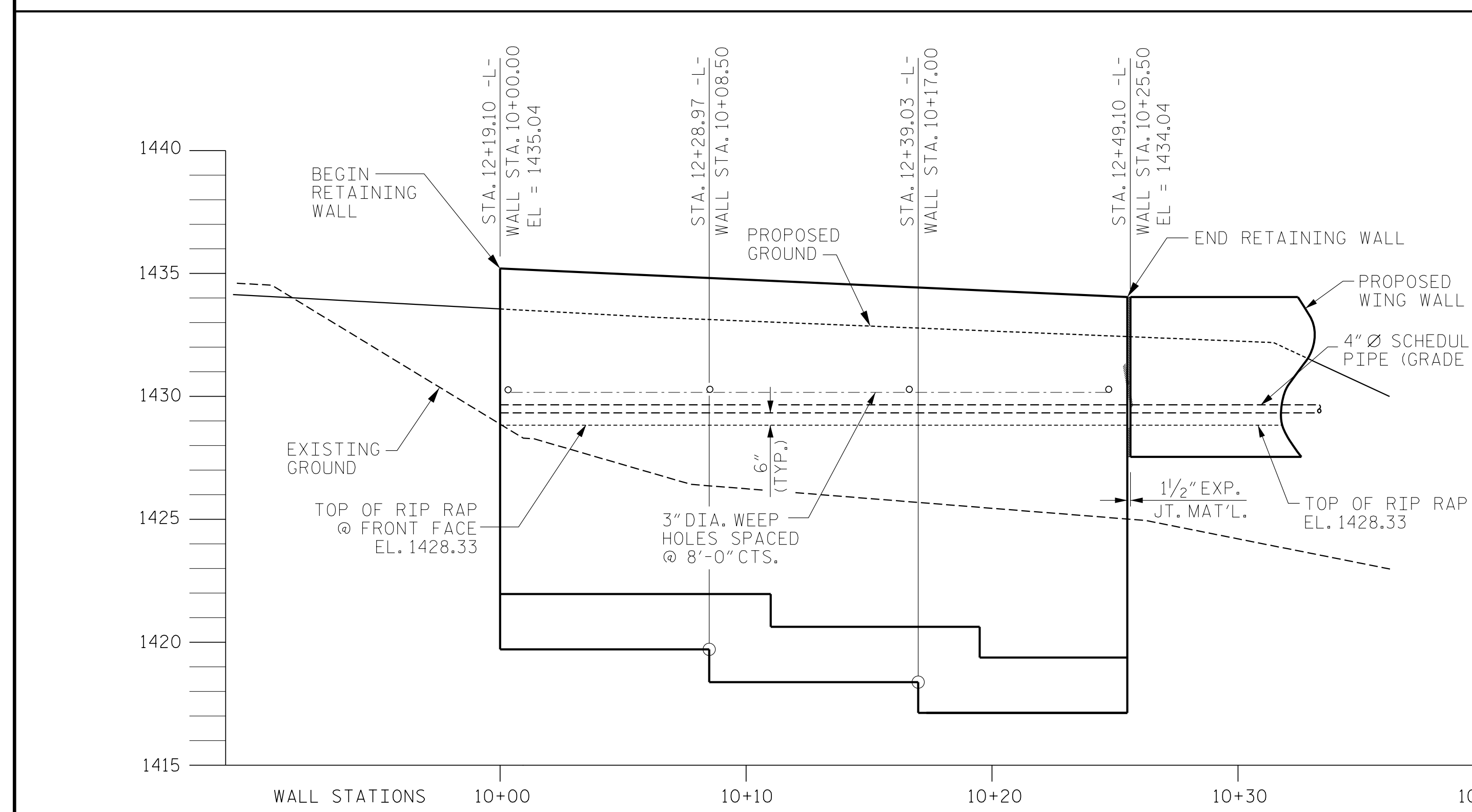


LOCATION SKETCH



RETAINING WALL NO. 1 PROFILE

VIEWING FRONT FACE

NOTES:

- 1) FOR STANDARD CAST-IN-PLACE (CIP) CANTILEVER RETAINING WALLS, SEE CAST-IN-PLACE CANTILEVER RETAINING WALL SPECIAL PROVISION.
- 2) FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
- 3) FOR FENCES OR HANDRAILS ON TOP OF THE WALLS, SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.
- 4) DRAIN PIPES ARE REQUIRED FOR RETAINING WALL NO. 1.
- 5) FOR SUBSURFACE DRAINAGE AT WEEP HOLES, SEE ARTICLE 414-8 OF THE STANDARD SPECIFICATIONS.
- 6) STANDARD DESIGN OF THE CIP RETAINING WALLS IS BASED ON THE FOLLOWING PARAMETERS:
 - A) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 6,250 LBS/SF FOR RETAINING WALL NO. 1.
 - B) MINIMUM EMBEDMENT ELEVATION FOR RETAINING WALL NO. 1 IS 1,419.5 FT. (LT), 1,418.0 FT (CT), 1,417.0 FT (RT).
 - C) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (Y) PCF	FRICITION ANGLE (Φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	28	0
FOUNDATION	120	26	0

- 7) DESIGN RETAINING WALL NO. 1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE OF 250 LBS./SF.
- 8) DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 1 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIALS ARE APPROVED.
- 9) AT THE CONTRACTOR'S OPTION, TEMPORARY SHORING FOR WALL CONSTRUCTION MAY BE USED TO CONSTRUCT RETAINING WALL NO. 1. SEE CANTILEVER RETAINING WALL SPECIAL PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.
- 10) FOOTING SHALL BE EMBEDDED 1'-0" MIN. IN SOLID ROCK.

TOTAL STRUCTURE QUANTITIES

* CLASS 'A' CONCRETE	48.2	CY
* REINFORCING STEEL	6,697	LBS.
* 4" Ø PERFORATED SCHEDULE 40 PVC DRAINAGE PIPE	26.0	LF.
4" Ø SCHEDULE 40 PVC OUTLET PIPE	13.25	LF.
GEOTEXTILE	44.0	SY.
* #78M STONE BACKFILL	41.0	TONS

* QUANTITIES ARE FOR INFORMATION ONLY, WALL SHALL BE PAID FOR BY SQUARE FOOT.

STRUCTURAL ENGINEER	GEOTECHNICAL ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RETAINING WALL NO. 1 ELEVATIONS

-L- STA	WALL STATIONS	OFFSET FROM C -L- (RIGHT)	ELEV @ TOP OF WALL	BOTTOM OF FOOTING ELEVATION
12+19.01	10+00.00	23.80	1435.04	1419.5
12+28.97	10+08.50	24.69	1434.70	1418.0
12+39.03	10+17.00	25.05	1434.37	1417.0
12+49.10	10+25.50	24.88	1434.04	1417.0

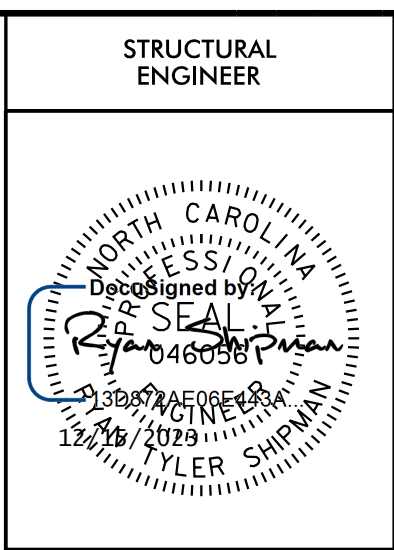
CAST-IN-PLACE CANTILEVER RETAINING WALL NO. 1
348 SQ. FT.

PROJECT NO. 14SP.20441.1
HAYWOOD COUNTY
STATION: 13+33.99 -L-
SHEET 1 OF 4

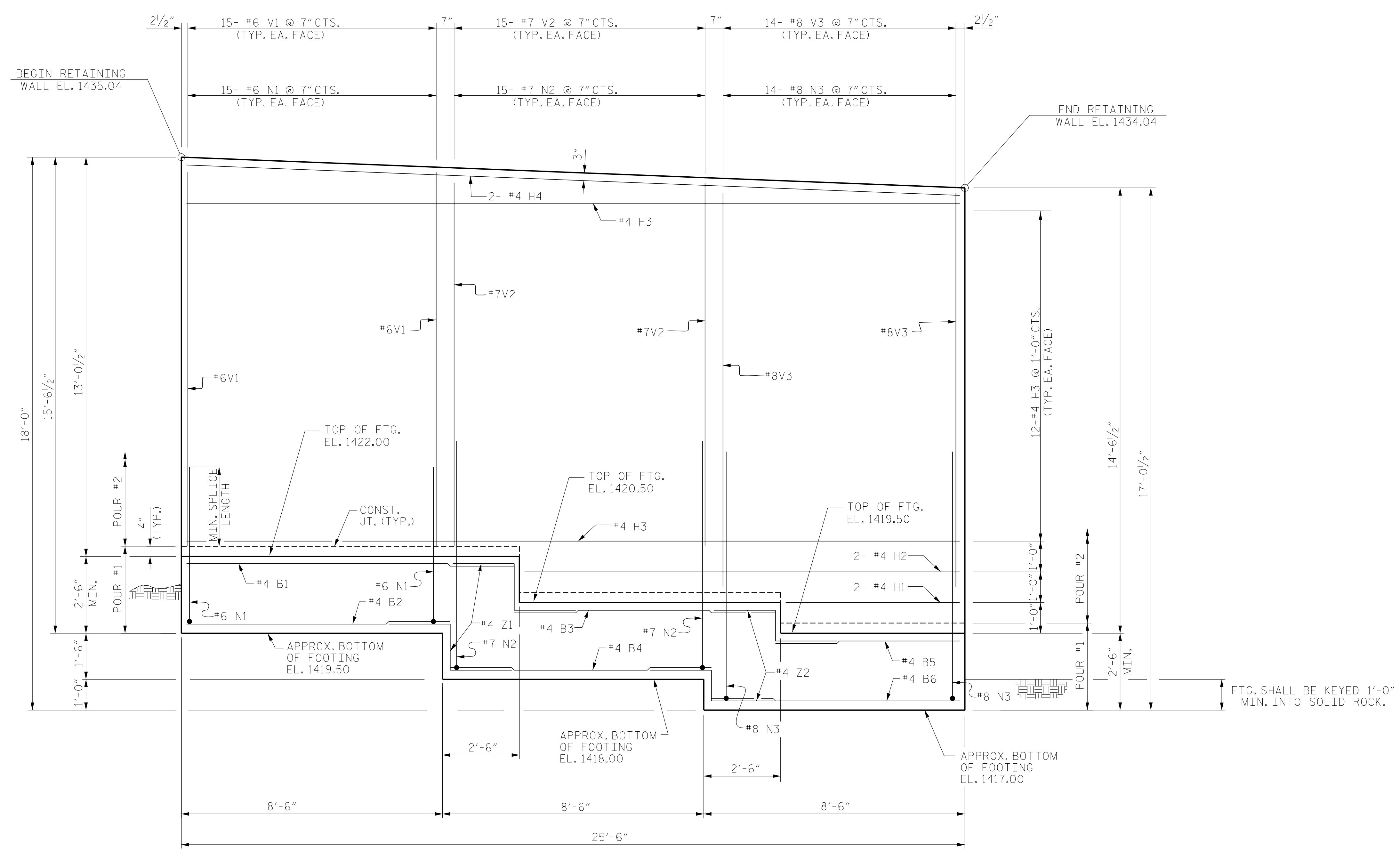
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
RETAINING WALL NO. 1
DETAILS

Johnson, Mirmiran, & Thompson Inc.
1318-F Patton Ave.
Asheville, NC, 28806
License No: C-3097

DWN. BY: AW	DATE: 02/18	NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
CHKD. BY: HLW	DATE: 02/18	1			3			RW1-1
DES. EGR. OF RECORD: RTS	DATE: 02/18	2			4			TOTAL SHEETS 9



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

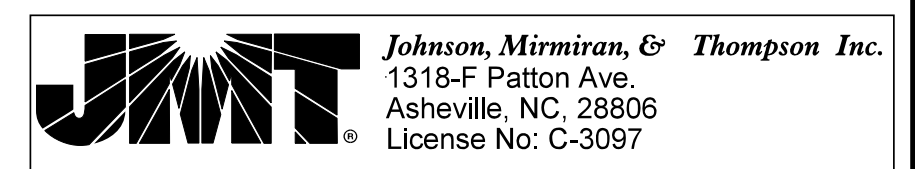


ELEVATION

VIEWING FRONT FACE.
WEEP HOLES NOT SHOWN FOR CLARITY.
FOR SPLICE LENGTH, SEE SHEET W-4.

