

GEOTECHNICAL ENGINEER

ENGINEER

DocuSigned by: *J. Park* 09/06/2023

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 PROVISION.
- FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
- FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- ① USE AN MSE WALL SYSTEM WITH PRECAST PANELS USING ASHLAR STONE PATTERN AND FS #36176 COLOR STAIN FOR RETAINING WALL NO.1 AND NO.2. MSE CONCRETE COPING DOES NOT RECEIVE STAIN. FOR ARCHITECTURAL FINISH, SEE ARCHITECTURAL CONCRETE SURFACE TREATMENT (SPECIAL) PROVISION.
- AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO.1 AND NO.2.
- A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO.1 AND NO.2.
- A DRAIN IS REQUIRED FOR RETAINING WALL NO.1 AND NO.2.
- PILE SLEEVES ARE REQUIRED AROUND PILES FOR END BENT NO.1 LOCATED AT STATION 21+83.80 -L- AND END BENT NO.2 LOCATED AT STATION 23+66.80 -L-.
- BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1 AND NO.2, SURVEY WALL LOCATION AND SUBMIT 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 AND NO.2 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 5,750 LB/SF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 6 FT, WHICHEVER IS GREATER FOR B-B SECTION
MINIMUM REINFORCEMENT LENGTH (L) = 0.85H OR 6 FT, WHICHEVER IS GREATER FOR C-C SECTION
- 5) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
COARSE	110	38	0
FINE	115	34	0

* SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE 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.1 AND NO.2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L) SHOWN. CAST REINFORCEMENT OR CONNECTORS INTO CAP BACKWALL FOR END BENT NO.1 LOCATED AT STATION 21+83.80 -L- AND END BENT NO.2 LOCATED AT STATION 23+66.80 -L-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN REINFORCEMENT OR CONNECTORS AND REINFORCING STEEL IN CAP.

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 AND NO.2.

FOUNDATIONS FOR END BENT NO.1 LOCATED AT STATION 21+83.80 -L- WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1 AND FOUNDATIONS FOR END BENT NO.2 LOCATED AT STATION 23+66.80 -L- WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.2. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

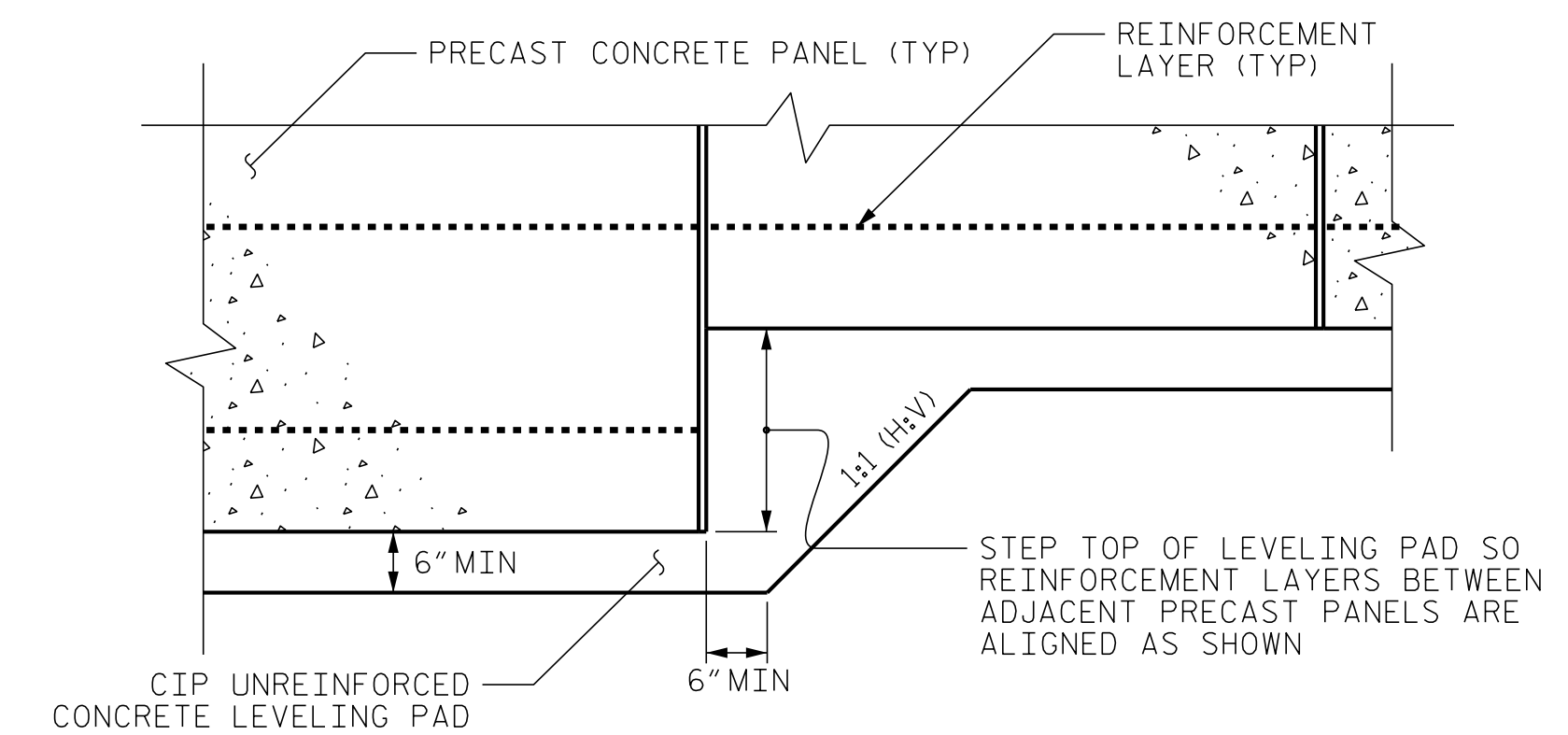
DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 AND NO.2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

"TEMPORARY SHORING FOR WALL CONSTRUCTION" IS REQUIRED FOR RETAINING WALL NO.2 FROM -W2- STA. 11+29.80 TO -W2- STA. 14+37.92 IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY PLANS.

TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC IS REQUIRED FOR RETAINING WALL NO.1 AND NO.2. SEE TRAFFIC CONTROL PLANS.

RETAINING WALL NO.1 AND NO.2 FOR STAGE I SHALL BE CONSTRUCTED DURING TRAFFIC PHASE I AND II. RETAINING WALL NO.1 AND NO.2 FOR STAGE II SHALL BE CONSTRUCTED DURING TRAFFIC PHASE III AND IV. FOR TRAFFIC PHASE, SEE TRANSPORTATION MANAGEMENT PLANS.

- ① DESIGN RETAINING WALL NO.1 AND NO.2 FOR STAGING POINTS LOCATED AS SHOWN ON PLAN.



**PRECAST PANELS
LEVELING PAD STEP DETAIL**

PROJECT NO.: 38454.1.1 (B-4654)
 WAKE COUNTY
 STATION: -L- 21+80.00 / -L- 23+60.00
 SHEET 5 OF 5

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

**GEOTECHNICAL
ENGINEERING UNIT**

REVISIONS						SHEET NO. W-5
NO.	BY	DATE	NO.	BY	DATE	
1	J. PARK	5/16/19	3			
2	J. PARK	9/6/23	4			

PREPARED BY: J. PARK	DATE: 02 / 2019
REVIEWED BY: J. BATTS	DATE: 02 / 2019