

STRUCTURE RECOMMENDATIONS

W.B.S. NO. 50231 DESCRIPTION Mechanically Stabilized Earth Retaining Wall #4
T.I.P. NO. U-5840
COUNTY Henderson
STATION 10+00.00 to 11+27.67
-W4-

	INITIALS	DATE
DESIGN	PDM	3/9/2018
CHECKED	DJC	3/9/2018
FINAL	DJC	3/9/2018



COMMENTS & NOTES

Note on Plans:

1. FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
2. USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL (SRW) UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 4.
3. WHEN USING AN MSE WALL SYSTEM WITH SRW UNITS FOR RETAINING WALL NO. 4, FREEZE-THAW DURABLE SRW UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS ARE REQUIRED.
4. AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 4.
5. A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 4.
6. A DRAIN IS REQUIRED FOR RETAINING WALL NO. 4.
7. DESIGN RETAINING WALL NO. 4 FOR THE FOLLOWING:
 - 1) $H = \text{DESIGN HEIGHT} + \text{EMBEDMENT}$.
 - 2) DESIGN LIFE = 75 YEARS
 - 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF. THIS ASSUMES ANY FILL OR SOFT SOILS, IF ENCOUNTERED, WILL BE UNDERCUT AND REPLACED.
 - 4) MINIMUM REINFORCEMENT LENGTH (L) = $0.9 \times H$ OR 6 FT, WHICHEVER IS LONGER

STRUCTURE RECOMMENDATION NOTES ON PLANS AND COMMENTS

PROJECT No.: U-5840 WALL NO: 4 COUNTY: Henderson
STATION: 10+00.00 to 11+27.67 -W4- DESCRIPTION: SR1547 FROM US 25 TO SR1551

5) REINFORCED ZONE AGGREGATE PARAMETERS:

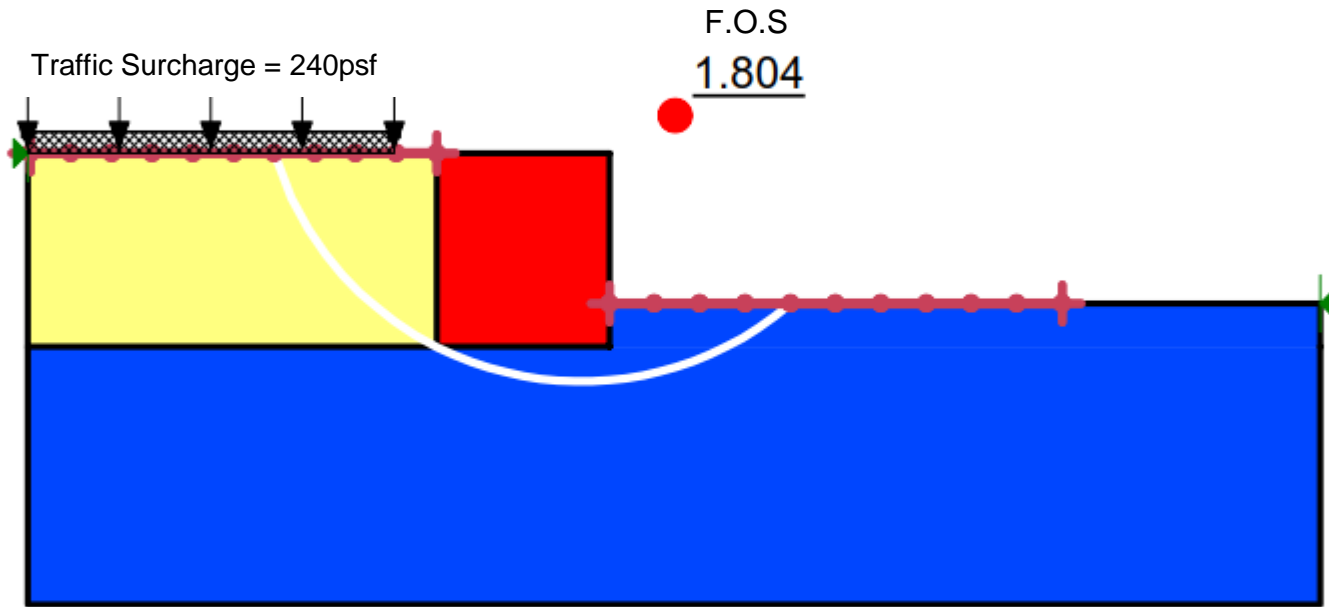
AGGREGATE TYPE*	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (Φ) DEGREES	COHESION (c) PSF
COURSE	110	38	0
FINE	115	34	0

*SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (Φ) DEGREES	COHESION (c) PSF
BACKFILL	120	30	0
FOUNDATION	110	26	0

8. DESIGN RETAINING WALL NO. 4 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.
9. DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 4 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
10. IGNORE PASSIVE EARTH PRESSURES IN THE UPPER 18 INCHES.



LEGEND:

- = Backfill Soil ($\gamma=120$ pcf, $\Phi=30^\circ$, $c=0$)
- = Foundation Soil ($\gamma=110$ pcf, $\Phi=26^\circ$, $c=0$)

Project Manager: PDM	Project No. 71175059
Drawn by: PDM	Scale: AS SHOWN
Checked by: DJC	File Name: Wall 4
Approved by: DJC	Date: MARCH 2018

Terracon
2701 Westport Road
Charlotte, NC 28208

GLOBAL STABILITY ANALYSIS
Mechanically Stabilized Earth Retaining Wall #4 State Project No. U-5840 Henderson County, North Carolina

Page
3

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 50231	TIP U-5840	COUNTY HENDERSON	GEOLOGIST McCloud, P.D.
SITE DESCRIPTION SR 1547 (Old Airport Road) from US 25 (Hendersonville Road) to SR 1551 (Mills Gap Road)			GROUND WTR (ft)
BORING NO. B-12	STATION 11+18	OFFSET 10 ft LT	ALIGNMENT -W4-
COLLAR ELEV. 2,098.4 ft	TOTAL DEPTH 15.0 ft	NORTHING 632,127	EASTING 959,887
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 81% 06/06/2016		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Odom, C.J.	START DATE 05/17/17	COMP. DATE 05/17/17	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2100																
	2,097.4	1.0														
2095	2,094.9	3.5	2	2	1											
	2,092.4	6.0	2	2	3											
2090	2,089.9	8.5	2	3	4											
	2,089.9		7	11	16											
2085	2,084.9	13.5	8	11	11											

GROUND SURFACE 0.0

2,098.4

2,098.0

5" Stone Base

ROADWAY EMBANKMENT

Soft, reddish tan, SILT with sand (A-4) 3.0

RESIDUAL

Medium stiff to very stiff, gray and tan, SILT with sand (A-4)

2,095.4

2,083.4

Boring Terminated at Elevation 2,083.4 ft in Silt with Sand

NCDOT BORE SINGLE 71175059 - U-5840 - HENDERSON COUNTY RETAINING WALLS.GPJ NC_DOT.GDT 6/16/17