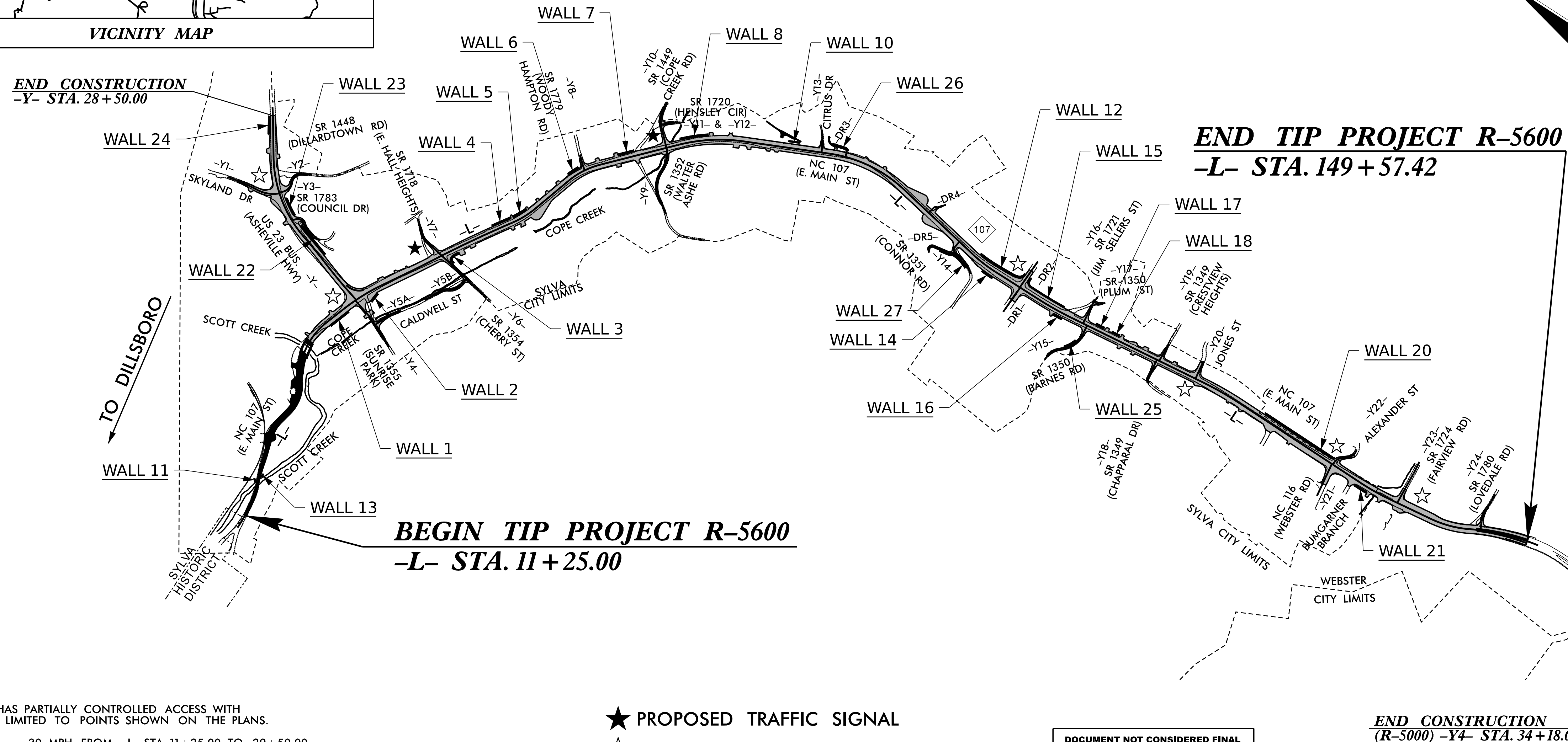
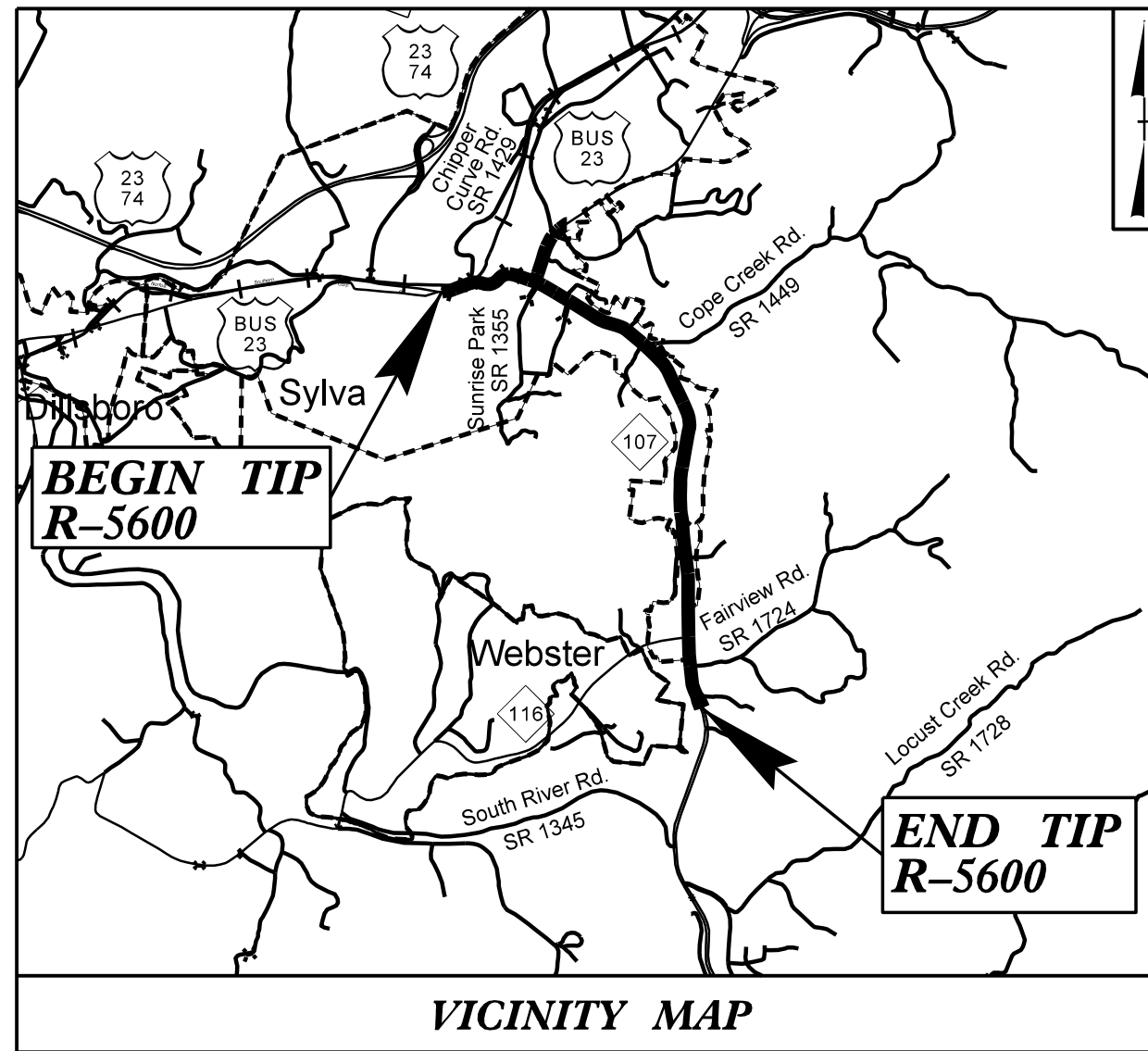
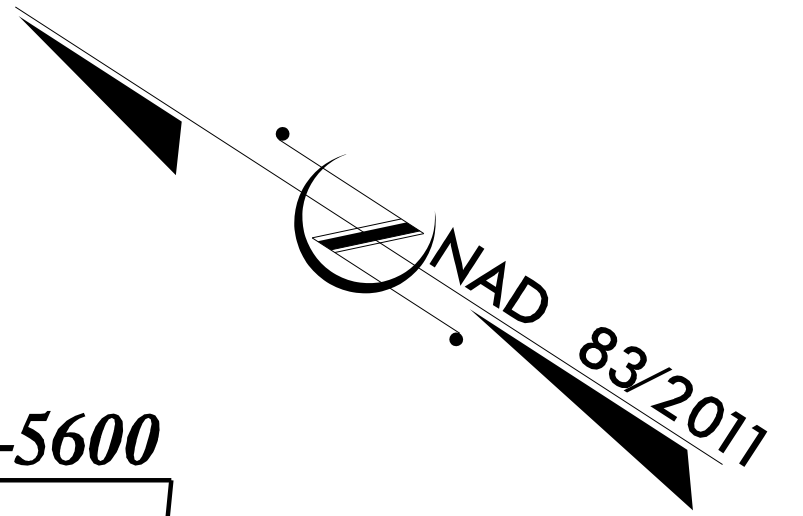
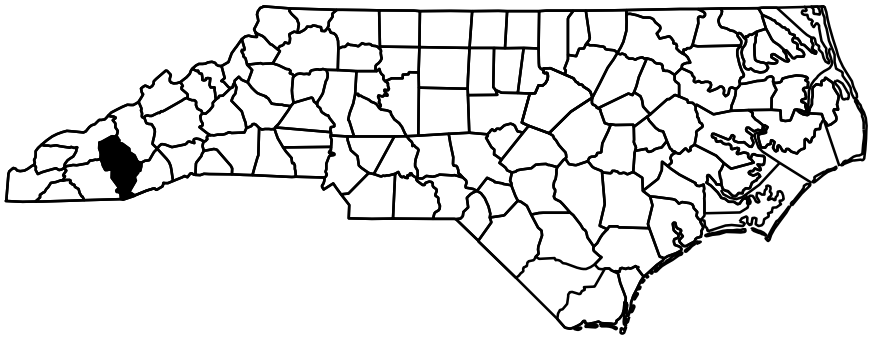


