


GEOTECHNICAL ENGINEER



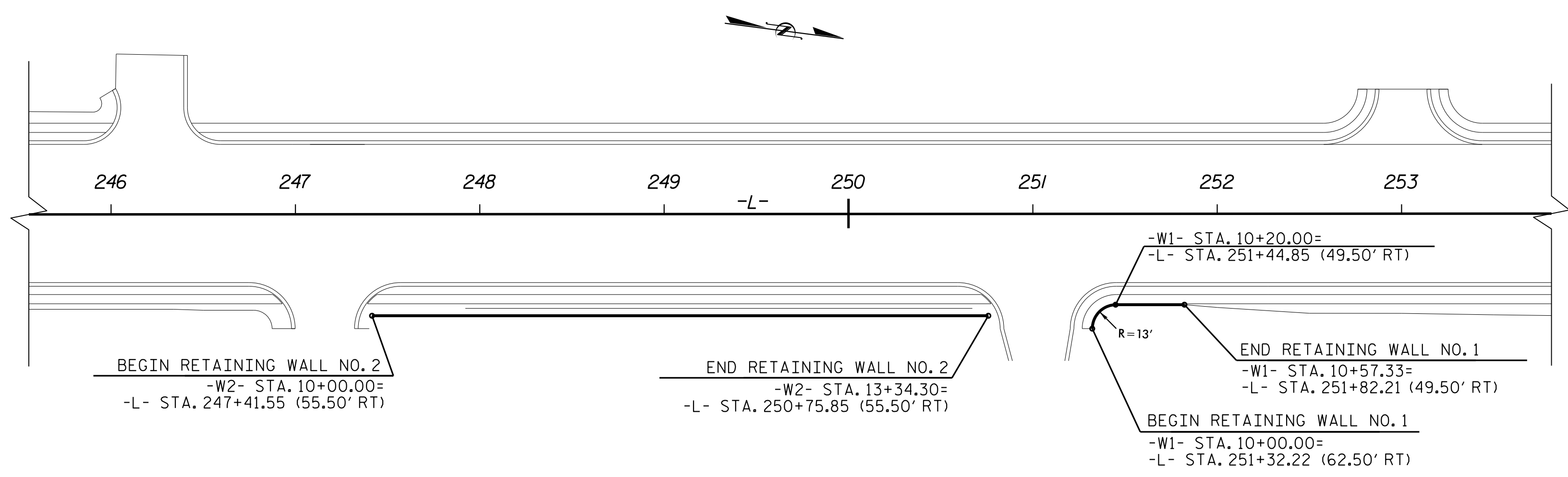
DocuSigned by:
J. Park
8/2/2019

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DATE: 8/2/2019

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