

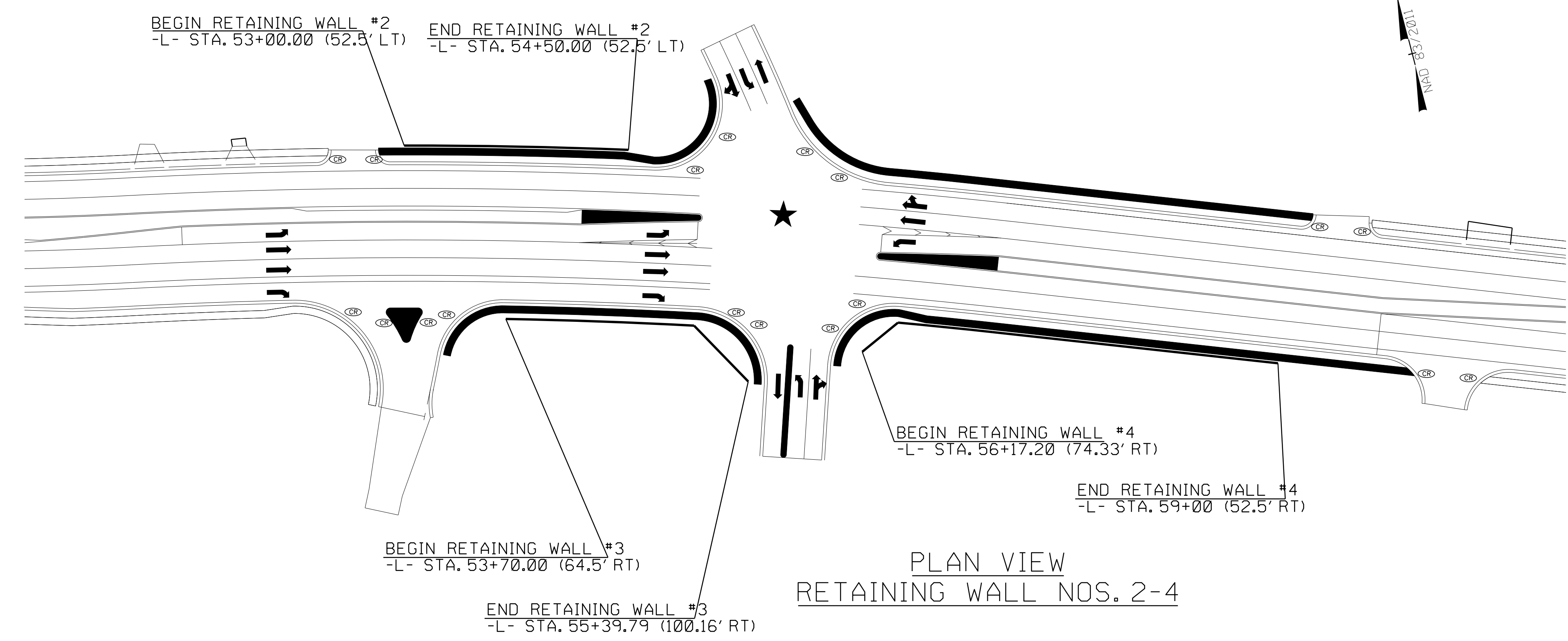
GEOTECHNICAL ENGINEER

ENGINEER

DocuSigned by:
M. H. Stephens 08/18/2023

DATE: 08/18/2023

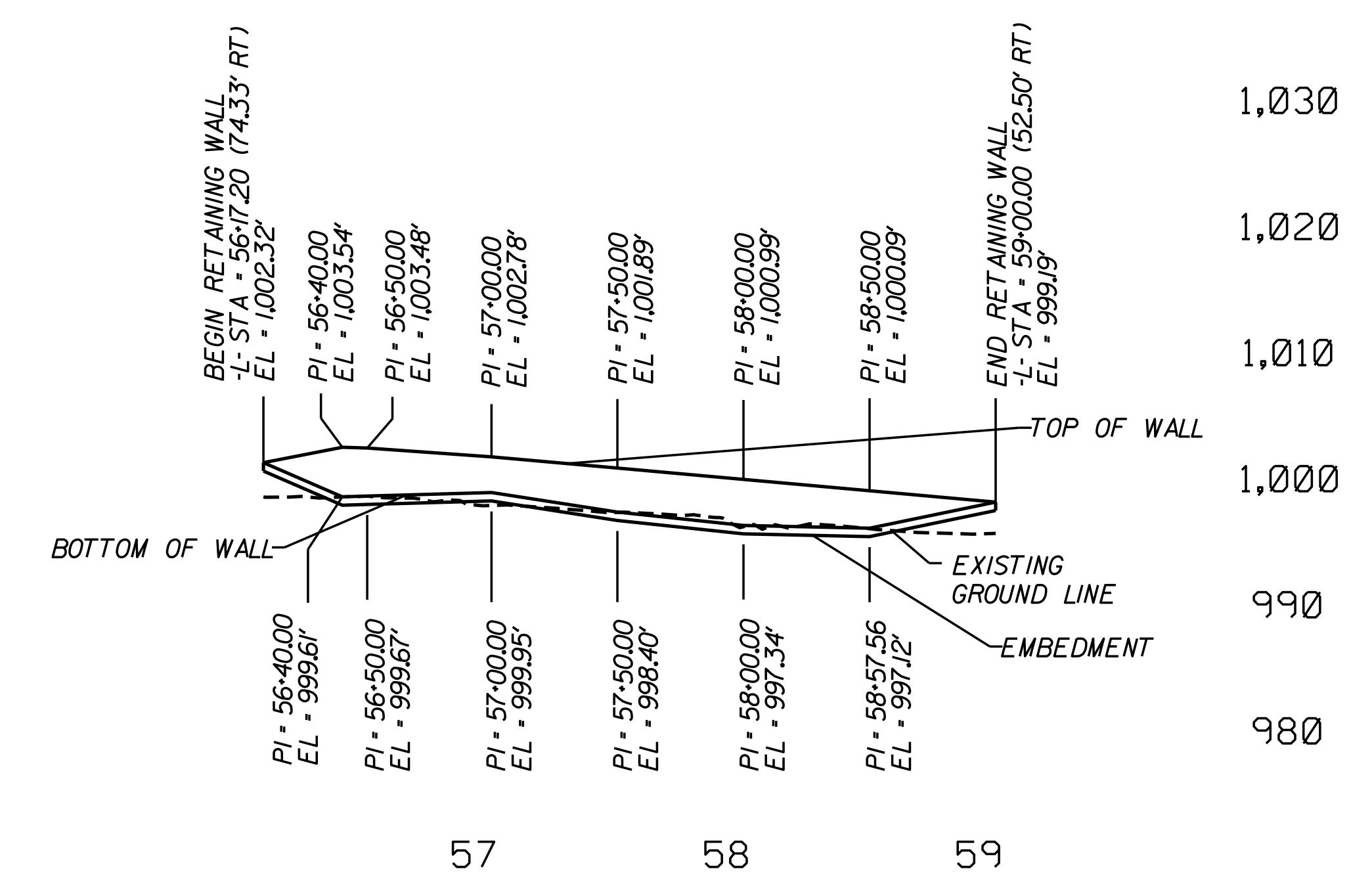
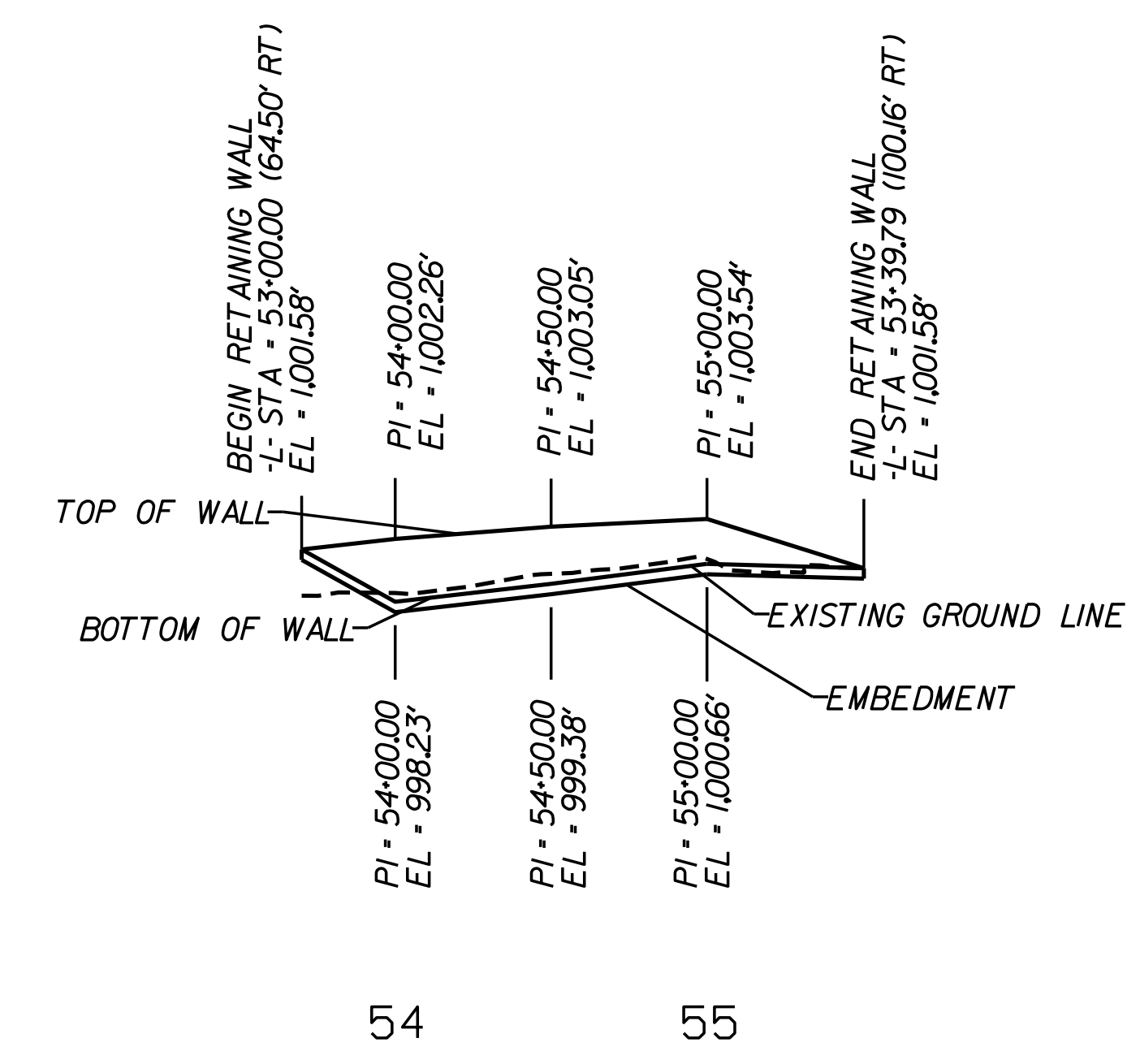
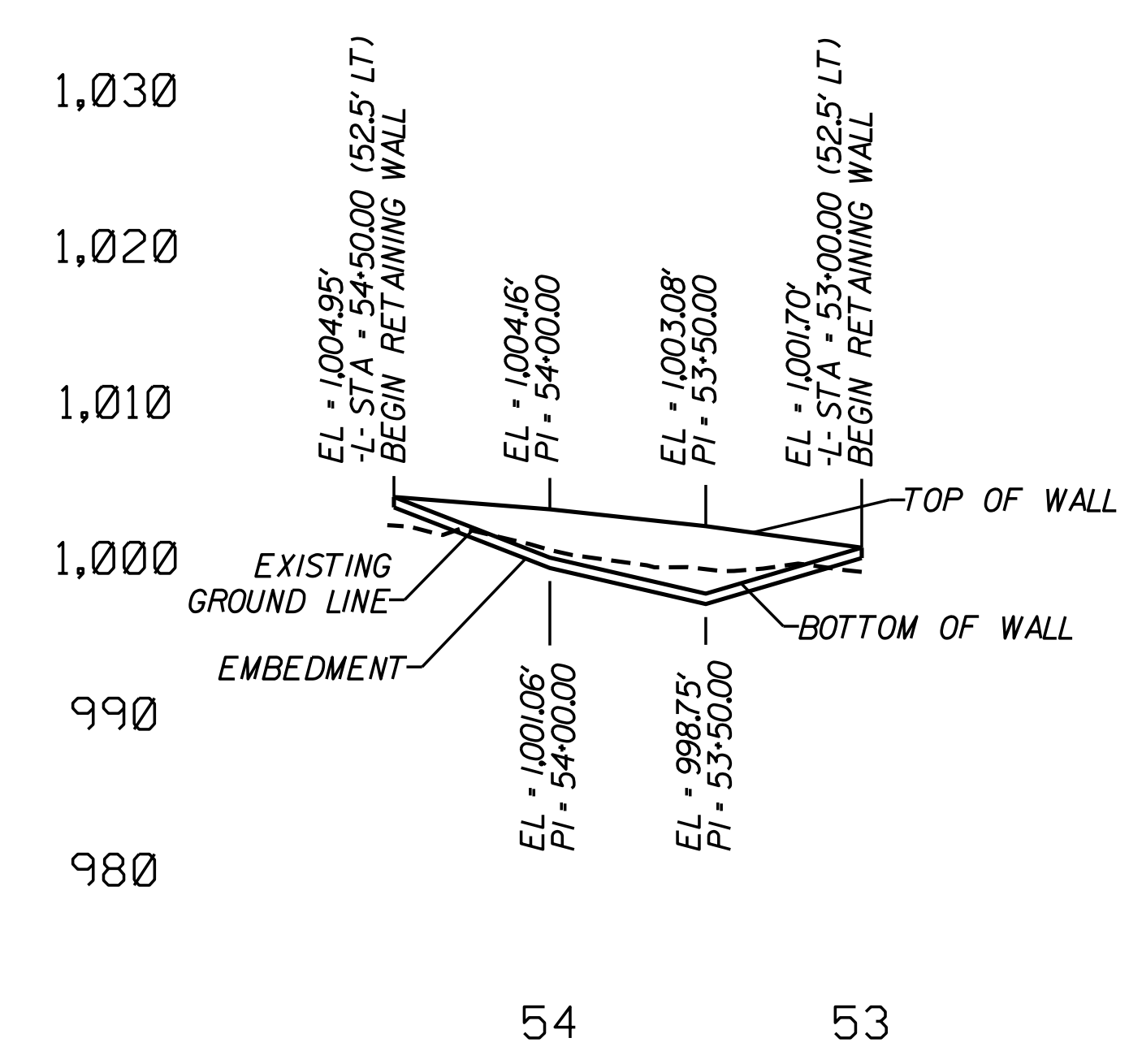
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**ESTIMATED
WALL QUANTITIES**

RETAINING WALL NO.	RETAINING WALLS (SQ. FEET)
2	470
3	610
4	1,035

NOTES
 1) RETAINING WALL NOS. 2, 3, AND 4 ARE STANDARD BLOCK RETAINING WALLS. SEE STANDARD DETAIL NO. 454.01 (SHEET W-3) AND SECTION 454 OF THE STANDARD SPECIFICATIONS.
 2) WALL AREA MEASURED FROM THE TOP OF WALL TO THE TOP OF FOOTING.