LOCATION: SYLVA – N.C. 107 FROM WEST OF U.S. 23 BUSINESS (ASHEVILLE HIGHWAY) TO SOUTH OF N.C. 116 (WEBSTER ROAD) AND U.S. 23 BUS. FROM SKYLAND DRIVE TO WEST OF MUNICIPAL DRIVE

TYPE OF WORK: GRADING, PAVING, DRAINAGE, RETAINING WALLS, STRUCTURES AND SIGNALS



NOTES:
THIS PROJECT HAS PARTIALLY CONTROLLED ACCESS WITH
ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS.

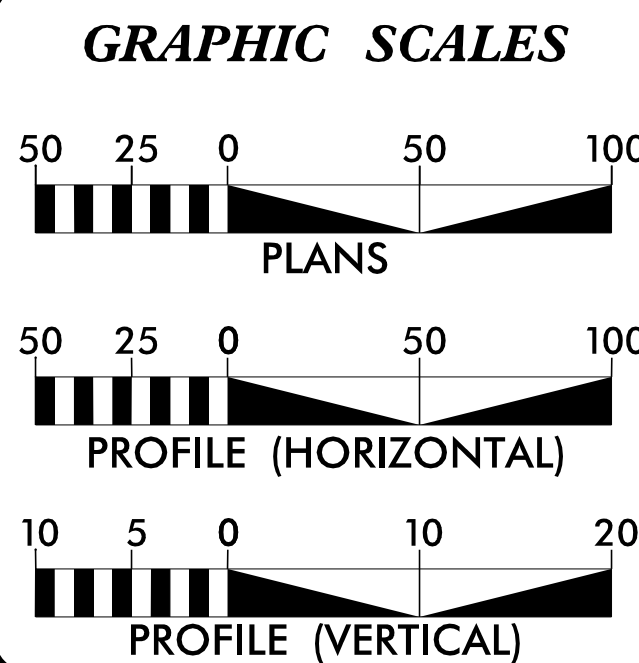
DESIGN SPEED = 30 MPH FROM -L- STA. 11+25.00 TO 29+50.00
DESIGN SPEED = 40 MPH FROM -L- STA. 29+50.00 TO 123+00.00
DESIGN SPEED = 50 MPH FROM -L- STA. 123+00.00 TO 149+57.42