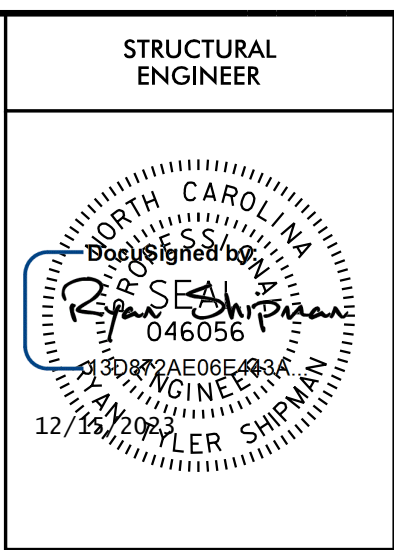
PROJECT NO. 14SP.20441.1
HAYWOOD COUNTY
STATION: 13+33.99 -L-
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**RETAINING WALL NO. 1
DETAILS**

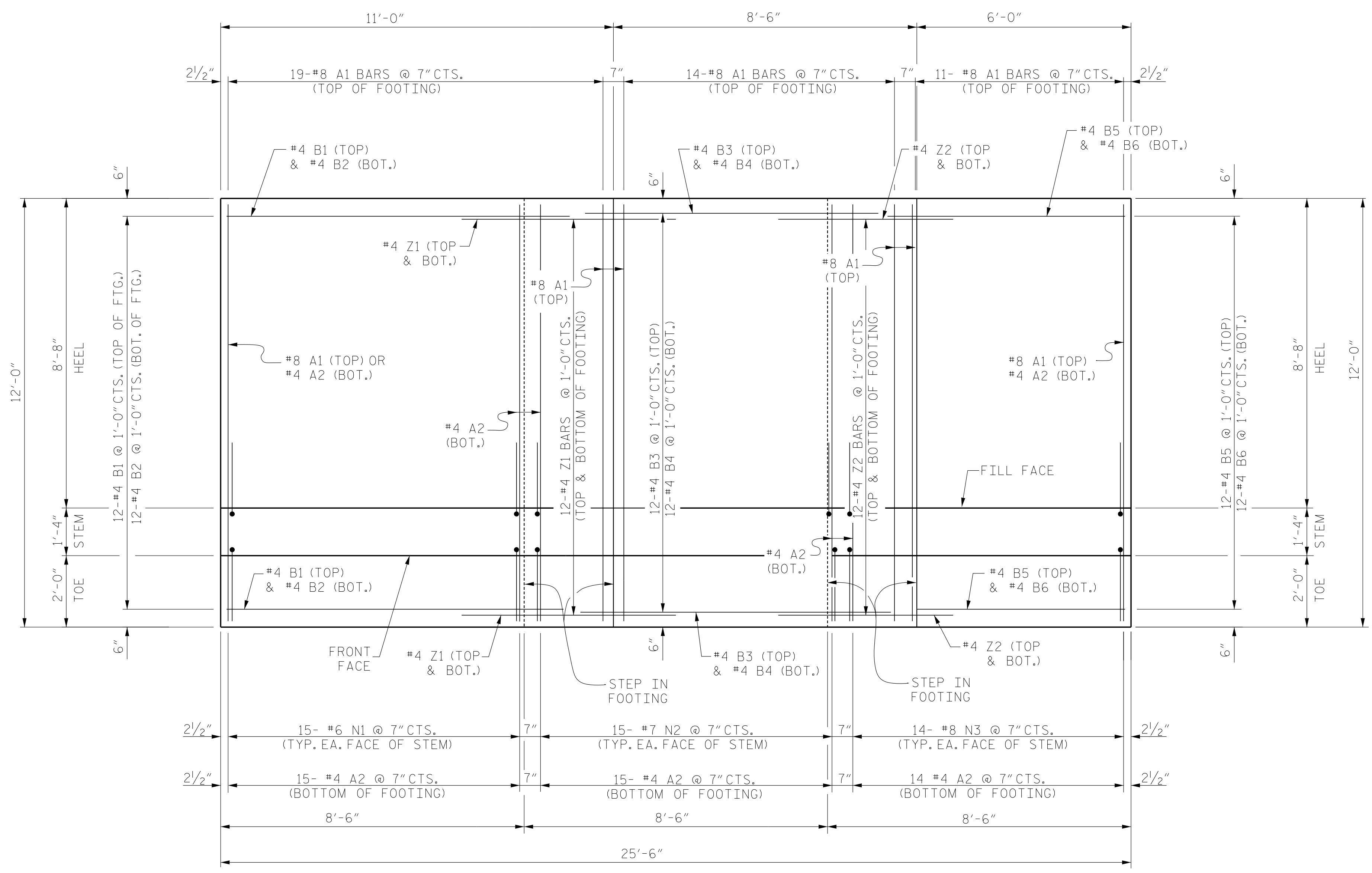


DWN. BY: AW	DATE: 02/18
CHKD. BY: HLW	DATE: 02/18
DES. EGR. OF RECORD: RTS	DATE: 02/18

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	RW1-2	
1			3			TOTAL SHEETS	
2			4			9	

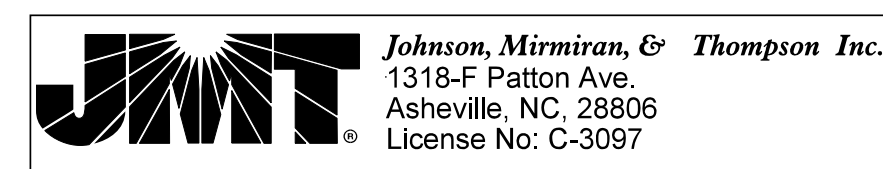


DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PLAN OF FOOTING

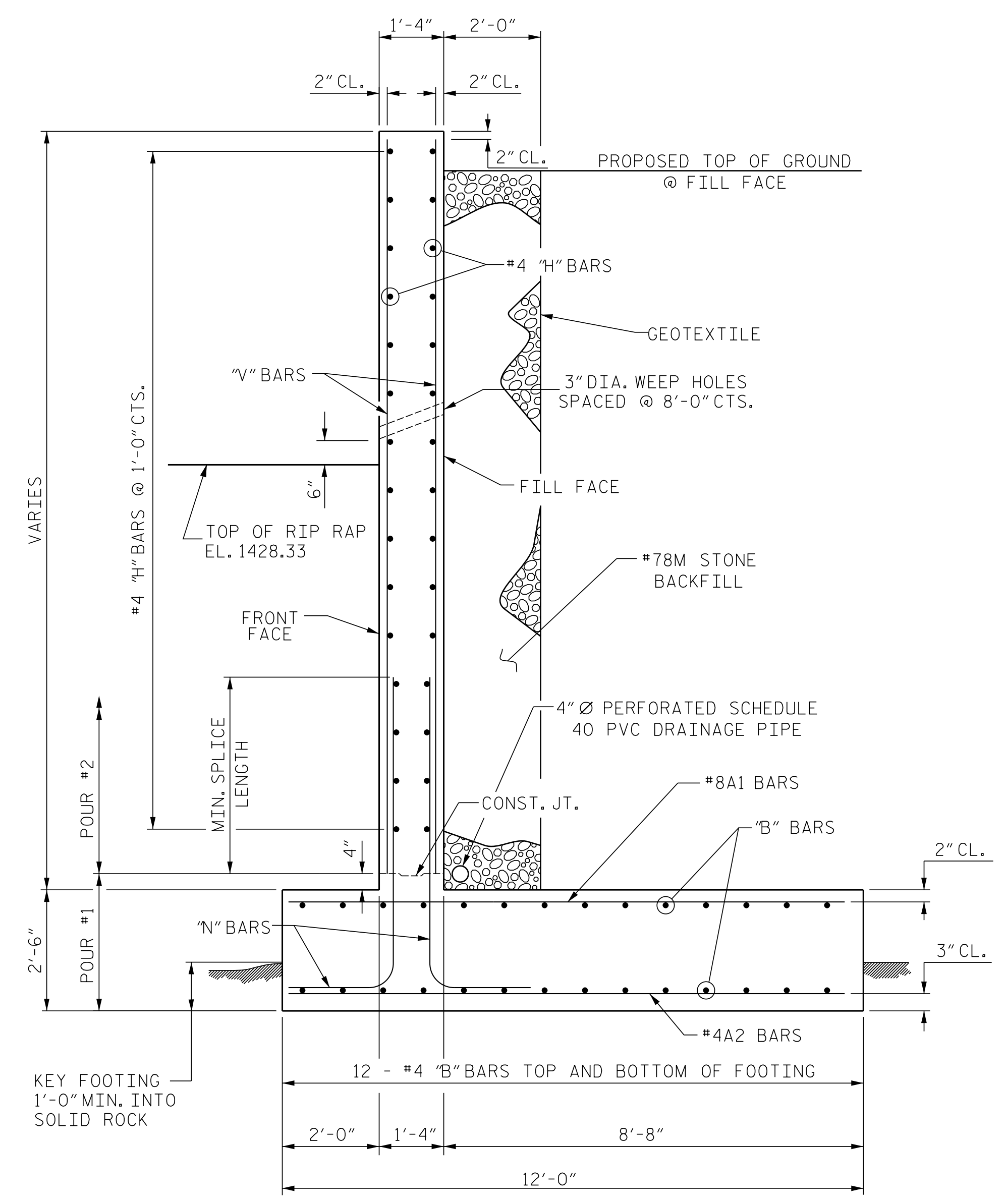
PROJECT NO. 14SP.20441.1
HAYWOOD COUNTY
 STATION: 13+33.99 -L-
 SHEET 3 OF 4



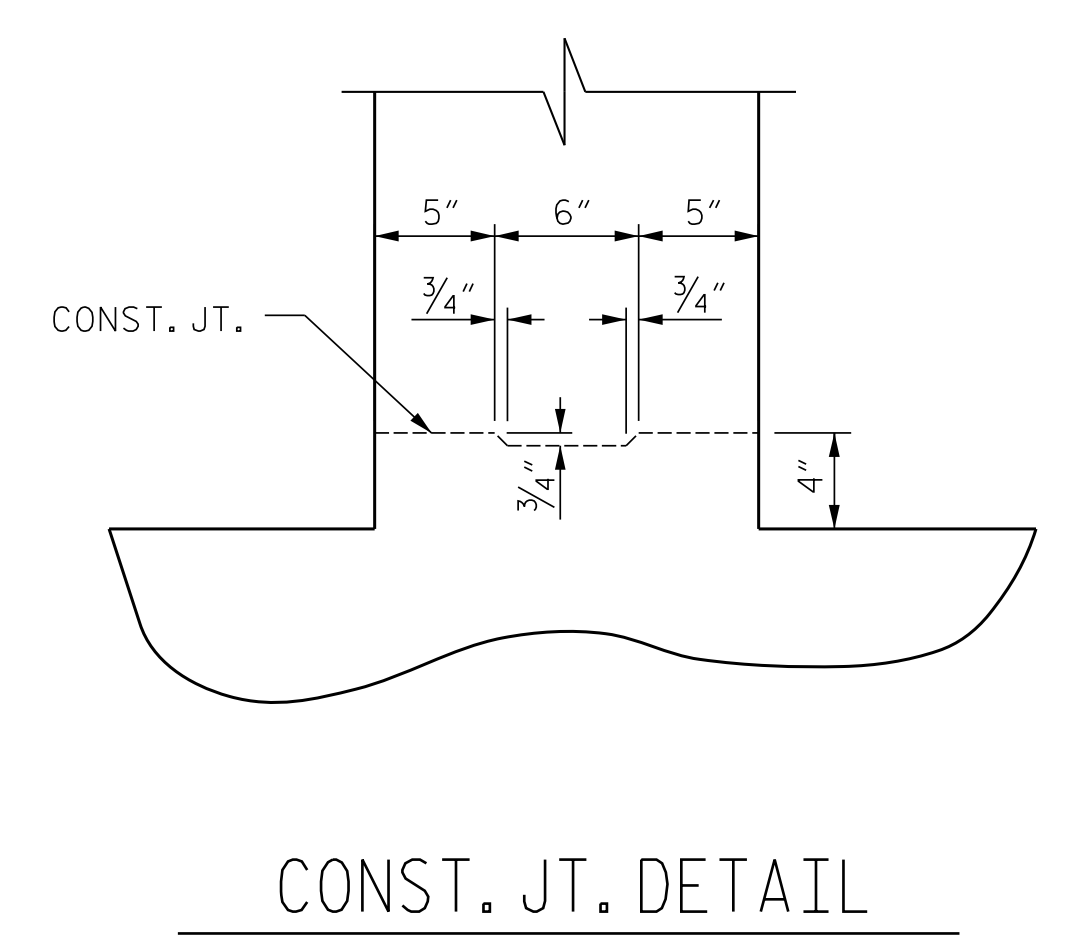
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 RETAINING WALL NO. 1
 DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	RW1-3	
1		02/18	3			TOTAL SHEETS	
2		02/18	4			9	

DWN. BY: AW DATE: 02/18
 CHKD. BY: HLW DATE: 02/18
 DES. EGR. OF RECORD: RTS DATE: 02/18

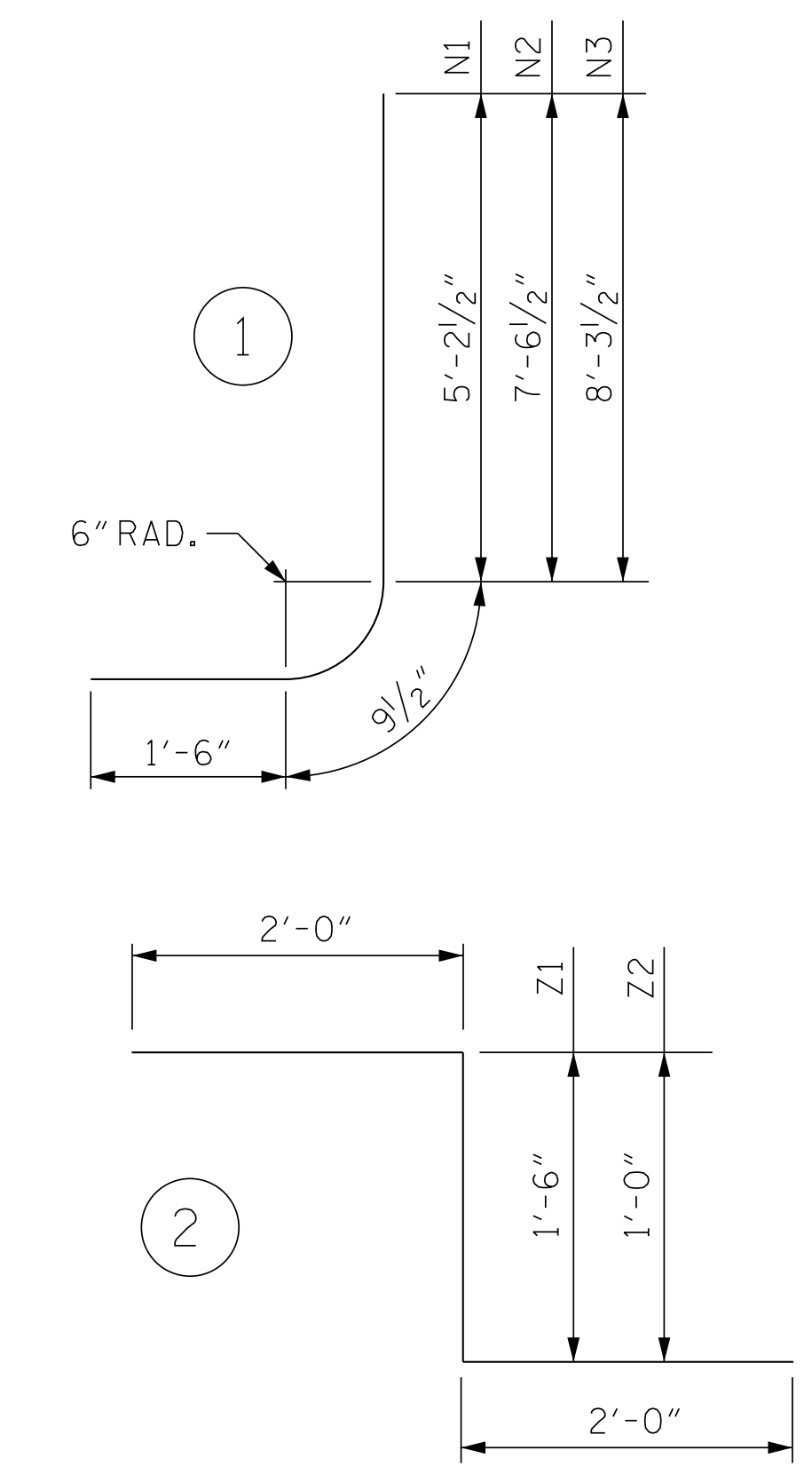


SECTION OF WALL NO.1
SEE RETAINING WALL PROFILE FOR LOCATION OF WEEP HOLES.