PROJECT NO.: 44395.1.1 (U-5824)
 FORSYTH COUNTY
 STATION: STA -L- 53+00 TO -L- 59+00
 SHEET 1 OF 5 WALL NOS. 2, 3, AND 4

PREPARED BY: MHS DATE: 2/3/23
 REVIEWED BY: SCC DATE: 2/3/23

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

RETAINING WALL NOS. 2-4
STANDARD SEGMENTAL
BLOCK RETAINING WALLS

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	MHS	8/23	3		
2			4		

SHEET NO. W-1

NOTES:

FOR STANDARD SEGMENTAL GRAVITY RETAINING WALLS, SEE SECTION 454 OF THE STANDARD SPECIFICATIONS.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

DO NOT ATTACH FENCES OR HANDRAILS TO STANDARD SEGMENTAL GRAVITY WALLS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS FOR INTERSTATE HIGHWAY OR RAILROAD PROJECTS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN SURCHARGE LOADS WILL BE WITHIN 5'-6' OF THE BACK OF SRW CAP UNITS FOR WALL HEIGHTS UP TO 4' AND WITHIN 10' OF THE BACK OF SRW CAP UNITS FOR WALL HEIGHTS GREATER THAN 4' TO 5'.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW WALLS.

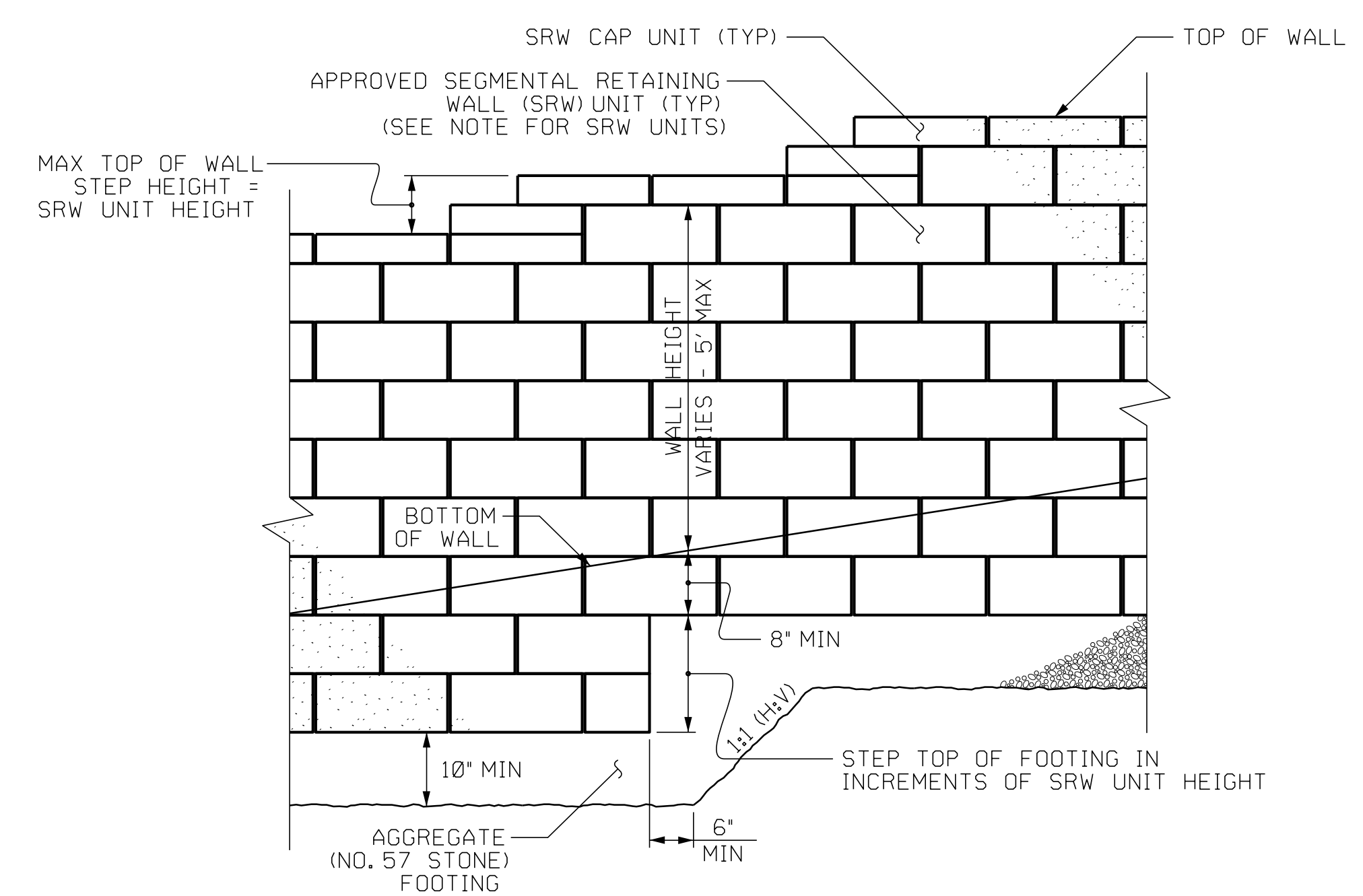
SEGMENTAL RETAINING WALL (SRW) UNITS ARE APPROVED FOR EITHER 2' OR 5' MAXIMUM WALL HEIGHTS. FOR DETAILS AND DIMENSIONS OF APPROVED SRW UNITS AND MAXIMUM WALL HEIGHTS, SEE connect.ncdot.gov/resources/Geological/Pages/Products.aspx

DO NOT MIX APPROVED SRW UNITS FROM DIFFERENT VENDORS ON THE SAME STANDARD SEGMENTAL GRAVITY WALL. USE THE SAME SIZE APPROVED SRW UNITS FOR EACH WALL SECTION.