★ PROPOSED TRAFFIC SIGNAL
☆ UPGRADED TRAFFIC SIGNAL

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

TIP PROJECT: R-5600

CONTRACT:



DESIGN DATA

ADT 2025 = 37,340
ADT 2045 = 42,420
K = 9 %
D = 55 %
T = 5 % *
V = 30 MPH
TO 50 MPH

* TTST = 4% DUAL = 3%

FUNC CLASS = ARTERIAL
REGIONAL TIER

<i>PROJECT LENGTH</i>				
LENGTH ROADWAY TIP PROJECT R-5600	=	2.603	MILES	
LENGTH STRUCTURES TIP PROJECT R-5600	=	0.017	MILES	
TOTAL LENGTH TIP PROJECT R-5600	=	2.620	MILES	

	<i>Prepared In the Office of:</i> HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116
2024 STANDARD SPECIFICATIONS	PHILLIP E. ROGERS, PE <i>PROJECT ENGINEER</i> ALEXANDER D. SNIDER, PE <i>PROJECT DESIGN ENGINEER</i> JEANETTE L. WHITE, PE <i>NC DOT CONTACT</i>
<i>RIGHT OF WAY DATE:</i> JULY 16, 2021	
<i>LETTING DATE:</i> OCTOBER 21, 2025	

GEOTECHNICAL ENGINEER

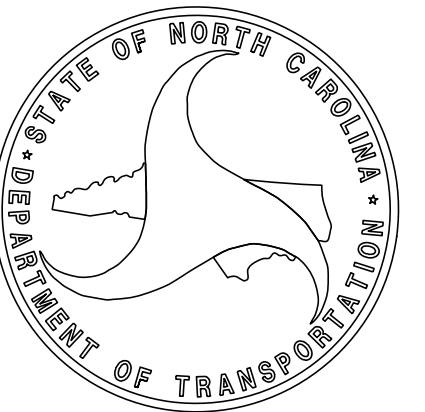


SIGNATURE: _____ **P.E.**

ROADWAY DESIGN ENGINEER



SIGNATURE: _____ **P.E.**



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W-06	WALL 6 ALIGNMENT AND ENVELOPE
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NOTE:
WALL ENVELOPES SHOWN ARE BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPES DEPICTED SHOW THE APPROXIMATE EXPOSED FACE OF EACH WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL DESIGNS OF EACH WALL, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

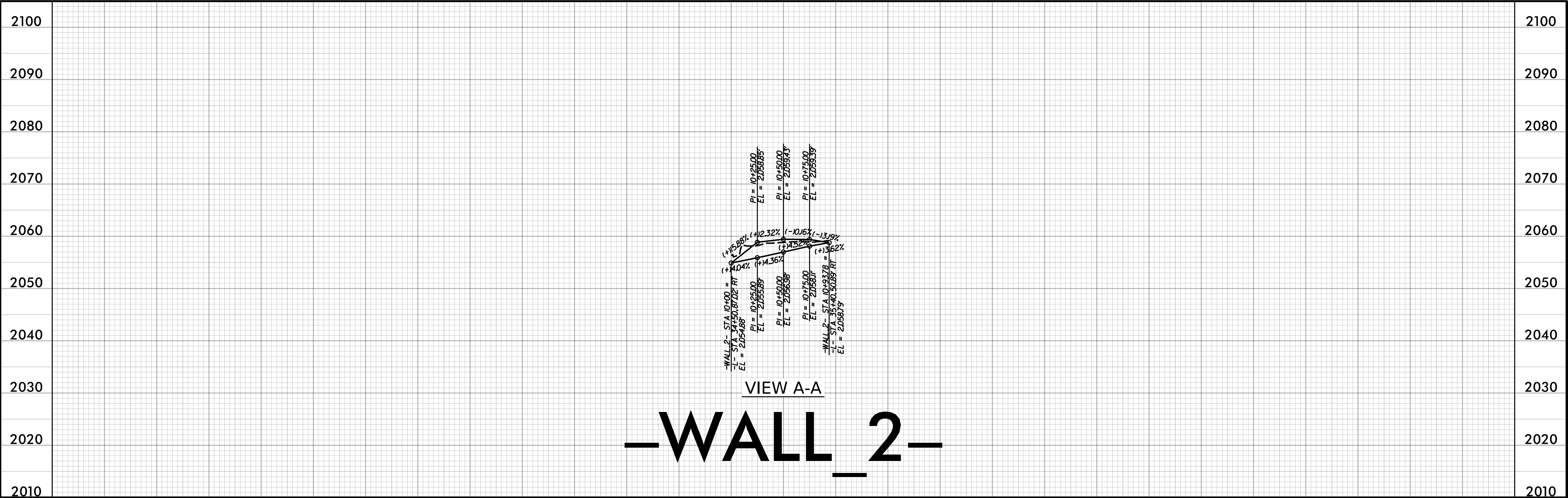
PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **- -**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INDEX OF SHEETS

