


GEOTECHNICAL ENGINEER

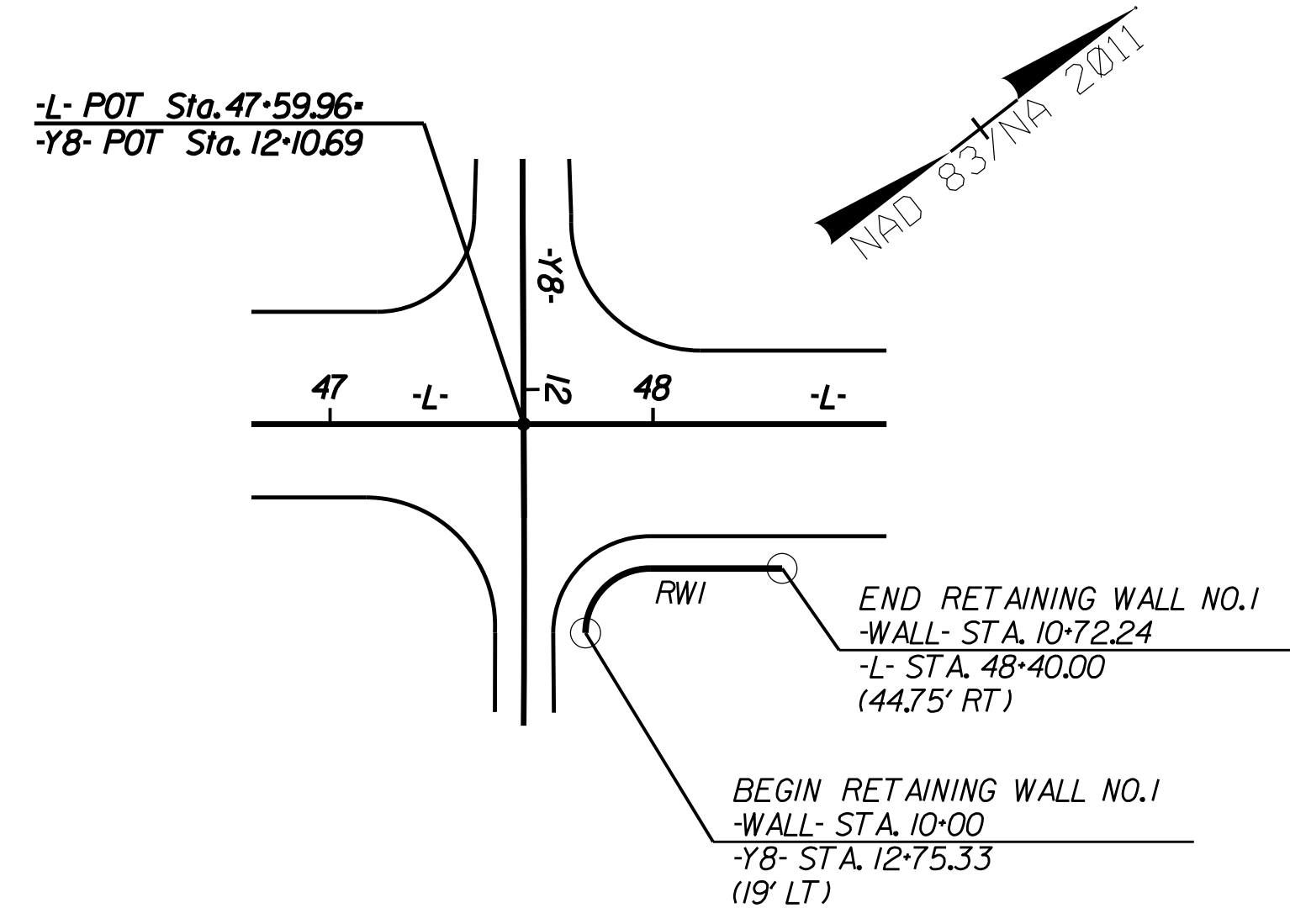
ENGINEER



DocuSigned by:
Thien Tan Zan 06/05/2024

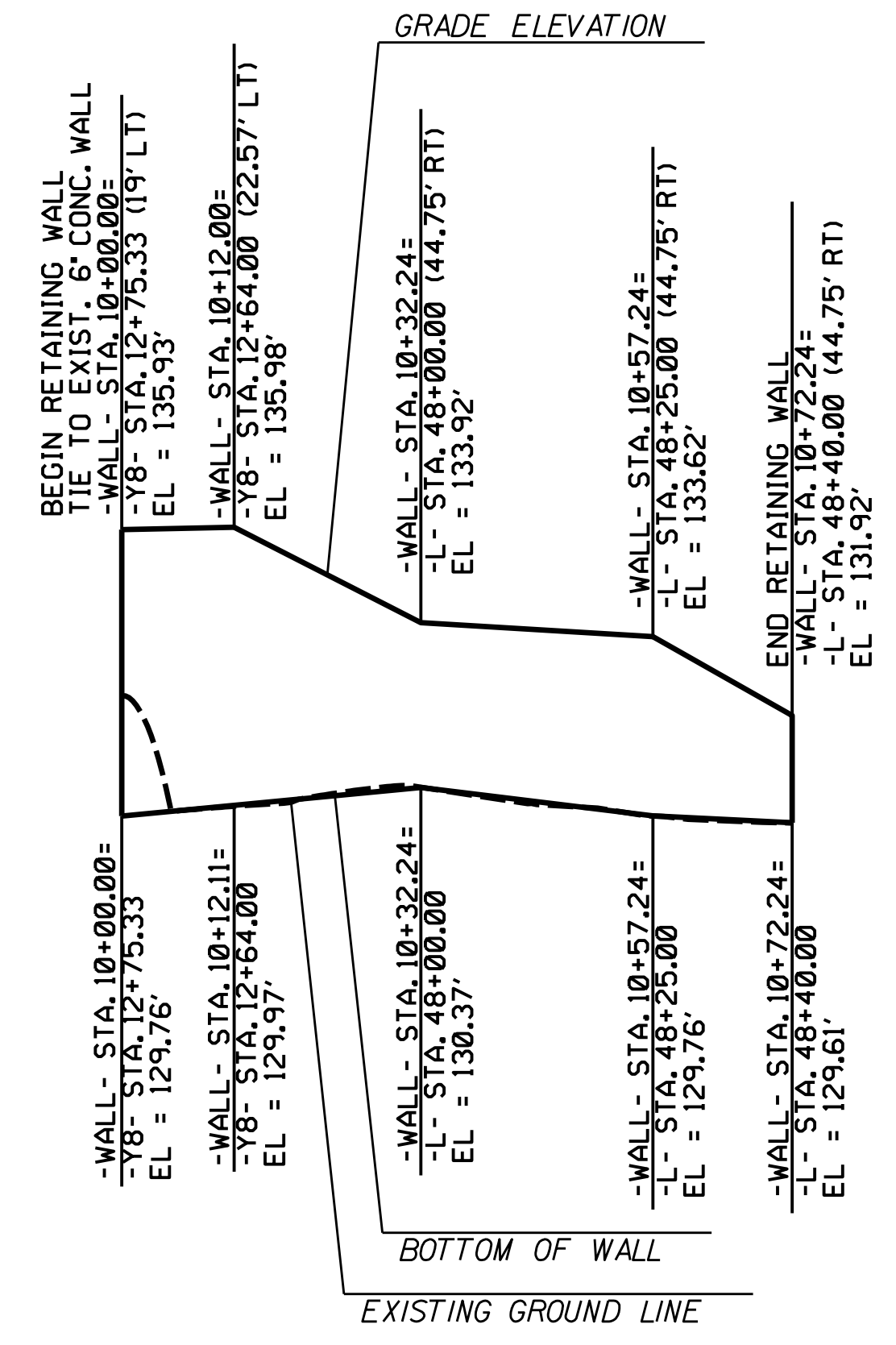
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UNLESS ALL SIGNATURES COMPLETED**



**RETAINING WALL NO. 1
LAYOUT PLAN**

NOT TO SCALE



**RETAINING WALL NO. 1
WALL ENVELOPE**

THE WALL ENVELOPE DOES NOT ACCURATELY
DEPICT THE ACTUAL FACE OF THE WALL

NOTES:

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

USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS (SRW) UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 1.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 1.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 1.