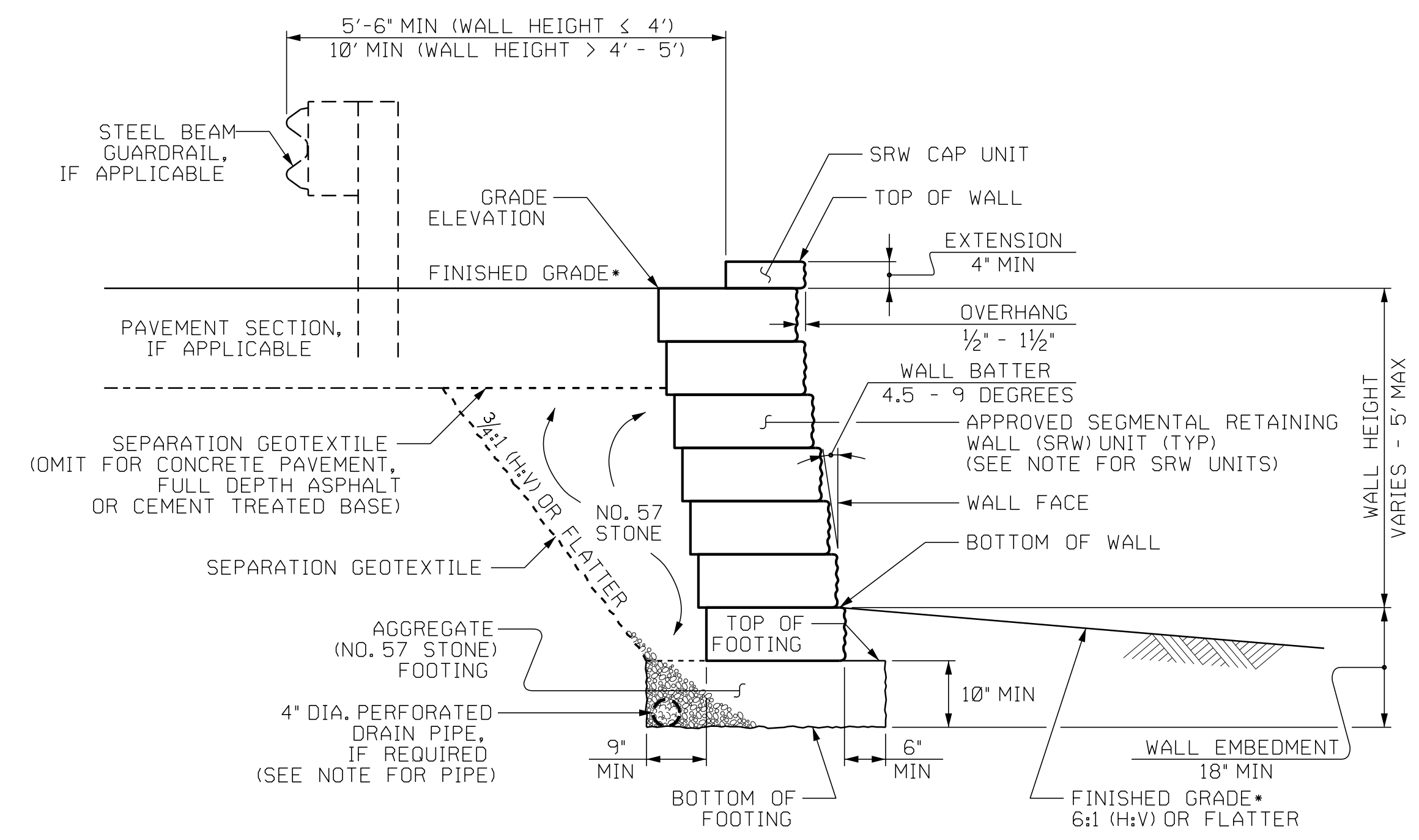
BEFORE BEGINNING STANDARD SEGMENTAL GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.

A DRAIN PIPE IS REQUIRED IF GROUNDWATER IS ABOVE BOTTOM OF FOOTINGS.

DO NOT PLACE NO. 57 STONE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

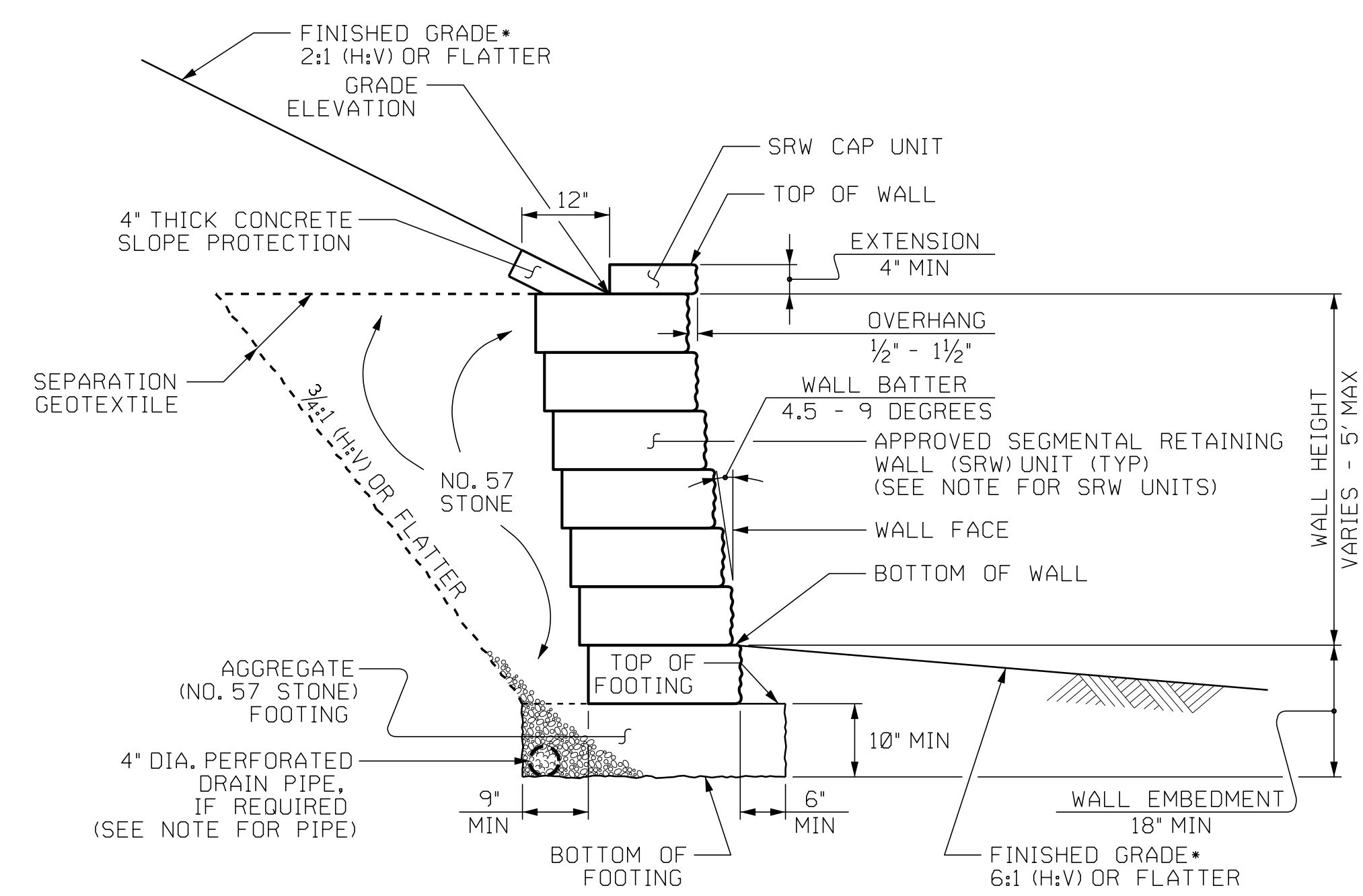


STANDARD SEGMENTAL GRAVITY WALL - PARTIAL ELEVATION



STANDARD SEGMENTAL GRAVITY WALL WITHOUT SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

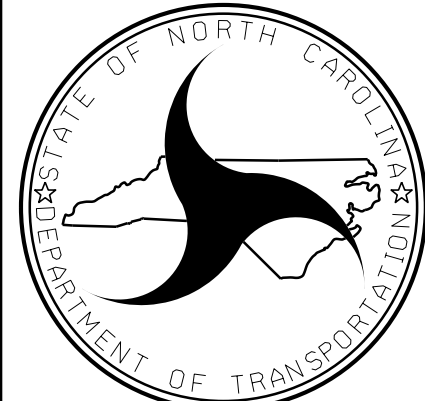


STANDARD SEGMENTAL GRAVITY WALL WITH SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: 44395.1.1 (U-5824)
 FORSYTH COUNTY
 STATION: STA -L- 53+00 TO -L- 59+00
 SHEET 2 OF 5 WALL NOS. 2, 3, AND 4

PREPARED BY: MHS	DATE: 2/3/23
REVIEWED BY: SCC	DATE: 2/3/23



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD SEGMENTAL GRAVITY RETAINING WALL STANDARD DETAIL NO. 454.01					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	MHS	8/23	3		
2			4		