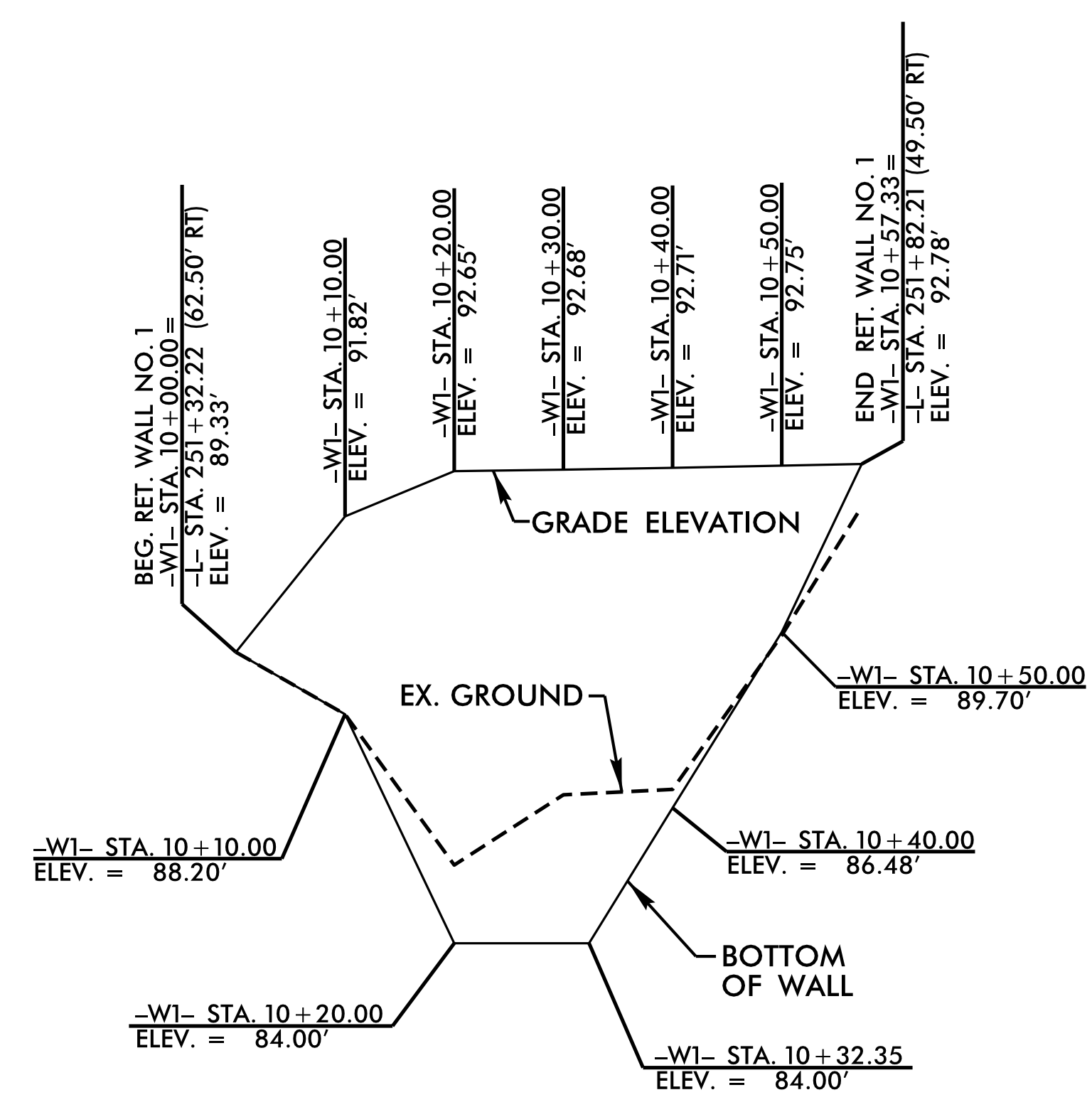
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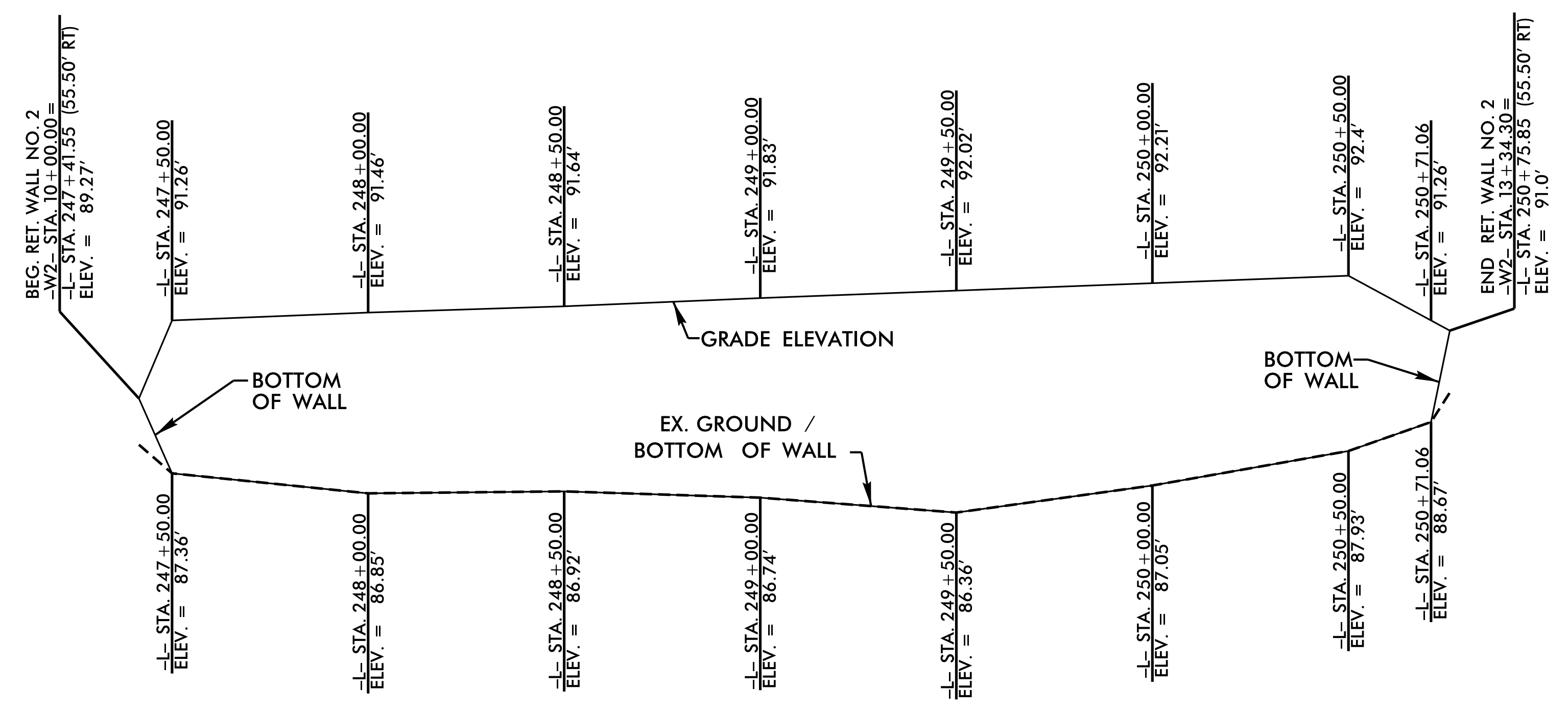
PLAN VIEW FOR RETAINING WALL NO. 1 AND NO. 2

