



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

June 13, 2022

**Addendum No. 1**

RE: Contract # C204712

WBS # 45673.3.1

FEDERAL-AID NO. 4240002

**Guilford County (B-5717)**

BRIDGES #109 AND #121 OVER SOUTH BUFFALO CREEK ON SR-4240 (EAST GATE CITY BLVD) IN GREENSBORO

**June 21, 2022 Letting**

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on this project.

The following revisions have been made to the Structure Plans.

Sheet No.	Revision
S1-02	Foundation Notes #4 and #5 deleted. Special Foundation note #2 revised
S1-03	Predrilling for Piles pay item removed from BOM
S1-28	Predrilling for Piles pay item removed from BOM
S1-35	Predrilling for Piles pay item removed from BOM
S2-02	Foundation Notes #4 and #5 deleted. Special Foundation note #2 revised
S2-03	Predrilling for Piles pay item removed from BOM
S2-28	Predrilling for Piles pay item removed from BOM
S2-35	Predrilling for Piles pay item removed from BOM

Please void the above listed Sheets in your plans and staple the revised Sheets thereto.

The following revisions have been made to the proposal.

Page No.	Revision
Proposal Cover	Note added that reads "Includes Addendum No. 1 Dated 06-13-2022".

Please void the above listed existing Page in your proposal and staple the revised Page thereto.

On the item sheets the following pay item revision has been made:

<u>Item</u>	<u>Description</u>	<u>Old Quantity</u>	<u>New Quantity</u>
0170- 8392500000-E-450	PREDRILLING FOR PILES	160 LF	DELETED

The Contractor's bid must include this pay item revision.

The electronic bidding file has been updated to reflect this revision. Please download the Addendum File and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

The contract will be prepared accordingly.

Sincerely,

DocuSigned by:  
  
 F81B6038A47A442...

Ronald E. Davenport, Jr., PE  
 State Contract Officer

RED/jjr  
 Attachments

cc: Mr. Lamar Sylvester, PE  
 Mr. Wright R. Archer, III, PE  
 Mr. Boyd Tharrington, PE  
 Mr. Jon Weathersbee, PE  
 Mr. Ken Kennedy, PE  
 Project File (2)

Mr. Forrest Dungan, PE  
 Ms. Jaci Kincaid  
 Mr. Kyle Kempf  
 Ms. Lori Strickland  
 Mr. Mike Gwyn  
 Ms. Penny Higgins

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH, N.C.

PROPOSAL

**INCLUDES ADDENDUM No.1 DATED 06-13-2022**

DATE AND TIME OF BID OPENING: **Jun 21, 2022 AT 02:00 PM**

CONTRACT ID        C204712  
WBS                    45673.3.1

FEDERAL-AID NO.    4240002  
COUNTY             GUILFORD  
T.I.P NO.            B-5717  
MILES                 0.324  
ROUTE NO.           SR-4240  
LOCATION              BRIDGES #109 AND #121 OVER SOUTH BUFFALO CREEK ON SR-4240  
                              (EAST GATE CITY BLVD) IN GREENSBORO.

TYPE OF WORK       GRADING, DRAINAGE, PAVING, AND STRUCTURE.

**NOTICE:**

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

**BIDS WILL BE RECEIVED AS SHOWN BELOW:**

**THIS IS A ROADWAY & STRUCTURE PROPOSAL**

**5% BID BOND OR BID DEPOSIT REQUIRED**

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Engineer's Estimate Report (With Break Down)

C204712 ROUTE SR 4240

45673.3.1

4240002

B-5717

GUILFORD

GRADING, DRAINAGE, PAVING, AND STRUCTURE.

BRIDGES #109 AND #121 OVER SOUTH BUFFALO CREEK ON SR-4240 (EAST GATE CITY BLVD) IN GREENSBORO.

JUNE 21, 2022 Letting

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
<b>ROADWAY ITEMS</b>						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	\$396,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	\$92,850.00
0003	0028000000-N	SP	TYPE I STANDARD APPROACH FILL STATION ***** (21+22.00 -L- LT)	Lump Sum	L.S.	\$49,000.00
0004	0028000000-N	SP	TYPE I STANDARD APPROACH FILL STATION ***** (21+22.00 -L- RT)	Lump Sum	L.S.	\$49,000.00
0005	0043000000-N	226	GRADING	Lump Sum	L.S.	\$284,645.00
0006	0050000000-E	226	SUPPLEMENTARY CLEARING & GRUBBING	1 ACR	10,000.00	\$10,000.00
0007	0057000000-E	226	UNDERCUT EXCAVATION	400 CY	20.00	\$8,000.00
0008	0134000000-E	240	DRAINAGE DITCH EXCAVATION	140 CY	15.00	\$2,100.00
0009	0195000000-E	265	SELECT GRANULAR MATERIAL	200 CY	50.00	\$10,000.00
0010	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	600 SY	5.45	\$3,270.00
0011	0220000000-E	SP	ROCK EMBANKMENTS	430 TON	54.00	\$23,220.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0012	0222000000-E	SP	GEOTEXTILE FOR ROCK EMBANKMENTS	710 SY	3.15	\$2,236.50
0013	0223000000-E	275	ROCK PLATING	1,135 SY	75.00	\$85,125.00
0014	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	255 TON	37.00	\$9,435.00
0015	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	1,023 SY	3.85	\$3,938.55
0016	0354000000-E	310	**** RC PIPE CULVERTS, CLASS ***** (15", V)	124 LF	88.00	\$10,912.00
0017	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	980 LF	83.00	\$81,340.00
0018	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	372 LF	145.00	\$53,940.00
0019	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	172 LF	107.00	\$18,404.00
0020	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	10 EA	1,000.00	\$10,000.00
0021	0995000000-E	340	PIPE REMOVAL	68 LF	20.00	\$1,360.00
0022	1077000000-E	SP	#57 STONE	355 TON	50.00	\$17,750.00
0023	1099500000-E	505	SHALLOW UNDERCUT	100 CY	25.00	\$2,500.00
0024	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	200 TON	33.00	\$6,600.00
0025	1121000000-E	520	AGGREGATE BASE COURSE	365 TON	40.00	\$14,600.00
0026	1220000000-E	545	INCIDENTAL STONE BASE	500 TON	46.00	\$23,000.00
0027	1275000000-E	600	PRIME COAT	260 GAL	6.00	\$1,560.00
0028	1330000000-E	607	INCIDENTAL MILLING	870 SY	15.00	\$13,050.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0029	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	2,290 TON	83.00	\$190,070.00
0030	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	1,970 TON	83.00	\$163,510.00
0031	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	2,400 TON	81.00	\$194,400.00
0032	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	360 TON	800.00	\$288,000.00
0033	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	1,500 TON	220.00	\$330,000.00
0034	2022000000-E	815	SUBDRAIN EXCAVATION	44.8 CY	35.00	\$1,568.00
0035	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	200 SY	14.00	\$2,800.00
0036	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	33.6 CY	75.00	\$2,520.00
0037	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	200 LF	18.00	\$3,600.00
0038	2070000000-N	815	SUBDRAIN PIPE OUTLET	1 EA	400.00	\$400.00
0039	2077000000-E	815	6" OUTLET PIPE	6 LF	40.00	\$240.00
0040	2275000000-E	SP	FLOWABLE FILL	3 CY	435.00	\$1,305.00
0041	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	33 EA	3,100.00	\$102,300.00
0042	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	12.8 LF	480.00	\$6,144.00
0043	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	1 EA	700.00	\$700.00
0044	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	10 EA	870.00	\$8,700.00
0045	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	9 EA	870.00	\$7,830.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0046	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	11 EA	870.00	\$9,570.00
0047	2396000000-N	840	FRAME WITH COVER, STD 840.54	2 EA	700.00	\$1,400.00
0048	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	1,630 LF	22.00	\$35,860.00
0049	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	2,660 LF	25.00	\$66,500.00
0050	2591000000-E	848	4" CONCRETE SIDEWALK	1,110 SY	48.00	\$53,280.00
0051	2605000000-N	848	CONCRETE CURB RAMPS	7 EA	2,250.00	\$15,750.00
0052	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	40 SY	81.00	\$3,240.00
0053	2830000000-N	858	ADJUSTMENT OF MANHOLES	2 EA	1,200.00	\$2,400.00
0054	2905000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX	2 EA	2,500.00	\$5,000.00
0055	3030000000-E	862	STEEL BEAM GUARDRAIL	1,487.5 LF	26.00	\$38,675.00
0056	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA	10.00	\$100.00
0057	3210000000-N	862	GUARDRAIL END UNITS, TYPE CAT-1	2 EA	1,000.00	\$2,000.00
0058	3215000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE III	4 EA	2,300.00	\$9,200.00
0059	3287000000-N	SP	GUARDRAIL END UNITS, TYPE TL-3	7 EA	3,300.00	\$23,100.00
0060	3317000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE B-77	4 EA	2,800.00	\$11,200.00
0061	3360000000-E	863	REMOVE EXISTING GUARDRAIL	1,770 LF	1.25	\$2,212.50
0062	3380000000-E	862	TEMPORARY STEEL BEAM GUARDRAIL	162.5 LF	10.00	\$1,625.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0063	3387000000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (TYPE III MODIFIED)	2 EA	1,500.00	\$3,000.00
0064	3389150000-N	SP	TEMPORARY GUARDRAIL END UNITS, TYPE ***** (TL-3)	2 EA	2,500.00	\$5,000.00
0065	3435000000-N	SP	GENERIC GUARDRAIL ITEM TEMPORARY ADDITIONAL GUARDRAIL POSTS	5 EA	8.00	\$40.00
0066	3595000000-E	869	RELAPPING GUARDRAIL	200 LF	5.00	\$1,000.00
0067	3642000000-E	876	RIP RAP, CLASS A	135 TON	58.00	\$7,830.00
0068	3649000000-E	876	RIP RAP, CLASS B	186 TON	58.00	\$10,788.00
0069	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	1,088 SY	3.60	\$3,916.80
0070	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (E)	234 SF	22.00	\$5,148.00
0071	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (F)	7 SF	22.00	\$154.00
0072	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	760 LF	9.00	\$6,840.00
0073	4102000000-N	904	SIGN ERECTION, TYPE E	39 EA	200.00	\$7,800.00
0074	4108000000-N	904	SIGN ERECTION, TYPE F	2 EA	200.00	\$400.00
0075	4116100000-N	904	SIGN ERECTION, RELOCATE TYPE ***** (GROUND MOUNTED) (E)	1 EA	225.00	\$225.00
0076	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	22 EA	5.65	\$124.30
0077	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	506 SF	11.80	\$5,970.80



**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0078	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	56 SF	10.10	\$565.60
0079	4415000000-N	1115	FLASHING ARROW BOARD	6 EA	2,700.00	\$16,200.00
0080	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	4 EA	10,000.00	\$40,000.00
0081	4430000000-N	1130	DRUMS	434 EA	46.50	\$20,181.00
0082	4445000000-E	1145	BARRICADES (TYPE III)	120 LF	32.40	\$3,888.00
0083	4455000000-N	1150	FLAGGER	10 DAY	400.00	\$4,000.00
0084	4480000000-N	1165	TMA	2 EA	13,800.00	\$27,600.00
0085	4520000000-N	1266	TUBULAR MARKERS (FIXED)	70 EA	85.00	\$5,950.00
0086	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	754 EA	5.20	\$3,920.80
0087	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	5,937 LF	2.30	\$13,655.10
0088	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	303 LF	3.00	\$909.00
0089	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	241 LF	5.50	\$1,325.50
0090	4720000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (90 MILS)	4 EA	100.00	\$400.00
0091	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	32 EA	125.00	\$4,000.00
0092	4726110000-E	1205	HEATED-IN-PLACE THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	8 EA	330.00	\$2,640.00
0093	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (I)	1,192 LF	3.00	\$3,576.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0094	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	1,120 LF	3.25	\$3,640.00
0095	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	14,769 LF	0.25	\$3,692.25
0096	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	56 LF	3.24	\$181.44
0097	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	15,909 LF	1.00	\$15,909.00
0098	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	56 LF	2.64	\$147.84
0099	4891000000-E	1205	GENERIC PAVEMENT MARKING ITEM THERMOPLASTIC PAVEMENT MARKING LINES (24", 90 MILS)	96 LF	13.50	\$1,296.00
0100	4895000000-N	SP	GENERIC PAVEMENT MARKING ITEM NON-CAST IRON SNOWPLOWABLE PAVEMENT MARKER	170 EA	50.00	\$8,500.00
0101	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	6 EA	5.80	\$34.80
0102	5326200000-E	1510	12" WATER LINE	909 LF	215.00	\$195,435.00
0103	5329000000-E	1510	DUCTILE IRON WATER PIPE FITTINGS	5,015 LB	17.00	\$85,255.00
0104	5540000000-E	1515	6" VALVE	1 EA	3,100.00	\$3,100.00
0105	5558000000-E	1515	12" VALVE	1 EA	3,750.00	\$3,750.00
0106	5666000000-N	1515	FIRE HYDRANT	1 EA	7,000.00	\$7,000.00
0107	5673000000-E	1515	FIRE HYDRANT LEG	11 LF	200.00	\$2,200.00
0108	5691300000-E	1520	8" SANITARY GRAVITY SEWER	510 LF	375.00	\$191,250.00
0109	5768000000-N	1520	SANITARY SEWER CLEAN-OUT	1 EA	900.00	\$900.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0110	5768500000-E	1520	SEWER SERVICE LINE	40 LF	250.00	\$10,000.00
0111	5775000000-E	1525	4' DIA UTILITY MANHOLE	1 EA	6,900.00	\$6,900.00
0112	5781000000-E	1525	UTILITY MANHOLE WALL 4' DIA	2 LF	345.00	\$690.00
0113	5804000000-E	1530	ABANDON 12" UTILITY PIPE	270 LF	60.00	\$16,200.00
0114	5816000000-N	1530	ABANDON UTILITY MANHOLE	1 EA	2,000.00	\$2,000.00
0115	5836000000-E	1540	24" ENCASEMENT PIPE	150 LF	210.00	\$31,500.00
0116	5872500000-E	1550	BORE AND JACK OF *** (24")	150 LF	380.00	\$57,000.00
0117	6000000000-E	1605	TEMPORARY SILT FENCE	5,300 LF	3.00	\$15,900.00
0118	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	500 TON	78.00	\$39,000.00
0119	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	260 TON	80.50	\$20,930.00
0120	6012000000-E	1610	SEDIMENT CONTROL STONE	575 TON	58.50	\$33,637.50
0121	6015000000-E	1615	TEMPORARY MULCHING	7 ACR	2,220.00	\$15,540.00
0122	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	400 LB	3.10	\$1,240.00
0123	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	3 TON	3,080.00	\$9,240.00
0124	6024000000-E	1622	TEMPORARY SLOPE DRAINS	200 LF	28.80	\$5,760.00
0125	6029000000-E	SP	SAFETY FENCE	560 LF	6.00	\$3,360.00
0126	6030000000-E	1630	SILT EXCAVATION	930 CY	35.00	\$32,550.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0127	6036000000-E	1631	MATTING FOR EROSION CONTROL	13,500 SY	2.40	\$32,400.00
0128	6037000000-E	SP	COIR FIBER MAT	100 SY	7.00	\$700.00
0129	6042000000-E	1632	1/4" HARDWARE CLOTH	1,575 LF	8.50	\$13,387.50
0130	6071010000-E	SP	WATTLE	225 LF	8.50	\$1,912.50
0131	6071020000-E	SP	POLYACRYLAMIDE (PAM)	75 LB	17.15	\$1,286.25
0132	6071030000-E	1640	COIR FIBER BAFFLE	200 LF	8.50	\$1,700.00
0133	6071050000-E	SP	*** SKIMMER (1-1/2")	2 EA	2,000.00	\$4,000.00
0134	6084000000-E	1660	SEEDING & MULCHING	3 ACR	4,030.00	\$12,090.00
0135	6087000000-E	1660	MOWING	2 ACR	500.00	\$1,000.00
0136	6090000000-E	1661	SEED FOR REPAIR SEEDING	100 LB	13.20	\$1,320.00
0137	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.25 TON	2,140.00	\$535.00
0138	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	150 LB	13.20	\$1,980.00
0139	6108000000-E	1665	FERTILIZER TOPDRESSING	4 TON	1,810.00	\$7,240.00
0140	6114500000-N	1667	SPECIALIZED HAND MOWING	10 MHR	135.00	\$1,350.00
0141	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	100 EA	200.00	\$20,000.00
0142	6117500000-N	SP	CONCRETE WASHOUT STRUCTURE	6 EA	1,350.00	\$8,100.00
0143	6123000000-E	1670	REFORESTATION	0.1 ACR	3,000.00	\$300.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0144	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE	2 EA	250.00	\$500.00
0145	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE CLEANOUT	4 EA	200.00	\$800.00
<b>Total for ROADWAY ITEMS</b>						<b>\$4,010,423.53</b>
<b>STRUCTURE ITEMS</b>						
0146	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$52,650.00
0147	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$52,650.00
0148	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$129,000.00
0149	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$129,000.00
0150	8065000000-N	SP	ASBESTOS ASSESSMENT	Lump Sum	L.S.	\$3,000.00
0151	8105540000-E	411	3'-6" DIA DRILLED PIERS IN SOIL	214.25 LF	950.00	\$203,537.50
0152	8105640000-E	411	3'-6" DIA DRILLED PIERS NOT IN SOIL	180 LF	1,100.00	\$198,000.00
0153	8111400000-E	411	PERMANENT STEEL CASING FOR 3'-6" DIA DRILLED PIER	207.8 LF	350.00	\$72,730.00
0154	8113000000-N	411	SID INSPECTIONS	2 EA	1,050.00	\$2,100.00
0155	8114000000-N	411	SPT TESTING	2 EA	1,200.00	\$2,400.00
0156	8115000000-N	411	CSL TESTING	2 EA	2,500.00	\$5,000.00

**Engineer's Estimate Report (With Break Down)**

WBS: 45673.3.1

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0157	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$4,400.00
0158	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$4,400.00
0159	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	17,650 SF	60.00	\$1,059,000.00
0160	8161000000-E	420	GROOVING BRIDGE FLOORS	15,726 SF	1.35	\$21,230.10
0161	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	352.9 CY	1,350.00	\$476,415.00
0162	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$58,750.00
0163	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$58,750.00
0164	8217000000-E	425	REINFORCING STEEL (BRIDGE)	74,419 LB	2.00	\$148,838.00
0165	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	9,665 LB	2.63	\$25,385.03
0166	8265000000-E	430	54" PRESTRESSED CONCRETE GIRDERS	2,111.46 LF	355.00	\$749,568.30
0167	8328200000-E	450	PILE DRIVING EQUIPMENT SETUP FOR *** STEEL PILES (HP 12 X 53)	32 EA	599.69	\$19,190.08
0168	8364000000-E	450	HP 12 X 53 STEEL PILES	800 LF	51.01	\$40,808.00
0169	8391000000-N	450	STEEL PILE POINTS	32 EA	130.00	\$4,160.00
0171	8475000000-E	460	TWO BAR METAL RAIL	409.76 LF	225.00	\$92,196.00
0172	8503000000-E	460	CONCRETE BARRIER RAIL	426.14 LF	370.00	\$157,671.80
0173	8517000000-E	460	1'-** X ***** CONCRETE PARAPET (1'-2" X 2'-6")	426.14 LF	120.00	\$51,136.80

**Engineer's Estimate Report (With Break Down)**

**WBS: 45673.3.1**

<b>Line #</b>	<b>ItemNumber</b>	<b>Sec #</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Estimated Amount</b>
0174	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	931 TON	65.00	\$60,515.00
0175	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	1,035 SY	3.00	\$3,105.00
0176	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	\$15,000.00
<b>Total for STRUCTURE ITEMS</b>						<b>\$3,900,586.61</b>

**Total length of projects :0.324 MILES**

**Total Estimated Amount \$7,911,010.14**

**1243/Jun10/Q228295.00/D775211050000/E175**

**Engineer's Estimate Report (Without Break Down)**

C204712 ROUTE SR 4240

45673.3.1

4240002

B-5717

GUILFORD

GRADING, DRAINAGE, PAVING, AND STRUCTURE.