SHEET NO. W-2

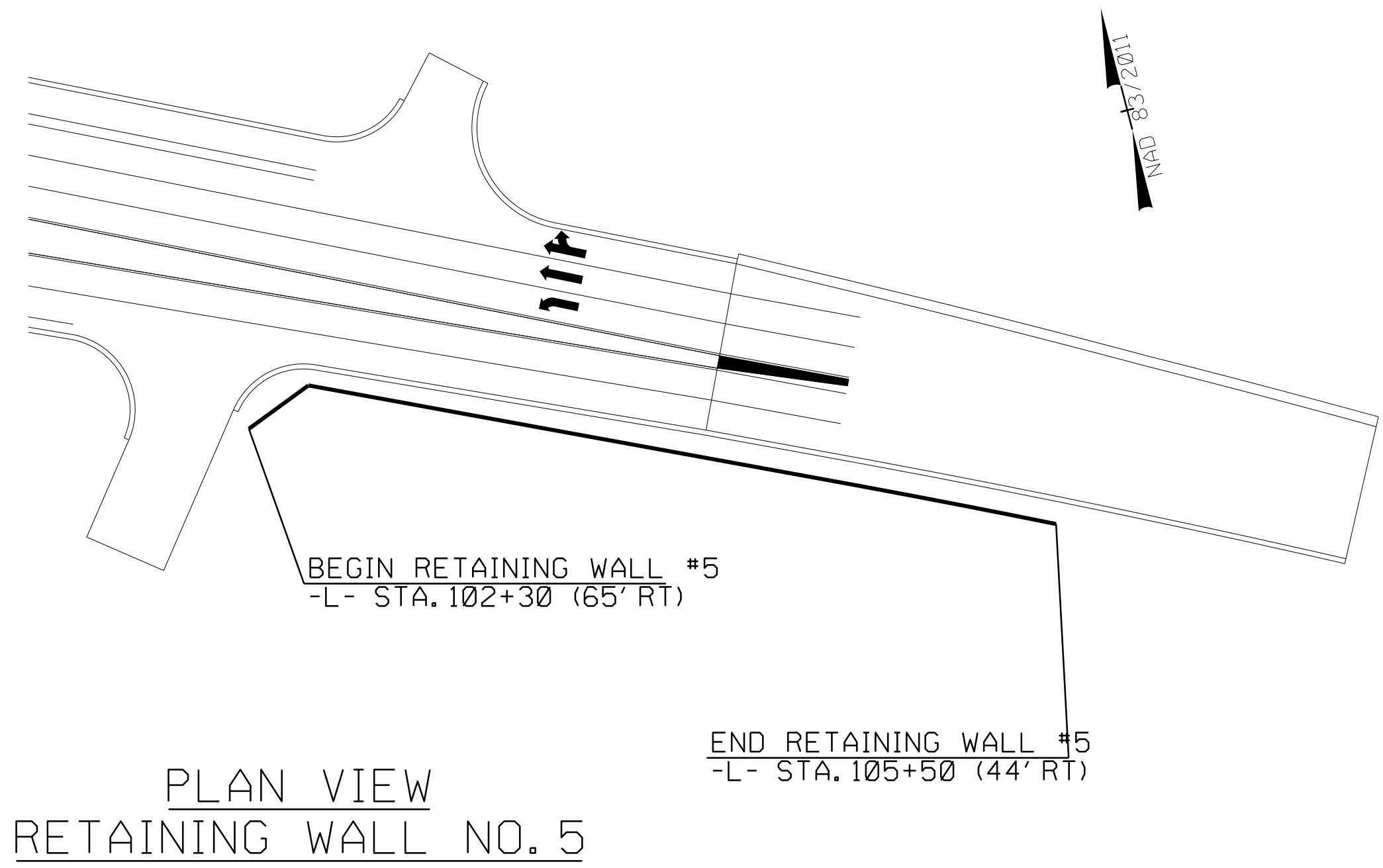
GEOTECHNICAL ENGINEER

DocuSigned by:
Michael H. Stephens
08/18/2023

ENGINEER

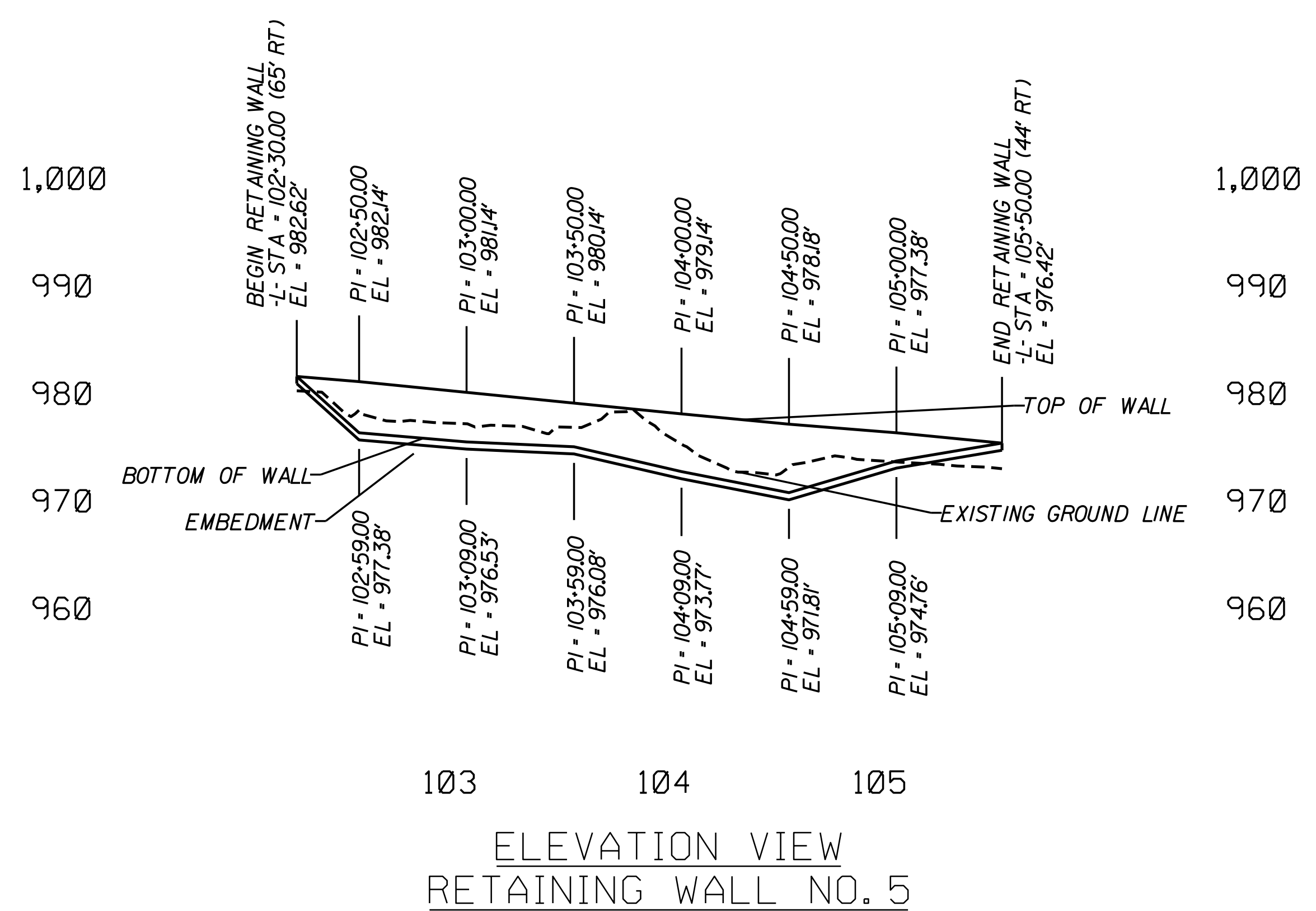
SIGNATURE DATE

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ESTIMATED WALL QUANTITIES	
RETAINING WALL NO.	RETAINING WALLS (SQUARE FEET)
5	1,560

NOTES
1) WALL AREA MEASURED FROM THE TOP OF WALL TO THE TOP OF FOOTING.