CONST. JT. DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	44	#8	STR	11'-8"	1371
A2	44	#4	STR	11'-8"	343
B1	12	#4	STR	10'-8"	86
B2	12	#4	STR	8'-7"	69
B3	12	#4	STR	8'-6"	68
B4	12	#4	STR	8'-6"	68
B5	12	#4	STR	6'-0"	48
B6	12	#4	STR	8'-1"	65
H1	2	#4	STR	5'-8"	8
H2	2	#4	STR	14'-2"	19
H3	24	#4	STR	25'-2"	403
H4	2	#4	STR	25'-2"	34
N1	30	#6	1	7'-6"	338
N2	30	#7	1	9'-10"	603
N3	28	#8	1	10'-7"	791
V1	30	#6	STR	12'-0"	541
V2	30	#7	STR	11'-8"	715
V3	28	#8	STR	12'-10"	959
Z1	24	#4	2	5'-6"	88
Z2	24	#4	2	5'-0"	80

REINFORCING STEEL 6,697 LBS

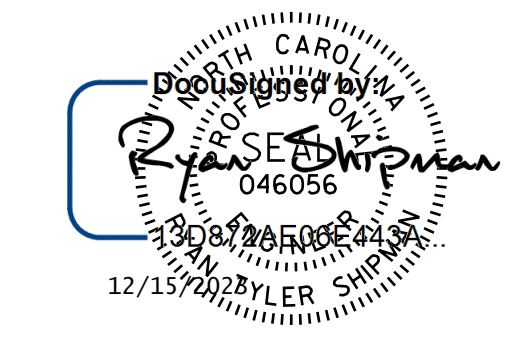
CLASS A CONCRETE

POUR #1	31.5	CY
POUR #2	16.7	CY
TOTAL	48.2	CY

SPLICE LENGTHS

BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#6	3'-10"	2'-7"
#7	5'-3"	3'-6"
#8	6'-10"	4'-7"

PROJECT NO. 14SP.20441.1
HAYWOOD COUNTY
STATION: 13+33.99 -L-
SHEET 4 OF 4



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

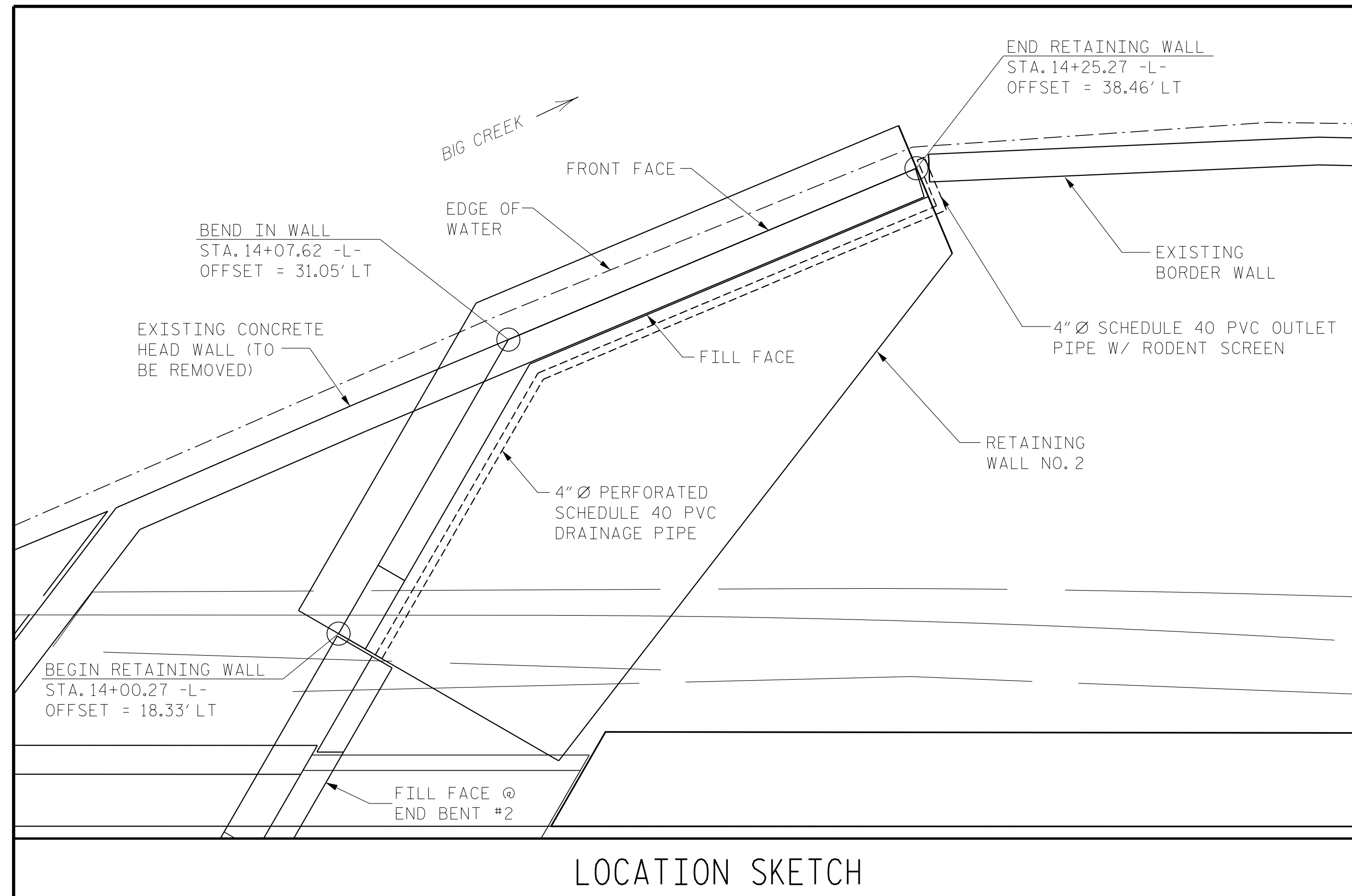
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**RETAINING WALL NO.1
DETAILS**

JMT Johnson, Mirmiran, & Thompson Inc.
1318-F Patton Ave.
Asheville, NC, 28806
License No: C-3097

DWN. BY: AW DATE: 02/18
CHKD. BY: HLW DATE: 02/18
DES. EGR. OF RECORD: RTS DATE: 02/18

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	RW1-4
1			3			TOTAL SHEETS
2			4			9



LOCATION SKETCH

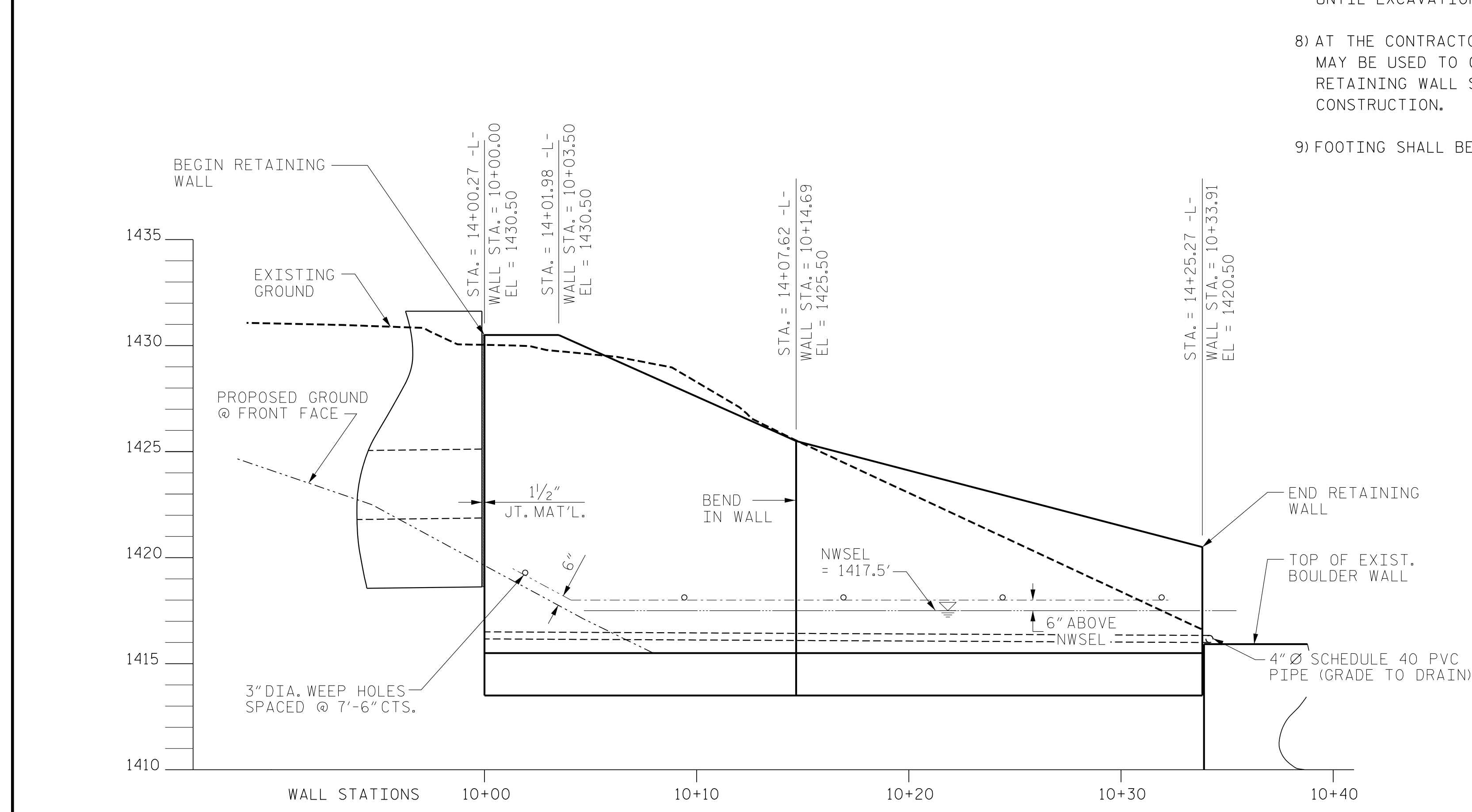
NOTES:

- 1) FOR STANDARD CAST-IN-PLACE (CIP) CANTILEVER RETAINING WALLS, SEE CAST-IN-PLACE CANTILEVER RETAINING WALL SPECIAL PROVISION.
- 2) FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
- 3) FOR FENCES OR HANDRAILS ON TOP OF THE WALLS, SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.
- 4) DRAIN PIPES ARE REQUIRED FOR RETAINING WALL NO. 2.
- 5) FOR SUBSURFACE DRAINAGE AT WEEP HOLES, SEE ARTICLE 414-8 OF THE STANDARD SPECIFICATIONS.
- 6) STANDARD DESIGN OF THE CIP RETAINING WALLS IS BASED ON THE FOLLOWING PARAMETERS:
 - A) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 7,600 LBS/SF FOR RETAINING WALL NO. 2.
 - B) MINIMUM EMBEDMENT ELEVATION FOR RETAINING WALL NO. 2 IS 1,413.5 FT.
 - C) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (Y) PCF	FRICTION ANGLE (Φ) DEGREES	COHESION (C) LB/SF
BACKFILL	120	28	0
FOUNDATION	120	26	0

- 7) DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIALS ARE APPROVED.
- 8) AT THE CONTRACTOR'S OPTION, TEMPORARY SHORING FOR WALL CONSTRUCTION MAY BE USED TO CONSTRUCT RETAINING WALL NO. 2. SEE CANTILEVER RETAINING WALL SPECIAL PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.
- 9) FOOTING SHALL BE EMBEDDED 1'-0" MIN. IN SOLID ROCK.

-L- STA	WALL STATION	OFFSET FROM CL (LEFT)	ELEV @ TOP OF WALL	BOTTOM OF FOOTING ELEVATION
14+00.27	10+00.00	18.33'	1430.50	1413.25
14+01.98	10+03.50	21.29'	1430.50	1413.25
14+07.62	10+14.69	31.05'	1425.50	1413.25
14+25.27	10+33.83	38.46'	1420.50	1413.25



RETAINING WALL NO. 2 PROFILE
VIEWING BACK FACE OF WALL

* CLASS 'A' CONCRETE	53.1	CY
* REINFORCING STEEL	8,439	LBS.
* 4" Ø PERFORATED SCHEDULE 40 PVC DRAINAGE PIPE	32.9	LF.
4" Ø SCHEDULE 40 PVC OUTLET PIPE	2.5	LF.
* GEOTEXTILE	38.0	SY.
* #78M STONE BACKFILL	37.0	TONS

* QUANTITIES ARE FOR INFORMATION ONLY, WALL SHALL BE PAID FOR BY SQUARE FOOT.