BRIDGES #109 AND #121 OVER SOUTH BUFFALO CREEK ON SR-4240 (EAST GATE CITY BLVD) IN GREENSBORO.

JUNE 21, 2022 Letting

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
<b>ROADWAY ITEMS</b>						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	\$396,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	\$92,850.00
0003	0028000000-N	SP	TYPE I STANDARD APPROACH FILL STATION ***** (21+22.00 -L- LT)	Lump Sum	L.S.	\$49,000.00
0004	0028000000-N	SP	TYPE I STANDARD APPROACH FILL STATION ***** (21+22.00 -L- RT)	Lump Sum	L.S.	\$49,000.00
0005	0043000000-N	226	GRADING	Lump Sum	L.S.	\$284,645.00
0006	0050000000-E	226	SUPPLEMENTARY CLEARING & GRUBBING	1.000 ACR	10,000.00	\$10,000.00
0007	0057000000-E	226	UNDERCUT EXCAVATION	400.000 CY	20.00	\$8,000.00
0008	0134000000-E	240	DRAINAGE DITCH EXCAVATION	140.000 CY	15.00	\$2,100.00
0009	0195000000-E	265	SELECT GRANULAR MATERIAL	200.000 CY	50.00	\$10,000.00
0010	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	600.000 SY	5.45	\$3,270.00
0011	0220000000-E	SP	ROCK EMBANKMENTS	430.000 TON	54.00	\$23,220.00
0012	0222000000-E	SP	GEOTEXTILE FOR ROCK EMBANKMENTS	710.000 SY	3.15	\$2,236.50
0013	0223000000-E	275	ROCK PLATING	1135.000 SY	75.00	\$85,125.00
0014	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	255.000 TON	37.00	\$9,435.00



**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0015	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	1023.000 SY	3.85	\$3,938.55
0016	0354000000-E	310	**** RC PIPE CULVERTS, CLASS ***** (15", V)	124.000 LF	88.00	\$10,912.00
0017	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	980.000 LF	83.00	\$81,340.00
0018	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	372.000 LF	145.00	\$53,940.00
0019	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	172.000 LF	107.00	\$18,404.00
0020	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	10.000 EA	1,000.00	\$10,000.00
0021	0995000000-E	340	PIPE REMOVAL	68.000 LF	20.00	\$1,360.00
0022	1077000000-E	SP	#57 STONE	355.000 TON	50.00	\$17,750.00
0023	1099500000-E	505	SHALLOW UNDERCUT	100.000 CY	25.00	\$2,500.00
0024	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	200.000 TON	33.00	\$6,600.00
0025	1121000000-E	520	AGGREGATE BASE COURSE	365.000 TON	40.00	\$14,600.00
0026	1220000000-E	545	INCIDENTAL STONE BASE	500.000 TON	46.00	\$23,000.00
0027	1275000000-E	600	PRIME COAT	260.000 GAL	6.00	\$1,560.00
0028	1330000000-E	607	INCIDENTAL MILLING	870.000 SY	15.00	\$13,050.00
0029	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	2290.000 TON	83.00	\$190,070.00
0030	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	1970.000 TON	83.00	\$163,510.00
0031	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	2400.000 TON	81.00	\$194,400.00
0032	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	360.000 TON	800.00	\$288,000.00
0033	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	1500.000 TON	220.00	\$330,000.00
0034	2022000000-E	815	SUBDRAIN EXCAVATION	44.800 CY	35.00	\$1,568.00

**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0035	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	200.000 SY	14.00	\$2,800.00
0036	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	33.600 CY	75.00	\$2,520.00
0037	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	200.000 LF	18.00	\$3,600.00
0038	2070000000-N	815	SUBDRAIN PIPE OUTLET	1.000 EA	400.00	\$400.00
0039	2077000000-E	815	6" OUTLET PIPE	6.000 LF	40.00	\$240.00
0040	2275000000-E	SP	FLOWABLE FILL	3.000 CY	435.00	\$1,305.00
0041	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	33.000 EA	3,100.00	\$102,300.00
0042	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	12.800 LF	480.00	\$6,144.00
0043	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	1.000 EA	700.00	\$700.00
0044	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	10.000 EA	870.00	\$8,700.00
0045	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	9.000 EA	870.00	\$7,830.00
0046	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	11.000 EA	870.00	\$9,570.00
0047	2396000000-N	840	FRAME WITH COVER, STD 840.54	2.000 EA	700.00	\$1,400.00
0048	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	1630.000 LF	22.00	\$35,860.00
0049	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	2660.000 LF	25.00	\$66,500.00
0050	2591000000-E	848	4" CONCRETE SIDEWALK	1110.000 SY	48.00	\$53,280.00
0051	2605000000-N	848	CONCRETE CURB RAMPS	7.000 EA	2,250.00	\$15,750.00
0052	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	40.000 SY	81.00	\$3,240.00
0053	2830000000-N	858	ADJUSTMENT OF MANHOLES	2.000 EA	1,200.00	\$2,400.00

**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0054	2905000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX	2.000 EA	2,500.00	\$5,000.00
0055	3030000000-E	862	STEEL BEAM GUARDRAIL	1487.500 LF	26.00	\$38,675.00
0056	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10.000 EA	10.00	\$100.00
0057	3210000000-N	862	GUARDRAIL END UNITS, TYPE CAT-1	2.000 EA	1,000.00	\$2,000.00
0058	3215000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE III	4.000 EA	2,300.00	\$9,200.00
0059	3287000000-N	SP	GUARDRAIL END UNITS, TYPE TL-3	7.000 EA	3,300.00	\$23,100.00
0060	3317000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE B-77	4.000 EA	2,800.00	\$11,200.00
0061	3360000000-E	863	REMOVE EXISTING GUARDRAIL	1770.000 LF	1.25	\$2,212.50
0062	3380000000-E	862	TEMPORARY STEEL BEAM GUARDRAIL	162.500 LF	10.00	\$1,625.00
0063	3387000000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (TYPE III MODIFIED)	2.000 EA	1,500.00	\$3,000.00
0064	3389150000-N	SP	TEMPORARY GUARDRAIL END UNITS, TYPE ***** (TL-3)	2.000 EA	2,500.00	\$5,000.00
0065	3435000000-N	SP	GENERIC GUARDRAIL ITEM TEMPORARY ADDITIONAL GUARDRAIL POSTS	5.000 EA	8.00	\$40.00
0066	3595000000-E	869	RELAPPING GUARDRAIL	200.000 LF	5.00	\$1,000.00
0067	3642000000-E	876	RIP RAP, CLASS A	135.000 TON	58.00	\$7,830.00
0068	3649000000-E	876	RIP RAP, CLASS B	186.000 TON	58.00	\$10,788.00
0069	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	1088.000 SY	3.60	\$3,916.80
0070	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (E)	234.000 SF	22.00	\$5,148.00
0071	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (F)	7.000 SF	22.00	\$154.00

**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0072	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	760.000 LF	9.00	\$6,840.00
0073	4102000000-N	904	SIGN ERECTION, TYPE E	39.000 EA	200.00	\$7,800.00
0074	4108000000-N	904	SIGN ERECTION, TYPE F	2.000 EA	200.00	\$400.00
0075	4116100000-N	904	SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (E)	1.000 EA	225.00	\$225.00
0076	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U- CHANNEL	22.000 EA	5.65	\$124.30
0077	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	506.000 SF	11.80	\$5,970.80
0078	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	56.000 SF	10.10	\$565.60
0079	4415000000-N	1115	FLASHING ARROW BOARD	6.000 EA	2,700.00	\$16,200.00
0080	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	4.000 EA	10,000.00	\$40,000.00
0081	4430000000-N	1130	DRUMS	434.000 EA	46.50	\$20,181.00
0082	4445000000-E	1145	BARRICADES (TYPE III)	120.000 LF	32.40	\$3,888.00
0083	4455000000-N	1150	FLAGGER	10.000 DAY	400.00	\$4,000.00
0084	4480000000-N	1165	TMA	2.000 EA	13,800.00	\$27,600.00
0085	4520000000-N	1266	TUBULAR MARKERS (FIXED)	70.000 EA	85.00	\$5,950.00
0086	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	754.000 EA	5.20	\$3,920.80
0087	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	5937.000 LF	2.30	\$13,655.10
0088	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	303.000 LF	3.00	\$909.00
0089	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	241.000 LF	5.50	\$1,325.50
0090	4720000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (90 MILS)	4.000 EA	100.00	\$400.00

**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0091	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	32.000 EA	125.00	\$4,000.00
0092	4726110000-E	1205	HEATED-IN-PLACE THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	8.000 EA	330.00	\$2,640.00
0093	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (I)	1192.000 LF	3.00	\$3,576.00
0094	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	1120.000 LF	3.25	\$3,640.00
0095	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	14769.000 LF	0.25	\$3,692.25
0096	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	56.000 LF	3.24	\$181.44
0097	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	15909.000 LF	1.00	\$15,909.00
0098	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	56.000 LF	2.64	\$147.84
0099	4891000000-E	1205	GENERIC PAVEMENT MARKING ITEM THERMOPLASTIC PAVEMENT MARKING LINES (24", 90 MILS)	96.000 LF	13.50	\$1,296.00
0100	4895000000-N	SP	GENERIC PAVEMENT MARKING ITEM NON-CAST IRON SNOWPLOWABLE PAVEMENT MARKER	170.000 EA	50.00	\$8,500.00
0101	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	6.000 EA	5.80	\$34.80
0102	5326200000-E	1510	12" WATER LINE	909.000 LF	215.00	\$195,435.00
0103	5329000000-E	1510	DUCTILE IRON WATER PIPE FITTINGS	5015.000 LB	17.00	\$85,255.00
0104	5540000000-E	1515	6" VALVE	1.000 EA	3,100.00	\$3,100.00
0105	5558000000-E	1515	12" VALVE	1.000 EA	3,750.00	\$3,750.00
0106	5666000000-N	1515	FIRE HYDRANT	1.000 EA	7,000.00	\$7,000.00
0107	5673000000-E	1515	FIRE HYDRANT LEG	11.000 LF	200.00	\$2,200.00
0108	5691300000-E	1520	8" SANITARY GRAVITY SEWER	510.000 LF	375.00	\$191,250.00

**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0109	5768000000-N	1520	SANITARY SEWER CLEAN-OUT	1.000 EA	900.00	\$900.00
0110	5768500000-E	1520	SEWER SERVICE LINE	40.000 LF	250.00	\$10,000.00
0111	5775000000-E	1525	4' DIA UTILITY MANHOLE	1.000 EA	6,900.00	\$6,900.00
0112	5781000000-E	1525	UTILITY MANHOLE WALL 4' DIA	2.000 LF	345.00	\$690.00
0113	5804000000-E	1530	ABANDON 12" UTILITY PIPE	270.000 LF	60.00	\$16,200.00
0114	5816000000-N	1530	ABANDON UTILITY MANHOLE	1.000 EA	2,000.00	\$2,000.00
0115	5836000000-E	1540	24" ENCASEMENT PIPE	150.000 LF	210.00	\$31,500.00
0116	5872500000-E	1550	BORE AND JACK OF *** (24")	150.000 LF	380.00	\$57,000.00
0117	6000000000-E	1605	TEMPORARY SILT FENCE	5300.000 LF	3.00	\$15,900.00
0118	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	500.000 TON	78.00	\$39,000.00
0119	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	260.000 TON	80.50	\$20,930.00
0120	6012000000-E	1610	SEDIMENT CONTROL STONE	575.000 TON	58.50	\$33,637.50
0121	6015000000-E	1615	TEMPORARY MULCHING	7.000 ACR	2,220.00	\$15,540.00
0122	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	400.000 LB	3.10	\$1,240.00
0123	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	3.000 TON	3,080.00	\$9,240.00
0124	6024000000-E	1622	TEMPORARY SLOPE DRAINS	200.000 LF	28.80	\$5,760.00
0125	6029000000-E	SP	SAFETY FENCE	560.000 LF	6.00	\$3,360.00
0126	6030000000-E	1630	SILT EXCAVATION	930.000 CY	35.00	\$32,550.00
0127	6036000000-E	1631	MATTING FOR EROSION CONTROL	13500.000 SY	2.40	\$32,400.00
0128	6037000000-E	SP	COIR FIBER MAT	100.000 SY	7.00	\$700.00

**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0129	6042000000-E	1632	1/4" HARDWARE CLOTH	1575.000 LF	8.50	\$13,387.50
0130	6071010000-E	SP	WATTLE	225.000 LF	8.50	\$1,912.50
0131	6071020000-E	SP	POLYACRYLAMIDE (PAM)	75.000 LB	17.15	\$1,286.25
0132	6071030000-E	1640	COIR FIBER BAFFLE	200.000 LF	8.50	\$1,700.00
0133	6071050000-E	SP	*** SKIMMER (1-1/2")	2.000 EA	2,000.00	\$4,000.00
0134	6084000000-E	1660	SEEDING & MULCHING	3.000 ACR	4,030.00	\$12,090.00
0135	6087000000-E	1660	MOWING	2.000 ACR	500.00	\$1,000.00
0136	6090000000-E	1661	SEED FOR REPAIR SEEDING	100.000 LB	13.20	\$1,320.00
0137	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.250 TON	2,140.00	\$535.00
0138	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	150.000 LB	13.20	\$1,980.00
0139	6108000000-E	1665	FERTILIZER TOPDRESSING	4.000 TON	1,810.00	\$7,240.00
0140	6114500000-N	1667	SPECIALIZED HAND MOWING	10.000 MHR	135.00	\$1,350.00
0141	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	100.000 EA	200.00	\$20,000.00
0142	6117500000-N	SP	CONCRETE WASHOUT STRUCTURE	6.000 EA	1,350.00	\$8,100.00
0143	6123000000-E	1670	REFORESTATION	0.100 ACR	3,000.00	\$300.00
0144	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE	2.000 EA	250.00	\$500.00
0145	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE CLEANOUT	4.000 EA	200.00	\$800.00
<b>STRUCTURE ITEMS</b>						
0146	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$52,650.00

**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0147	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$52,650.00
0148	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$129,000.00
0149	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$129,000.00
0150	8065000000-N	SP	ASBESTOS ASSESSMENT	Lump Sum	L.S.	\$3,000.00
0151	8105540000-E	411	3'-6" DIA DRILLED PIERS IN SOIL	214.250 LF	950.00	\$203,537.50
0152	8105640000-E	411	3'-6" DIA DRILLED PIERS NOT IN SOIL	180.000 LF	1,100.00	\$198,000.00
0153	8111400000-E	411	PERMANENT STEEL CASING FOR 3'-6" DIA DRILLED PIER	207.800 LF	350.00	\$72,730.00
0154	8113000000-N	411	SID INSPECTIONS	2.000 EA	1,050.00	\$2,100.00
0155	8114000000-N	411	SPT TESTING	2.000 EA	1,200.00	\$2,400.00
0156	8115000000-N	411	CSL TESTING	2.000 EA	2,500.00	\$5,000.00
0157	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$4,400.00
0158	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$4,400.00
0159	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	17650.000 SF	60.00	\$1,059,000.00
0160	8161000000-E	420	GROOVING BRIDGE FLOORS	15726.000 SF	1.35	\$21,230.10
0161	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	352.900 CY	1,350.00	\$476,415.00
0162	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (21+22.00-L-LT)	Lump Sum	L.S.	\$58,750.00
0163	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (21+22.00-L-RT)	Lump Sum	L.S.	\$58,750.00



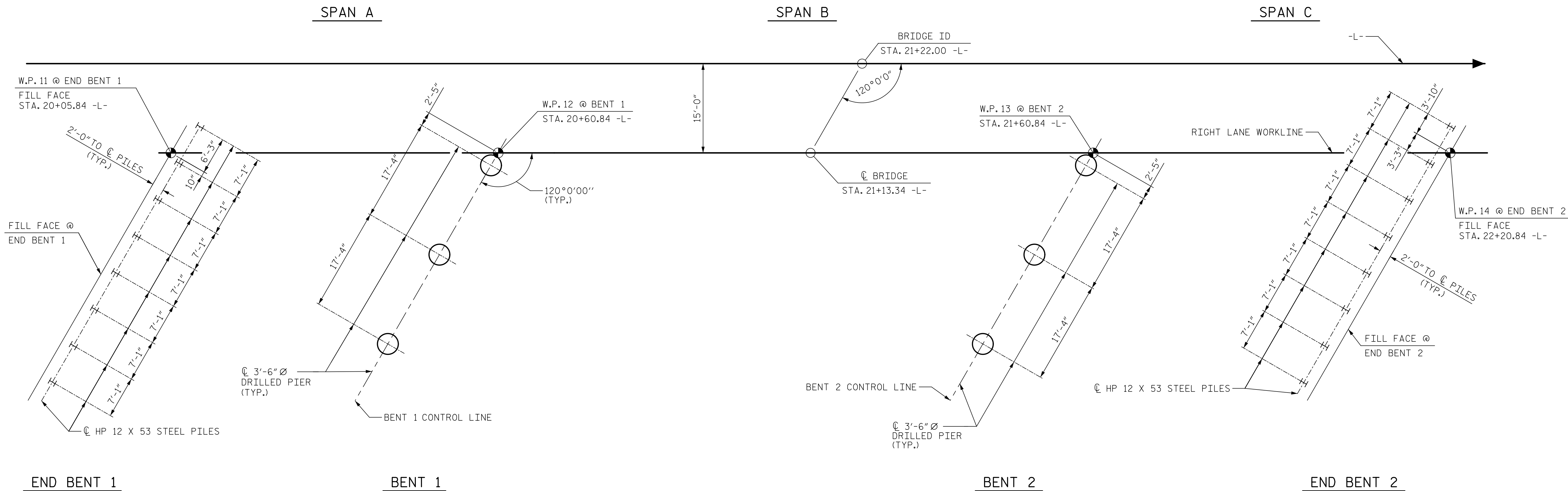
**Engineer's Estimate Report (Without Break Down)**