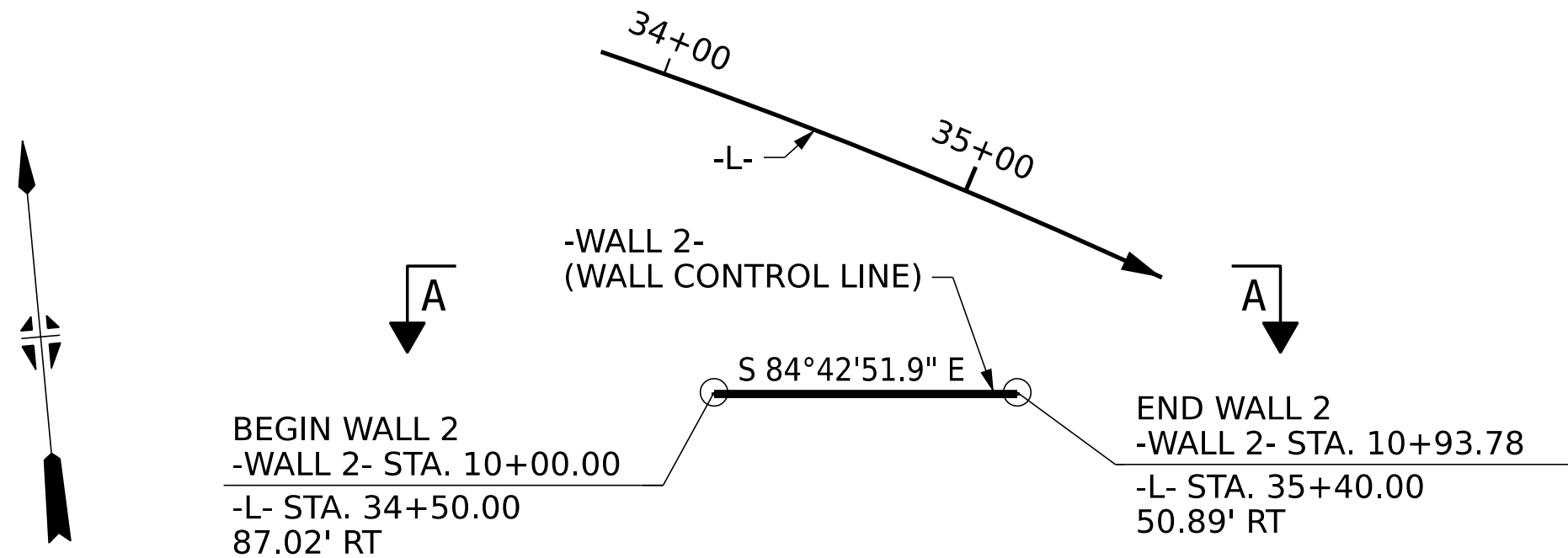
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NO.	BY:	DATE:	NO.	BY:	DATE:	W-02
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46

DES BY: <u>P. ZHANG</u>	DATE : <u>03/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>A. VARRI</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>03/25</u>



VIEW A-A

-WALL_2-



PLAN OF WALL 2

WALL STRUCTURE DESIGN NOTE:
-WALL 2- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (OFFSET VARIES; SEE PLANS). WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED, TO SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL 2- ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (OFFSET VARIES; SEE PLANS).

STANDARD SEGMENTAL GRAVITY WALL QUANTITIES (SQUARE FEET)	
STANDARD SEGMENTAL GRAVITY WALL NO. 2	163 SF

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

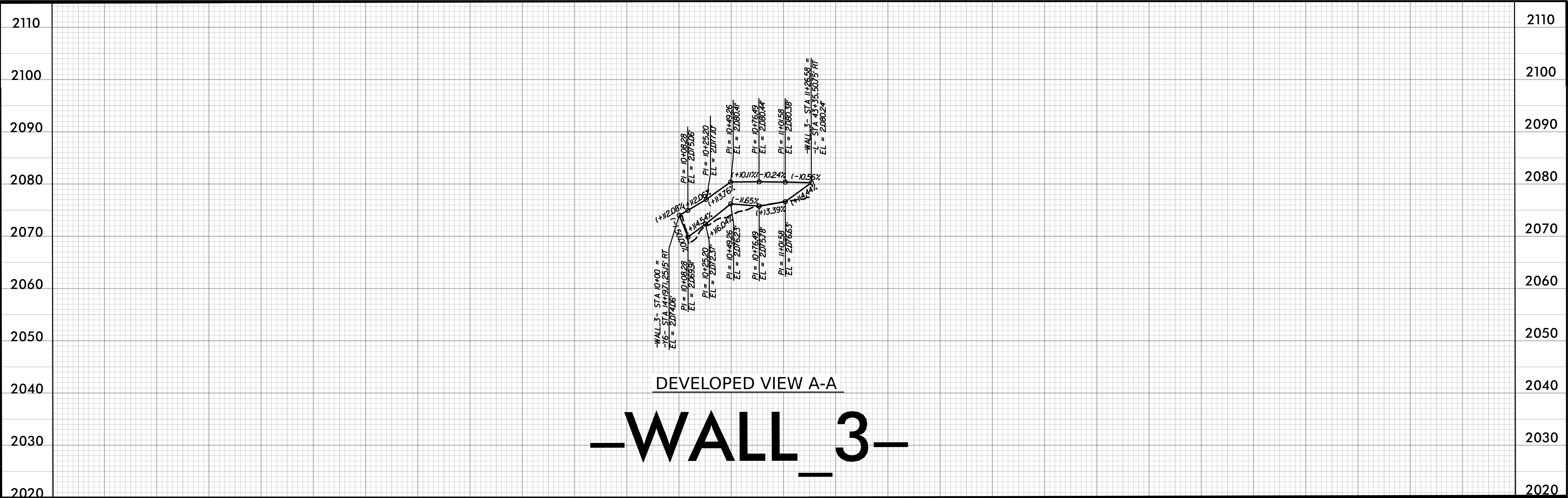
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555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



