

GEOTECHNICAL ENGINEER

ENGINEER

SIGNATURE: *Michael H. Stephens*      DATE: 11/7/2017

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

**NOTES:**

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

FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.

A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED FOR RETAINING WALLS 1, 2, 3, AND 4. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS.

A SIMULATED BRICK FORM LINER FINISH IS REQUIRED FOR PRECAST CONCRETE PANELS FOR RETAINING WALLS 1, 2, 3, AND 4. SEE SPECIAL PROVISION.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALLS 1, 2, 3, AND 4.

A SEPARATION GEOTEXTILE IS NOT REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALLS 1, 2, 3, AND 4.

A DRAIN IS NOT REQUIRED FOR RETAINING WALLS 1, 2, 3, AND 4.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALLS 1, 2, 3, AND 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 NOS. 1, 2, 3, AND 4 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 6 FT, WHICHEVER IS LONGER
- 4) MINIMUM EMBEDMENT ELEVATION = 2.5 FT OR H/20, WHICHEVER IS GREATER.
- 5) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (g) LB/CF	FRICTION ANGLE (f) 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 (g) LB/CF	FRICTION ANGLE (f) DEGREES	COHESION (c) LB/SF
BACKFILL (COARSE)	110	38	0
BACKFILL (FINE)	115	34	0
FOUNDATION	120	30	0

7) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL

RETAINING WALL	MAXIMUM FACTORED VERTICAL PRESSURE, LB/SF		
	WALL HEIGHT <10 FT	WALL HEIGHT 10 FT - 20 FT	WALL HEIGHT >20 FT
RETAINING WALL NOS. 1, 2, 3, AND 4	4,500	9,500	11,600

DESIGN RETAINING WALL NOS. 1, 2, 3, AND 4 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING, OR SIGNAL MAY BE LOCATED BEHIND RETAINING WALL NOS. 1, 2, 3, AND 4 AND MAY INTERFERE WITH REINFORCEMENT. BEFORE BEGINNING MSE WALL CONSTRUCTION, SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS FOR APPROVAL.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NOS. 1, 2, 3, AND 4.

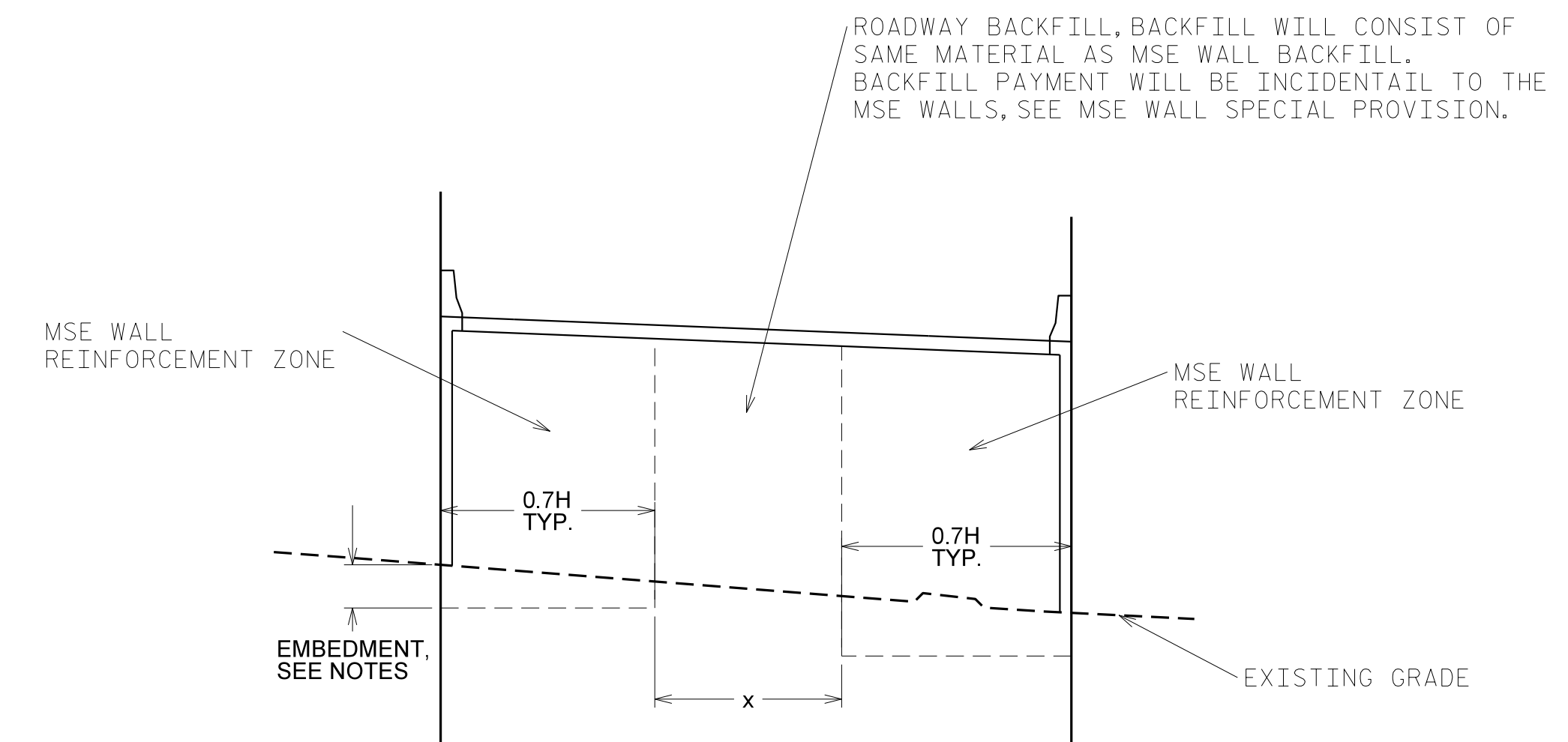
DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NOS. 1, 2, 3, AND 4 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

FOR RETAINING WALL NOS. 1, 2, 3, AND 4 PROVIDE DETAILS ON THE MSE WALL AND CONCRETE ABUTMENT WALL INTERFACE.

