

LOCATION SKETCH

NOTES:

FIELD ADJUSTMENT OF "A" BARS MAY BE NECESSARY FOR PLACEMENT IN COPING.

ALL REINFORCING STEEL SHALL BE GRADE 60 AS DESCRIBED IN SECTION 1070 OF THE STANDARD SPECIFICATIONS.

FOR 18" STEEL SHEET PILES, SEE SECTION 1084-2 OF THE STANDARD SPECIFICATIONS.

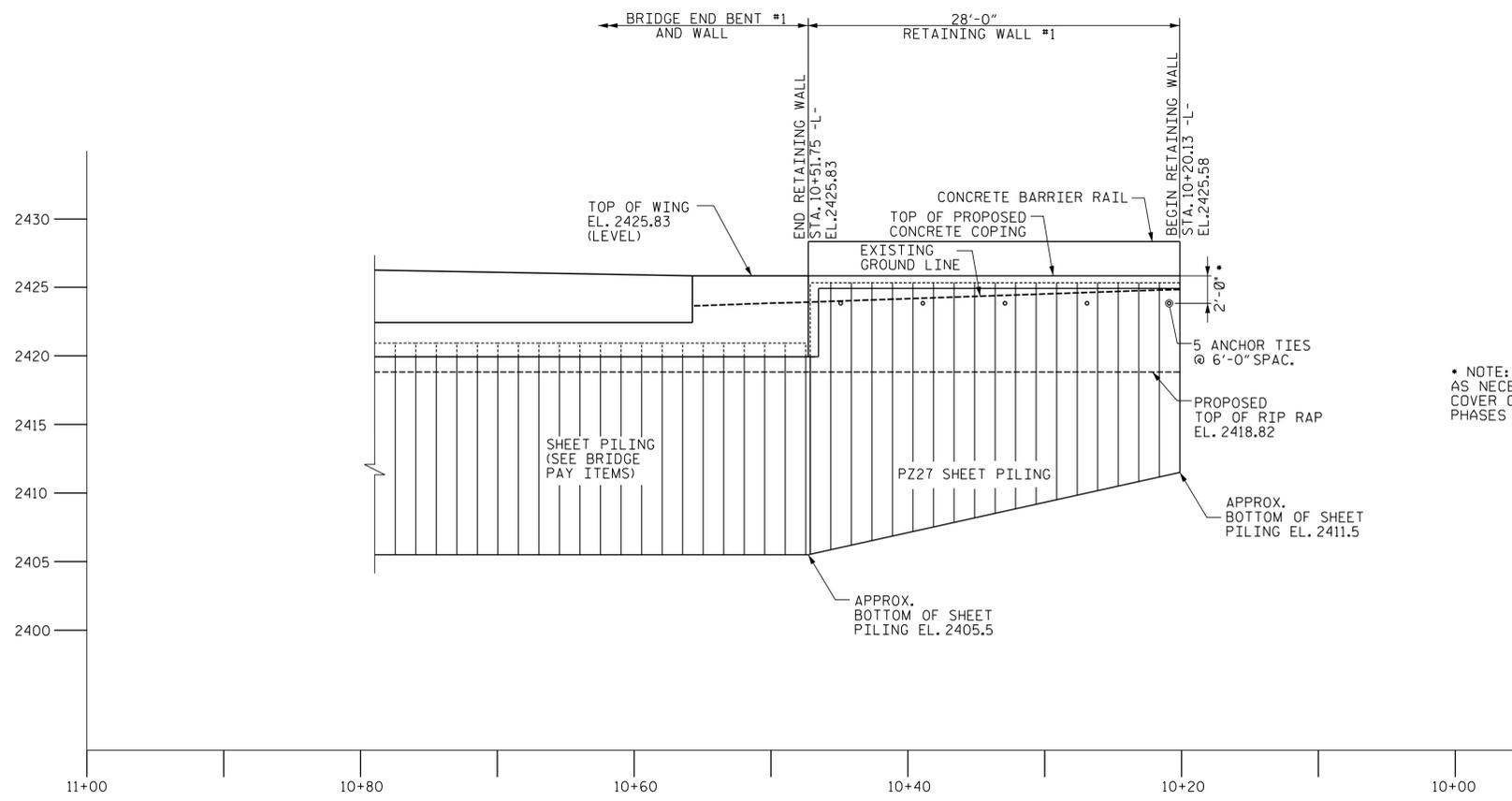
INSTALL SHEET PILING TO THE MINIMUM DEPTH SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

SHEETING IS TO BE CONTINUOUS BETWEEN THE END BENT AND THE RETAINING WALL.

FIELD ADJUSTMENT OF THE COPING/END BENT INTERFACE MAY BE NECESSARY, AS DIRECTED BY THE ENGINEER.

FOR ADDITIONAL NOTES, SEE BRIDGE PLANS.

PAY ITEMS	
SHEET PILE RETAINING WALL #1	
STEEL SHEET PILES	650 SQ. FT.
CONCRETE BARRIER RAIL WITH MOMENT SLAB	28.0 L.F.
ANCHORS	5 EA.
SHEET PILE RETAINING WALL #2	
STEEL SHEET PILES	915 SQ. FT.
CONCRETE BARRIER RAIL WITH MOMENT SLAB	36.0 L.F.
ANCHORS	6 EA.



WALL #1 ENVELOPE
VIEWING FRONT FACE

* NOTE: ANCHOR RODS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO MAINTAIN A MINIMUM OF 12" MIN. COVER OVER THE ANCHOR TIE RODS DURING ALL PHASES OF TRAFFIC.