STRUCTURAL ENGINEER 	GEOTECHNICAL ENGINEER
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CAST-IN-PLACE CANTILEVER RETAINING WALL NO. 2
319 SQ. FT.

PROJECT NO. 14SP.20441.1
HAYWOOD COUNTY
STATION: 13+33.99 -L-
SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**RETAINING WALL NO. 2
DETAILS**

JMT Johnson, Mirmiran, & Thompson Inc.
1318-F Patton Ave.
Asheville, NC, 28806
License No: C-3097

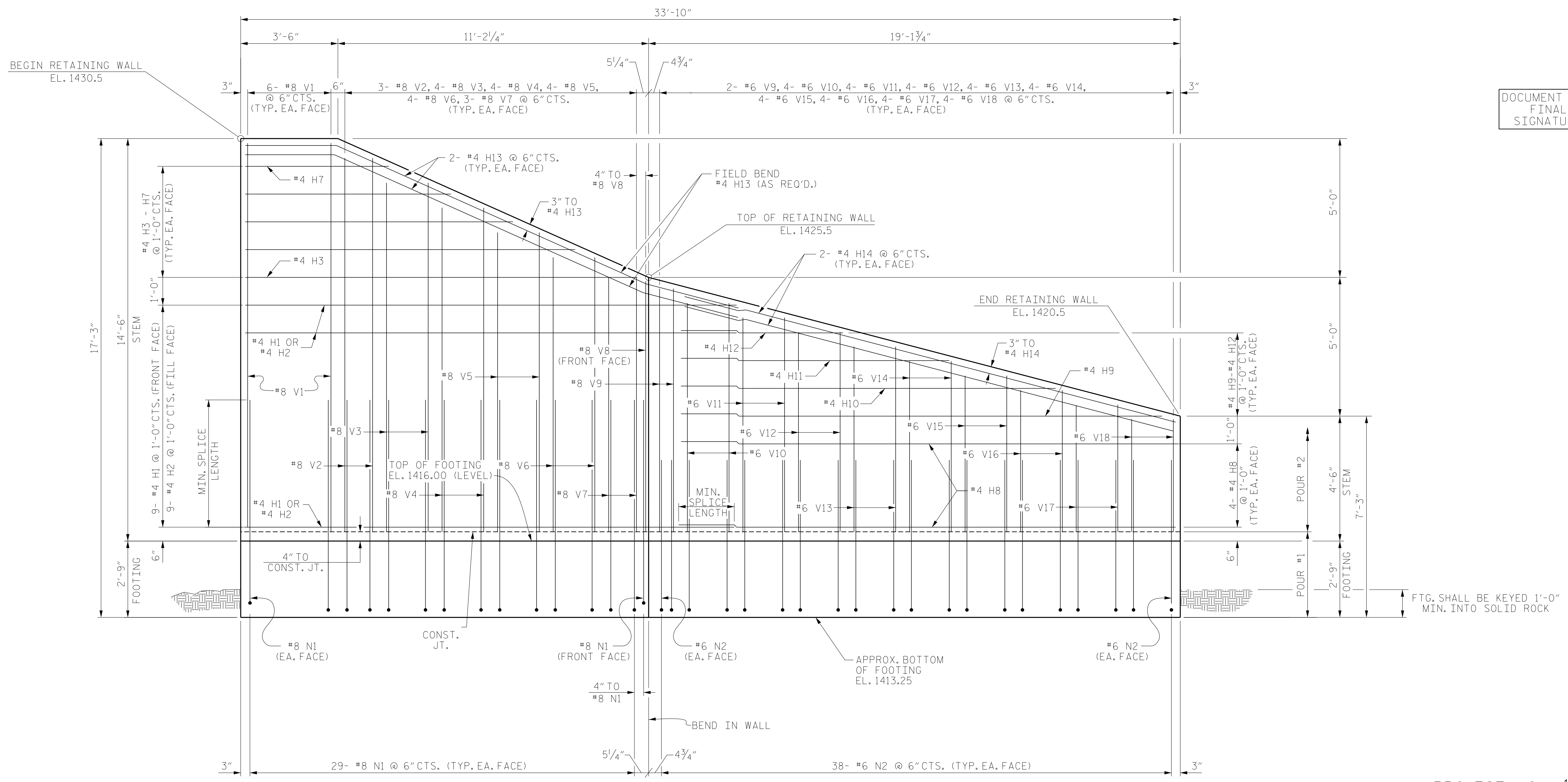
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	RW2-1	
1			3			TOTAL SHEETS	9
2			4				

DWN. BY: AW
CHKD. BY: HLW
DES. EGR. OF RECORD: RTS

DATE: 01/18
DATE: 01/18
DATE: 01/18

STRUCTURAL ENGINEER

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



ELEVATION

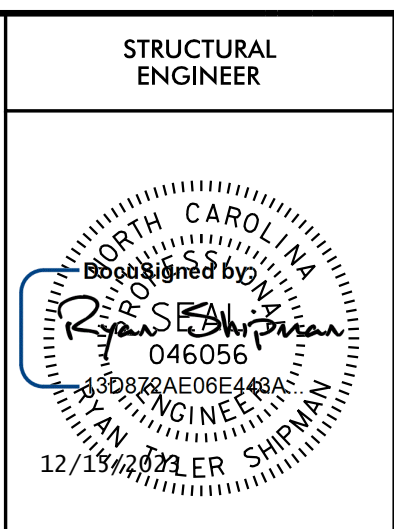
VIEWING FRONT FACE.
WEEP HOLES NOT SHOWN FOR CLARITY.
FOR SPLICE LENGTH, SEE SHEET W-9.

PROJECT NO. 14SP.20441.1
HAYWOOD COUNTY
STATION: 13+33.99 -L-
SHEET 2 OF 5

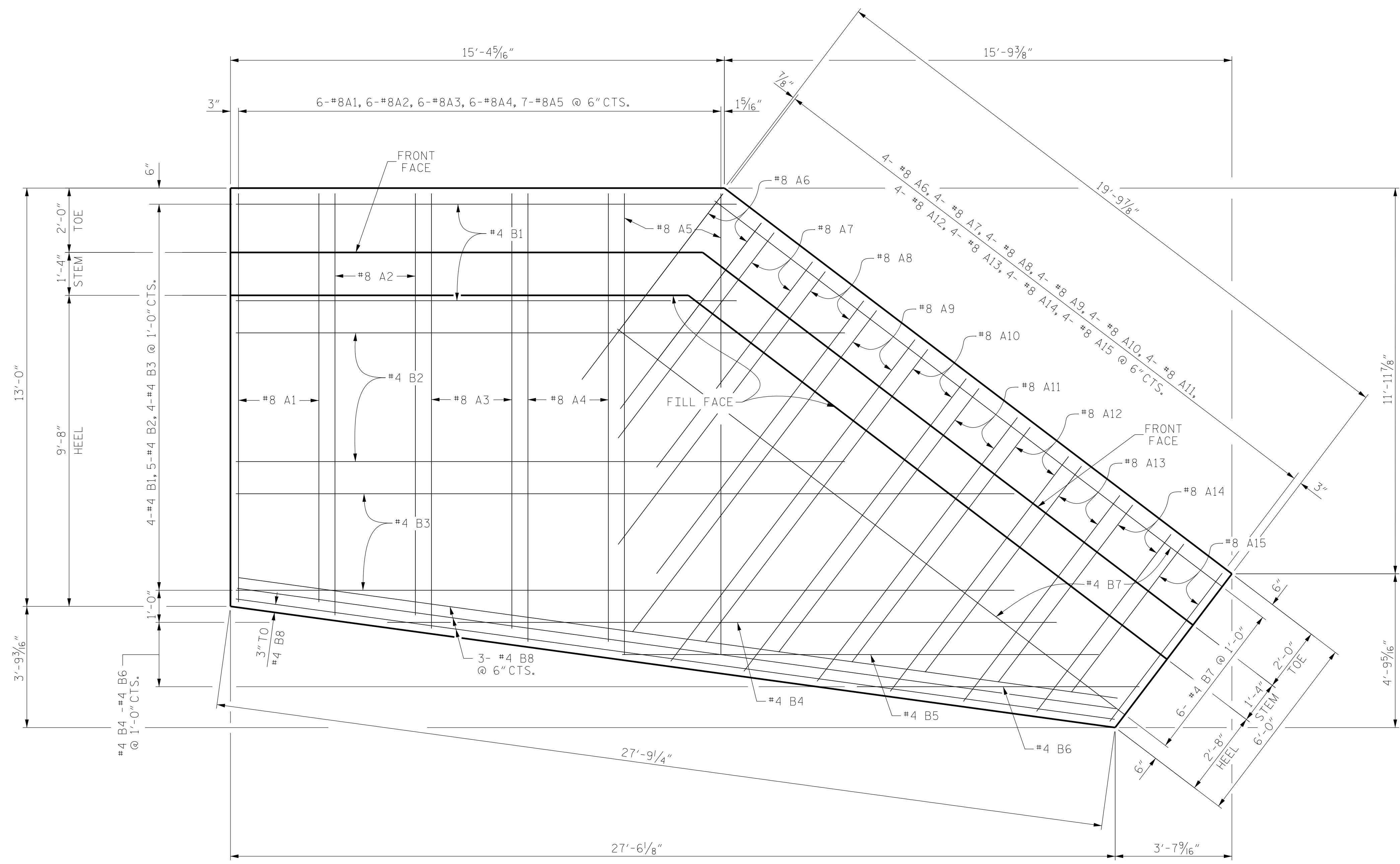
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**RETAINING WALL NO. 2
DETAILS**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	RW2-2	
1		02/18	3			TOTAL SHEETS	
2		02/18	4			9	



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PLAN - TOP OF FOOTING

PROJECT NO. 14SP.20441.1
HAYWOOD COUNTY
 STATION: 13+33.99 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 RETAINING WALL NO. 2
 DETAILS

JMT Johnson, Mirmiran, & Thompson Inc.
 1318-F Patton Ave.
 Asheville, NC, 28806
 License No: C-3097

DWN. BY: AW DATE: 02/18
 CHKD. BY: HLW DATE: 02/18
 DES. EGR. OF RECORD: RTS DATE: 02/18

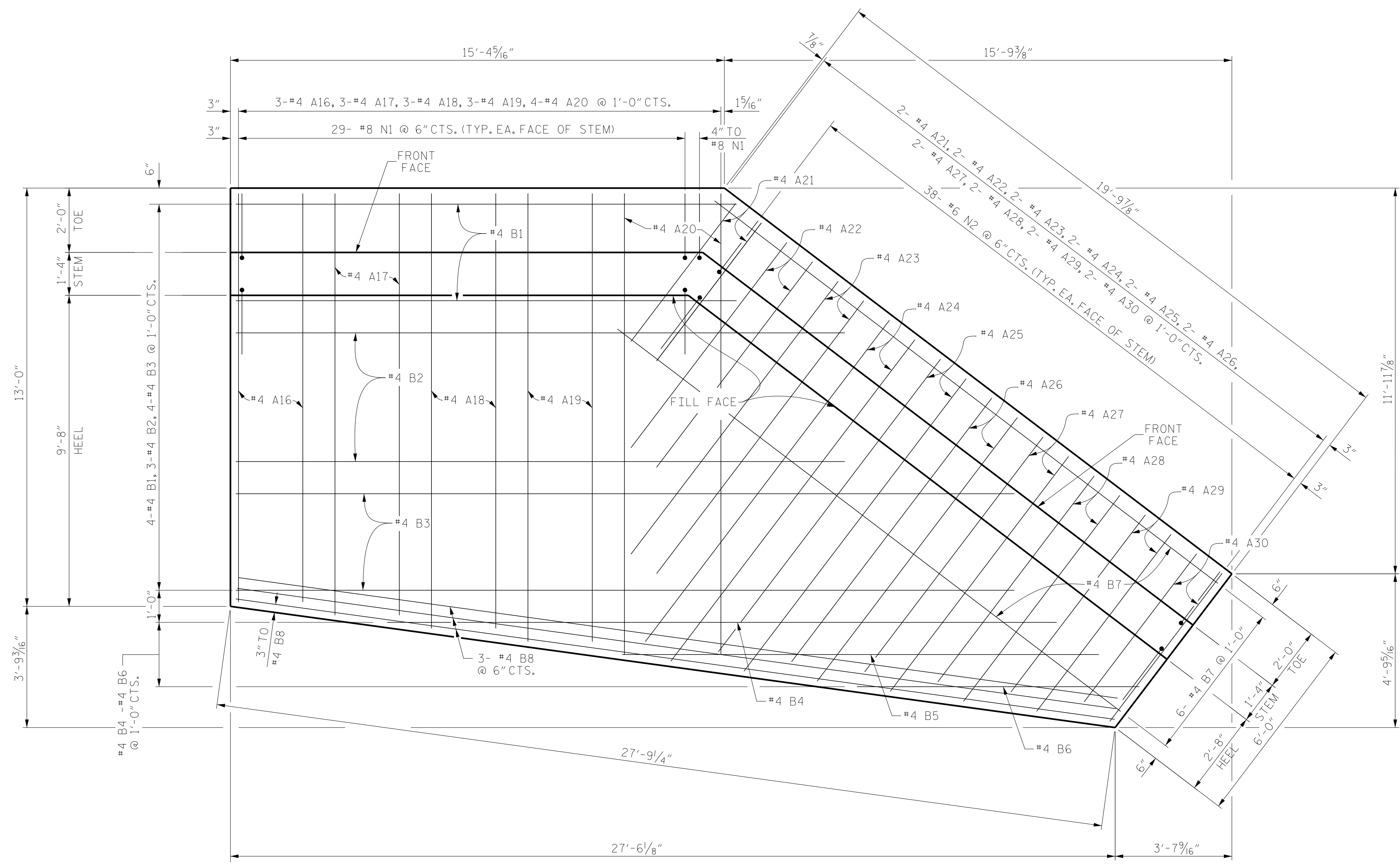
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
RW2-3
TOTAL SHEETS
9