Line #	ItemNumber	Sec #	Description	Quantity	Unit Cost	Estimated Amount
0164	8217000000-E	425	REINFORCING STEEL (BRIDGE)	74419.000 LB	2.00	\$148,838.00
0165	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	9665.000 LB	2.63	\$25,385.00
0166	8265000000-E	430	54" PRESTRESSED CONCRETE GIRDERS	2111.460 LF	355.00	\$749,568.30
0167	8328200000-E	450	PILE DRIVING EQUIPMENT SETUP FOR *** STEEL PILES (HP 12 X 53)	32.000 EA	599.69	\$19,190.08
0168	8364000000-E	450	HP 12 X 53 STEEL PILES	800.000 LF	51.01	\$40,808.00
0169	8391000000-N	450	STEEL PILE POINTS	32.000 EA	130.00	\$4,160.00
0171	8475000000-E	460	TWO BAR METAL RAIL	409.760 LF	225.00	\$92,196.00
0172	8503000000-E	460	CONCRETE BARRIER RAIL	426.140 LF	370.00	\$157,671.80
0173	8517000000-E	460	1'-** X ***** CONCRETE PARAPET (1'-2" X 2'-6")	426.140 LF	120.00	\$51,136.80
0174	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	931.000 TON	65.00	\$60,515.00
0175	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	1035.000 SY	3.00	\$3,105.00
0176	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	\$15,000.00
<b>Total length of projects : 0.324 MILES</b>				<b>Total Estimated Amount</b>		<b>\$7,911,010.11</b>

1243/Jun10/Q228295.00/D775211050000/E175

DATE: 6/9/2022  
TIME: 12:46:39 PM

USER: gregory.cole  
DN: cn=gregory.cole, ou=Users, dc=acem.com, dc=com  
DRAWING NO.: B-5717-000-002  
PROJECT NO.: B-5717  
SHEET NO.: S1-02



### FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE SHOWN TO THE CENTERLINE OF PILES AND DRILLED PIERS.

#### FOUNDATION NOTES:

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE.
- DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 185 TONS PER PILE.
- 
- 
- STEEL H-PILES POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1 AND END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1. DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 690.1 FT (LT) AND 690.7 FT (RT) WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- DRILLED PIERS AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 540 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 5 TSF.
- INSTALL DRILLED PIERS AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 680.0 FT (LT), 676.0 FT (C), AND 672.0 FT (RT) WITH THE REQUIRED TIP RESISTANCE AND A PENETRATION OF AT LEAST 5 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

- THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 690 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 2. DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 688.3 FT (LT) AND 688.1 FT (RT) WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- DRILLED PIERS AT BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 545 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 5 TSF.
- INSTALL DRILLED PIERS AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 669.0 FT (LT), 668.0 FT (C), AND 668.0 FT (RT) WITH THE REQUIRED TIP RESISTANCE AND A PENETRATION OF AT LEAST 5 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
- THE SCOUR CRITICAL ELEVATION FOR BENT NO. 2 IS ELEVATION 688 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- SPT MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SPT. FOR SPT TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

#### SPECIAL FOUNDATION NOTES:

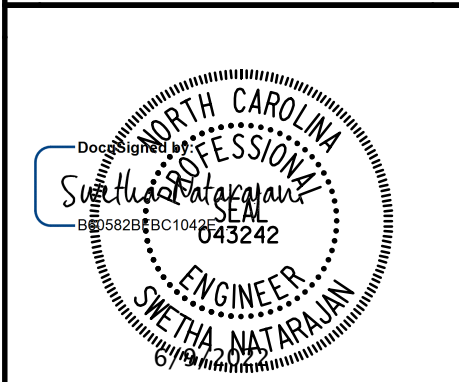
- BOULDERS WERE ENCOUNTERED IN BORINGS EB1-C (6 FEET), EB1-C1 (6.2 FEET), EB1-C2 (10.5 FEET), EB1-C3 (13.2 FEET), AND EB2-C (4.5 FEET).
- IF DURING PILE DRIVING, PILES ENCOUNTER OBSTRUCTIONS SUCH AS BOULDERS, CONCRETE, OR CONSTRUCTION DEBRIS AND CANNOT BE DRIVEN TO AN ELEVATION AT LEAST 15 FT. BELOW THE BOTTOM OF CAP, THEN PILE DRIVING SHALL STOP. THE CONTRACTOR SHALL OVER-EXCAVATE TO REMOVE ANY DEBRIS OR HARD OBJECTS AND THEN PROCEED WITH PILE DRIVING. THE EXCAVATED AREA SHALL BE FILLED WITH #57 STONE. THIS WORK OF EXCAVATION AND MATERIAL BACKFILLING WILL BE CONSIDERED INCIDENTAL TO PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 PILES.

REVISION #1:  
REMOVED PREDRILLING FOR PILES  
PAY ITEM.



PROJECT NO. B-5717  
GUILFORD COUNTY  
STATION: 21+22.00 -L-

SHEET 2 OF 3

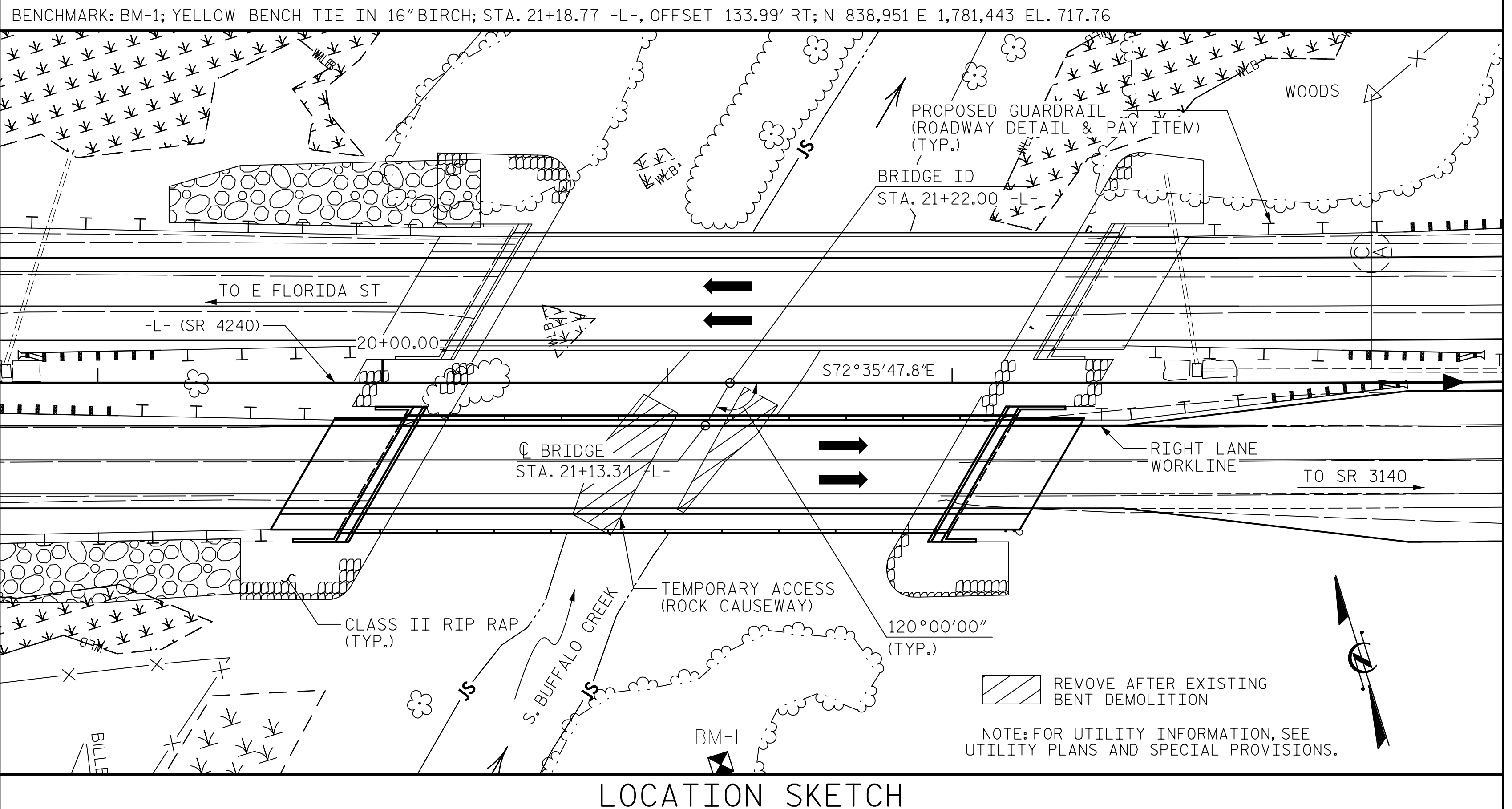


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE ON SR 4240 OVER S. BUFFALO CREEK BETWEEN E. FLORIDA ST. AND SR 3140 <b>(RIGHT LANE)</b>					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1	SN	6-9-22	3		
2			4		
					S1-02
					TOTAL SHEETS
					38

DRAWN BY : M.L. CATER	DATE : 09/2021
CHECKED BY : G.R. COLS	DATE : 08/2021
DESIGNED BY : S. NATARAJAN	DATE : 03/2021
DESIGN CHECKED BY : G.R. COLS	DATE : 03/2021

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED





DATE: 6/19/2022  
TIME: 10:54:48 AM

USER: gregory.cole  
DGN: P:\Users\gregory.cole\Documents\AECOM\2020\2020\Drawings\401\_005\_B-571T\_SMU\_LOC\_S1-03\_40009

**NOTES:**

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 21+22.00 -L-.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS INCLUDED ON THE PLANS OR APPROVED BY THE ENGINEER.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD FOR THE EXISTING STRUCTURE, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 21+22.00 -L-".

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S1-01 SHALL BE EXCAVATED FOR A DISTANCE OF 75' FT. RIGHT OF CENTERLINE -L- AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 5 SPANS AT 40FT OF REINFORCED CONCRETE DECK GIRDERS ON CONCRETE SUBSTRUCTURE AND LOCATED AT THE EXISTING STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING THE CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGES INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."

THE SCOUR CRITICAL ELEVATION FOR BENTS NO. 1 AND 2 ARE ELEVATIONS 690.0 AND 688.0, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR'S ATTENTION SHALL BE DRAWN TO THE FACT THAT ONLY 50% OF THE CHANNEL WILL BE ALLOWED TO BE BLOCKED AT ANY TIME. NO MORE THAN ONE TEMPORARY ACCESS CAUSEWAY MAY BE INSTALLED AT ANY ONE TIME. DEWATERING FOR REMOVAL OF EXISTING STRUCTURE IS PERMITTED ONLY WITHIN THE TEMPORARY ACCESS LIMITS SHOWN.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

**LOCATION SKETCH**

**TOTAL BILL OF MATERIAL**

	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 21+22.00 -L-	REMOVAL OF EXISTING STRUCTURE AT STA. 21+22.00 -L-	ASBESTOS ASSESSMENT	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	SID INSPECTION	SPT TESTING	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LUMP SUM	SQ. FT.
SUPERSTRUCTURE											8,825
END BENT 1				51	36	48.2					
BENT 1				52	56	51.4					
BENT 2											
END BENT 2											
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	103	92	99.6	1	1	1	LUMP SUM	8,825

**SAMPLE BAR REPLACEMENT**

SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND  $f_y = 60$ ksi.

REVISION #1: REMOVED PREDRILLING FOR PILES PAY ITEM.

**TOTAL BILL OF MATERIAL**

	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDER	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES	STEEL PILE POINTS	TWO BAR METAL RAIL	CONCRETE BARRIER RAIL	1'-2" X 2'-6" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS		
	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	TON	SQ. YDS.	LUMP SUM		
SUPERSTRUCTURE	7,863			7,708		15	1,055.73					204.88	213.07	213.07	LUMP SUM		
END BENT 1		49.0		7,708				8	8	200	8		233	259			
BENT 1		39.3		10,683	2,133												
BENT 2		40.6		11,517	2,642												
END BENT 2		49.3		7,504				8	8	200	8		202	225			
TOTAL	7,863	178.2	LUMP SUM	37,412	4,775	15	1,055.73	16	16	400	16	204.88	213.07	213.07	435	484	LUMP SUM

PROJECT NO. B-5717  
 GUILFORD COUNTY  
 STATION: 21+22.00 -L-

SHEET 3 OF 3



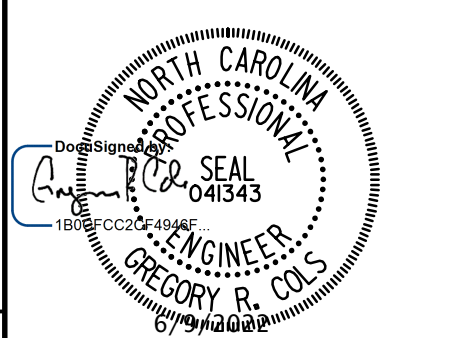
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING

FOR BRIDGE ON SR 4240 OVER S. BUFFALO CREEK BETWEEN E. FLORIDA ST. AND SR 3140 (RIGHT LANE)

DRAWN BY : D.R. DRUM DATE : 10/2021  
 CHECKED BY : G.R. COLS DATE : 10/2021  
 DESIGNED BY : D.R. DRUM DATE : 10/2021  
 DESIGN CHECKED BY : G.R. COLS DATE : 10/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

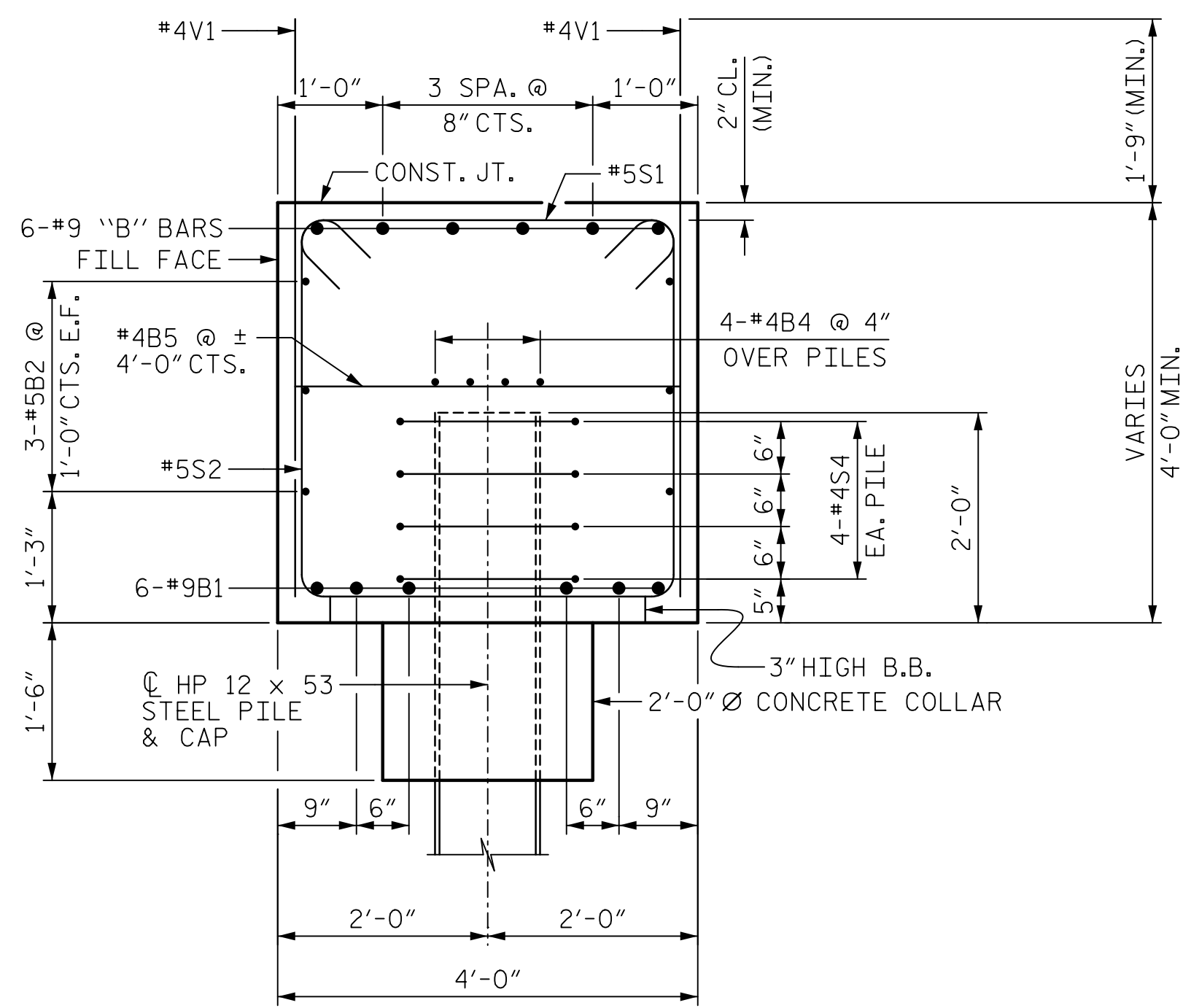
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-03
1	GRC	6-9-22	3			TOTAL SHEETS 38
2			4			