SHOP DRAWINGS FOR RETAINING WALL NOS. 1 AND 2 (END BENT NO. 1) WILL BE SUBMITTED CONCURRENTLY FOR REVIEW PURPOSES.

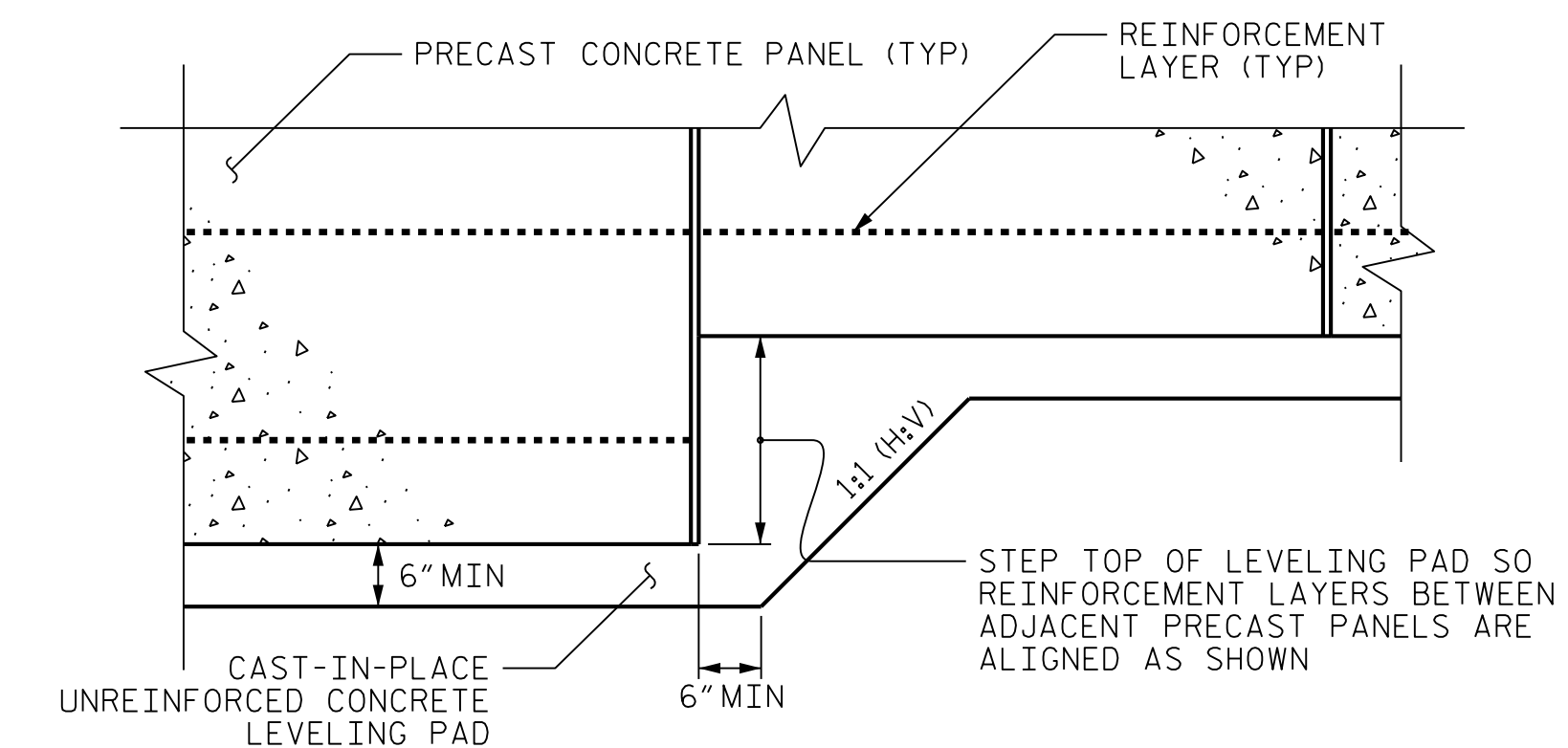
SHOP DRAWINGS FOR RETAINING WALL NOS. 3 AND 4 (END BENT NO. 2) WILL BE SUBMITTED CONCURRENTLY FOR REVIEW PURPOSES.

BACKFILL AREA BETWEEN PARALLEL MSE WALLS WITH COARSE OR FINE AGGREGATE TO THE TOP OF THE REINFORCED ZONE SEE BACKFILL DETAIL. BACKFILL PAYMENT WILL BE INCIDENTAL TO WALL, SEE MSE WALL SPECIAL PROVISION.



**TYPICAL BACKFILL DETAILS AT  
STA 17+50 -Y1-**

X - VARIES DEPENDING ON REINFORCEMENT LENGTH AND WALL HEIGHT



**PRECAST PANELS  
LEVELING PAD STEP DETAIL**

PROJECT NO.: 44378.1.D1 (U-5806)  
CABARRUS COUNTY  
 STATION: RWAL01 - RWAL04  
 SHEET 6 OF 6

PREPARED BY: MHS	DATE: 9/28/17
REVIEWED BY: SCC	DATE: 9/28/17

**NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**
  
  
**GEOTECHNICAL  
ENGINEERING UNIT**

NOTES AND DETAILS MSE WALL					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-

SHEET NO. W-6