PROJECT NO. 17BP.14.R.131
HAYWOOD COUNTY
STATION: 11+10.45 -L-

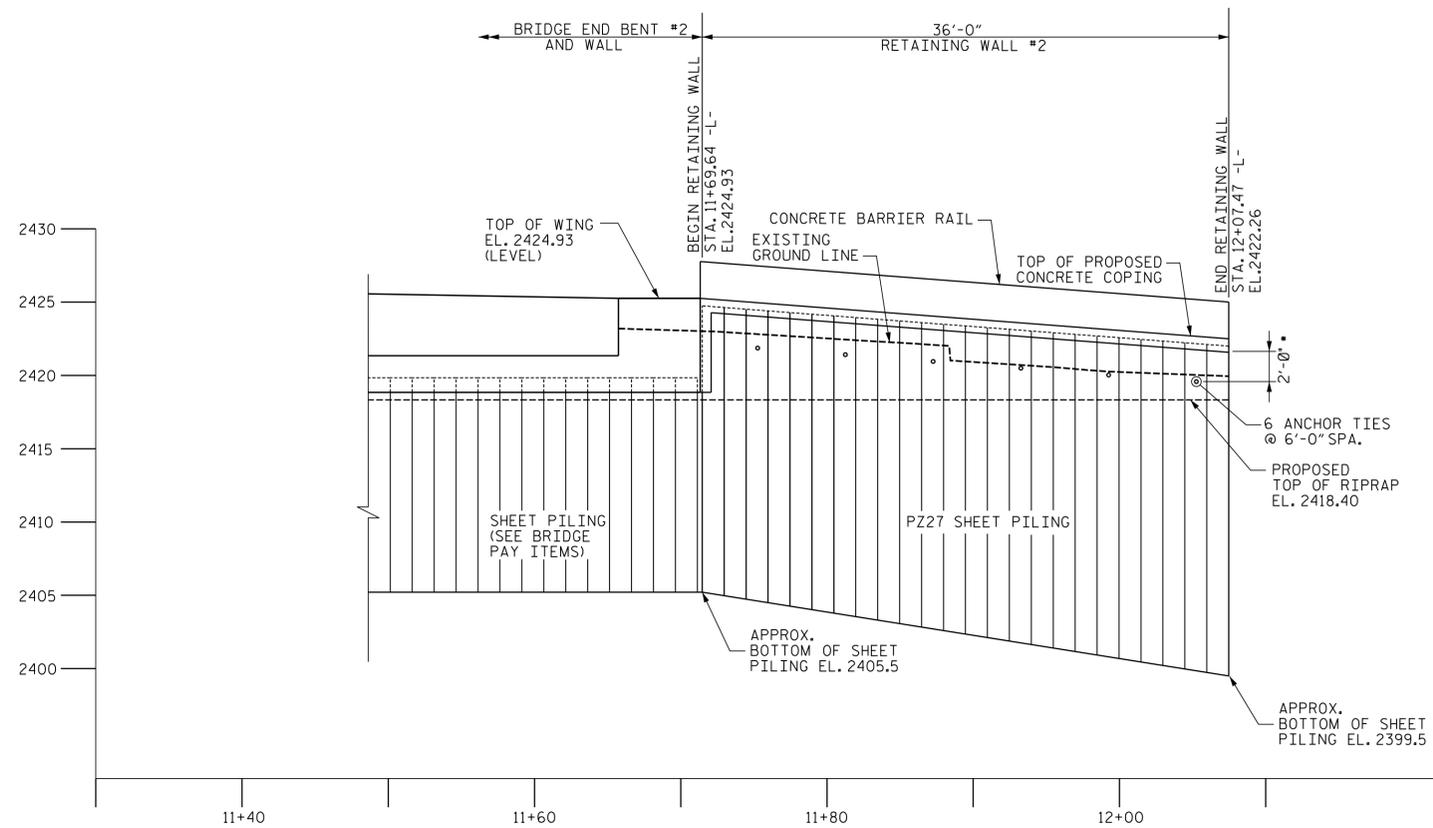
SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SHEET PILE WALL CONSTRUCTION DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	RW-1	
1			3			TOTAL SHEETS	
2			4			6	

DWN. BY: MAF DATE: 1/14
CHKD. BY: HLW DATE: 1/14
DSN. ENG. OF RECORD: RTS DATE: 1/14



• NOTE: ANCHOR RODS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO MAINTAIN A MINIMUM OF 12" MIN. COVER OVER THE ANCHOR TIE RODS DURING ALL PHASES OF TRAFFIC.

WALL #2 ENVELOPE
VIEWING FRONT FACE

PROJECT NO. 17BP.14.R.131
HAYWOOD COUNTY
STATION: 11+10.45 -L-

SHEET 2 OF 6

V&M
Vaughn & Melton
Consulting Engineers

Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Asheville, North Carolina 828-253-2796
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