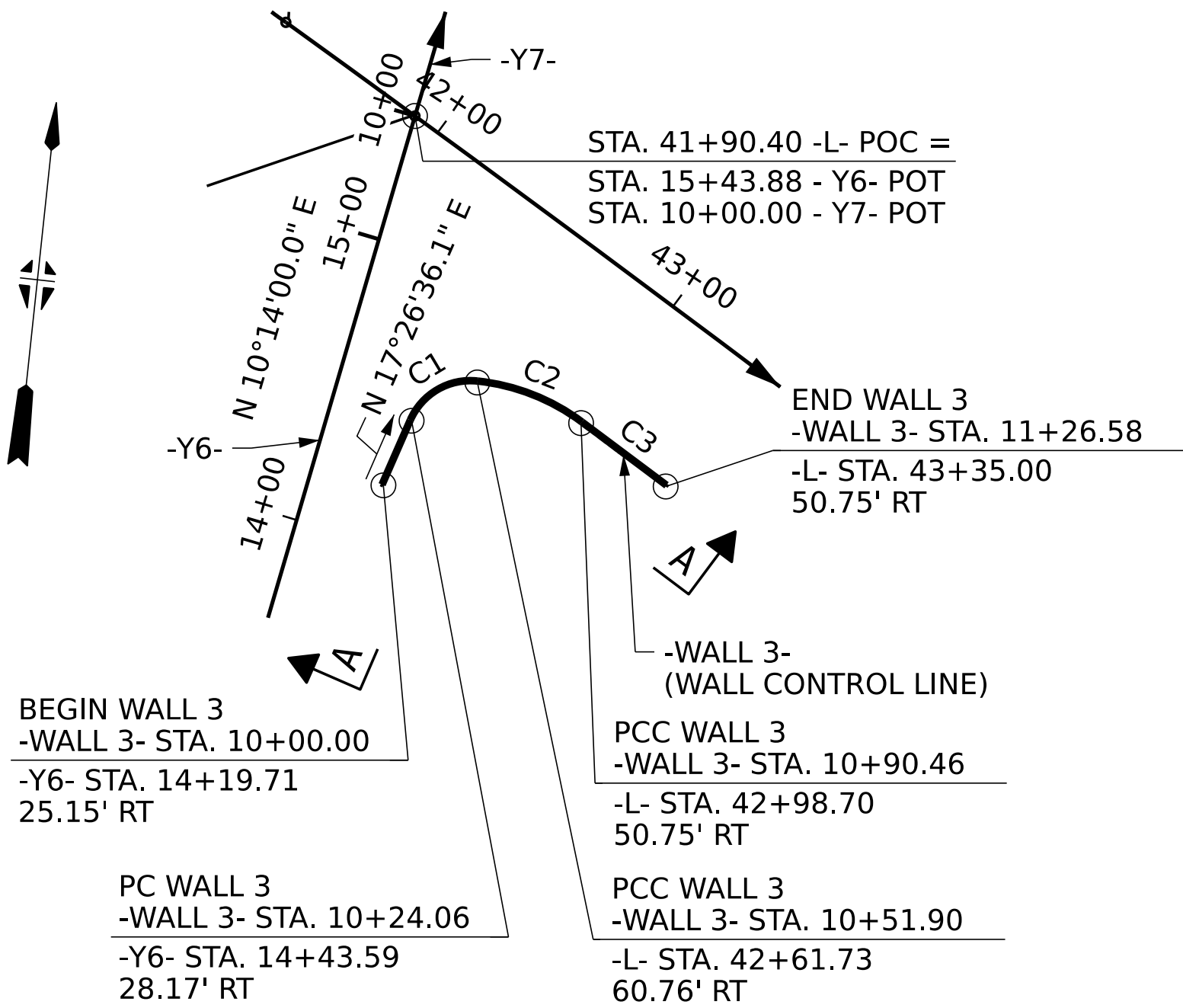
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PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_2-**

REVISIONS						SHEET NO. W-03
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



WALL STRUCTURE DESIGN NOTE:
-WALL_3- ALIGNMENT IS ASSUMED TO BE AT FACE OF WALL, AND IS SET
BASED ON AN APPROXIMATE 1' OFFSET FROM BACK OF SIDEWALK (49.75' RT
OF -L-). WALL STRUCTURE DESIGN SHALL FURTHER OFFSET THE ACTUAL
FACE OF WALL BEYOND THE -WALL_3- DESIGNED ALIGNMENT, AS
REQUIRED, TO MAINTAIN THE CLEAR SIDEWALK WIDTH (TO 49.75' RT OF -L-).



STANDARD SEGMENTAL GRAVITY WALL QUANTITIES (SQUARE FEET)	
STANDARD SEGMENTAL GRAVITY WALL NO. 3	482 SF

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND
BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE
DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE
STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF
WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL
DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION
AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: A. SNIDER	DATE : 02/25	DWG BY: B. PETERSON	DATE : 02/25
DES CHK: E. BROOKS	DATE : 05/25	CHK BY: A. SNIDER	DATE : 05/25

CURVE C-1	CURVE C-2	CURVE C-3
PI STA. 10+40.20 Δ = 72°30'19.7" (RT.) D = 260°26'07.3" L = 27.84' T = 16.13' R = 22.00'	PI STA. 10+71.66 Δ = 30°41'00.3" (LT.) D = 79°34'38.9" L = 38.56' T = 19.75' R = 72.00'	PI STA. 11+08.52 Δ = 00°12'28.8" (RT.) D = 00°34'33.2" L = 36.12' T = 18.06' R = 9949.25'

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_3-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

