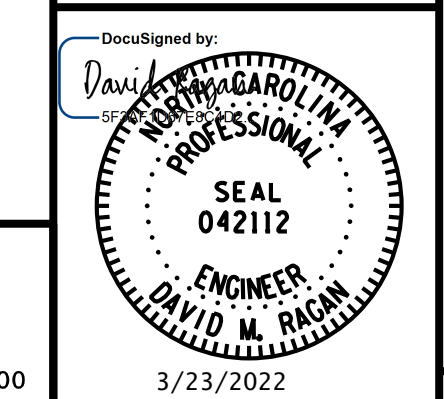
STATION: 24+41.38 -Y16-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1
DETAILS AND
BILL OF MATERIAL

SITE 4 DWG. NO. 30



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SHEET NO.
S5-30
TOTAL SHEETS
39

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DRAWN BY: B. A. HAAG DATE: FEB 2022
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DESIGN ENGINEER OF RECORD: D. M. RAGAN DATE: FEB 2022

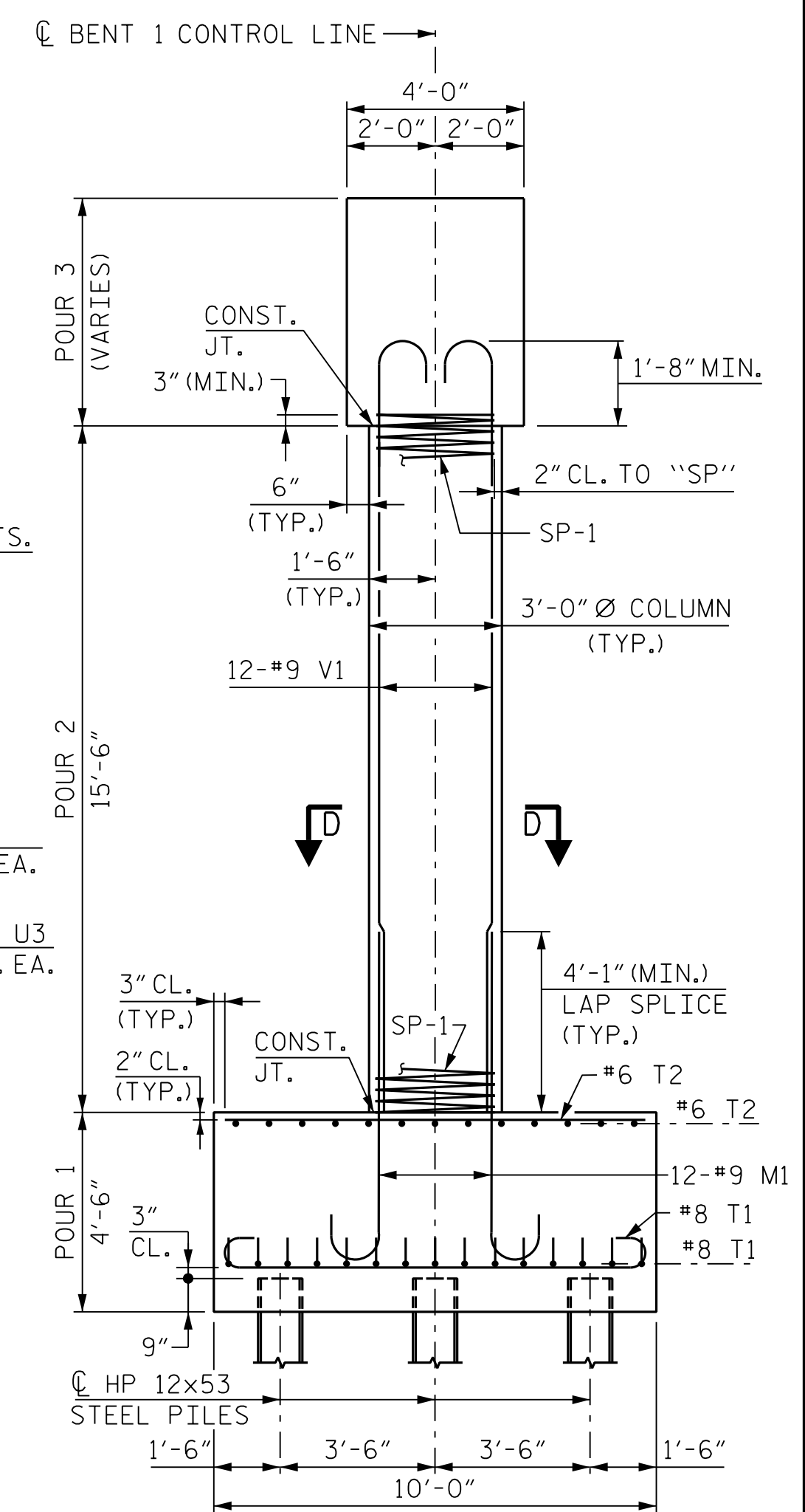
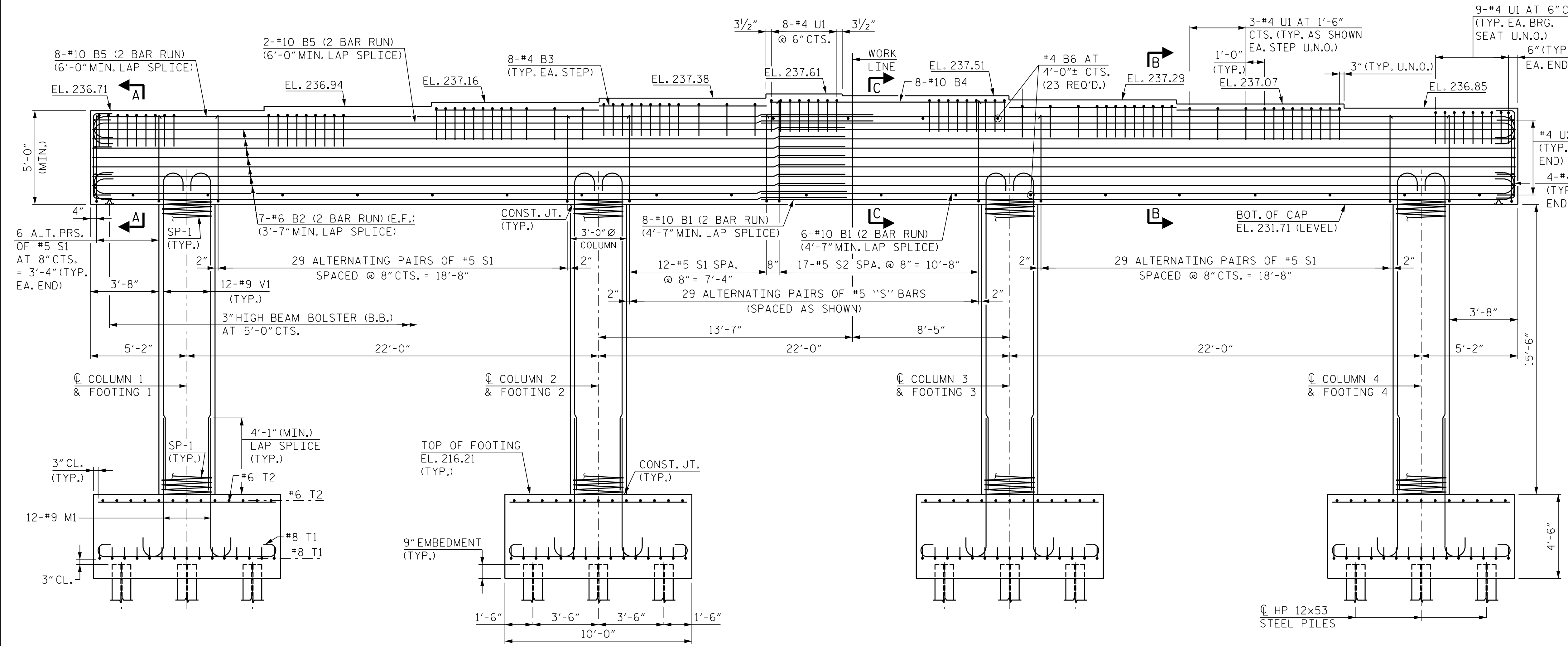
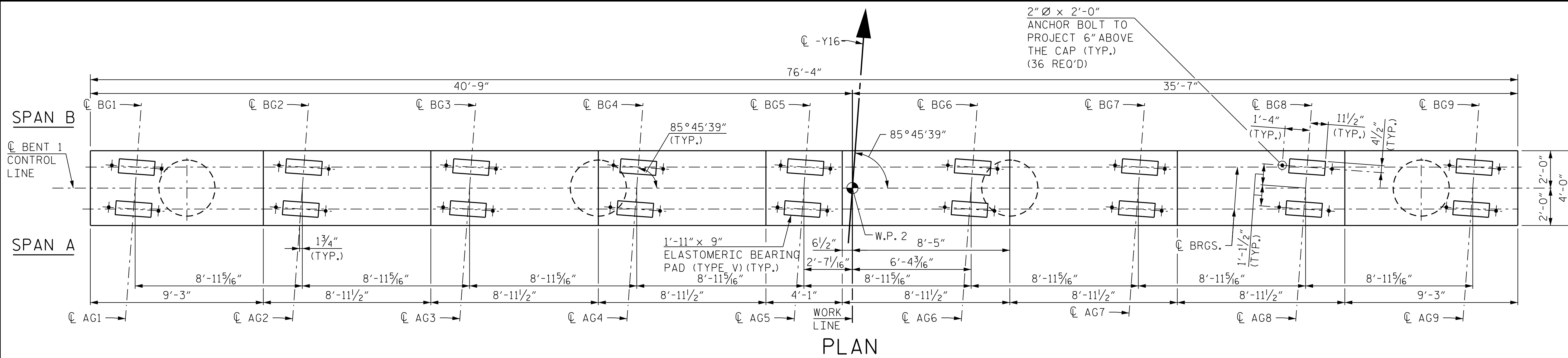
bgonfa

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" AND "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR PILE SPLICE DETAILS, SEE END BENT 1 SHEET 3 OF 3.



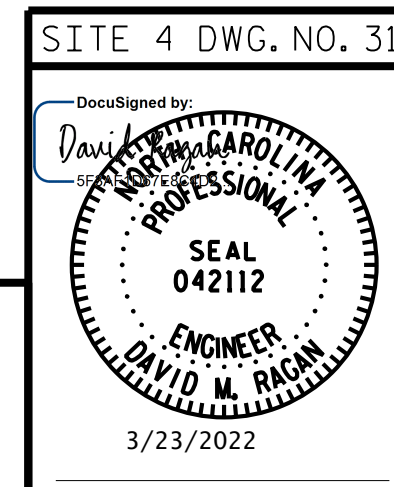
END ELEVATION
 (DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH FOOTING AND COLUMN)

PROJECT NO. U-2519BA
CUMBERLAND COUNTY
 STATION: 24+41.38 -Y16-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1
 PLAN AND
 ELEVATION



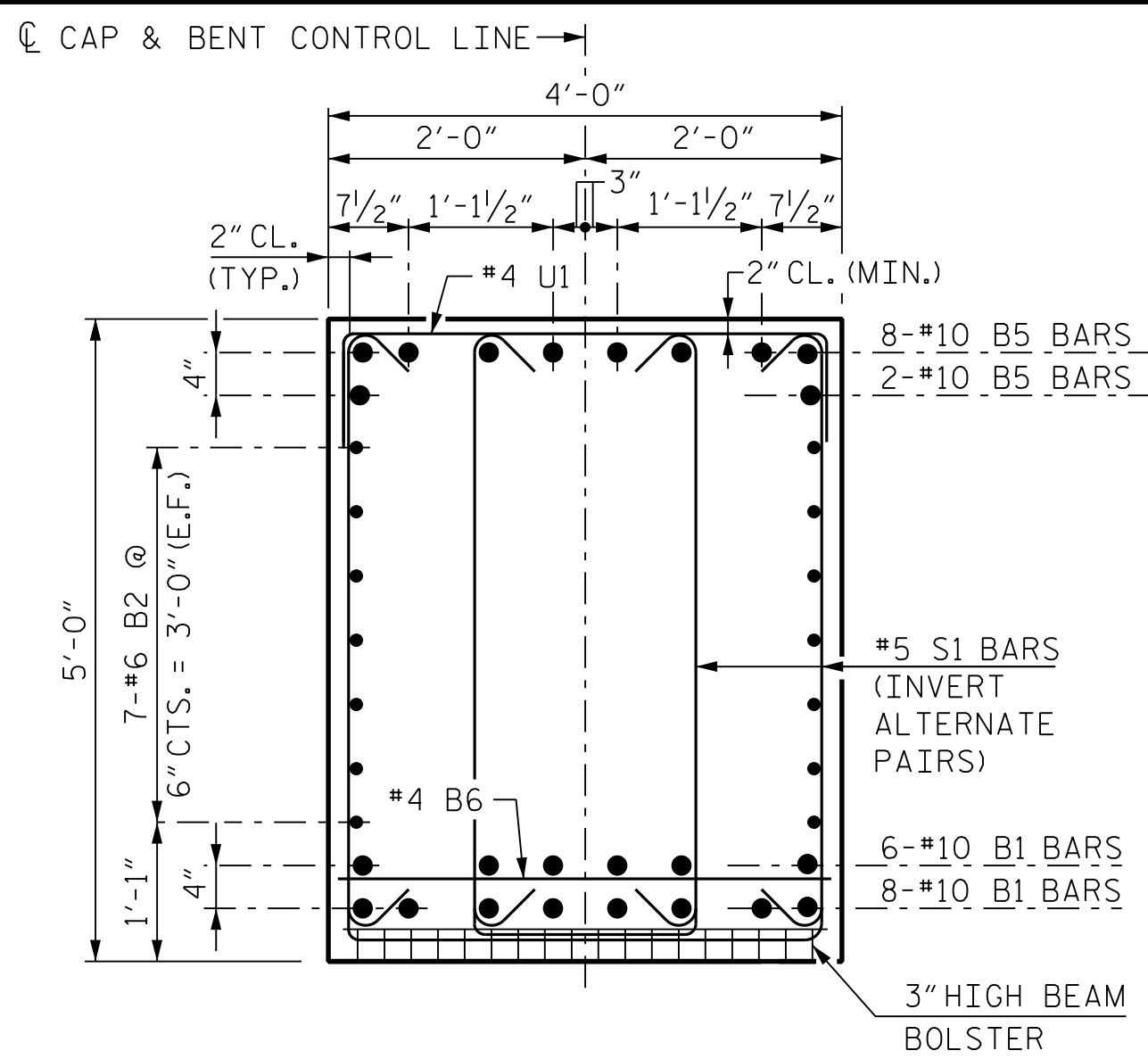
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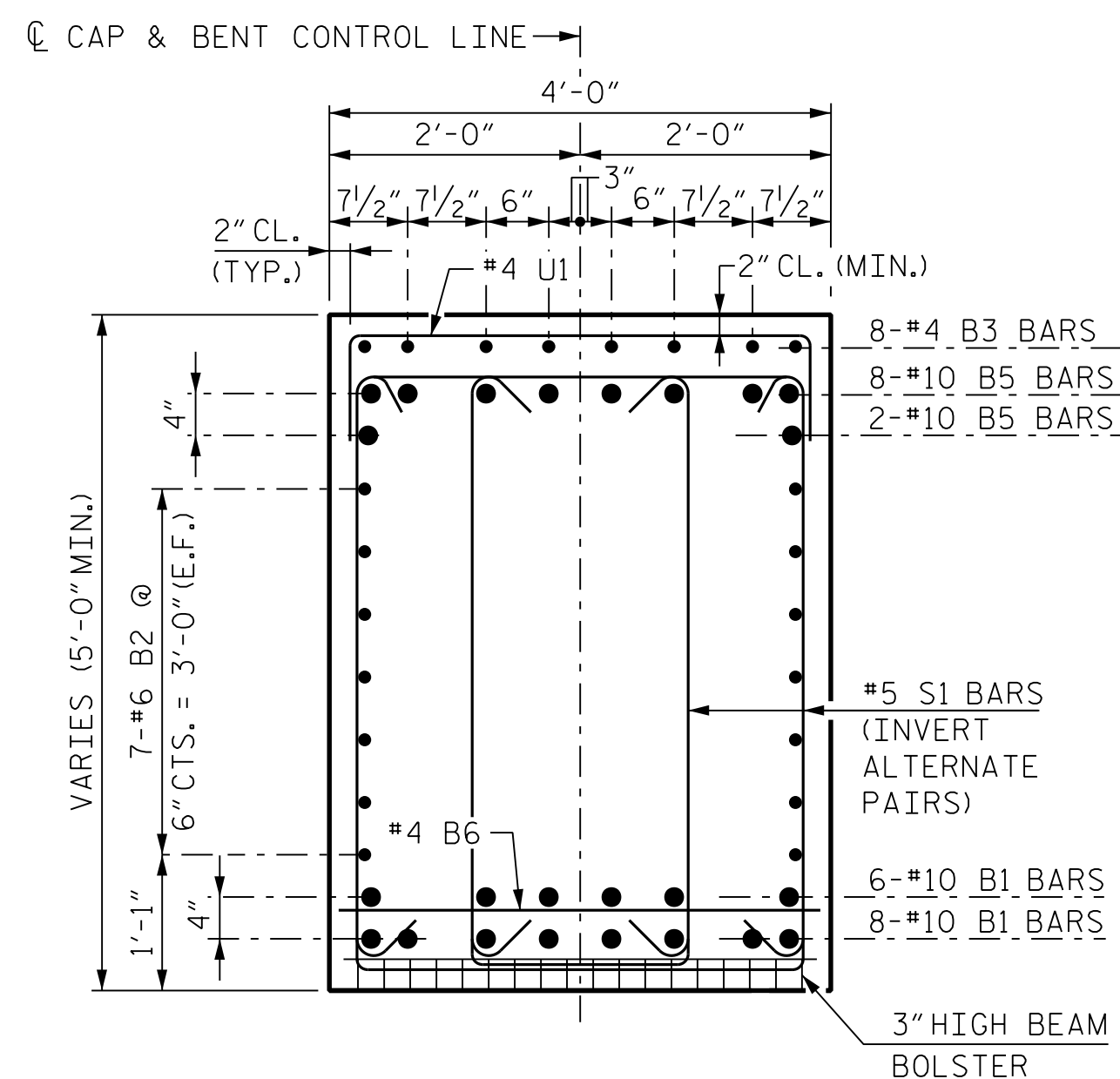
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 CHECKED BY: A. L. STROUD DATE: FEB 2022
 DESIGN ENGINEER OF RECORD: D. M. RAGAN DATE: FEB 2022