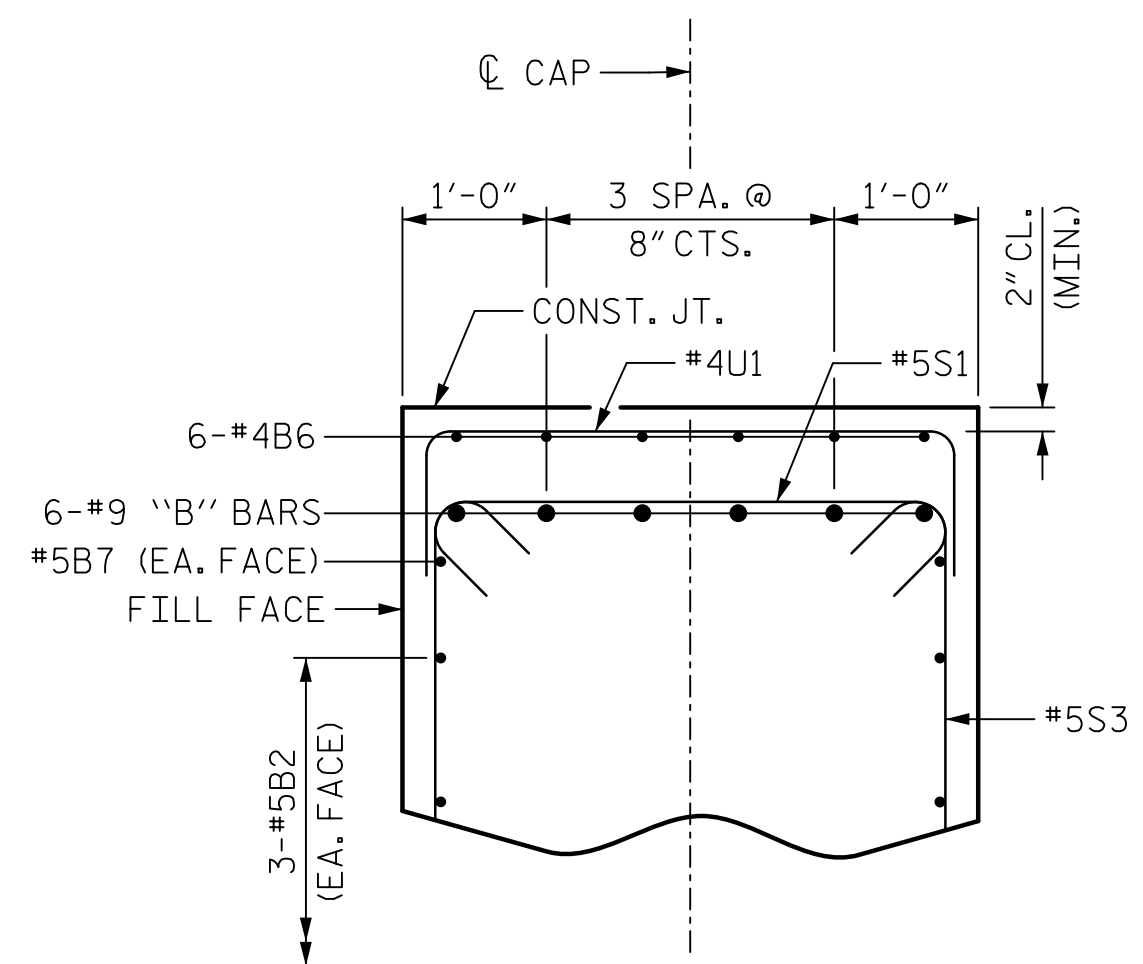


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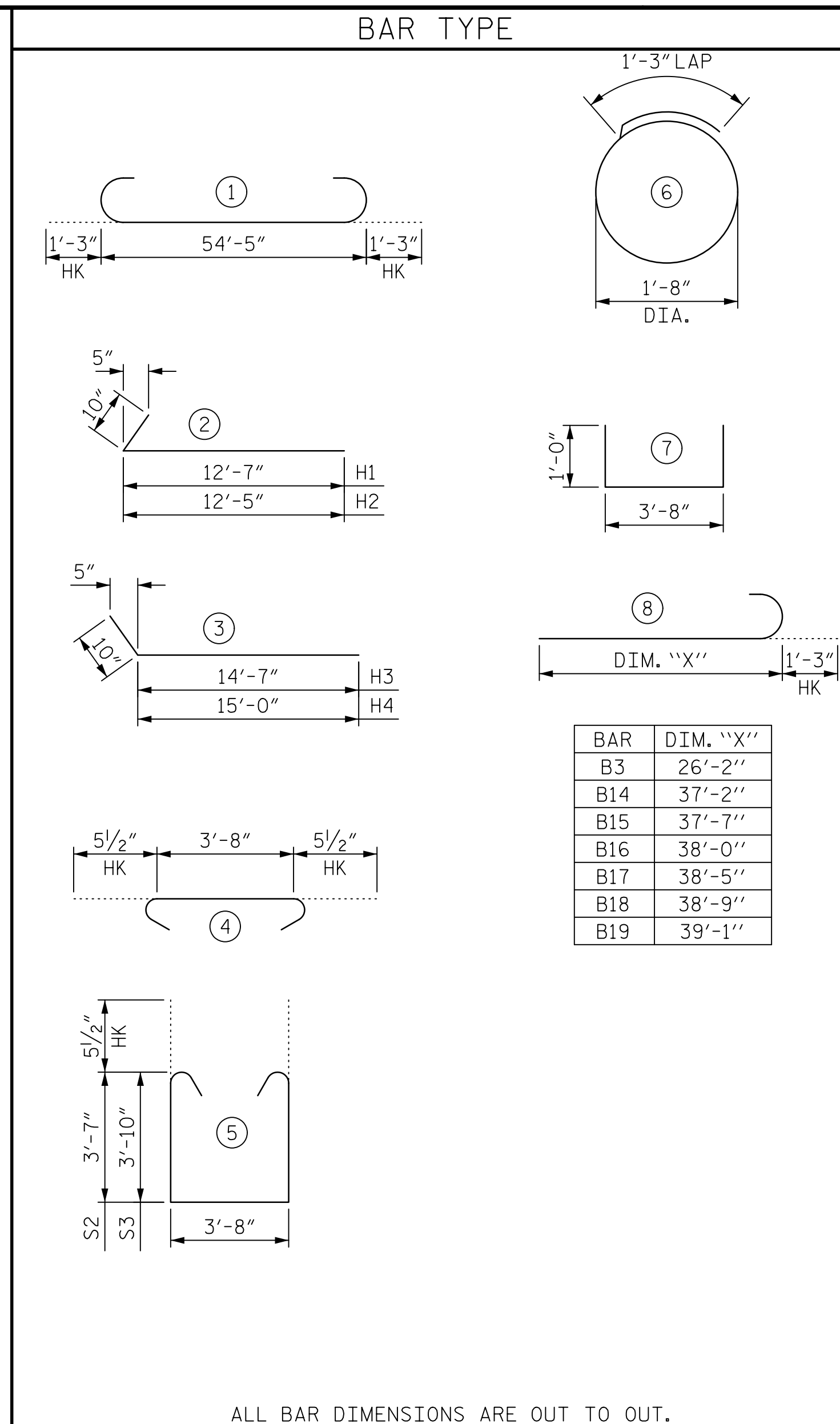
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SECTION A-A



SECTION B-B



BILL OF MATERIAL					
INTEGRAL END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	9	1	56'-11"	1161
B2	6	5	STR	54'-5"	341
B3	6	9	8	27'-5"	559
B4	8	4	STR	28'-6"	152
B5	14	4	STR	3'-8"	34
B6	12	4	STR	9'-11"	79
B7	2	5	STR	31'-5"	66
B8	1	4	STR	6'-11"	5
B9	1	4	STR	7'-4"	5
B10	1	4	STR	7'-9"	5
B11	1	4	STR	8'-2"	5
B12	1	4	STR	8'-6"	6
B13	1	4	STR	8'-10"	6
B14	1	9	8	38'-5"	131
B15	1	9	8	38'-10"	132
B16	1	9	8	39'-3"	133
B17	1	9	8	39'-8"	135
B18	1	9	8	40'-0"	136
B19	1	9	8	40'-4"	137
H1	12	6	2	13'-5"	242
H2	12	6	2	13'-3"	239
H3	13	6	3	15'-5"	301
H4	13	6	3	15'-10"	309
H5	20	6	STR	15'-11"	478
H6	16	6	STR	18'-1"	435
K1	24	4	STR	3'-0"	48
K2	26	4	STR	3'-1"	54
S1	62	5	4	4'-7"	296
S2	19	5	5	11'-9"	233
S3	43	5	5	12'-3"	549
S4	32	4	6	6'-6"	139
U1	19	4	7	5'-8"	72
V1	72	4	STR	6'-7"	317
V2	34	5	STR	10'-7"	375
V3	38	5	STR	9'-11"	393

REINFORCING STEEL	7,708 LBS.
CLASS A CONCRETE	
POUR #1 (CAP, COLLARS & LOWER WINGWALLS)	41.5 C.Y.
POUR #2 (UPPER WINGWALL)	7.5 C.Y.
TOTAL	49.0 C.Y.
HP 12x53 STEEL PILES:	
NO. = 8	LIN. FT. = 200
PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	8 EA.
STEEL PILE POINTS	8 EA.

PROJECT NO. **B-5717**  
 GUILFORD COUNTY  
 STATION: **21+22.00 -L-**

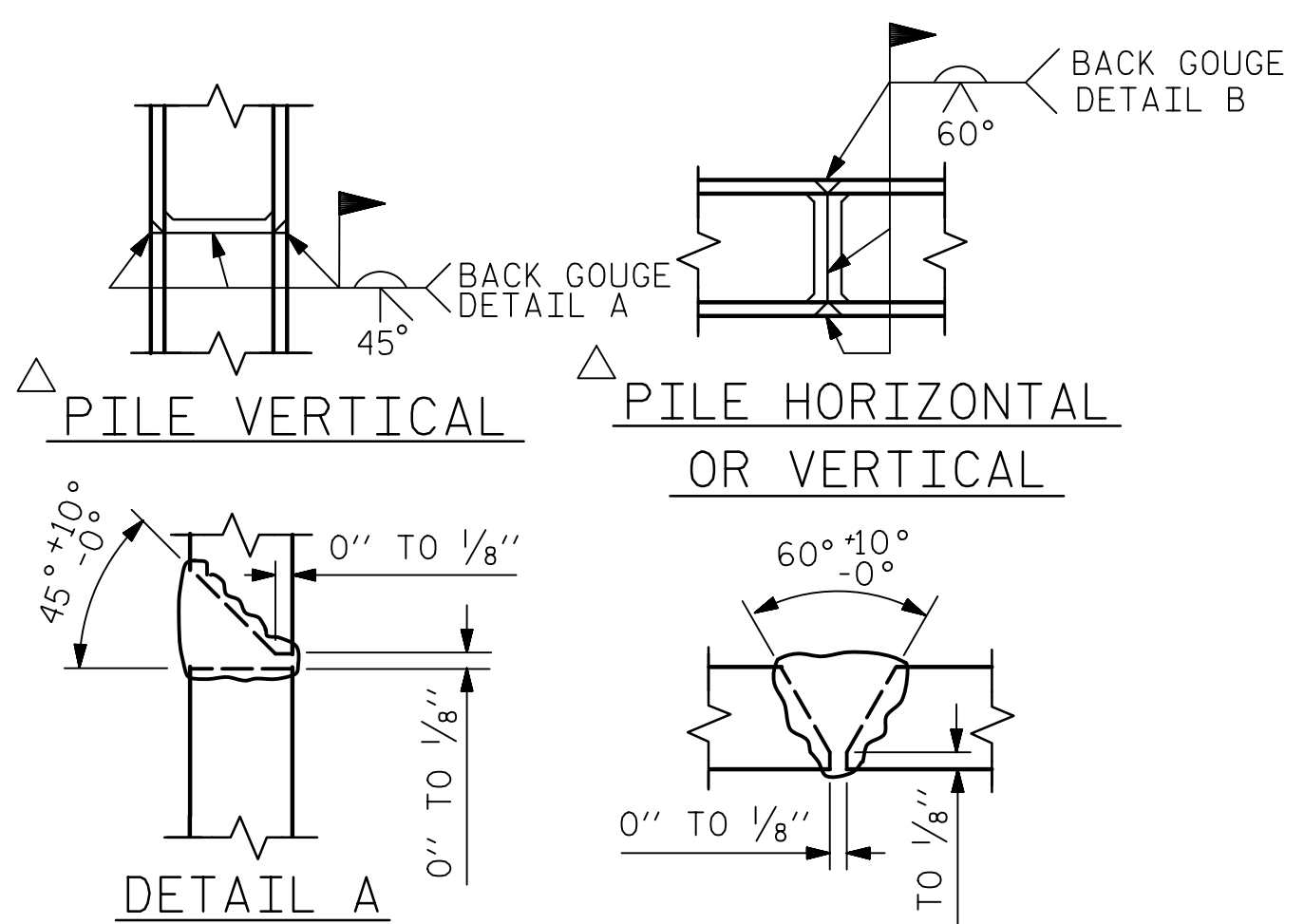
SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

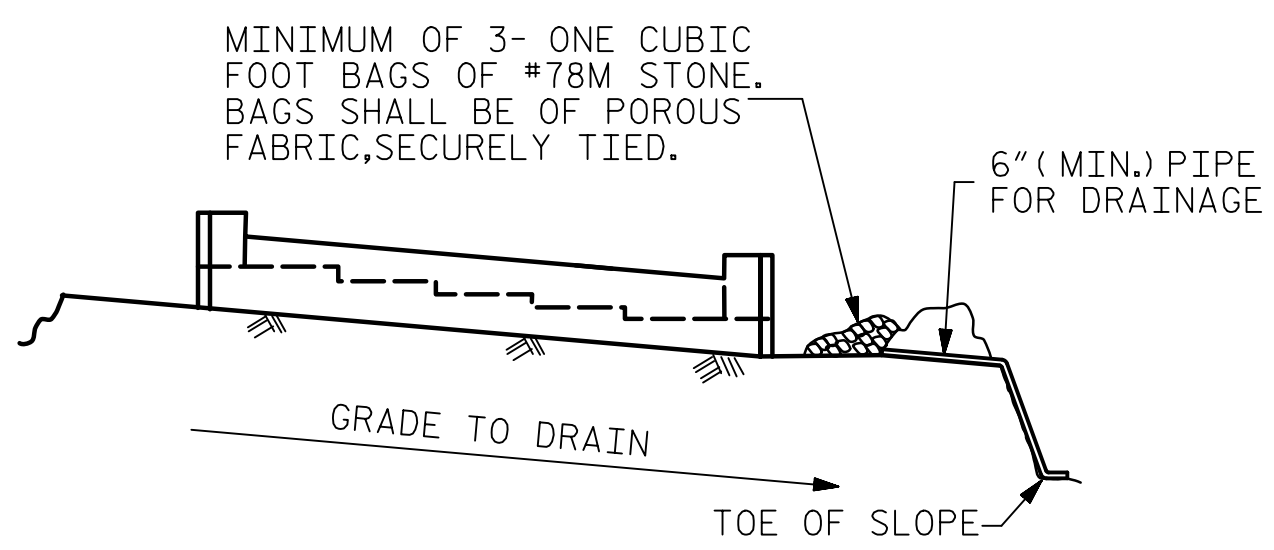
SUBSTRUCTURE  
 INTEGRAL END BENT 1  
 (RIGHT LANE)

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	SN	6-9-22	3		
2			4		

SHEET NO. S1-28  
 TOTAL SHEETS 38



PILE SPLICE DETAILS



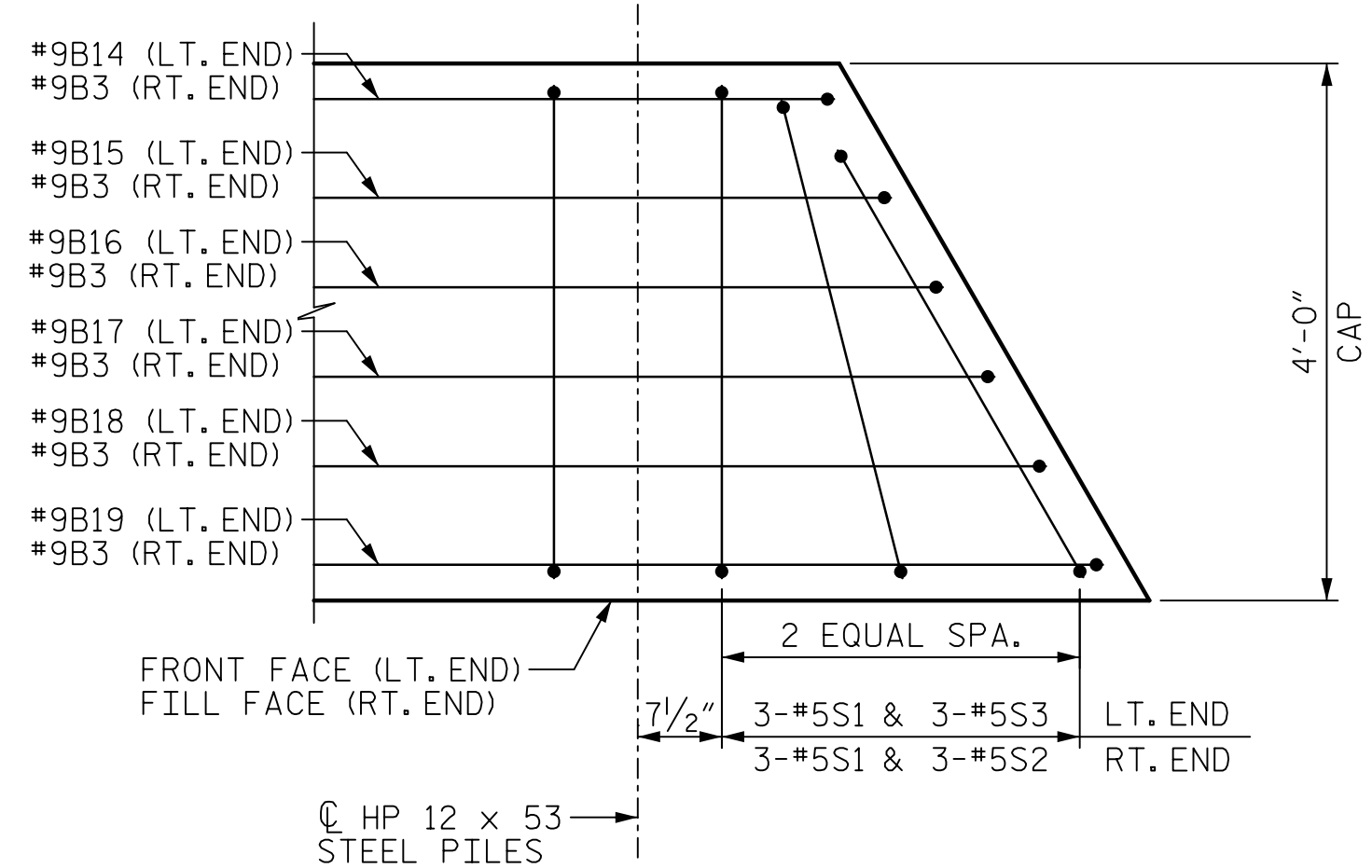
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