STRUCTURAL ENGINEER

Do Not Sign
 Ryan S. Egan
 046056
 12/15/23
 TYLER SHIRMAN

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



PLAN - BOTTOM OF FOOTING

PROJECT NO. 14SP.20441.1
 HAYWOOD COUNTY
 STATION: 13+33.99 -L-
 SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

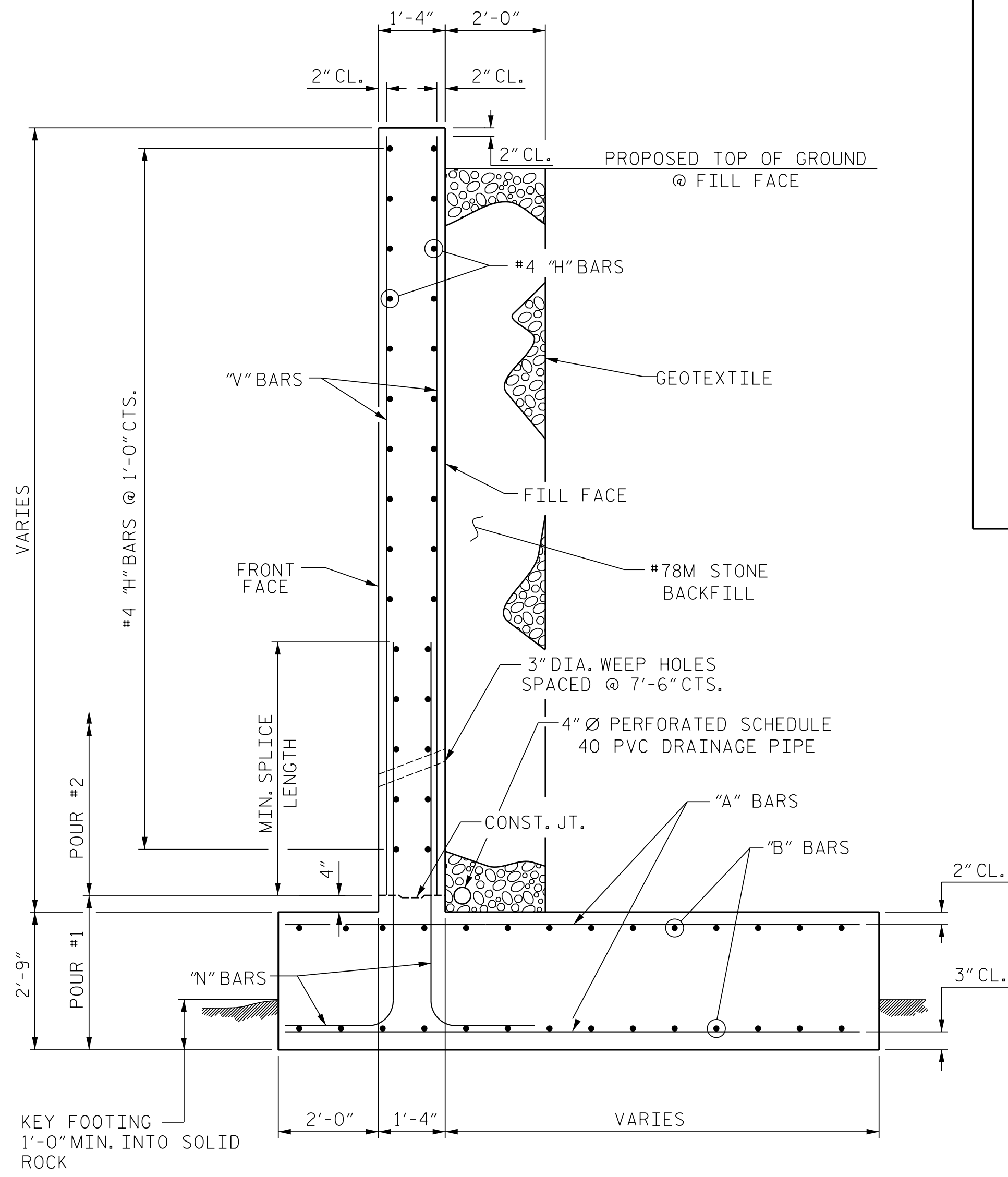
RETAINING WALL NO. 2
 DETAILS

JMT Johnson, Mirmiran, & Thompson Inc.
 1318-F Patton Ave.
 Asheville, NC, 28806
 License No: C-3097

DWN. BY: AW	DATE: 02/18
CHKD. BY: HLW	DATE: 02/18
DES. EGR. OF RECORD: RTS	DATE: 02/18

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	RW2-4	
1			3			TOTAL SHEETS	9
2			4				

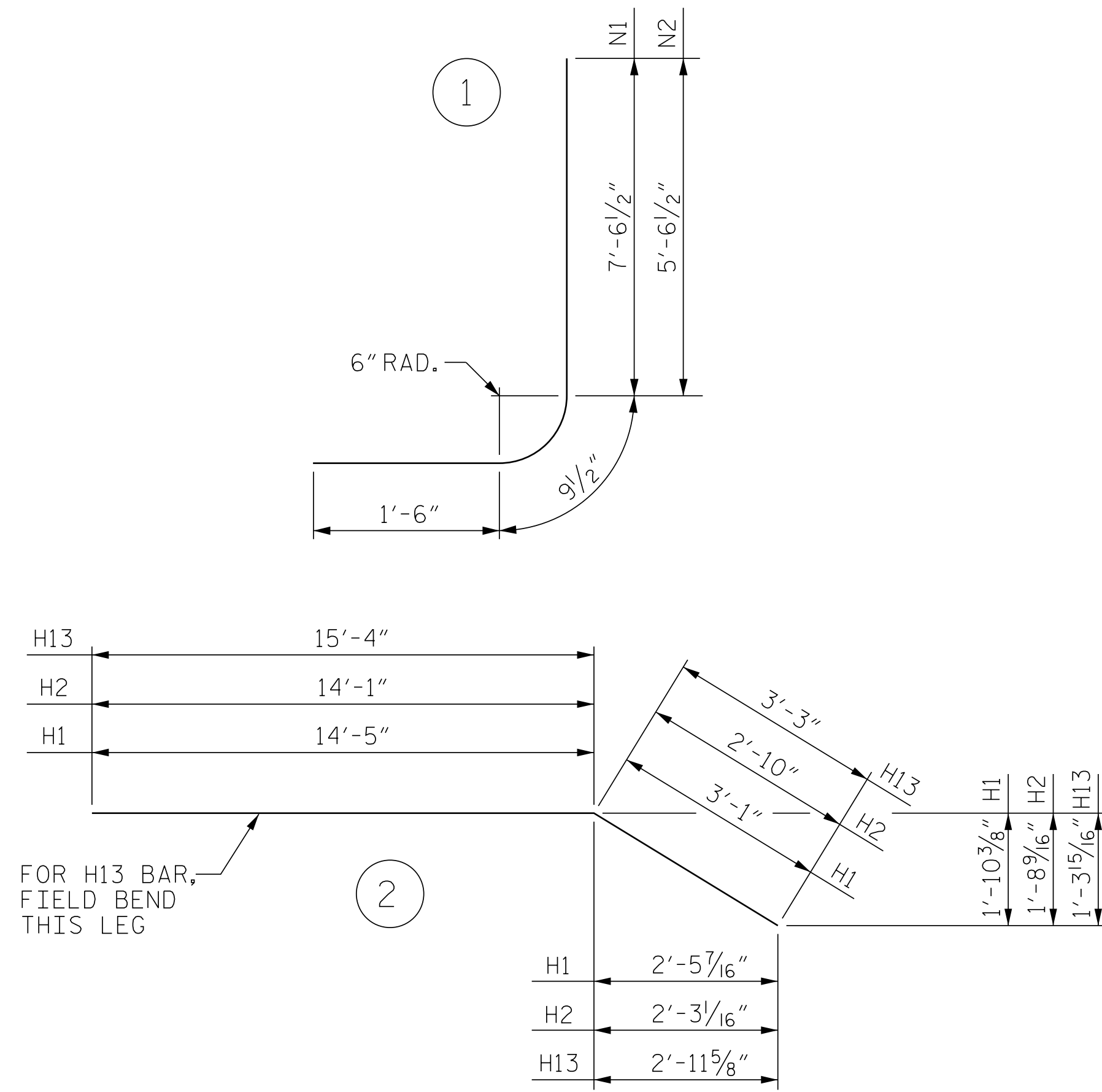
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#6	3'-10"	2'-7"
#8	6'-10"	4'-7"



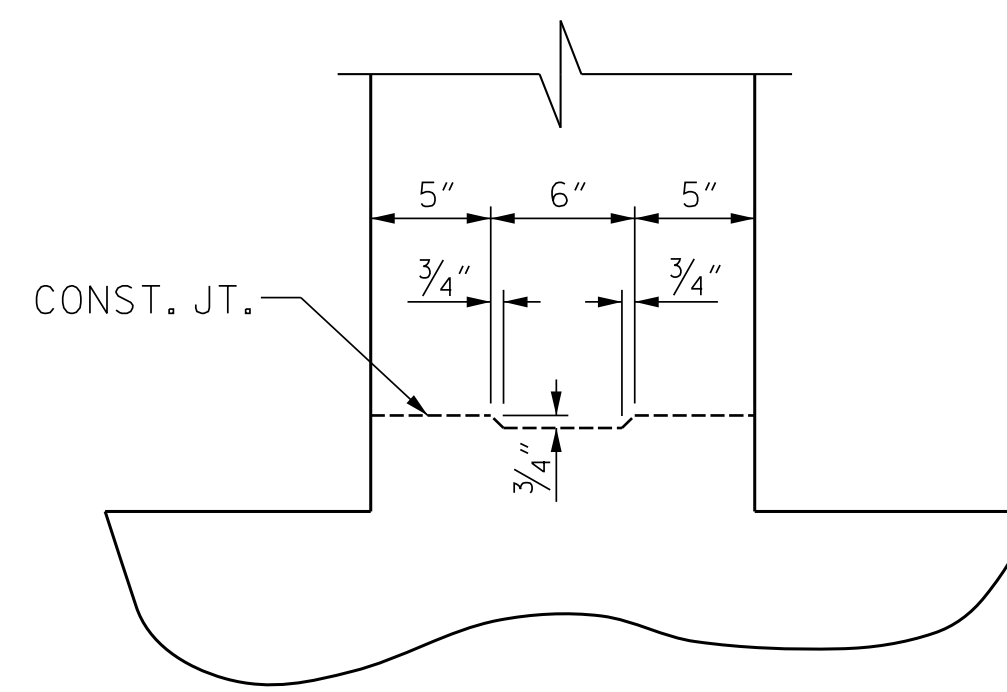
SECTION OF WALL NO.2

SEE RETAINING WALL PROFILE FOR LOCATION OF WEEP HOLES.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.



CONST. JT. DETAIL

BILL OF MATERIAL

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	6	#8	STR	12'-8"	203	H1	9	#4	2	17'-6"	105
A2	6	#8	STR	13'-1"	210	H2	9	#4	2	16'-11"	102
A3	6	#8	STR	13'-6"	216	H3	2	#4	STR	14'-1"	19
A4	6	#8	STR	13'-11"	223	H4	2	#4	STR	11'-10"	16
A5	7	#8	STR	14'-4"	268	H5	2	#4	STR	9'-7"	13
A6	4	#8	STR	7'-3"	77	H6	2	#4	STR	7'-4"	10
A7	4	#8	STR	8'-0"	85	H7	2	#4	STR	5'-1"	7
A8	4	#8	STR	10'-7"	113	H8	8	#4	STR	18'-3"	98
A9	4	#8	STR	12'-6"	134	H9	2	#4	STR	17'-9"	24
A10	4	#8	STR	11'-5"	122	H10	2	#4	STR	13'-11"	19
A11	4	#8	STR	10'-3"	109	H11	2	#4	STR	10'-1"	13
A12	4	#8	STR	9'-2"	98	H12	2	#4	STR	6'-3"	8
A13	4	#8	STR	8'-0"	85	H13	4	#4	2	18'-7"	50
A14	4	#8	STR	6'-10"	73	H14	4	#4	STR	19'-7"	52
A15	4	#8	STR	5'-9"	61						
A16	3	#4	STR	12'-8"	25	N1	59	#8	1	9'-10"	1549
A17	3	#4	STR	13'-1"	26	N2	76	#6	1	7'-10"	894
A18	3	#4	STR	13'-6"	27						
A19	3	#4	STR	13'-11"	28	V1	12	#8	STR	13'-10"	443
A20	4	#4	STR	14'-4"	38	V2	6	#8	STR	13'-3"	212
A21	2	#4	STR	5'-4"	7	V3	8	#8	STR	12'-4"	263
A22	2	#4	STR	8'-0"	11	V4	8	#8	STR	11'-5"	244
A23	2	#4	STR	10'-7"	14	V5	8	#8	STR	10'-6"	224
A24	2	#4	STR	12'-6"	17	V6	8	#8	STR	9'-8"	206
A25	2	#4	STR	11'-5"	15	V7	6	#8	STR	9'-0"	144
A26	2	#4	STR	10'-3"	14	V8	1	#8	STR	8'-10"	24
A27	2	#4	STR	9'-2"	12	V9	4	#6	STR	8'-7"	52
A28	2	#4	STR	8'-0"	11	V10	8	#6	STR	8'-0"	96
A29	2	#4	STR	6'-10"	9	V11	8	#6	STR	7'-6"	90
A30	2	#4	STR	5'-9"	8	V12	8	#6	STR	7'-0"	84
						V13	8	#6	STR	6'-6"	78
B1	8	#4	STR	15'-6"	83	V14	8	#6	STR	5'-11"	71
B2	10	#4	STR	18'-11"	126	V15	8	#6	STR	5'-5"	65
B3	8	#4	STR	24'-2"	129	V16	8	#6	STR	4'-11"	59
B4	2	#4	STR	20'-9"	28	V17	8	#6	STR	4'-5"	53
B5	2	#4	STR	14'-9"	20	V18	8	#6	STR	3'-10"	46
B6	2	#4	STR	8'-9"	12						
B7	12	#4	STR	19'-9"	158						
B8	6	#4	STR	27'-7"	111						