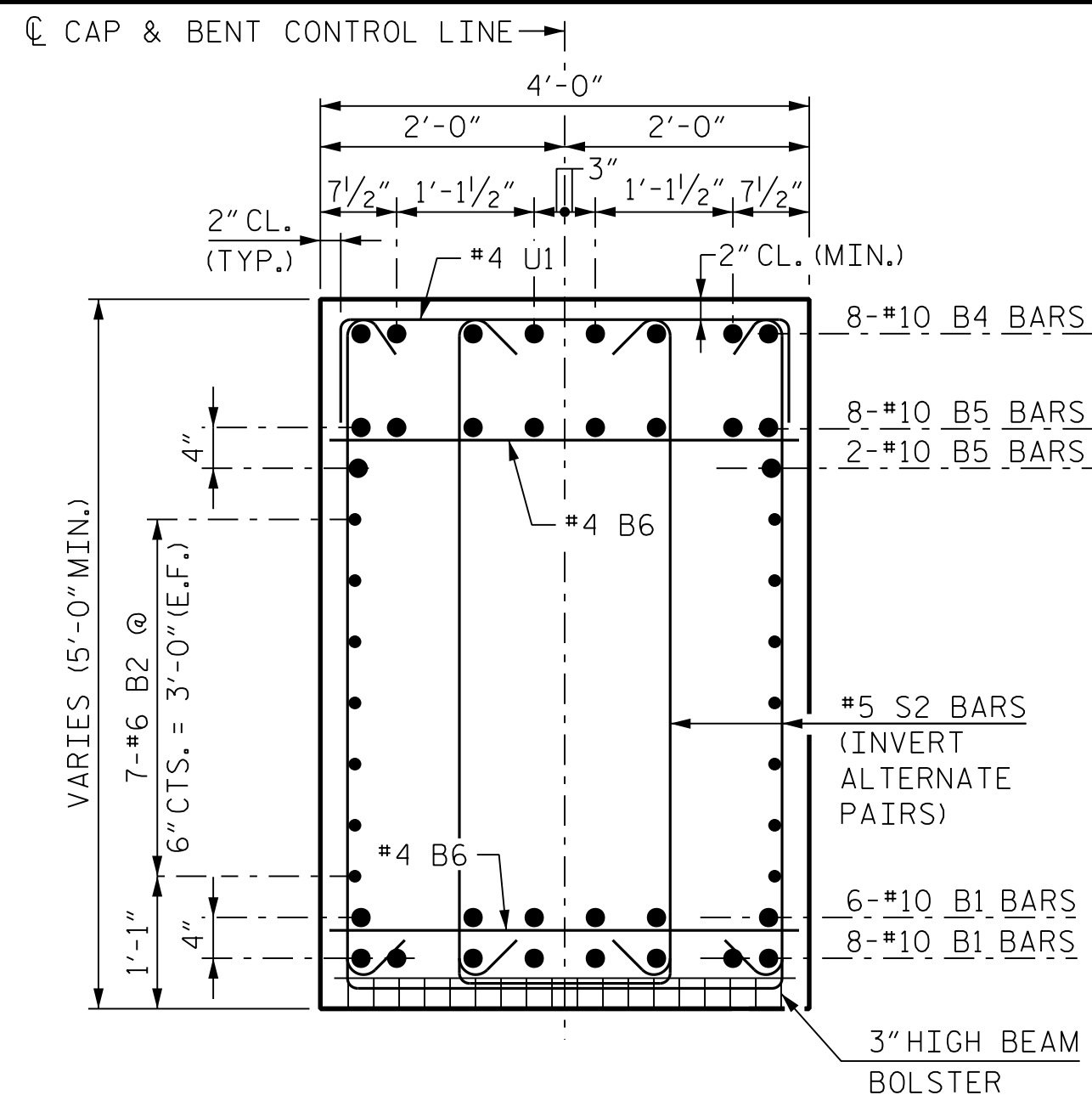
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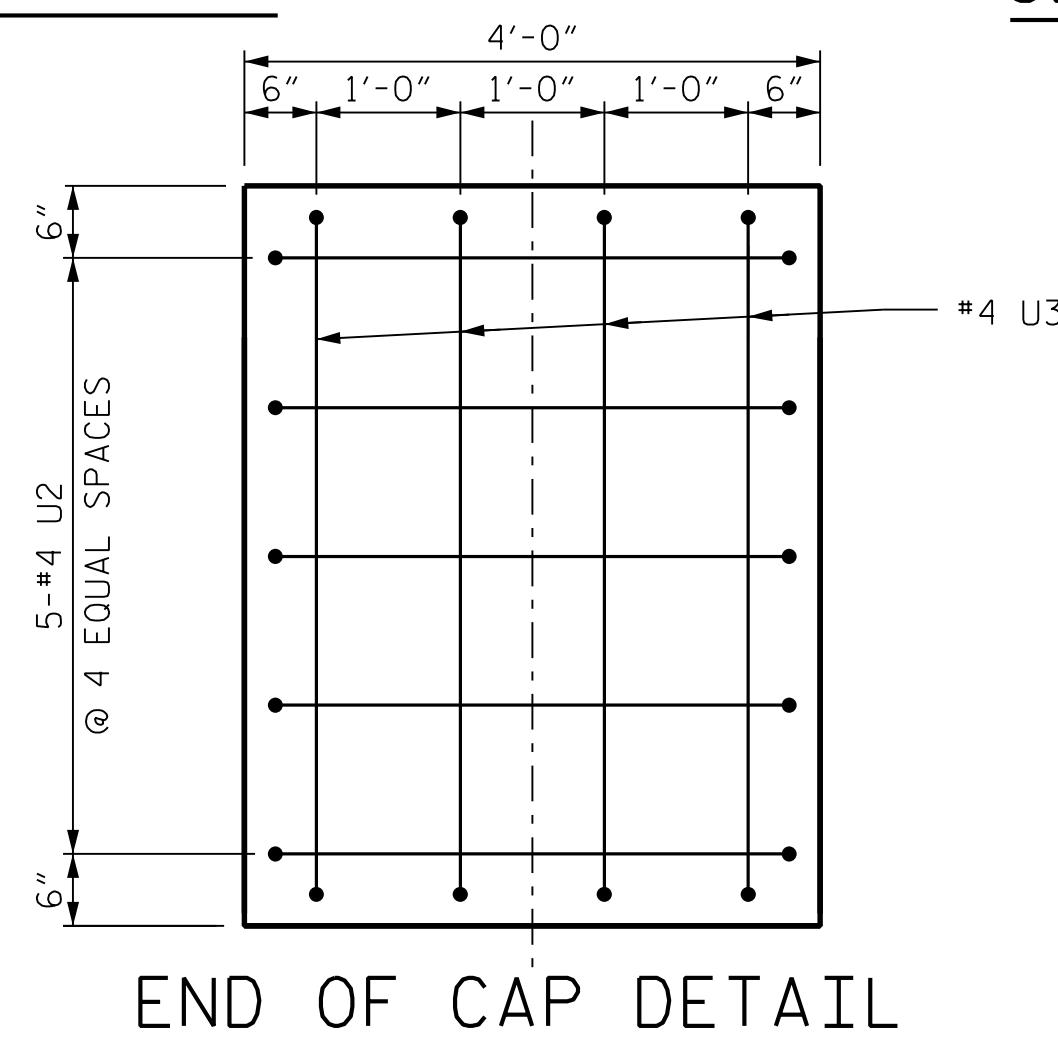
SECTION THROUGH CAP
SECTION A-A



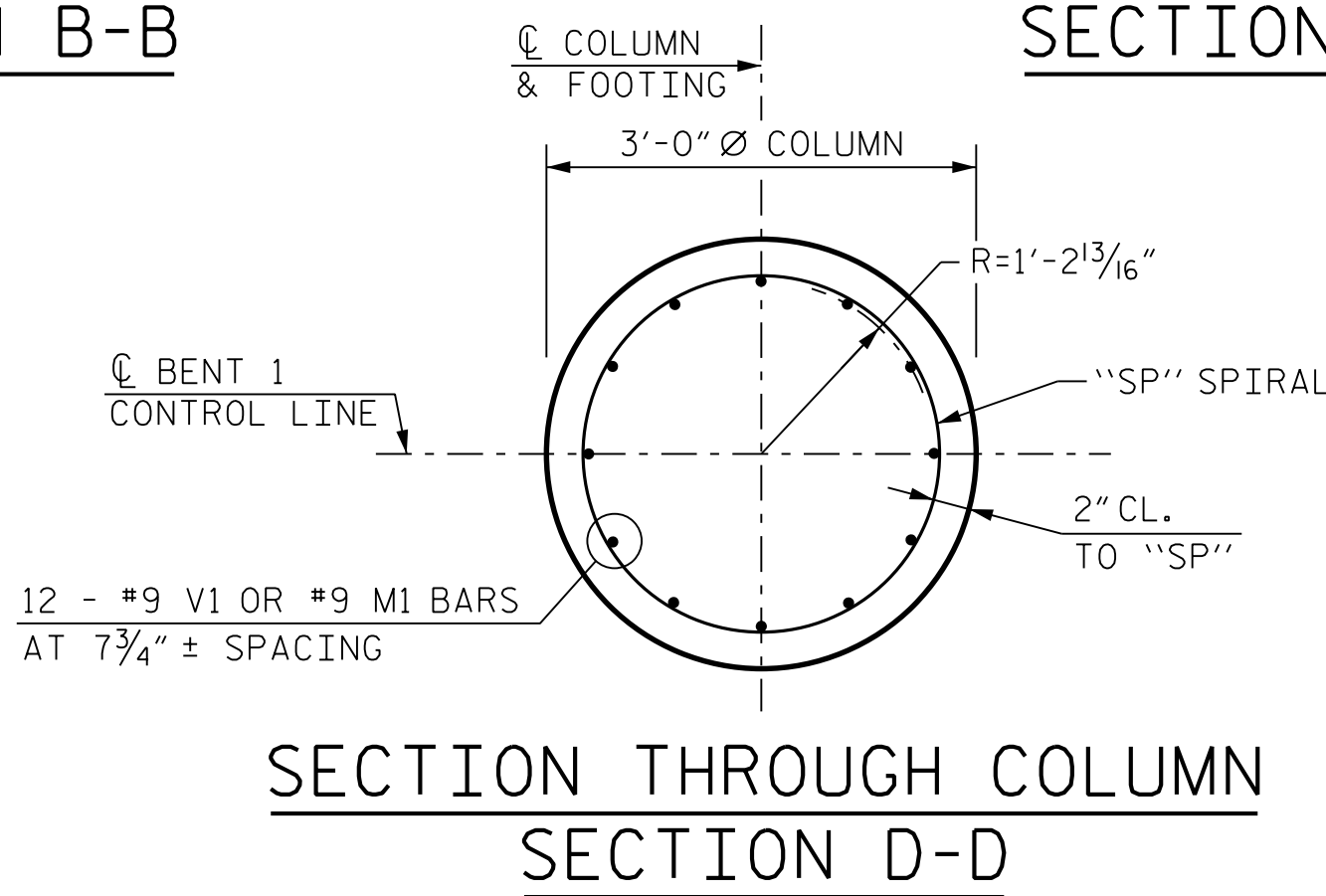
SECTION THROUGH CAP
SECTION B-B



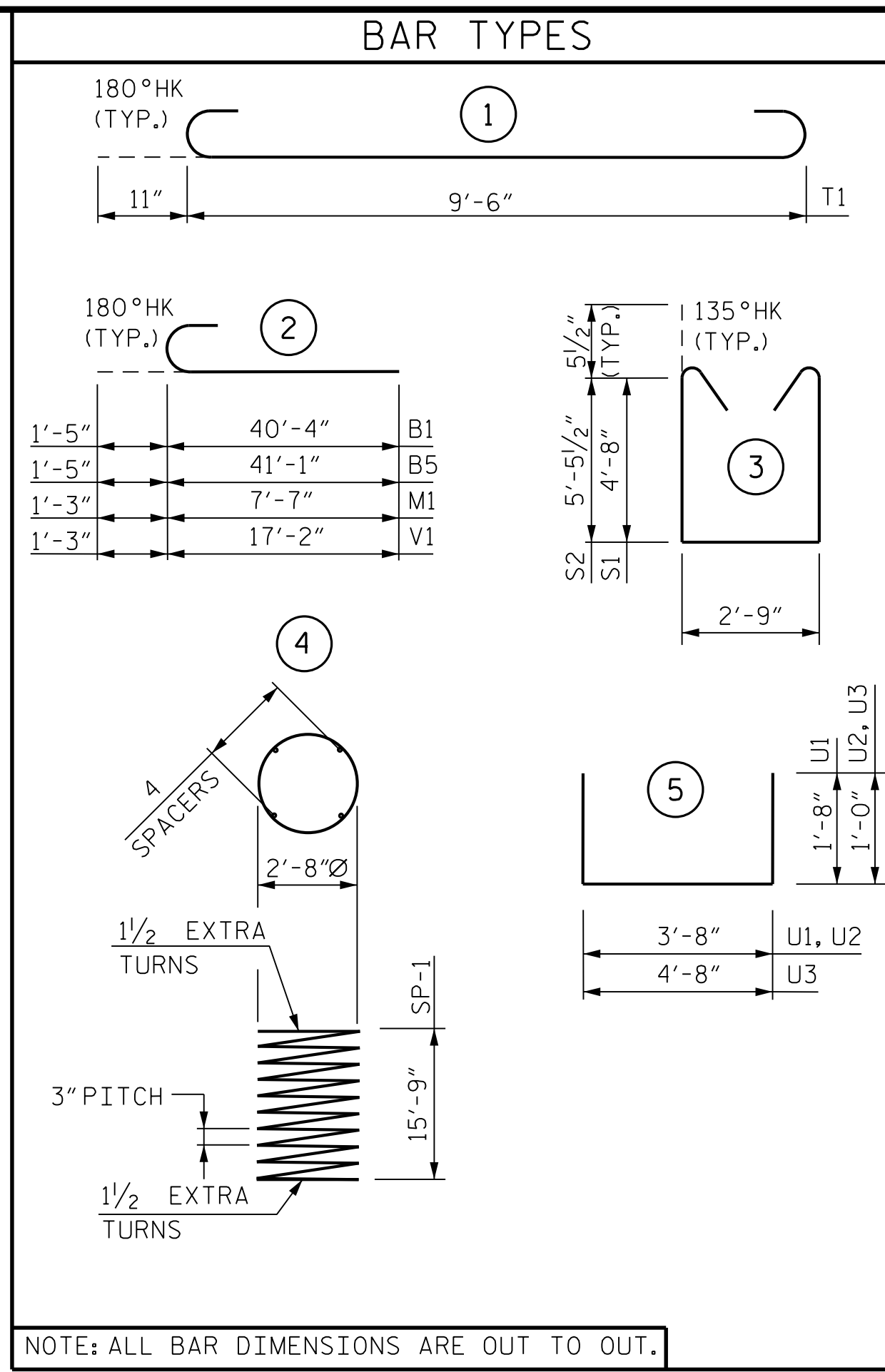
SECTION THROUGH CAP
SECTION C-C



END OF CAP DETAIL

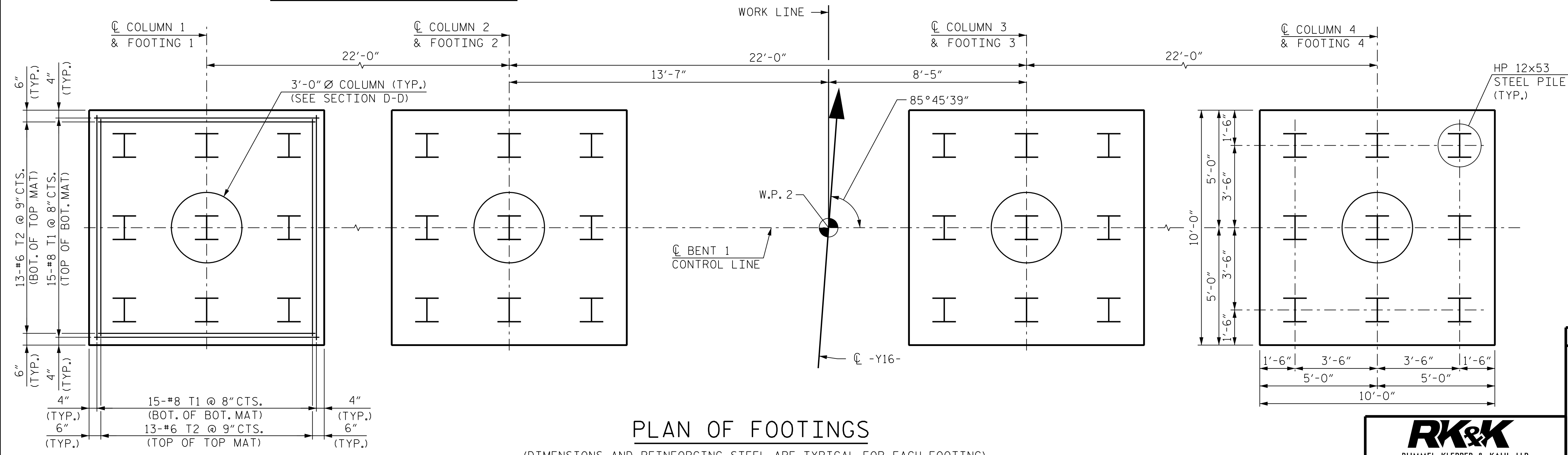


SECTION THROUGH COLUMN
SECTION D-D



NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	28	#10		41'-9"	5,030
B2	28	#6	STR.	39'-10"	1,675
B3	32	#4	STR.	8'-9"	187
B4	8	#10	STR.	12'-8"	436
B5	20	#10		42'-6"	3,658
B6	23	#4	STR.	3'-8"	56
M1	48	#9		8'-10"	1,442
S1	164	#5		13'-0"	2,224
S2	34	#5		14'-7"	517
T1	120	#8		11'-4"	3,631
T2	104	#6	STR.	9'-6"	1,484
U1	92	#4		7'-0"	430
U2	10	#4		5'-8"	38
U3	8	#4		6'-8"	36
V1	48	#9		18'-5"	3,006
REINFORCING STEEL				23,850	LBS.
SP-1	4	**	4	544'-7"	1,455
SPIRAL COLUMN REINFORCING STEEL				1,455	LBS.
** SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
CLASS "A" CONCRETE					
POUR 1 (FOOTINGS)				66.7	C.Y.
POUR 2 (COLUMNS)				16.3	C.Y.
POUR 3 (CAP)				61.4	C.Y.
TOTAL				144.4	C.Y.
HP 12X53 STEEL PILES					
NO.				36	
L.F.				1,980	
PILE REDRIVES				18	EA.
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES				36	EA.