A DRAIN IS REQUIRED FOR RETAINING WALL NO. 1.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 1, 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 FOR THE FOLLOWING:

- 1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
- 2) DESIGN LIFE = 75 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 1,850 PSF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.9H OR 6 FT, WHICHEVER IS LONGER

5) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE •	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
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) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL NO. 1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

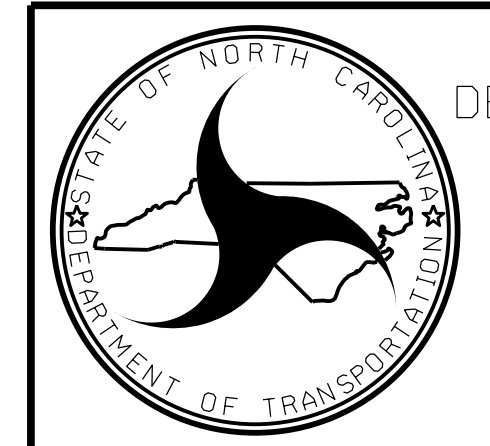
EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1.

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

AT THE CONTRACTOR'S OPTION, *TEMPORARY SHORING FOR WALL CONSTRUCTION* MAY BE USED TO CONSTRUCT RETAINING WALL NO. 1. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

ESTIMATED MSE WALL QUANTITY	
MSE RETAINING WALL NO. 1	420 SQ.FT.

PROJECT NO.: 39073.1.1 (U-4709)
CUMBERLAND COUNTY
STATION: -L- 48+00
SHEET 1 OF 2 (-Y8- 12+75.33)



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

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

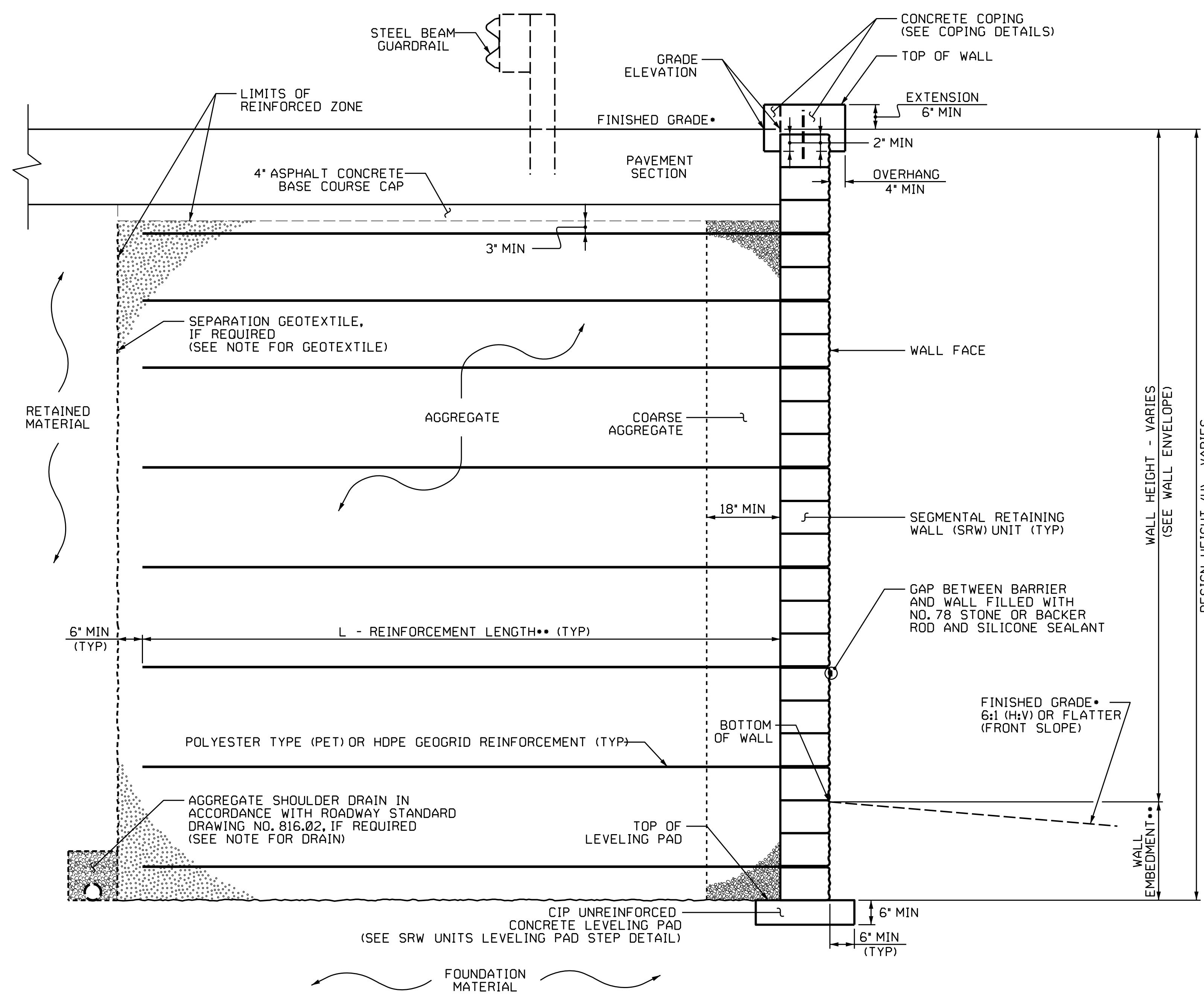
PREPARED BY: T. T. ZAN DATE: 05-24
REVIEWED BY: J. PARK DATE: 05-24