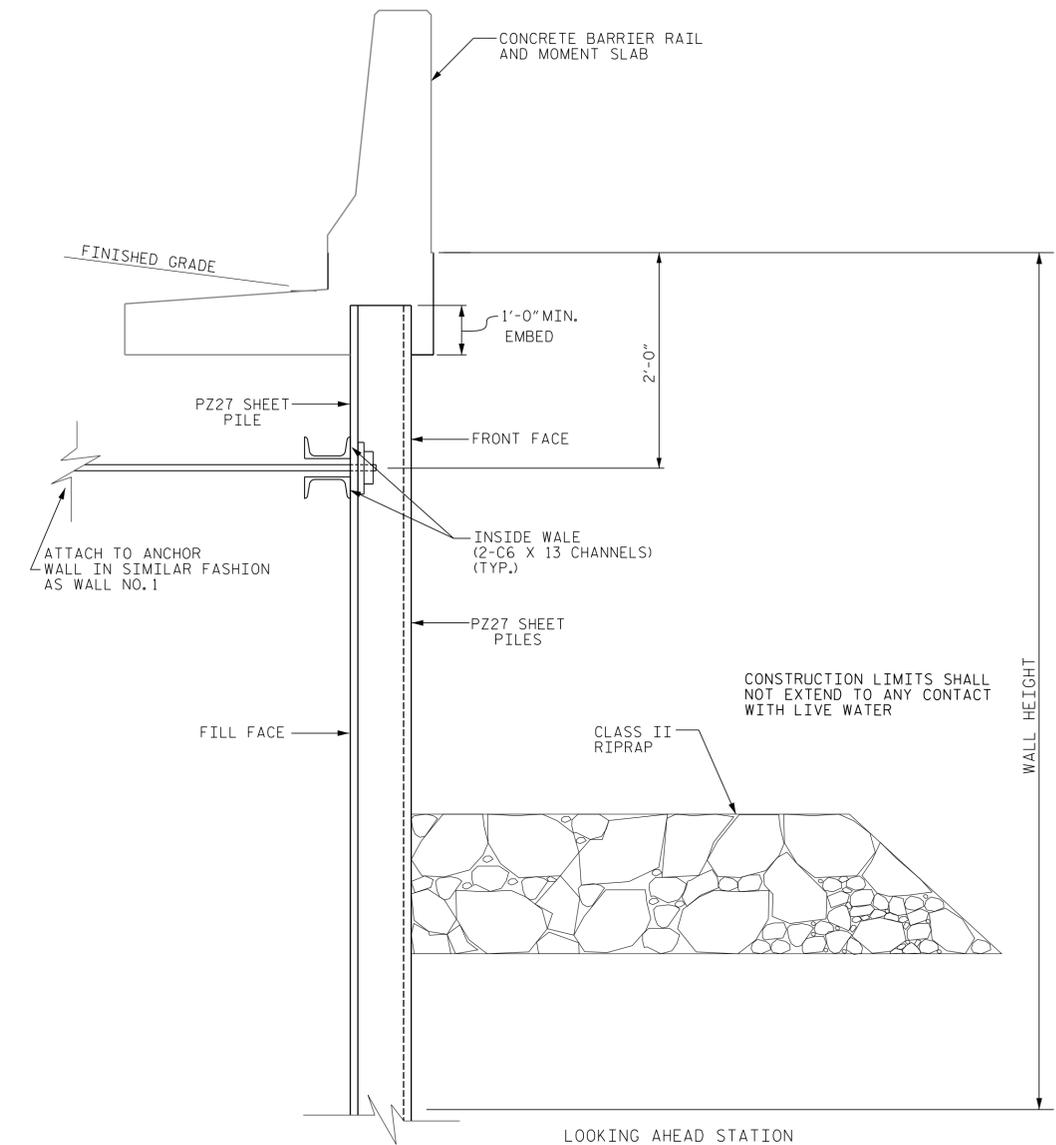
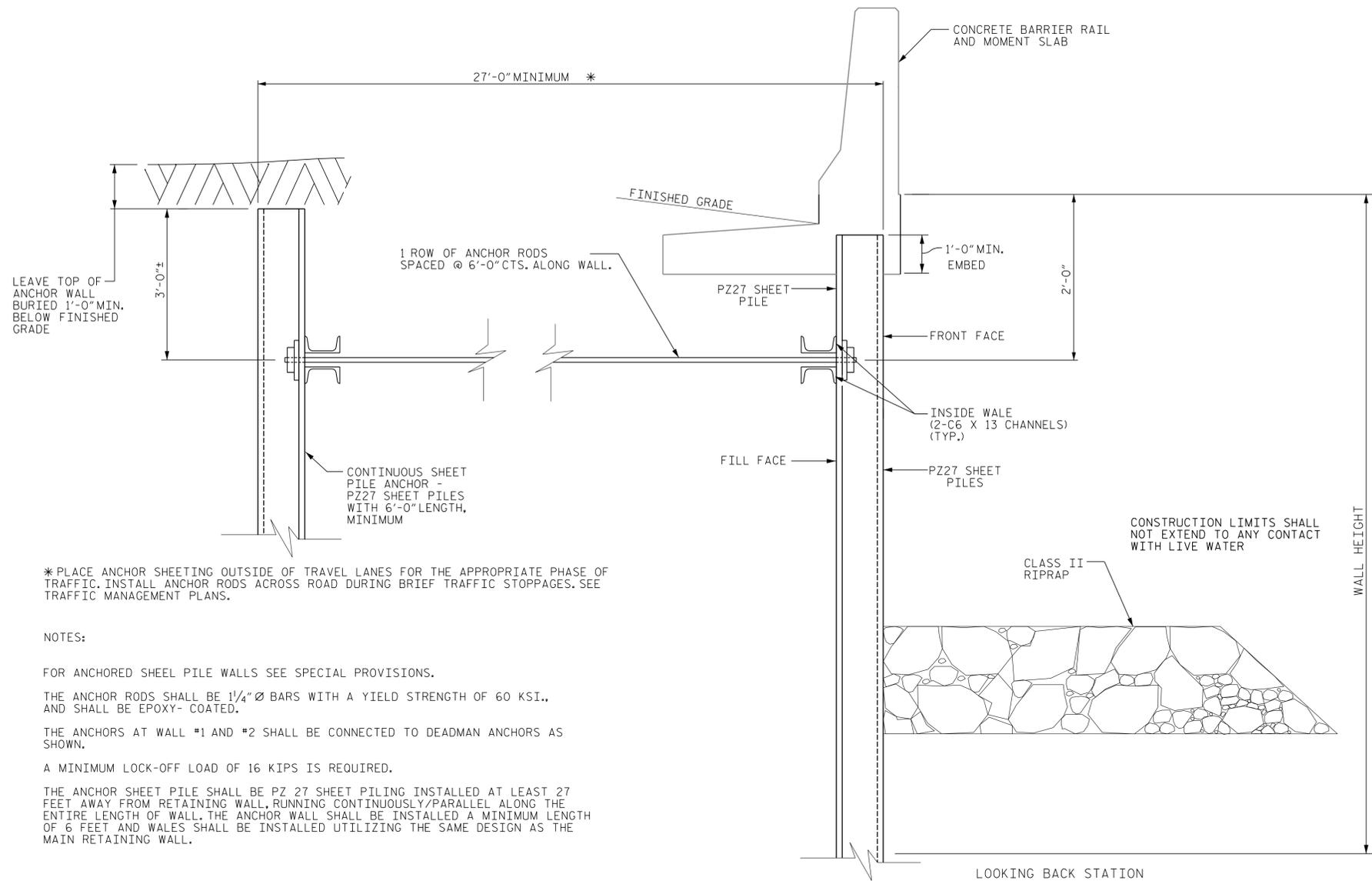
Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SHEET PILE
WALL CONSTRUCTION
DETAILS

DWN. BY: MAF DATE: 1/14
CHKD. BY: HLW DATE: 1/14
DSN. ENG. OF RECORD: RTS DATE: 1/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	RW-2
1			3			TOTAL SHEETS
2			4			6



RETAINING WALL NO.1 - TYPICAL SECTION

RETAINING WALL NO.2 - TYPICAL SECTION

LEAVE TOP OF ANCHOR WALL BURIED 1'-0" MIN. BELOW FINISHED GRADE

3'-0"±

1 ROW OF ANCHOR RODS SPACED @ 6'-0" CTS. ALONG WALL.

FINISHED GRADE

PZ27 SHEET PILE

1'-0" MIN. EMBED

2'-0"

FRONT FACE

INSIDE WALE (2-C6 X 13 CHANNELS) (TYP.)

PZ27 SHEET PILES

FILL FACE

CONSTRUCTION LIMITS SHALL NOT EXTEND TO ANY CONTACT WITH LIVE WATER

CLASS II RIPRAP

WALL HEIGHT

CONTINUOUS SHEET PILE ANCHOR - PZ27 SHEET PILES WITH 6'-0" LENGTH, MINIMUM

*PLACE ANCHOR SHEETING OUTSIDE OF TRAVEL LANES FOR THE APPROPRIATE PHASE OF TRAFFIC. INSTALL ANCHOR RODS ACROSS ROAD DURING BRIEF TRAFFIC STOPPAGES. SEE TRAFFIC MANAGEMENT PLANS.