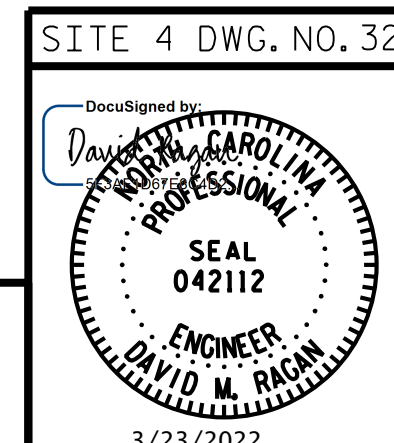
PLAN OF FOOTINGS

(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH FOOTING)

PROJECT NO. U-2519BA
CUMBERLAND COUNTY
 STATION: 24+41.38 -Y16-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
 BENT 1
 DETAILS AND
 BILL OF MATERIAL



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2			4		

SHEET NO.
S5-32
 TOTAL SHEETS
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 CHECKED BY: A. L. STROUD DATE: FEB 2022
 DESIGN ENGINEER OF RECORD: D. M. RAGAN DATE: FEB 2022

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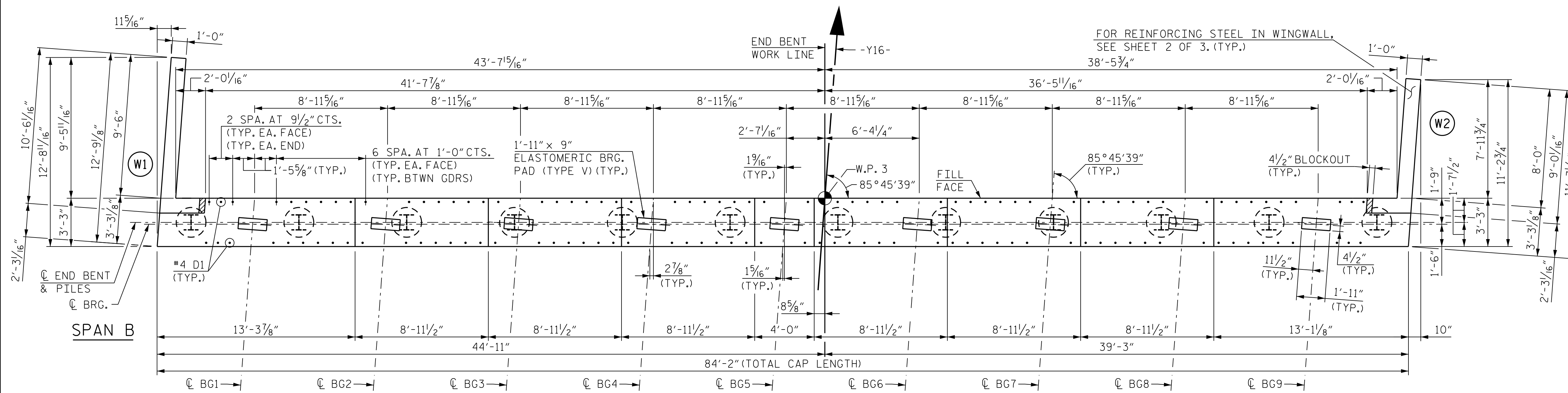
FOR SECTION A-A, B-B AND C-C, SEE SHEET 3 OF 3.

FOR PILE SPLICE DETAILS, SEE END BENT 1, SHEET 3 OF 3.

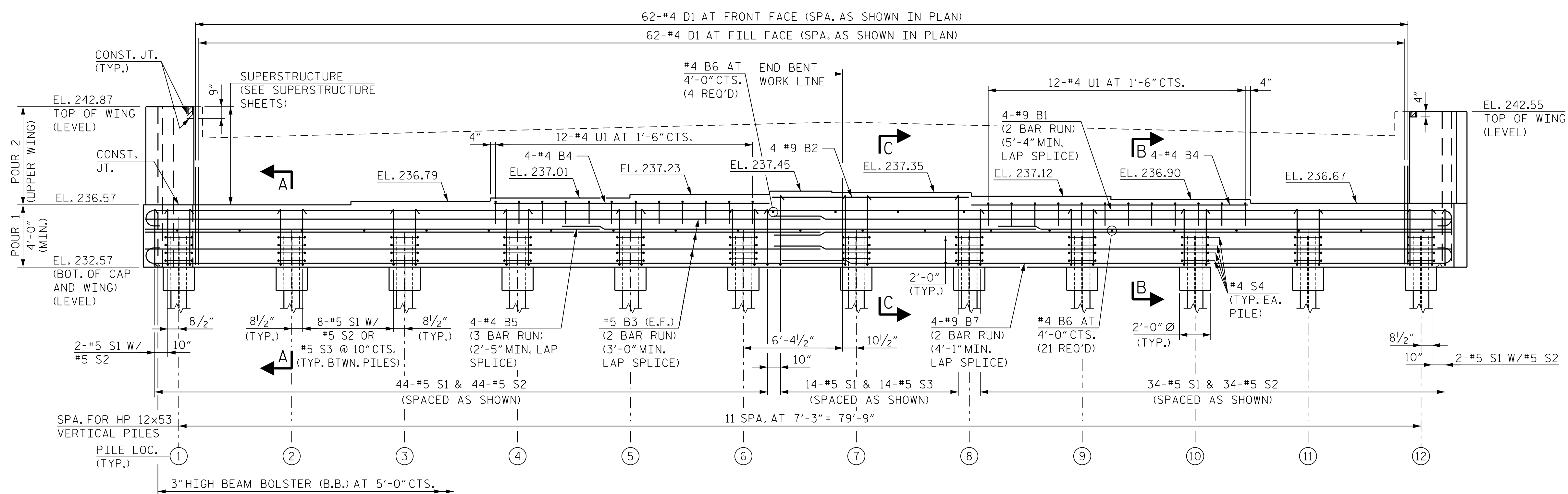
FOR TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".

FOR "BLOCKOUT IN WINGWALL" DETAILS, SEE SUPERSTRUCTURE TYPICAL SECTIONS SHEET 2 OF 3.



PLAN



ELEVATION

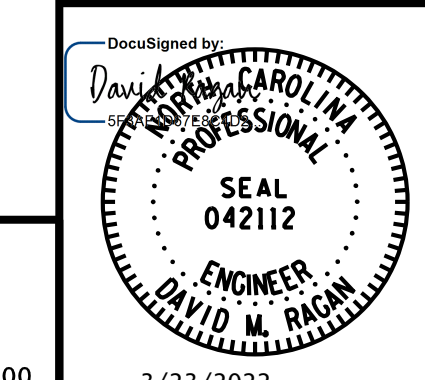
PROJECT NO. U-2519BA
CUMBERLAND COUNTY
 STATION: 24+41.38 -Y16-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
END BENT 2
PLAN AND ELEVATION

SITE 4 DWG. NO. 33



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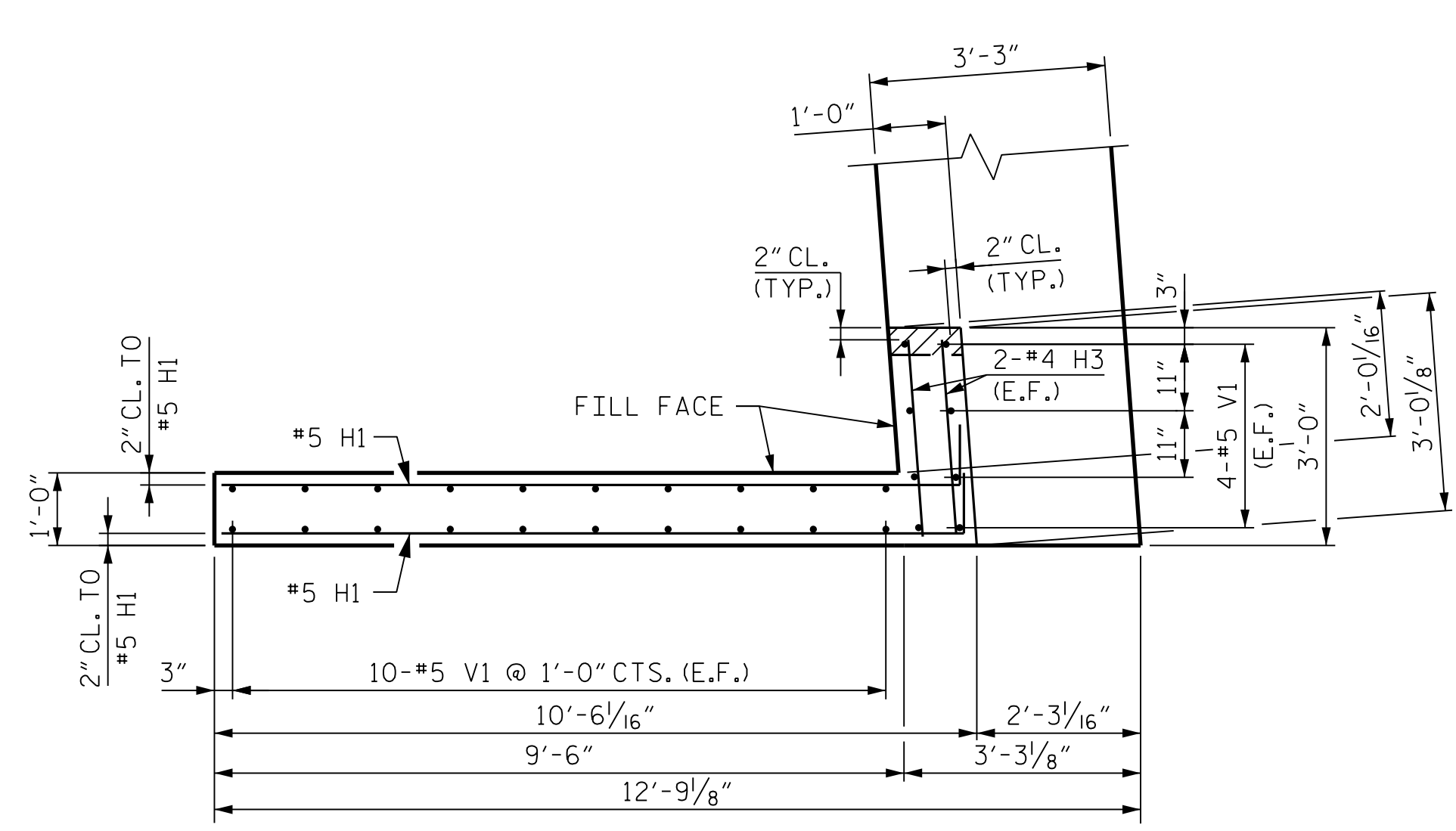
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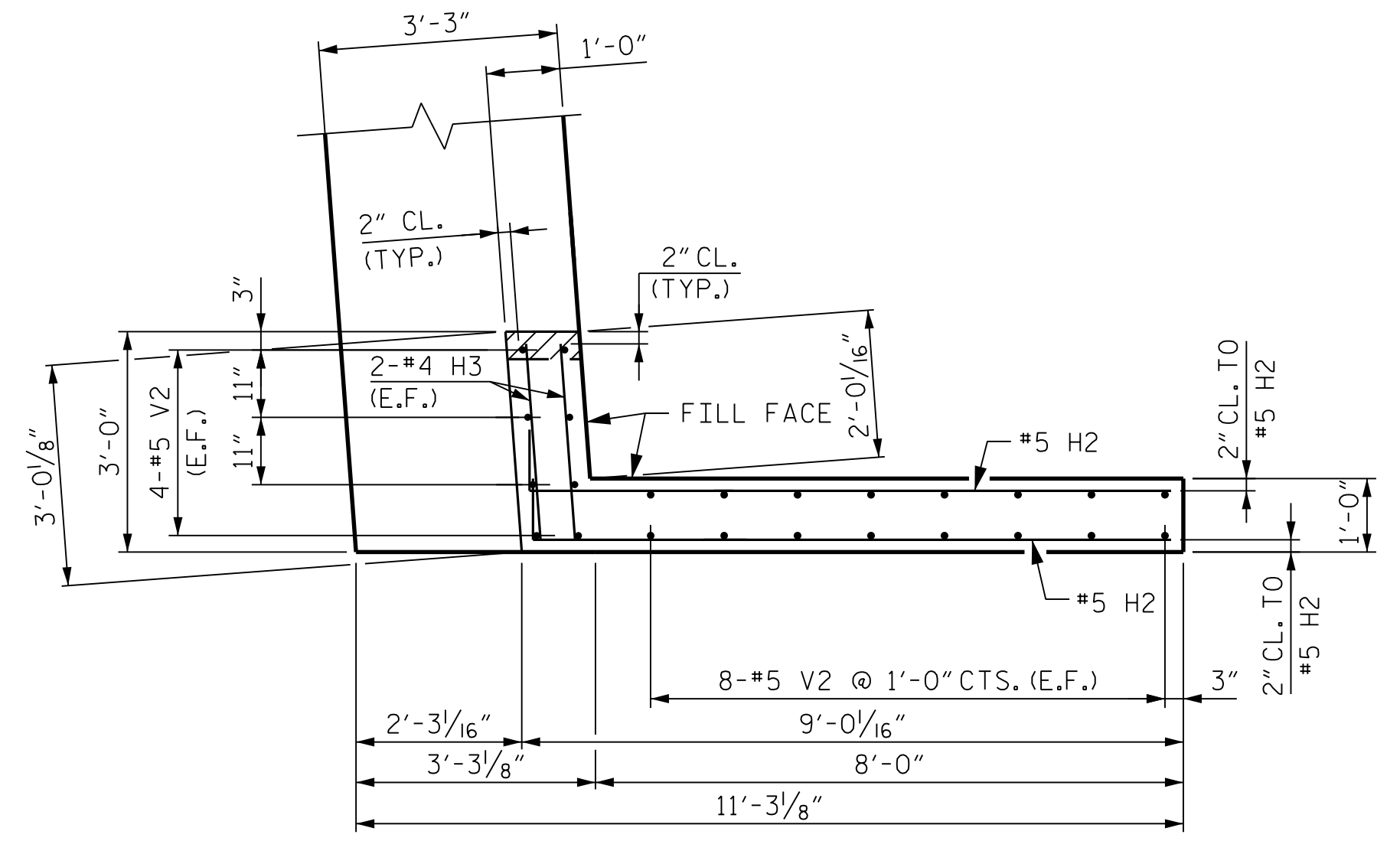
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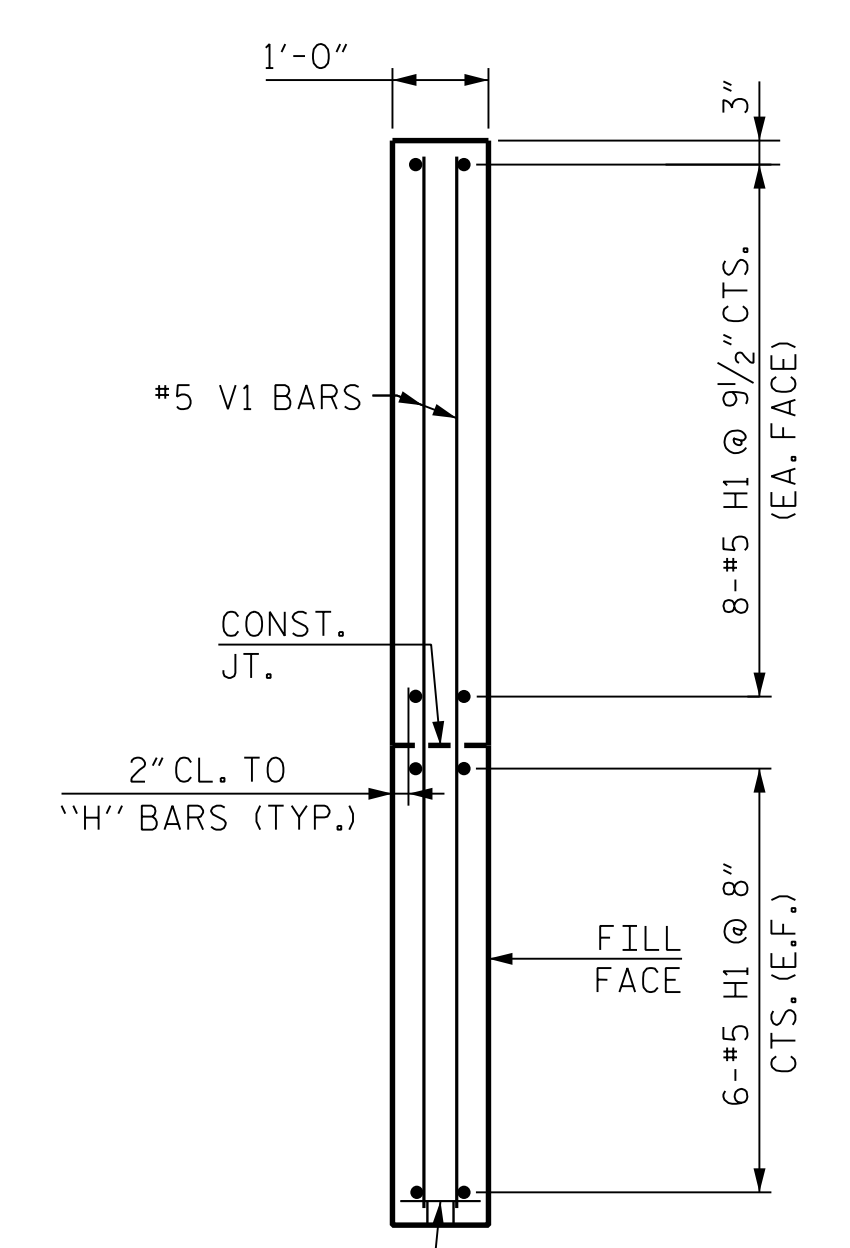
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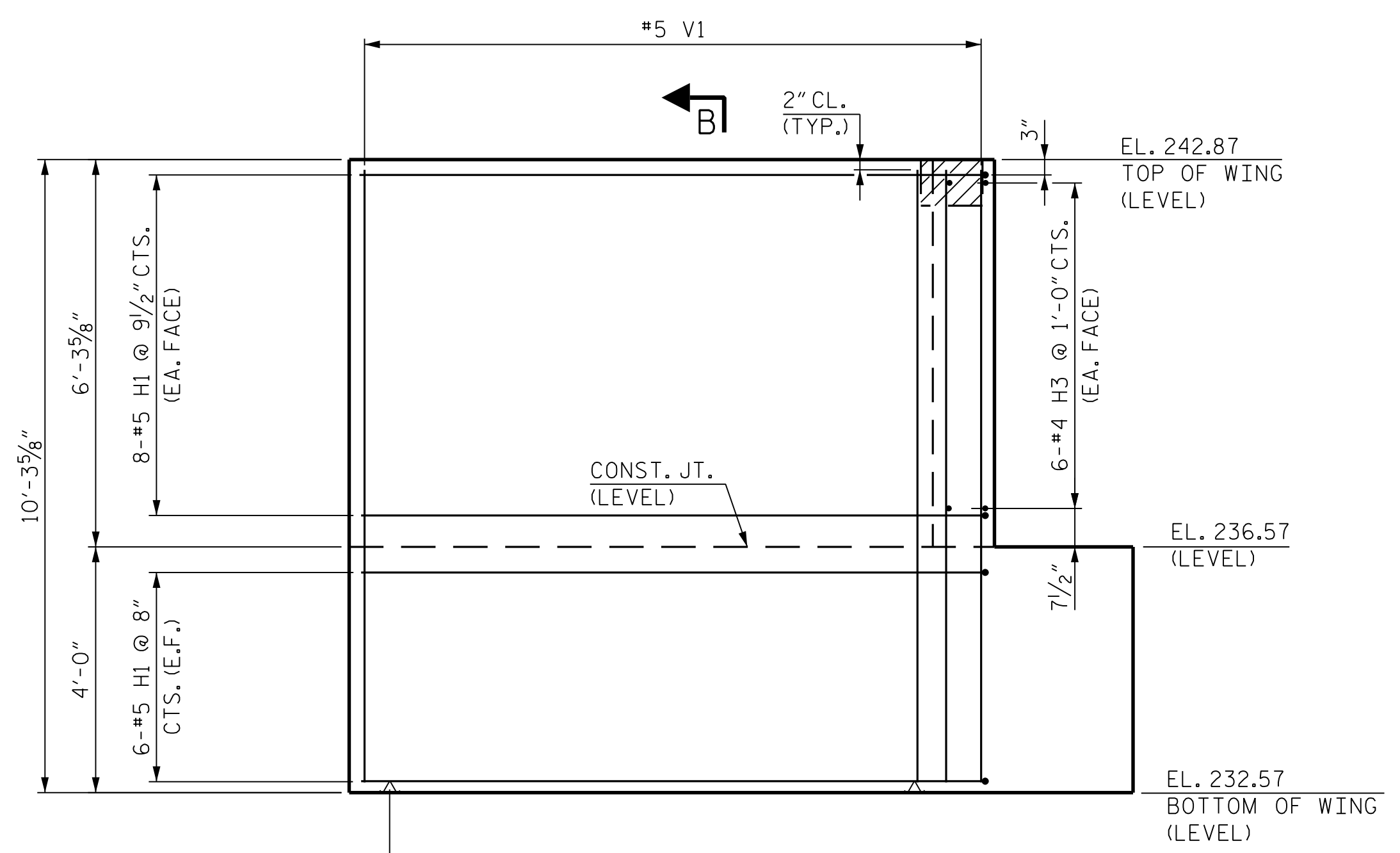
PLAN OF LEFT WINGWALL