REINFORCING STEEL 8,439 LBS

CLASS A CONCRETE

POUR #1	37.9	CY
POUR #2	15.2	CY
TOTAL	53.1	CY

PROJECT NO. 14SP.20441.1

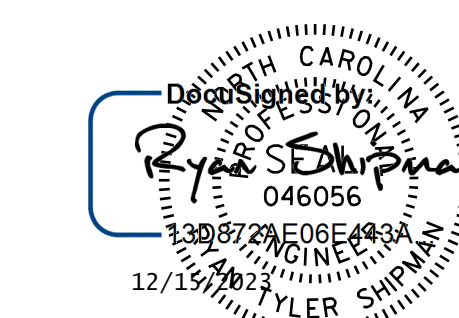
HAYWOOD COUNTY

STATION: 13+33.99 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RETAINING WALL NO.2
DETAILS



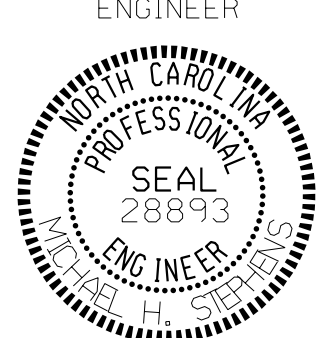
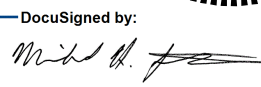
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
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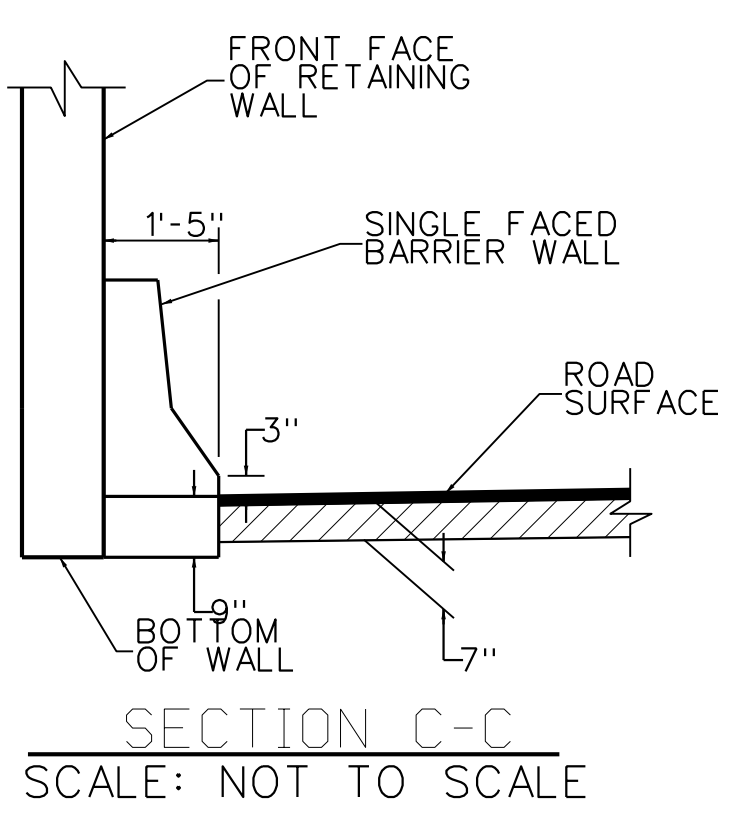
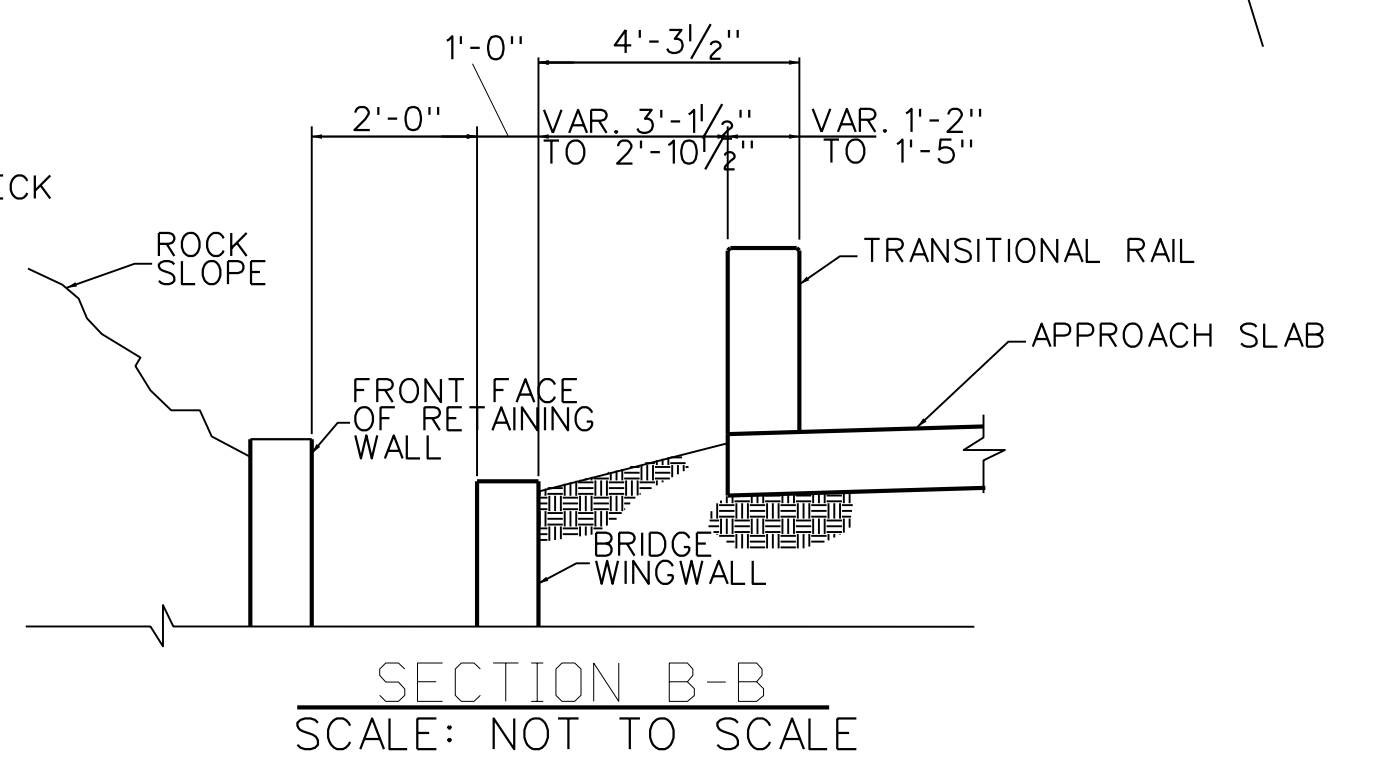
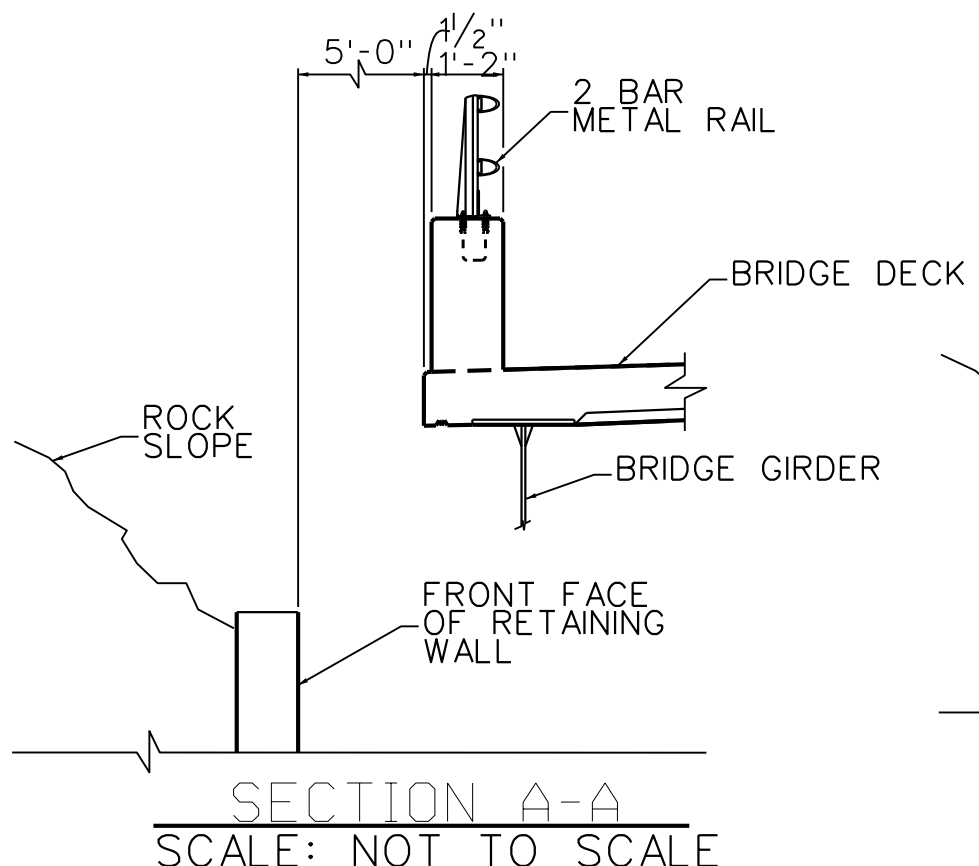
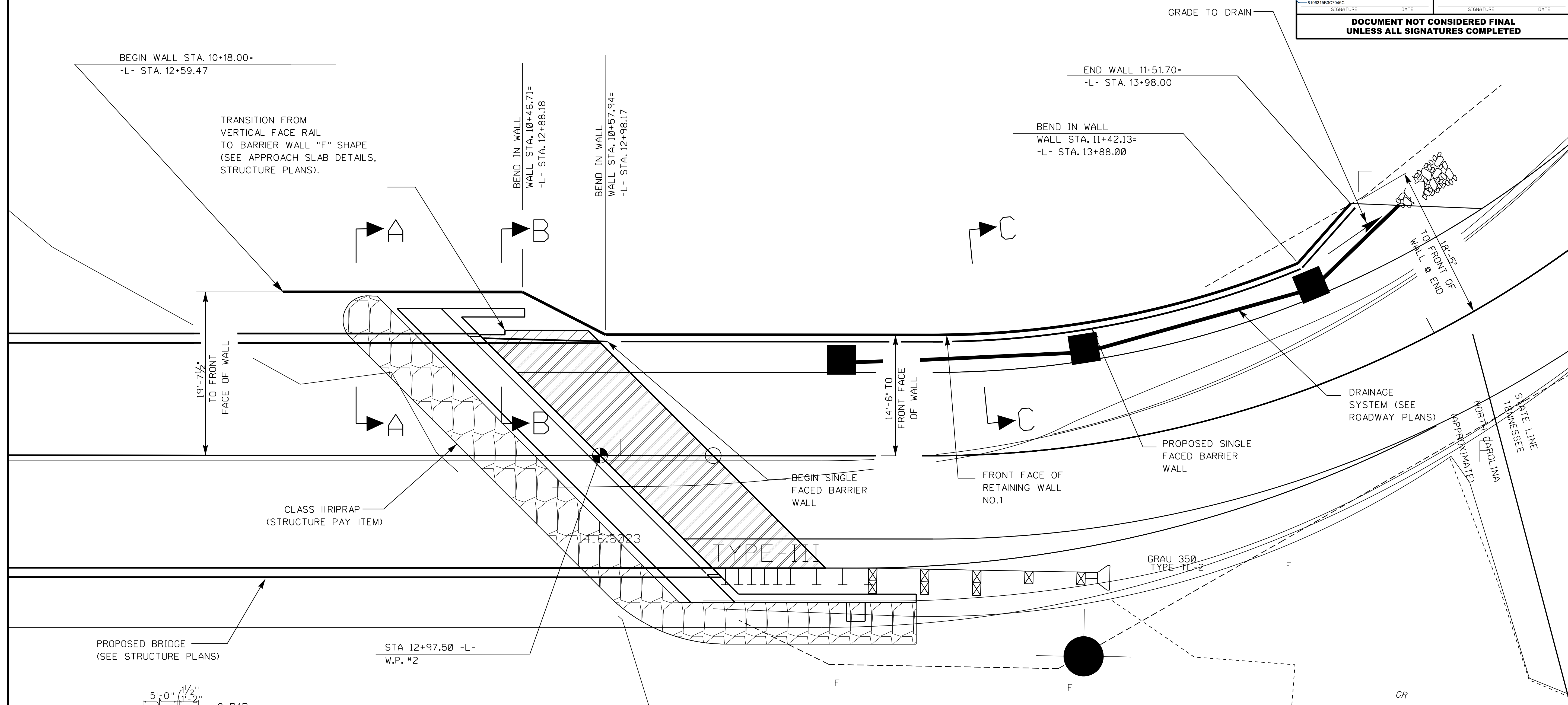
JMT Johnson, Mirmiran, & Thompson Inc.
1318-F Patton Ave.
Asheville, NC, 28806
License No: C-3097

