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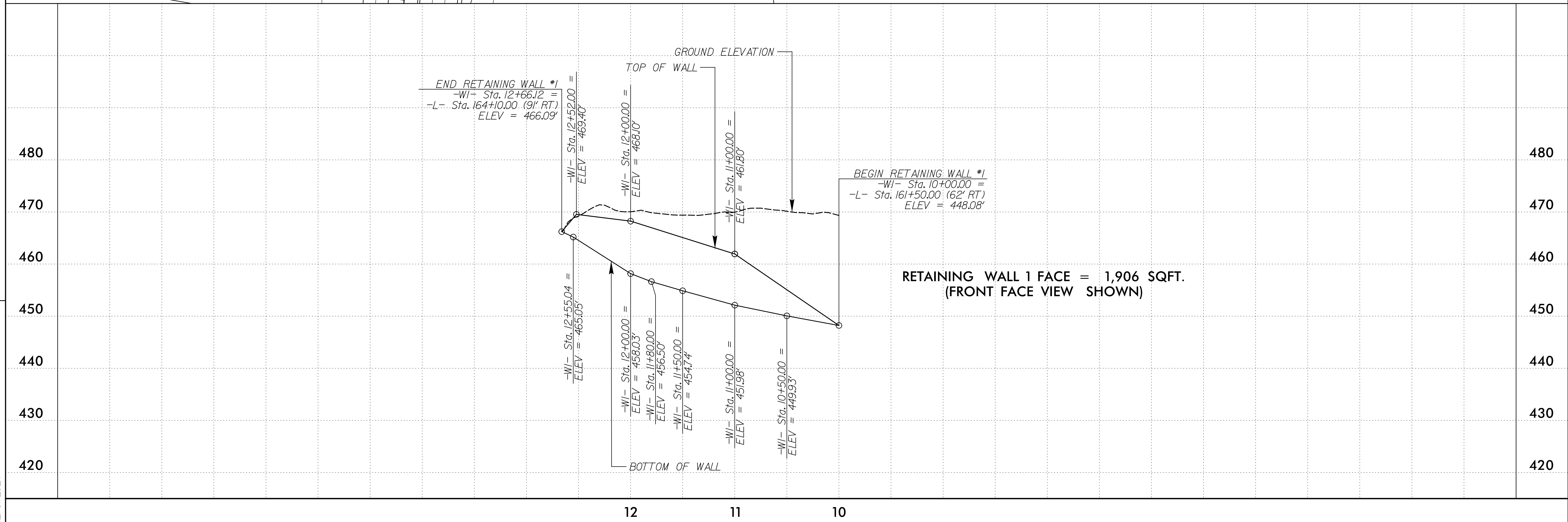
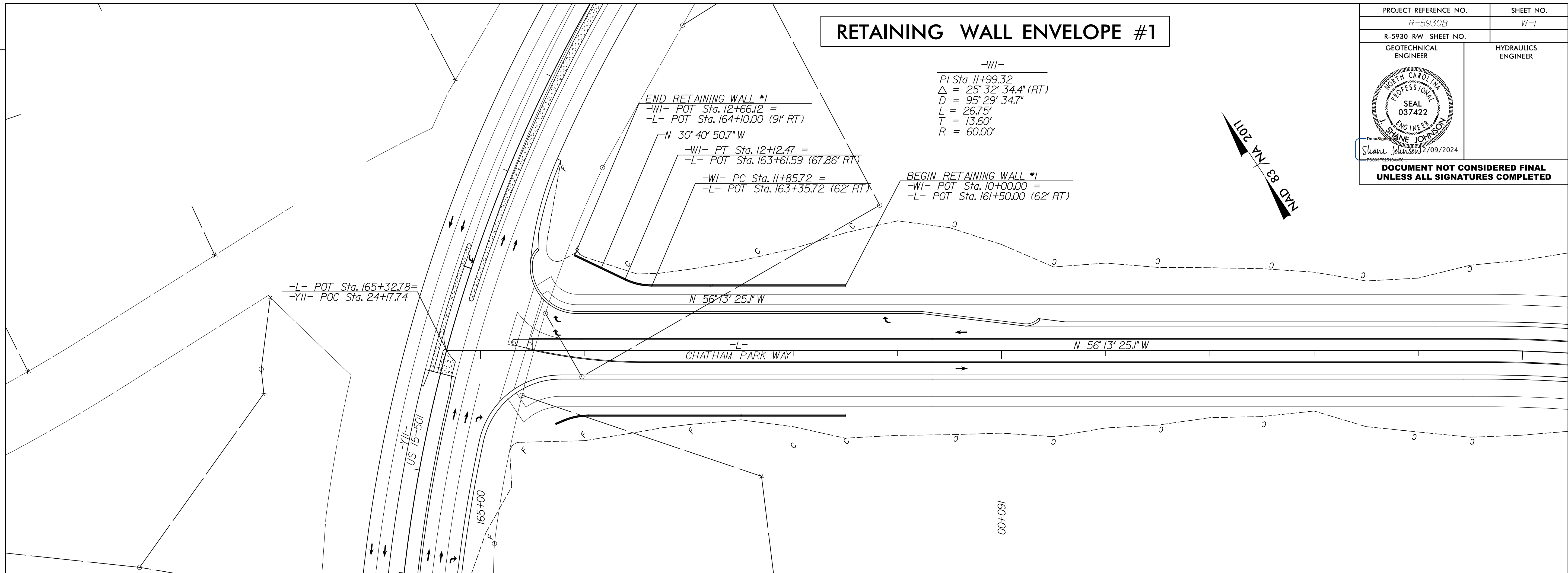
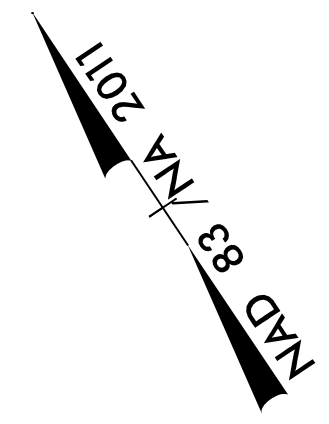
REVISIONS