PLAN OF RIGHT WINGWALL

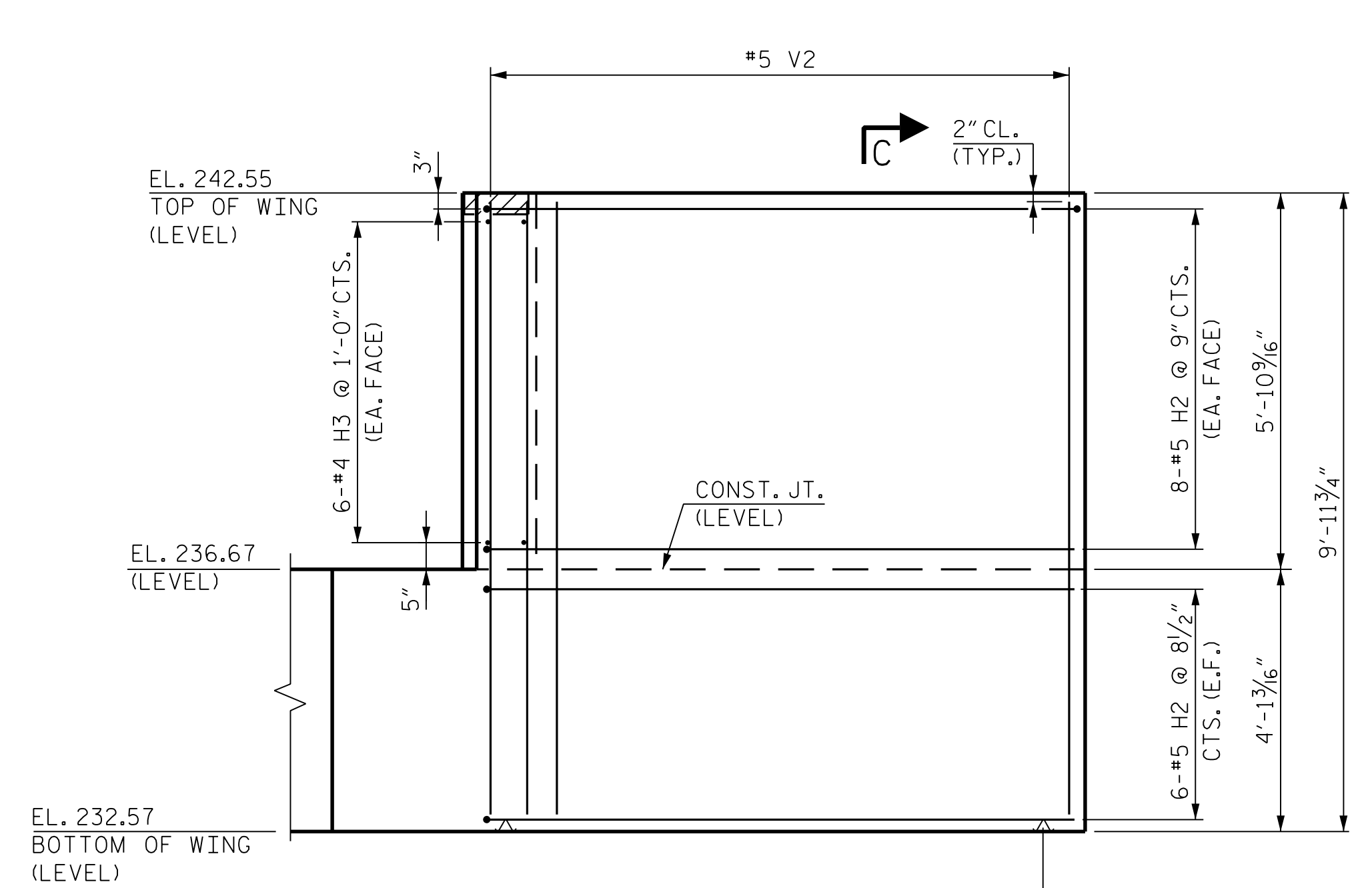


SECTION B-B
3\"/>



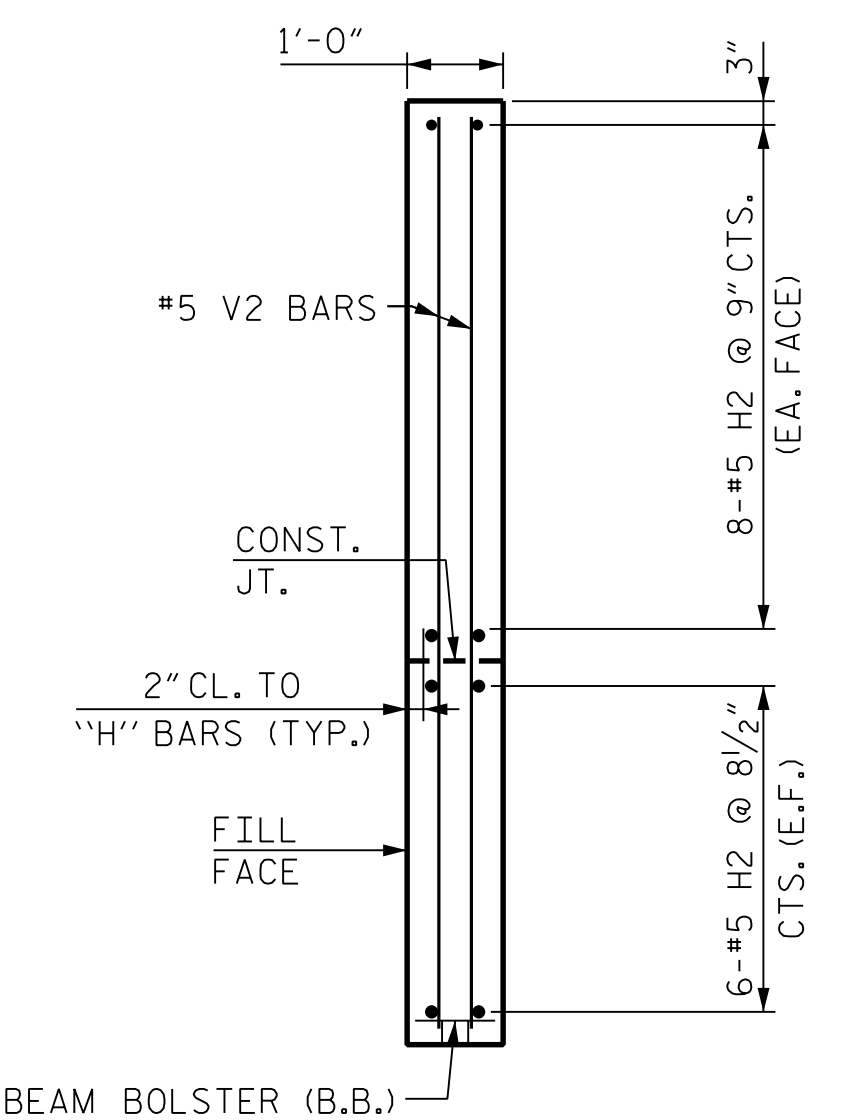
ELEVATION OF LEFT WINGWALL

LEFT WINGWALL DETAILS (W1)



ELEVATION OF RIGHT WINGWALL

RIGHT WINGWALL DETAILS (W2)



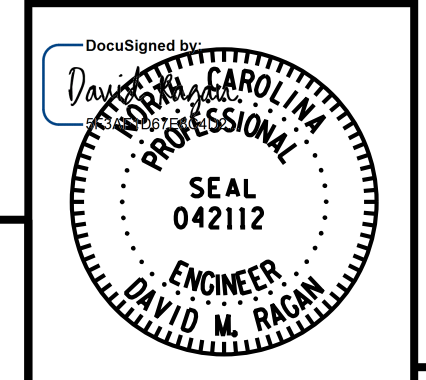
SECTION C-C
3\"/>

PROJECT NO. U-2519BA
CUMBERLAND COUNTY
 STATION: 24+41.38 -Y16-

SHEET 2 OF 3

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

SITE 4 DWG. NO. 34



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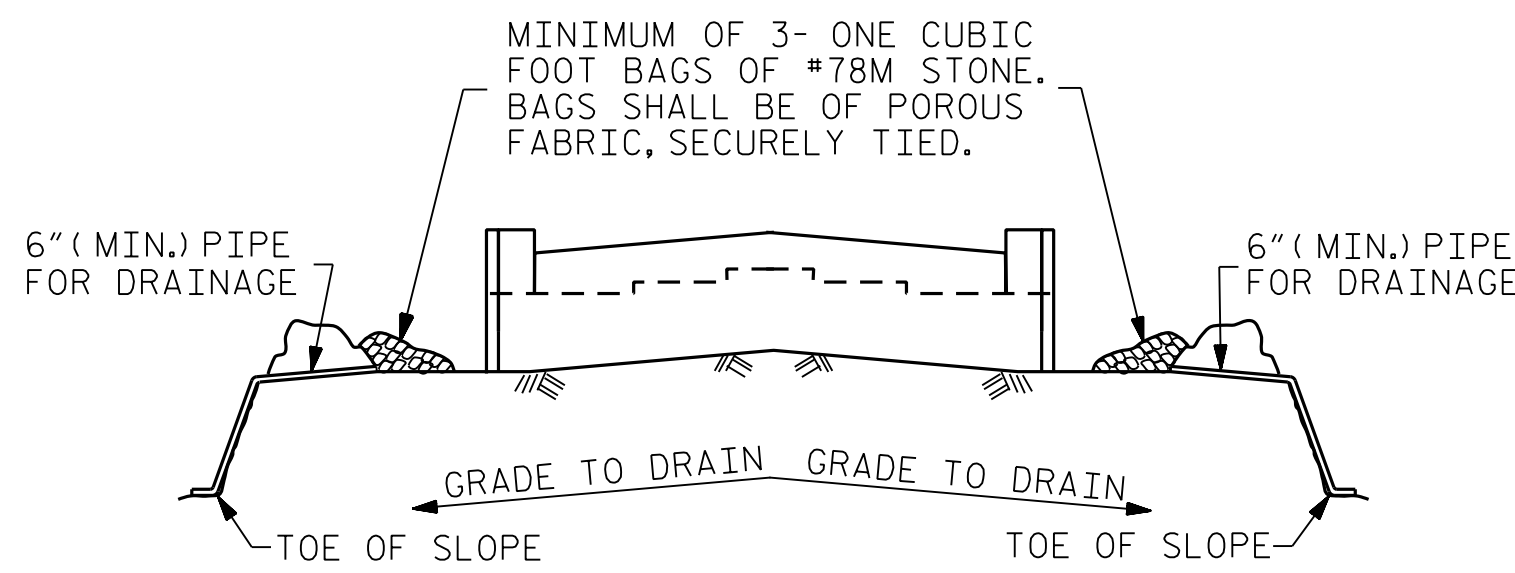
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2			4

SHEET NO. **S5-34**
 TOTAL SHEETS 39

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 CHECKED BY : D. M. RAGAN DATE : FEB 2022
 DESIGN ENGINEER OF RECORD : D. M. RAGAN DATE : FEB 2022