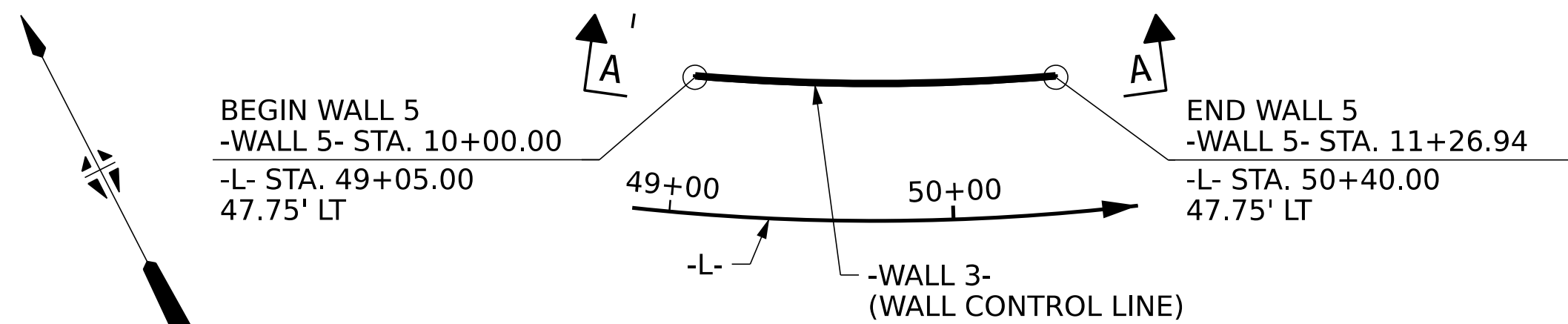
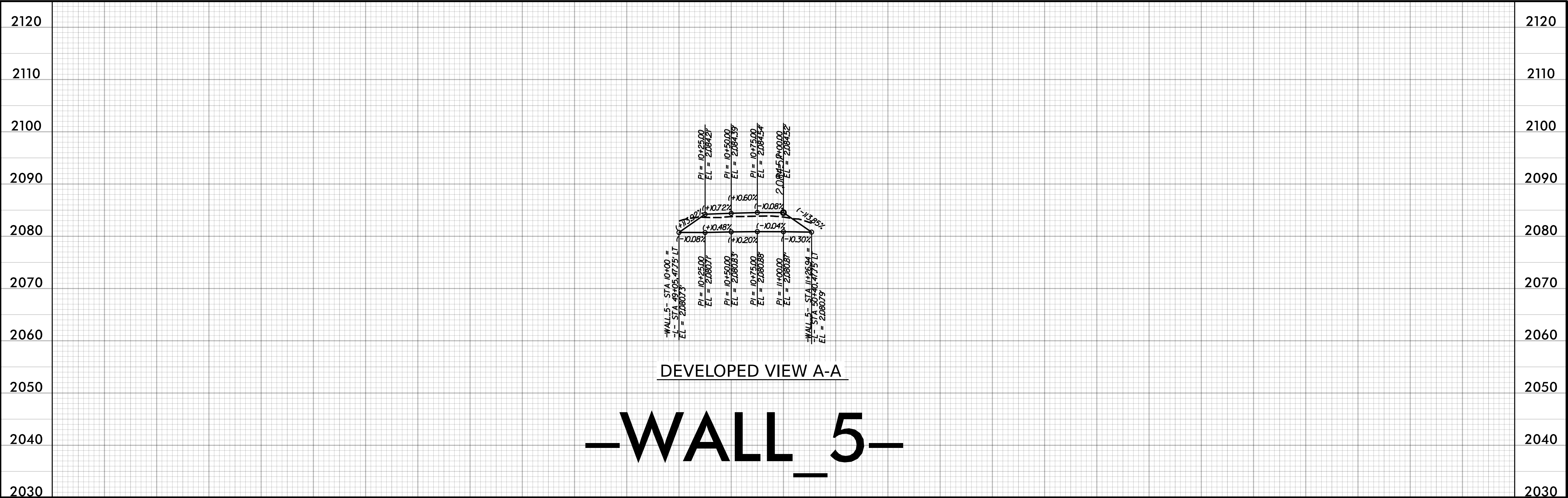
**WALL 3
ALIGNMENT AND ENVELOPE**



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REVISIONS						SHEET NO. W-04
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



PLAN OF WALL 5

HORIZONTAL CURVE DATA -WALL_5-

PI STA. 10+63.62
 $\Delta = 09^{\circ}40'07.2''$ (LT.)
 $D = 07^{\circ}36'59.7''$
 $L = 126.94'$
 $T = 63.62'$
 $R = 752.25'$

WALL STRUCTURE DESIGN NOTE:
-WALL_5- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (47.75' LT OF -L-).
WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED,
TO SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL_5-
ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (TO 47.75' LT OF -L-).

**STANDARD SEGMENTAL GRAVITY
WALL QUANTITIES**
(SQUARE FEET)

STANDARD SEGMENTAL GRAVITY WALL NO. 5	363 SF
---------------------------------------	--------

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

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N.C.B.E.L.S. License Number: F-0116