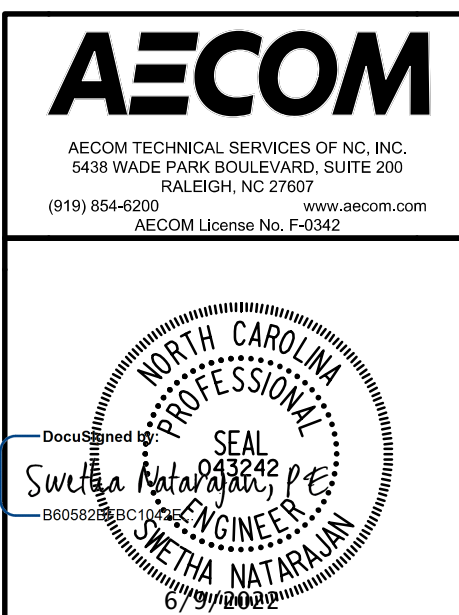
TEMPORARY DRAINAGE AT END BENT



SPLAYED BAR DETAIL

PLAN VIEW SHOWN AT RIGHT END, LEFT END SIMILAR BY ROTATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

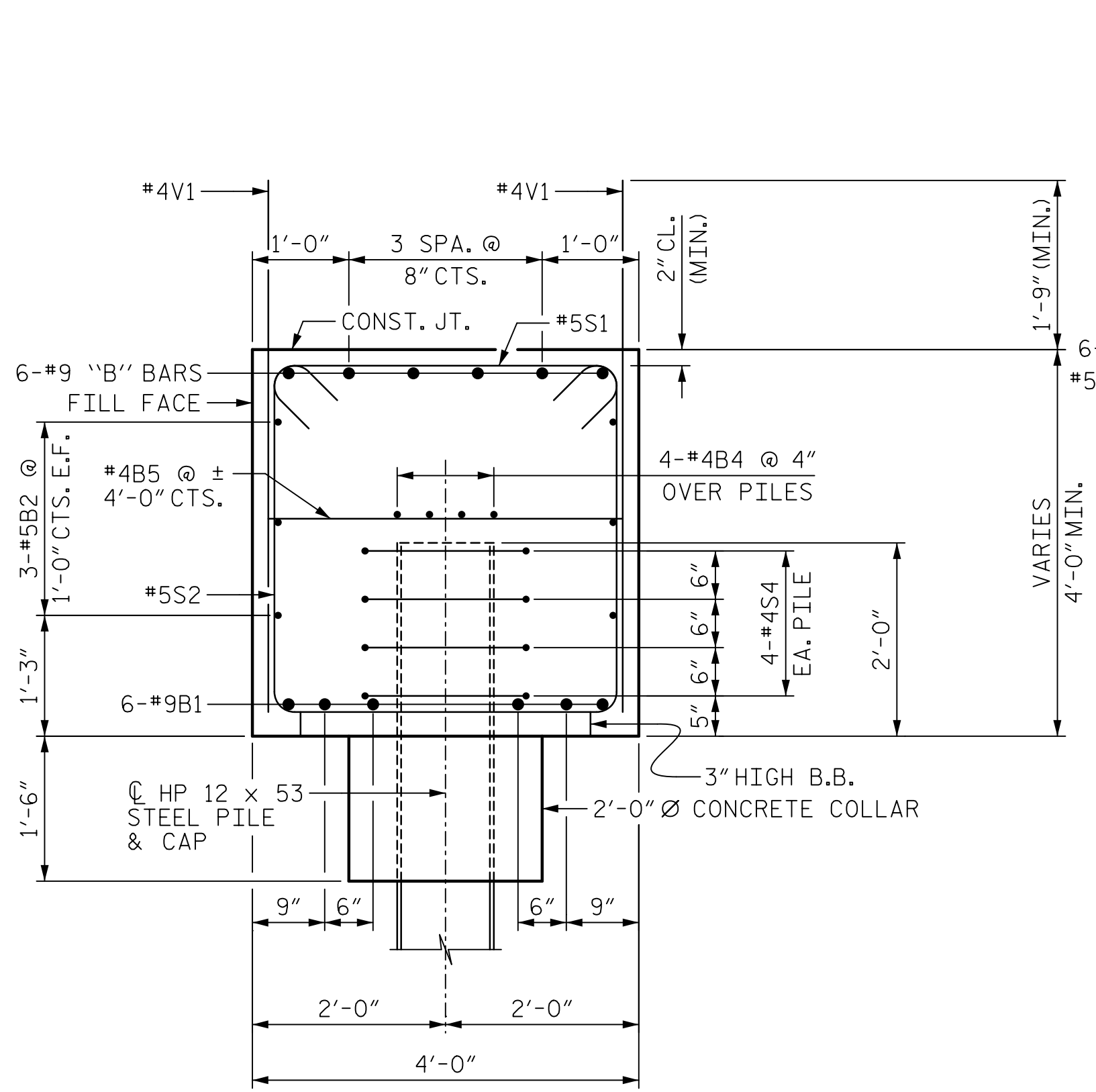


DRAWN BY: D.R. DRUM DATE: 05/2021  
 CHECKED BY: S. NATARAJAN DATE: 08/2021  
 DESIGNED BY: D.R. DRUM DATE: 05/2021  
 DESIGN CHECKED BY: S. NATARAJAN DATE: 05/2021

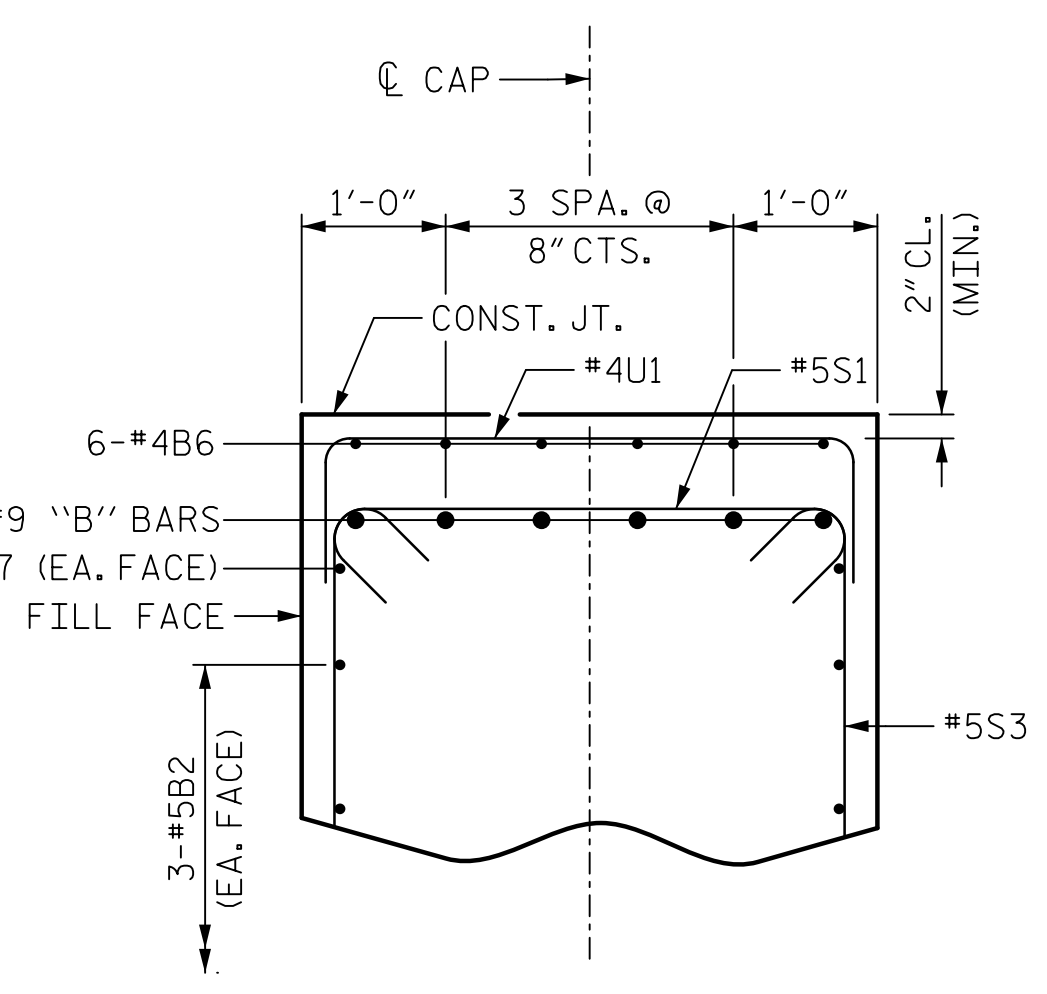
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 PAY ITEM.

DATE: 6/9/2022  
TIME: 11:45:57 AM

USER: greggpc@ncs.com  
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SECTION A-A



SECTION B-B

**BAR TYPE**

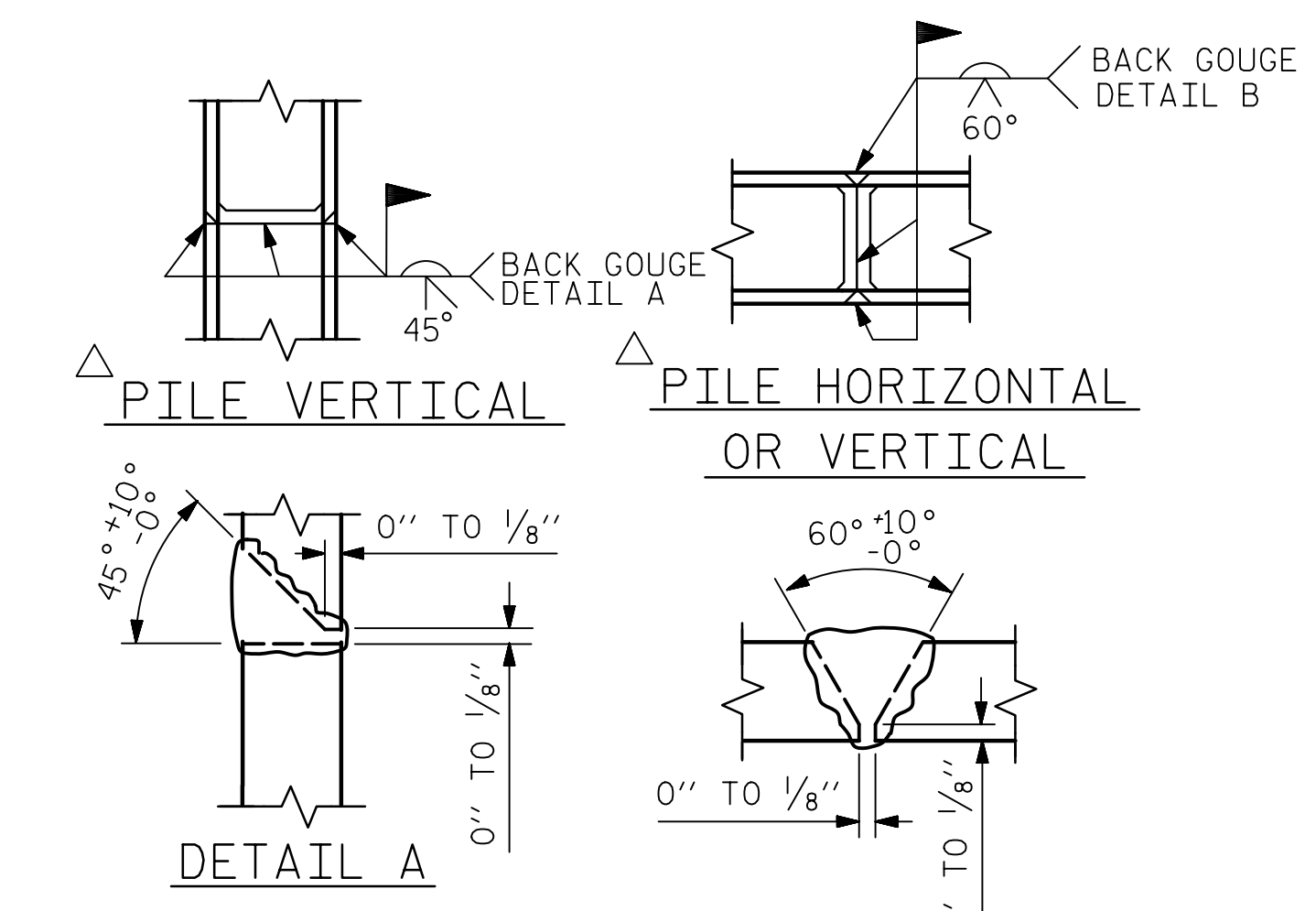
BAR	DIM. 'Y'
B3	25'-11"
B14	39'-4"
B15	38'-10"
B16	38'-5"
B17	38'-1"
B18	37'-8"
B19	37'-2"

ALL BAR DIMENSIONS ARE OUT TO OUT.

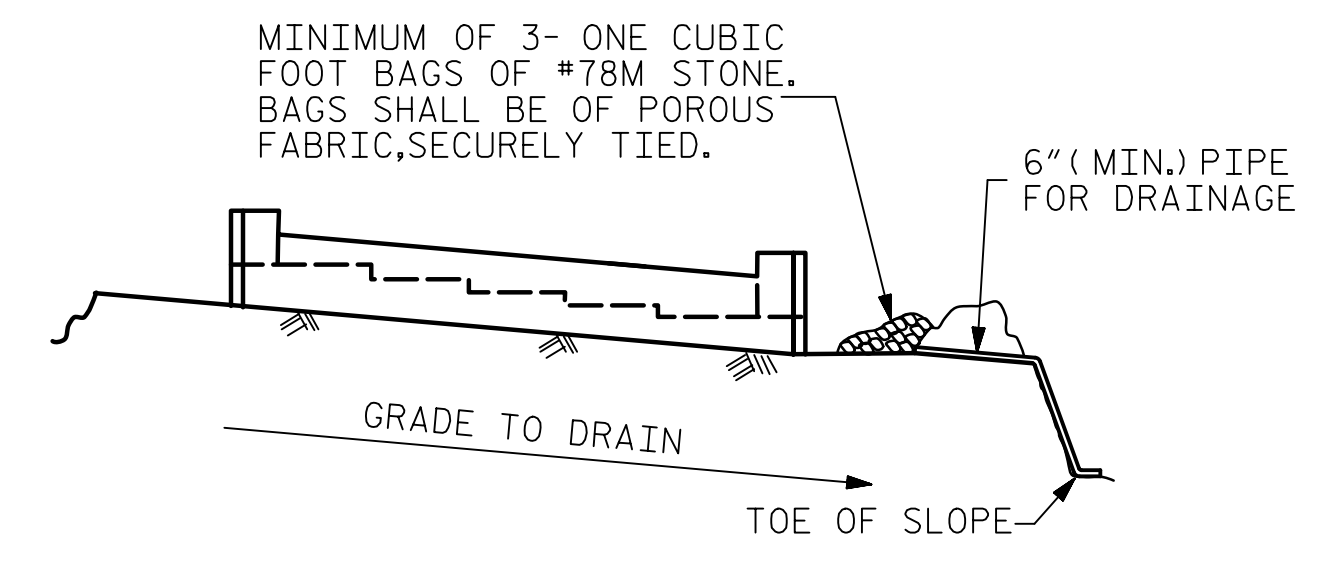
**BILL OF MATERIAL**

**INTEGRAL END BENT 2**

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	6	9	1	56'-11"	1161
B2	6	5	STR	54'-5"	341
B3	6	9	8	27'-2"	554
B4	8	4	STR	28'-6"	152
B5	14	4	STR	3'-8"	34
B6	12	4	STR	9'-11"	79
B7	2	5	STR	31'-5"	66
B8	1	4	STR	9'-1"	6
B9	1	4	STR	8'-7"	6
B10	1	4	STR	8'-2"	5
B11	1	4	STR	7'-10"	5
B12	1	4	STR	7'-5"	5
B13	1	4	STR	6'-11"	5
B14	1	9	8	40'-7"	138
B15	1	9	8	40'-1"	136
B16	1	9	8	39'-8"	135
B17	1	9	8	39'-4"	134
B18	1	9	8	38'-11"	132
B19	1	9	8	38'-5"	131
H1	12	6	2	16'-9"	302
H2	12	6	2	17'-2"	309
H3	13	5	3	12'-5"	168
H4	13	5	3	12'-3"	166
H5	20	6	STR	19'-5"	583
H6	16	5	STR	14'-11"	249
K1	24	4	STR	3'-1"	49
K2	26	4	STR	3'-0"	52
S1	62	5	4	4'-7"	296
S2	19	5	5	11'-9"	233
S3	43	5	5	12'-3"	549
S4	32	4	6	6'-6"	139
U1	19	4	7	5'-8"	72
V1	72	4	STR	6'-7"	317
V2	42	5	STR	10'-7"	464
V3	32	5	STR	9'-11"	331



PILE SPLICE DETAILS



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

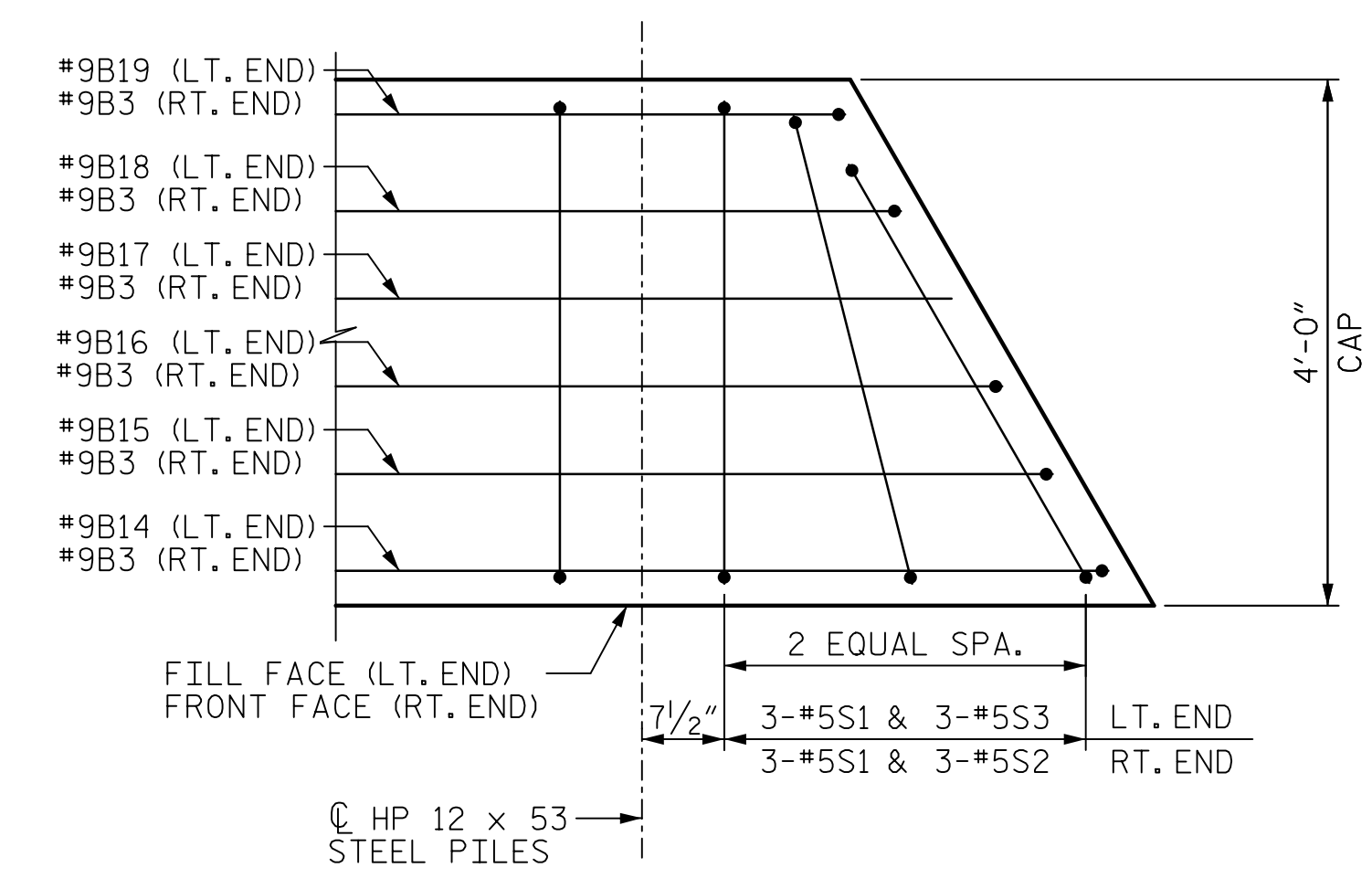
TOE OF SLOPE

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



SPLAYED BAR DETAIL

REINFORCING STEEL	7,504 LBS.
CLASS A CONCRETE	
POUR #1 (CAP, COLLARS & LOWER WINGWALLS)	41.7 C.Y.
POUR #2 (UPPER WINGWALL)	7.6 C.Y.
TOTAL	= 49.3 C.Y.
HP 12x53 STEEL PILES:	
NO. = 8	LIN. FT. = 200
PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	8 EA.
STEEL PILE POINTS	8 EA.