STR. #5

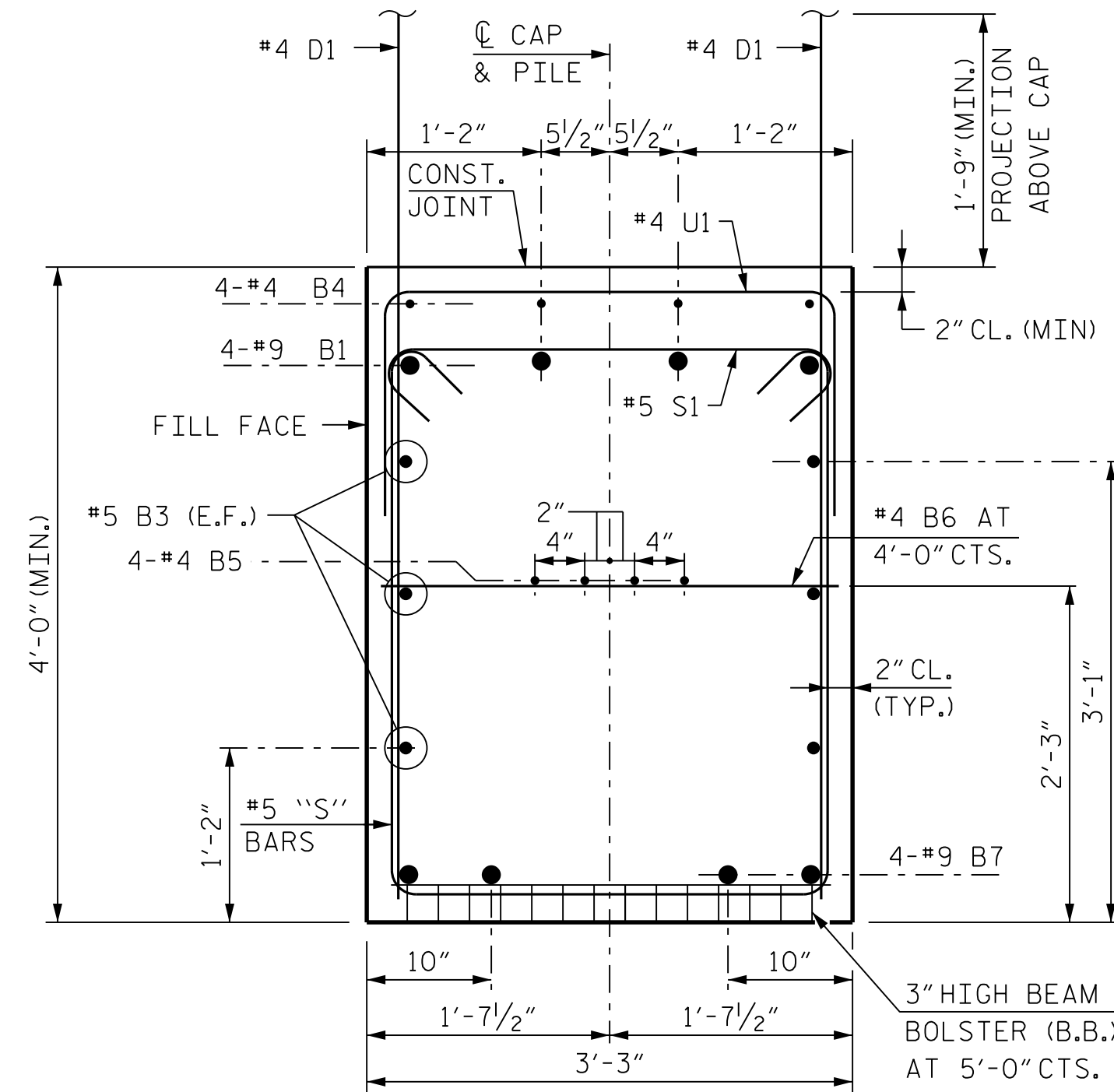


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

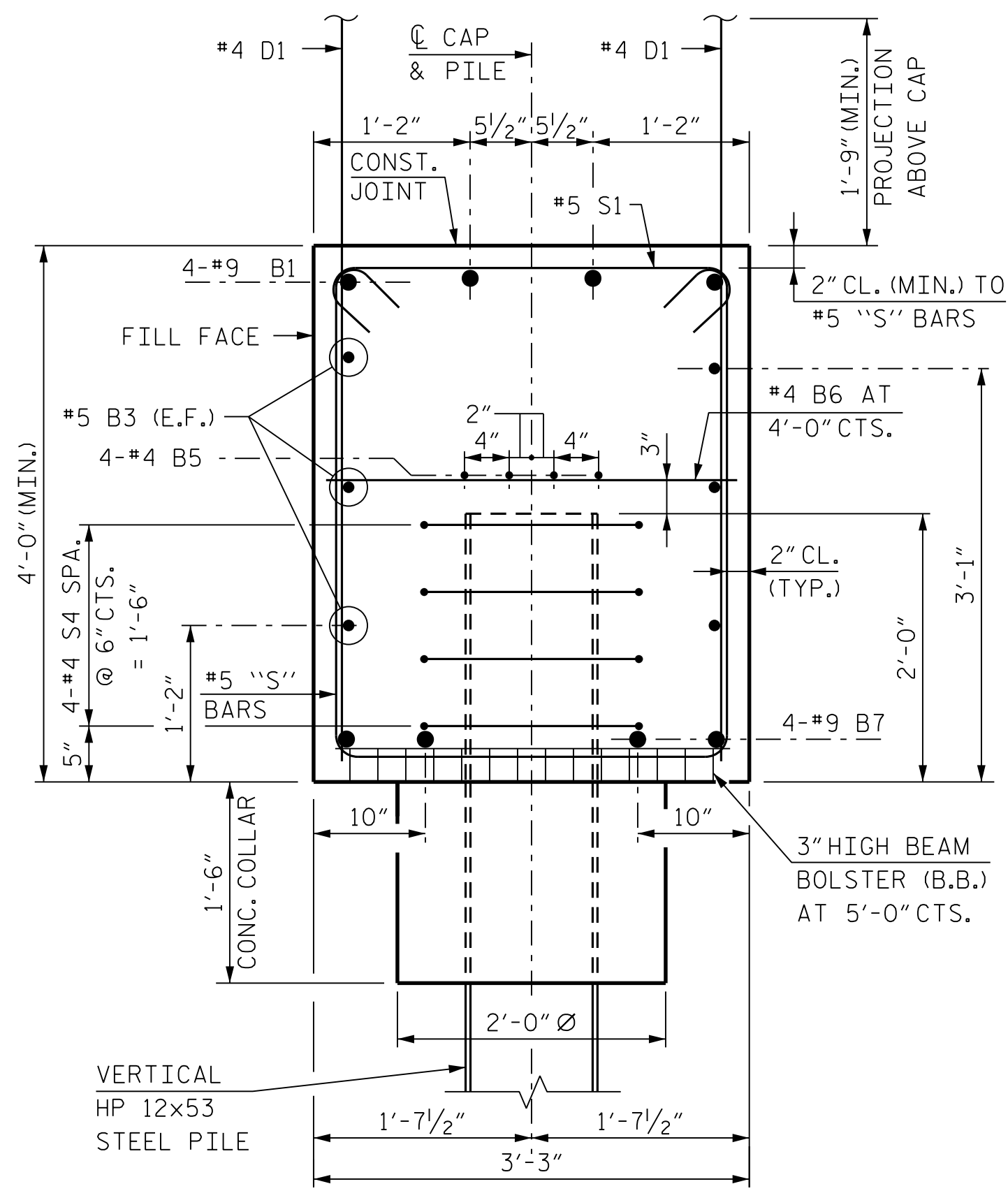
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



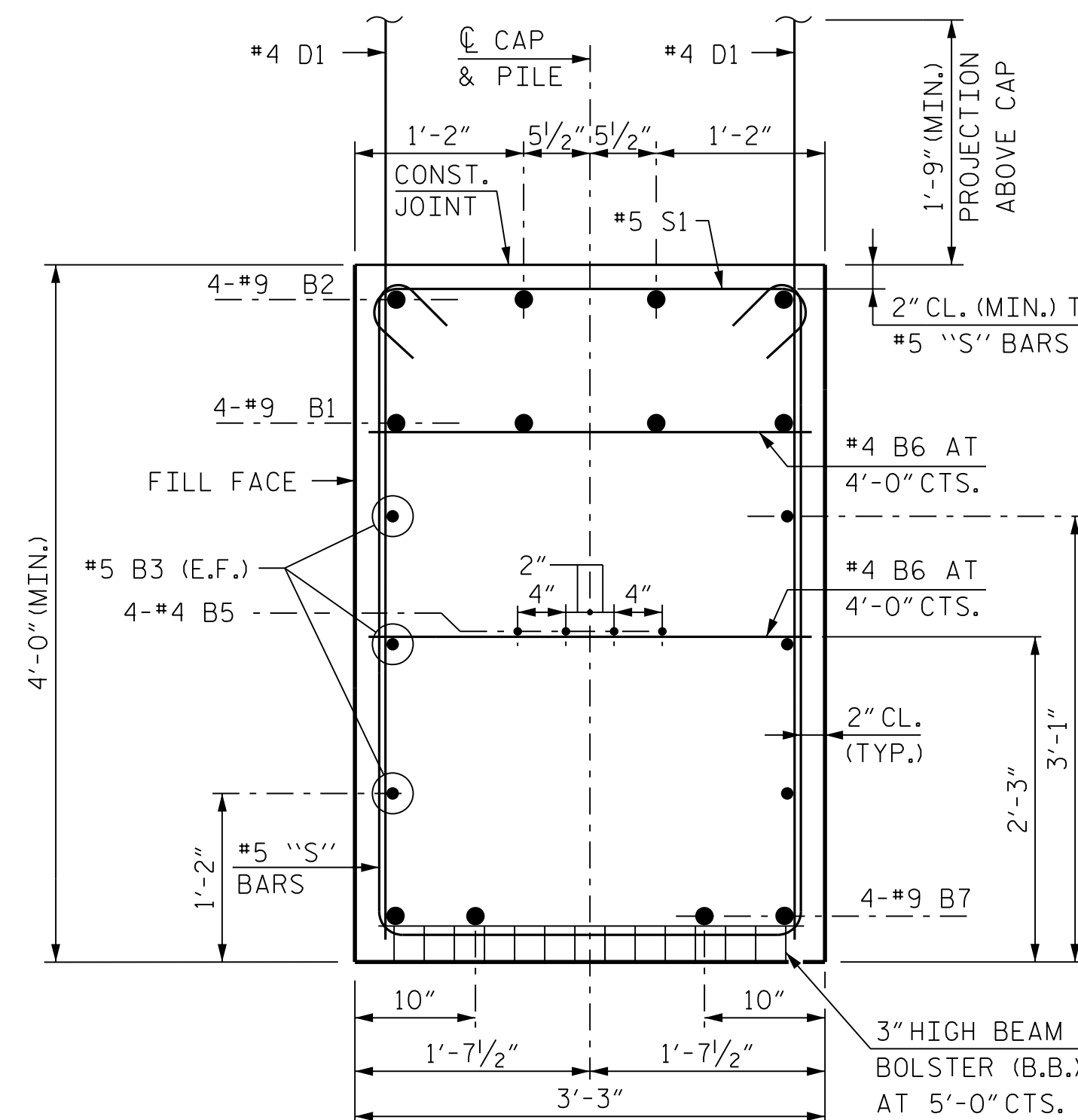
SECTION B-B

(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT)



SECTION A-A

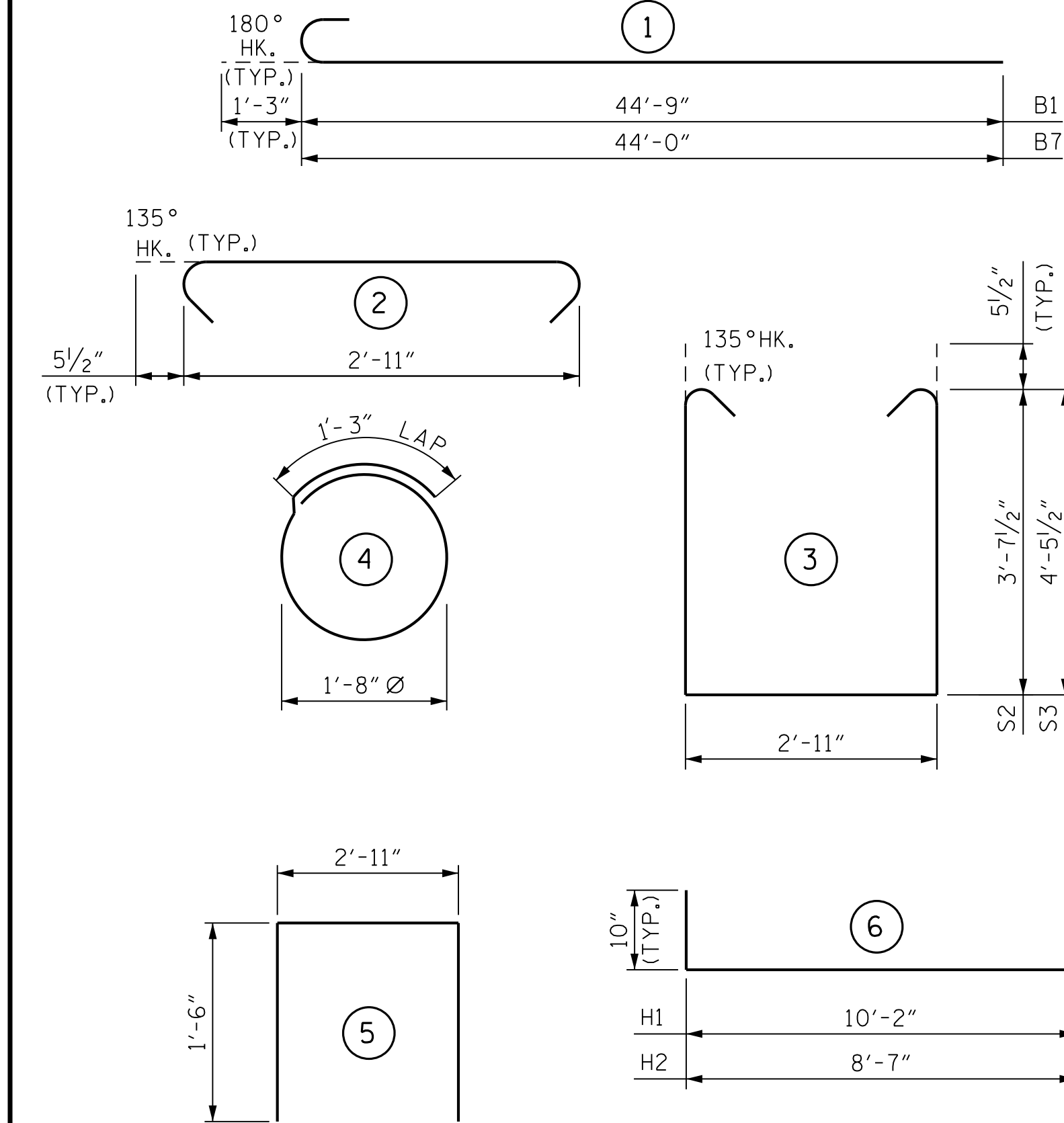
(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT)



SECTION C-C

(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT)

BAR TYPES



NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	46'-0"	1,251
B2	4	#9	STR.	12'-7"	171
B3	12	#5	STR.	43'-6"	544
B4	8	#4	STR.	17'-9"	95
B5	12	#4	STR.	29'-8"	238
B6	25	#4	STR.	2'-11"	49
B7	8	#9	1	45'-3"	1,231
D1	124	#4	STR.	6'-5"	532
H1	28	#5	6	11'-0"	321
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S2	78	#5	3	11'-1"	902
S3	14	#5	3	12'-9"	186
S4	48	#4	4	6'-6"	208
U1	24	#4	5	5'-11"	95
V1	28	#5	STR.	9'-10"	287
V2	24	#5	STR.	9'-7"	240
REINFORCING STEEL					7,036 LB.
CLASS "A" CONCRETE					
POUR 1 (CAP & LOWER WINGS)					49.0 C.Y.
POUR 2 (UPPER WINGS)					5.4 C.Y.
TOTAL					54.4 C.Y.
HP 12 x 53 STEEL PILES					
NO.					12
LIN. FEET					660
PILE REDRIVES					6 EA.
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES					12 EA.