NOTES:

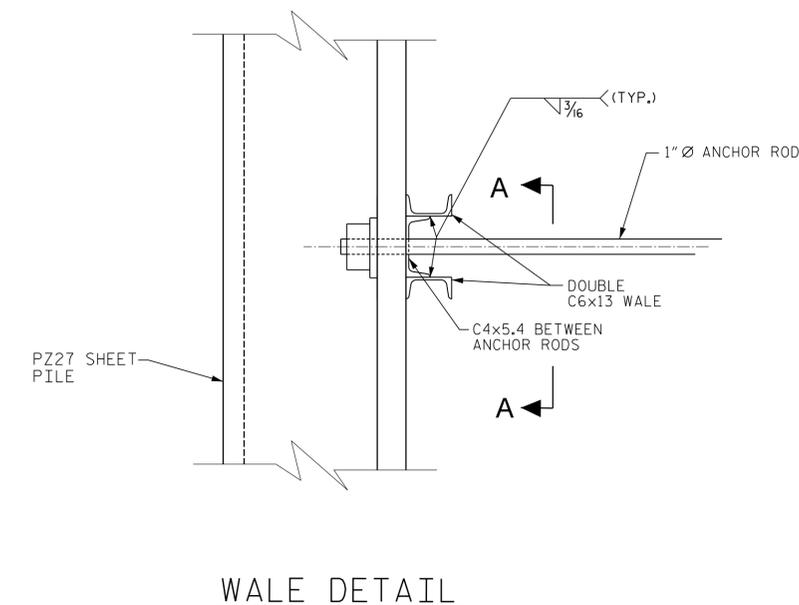
FOR ANCHORED SHEEL PILE WALLS SEE SPECIAL PROVISIONS.

THE ANCHOR RODS SHALL BE 1/4" Ø BARS WITH A YIELD STRENGTH OF 60 KSI., AND SHALL BE EPOXY- COATED.

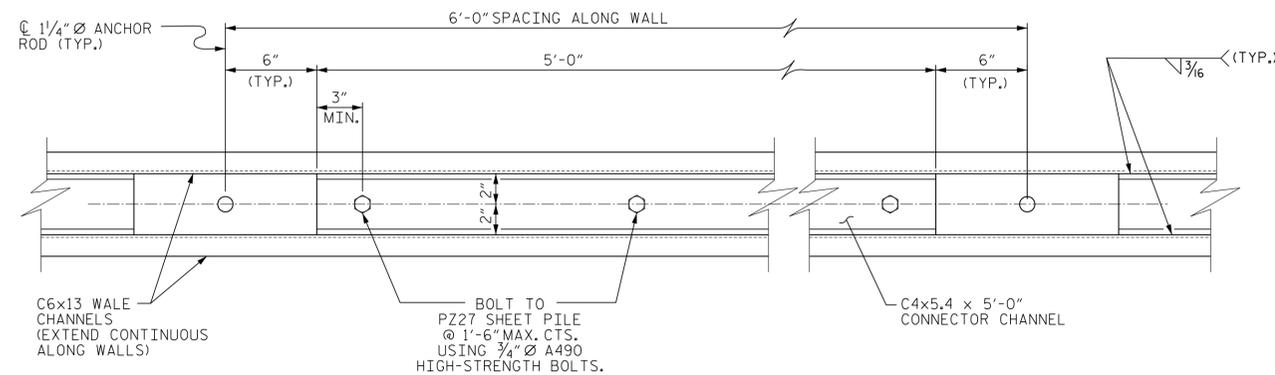
THE ANCHORS AT WALL #1 AND #2 SHALL BE CONNECTED TO DEADMAN ANCHORS AS SHOWN.

A MINIMUM LOCK-OFF LOAD OF 16 KIPS IS REQUIRED.

THE ANCHOR SHEET PILE SHALL BE PZ 27 SHEET PILING INSTALLED AT LEAST 27 FEET AWAY FROM RETAINING WALL, RUNNING CONTINUOUSLY/PARALLEL ALONG THE ENTIRE LENGTH OF WALL. THE ANCHOR WALL SHALL BE INSTALLED A MINIMUM LENGTH OF 6 FEET AND WALES SHALL BE INSTALLED UTILIZING THE SAME DESIGN AS THE MAIN RETAINING WALL.



WALE DETAIL



SECTION A-A

PROJECT NO. 17BP.14.R.131
 HAYWOOD COUNTY
 STATION: 11+10.45 -L-

SHEET 3 OF 6

V&M
 Vaughn & Melton
 Consulting Engineers

Charlotte, North Carolina 704-357-0488
 Tennessee 423-467-8401
 Knoxville, Tennessee 865-546-5800
 Asheville, North Carolina 828-253-2796
 Middleboro, Kentucky 606-248-6600
 Spartanburg, South Carolina 864-574-4775

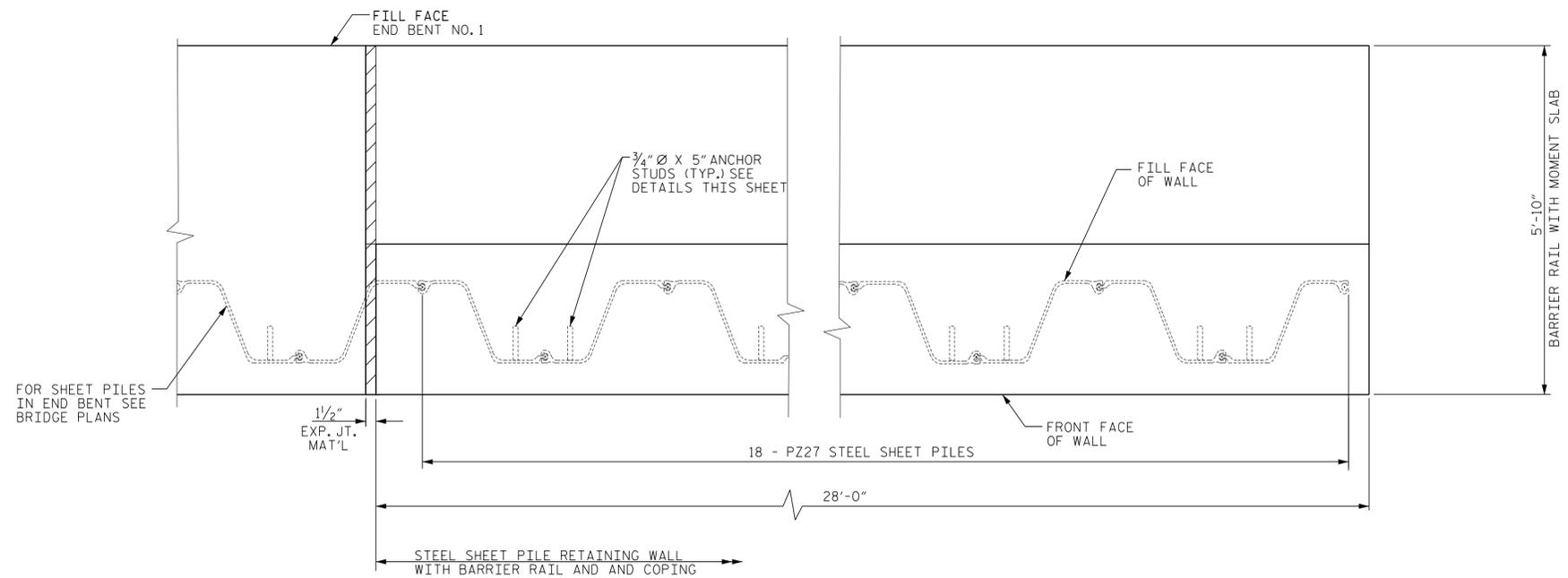
Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