12/5/2024

RETAINING WALL ENVELOPE #1

PROJECT REFERENCE NO. R-5930B	SHEET NO. W-1
R-5930 RW SHEET NO.	HYDRAULICS ENGINEER
GEO TECHNICAL ENGINEER	HYDRAULICS ENGINEER
	
Shane Johnson 12/09/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-WI-
 P/ Sta 11+99.32
 $\Delta = 25^{\circ} 32' 34.4''$ (RT)
 $D = 95^{\circ} 29' 34.7''$
 $L = 26.75'$
 $T = 13.60'$
 $R = 60.00'$



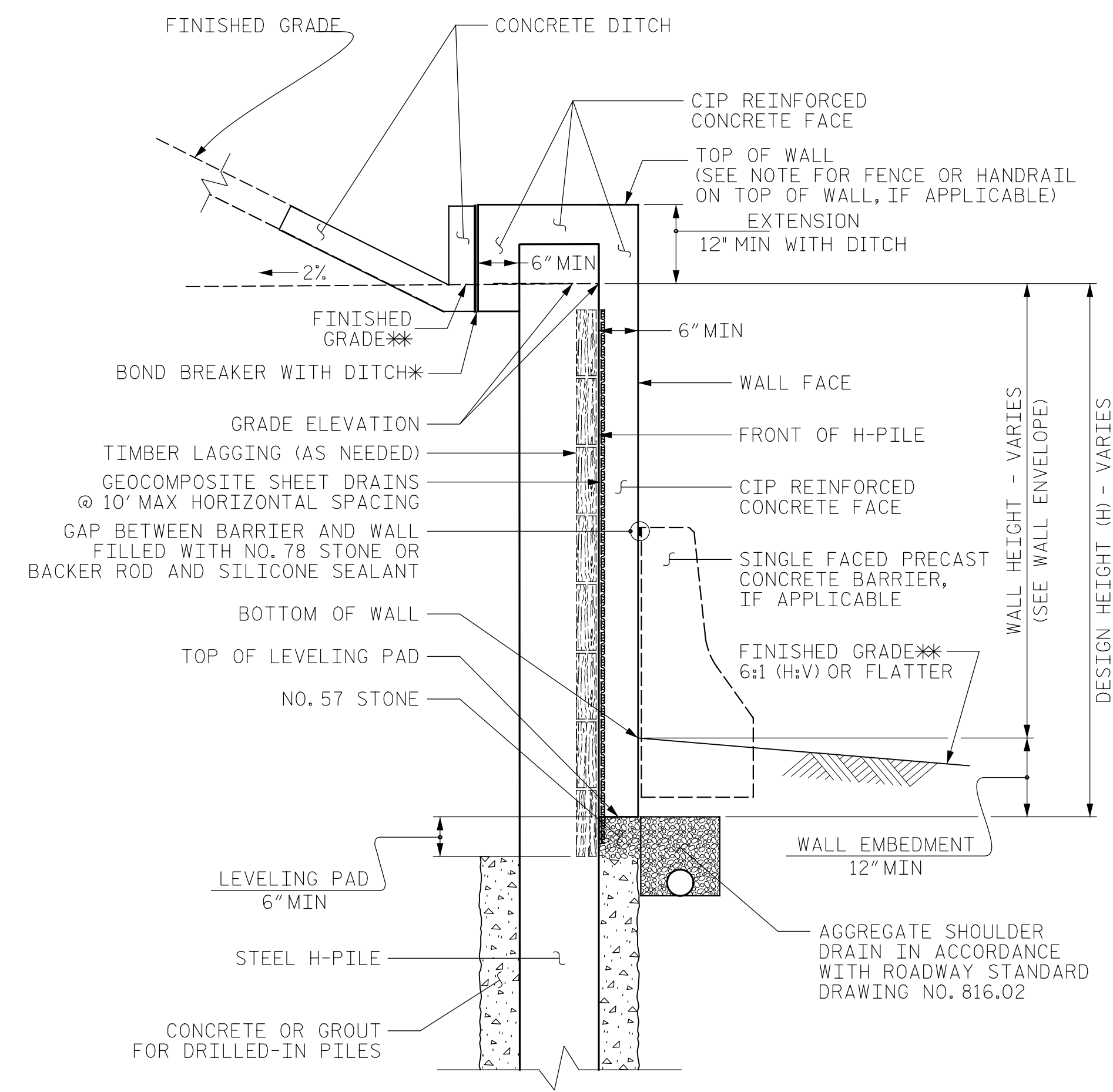
GEOTECHNICAL ENGINEER

ENGINEER

DocuSigned by:
Shane Johnson 12/09/2024

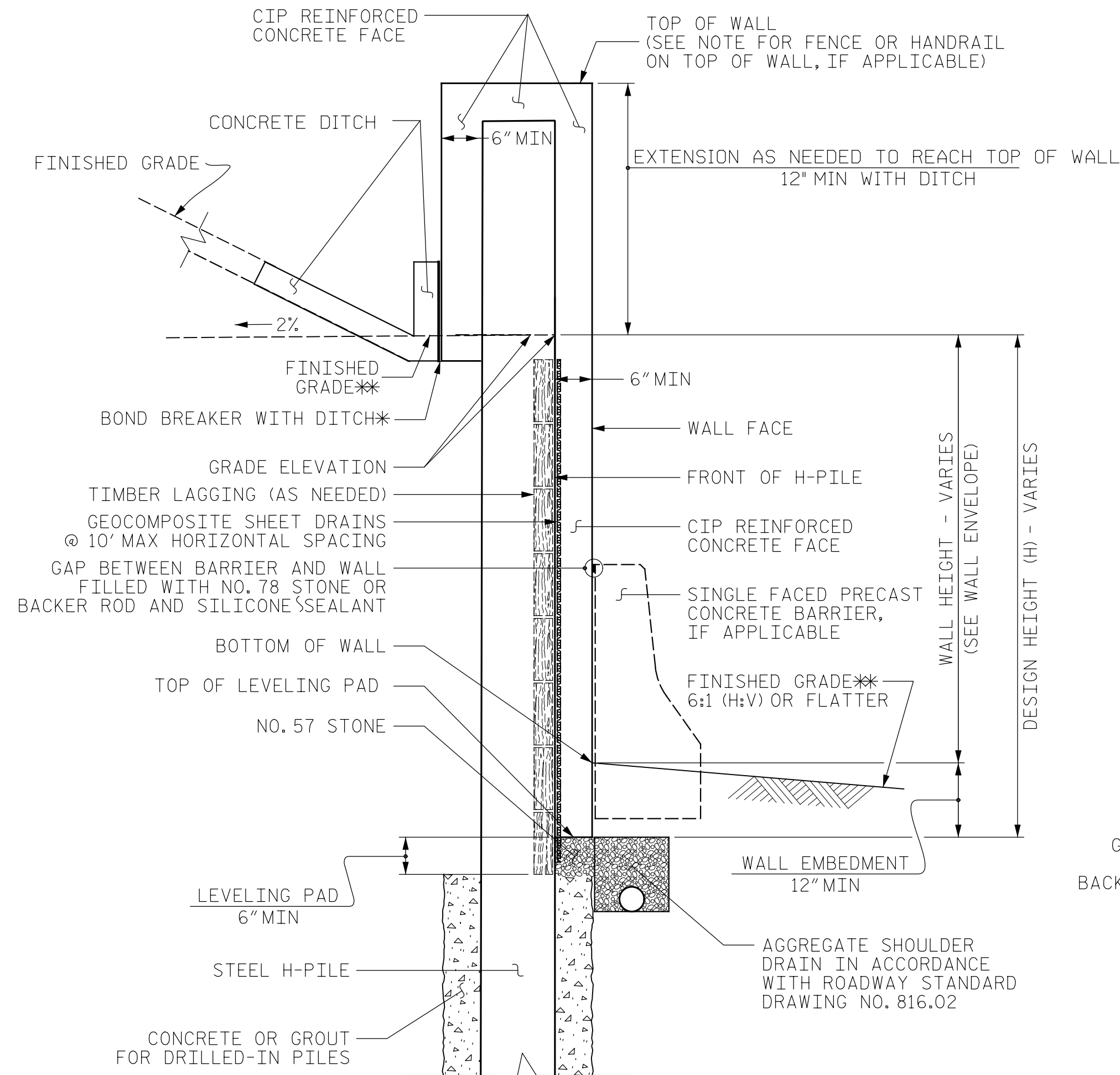
DATE: 12/09/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



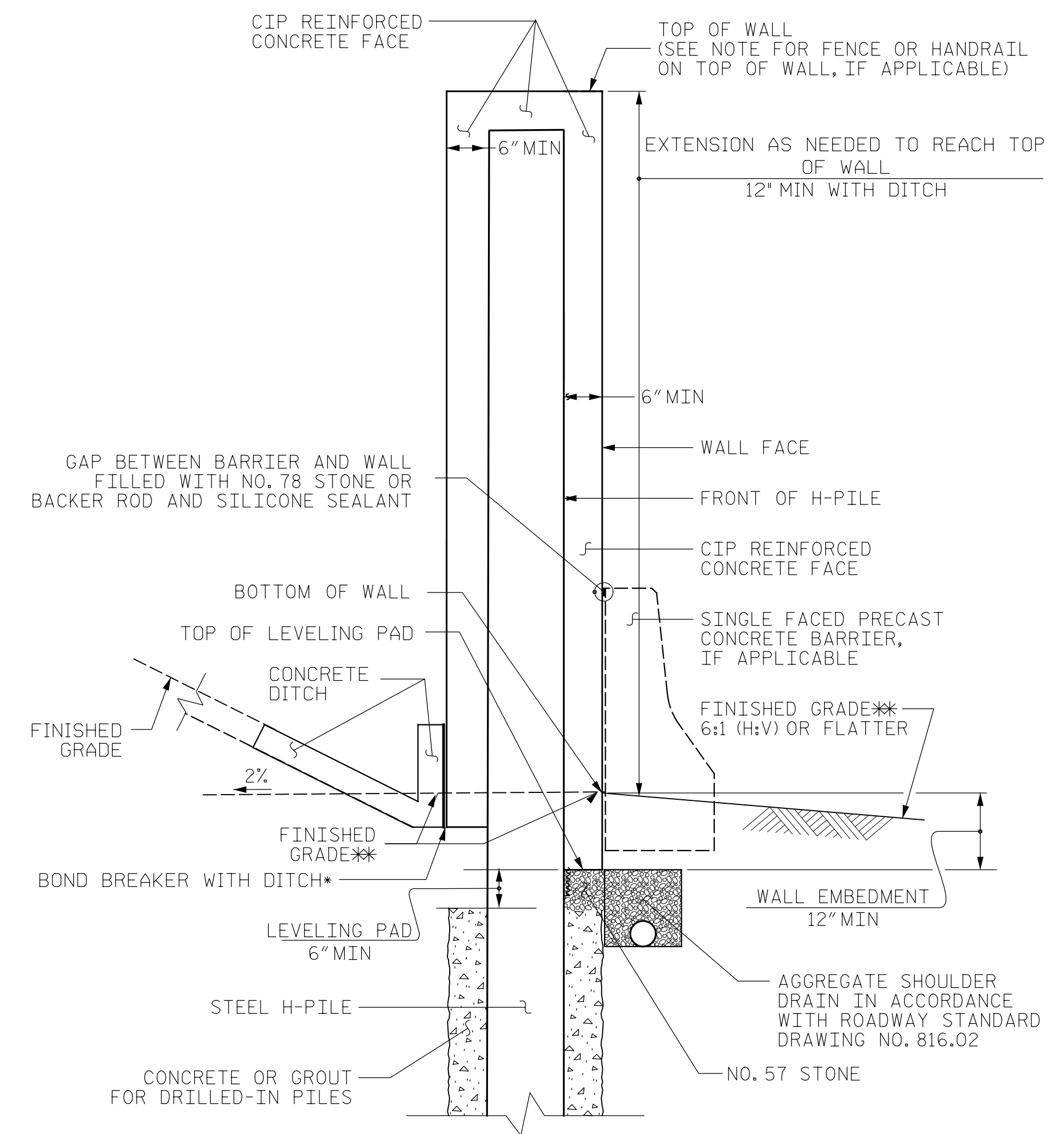
FULLY EMBEDDED SOLDIER PILE WALL WITH CIP FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.