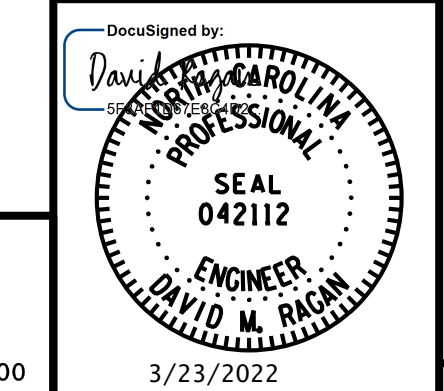
PROJECT NO. U-2519BA
CUMBERLAND COUNTY
 STATION: 24+41.38 -Y16-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
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 RALEIGH

SUBSTRUCTURE
END BENT 2
DETAILS AND
BILL OF MATERIAL

SITE 4 DWG. NO. 35



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SHEET NO.
S5-35
 TOTAL SHEETS
 39

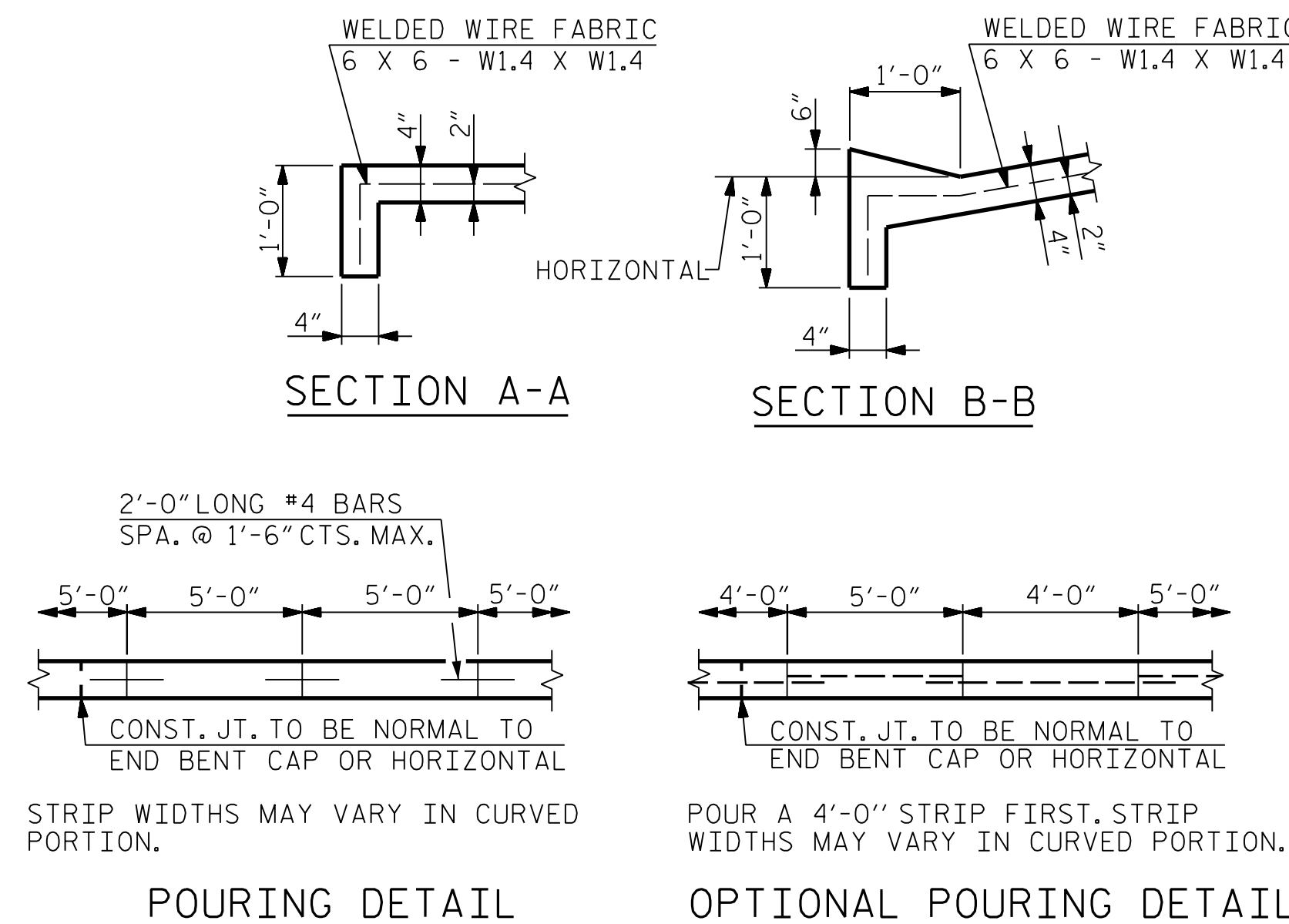
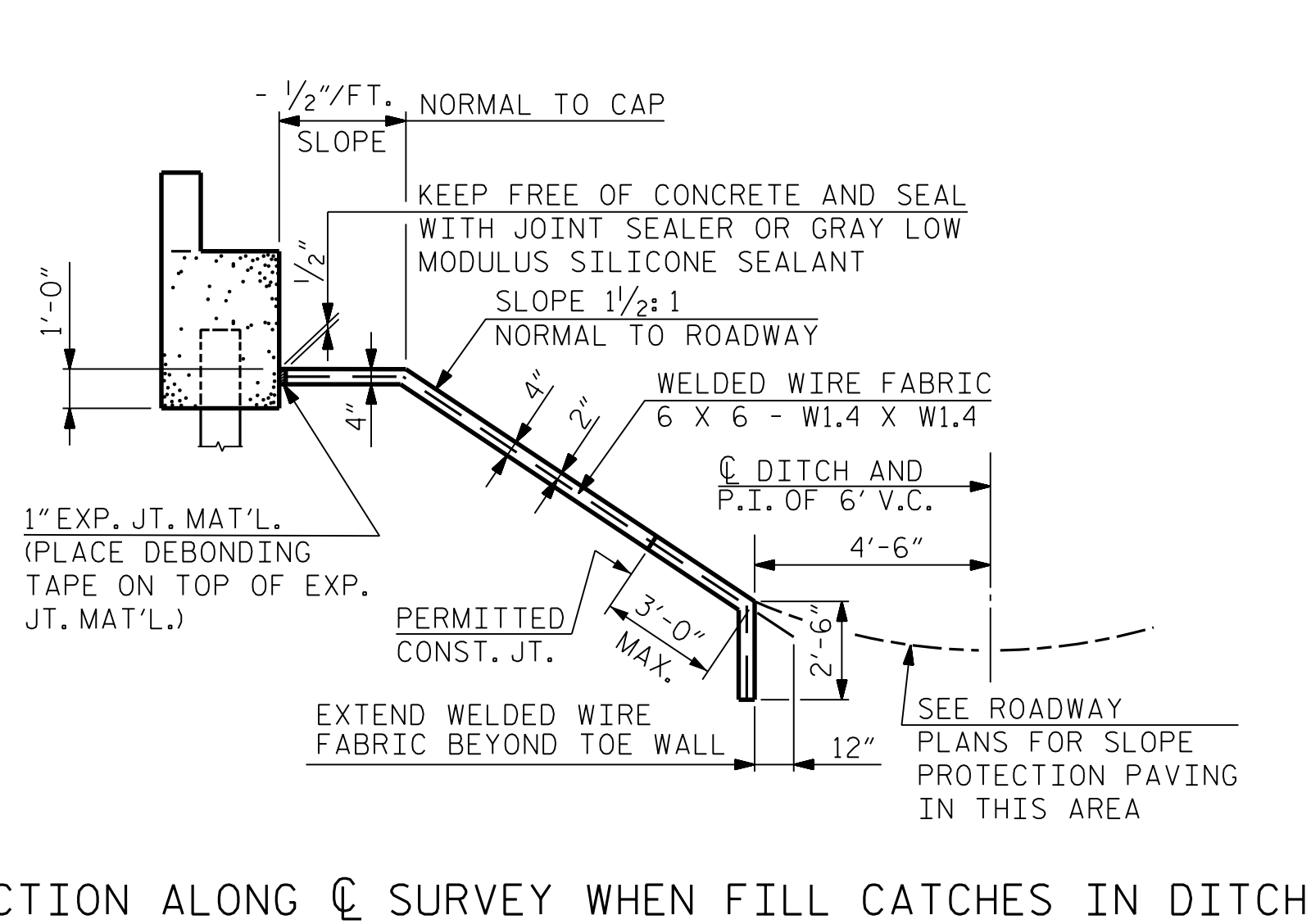
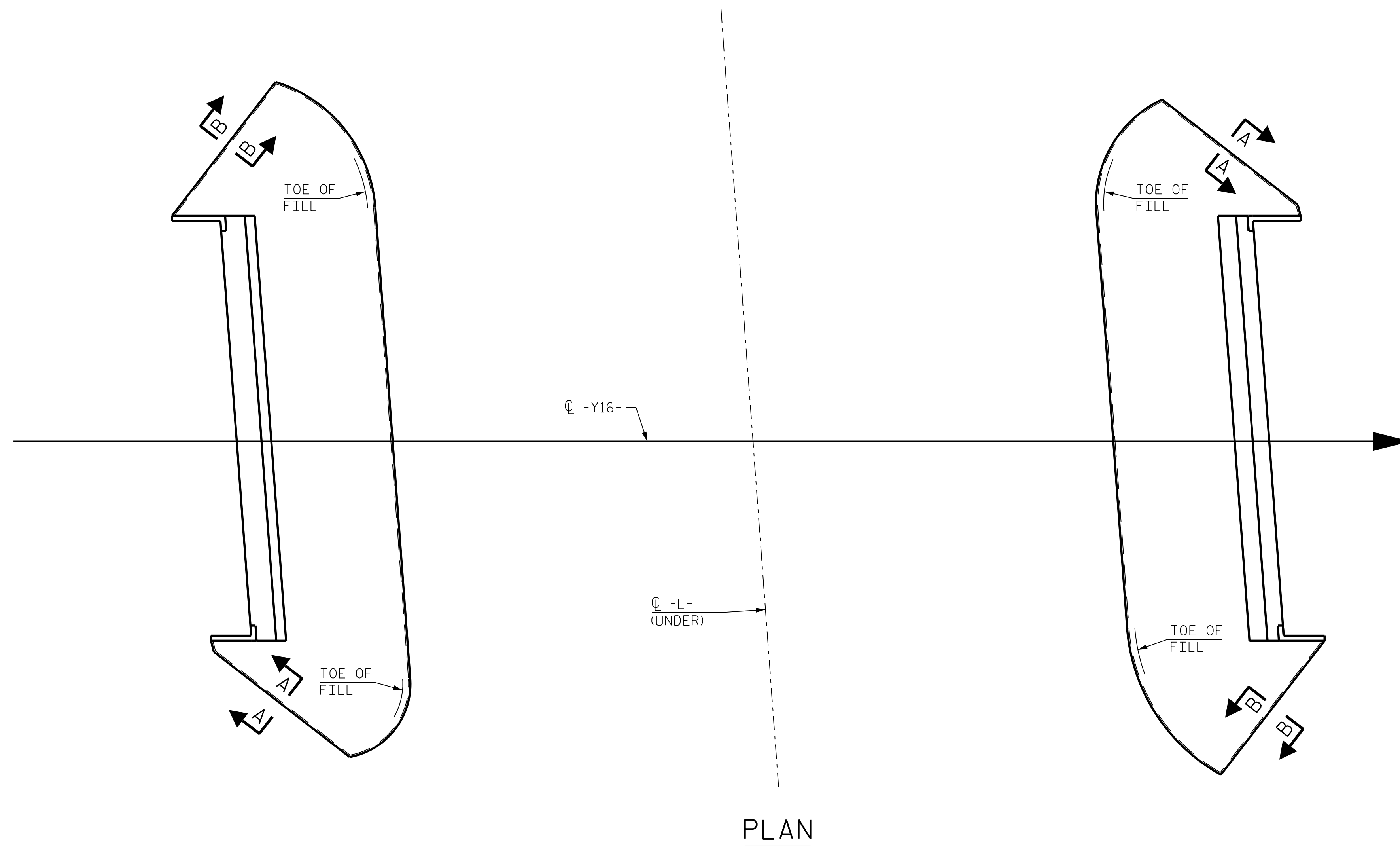
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 DRAWN BY : B. A. HAAG DATE : FEB 2022
 CHECKED BY : D. M. RAGAN DATE : FEB 2022
 DESIGN ENGINEER OF RECORD : D. M. RAGAN DATE : FEB 2022

GENERAL NOTES:

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING. SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

BRIDGE @ STA. 24+41.38 -Y16-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	408	795
END BENT 2	408	795

* QUANTITY SHOWN IS BASED ON 5' POURS.



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SHEET 1 OF 2

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**STANDARD
 SLOPE PROTECTION
 DETAILS**

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SHEET NO. **S5-36**
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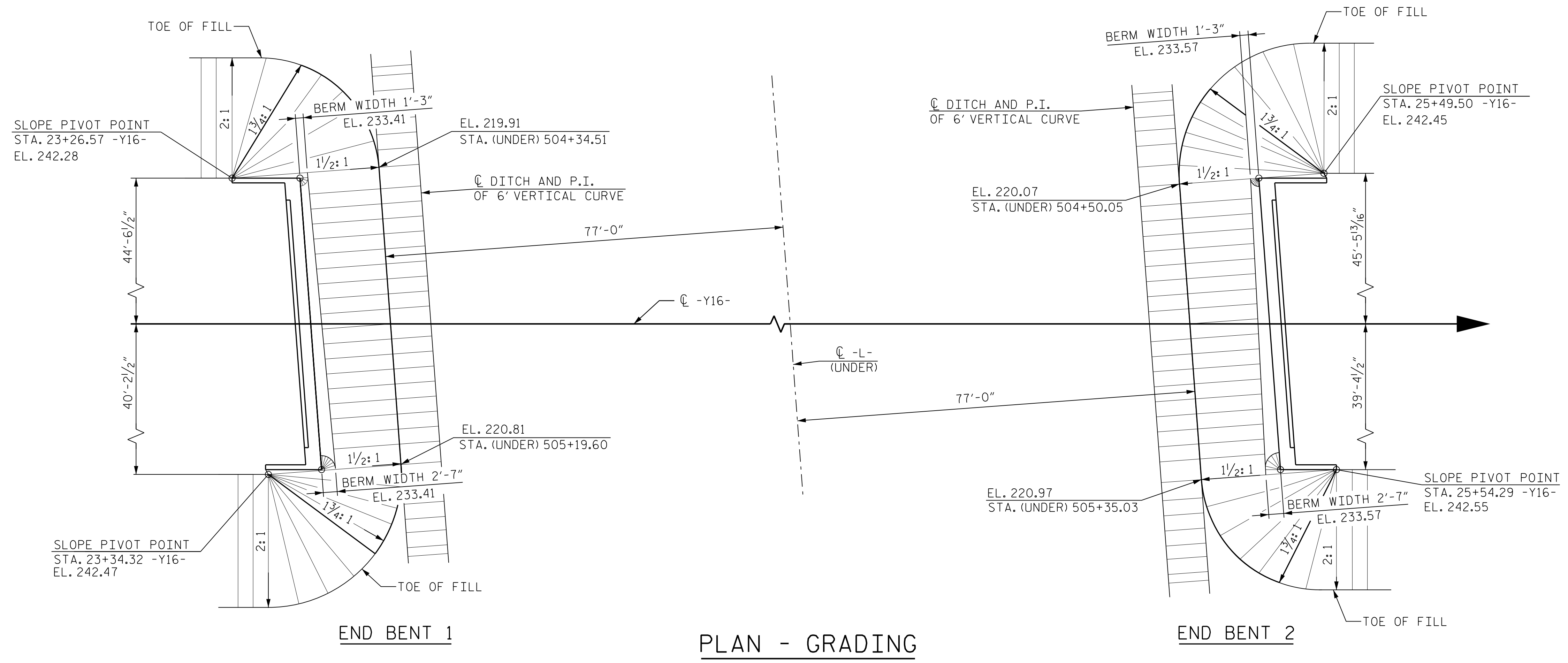
SITE 4 DWG. NO. 36

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 David M. Ragan, P.E.
 PROFESSIONAL SEAL
 042112
 ENGINEER
 DAVID M. RAGAN
 3/23/2022

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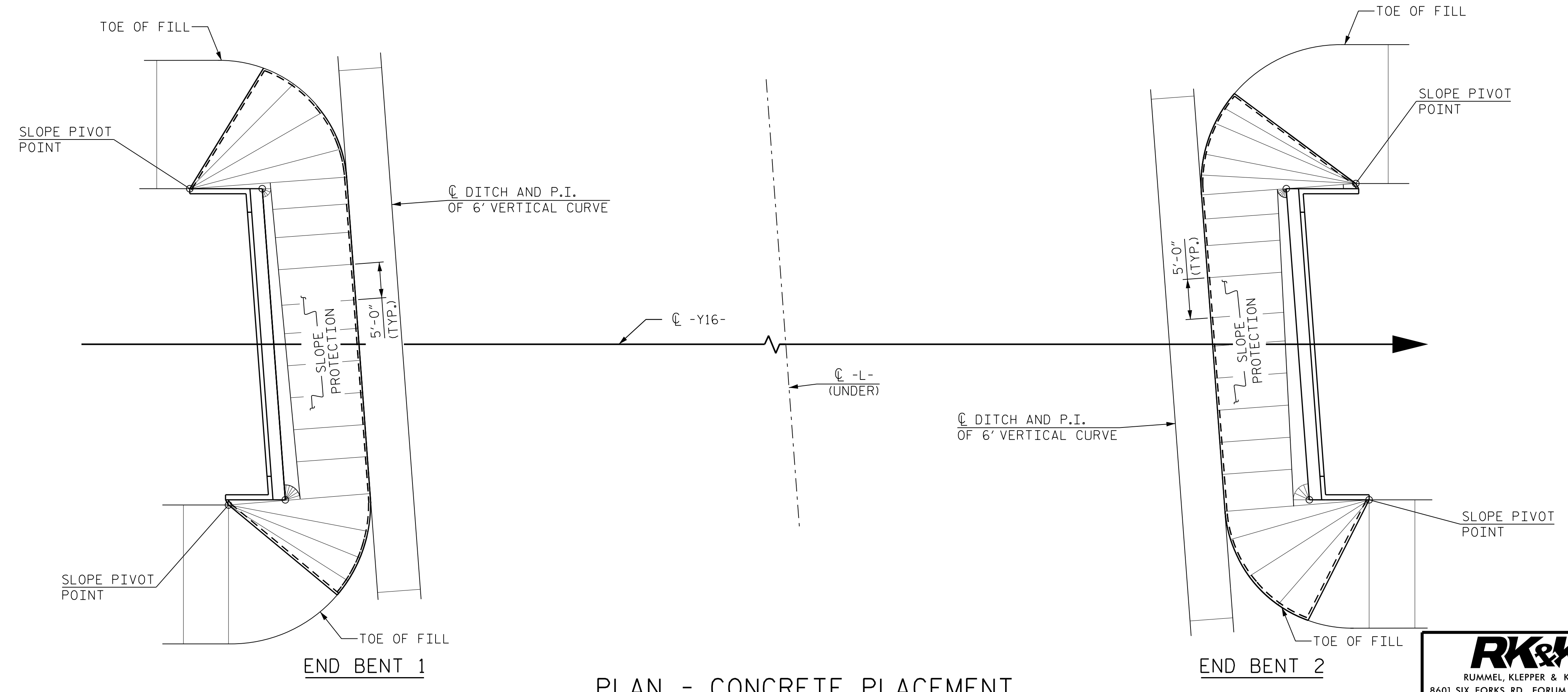
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END BENT 1