PROJECT NO. **B-5717**

**GUILFORD COUNTY**

STATION: **21+22.00 -L-**

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
INTEGRAL END BENT 2  
(RIGHT LANE)

**AECOM**

AECOM TECHNICAL SERVICES OF NC, INC.  
5438 WADE PARK BOULEVARD, SUITE 200  
RALEIGH, NC 27607  
(919) 854-6200 www.aecom.com  
AECOM License No. F-0342

SEAL  
S. Natarajan  
Professional Engineer  
No. 043242  
Exp. 12/31/2024  
6/9/2022

DRAWN BY: D.R. DRUM	DATE: 05/2021
CHECKED BY: S. NATARAJAN	DATE: 08/2021
DESIGNED BY: D.R. DRUM	DATE: 05/2021
DESIGN CHECKED BY: S. NATARAJAN	DATE: 05/2021

REVISION #1:  
REMOVED PREDRILLING FOR PILES  
PAY ITEM.

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

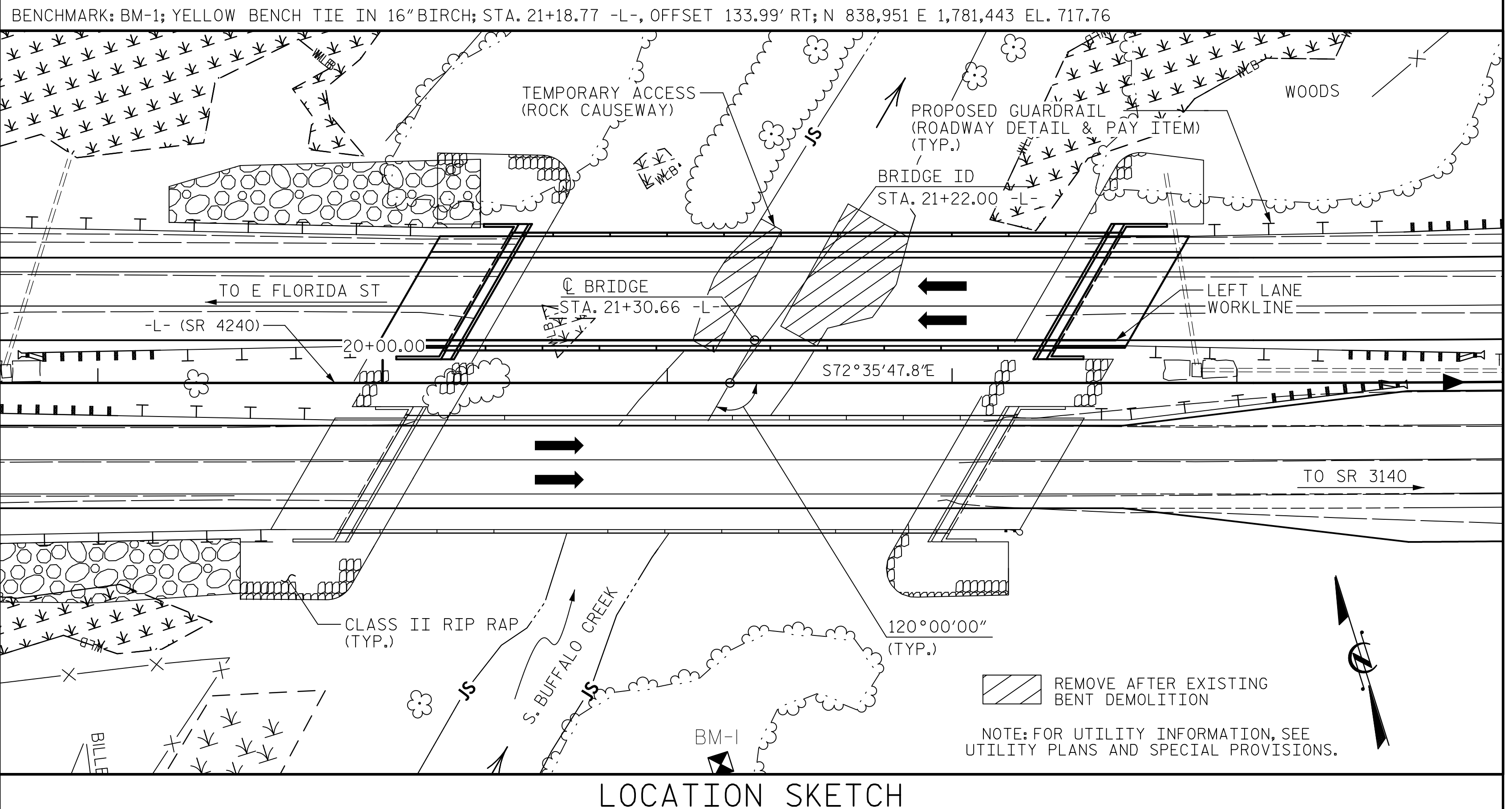
REVISIONS		SHEET NO.	
NO.	BY:	DATE:	NO.
1	SN	6-9-22	3
2			4

TOTAL SHEETS: 38









DATE: 6/19/2022  
TIME: 11:23:54 AM

USER: gregor.cole  
DN: P:\Users\gregor.cole\Documents\AECOM\2020\Drawings\402-005\_B-5717\_SMU\_LOC\_S2-03\_4021409

**NOTES:**

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 21+22.00 -L-.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS INCLUDED ON THE PLANS OR APPROVED BY THE ENGINEER.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD FOR THE EXISTING STRUCTURE, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 21+22.00 -L-".

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S2-01 SHALL BE EXCAVATED FOR A DISTANCE OF 80 FT. LEFT OF CENTERLINE -L- AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 5 SPANS AT 40FT OF REINFORCED CONCRETE DECK ON STEEL I-BEAMS ON CONCRETE SUBSTRUCTURE AND LOCATED AT THE EXISTING STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING THE CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGES INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."

THE SCOUR CRITICAL ELEVATIONS FOR BENT NO.1 ARE 683.0 (LEFT), 684.0 (CENTER), AND 685.0 (RIGHT). THE SCOUR CRITICAL ELEVATIONS FOR BENT NO.2 ARE 688.0 (LEFT), 687.0 (CENTER), AND 686.0 (RIGHT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR'S ATTENTION SHALL BE DRAWN TO THE FACT THAT ONLY 50% OF THE CHANNEL WILL BE ALLOWED TO BE BLOCKED AT ANY TIME. NO MORE THAN ONE TEMPORARY ACCESS CAUSEWAY MAY BE INSTALLED AT ANY ONE TIME. DEWATERING FOR REMOVAL OF EXISTING STRUCTURE IS PERMITTED ONLY WITHIN THE TEMPORARY ACCESS LIMITS SHOWN.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

**LOCATION SKETCH**

**TOTAL BILL OF MATERIAL**

	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 21+22.00 -L-	REMOVAL OF EXISTING STRUCTURE AT STA. 21+22.00 -L-	ASBESTOS ASSESSMENT	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	SID INSPECTION	SPT TESTING	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LUMP SUM	SQ. FT.
SUPERSTRUCTURE											8,825
END BENT 1											
BENT 1				58.75	35	60.0					
BENT 2				52.5	53	48.2					
END BENT 2											
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	111.25	88	108.2	1	1	1	LUMP SUM	8,825

**SAMPLE BAR REPLACEMENT**

SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi.

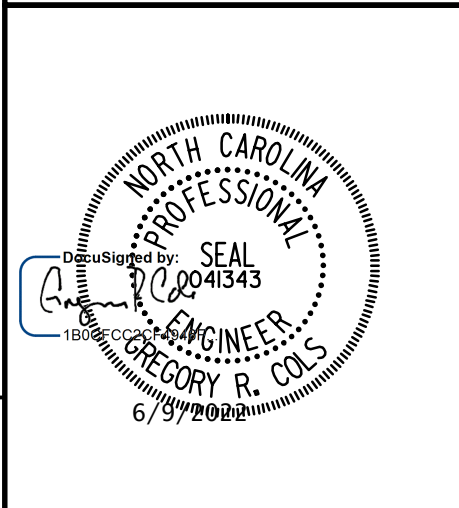
REVISION #1: REMOVED PREDRILLING FOR PILES PAY ITEM.

**TOTAL BILL OF MATERIAL**

	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDER	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES	STEEL PILE POINTS	TWO BAR METAL RAIL	CONCRETE BARRIER RAIL	1'-2" X 2'-6" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS		
	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	TON	SQ. YDS.	LUMP SUM		
SUPERSTRUCTURE	7,863					15	1,055.73								LUMP SUM		
END BENT 1		48.2		7,352				8	8	200	8		281	312			
BENT 1		37.8		10,320	2,206												
BENT 2		40.6		11,738	2,684												
END BENT 2		48.1		7,597				8	8	200	8		215	239			
TOTAL	7,863	174.7	LUMP SUM	37,007	4,890	15	1,055.73	16	16	400	16	204.88	213.07	213.07	496	551	LUMP SUM

PROJECT NO. **B-5717**  
**GUILFORD** COUNTY  
 STATION: **21+22.00 -L-**

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**

FOR BRIDGE ON SR 4240 OVER S. BUFFALO CREEK BETWEEN E. FLORIDA ST. AND SR 3140 (LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-03
1	GRC	6-9-22	3			TOTAL SHEETS 38
2			4			

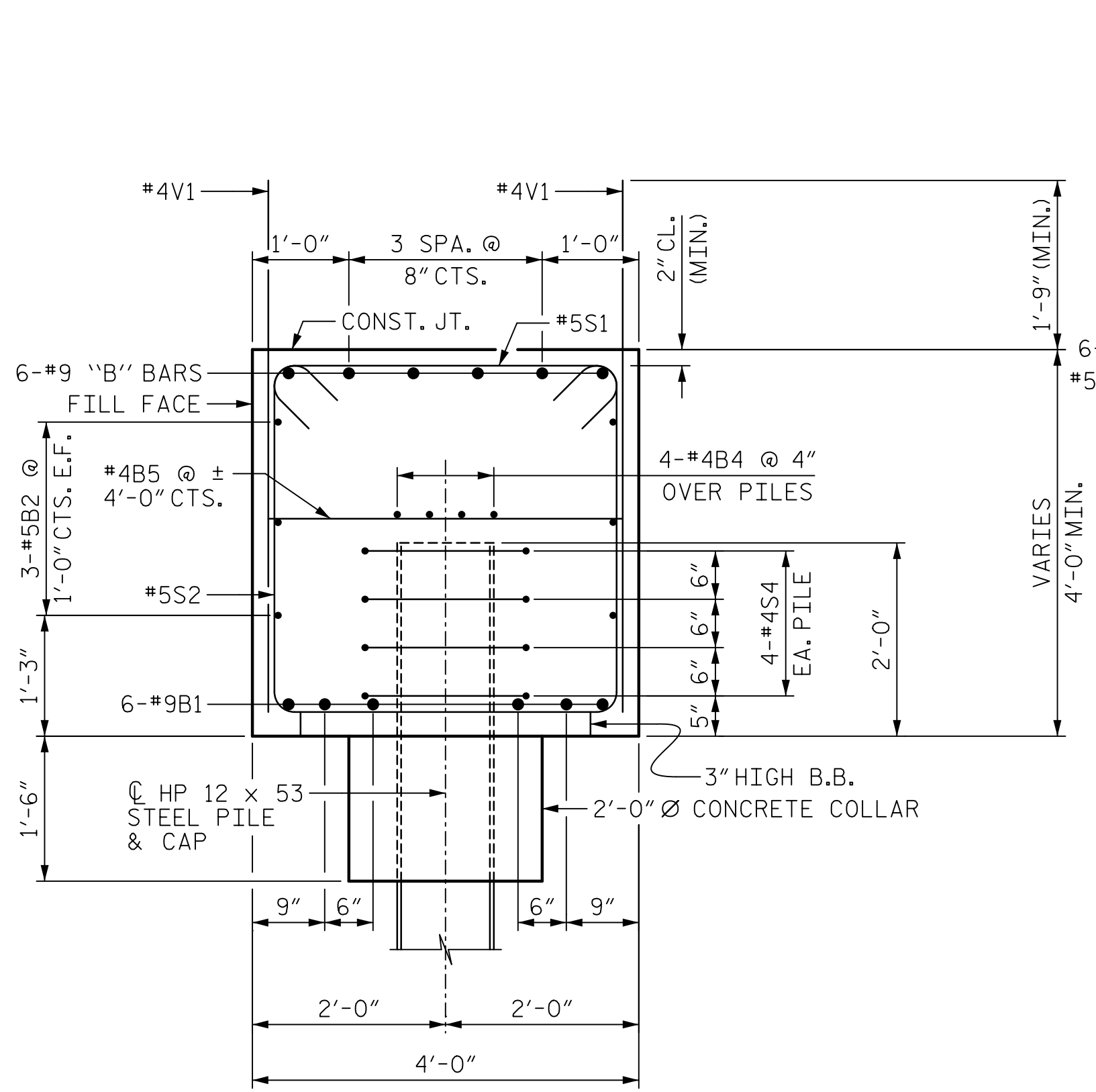
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 CHECKED BY : G.R. COLS DATE : 10/2021  
 DESIGNED BY : D.R. DRUM DATE : 10/2021  
 DESIGN CHECKED BY : G.R. COLS DATE : 10/2021

