GEOTECHNICAL ENGINEER

SEAL 029869 — NORTH CAROLINA PROFESSIONAL ENGINEER — SHANE C. CLARK

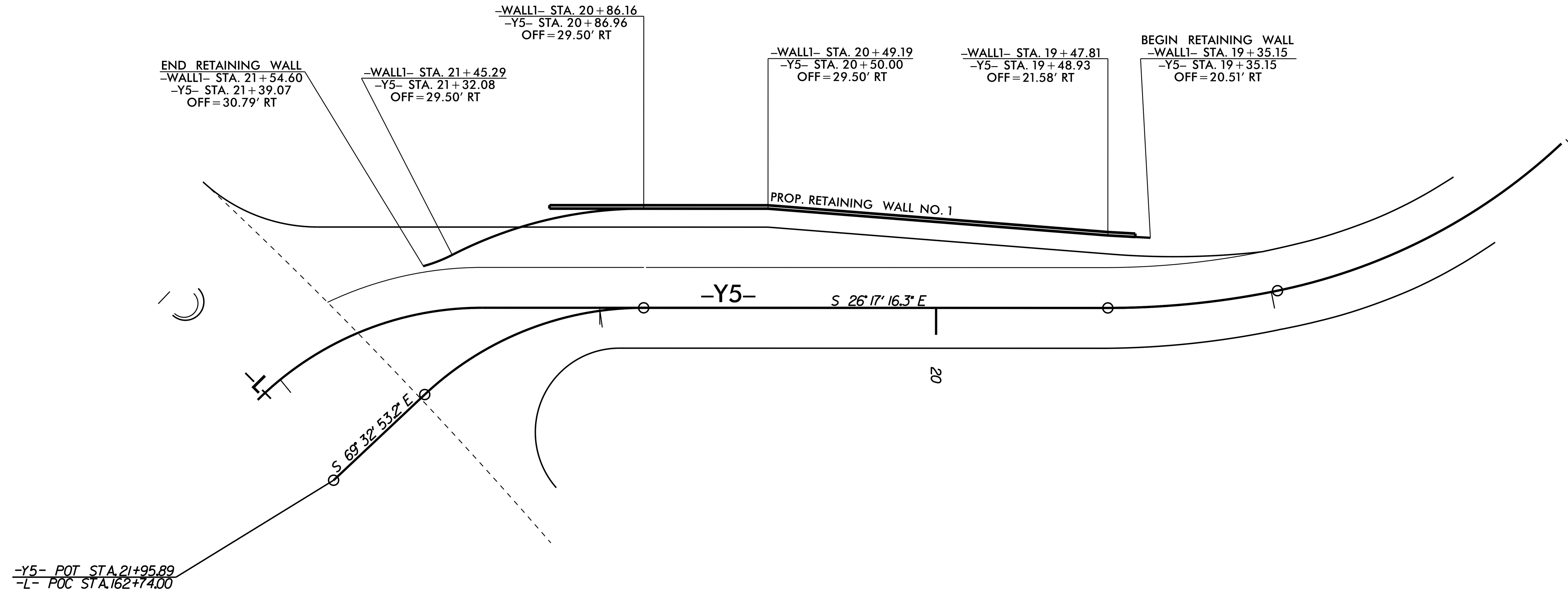
DocuSigned by: Shane C. Clark 6/2/2021

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

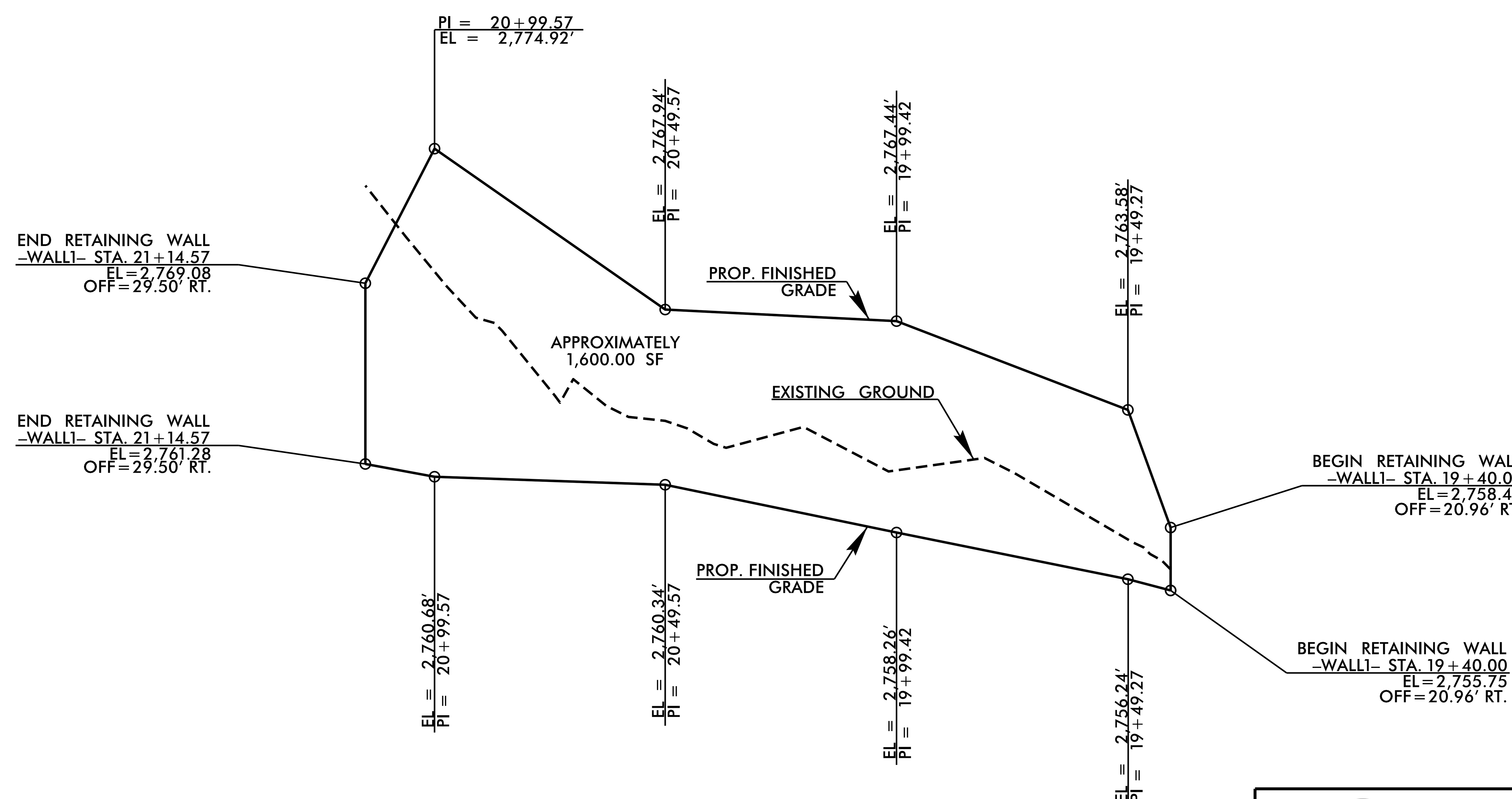
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLAN VIEW - RETAINING WALL NO.1

RETAINING WALL QUANTITIES		
RETAINING WALL NO.1	-WL1-	1955 SQUARE FEET
ARCHITECTURAL SURFACE TREATMENT	-WL1-	1955 SQUARE FEET

NOTE: 2 FEET EMBEBMENT IS INCLUDED IN THE QUANTITIES



WALL ENVELOPE - RETAINING WALL NO.1

PROJECT NO.: 37512.1.4 (R-2566BA)

WATAUGA COUNTY

STATION: 19+35.15 -Y5- TO 21+39.07 -Y5-

SHEET 1 OF 2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RETAINING WALL NO. 1
SOLDIER PILE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W1
2			4			

PREPARED BY: SY	DATE: 9/19/2019
REVIEWED BY: SCC	DATE: 5/20/2021

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029869 ENGINEER SHANE C CLARK