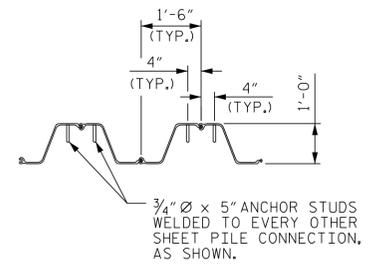
SHEET PILE
 WALL CONSTRUCTION
 DETAILS

DWN. BY: MAF DATE: 1/14
 CHKD. BY: HLW DATE: 1/14
 DSN. ENG. OF RECORD: RTS DATE: 1/14

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	RW-3	
1			3			TOTAL SHEETS	
2			4			6	

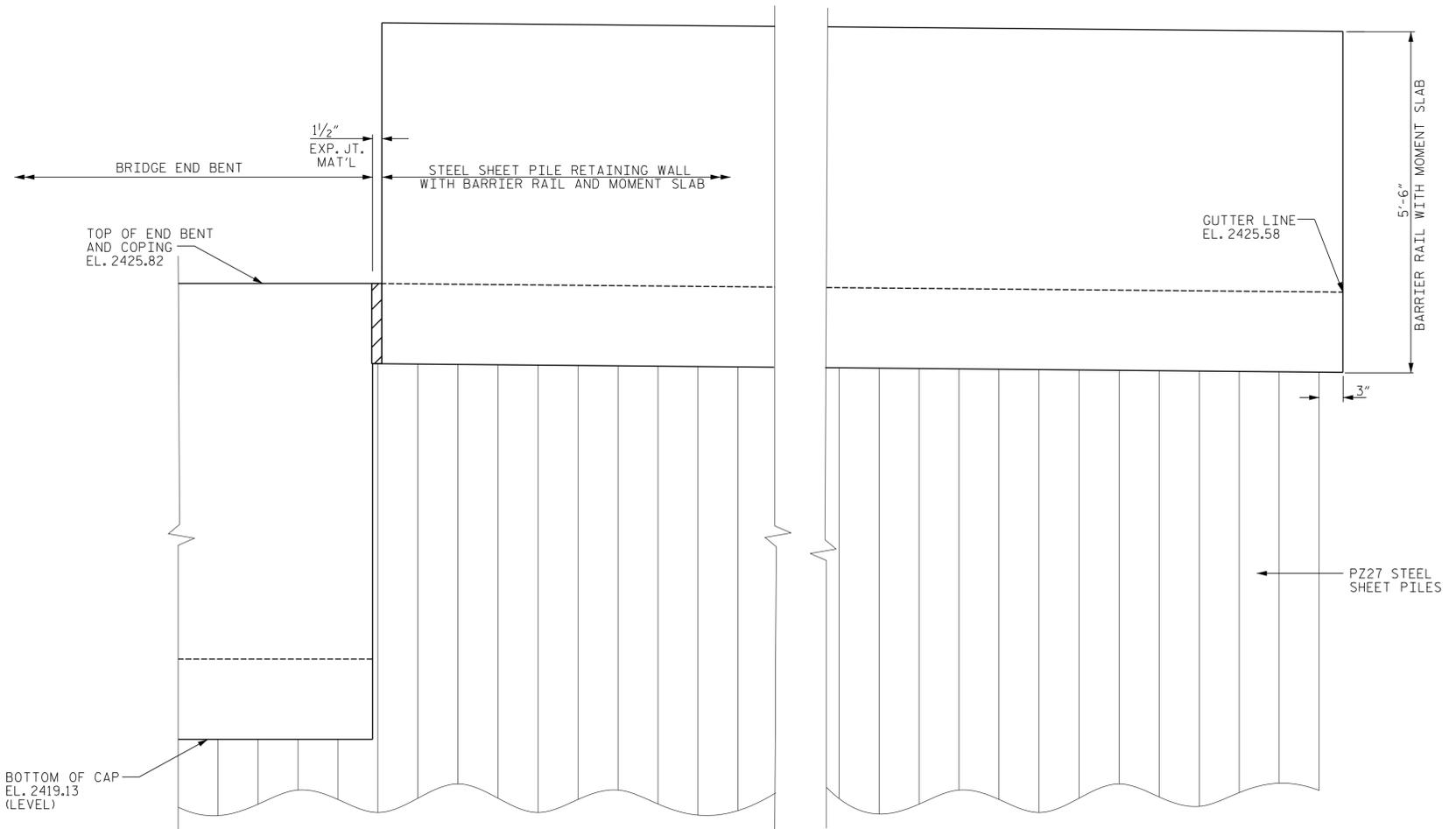


PLAN - WALL #1
ANCHOR RODS AND WALES NOT SHOWN FOR CLARITY



ANCHOR STUD DETAIL

NOTES:
FOR 18" STEEL SHEET PILES, SEE SECTION 1084-2 OF THE STANDARD SPECIFICATIONS.