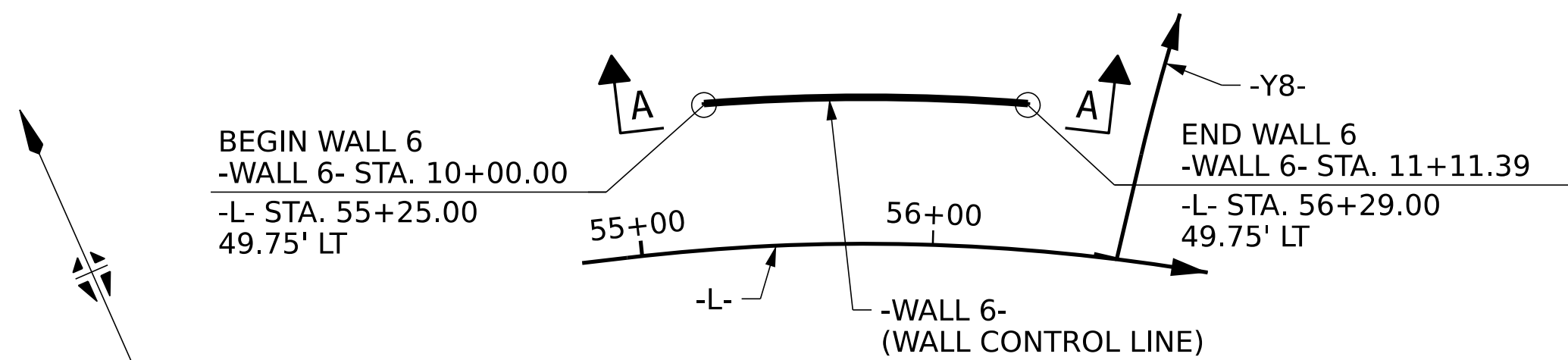
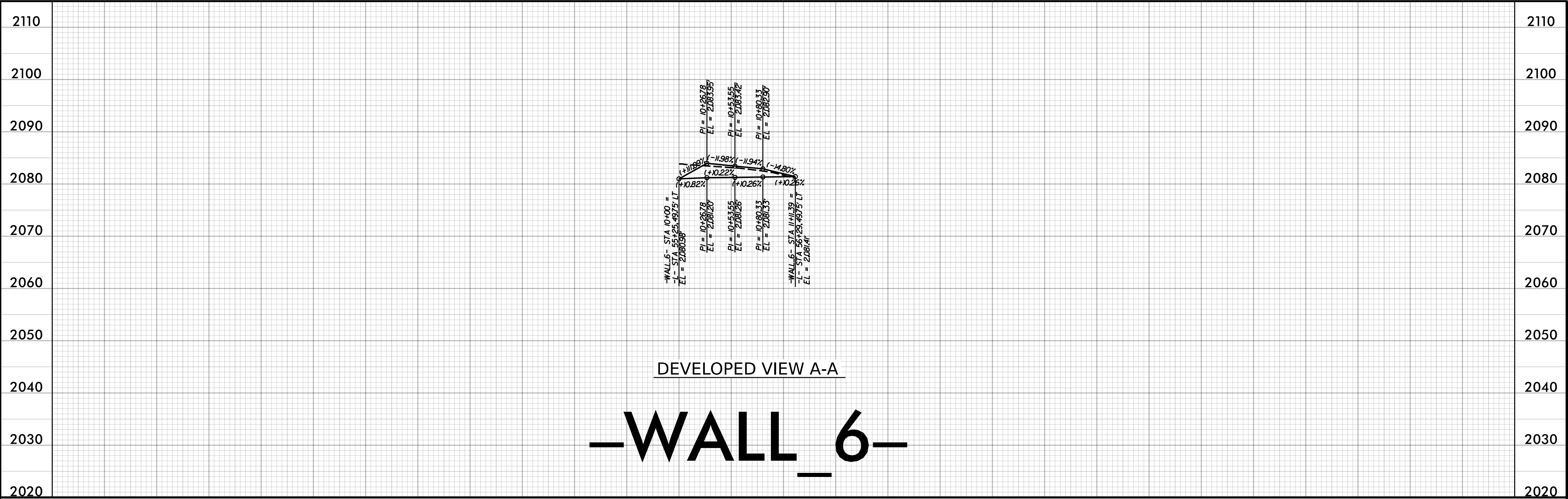
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PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_5-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**WALL 5
ALIGNMENT AND ENVELOPE**

REVISIONS					SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	W-05
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



PLAN OF WALL 6

HORIZONTAL CURVE DATA -WALL_6-

PI STA. 10+55.80
 $\Delta = 08^{\circ}30'45.1''$ (LT.)
 $D = 07^{\circ}38'31.1''$
 $L = 111.39'$
 $T = 55.80'$
 $R = 749.75'$

WALL STRUCTURE DESIGN NOTE:
-WALL_6- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (49.75' LT OF -L-).
WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED, TO
SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL_6-
ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (TO 49.75' LT OF -L-).

**STANDARD SEGMENTAL GRAVITY
WALL QUANTITIES**
(SQUARE FEET)

STANDARD SEGMENTAL GRAVITY WALL NO. 6	177 SF
---------------------------------------	--------

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND
BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE
DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE
STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF
WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL
DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION
AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