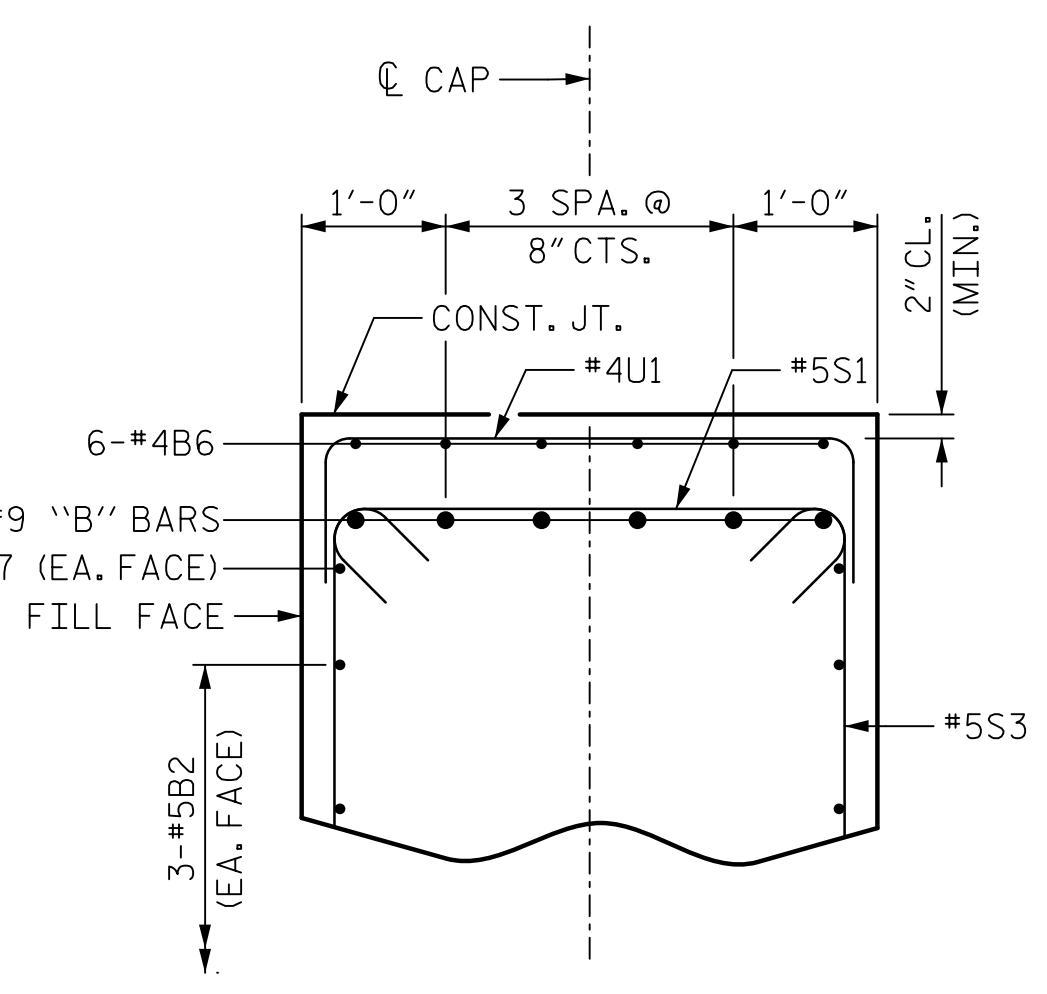


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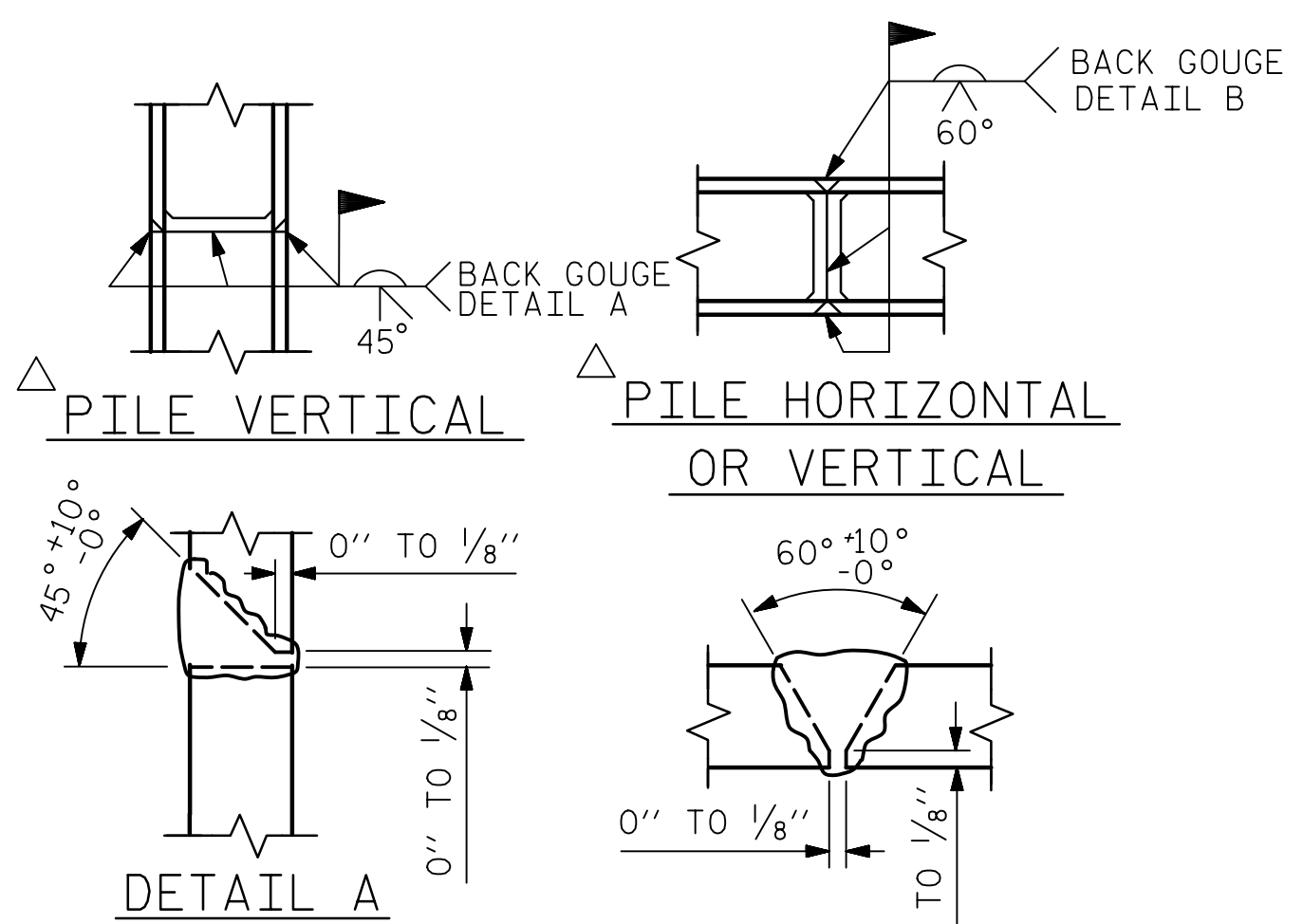
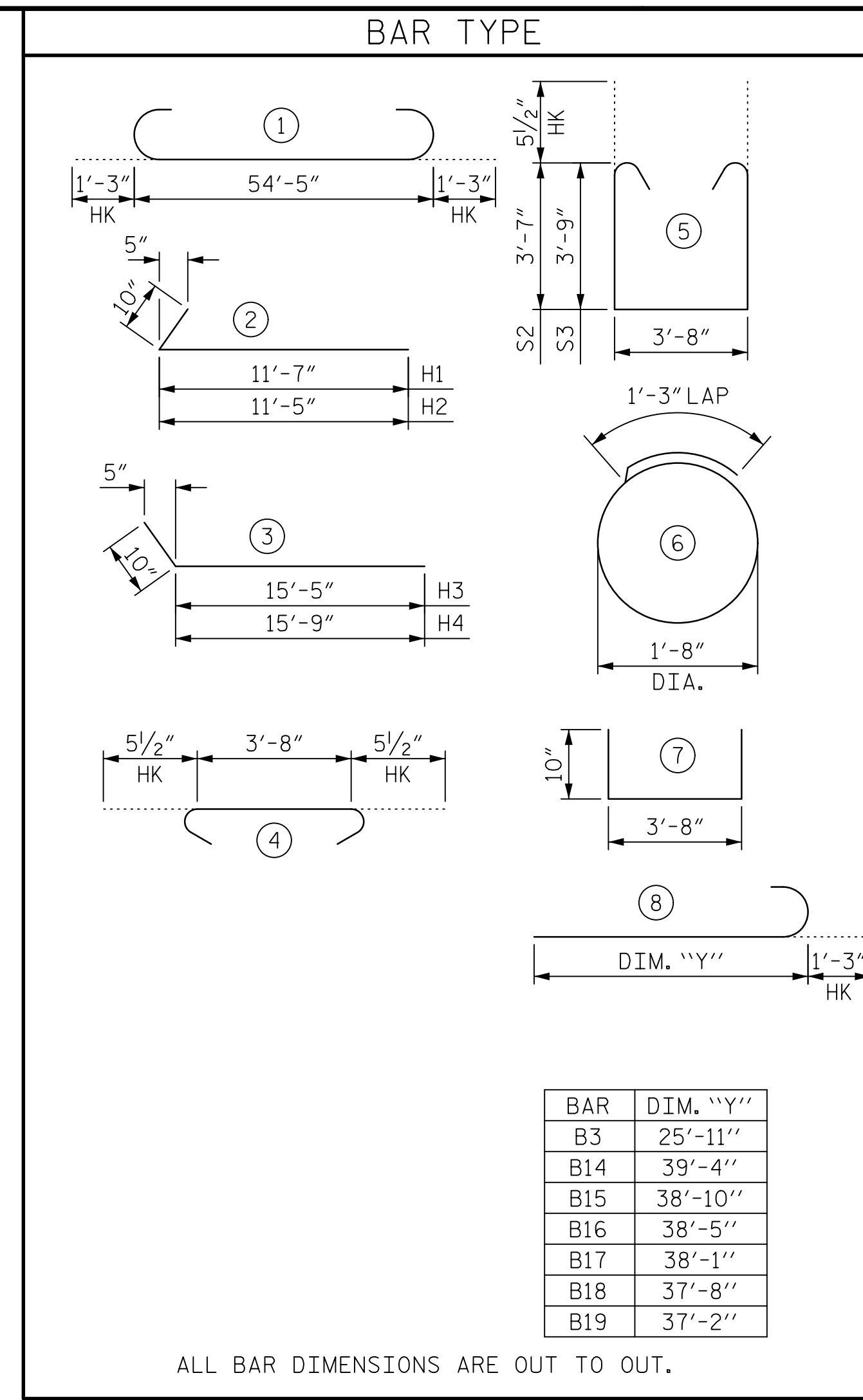
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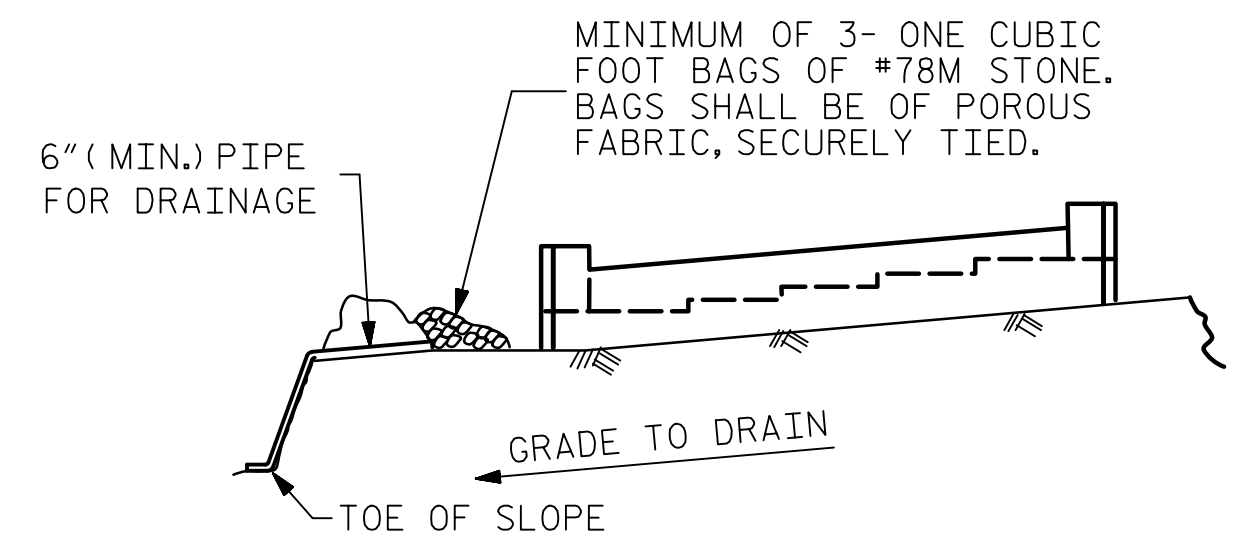
SECTION A-A



SECTION B-B



PILE SPLICE DETAILS

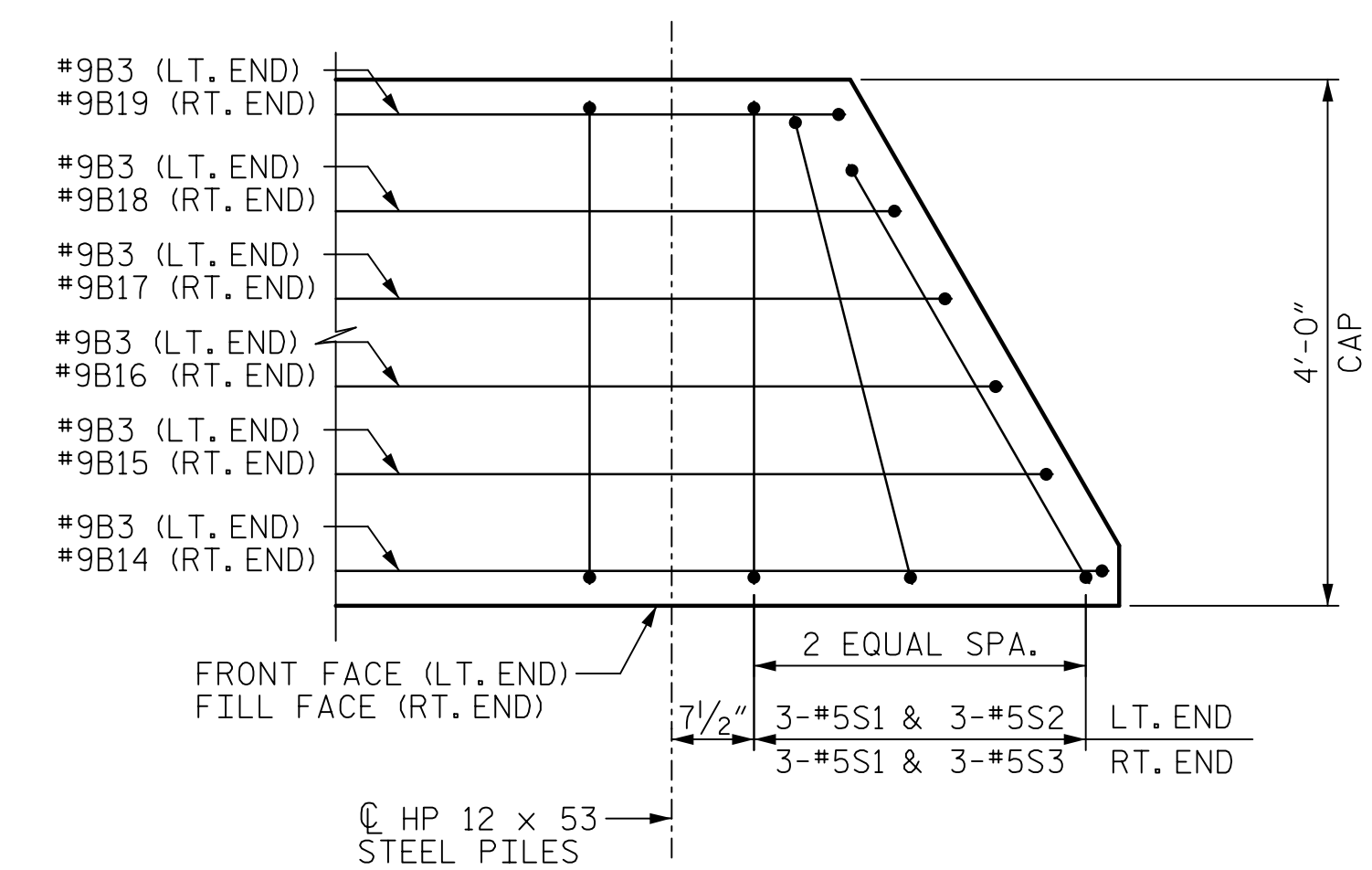


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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TEMPORARY DRAINAGE AT END BENT



SPRAYED BAR DETAIL

REINFORCING STEEL	7,352 LBS.
CLASS A CONCRETE	
POUR #1 (CAP, COLLARS & LOWER WINGWALLS)	40.8 C.Y.
POUR #2 (UPPER WINGWALL)	7.4 C.Y.
TOTAL	48.2 C.Y.
HP 12x53 STEEL PILES:	
NO. = 8	LIN. FT. = 200
PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	8 EA.
STEEL PILE POINTS	8 EA.

PROJECT NO. **B-5717**  
 GUILFORD COUNTY  
 STATION: **21+22.00 -L-**

SHEET 3 OF 3

**AECOM**  
 AECOM TECHNICAL SERVICES OF NC, INC.  
 5438 WADE PARK BOULEVARD, SUITE 200  
 RALEIGH, NC 27607  
 (919) 854-6200 www.aecom.com  
 AECOM License No. F-0342

Professional Engineer Seal for S. Natarajan, State of North Carolina, License No. 42224, dated 6/9/2022.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
INTEGRAL END BENT 1 (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	SN	6-9-22	3		
2			4		
SHEET NO. S2-28					TOTAL SHEETS 38

DRAWN BY: D.R. DRUM	DATE: 05/2021
CHECKED BY: S. NATARAJAN	DATE: 08/2021
DESIGNED BY: D.R. DRUM	DATE: 05/2021
DESIGN CHECKED BY: S. NATARAJAN	DATE: 05/2021

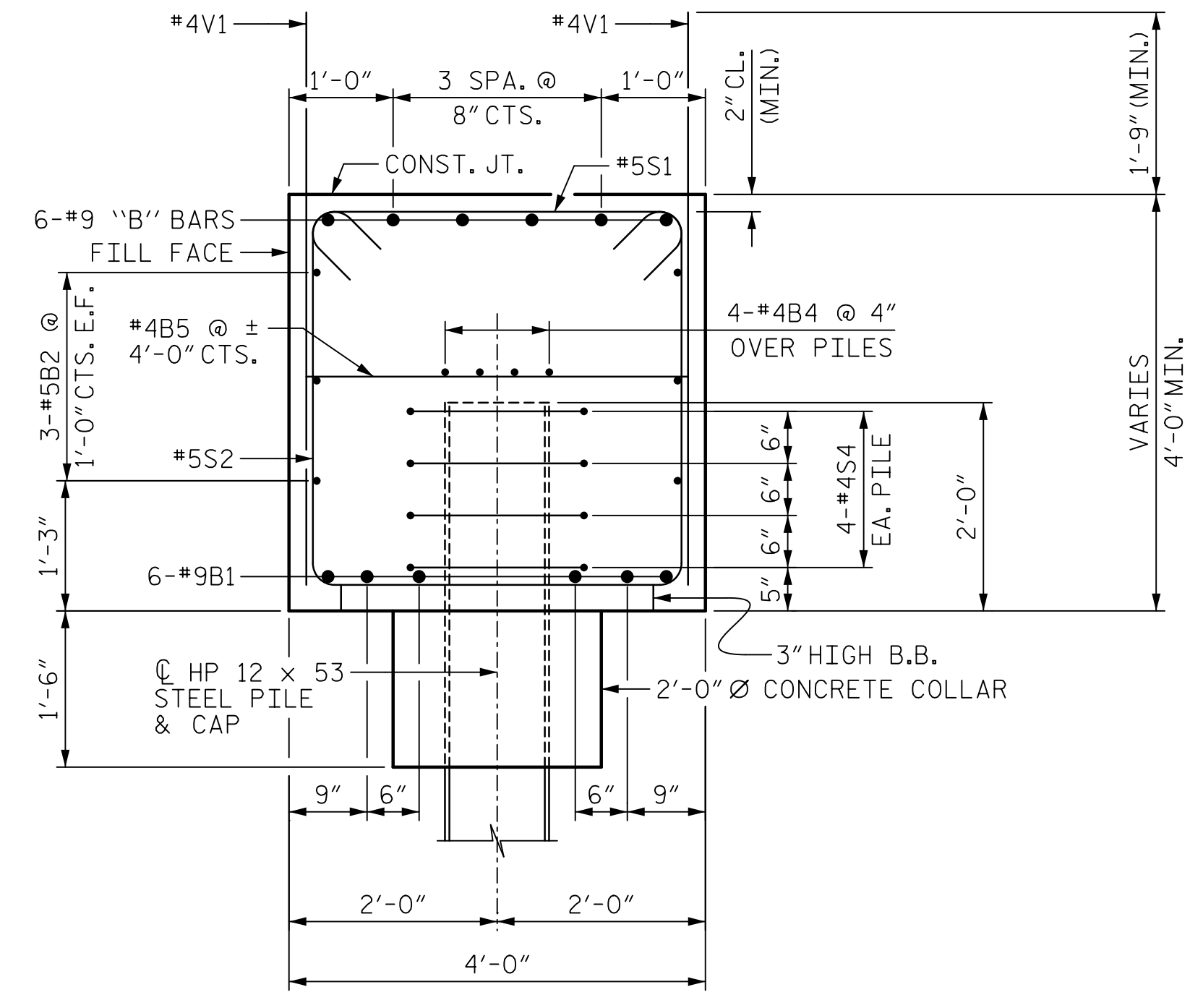
REVISION #1:  
 REMOVED PREDRILLING FOR PILES  
 PAY ITEM.