ELEVATION - WALL #1
VIEWING FRONT FACE

PROJECT NO. 17BP.14.R.131
HAYWOOD COUNTY
STATION: 11+10.45 -L-

SHEET 4 OF 6

V&M
Vaughn & Melton
Consulting Engineers

Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Asheville, North Carolina 828-253-2796
Middleboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

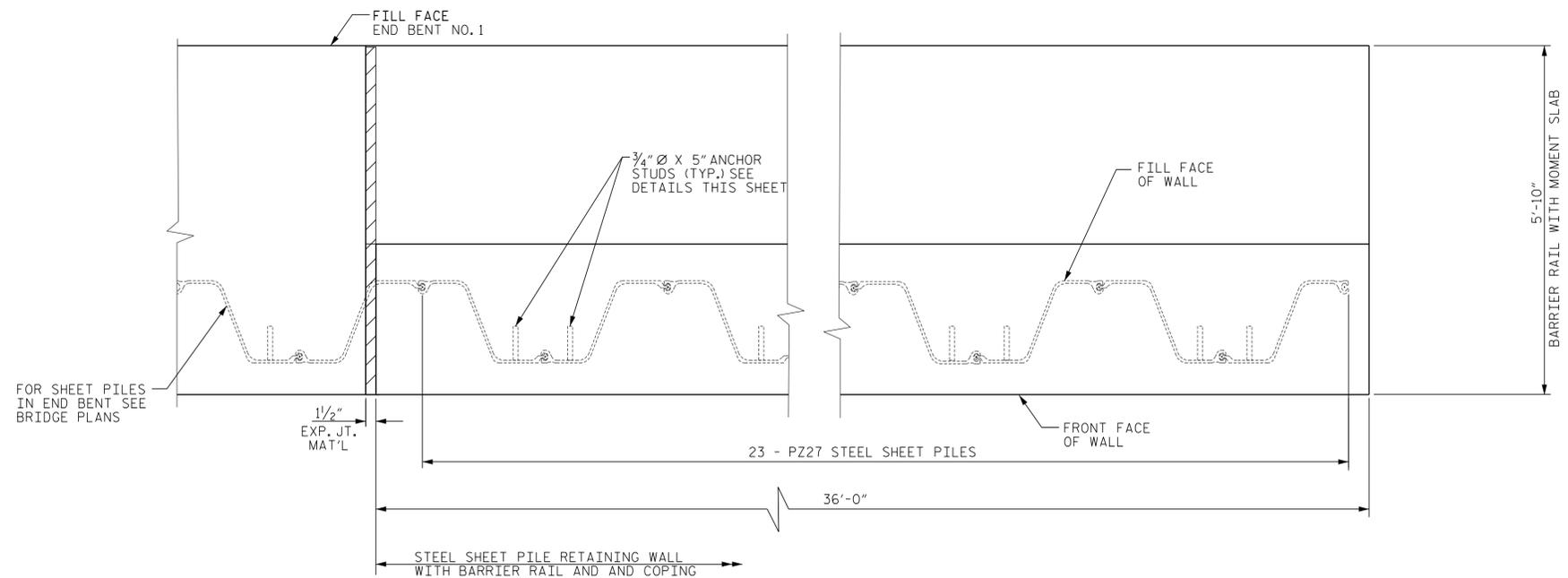
Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SHEET PILE WALL CONSTRUCTION DETAILS

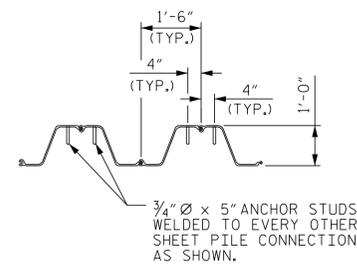
REVISIONS						SHEET NO. RW-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

DWN. BY: MAF DATE: 1/14
CHKD. BY: HLW DATE: 1/14
DSN. ENG. OF RECORD: RTS DATE: 1/14



PLAN - WALL #2

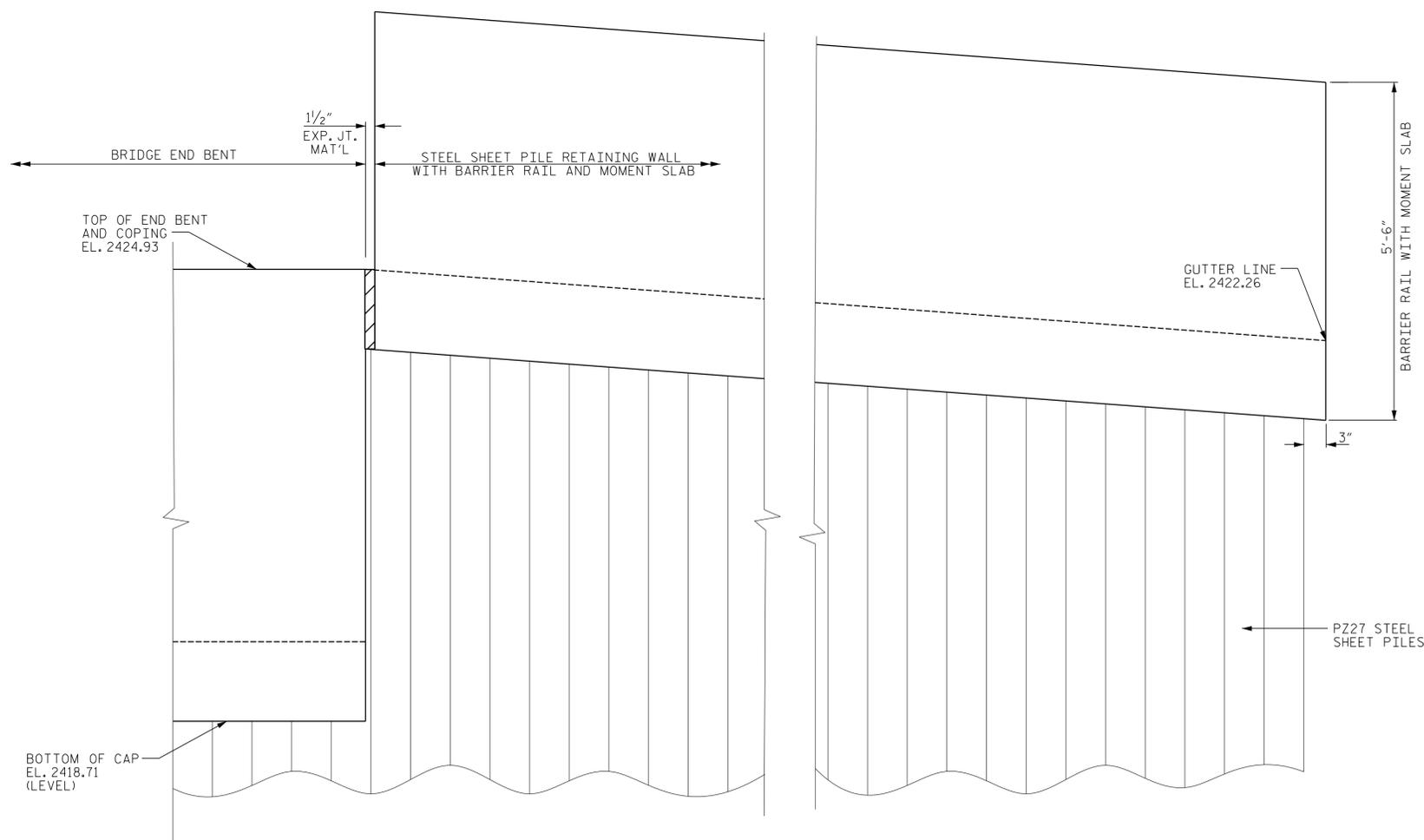
ANCHOR RODS AND WALES NOT SHOWN FOR CLARITY