PARTIALLY EMBEDDED SOLDIER PILE WALL WITH CIP FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.

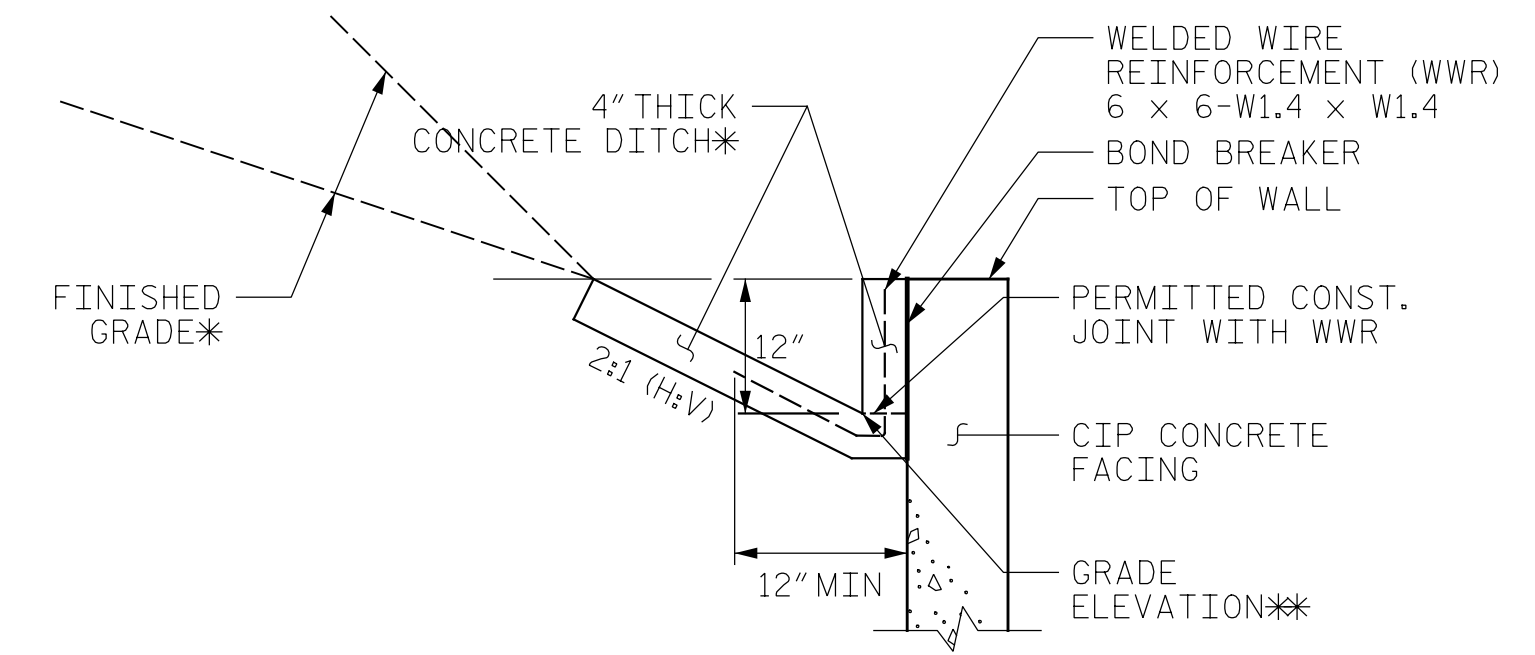


ABOVE GRADE SOLDIER PILE WALL WITH CIP FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.

NOTES:

- FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.
- FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- A FENCE OR HANDRAIL (IF APPLICABLE) IS REQUIRED ON TOP OF RETAINING WALL NO. 1. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.
- DRILLED-IN H-PILES ARE REQUIRED FOR RETAINING WALL NO. 1.
- USE A SOLDIER PILE RETAINING WALL WITH A CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 1.
- A NATURAL STONE ARCHITECTURAL FINISH IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 1. THE NATURAL STONE FINISH MUST BE IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISION AND APPROVED BY NCDOT.
- BEFORE BEGINNING SOLDIER PILE 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:
 - DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
 - DESIGN LIFE = 100 YEARS
 - MINIMUM WALL EMBEDMENT DEPTH = 1 FT
 - DESIGN WALL SECTION ABOVE GRADE ELEVATION FOR WIND PRESSURE OF 27 PSF



CONCRETE DITCH BEHIND WALL WITH CONCRETE FACING

*SEE ROADWAY PLANS FOR CONCRETE DITCH AND FINISHED GRADE DETAILS.
**SEE WALL ENVELOPE FOR GRADE ELEVATIONS.

Retaining Wall No. 1											
-W1- 10+00 to 10+50 ⁽¹⁾			-W1- 10+50 to 11+50 ⁽¹⁾			-W1- 11+50 to 12+66.12					
	V (pcf)	φ' (°)	c' (psf)		V (pcf)	φ' (°)	c' (psf)				
Above EL. 461 ft	115	30	0	Above EL. 457 ft	115	30	0	Above EL. 463 ft	115	30	0
Below EL. 461 ft	120	32	0	Below EL. 457 ft	125	36	0	Below EL. 463 ft	120	30	0
Below EL. 447 ft	120	30	0	Below EL. 446 ft	150	42	0	Below EL. 457 ft	125	36	0
Below EL. 440 ft	135	42	0								

Notes:
1 - Pile excavation into weathered rock or crystalline rock may be required.
2 - Groundwater not encountered in borings.

