

GEOTECHNICAL ENGINEER

ENGINEER

DocSigned by: *Michael H. Stephens* 06/01/2022

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

NOTES:

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

FOR TYPE III REINFORCED BRIDGE APPROACH FILL, SEE BRIDGE APPROACH FILLS PROVISION AND ROADWAY DETAIL DRAWING NO. 422D10.

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.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NOS. 1 THRU 5.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NOS. 1 THRU 5.

A DRAIN IS REQUIRED FOR RETAINING WALL NOS. 1 THRU 5.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NOS. 1 THRU 5, 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 NOS. 1 THRU 5 FOR THE FOLLOWING:

- 1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = (SEE TABLE)
- 4) MINIMUM REINFORCEMENT LENGTH (L) = (SEE TABLE)
- 5) MINIMUM EMBEDMENT ELEVATION = (SEE TABLE)
- 7) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (g) PCF	FRICTION ANGLE (f) 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 (g) PCF	FRICTION ANGLE (f) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	120	30	0

THE WALL SITE FOR RETAINING WALL NOS. 1 THRU 5 IS CLASSIFIED AS AASHTO SITE CLASS D.

DESIGN RETAINING WALL NOS. 1 THRU 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 OR CONNECTORS INTO CAP BACKWALL FOR BRIDGE NO. 729 AT END BENT NO. 1, BRIDGE NO. 730 AT END BENT NOS. 1 AND 2 AND BRIDGE NO. 732 AT END BENT NO. 1. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN REINFORCEMENT OR CONNECTORS AND REINFORCING STEEL IN CAP.

FOUNDATIONS FOR BRIDGE NO. 729 AT END BENT NO. 1, BRIDGE NO. 730 AT END BENT NOS. 1 AND 2 AND BRIDGE NO. 732 AT END BENT NO. 1 WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NOS. 1 THRU 6. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

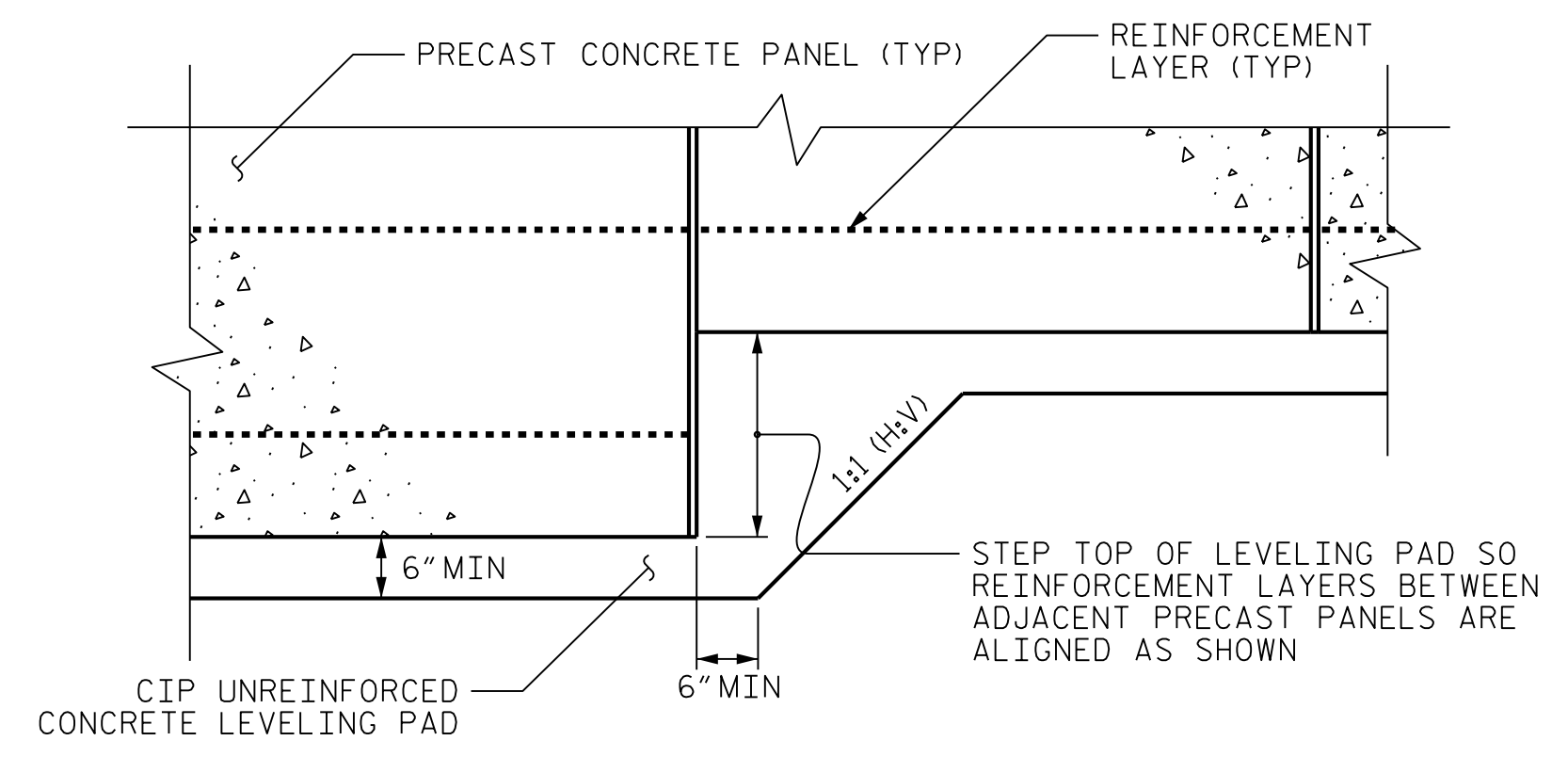
DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NOS. 1 THRU 5 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