| ESTIMATED MSE WALL QUANTITIES* | |
|--------------------------------|----------|
| MSE RETAINING WALL NO. 1 | 400 SF |
| MSE RETAINING WALL NO. 2 | 2,100 SF |

* WALL QUANTITIES INCLUDE EMBEDMENT AND EXTENSION



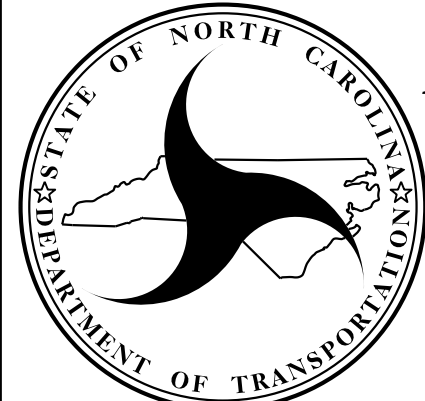
WALL ENVELOPE FOR RETAINING WALL NO. 1
EXPOSED WALL FACE VIEW, N.T.S.
THE WALL ENVELOPE DOES NOT ACCURATELY
DEPICT THE ACTUAL FACE OF THE WALL.



WALL ENVELOPE FOR RETAINING WALL NO. 2
EXPOSED WALL FACE VIEW, N.T.S.

