


GEOTECHNICAL ENGINEER

ENGINEER



SEAL
018580
ENGINEER
CARY R. TAYLOR

DocuSigned by:
Cary R. Taylor 3/18/2016

SIGNATURE DATE SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS SPECIAL PROVISION (SPECIAL).
 FOR PEDISTRIAN HANDRAIL AND CURB DETAILS, SEE STRUCTURE PLANS.
 FOR STEEL BEAM GUARDRAIL AND SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
 FOR CHAINLINK FENCE, SEE ROADWAY PLANS AND SECTION 866 OF THE STANDARD SPECIFICATIONS.
 CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED WHERE HANDRAIL AND CURB ARE REQUIRED FOR RETAINING WALL NO. 1 AND NO. 3.
 CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR THE VERTICAL EDGES WHERE RETAINING WALL NO. 1 THROUGH NO. 4 TIE TO BACKWALL.
 A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO. 1 THROUGH NO. 4.
 BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 1 THROUGH NO. 4, 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. 1 THROUGH NO. 4 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL =
 WALL NO. 1 = 2320 LB/SF
 WALL NO. 2 = 1974 LB/SF
 WALL NO. 3 = 2320 LB/SF
 WALL NO. 4 = 2320 LB/SF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.85 H OR 6 FT, WHICHEVER IS LONGER
- 5) MINIMUM EMBEDMENT DEPTH = 2 FT
- 6) REINFORCED ZONE AGGREGATE PARAMETERS:

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

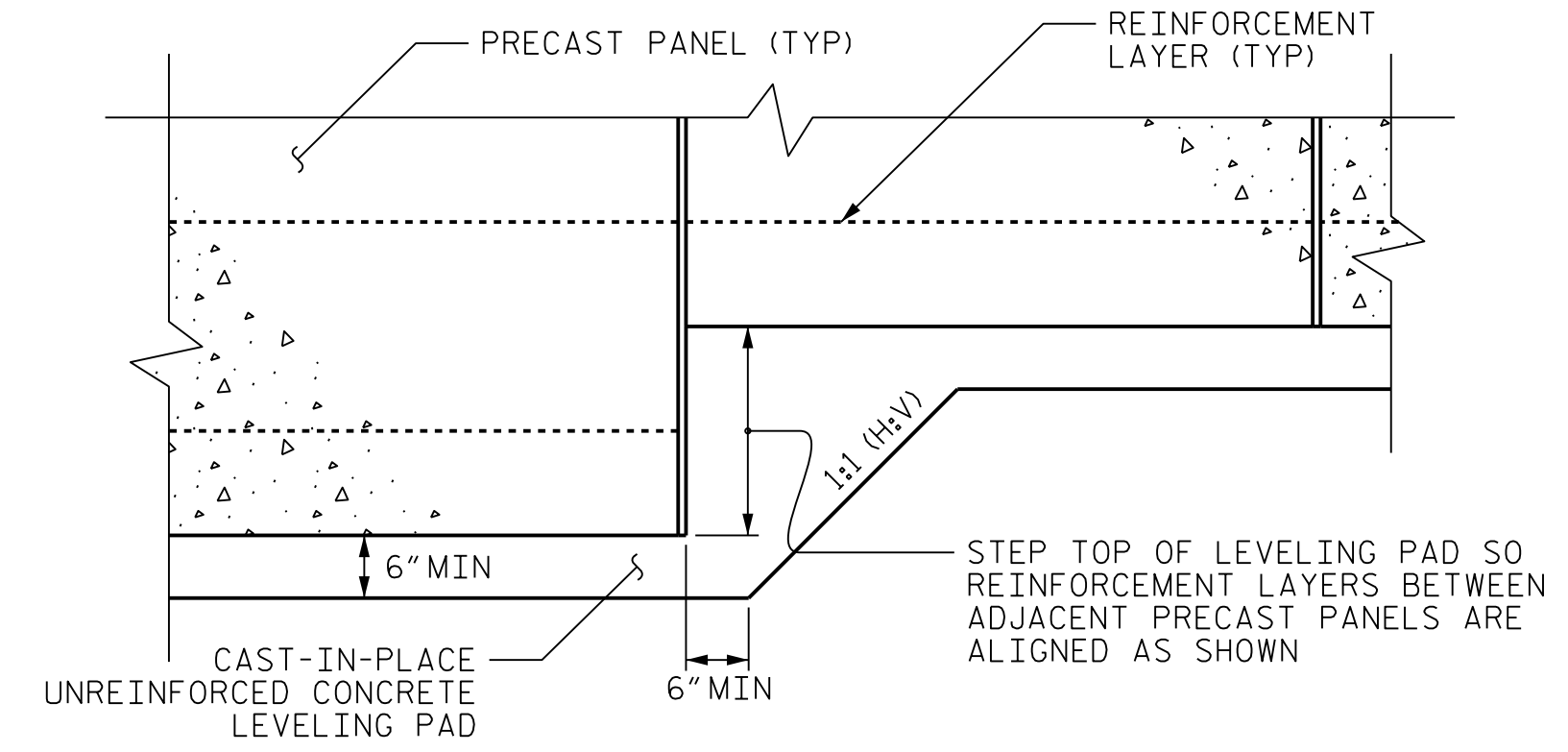
*SEE MSE RETAINING WALLS PROVISION FOR COARSE AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	32	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL NO. 1 THROUGH NO. 4 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.
 DESIGN RETAINING WALL NO. 1 AND NO. 3 FOR AN ADDITIONAL 50 LBS PER LF. OF PEDESTRIAN LIVE LOAD ON PEDESTRIAN HANDRAIL.
 DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 1 THROUGH NO. 4 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
 DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L_d) SHOWN. CAST REINFORCEMENT CONNECTORS INTO CAP BACKWALL FOR END BENT NO. 1 LOCATED AT STATION 19+27.02 -L2- AND END BENT NO. 1 LOCATED AT STATION 57+00.56 -L2-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN CONNECTORS AND REINFORCING STEEL IN CAP.
 AGGREGATE BACKFILL FOR THE END BENT CAP REINFORCEMENT SHALL EXTEND A MINIMUM OF ONE FOOT BEYOND THE LIMIT OF APPROACH SLAB.
 A SEPARATION GEOTEXTILE IS REQUIRED AT THE CORNER BETWEEN RETAINING WALL NO. 1 THROUGH NO. 4 AND BACKWALL AT END BENT NO. 1 AND END BENT NO. 2.
 A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK AND BOTTOM OF ALL REINFORCED ZONES.
 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. 1 THROUGH NO. 4.

ESTIMATED MSE WALL QUANTITIES (SQUARE FEET)	
MSE RETAINING WALL NO. 1	786 SF
MSE RETAINING WALL NO. 2	755 SF
MSE RETAINING WALL NO. 3	349 SF
MSE RETAINING WALL NO. 4	757 SF

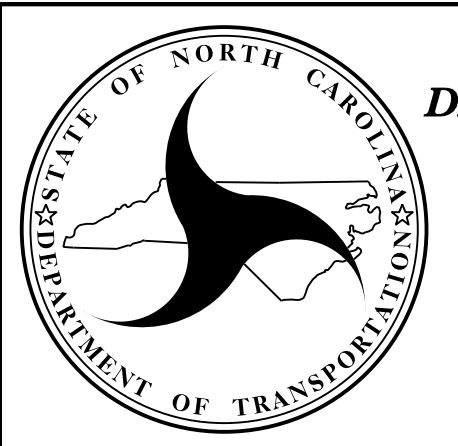


PRECAST CONCRETE PANELS

LEVELING PAD STEP DETAILS

PROJECT NO.: B-4929
 PENDER COUNTY

SHEET 4 OF 4



NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

**GEOTECHNICAL
 ENGINEERING UNIT**

**MSE RETAINING WALLS
 NOTES**

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

PREPARED BY:	DATE: 03 / 2016
REVIEWED BY:	DATE: 03 / 2016