RETAINING WALL NO.	FACTORED BEARING PRESSURE (PSF)	MINIMUM REINFORCEMENT LENGTH (FT)
1	5,800	1.0*H OR 6 FT, WHICHEVER IS GREATER
2	7,000	1.2*H OR 6 FT, WHICHEVER IS GREATER
3	10,500	1.0*H OR 6 FT, WHICHEVER IS GREATER
4	5,600	1.3*H OR 6 FT, WHICHEVER IS GREATER
5	1,500	0.8*H OR 6 FT, WHICHEVER IS GREATER

NOTES:
1) FACTORER BEARING PRESSURES WILL VARY DEPENDING ON WALL HEIGHT, FACTORER BEARING PRESSURE INDICATED IS THE THE MAXIMUM FACTORED BEARING PRESSURE FOR THE WALL.

SLOPE IN FRONT OF STRUCTURES		MINIMUM EMBEDMENT DEPTH
HORIZONTAL	FOR WALLS	H/20
	FOR ABUTMENTS	H/10
3.0H:1.0V	WALLS	H/10
2.5H:1.0V	WALLS	H/8.5
2.0H:1.0V	WALLS	H/7
1.5H:1.0V	WALLS	H/5
1.25H:1.0V	WALLS	H/4
1.0H:1.0V	WALLS	H/3

NOTE:
1) MAINTAIN A MINIMUM BENCH WIDTH OF 4.0 IN FRONT OF THE WALL FOR ITS ENTIRE LENGTH.
2) MINIMUM EMBEDMENT DEPTH OF 2 FT, UNLESS LARGER DEPTHS DICTATED BY THE ABOVE TABLE.
3) MAXIMUM SLOPE OF 1H:1V WILL BE MAINTAINED ON FRONT SLOPES FOR THE ENTIRE LENGTH OF THE WALL.
4) SUBMITT WITH THE WALL DESIGN INTERNAL, EXTERNAL, AND GLOBAL STABILITY ANALYSES.



**PRECAST PANELS
LEVELING PAD STEP DETAIL**

PROJECT NO.: 34839.1.1 (U-2579AA)
 FORSYTH COUNTY
 STATION: _____
 SHEET 11 OF 12 WALL NOS. 1, 2, 3, 4, AND 5

PREPARED BY: MHS DATE: 6/1/22
 REVIEWED BY: SCC DATE: 6/1/22

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

**GEOTECHNICAL
ENGINEERING UNIT**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-11
2			4			