GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028669 ENGINEER RICHARD SCOTT WEBB

DocuSigned by: RICHARD SCOTT WEBB 8/5/2014

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ENGINEER

SIGNATURE DATE

NOTES:

FOR ANCHORED SOLDIER PILE WITH SHEET PILE WALLS, SEE ANCHORED SOLDIER PILE WITH SHEET PILE WALLS PROVISION.

BEFORE BEGINNING ANCHORED SOLDIER PILE WITH SHEET PILE WALL DESIGN FOR RETAINING WALL 3, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DRILLED-IN PILES ARE REQUIRED FOR RETAINING WALL 3.

DESIGN RETAINING WALL NO. 3 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU AND BACKFILL ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 LB/CF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 LB/SF

4) #57 STONE ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 110 LB/CF
FRICTION ANGLE, ϕ = 38 DEGREES
COHESION, c = 0 LB/SF

THE SHEETPILE EMBEDMENT ELEVATION FOR RETAINING WALL NO. 3 INCLUDES EMBEDMENT FOR SCOUR. FOR SHEET PILE LENGTH SEE TABLE 1.

DESIGN RETAINING WALL 3 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DESIGN RETAINING WALL NO. 3 FOR TRAFFIC IMPACT.

A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL NO. 3. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS.

NOTE THAT ROCK FRAGMENTS ARE PRESENT WITHIN THE ROADWAY EMBANKMENT AT THE WALL LOCATIONS.

DESIGN FOR RAPID DRAWDOWN WITH THE WATER ELEVATION INSIDE THE WALL AT THE WEEP HOLE ELEVATION AND THE WATER SURFACE OUTSIDE THE WALL AT THE NORMAL WATER SURFACE ELEVATION.

GALVANIZE SHEET PILES, SOLDIER PILES AND WALERS ACCORDING TO SECTION 1076 OF THE STANDARD SPECIFICATIONS.

SEQUENCE OF CONSTRUCTION

THE CONSTRUCTION SEQUENCE OF THE ANCHORED SOLDIER PILE COMBINATION WALL SHALL BE AS FOLLOWS, UNLESS DIRECTED BY THE ENGINEER.

1. REMOVE THE ROCK FRAGMENTS AND REPLACE WITH SUITABLE SOIL WITHIN PROPER COMPACTION AS NEEDED TO INSTALL THE SOLDIER PILES AND THE SHEET PILES.
2. INSTALL SOLDIER PILES.
3. INSTALL ANCHORS AND PERFORM 1ST STAGE GROUT. (IF THERE ARE NO ANCHORS, BACKFILL TO GRADE).
4. TEST ANCHORS TO 1.25 DESIGN CAPACITY.
5. INSTALL ANCHOR HEAD AND STRESS TO PREVENT MOVEMENT.
6. INSTALL SHEET PILES AND WALER.
7. BACKFILL BEHIND PILES AS NEEDED.
8. LOCK OFF ANCHOR.
9. BACKFILL TO GRADE AND COMPACT.
10. INSTALL COPING OR MOMENT SLAB.

ESTIMATED WALL QUANTITIES

RETAINING WALL NO.	SOLDIER PILE WITH SHEET PILE WALLS (SQUARE FEET)
3	7900

NORMAL WATER ELEVATION

RETAINING WALL NO.	STATION	ELEVATION
3	50+50	836.4
3	55+50	834.7

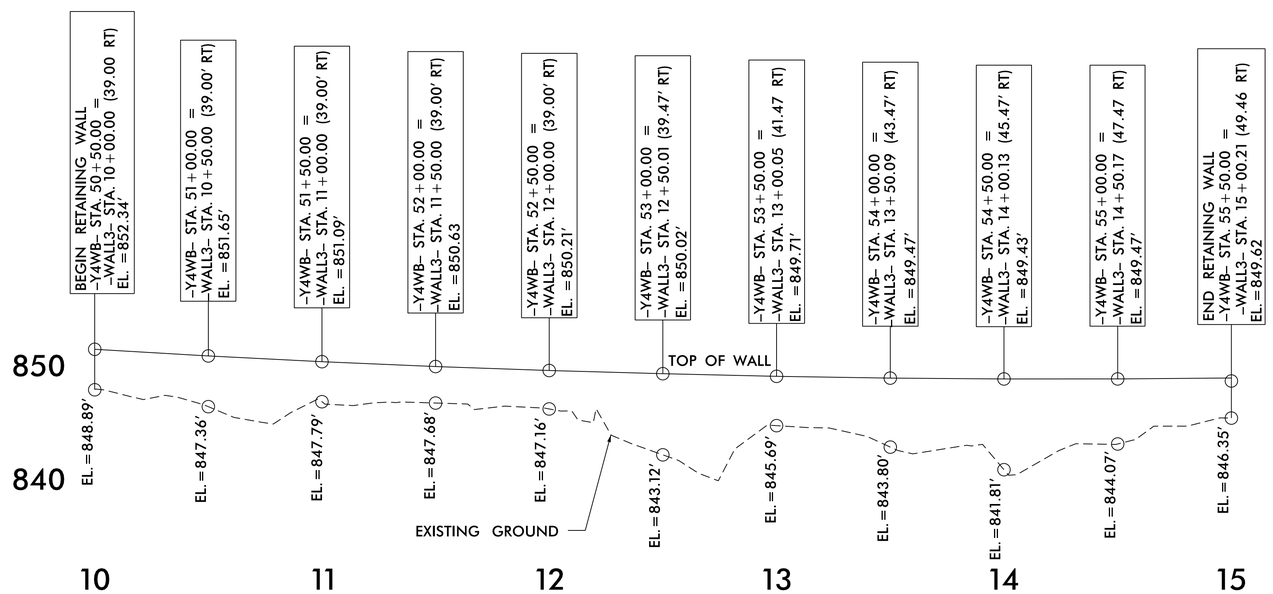

TABLE 1

DESIGN HEIGHT (H)

RETAINING WALL NO.	STATION	HEIGHT (FEET)
3	50+50 to 51+25	15.0
3	51+25 to 51+75	17.0
3	51+75 to 52+75	15.0
3	52+75 to 53+75	18.0
3	53+75 to 55+50	15.0

PROJECT NO.: U-2579B
FORSYTH *COUNTY*
STATION: Y4WB 50+50± to 55+50±

SHEET 3 OF 4

PREPARED BY: RSW	DATE: 5-28-14
REVIEWED BY:	DATE:

GEOTECHNICAL ENGINEERING UNIT

☐ *EASTERN REGIONAL OFFICE*
☐ *WESTERN REGIONAL OFFICE*
☒ *CONTRACT OFFICE*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ANCHORED SOLDIER PILE WITH SHEET PILES RETAINING WALL FOR WALL 3

REVISIONS

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

SHEET NO. W-8
TOTAL SHEETS