

GEOTECHNICAL ENGINEER



SEAL
032171
ENGINEER
JUNIOR PARK

ENGINEER

DocuSigned by: *J. Park* 9/25/2015

SIGNATURE DATE SIGNATURE DATE

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.

A SPECIAL ARCHITECTURAL FINISH IS REQUIRED FOR PRECAST CONCRETE PANELS FOR RETAINING WALL NO. 2 THROUGH NO. 6.

FOR A SPECIAL ARCHITECTURAL FINISH, SEE SPECIAL PROVISION, CONCRETE SURFACE TREATMENT FOR ARCHITECTURAL FINISH.

DESIGN THE PRECAST CONCRETE PANELS TO BE CRUCIFORM IN SHAPE.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 2 THROUGH NO. 6.

A DRAIN IS REQUIRED FOR RETAINING WALL NO. 2 THROUGH NO. 6.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 2 THROUGH NO. 6, 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. 2 THROUGH NO. 6 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 8,150 LB/SF (RW2), 9,800 LB/SF (RW3), 10,020 LB/SF (RW4), 9,160 LB/SF (RW5), 2,260 LB/SF (RW6)
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 6 FT, WHICHEVER IS LONGER
- 5) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
COARSE	110	38	0

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

6) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL NO. 2 THROUGH NO. 5 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L_a) SHOWN. CAST REINFORCEMENT CONNECTORS INTO CAP BACKWALL FOR END BENT NO. 1 LOCATED AT STATION 28+89.67 -L-, END BENT NO. 2 LOCATED AT STATION 30+46.17 -L-, END BENT NO. 1 LOCATED AT STATION 34+43.06 -L- AND END BENT NO. 2 LOCATED AT STATION 35+72.31 -L-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN CONNECTORS AND REINFORCING STEEL IN CAP.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 2 THROUGH NO. 6.

INSTALL 24 INCH DIAMETER 16 GAUGE CORRUGATED STEEL PIPES FOR HP12X53 STEEL PILE FOUNDATIONS FOR END BENT NO. 1 LOCATED AT STATION 28+89.67 -L-, END BENT NO. 2 LOCATED AT STATION 30+46.17 -L-, END BENT NO. 1 LOCATED AT STATION 34+43.06 -L- AND STAGE 1 END BENT NO. 2 LOCATED AT STATION 35+72.31 -L-, WHICH WILL INTERFERE WITH THE REINFORCEMENT FOR RETAINING WALL NO. 2, NO. 3, NO. 4, AND NO. 5, RESPECTIVELY. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

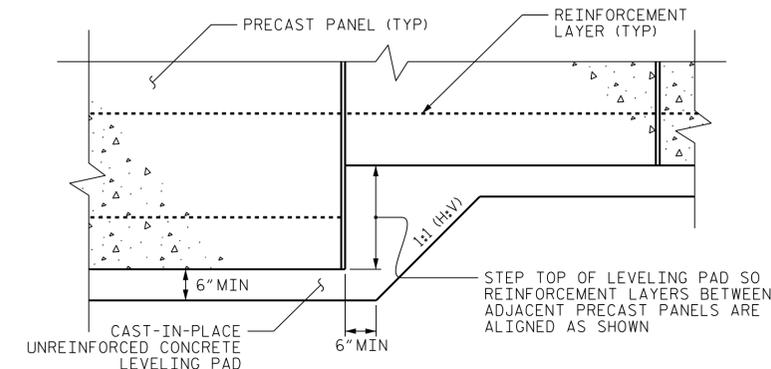
THE COST FOR THE 24 INCH DIAMETER 16 GAUGE CORRUGATED STEEL PIPES IS INCIDENTAL TO MSE RETAINING WALL.

CONSTRUCT RETAINING WALL NO. 2 THROUGH NO. 5 BEFORE INSTALLING FOUNDATIONS FOR END BENT NO. 1 LOCATED AT STATION 28+89.67 -L-, END BENT NO. 2 LOCATED AT STATION 30+46.17 -L-, END BENT NO. 1 LOCATED AT STATION 34+43.06 -L- AND STAGE 1 END BENT NO. 2 LOCATED AT STATION 35+72.31 -L-, RESPECTIVELY.

TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC SHOWN ON PLANS W-3, W-4, AND W-5 WILL INTERFERE WITH THE WALL CONSTRUCTION. SEE TRAFFIC MANAGEMENT PLANS FOR THE TEMPORARY SHORING.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 2 THROUGH NO. 6 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

PLACE GEOTEXTILE FOR EMBANKMENT STABILIZATION ON THE EXISTING GROUND OR BOTTOM OF WALL EXCAVATION AT RETAINING WALL NO. 2, NO. 3, AND NO. 4. FOR DETAILS, SEE PLAN SHEET 2G-1, EMBANKMENT STABILIZATION DETAILS AT BRIDGE APPROACHES.



PRECAST CONCRETE PANELS

LEVELING PAD STEP DETAILS

PROJECT NO.: B-4490 (33727.1.1)
 CUMBERLAND COUNTY
 STATION: SEE WALL NO. 2 TO NO. 6
 SHEET 6 OF 11

PREPARED BY: J. PARK	DATE: 09/2015
REVIEWED BY: J. BATTS	DATE: 09/2015



**NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS**

**GEOTECHNICAL
 ENGINEERING UNIT**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	-	-	3	-	-	W-6
2	-	-	4	-	-	