DOCUMENT NOT CONSIDERED  
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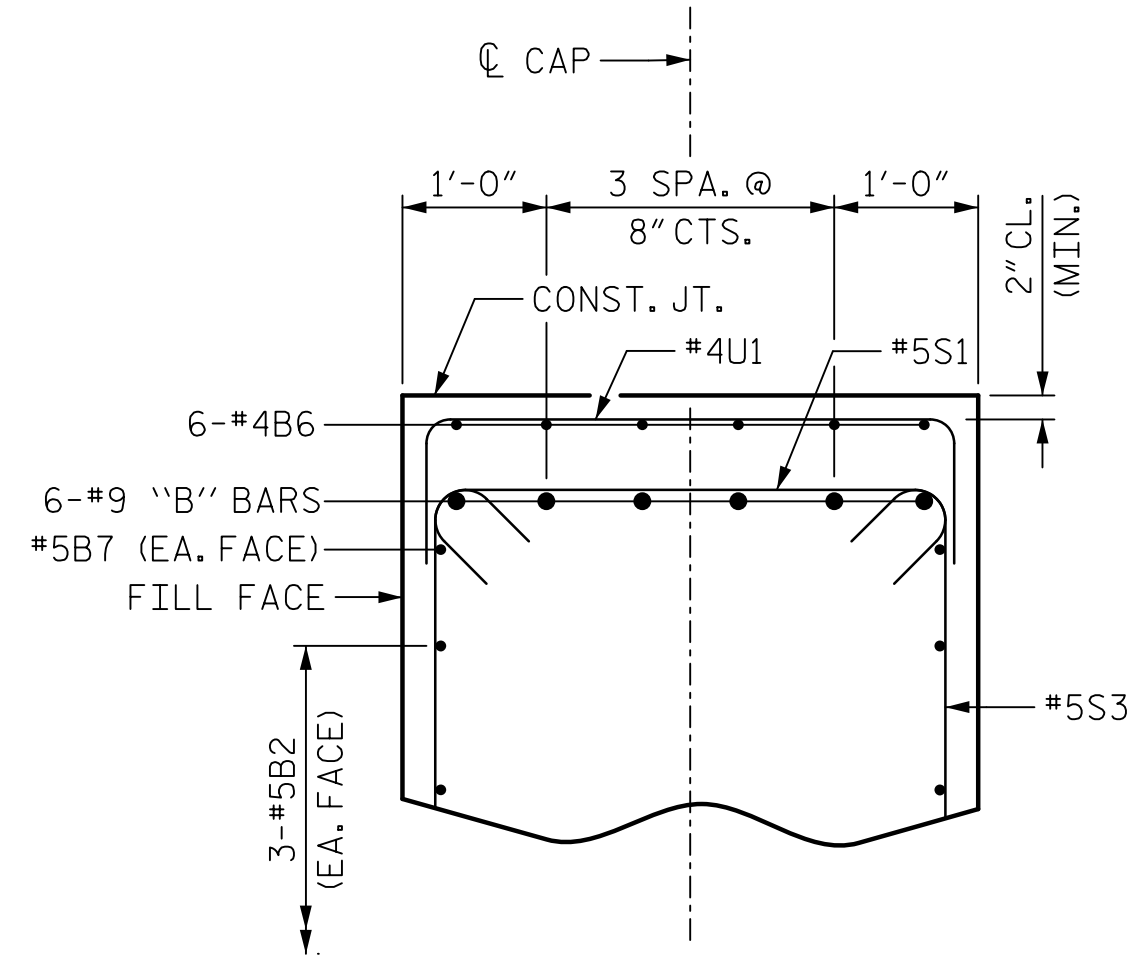


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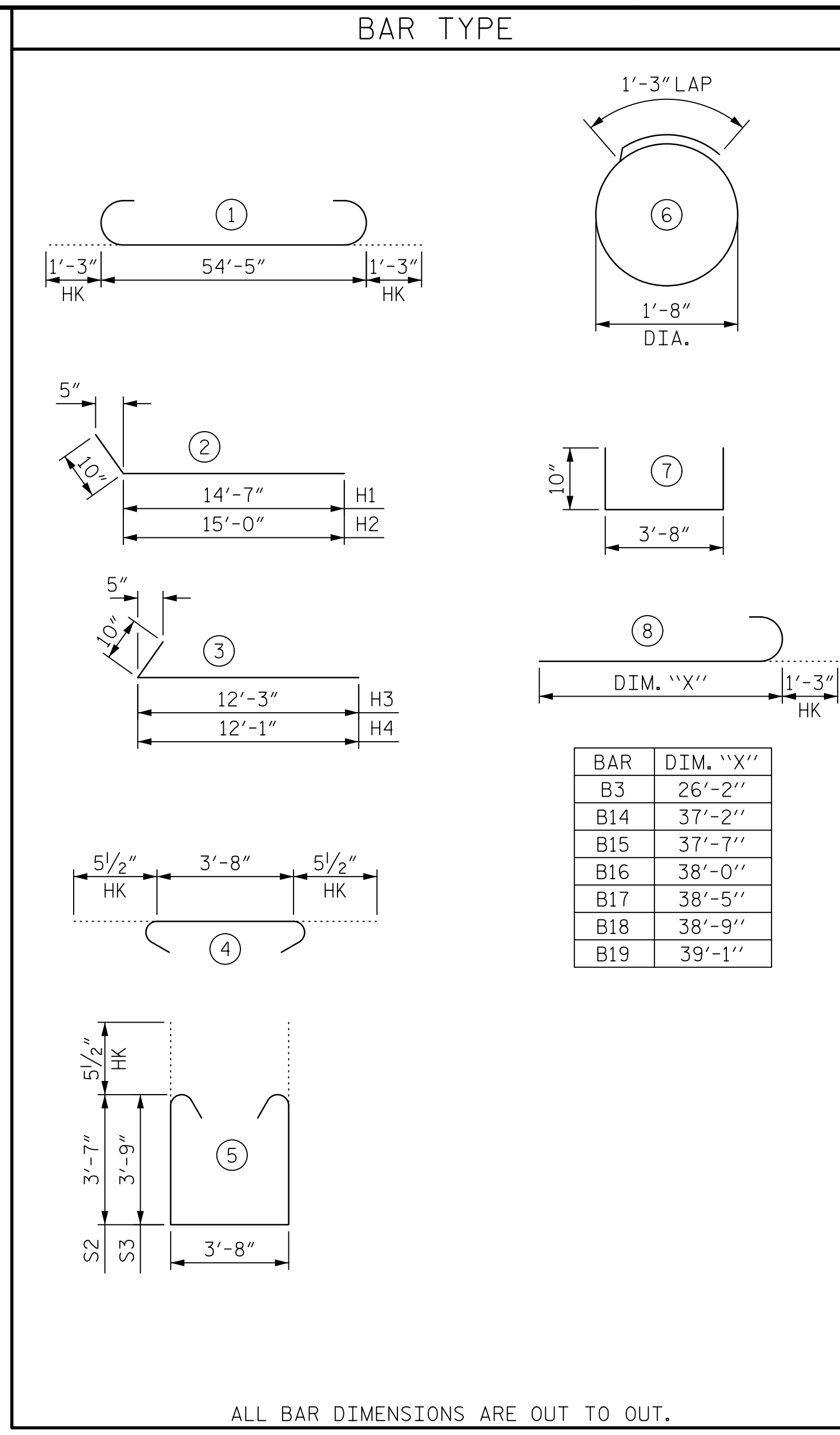
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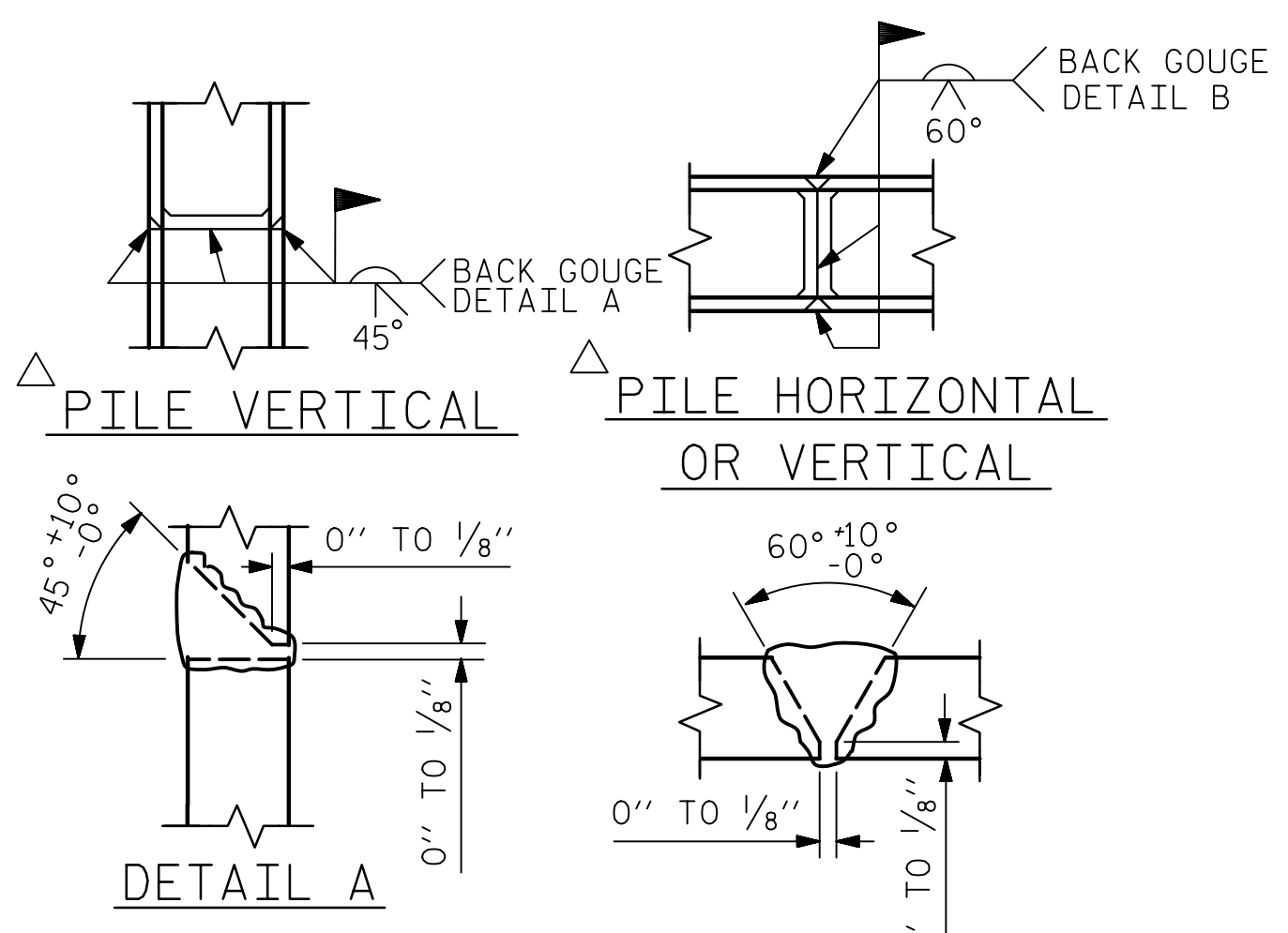
SECTION A-A



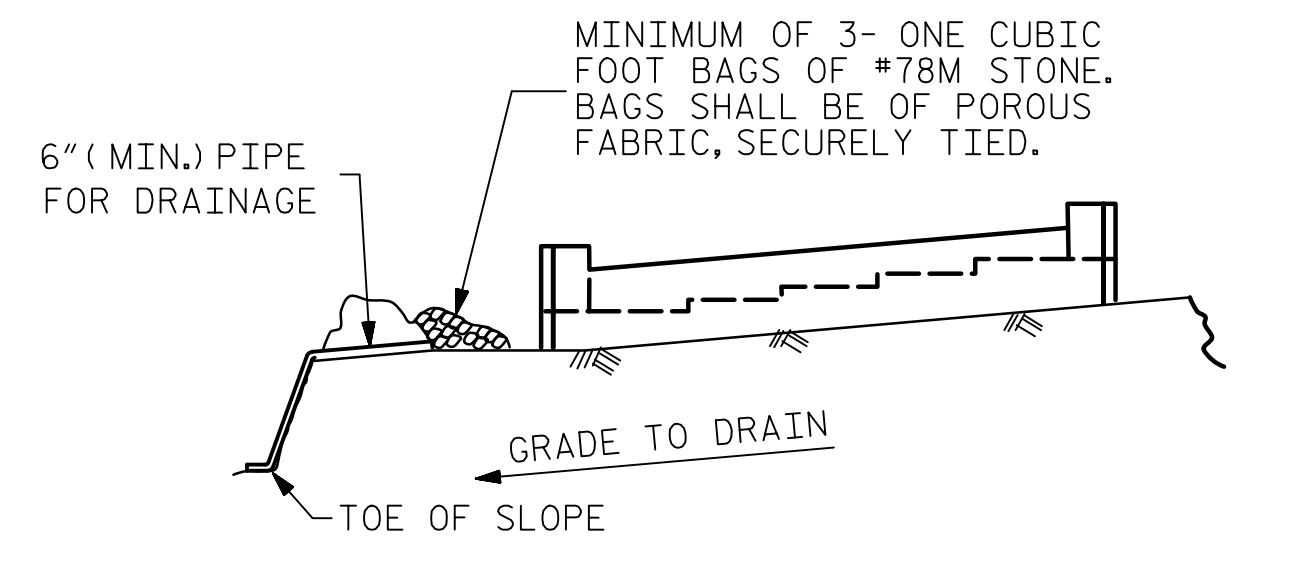
SECTION B-B



BILL OF MATERIAL					
INTEGRAL END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	9	1	56'-11"	1161
B2	6	5	STR	54'-5"	341
B3	6	9	8	27'-5"	559
B4	8	4	STR	28'-6"	152
B5	14	4	STR	3'-8"	34
B6	6	4	STR	9'-11"	40
B7	2	5	STR	31'-5"	66
B8	1	4	STR	6'-11"	5
B9	1	4	STR	7'-4"	5
B10	1	4	STR	7'-9"	5
B11	1	4	STR	8'-2"	5
B12	1	4	STR	8'-6"	6
B13	1	4	STR	8'-10"	6
B14	1	9	8	38'-5"	131
B15	1	9	8	38'-10"	132
B16	1	9	8	39'-3"	133
B17	1	9	8	39'-8"	135
B18	1	9	8	40'-0"	136
B19	1	9	8	40'-4"	137
H1	13	6	2	15'-5"	301
H2	13	6	2	15'-10"	309
H3	12	6	3	13'-1"	236
H4	12	6	3	12'-11"	233
H5	16	6	STR	18'-1"	435
H6	20	6	STR	15'-7"	468
K1	26	4	STR	3'-1"	54
K2	24	4	STR	3'-0"	48
S1	62	5	4	4'-7"	296
S2	19	5	5	11'-9"	233
S3	43	5	5	12'-1"	542
S4	32	4	6	6'-6"	139
U1	12	4	7	5'-4"	43
V1	72	4	STR	6'-5"	309
V2	38	5	STR	9'-11"	393
V3	34	5	STR	10'-5"	369



PILE SPLICE DETAILS



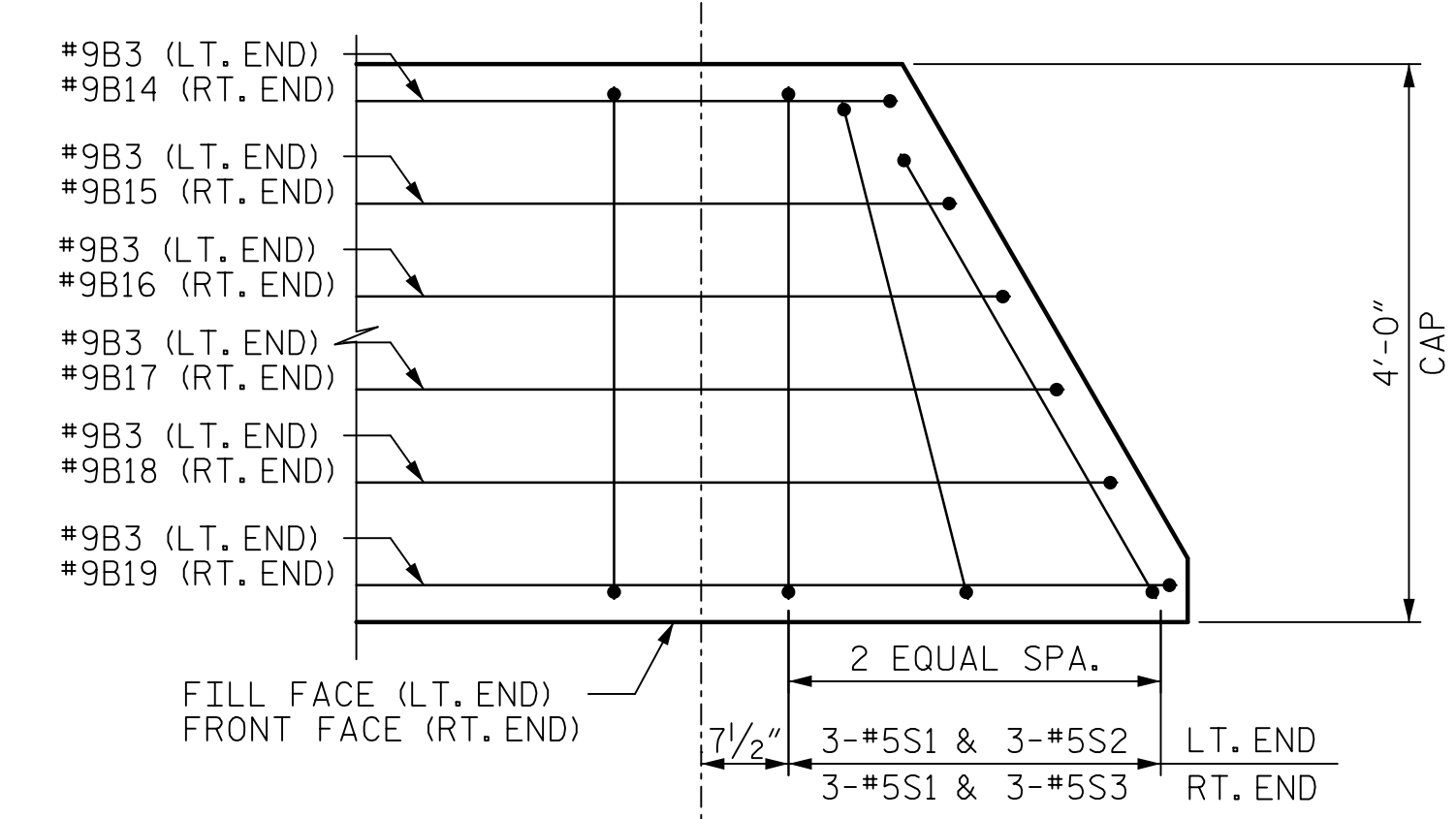
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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



SPRAYED BAR DETAIL

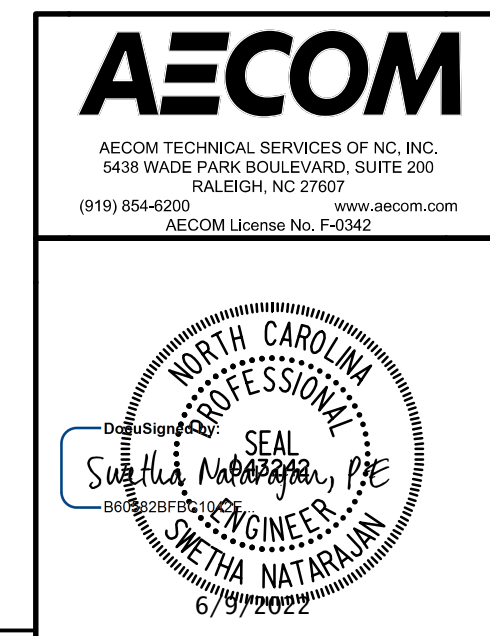
REINFORCING STEEL	7,597 LBS.
CLASS A CONCRETE	
POUR #1 (CAP, COLLARS & LOWER WINGWALLS)	40.7 C.Y.
POUR #2 (UPPER WINGWALL)	7.4 C.Y.
TOTAL	48.1 C.Y.
HP 12x53 STEEL PILES:	
NO. = 8	LIN. FT. = 200
PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	8 EA.
STEEL PILE POINTS	8 EA.

PROJECT NO. **B-5717**  
 GUILFORD COUNTY  
 STATION: **21+22.00 -L-**

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 INTEGRAL END BENT 2  
 (LEFT LANE)



DRAWN BY : D.R. DRUM	DATE : 06/2021
CHECKED BY : S. NATARAJAN	DATE : 07/2021
DESIGNED BY : D.R. DRUM	DATE : 06/2021
DESIGN CHECKED BY : S. NATARAJAN	DATE : 06/2021

REVISION #1:  
 REMOVED PREDRILLING FOR PILES  
 PAY ITEM.

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	SN	6-9-22	3		
2			4		

SHEET NO.	S2-35
TOTAL SHEETS	38