ANCHOR STUD DETAIL

NOTES:

FOR 18" STEEL SHEET PILES, SEE SECTION 1084-2 OF THE STANDARD SPECIFICATIONS.



ELEVATION - WALL #2

VIEWING FRONT FACE

PROJECT NO. 17BP.14.R.131
 HAYWOOD COUNTY
 STATION: 11+10.45 -L-

SHEET 5 OF 6

V&M
 Vaughn & Melton
 Consulting Engineers

Charlotte, North Carolina 704-357-0488
 Tri-Cities, Tennessee 423-467-8401
 Knoxville, Tennessee 865-546-5800
 Asheville, North Carolina 828-253-2796
 Middlesboro, Kentucky 606-248-6600
 Spartanburg, South Carolina 864-574-4775

Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved

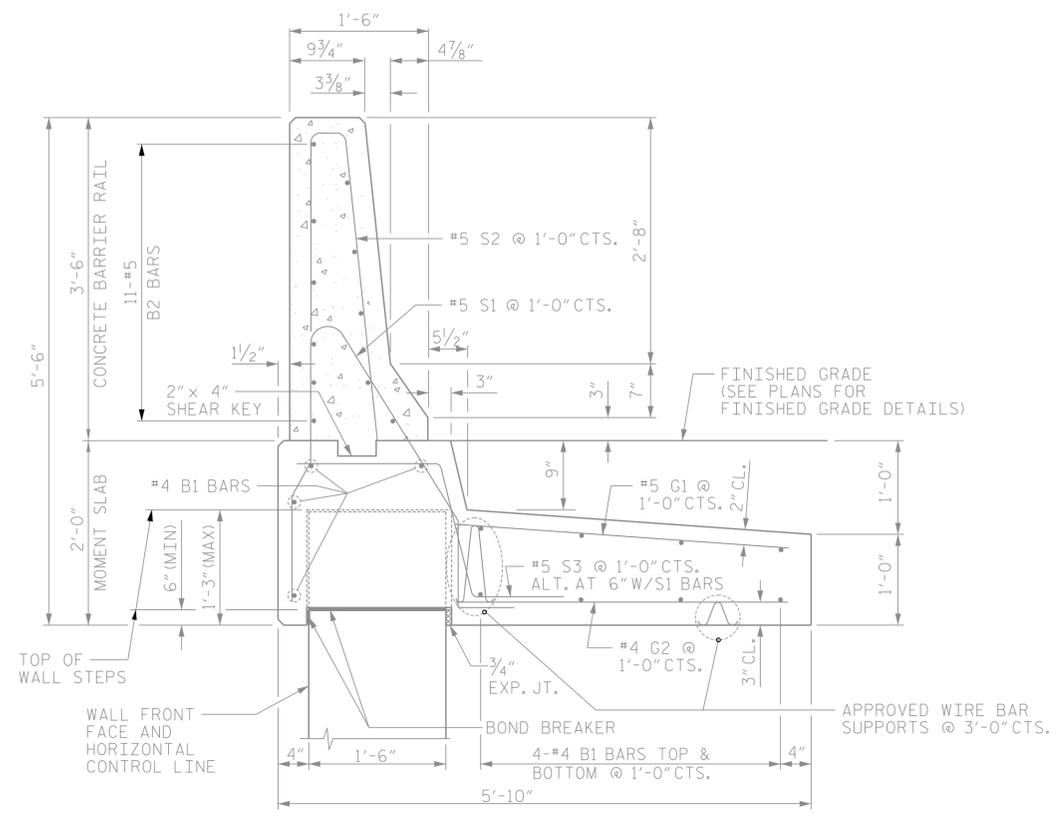
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SHEET PILE WALL CONSTRUCTION DETAILS

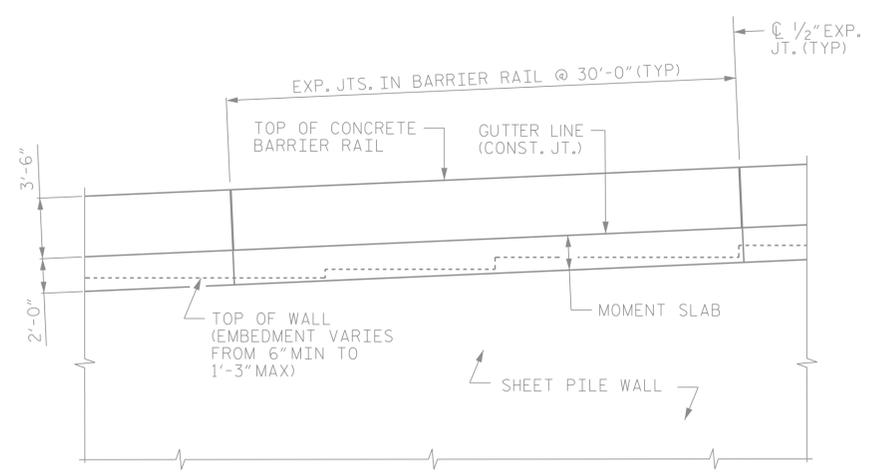
DWN. BY: MAF DATE: 1/14
 CHKD. BY: HLW DATE: 1/14
 DSN. ENG. OF RECORD: RTS DATE: 1/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	RW-5
1			3			TOTAL SHEETS
2			4			6