GEOTECHNICAL ENGINEER

ENGINEER

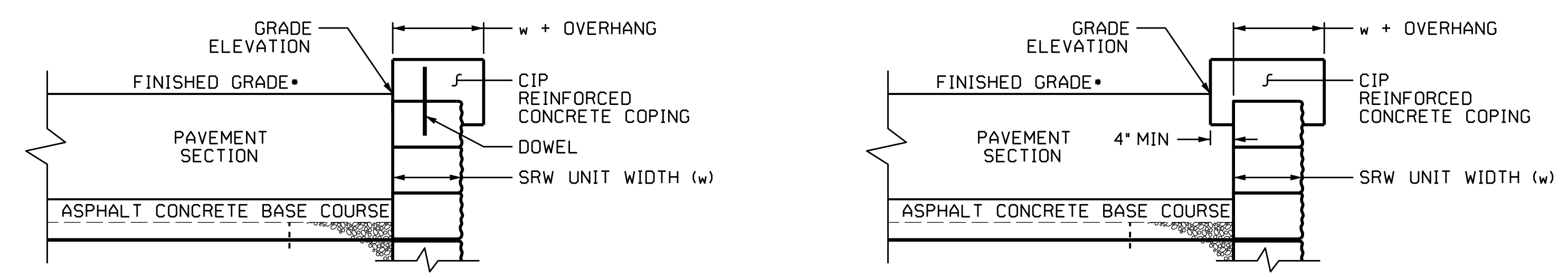
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T. T. Zan 06/05/2024
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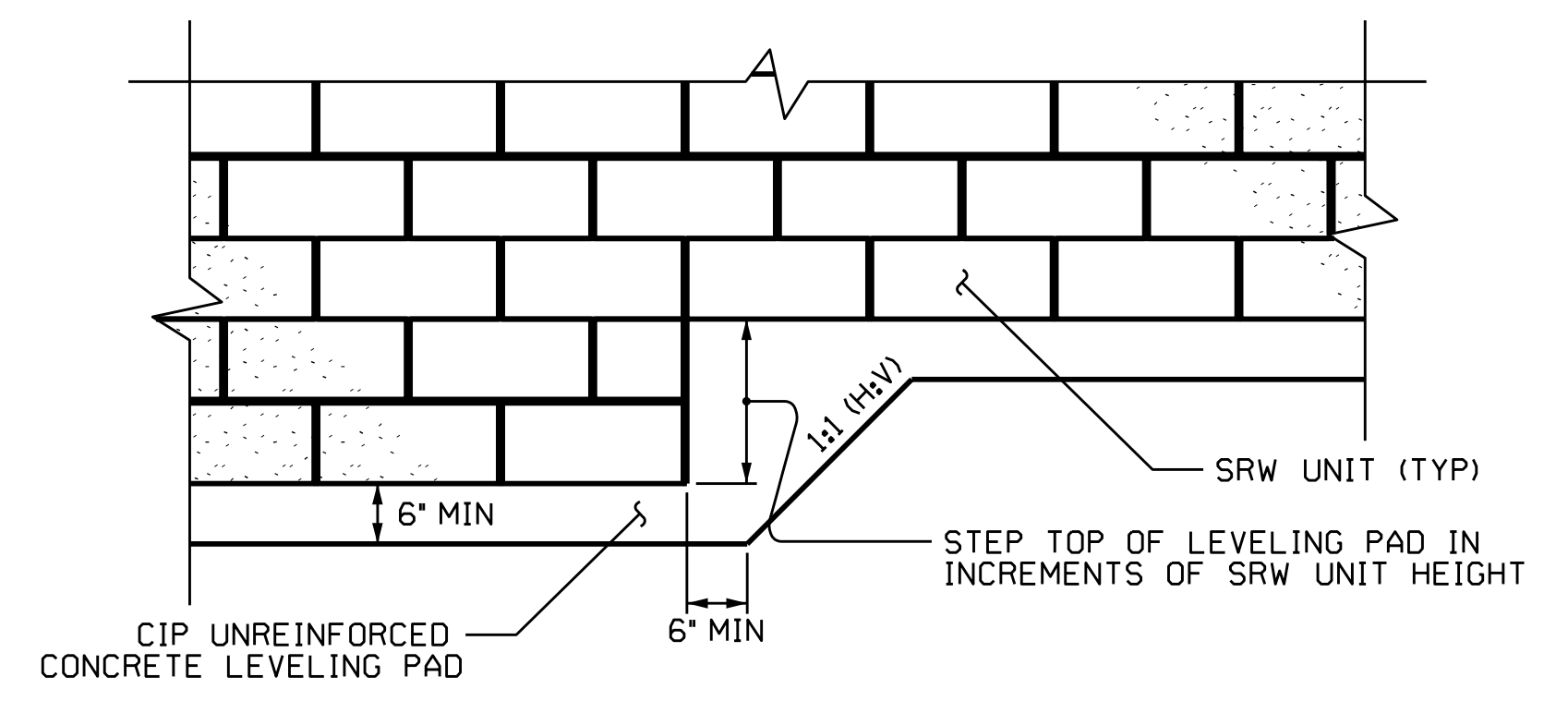
MSE WALL WITH SRW UNITS - TYPICAL SECTION

••SEE MSE RETAINING WALLS PROVISION AND IF APPLICABLE, MSE WALL NOTES FOR WALL EMBEDMENT AND REINFORCEMENT LENGTH REQUIREMENTS.
 •SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO SRW UNITS WITH DOWELS OR EXTEND COPING DOWN BACK OF SRW UNITS.
 •SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



SRW UNITS LEVELING PAD STEP DETAIL

PREPARED BY: T. T. ZAN	DATE: 04-24
REVIEWED BY: J. PARK	DATE: 04-24

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PROJECT NO.: 39073.1.1 (U-4709)
 CUMBERLAND COUNTY
 STATION: -L- 48+00
 SHEET 2 OF 2 (-Y8- 12+75.33)

REVISIONS					
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1			3		
2			4		

SHEET NO.
W-2