DWN. BY: AW	DATE: 02/18
CHKD. BY: HLW	DATE: 02/18
DES. EGR. OF RECORD: RTS	DATE: 02/18

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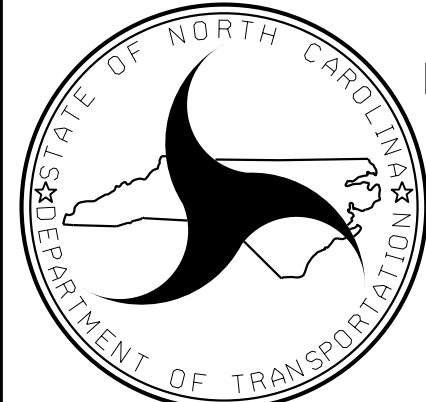
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PLAN

PROJECT NO. 14SP.20441.2 (SF-430174)
 HAYWOOD COUNTY
 STATION: -L- 12+59.5
 SHEET 1 OF 4



NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
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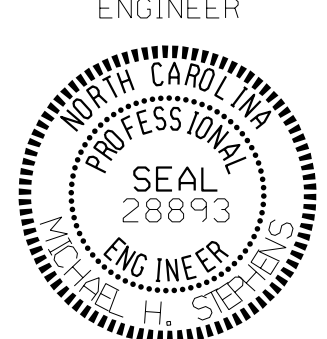
ROCK NAIL WALL
 BRIDGE NO. 174 ON
 WATVERILLE ROAD OVER
 BIG CREEK

PREPARED BY: MHS	DATE: 11/23
REVIEWED BY: SSC	DATE: 11/23

SHEET NO. W-1

GEOTECHNICAL ENGINEER

ENGINEER

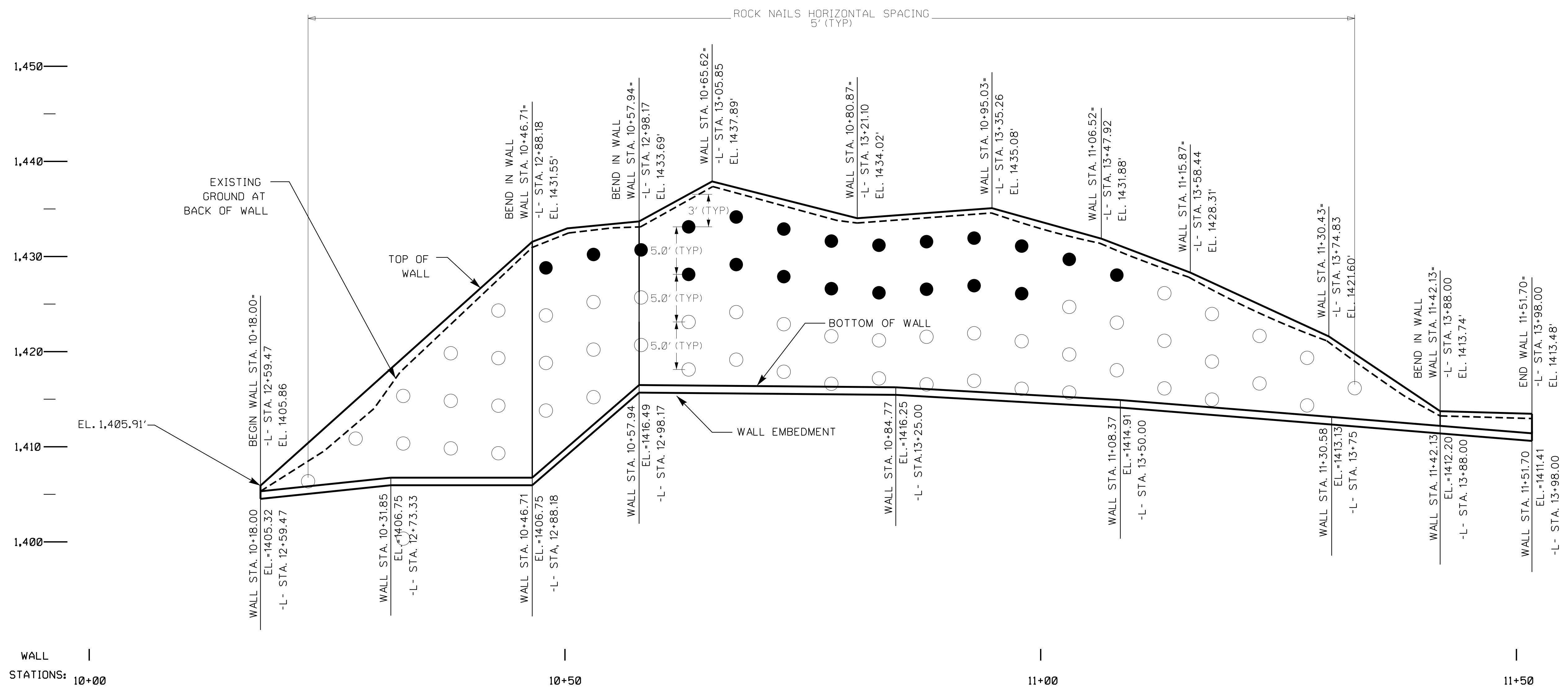


Seal No. 28893
Michael H. Stiefel
Professional Engineer
State of North Carolina

DocuSigned by: *Michael H. Stiefel* 11/15/2023

519631583C7646C SIGNATURE DATE SIGNATURE DATE

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WALL STATIONS: 10+00

ROCK NAIL SCHEDULE

- INDICATES 20' NAIL (21)
- INDICATES 15' NAIL (50)

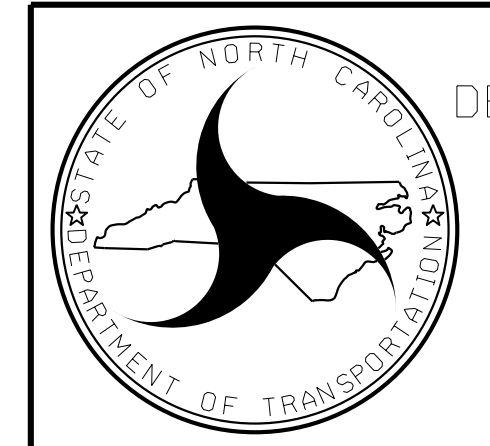
WALL ELEVATION

VIEWING FRONT FACE OF WALL, UNFOLDED

ESTIMATED ROCK WALL QUANTITIES			
ROCK NAIL RETAINING WALLS (SQUARE FEET)	ARCHITECTURAL CONCRETE SURFACE TREATMENT (SQUARE FEET)	ROCK NAIL VERIFICATION TESTS	ROCK NAIL PROOF TESTS
2,030	2,030	2	4

- DESIGN TEST LOAD (DTL) FOR ROCK NAILS = 20 KIPS
- BONDED LENGTH FOR TEST NAILS WILL DEPEND ON THE DIAMETER OF THE DRILLED HOLE, CONTRACTOR TO PROVIDE LOAD TEST SCHEDULE INDICATING LOCATION AND BOND LENGTHS OF TEST NAILS.
- PERFORM LOAD TESTS IN ACCORDANCE WITH THE SPECIAL PROVISION.

PREPARED BY: BMHS	DATE: 11/23
REVIEWED BY: SSC	DATE: 11/23



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ROCK NAIL WALL
BRIDGE NO. 174 ON
WATERVILLE ROAD OVER
BIG CREEK

SHEET NO. W-2

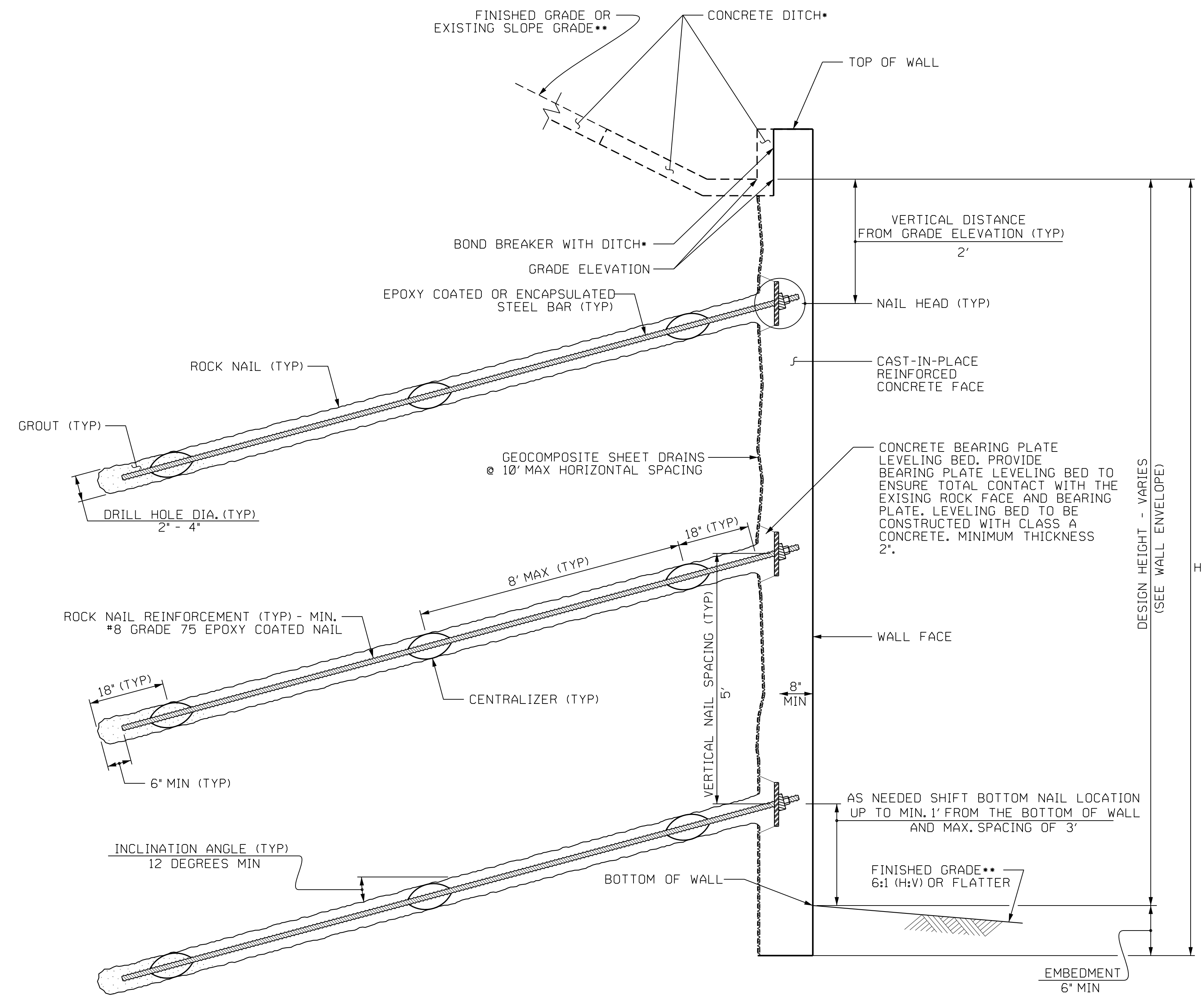
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ROCK NAIL WALL - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE.

PROJECT NO. 14SP.20441.2 (SF-430174)
 HAYWOOD COUNTY
 STATION: -L- 12+59.5
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PREPARED BY: BMHS	DATE: 11/23
REVIEWED BY: SCC	DATE: 11/23

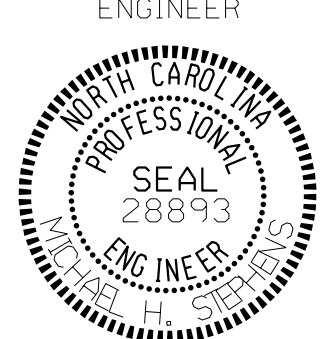
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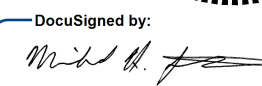
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ENGINEER



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 11/15/2023

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GENERAL NOTES:

FOR ROCK NAIL RETAINING WALLS, SEE ROCK NAILED RETAINING WALLS SPECIAL PROVISION.

AN ARCHITECTURAL CONCRETE SURFACE TREATMENT IS REQUIRED. SEE ARCHITECTURAL CONCRETE SURFACE TREATMENT SPECIAL PROVISION.

PRIOR TO NAIL WALL CONSTRUCTION FOR RETAINING WALL, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

RETAINING WALL IS DESIGNED FOR THE FOLLOWING:
 H = DESIGN HEIGHT + WALL EMBEDMENT
 DESIGN LIFE = 100 YEARS
 MINIMUM WALL EMBEDMENT ELEVATION = 1 FT

PRIOR TO CONSTRUCTION A PRECONDITION ASSESSMENT WILL BE PERFORMED ON THE EXISTING STRUCTURE LOCATED WITHIN 200 FEET OF RETAINING WALL.

LINE DRILL WALL CUT FACE AND BLAST PRIOR TO WALL CONSTRUCTION. VIBRATION MONITORING IS REQUIRED DURING CONSTRUCTION OF RETAINING WALL, SEE CONTROL OF VIBRATION SPECIAL PROVISION.

NAIL NOTES:

NAIL REINFORCEMENT- SHALL CONSIST OF #8 STEEL THREADED BAR CONFORMING TO NCDOT 1070-2 AND ASTM A615 GRADE 75. IF EPOXY COATED BARS ARE USED, THEN BARS WILL BE EPOXY COATED WITH A MINIMUM 7 MILS OF EPOXY PER NCDOT 1070-7. NAIL REINFORCEMENT COUPLERS ARE NOT ALLOWED.

NUTS, BOLTS, ADAPTORS- MATERIALS SHALL BE COMPATIBLE WITH THE SOIL NAIL BAR AND CAPABLE OF DEVELOPING THE ULTIMATE STRENGTH OF THE SOIL NAIL. NUTS WITHOUT WASHERS ARE ACCEPTABLE FOR USE.

CENTRALIZERS- PLASTIC, STAINLESS STEEL, OR OTHER NON-DELETERIOUS MATERIAL WHICH WILL MAINTAIN SHAPE AND LOCATION TO KEEP ROCK NAIL BAR IN CENTRAL PORTION OF THE DRILL HOLE.