PREPARED BY: _____ DATE: _____

REVIEWED BY: _____ DATE: _____

PROJECT NO.: R-5930B

CHATHAM COUNTY

STATION: -W1- 10+00.00 TO 12+66.12

SHEET 2 OF 4 WALL ID RW-1



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 1 SOLDIER PILE WALL WITH OR WITHOUT BACK SLOPE - TYPICALS & NOTES

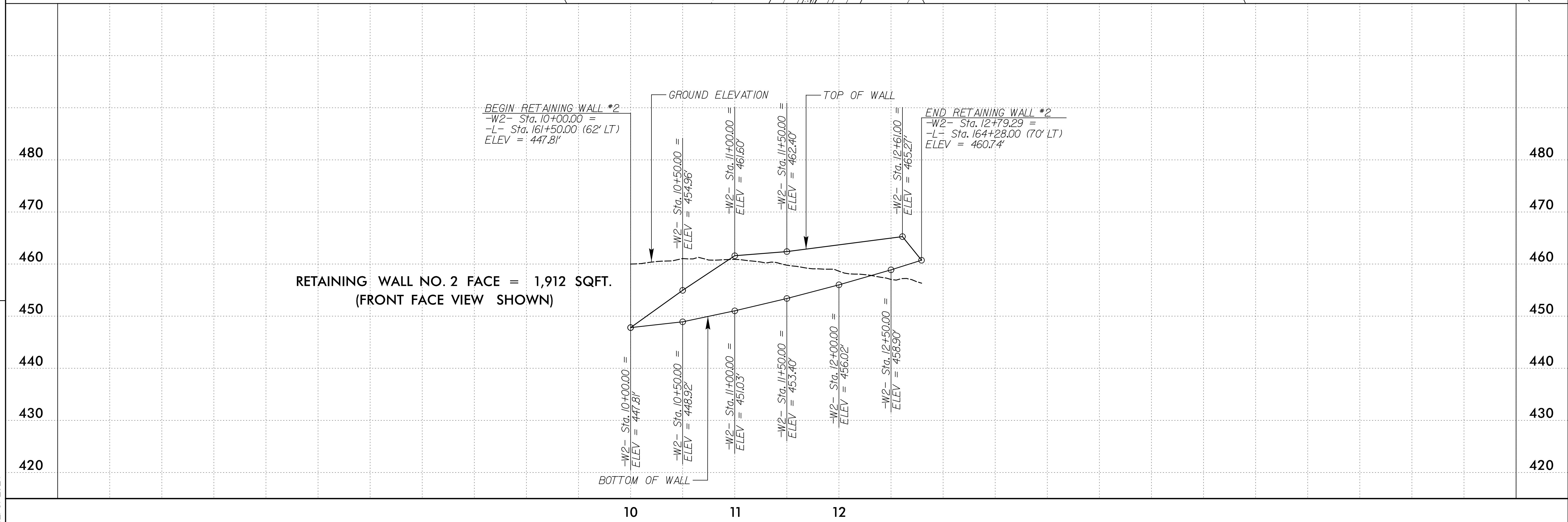
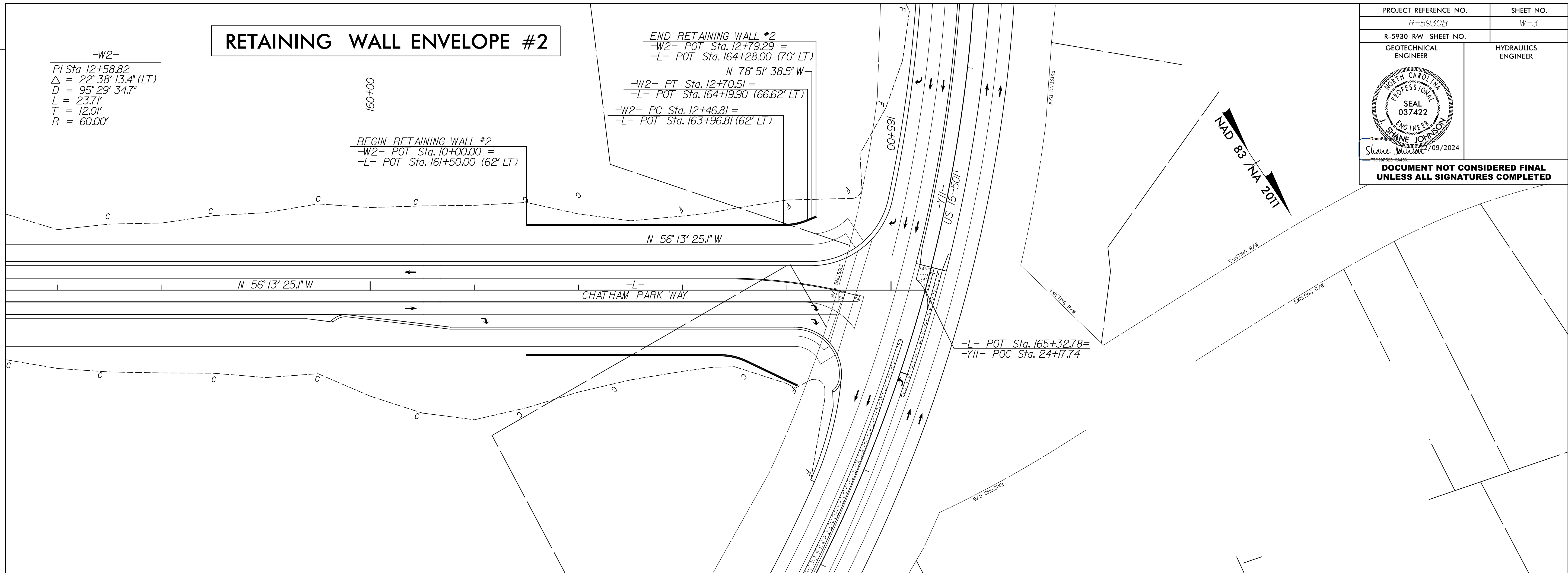
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-2
2			4			

RETAINING WALL ENVELOPE #2

-W2-
 PI Sta 12+58.82
 $\Delta = 22' 38" 13.4" (LT)$
 $D = 95' 29" 34.7"$
 $L = 23.7'$
 $T = 12.0'$
 $R = 60.00'$

END RETAINING WALL #2
 -W2- POT Sta. 12+79.29 =
 -L- POT Sta. 164+28.00 (70' LT)
 $N 78' 51" 38.5" W$
 -W2- PT Sta. 12+70.51 =
 -L- POT Sta. 164+19.90 (66.62' LT)
 -W2- PC Sta. 12+46.81 =
 -L- POT Sta. 163+96.81 (62' LT)