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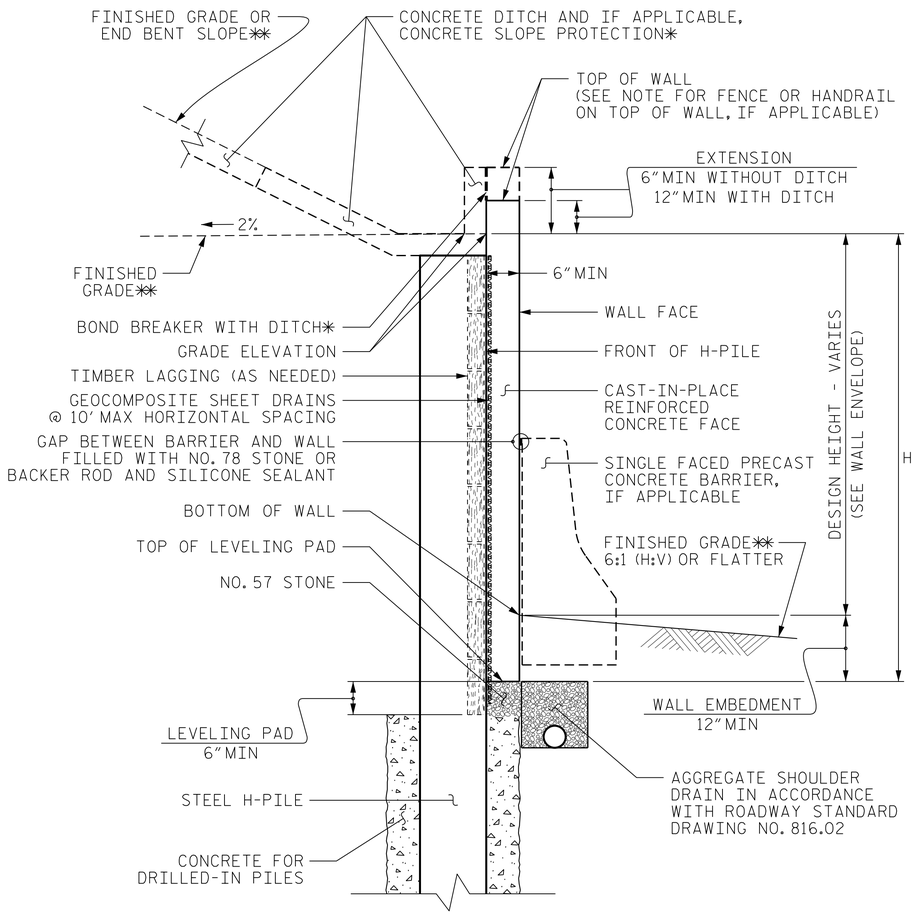

SOLDIER PILE WALL WITH CAST-IN-PLACE FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.

NOTES:

FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.

FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.

DRILLED-IN H-PILES ARE REQUIRED FOR RETAINING WALL NO. 1.

USE A SOLDIER PILE RETAINING WALL WITH A CAST-IN-PLACE REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 1.

AN ASHLAR ARCHITECTURAL FINISH IS REQUIRED FOR THE CAST-IN-PLACE REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 1. INCLUDE UP TO 2" OF NON STRUCTURAL CONCRETE TO ALLOW FOR SURFACE TREATMENTS.

BEFORE BEGINNING SOLDIER PILE WALL DESIGN FOR RETAINING WALL NO. 1, 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.

THE WALL HAS A PROPOSED ENDING HEIGHT OF 8' +/-. BASED ON FIELD OBSERVATIONS THIS OCCURS AT A ROCK OUTCROP. TURN THE WALL BACK INTO THE SLOPE AS DIRECTED BY THE ENGINEER.

DESIGN RETAINING WALL NO. 1 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM WALL EMBEDMENT ELEVATION = 2 FT
4) MINIMUM PILE PENETRATION INTO ROCK = 10 FT
5) IN-SITU ASSUMED MATERIAL PARAMETERS ABOVE ELEVATION 2760 FT:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
6) IN-SITU ASSUMED MATERIAL PARAMETERS BELOW ELEVATION 2760 FT:
   UNIT WEIGHT, γ = 140 LB/CF
   FRICTION ANGLE, ϕ = 36 DEGREES
   COHESION, c = 4,000 LB/SF
7) IN-SITU ASSUMED MATERIAL PARAMETERS BELOW ELEVATION 2760 FT:
   ROCK MASS SHEAR STRENGTH, Sm = 8,000LB/SF

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PREPARED BY: SY	DATE: 9/19/2019
REVIEWED BY: SCC	DATE: 5/20/2021

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 1
SOLDIER PILE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W2
1			3			
2			4			