BEARING PLATES- PLATE MATERIALS SHALL CONFORM WITH NCDOT 1072-6 AND ASTM A36.

HEADED (NELSON) STUDS- STEEL STUDS SHALL CONFORM WITH NCDOT 1072-6 TYPE B AND SHALL BE WELDED TO THE BEARING PLATES IN ACCORDANCE WITH NCDOT 1072-18.

GROUT- NEAT CEMENT GROUT MIX CONFORMING TO NCDOT 1003 AND CONSISTING OF TYPE I/II CEMENT AND WATER. GROUT SHALL BE BATCHED TO DEVELOP A SPECIFIC GRAVITY OF 1.85+/-0.1 AND SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 7 DAYS AND 4,500 PSI AT 28 DAYS AFTER BATCHING. GROUT SHALL BE BATCHED, STORED, AND PUMPED IN ACCORDANCE WITH ASTM C94.

STEEL REINFORCEMENT- REINFORCEMENT SHALL CONSIST OF DEFORMED STEEL BARS CONFORMING TO NCDOT 1070-2, WITH A MINIMUM YIELD STRENGTH OF 60 KSI

DRAINBOARD- PREFABRICATED GEOTEXTILE DRAINAGE MEDIA CONSISTING OF A PLASTIC CORE WITH GEOTEXTILE FILTER FABRIC ADHERED TO ONE SIDE CONFORMING TO NC DOT 1056. THE FILTER FABRIC SIDE SHALL BE PLACED AGAINST THE EXCAVATION FACE.

WATER- POTABLE.

SEE NAIL WALL ELEVATION VIEW FOR LENGTH REQUIREMENTS.

PERFORM 2 VERIFICATION TESTS AND 4 PROOF TESTS IN ACCORDANCE WITH NAILED RETAINING WALL SPECIAL PROVISION.

AFTER SUCCESSFUL TESTING THE NAIL REINFORCEMENT SHALL BE PROTECTED FROM DAMAGE DURING FURTHER CONSTRUCTION OPERATIONS.

CONSTRUCTION SEQUENCE:

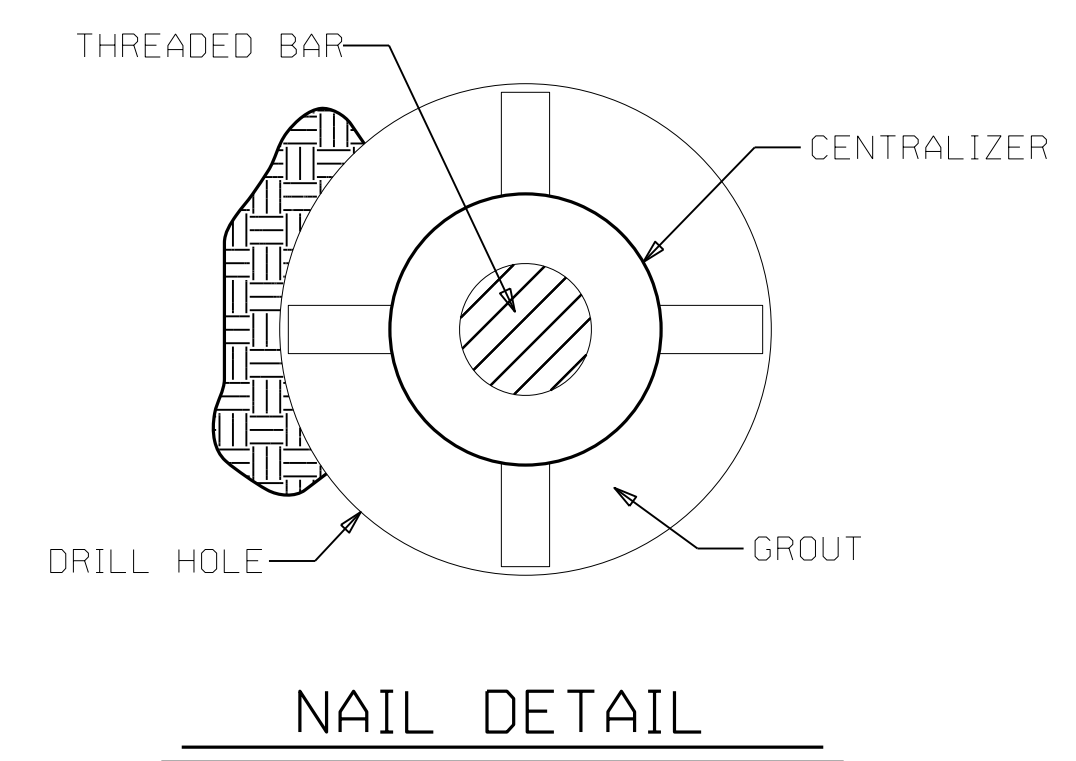
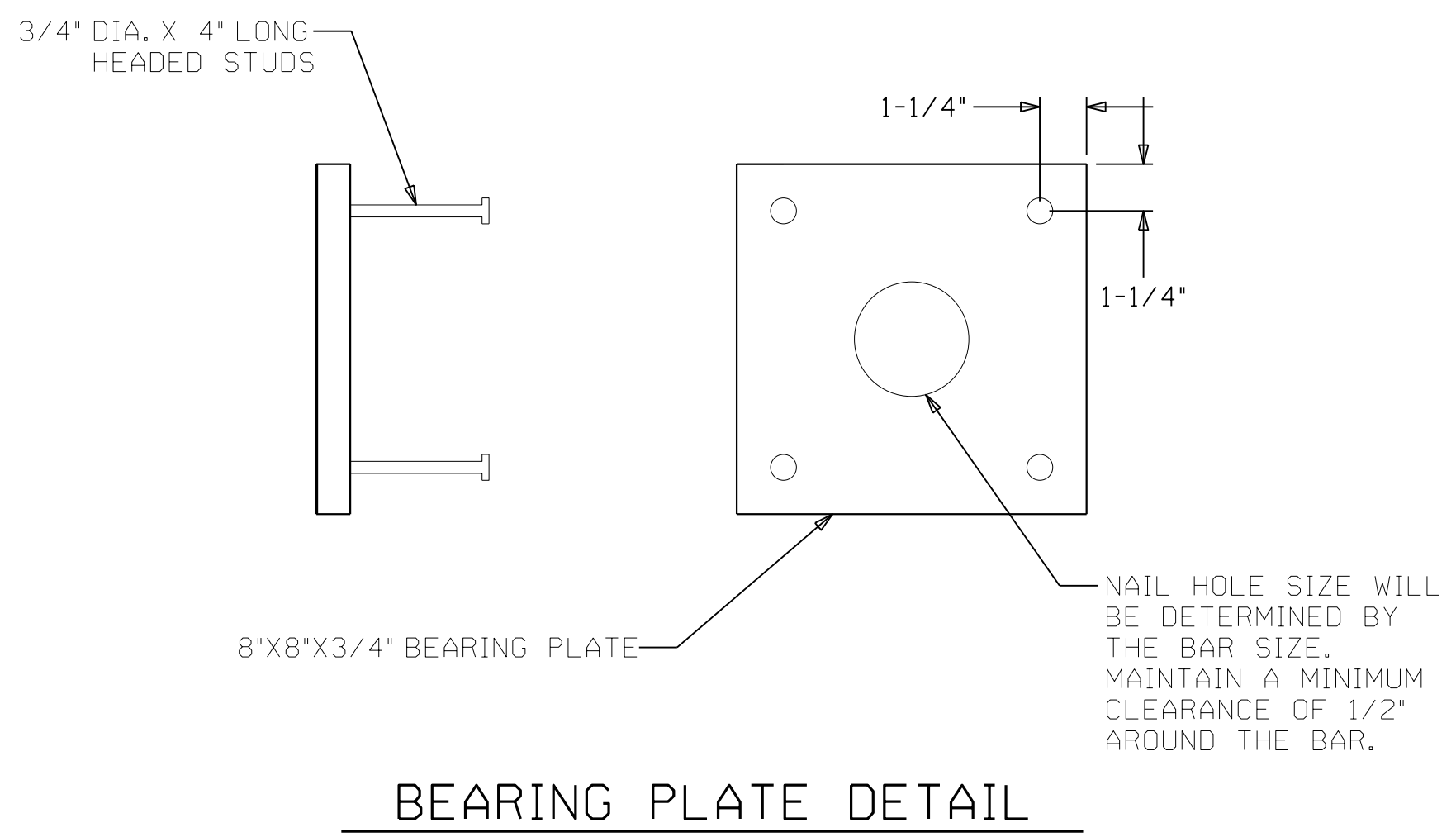
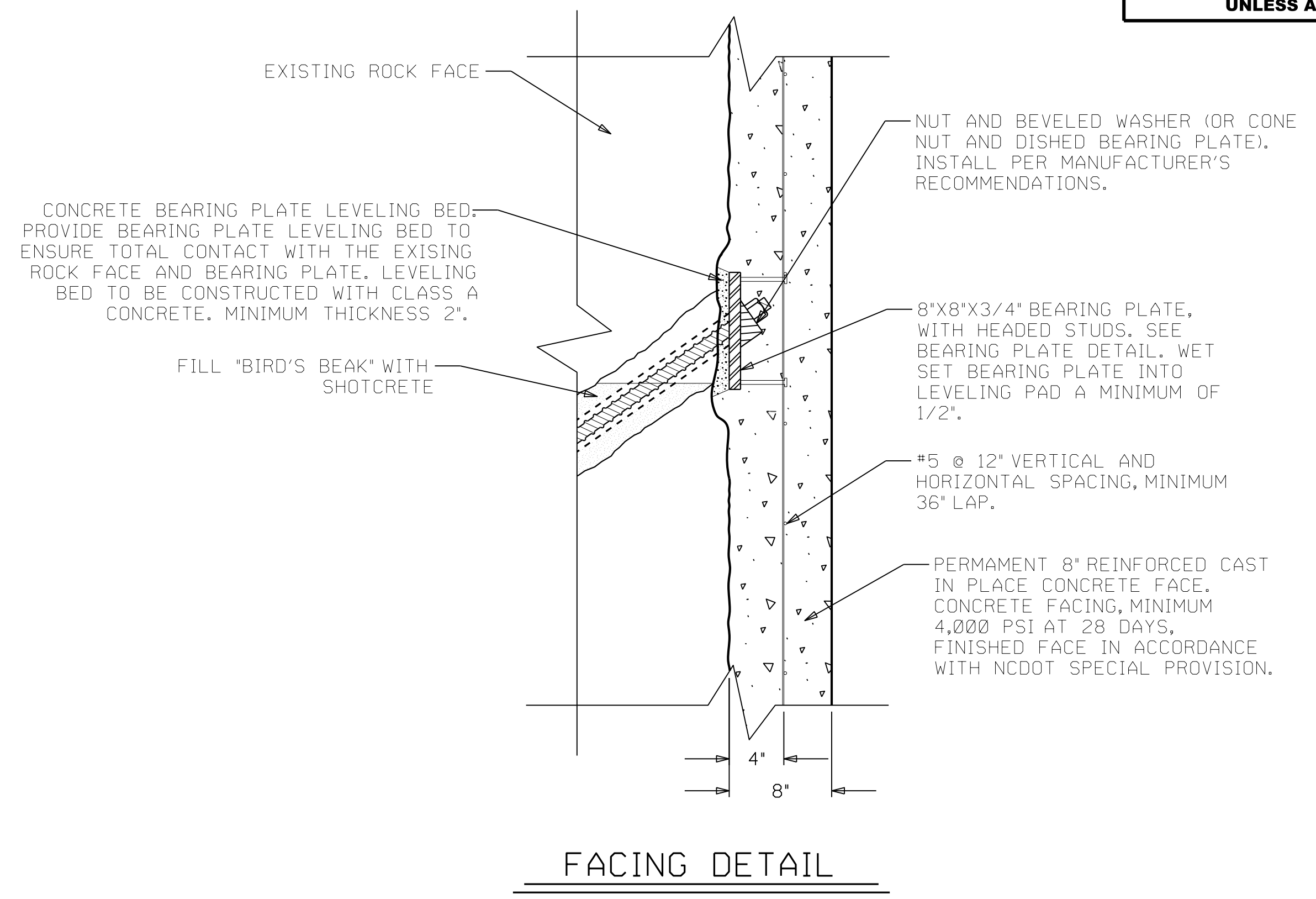
PRIOR TO EXCAVATION AND/OR BLASTING, THE WALL FACE WILL BE LINE DRILLED.

INSTALL AND PERFORM VERIFICATION TEST ON SACRIFICIAL NAIL IN ACCORDANCE WITH THE ROCK NAIL WALL SPECIAL PROVISION. MAXIMUM VERIFICATION TEST LOAD WILL NOT EXCEED 80% OF THE YIELD STRENGTH OF THE NAIL REINFORCEMENT.

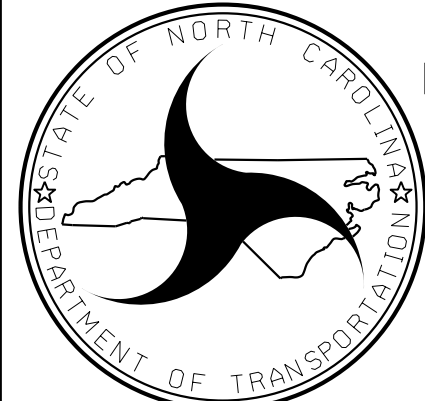
INSTALL NAILS AT SPACING INDICATED ON THE ELEVATION VIEW AND TYPICAL SECTION.

PERFORM PROOF TESTS IN ACCORDANCE WITH THE ROCK NAIL WALL SPECIAL PROVISION. MAXIMUM PROOF TEST LOAD WILL NOT EXCEED 50% OF THE YIELD STRENGTH OF THE NAIL REINFORCEMENT.

INSTALL THE REINFORCED CAST-IN-PLACE FACING.



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