PLAN - GRADING

END BENT 2



END BENT 1

PLAN - CONCRETE PLACEMENT

END BENT 2

PROJECT NO. U-2519BA
CUMBERLAND COUNTY
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SHEET 2 OF 2

STATE OF NORTH CAROLINA
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STANDARD
 SLOPE PROTECTION
 DETAILS

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 PROFESSIONAL ENGINEER
 SEAL
 042112
 DAVID M. RAGAN
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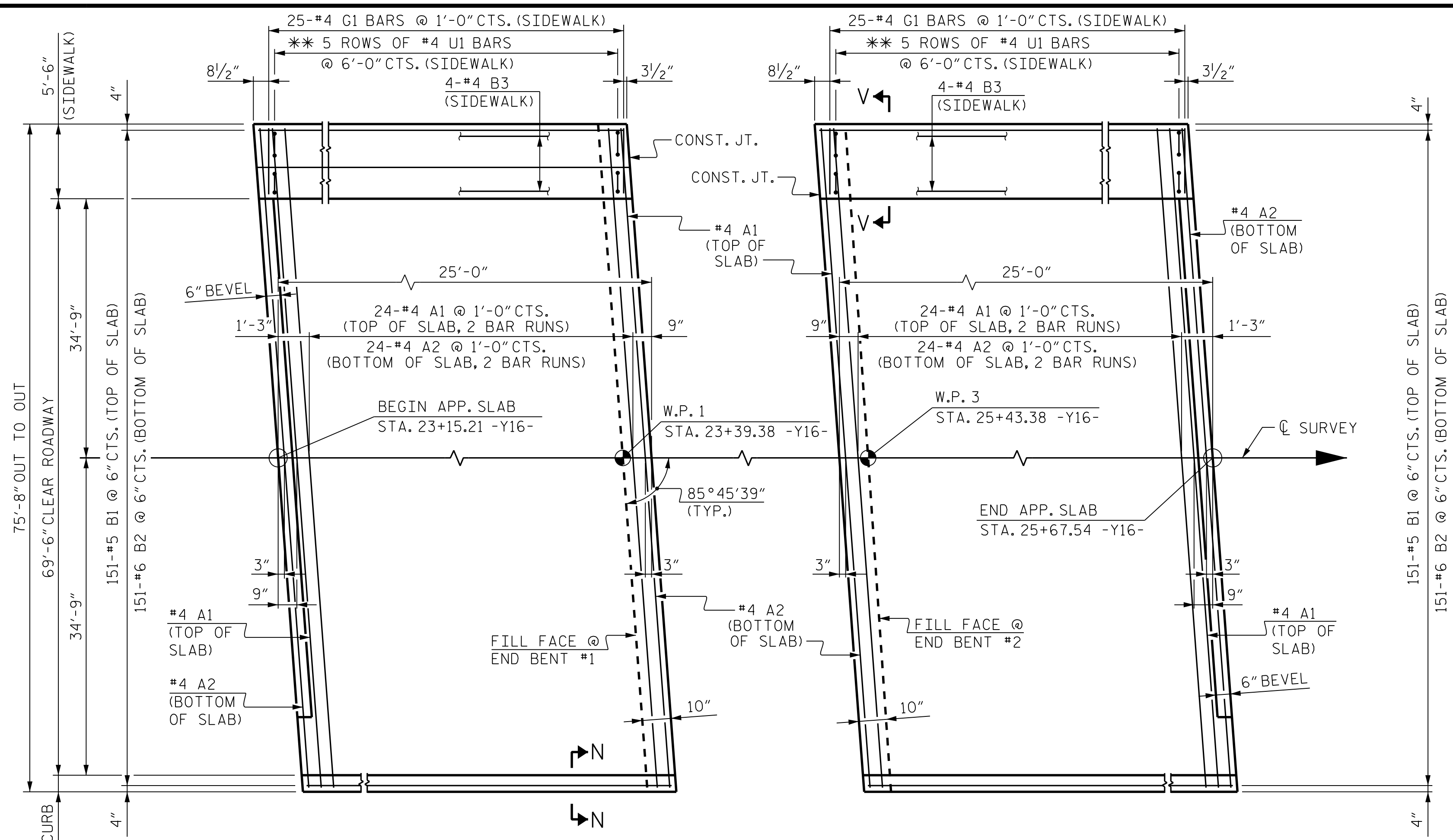
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PLAN @ END BENT #1
 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES:

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

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

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.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTORS OPTION, "TYPE A - ALTERNATE APPROACH FILL" IN LIEU OF "TYPE I - STANDARD APPROACH FILL" MAY BE CONSTRUCTED AT NO ADDITIONAL COST TO THE DEPARTMENT. SEE SHEET 2 OF 2 FOR DETAILS AND NOTES.

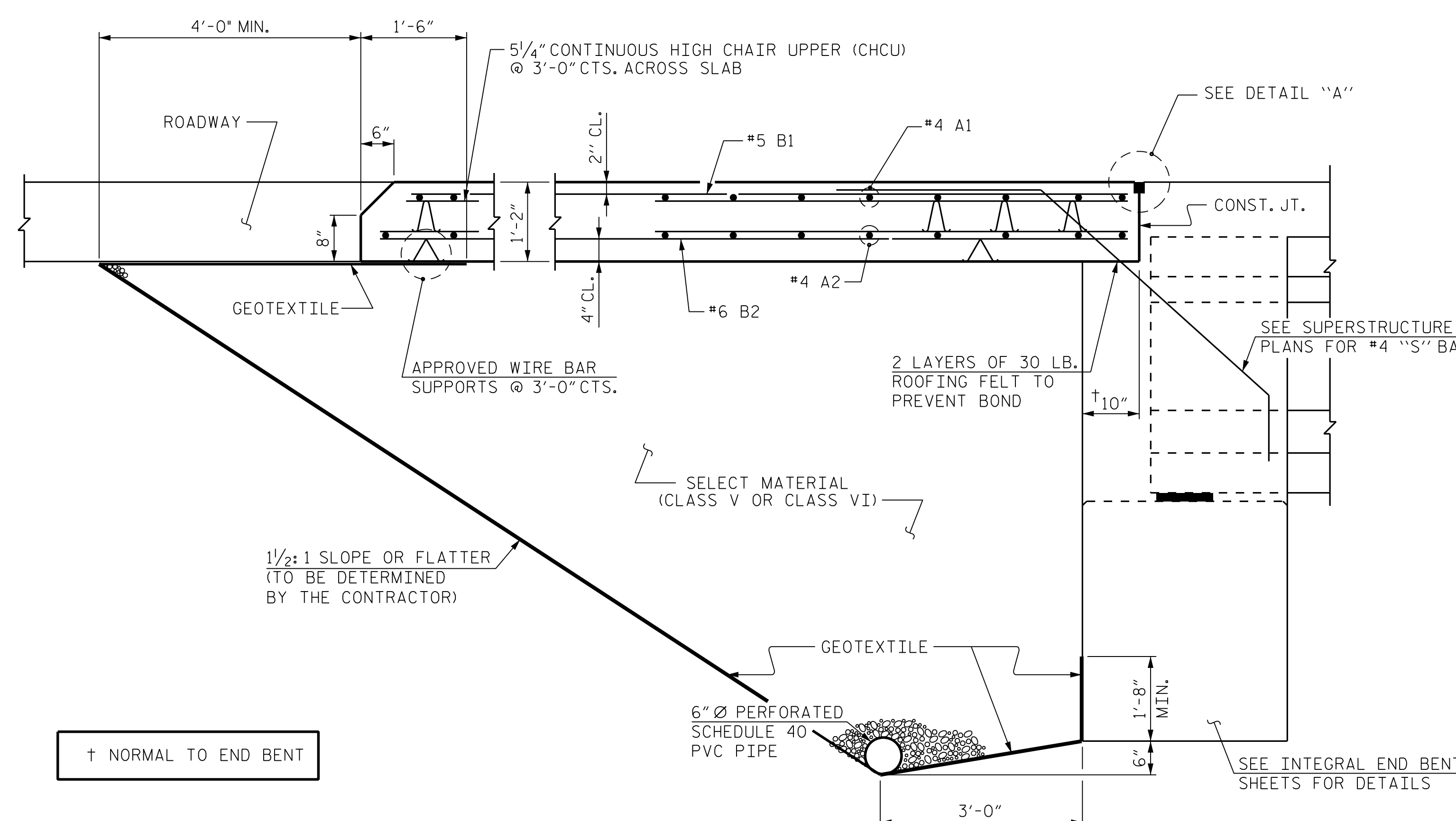
FOR CONCRETE MEDIAN DETAILS, SEE "CONCRETE MEDIAN PLAN."

** THESE "U" BARS ARE TO BE PLACED AFTER THE SAWING OF THE JOINT. HOLES SHALL BE DRILLED AND "U" BARS GROUTED INTO PLACE.

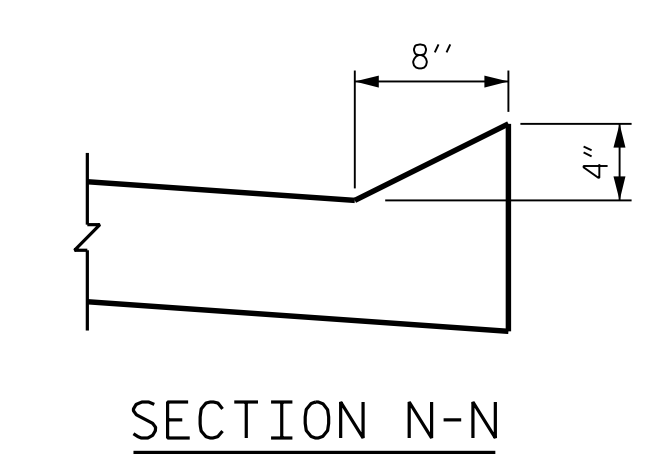
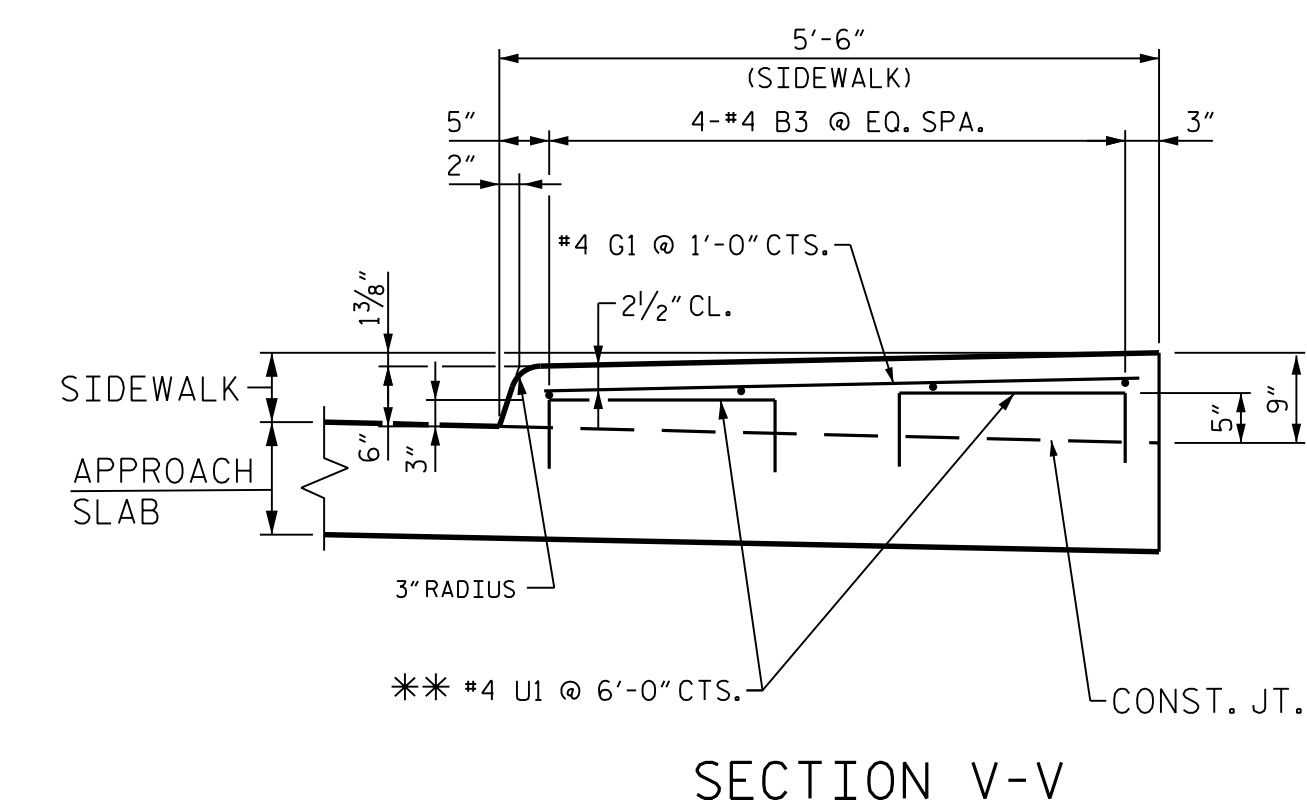
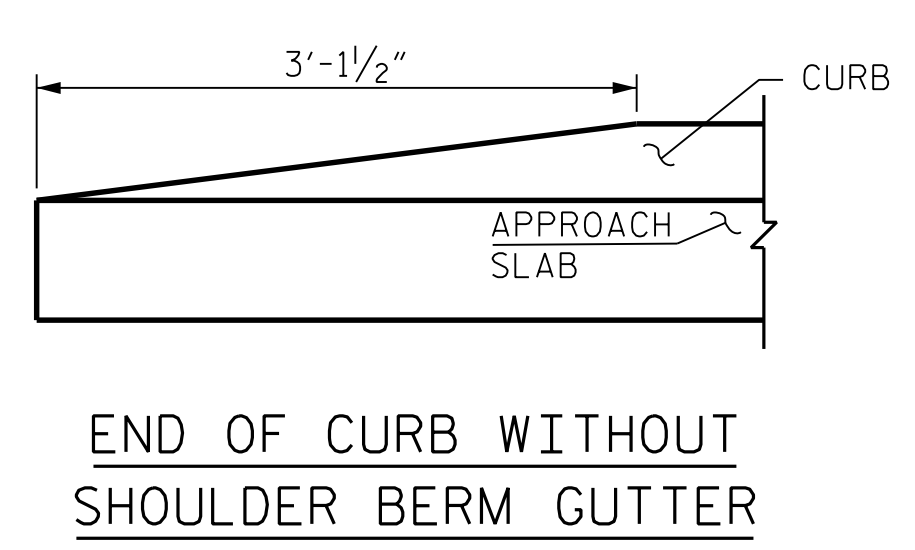
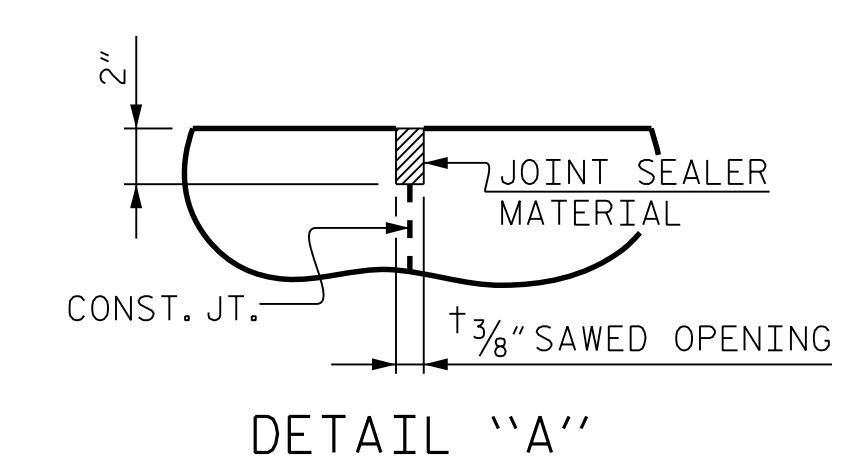
BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	52	#4	STR.	38'-10"	1,349
A2	52	#4	STR.	38'-8"	1,343
*B1	151	#5	STR.	24'-0"	3,780
B2	151	#6	STR.	24'-6"	5,557
*B3	4	#4	STR.	24'-6"	66
*G1	25	#4	STR.	5'-0"	84
*U1	10	#4	1	3'-0"	20
REINFORCING STEEL					6,900 LBS.
* EPOXY COATED REINFORCING STEEL					5,299 LBS.
CLASS AA CONCRETE (APPROACH SLAB)					82.1 C.Y.
CLASS AA CONCRETE (SIDEWALK)					3.2 C.Y.