BEGIN RETAINING WALL #2
 -W2- POT Sta. 10+00.00 =
 -L- POT Sta. 161+50.00 (62' LT)



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REVISIONS

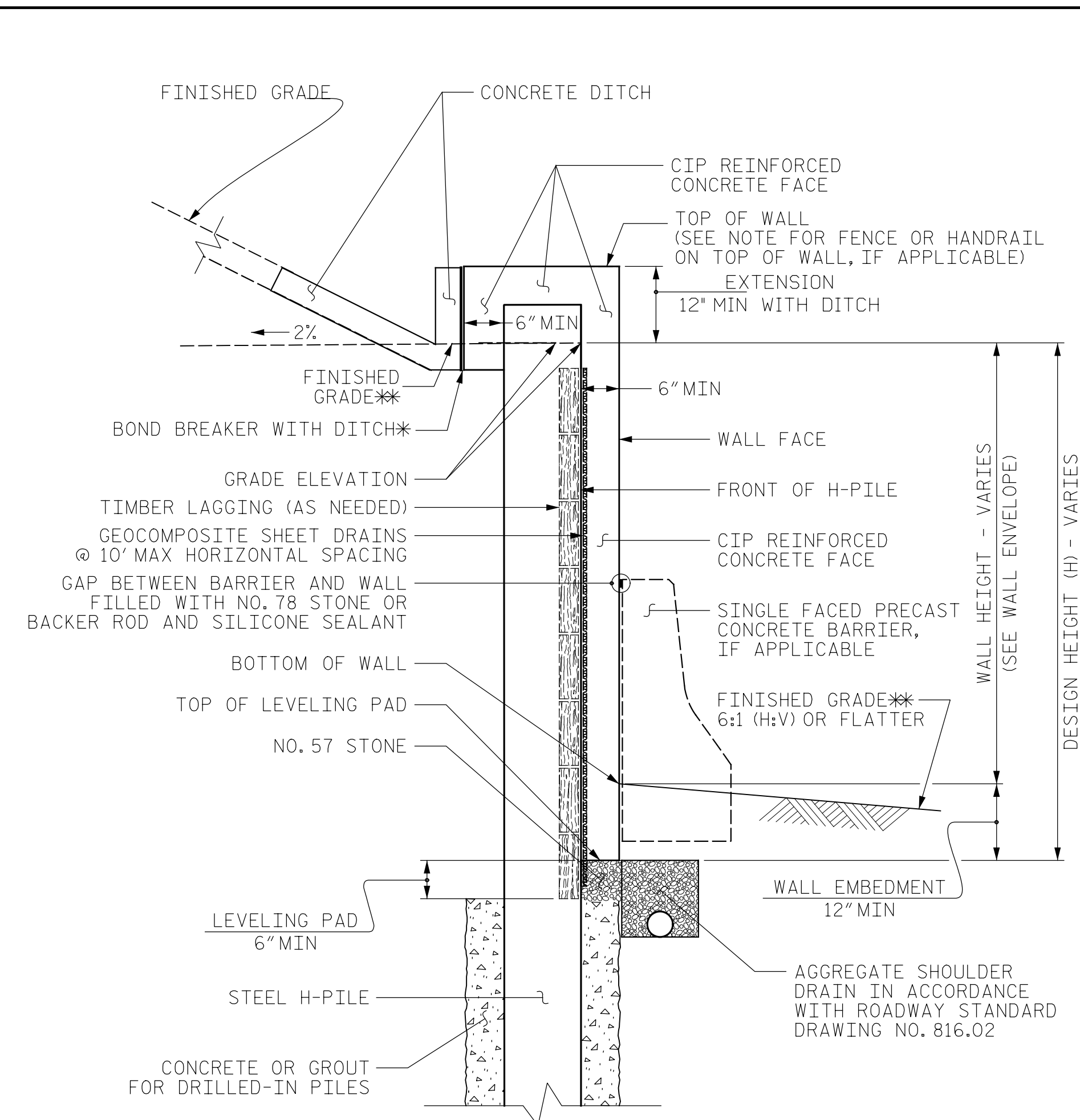
12/5/2024

GEOTECHNICAL ENGINEER

ENGINEER

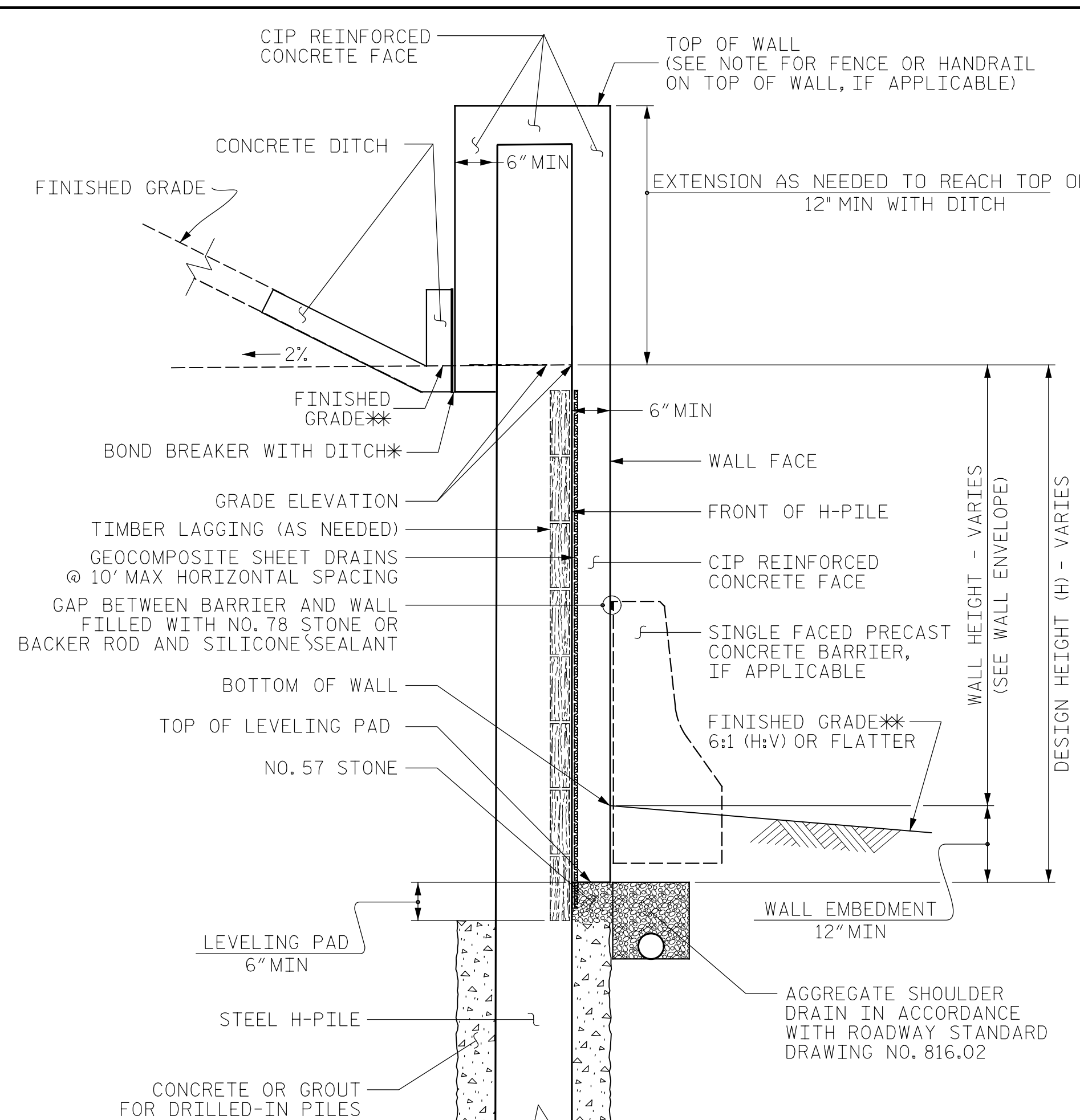
DocuSigned by:
Shane Johnson 12/09/2024