PROJECT NO.: 41499.1.3 (R-5020B)
COLUMBUS COUNTY
STATION: -L- 247+50.00 / -L- 251+50.00
SHEET 1 OF 3

PREPARED BY: J. PARK DATE: 08 / 2019
REVIEWED BY: J. BATTS DATE: 08 / 2019



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
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| REVISIONS | | | | | | SHEET NO. W-1 |
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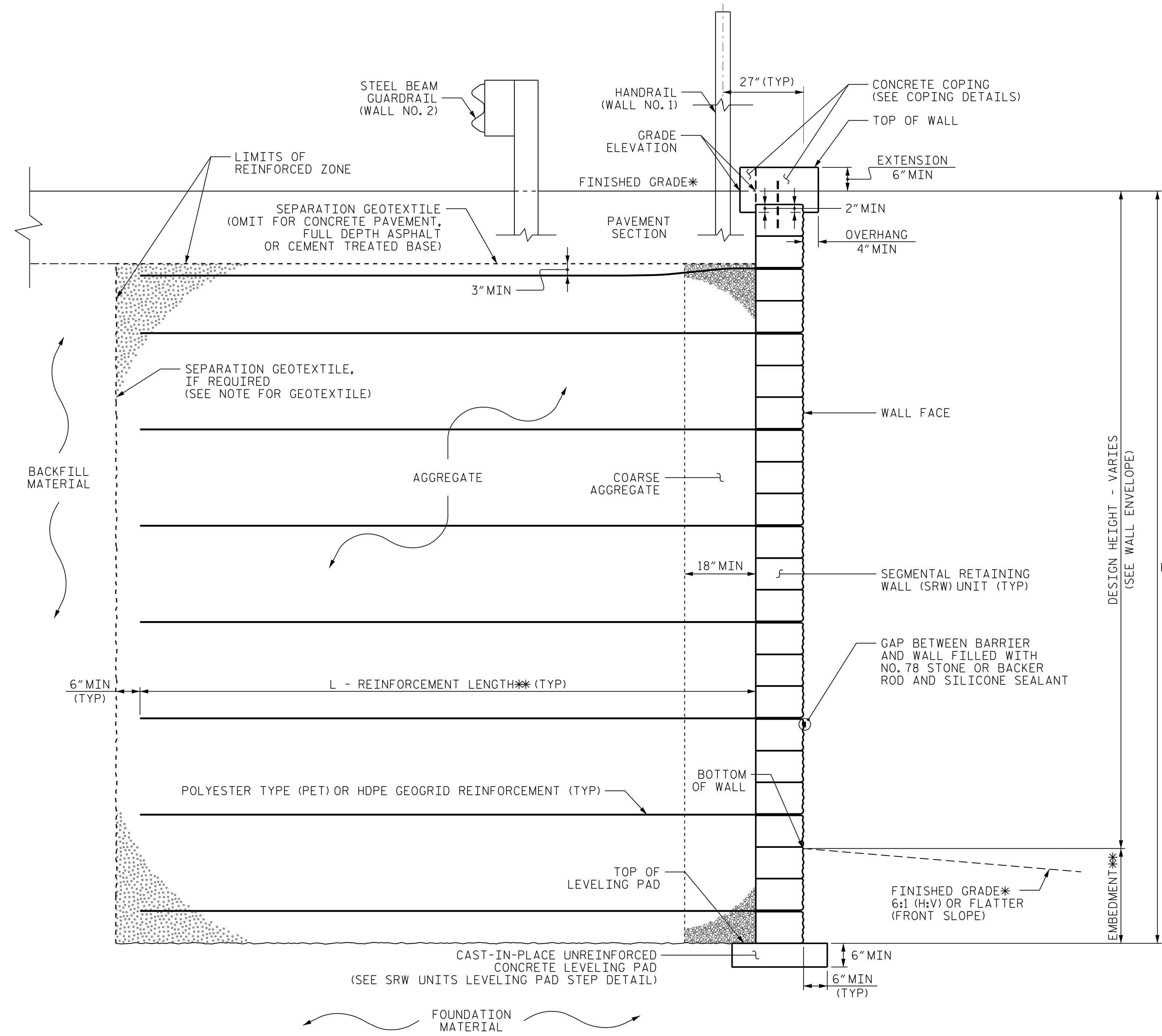
GEOTECHNICAL ENGINEER

ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
032171
ENGINEER
WINSTON-SALEM