PROJECT NO.: 44395.1.1 (U-5824)
 FORSYTH COUNTY
 STATION: STA -L- 102+30
 SHEET 3 OF 5 WALL NO. 5

PREPARED BY: MHS DATE: 2/3/23
 REVIEWED BY: SCC DATE: 2/3/23

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

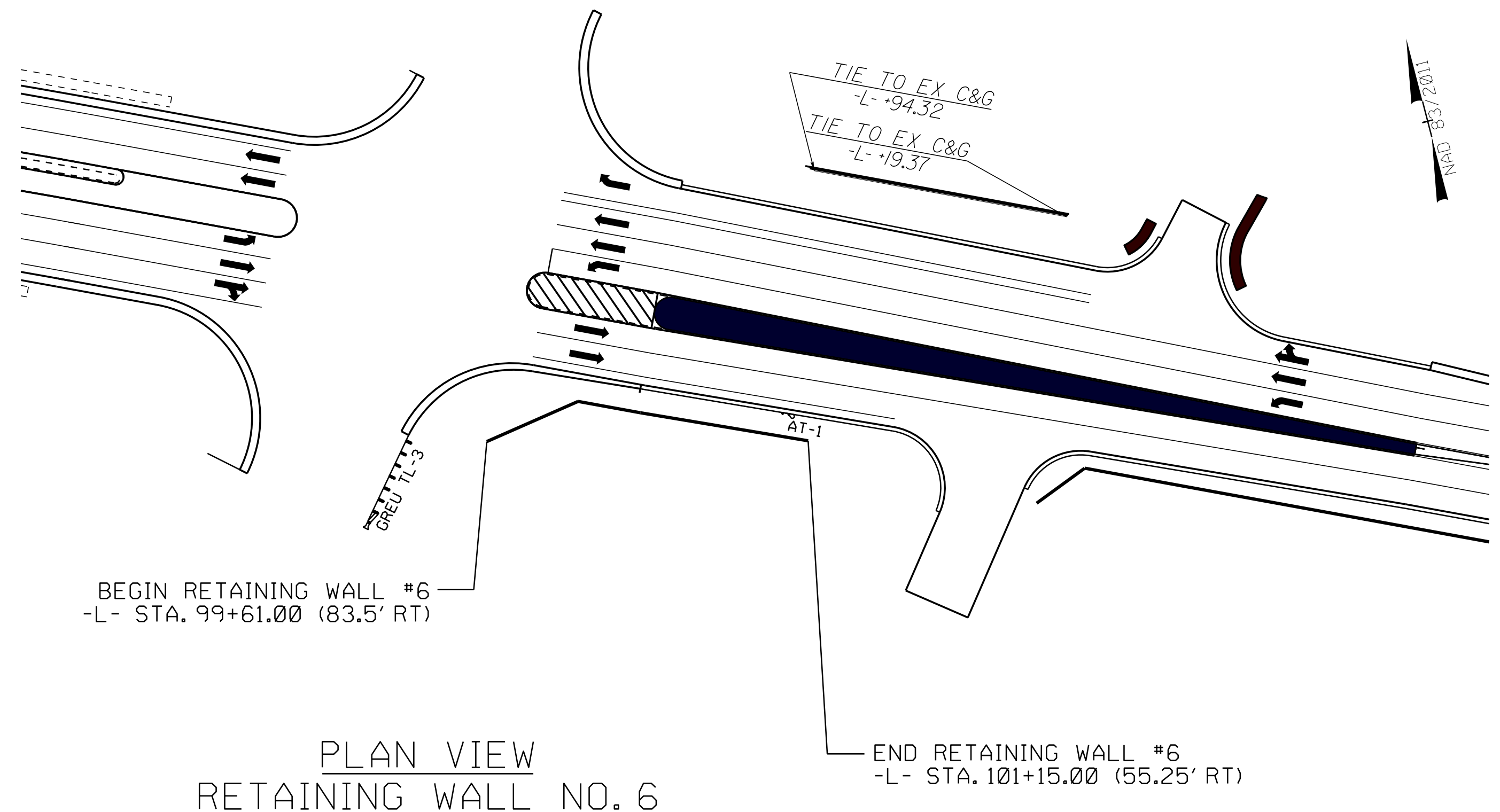
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	MHS	8/23	3			W-3
2			4			

GEOTECHNICAL ENGINEER

ENGINEER

DocuSigned by: *Michael H. Stephens* 08/18/2023

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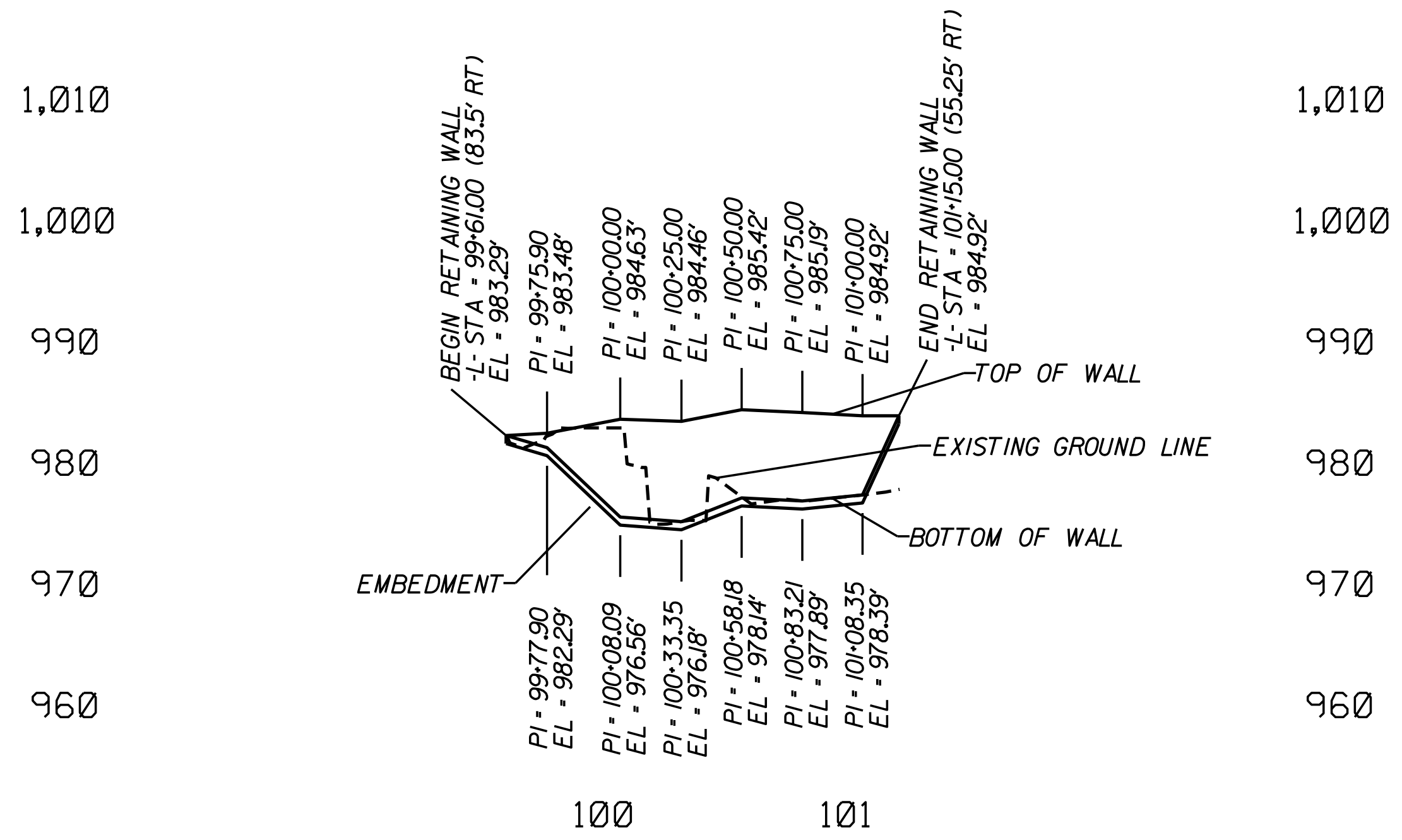
BEGIN RETAINING WALL #6
-L- STA. 99+61.00 (83.5' RT)