GEOTECHNICAL ENGINEER	ENGINEER
SIGNATURE	SIGNATURE
DATE	DATE



CONCRETE BARRIER RAIL WITH MOMENT SLAB

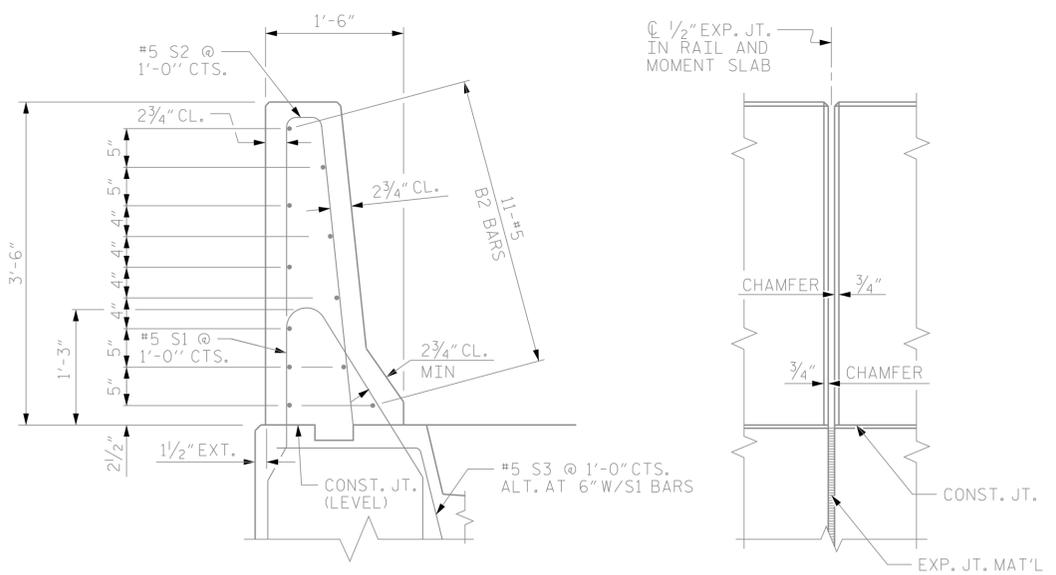


CONCRETE BARRIER RAIL WITH MOMENT SLAB - PARTIAL ELEVATION

NOTES:
 FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB, SEE CONCRETE BARRIER RAIL WITH MOMENT SLAB PROVISION.
 CONCRETE BARRIER RAIL WITH MOMENT SLAB SHALL BE A MINIMUM OF 15' IN LENGTH.
 EXPANSION JOINTS SHALL BE PLACED IN THE BARRIER RAIL AND MOMENT SLAB AT A MAXIMUM SPACING OF 30'.
 GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED SURFACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MID-POINT OF BARRIER RAIL SEGMENTS LESS THAN 20' IN LENGTH.
 THE BARRIER RAIL SHALL NOT BE CAST UNTIL THE MOMENT SLAB HAS ATTAINED AN AGE OF THREE CURING DAYS OR A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI. IN ADDITION, NO FILL MATERIAL, ASPHALT, OR CONSTRUCTION EQUIPMENT IS ALLOWED ON THE MOMENT SLAB PRIOR TO SATISFYING THE MINIMUM CONCRETE CURING AND STRENGTH REQUIREMENTS.
 ALL REINFORCING STEEL IN THE BARRIER RAIL SHALL BE EPOXY COATED.
 IF EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, BARRIERS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH CONCRETE BARRIER RAIL WITH MOMENT SLAB OR CONCRETE FACING FOR RETAINING WALL WILL BE THICKER THAN 8", CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS SHALL BE REVISED AND SUBMITTED FOR APPROVAL.

CONCRETE BARRIER RAIL WITH MOMENT SLAB	
WALL #1	PAY LENGTH = 28.0 LIN FT
WALL #2	PAY LENGTH = 36.0 LIN FT

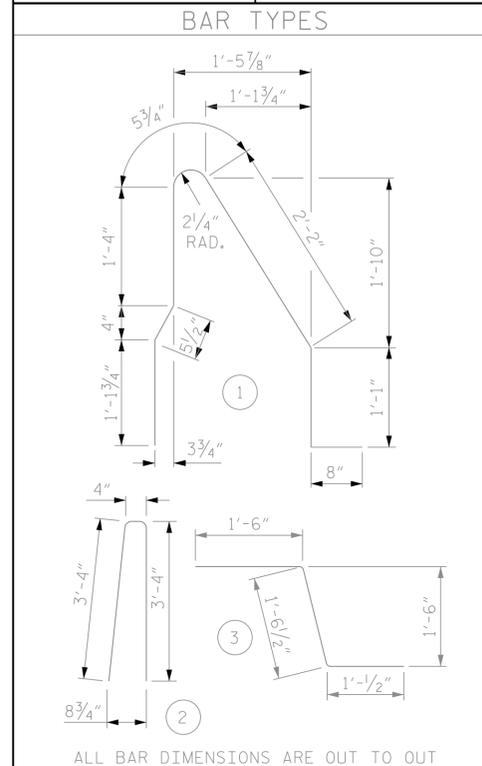
**** NOTE:**
 WALL #1 IS 28'-0" AND WILL HAVE NO INTERMEDIATE EXPANSION JOINTS.
 WALL #2 IS 36'-0" AND WILL HAVE ONE EXPANSION JOINT AT MID WALL.
 ADJUST QUANTITIES AS NECESSARY.



SECTION THRU RAIL

ELEV. @ EXP. JOINTS

BARRIER RAIL DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
** FOR ONE 30'-0" SECTION OF CONCRETE BARRIER RAIL WITH MOMENT SLAB					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#4	STR	29'-7"	237
* B2	11	#5	STR	29'-7"	339
G1	31	#5	STR	3'-6"	113
G2	31	#4	STR	3'-6"	72
* S1	31	#5	1	7'-3"	234
* S2	31	#5	2	7'-0"	226
S3	30	#5	3	4'-1"	128
REINFORCING STEEL					550 LB
* EPOXY COATED REINFORCING STEEL					799 LB
CLASS AA CONCRETE BARRIER RAIL					4.1 CY
CLASS A CONCRETE MOMENT SLAB					9.1 CY
CONCRETE BARRIER RAIL WITH MOMENT SLAB					30 LIN FT

PROJECT NO.: 17BP.14.R.131
 HAYWOOD COUNTY
 STATION: 11+10.45 -L-
 SHEET 6 OF 6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

CONCRETE BARRIER RAIL WITH MOMENT SLAB FOR PRECAST PANELS AND CONCRETE FACING					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PREPARED BY:	DATE:
REVIEWED BY:	DATE:

SHEET NO.