BAR TYPE	
ALL BAR DIMENSIONS ARE OUT TO OUT	

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



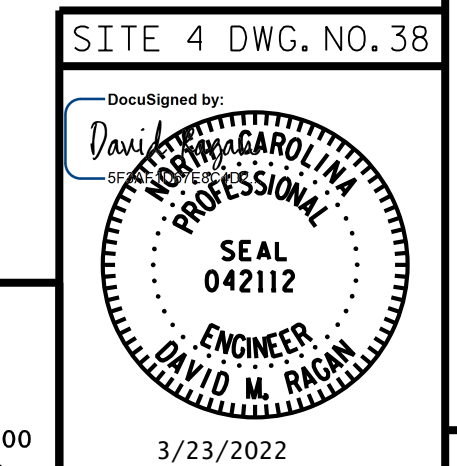
SECTION THRU SLAB
 (TYPE I - STANDARD APPROACH FILL)



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SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD
 BRIDGE APPROACH SLAB
 FOR INTEGRAL ABUTMENT
 WITH FLEXIBLE PAVEMENT



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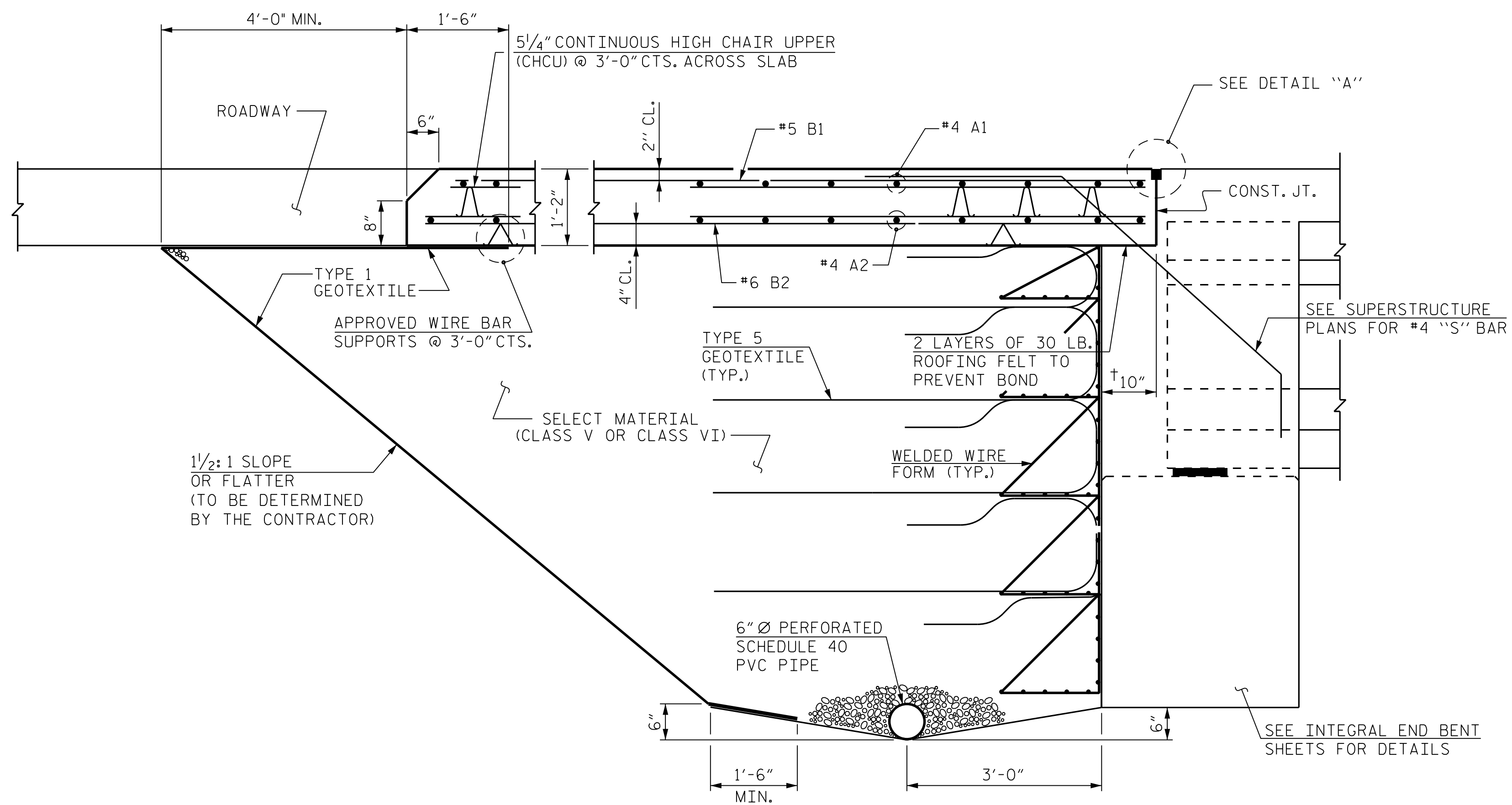
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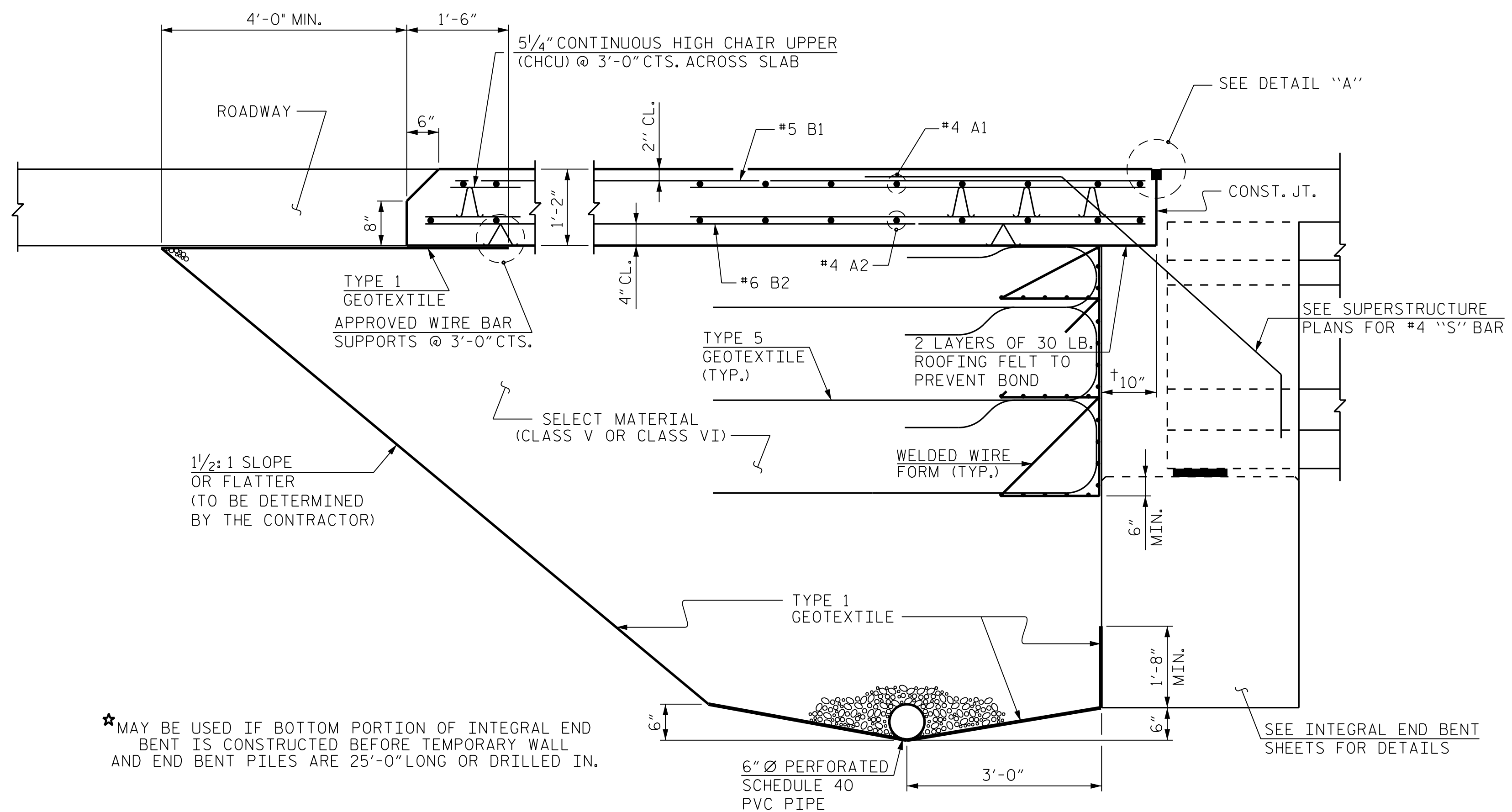
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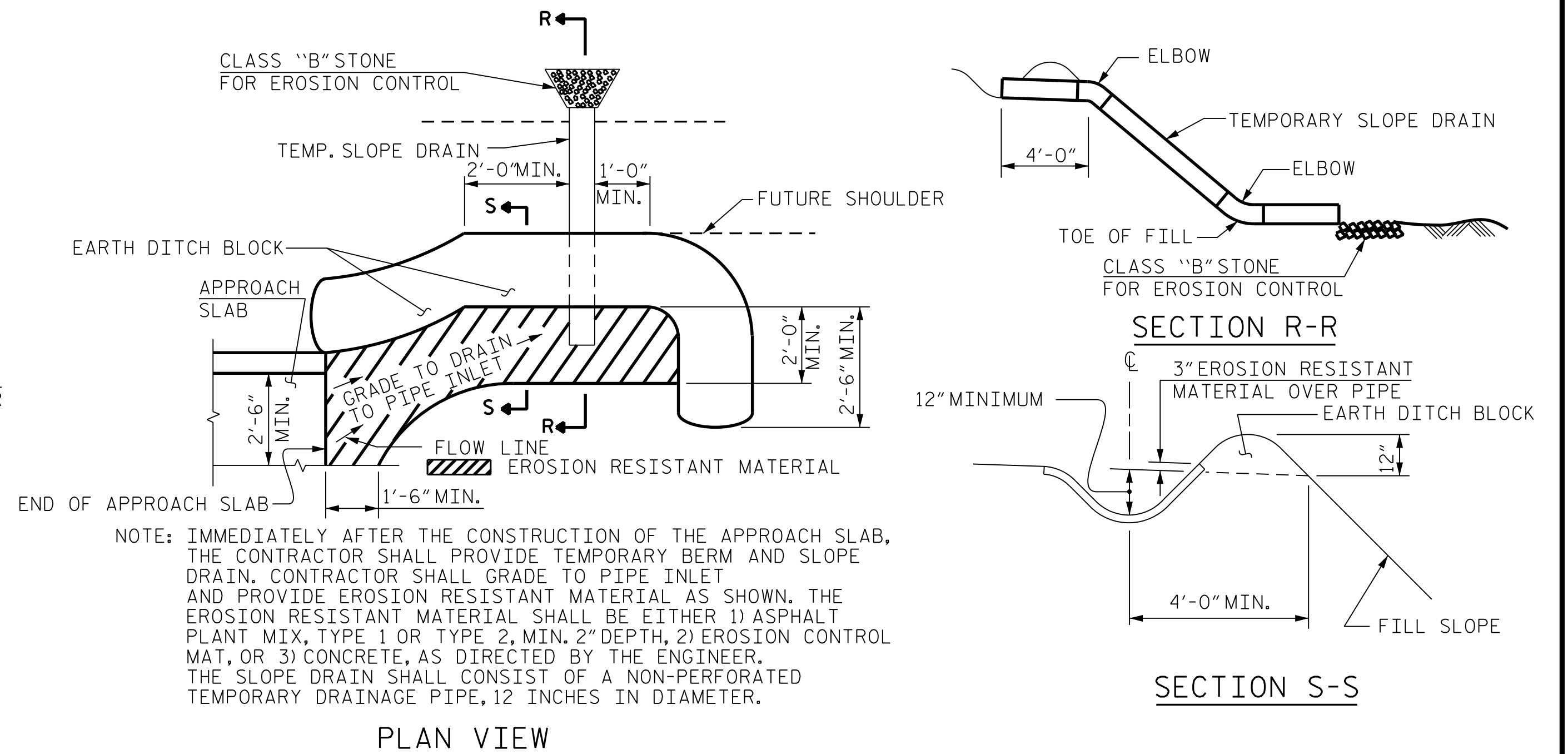
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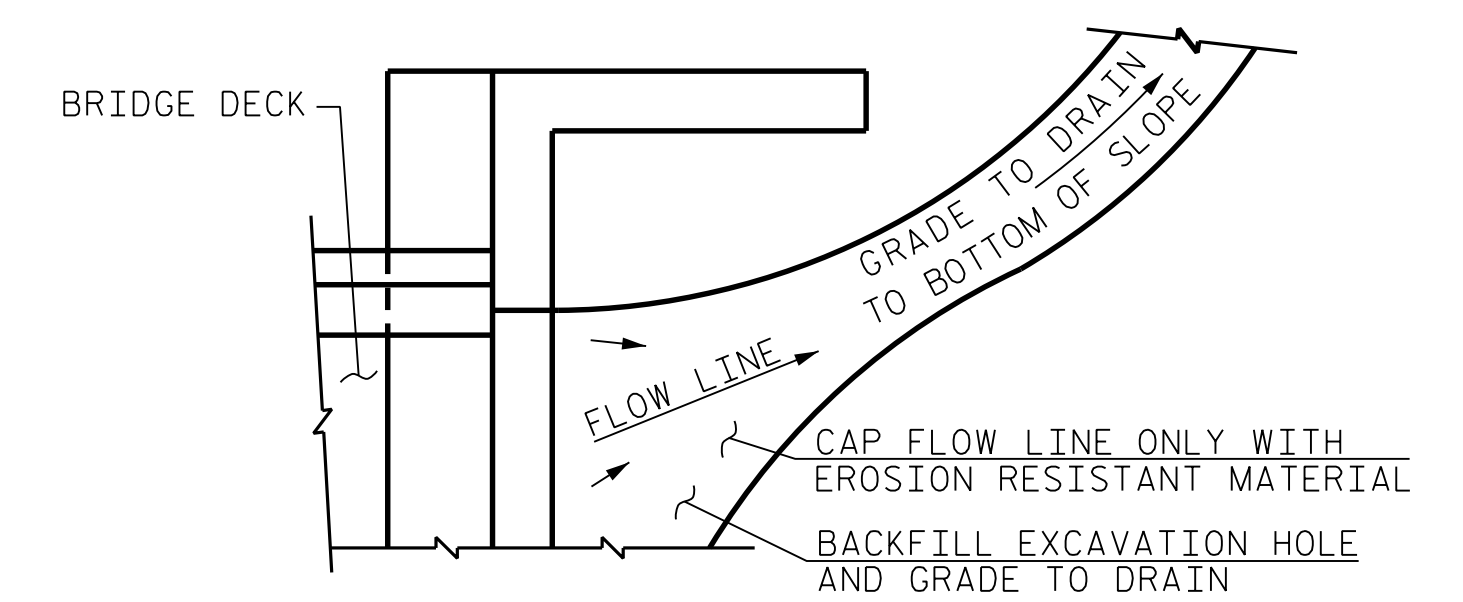
SECTION THRU SLAB
(TYPE A - ALTERNATE APPROACH FILL)



SECTION THRU SLAB
(TYPE A - ALTERNATE APPROACH FILL)



TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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.

TEMPORARY DRAINAGE DETAIL

NOTES:

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

FOR TEMPORARY GEOTEXTILE WALL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, WELDED WIRE FORM, AND SELECT MATERIAL, SEE ROADWAY PLANS.

GEOTEXTILE (TYPE 1 OR TYPE 5) SHALL BE 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.

FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWS NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

★ MAY BE USED IF BOTTOM PORTION OF INTEGRAL END BENT IS CONSTRUCTED BEFORE TEMPORARY WALL AND END BENT PILES ARE 25'-0" LONG OR DRILLED IN.

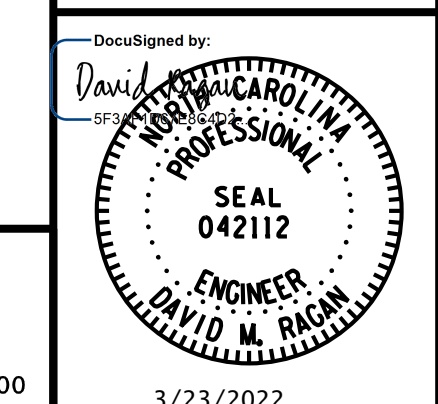
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SHEET 2 OF 2

STATE OF NORTH CAROLINA
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RALEIGH

STANDARD
BRIDGE APPROACH
SLAB DETAILS

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TOTAL SHEETS: 39

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 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. FINISHES 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. U-2519BA
CUMBERLAND COUNTY
 STATION: 46+43.11 -Y13-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
STANDARD			
NOTES			
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1			3
2			4
			TOTAL SHEETS 43

SITE 1 DWG. NO. 43

DocuSigned by:
David M. Ragan

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DRAWN BY : B. A. HAAG	DATE : MAR 2022
CHECKED BY : D. M. RAGAN	DATE : MAR 2022
DESIGN ENGINEER OF RECORD : D. M. RAGAN	DATE : MAR 2022