END RETAINING WALL #6
-L- STA. 101+15.00 (55.25' RT)

PLAN VIEW
RETAINING WALL NO. 6

ESTIMATED WALL QUANTITIES	
RETAINING WALL NO.	RETAINING WALLS (SQUARE FEET)
6	1,060

NOTES
 1) RETAINING WALL NO. 6 IS A STANDARD BLOCK RETAINING WALL. SEE STANDARD DETAIL NO. 454.01 (SHEET W-3) AND SECTION 454 OF THE STANDARD SPECIFICATIONS.
 2) WALL AREA MEASURED FROM THE TOP OF WALL TO THE TOP OF FOOTING.



ELEVATION VIEW
RETAINING WALL NO. 6

PROJECT NO.: 44395.1.1 (U-5824)
 FORSYTH COUNTY
 STATION: STA -L- 53+00 TO -L- 59+00
 SHEET 4 OF 5 WALL NO. 6

PREPARED BY: MHS	DATE: 2/3/23
REVIEWED BY: SCC	DATE: 2/3/23

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

REVISIONS						SHEET NO. W-4
NO.	BY	DATE	NO.	BY	DATE	
1	MHS	8/23	3			
2			4			

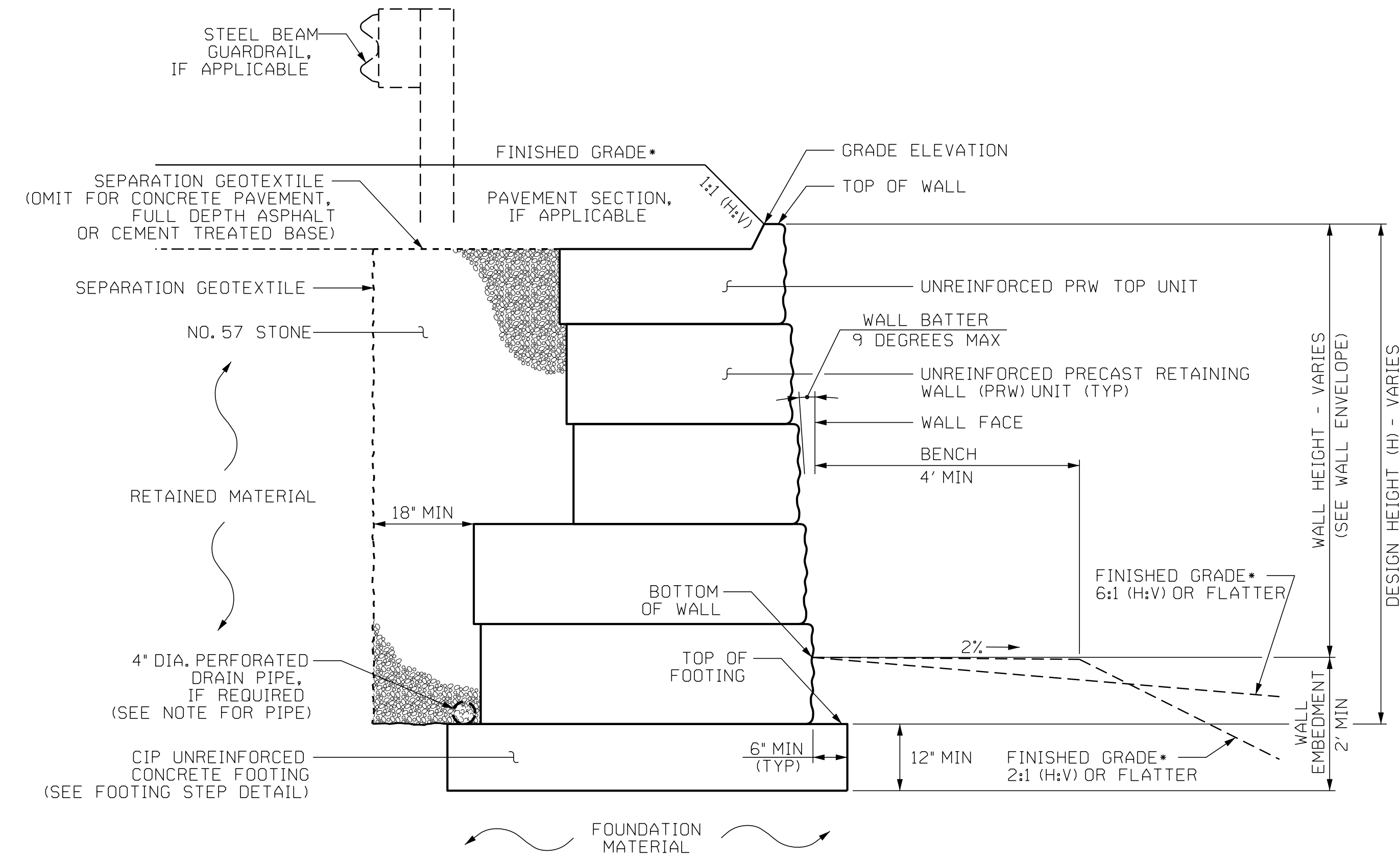
GEOTECHNICAL ENGINEER

ENGINEER

DocuSigned by:
Michael H. Stephens 08/18/2023

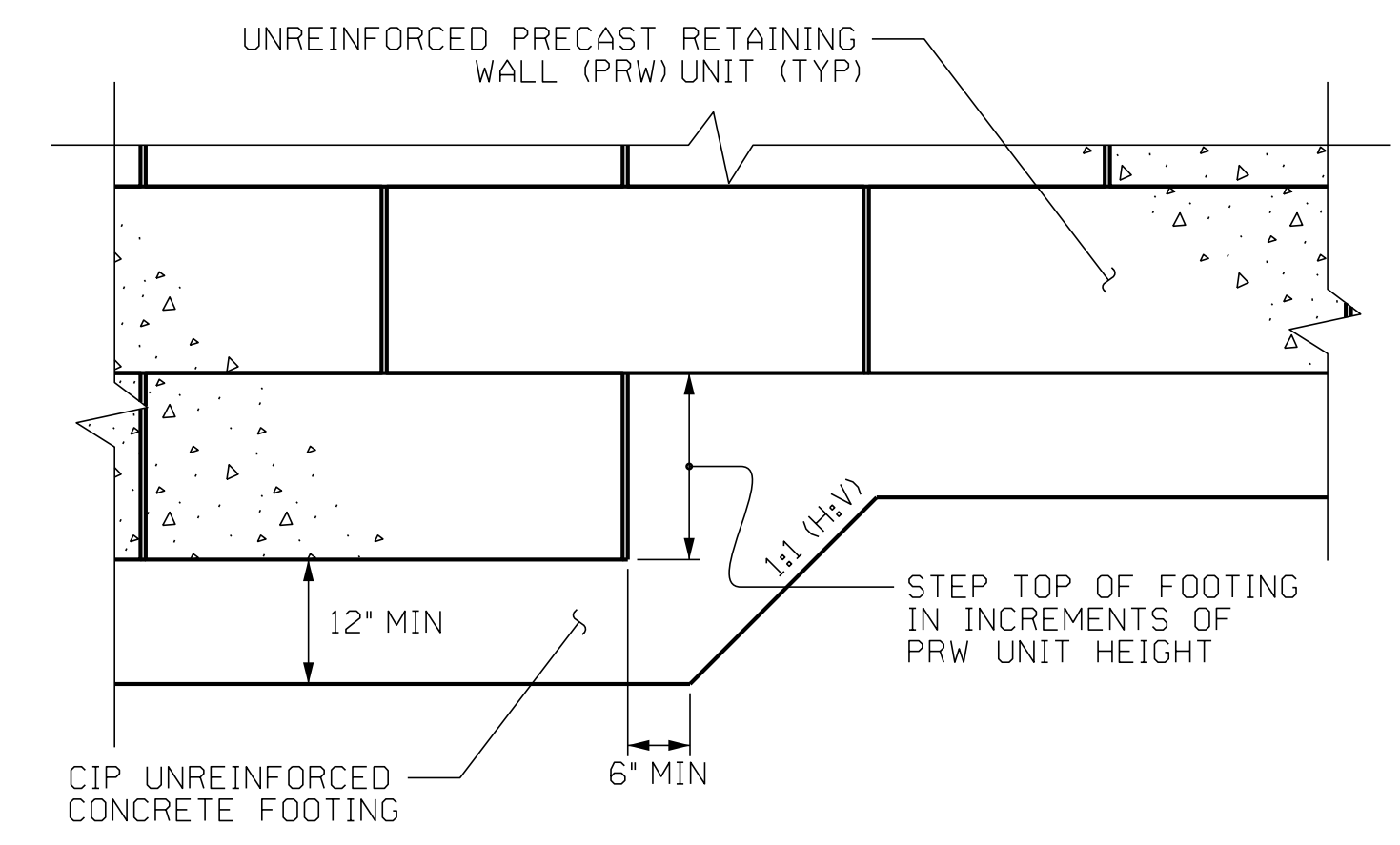
DATE: 08/18/2023

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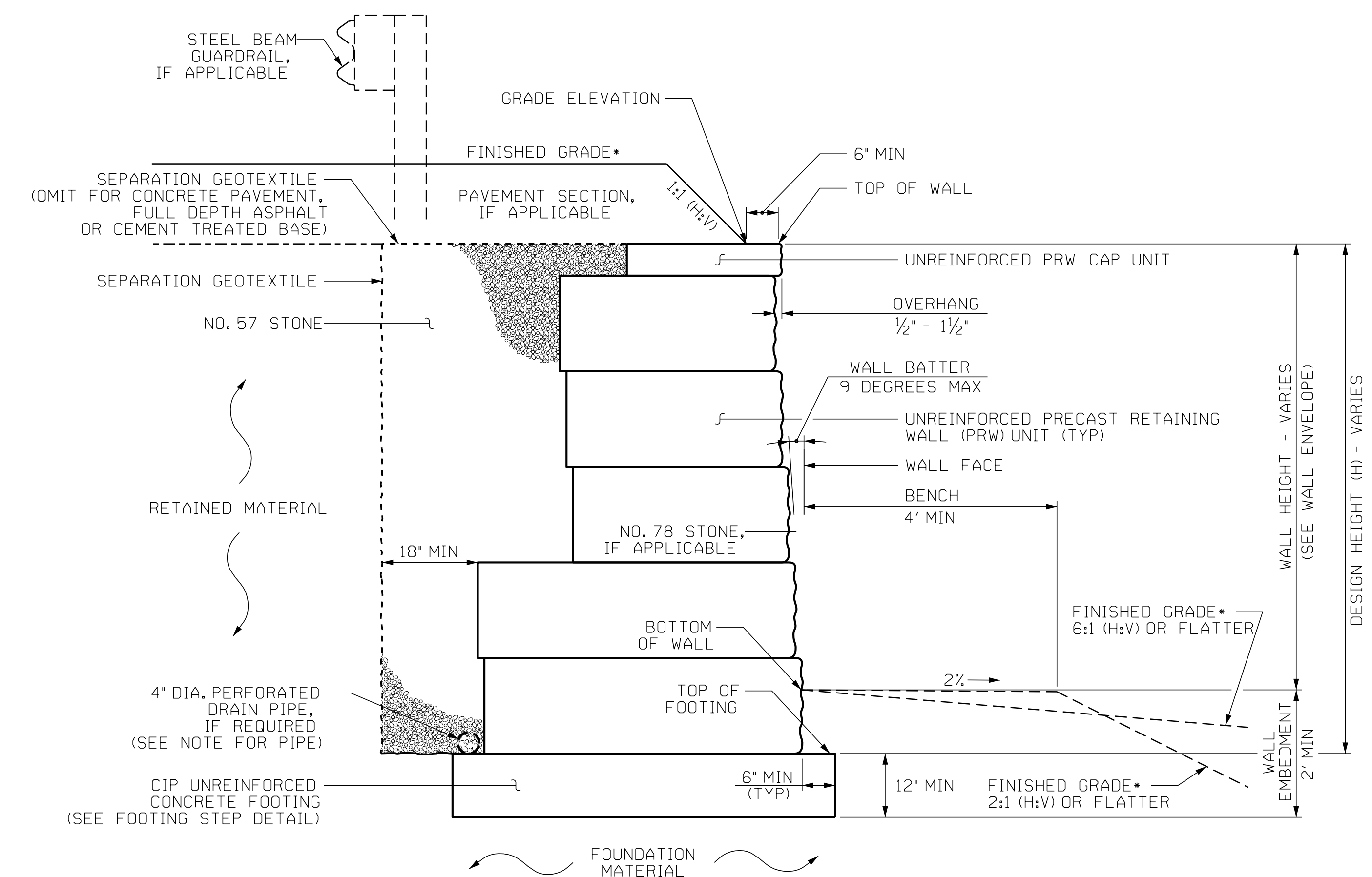


**PRECAST GRAVITY WALL WITH
TOP PRW UNIT - TYPICAL SECTION**

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



FOOTING STEP DETAIL



**PRECAST GRAVITY WALL WITH
CAP PRW UNIT - TYPICAL SECTION**

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

FOR PRECAST GRAVITY RETAINING WALLS, SEE SECTION 455 OF THE STANDARD SPECIFICATIONS.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NOS. 5 AND 6.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NOS. 5 AND 6, 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. 5 AND 6 FOR DESIGN HEIGHTS EQUAL TO THE WALL HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

DESIGN RETAINING WALL NOS. 5 AND 6 FOR THE FOLLOWING:

- 1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,700 PSF
- 2) MINIMUM WALL EMBEDMENT ELEVATION = 2 FT
- 3) 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. FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NOS. 5 AND 6 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

PROJECT NO.: 44395.1.1 (U-5824)

FORSYTH COUNTY

STATION: STA -L- 102+30

SHEET 5 OF 5 WALL NOS. 5 AND 6

PREPARED BY: MHS DATE: 2/3/23

REVIEWED BY: SCC DATE: 2/3/23

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

RETAINING WALL NOS. 5
AND 6, SEGMENTAL
BLOCK RETAINING WALLS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	MHS	8/23	3			W-5
2			4			