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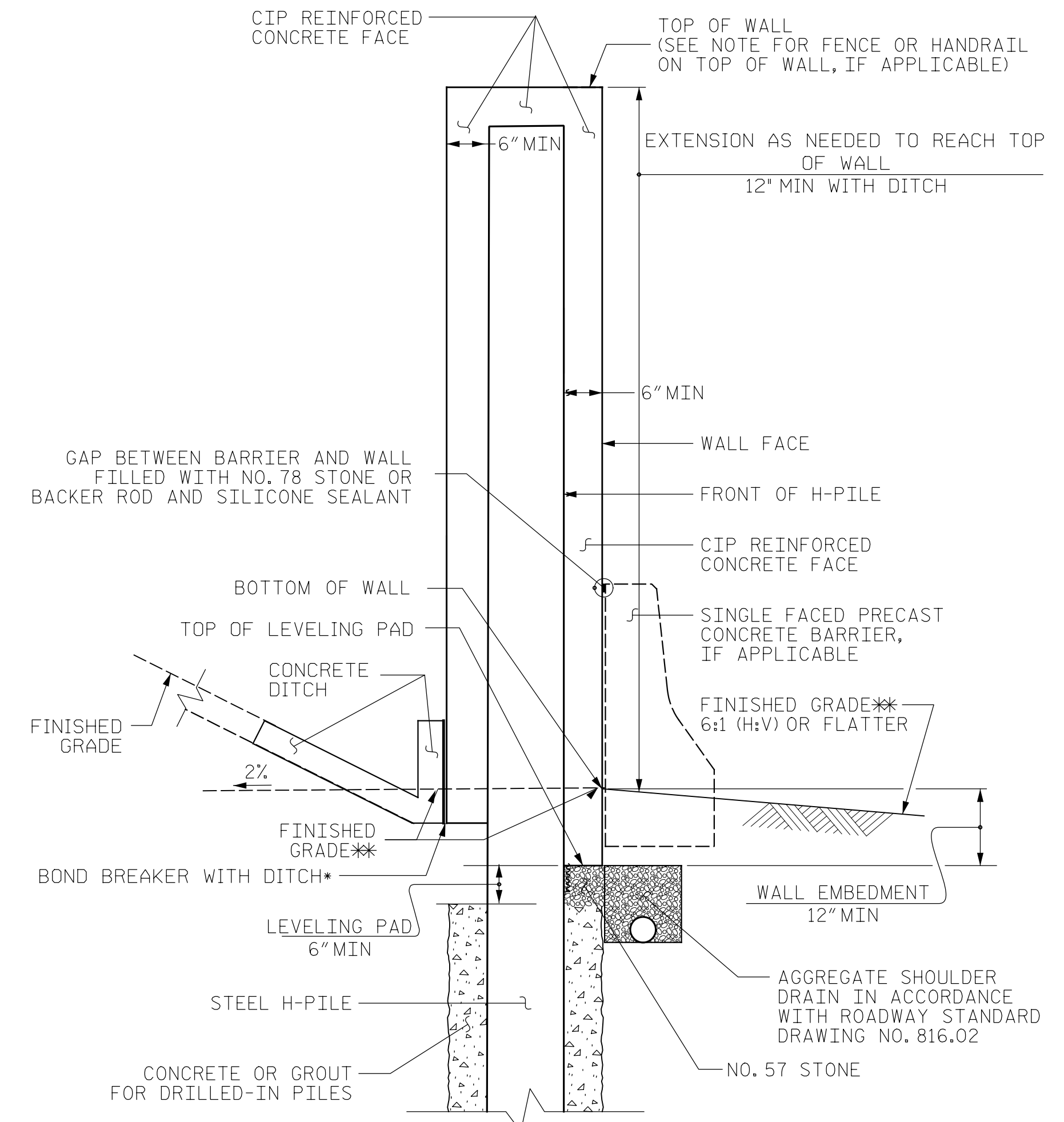
FULLY EMBEDDED SOLDIER PILE WALL WITH CIP FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.



PARTIALLY EMBEDDED SOLDIER PILE WALL WITH CIP FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.