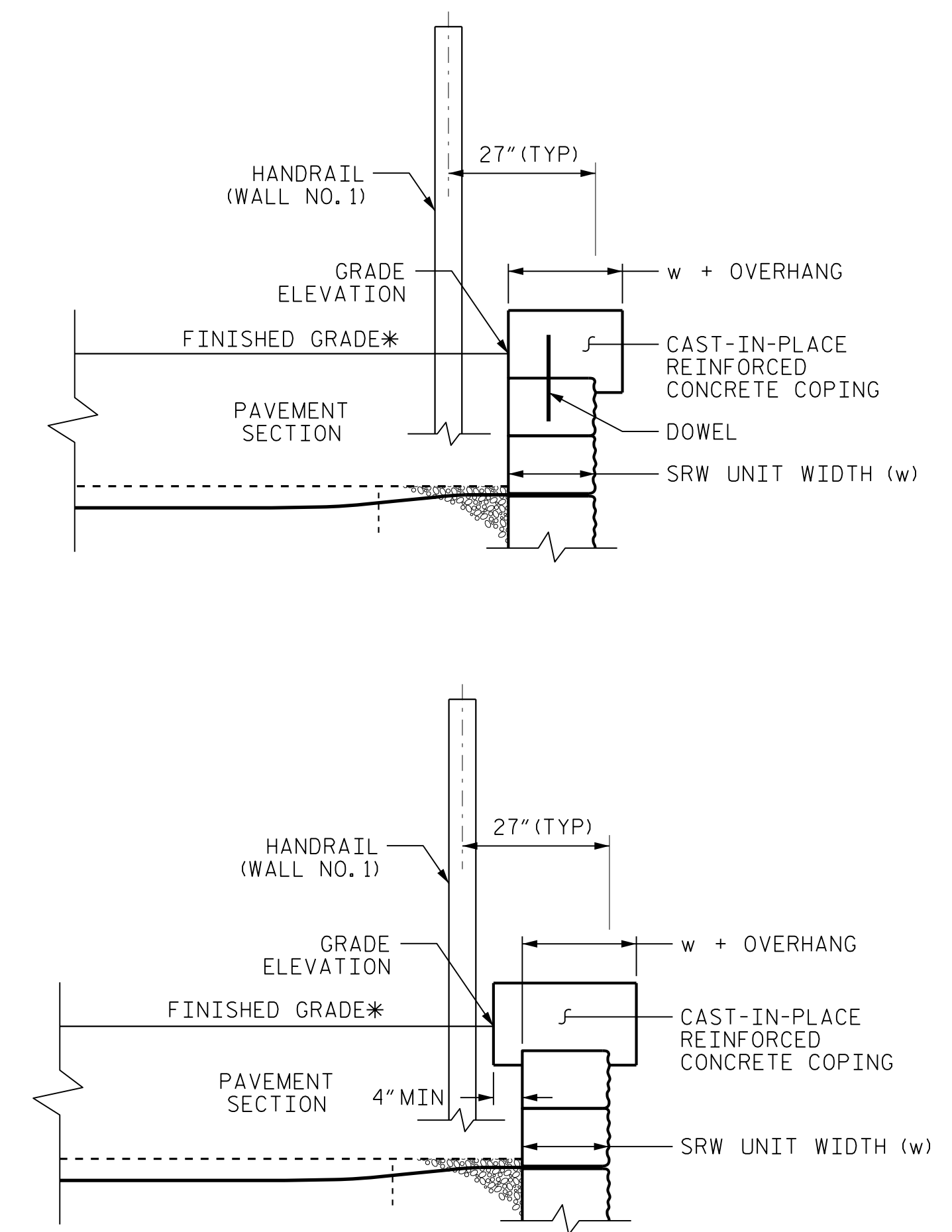
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MSE WALL WITH SRW UNITS - TYPICAL SECTION

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



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.

| | |
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| PREPARED BY: J. PARK | DATE: 08 / 2019 |
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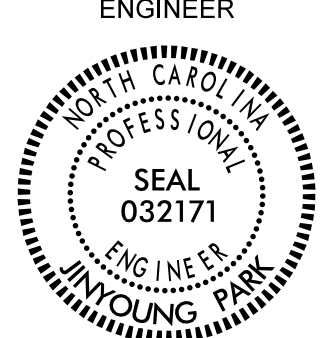
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PROJECT NO.: 41499.1.3 (R-5020B)
COLUMBUS COUNTY
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SHEET 2 OF 3

| REVISIONS | | | | | | SHEET NO. W-2 |
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NOTES:

- FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
- FOR HANDRAILS BEHIND THE TOP OF WALL NO.1, SEE ROADWAY PLANS FOR HANDRAIL DETAILS.
- FOR STEEL BEAM GUARDRAIL ON TOP OF WALL NO.2, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
- 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 AND NO.2.
- AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO.1 AND NO.2.
- CIP REINFORCED CONCRETE COPING IS REQUIRED FOR 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 WHEN COARSE AGGREGATE IS USED IN THE REINFORCED ZONE OF RETAINING WALL NO.1 AND NO.2.
- A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO.1 AND NO.2.
- BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1 AND NO.2, 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 AND NO.2 FOR THE FOLLOWING:
- 1) H = DESIGN HEIGHT + EMBEDMENT
 - 2) DESIGN LIFE = 100 YEARS
 - 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,600 PSF (WALL NO.1), 2,150 PSF (WALL NO.2)
 - 4) MINIMUM REINFORCEMENT LENGTH (L) = 6 FT MIN. OR 0.85H (WALL NO.1), 6 FT (WALL NO.2)
 - 5) REINFORCED ZONE AGGREGATE PARAMETERS:

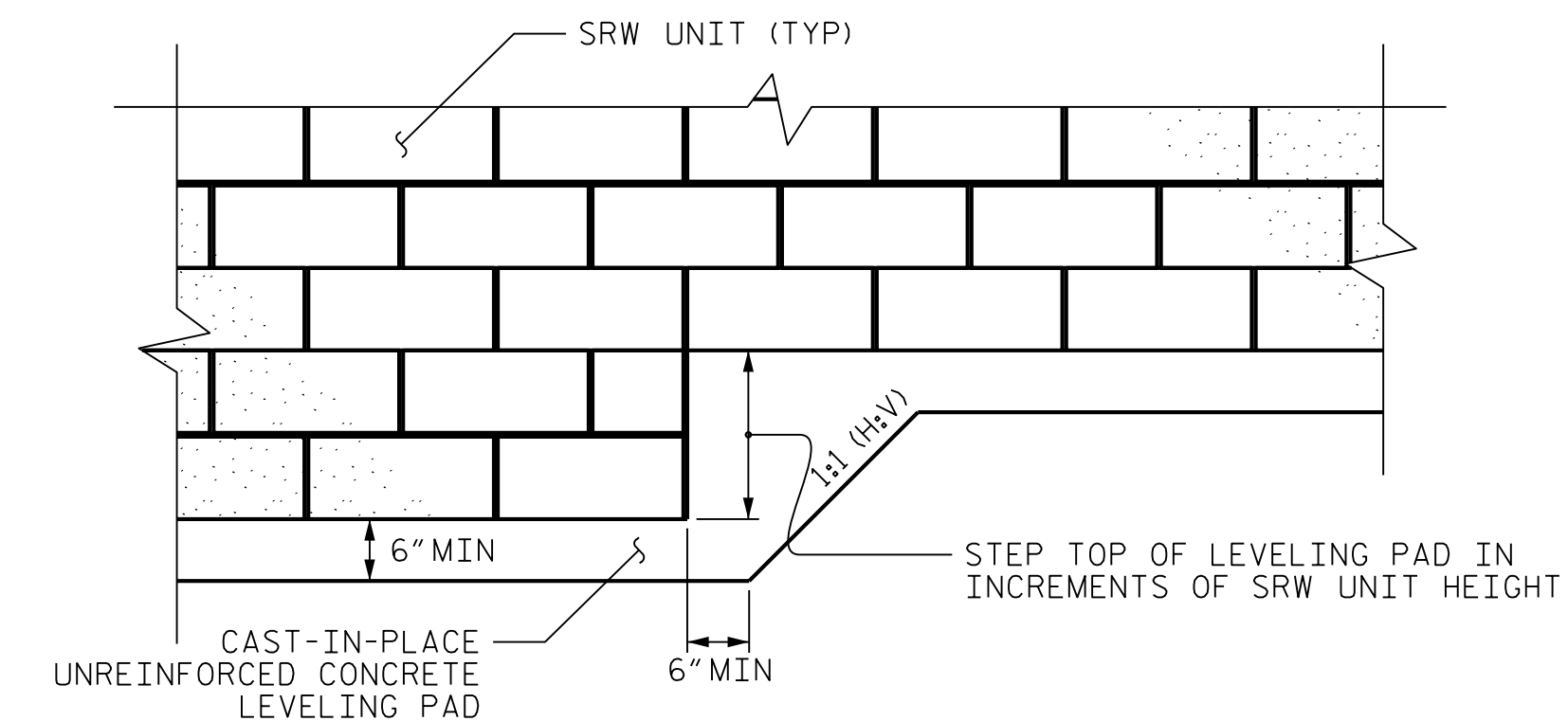
| AGGREGATE TYPE* | UNIT WEIGHT (γ) LB/CF | FRICTION ANGLE (ϕ) DEGREES | COHESION (c) LB/SF |
|-----------------|--------------------------------------|---|--------------------------|
| COARSE | 110 | 38 | 0 |
| FINE | 115 | 34 | 0 |

* 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 |

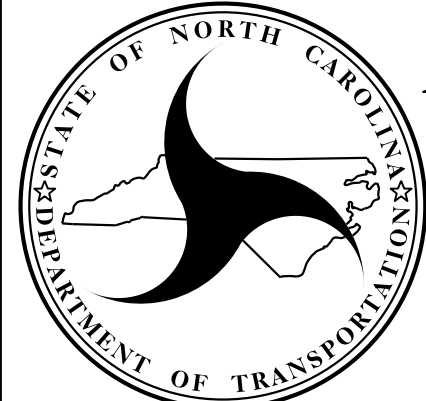
- DESIGN RETAINING WALL NO.1 AND NO.2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.
- EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1 AND NO.2.
- DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 AND NO.2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



LEVELING PAD STEP DETAILS FOR
SEGMENTAL RETAINING WALL (SRW) UNITS

PROJECT NO.: 41499.1.3 (R-5020B)
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 SHEET 3 OF 3

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**NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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