


GEOTECHNICAL ENGINEER   DocuSigned by: <i>Thein Tun Zan</i> 2/28/2019 <small>SIGNATURE DATE</small>	ENGINEER     <small>SIGNATURE DATE</small>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**NOTES:**

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL (SRW) UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 12 & NO. 13.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 12 AND NO. 13.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 12 AND NO. 13.

A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO. 12 AND NO. 13.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 12 & NO. 13, 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.

DESIGN RETAINING WALL NO. 12 AND NO. 13 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 3,850 PSF (WALL NO. 12) AND 3,600 PSF (WALL NO. 13)
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.8 H
- 5) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT ( $\gamma$ ) PCF	FRICTION ANGLE ( $\phi$ ) DEGREES	COHESION (c) PSF
COARSE	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:

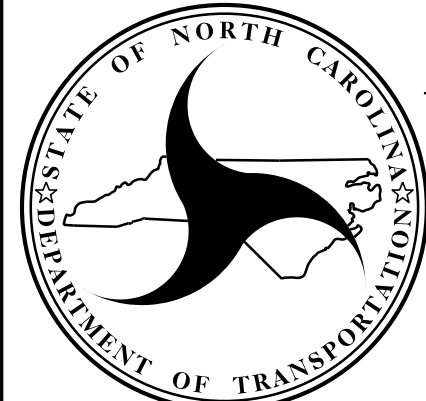
MATERIAL TYPE	UNIT WEIGHT ( $\gamma$ ) PCF	FRICTION ANGLE ( $\phi$ ) DEGREES	COHESION (c) PSF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL NO. 12 AND NO. 13 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 12 AND NO. 13.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 12 AND NO. 13 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

PROJECT NO.: R-5021  
 BRUNSWICK COUNTY  
 STATION: 48+50 -WALL12- & 47+00 -WALL13-  
 SHEET 5 OF 5

 <p style="margin: 0;"><b>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS</b></p> <p style="margin: 0;"><b>GEOTECHNICAL ENGINEERING UNIT</b></p>	<p style="margin: 0;"><b>MSE RETAINING WALL NO. 12 &amp; 13 NOTES</b></p>																							
	<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th colspan="6" style="text-align: center;">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>BY</th> <th>DATE</th> <th>NO.</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-</td> <td>-</td> <td>3</td> <td>-</td> <td>-</td> </tr> <tr> <td>2</td> <td>-</td> <td>-</td> <td>4</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	REVISIONS						NO.	BY	DATE	NO.	BY	DATE	1	-	-	3	-	-	2	-	-	4	-
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PREPARED BY: THEIN TUN ZAN	DATE: 01-2019
REVIEWED BY: JAMES BATTS	DATE: 01-2019