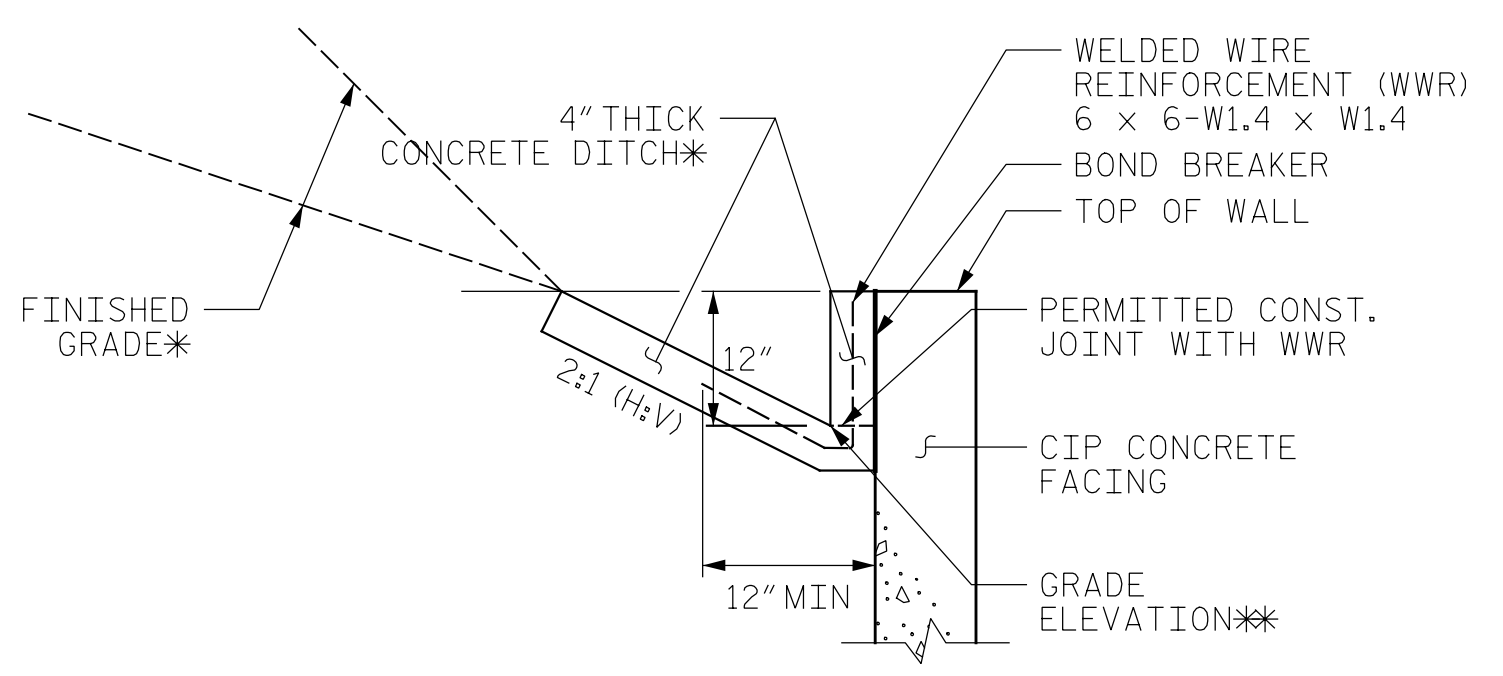


ABOVE GRADE SOLDIER PILE WALL WITH CIP FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.

NOTES:

- FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.
- FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- A FENCE OR HANDRAIL (IF APPLICABLE) IS REQUIRED ON TOP OF RETAINING WALL NO. 2. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.
- DRILLED-IN H-PILES ARE REQUIRED FOR RETAINING WALL NO. 2.
- USE A SOLDIER PILE RETAINING WALL WITH A CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 2.
- A NATURAL STONE ARCHITECTURAL FINISH IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 2. THE NATURAL STONE FINISH MUST BE IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISION AND APPROVED BY NCDOT.
- BEFORE BEGINNING SOLDIER PILE WALL DESIGN FOR RETAINING WALL 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. 2 FOR THE FOLLOWING:
 - 1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
 - 2) DESIGN LIFE = 100 YEARS
 - 3) MINIMUM WALL EMBEDMENT DEPTH = 1 FT
 - 4) DESIGN WALL SECTION ABOVE GRADE ELEVATION FOR WIND PRESSURE OF 27 PSF



CONCRETE DITCH BEHIND WALL WITH CONCRETE FACING

*SEE ROADWAY PLANS FOR CONCRETE DITCH AND FINISHED GRADE DETAILS.
**SEE WALL ENVELOPE FOR GRADE ELEVATIONS.

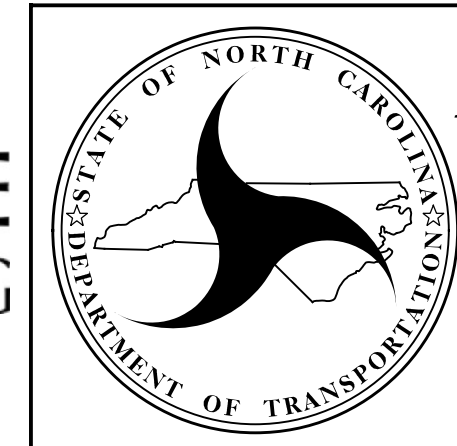
Retaining Wall No. 2							
-W2- 10+00 to 11+50			-W2- 11+50 to 12+79.29				
	γ (pcf)	ϕ' (°)	c' (psf)	γ (pcf)	ϕ' (°)	c' (psf)	
Above EL. 454 ft	115	30	0	Above EL. 443 ft	115	30	0
Below EL. 454 ft	125	36	0	Below EL. 443 ft	125	36	0

Notes:
1 - Design Groundwater Elevation 444 feet.
2 - A portion of Wall #2 extends above finished grade.

PREPARED BY: _____ DATE: _____
REVIEWED BY: _____ DATE: _____

PROJECT NO.: R-5930B
CHATHAM COUNTY
STATION: -W2- 10+00.00 TO 12+79.29
SHEET 4 OF 4 WALL ID RW-2

INFRASTRUCTURE CONSULTING & ENGINEERING



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 2 SOLDIER PILE WALL WITH OR WITHOUT BACK SLOPE - TYPICALS & NOTES

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. W-4