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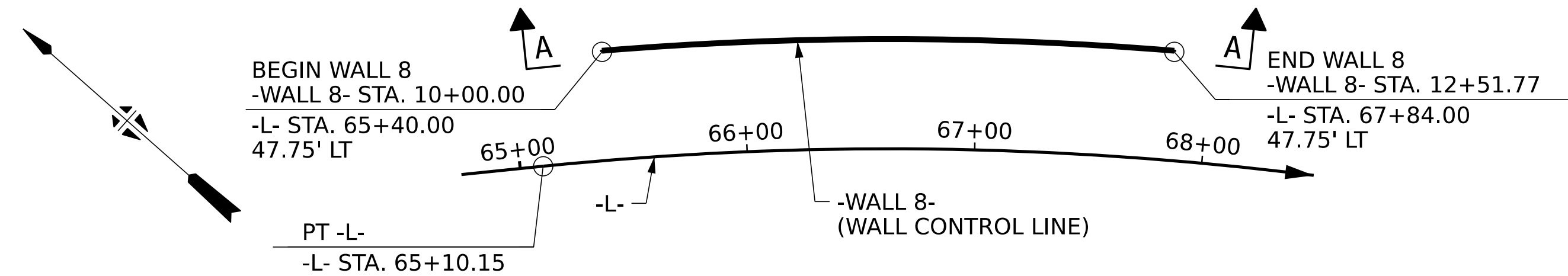
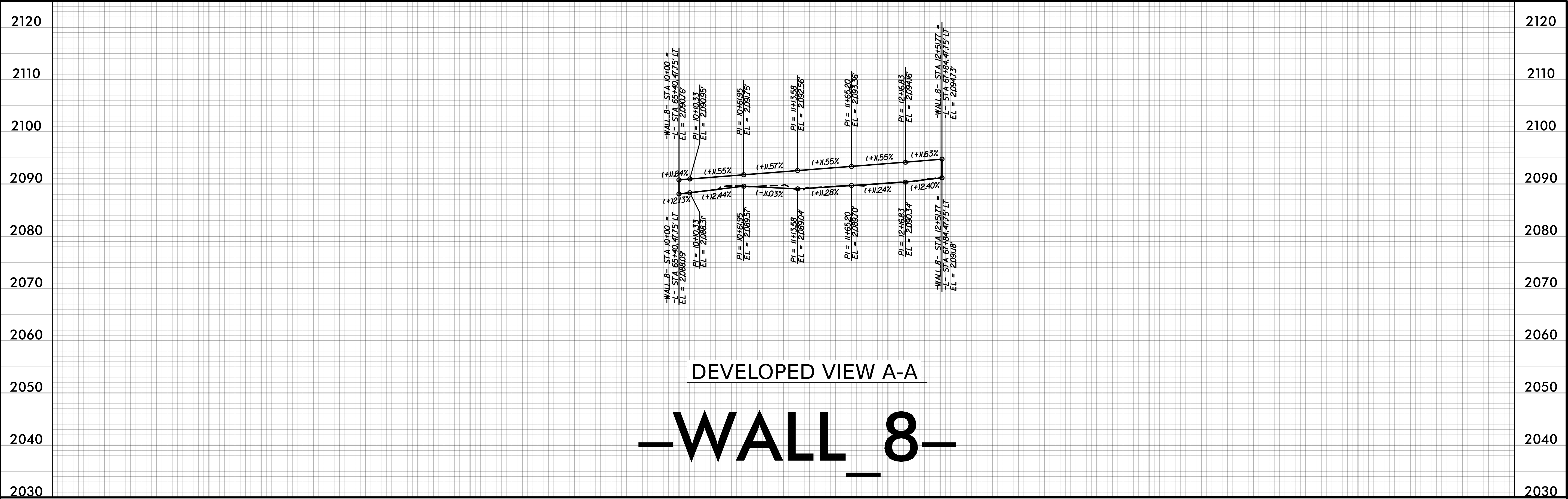
PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_6-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**WALL 6
ALIGNMENT AND ENVELOPE**

REVISIONS					SHEET NO. W-06
NO.	BY:	DATE:	NO.	BY:	
1	--	--	3	--	--
2	--	--	4	--	--

TOTAL SHEETS	46
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PLAN OF WALL 8

HORIZONTAL CURVE DATA -WALL 8-

PI STA. 11+26.16
 $\Delta = 09^{\circ}19'13.0''$ (LT.)
 $D = 03^{\circ}42'06.8''$
 $L = 251.77'$
 $T = 126.16'$
 $R = 1547.75'$

WALL STRUCTURE DESIGN NOTE:
-WALL_8- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (47.75' LT OF -L-).
WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED,
TO SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL_8-
ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (TO 47.75' LT OF -L-).

**STANDARD SEGMENTAL GRAVITY
WALL QUANTITIES
(SQUARE FEET)**

STANDARD SEGMENTAL GRAVITY WALL NO. 8	807 SF
---------------------------------------	--------

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>



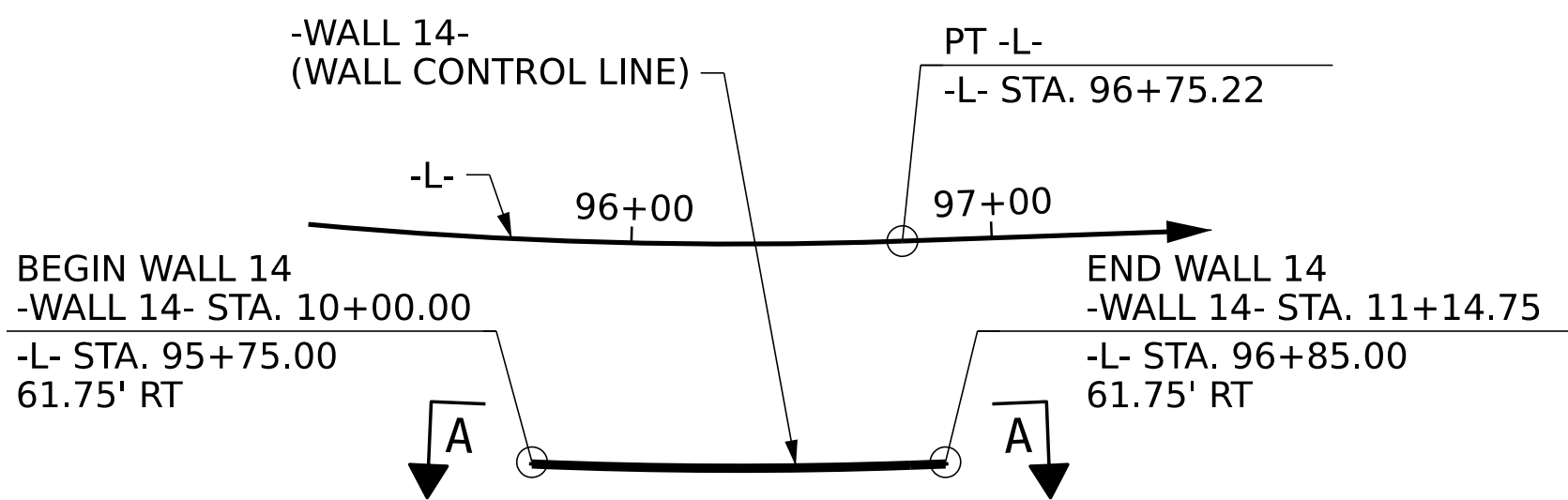
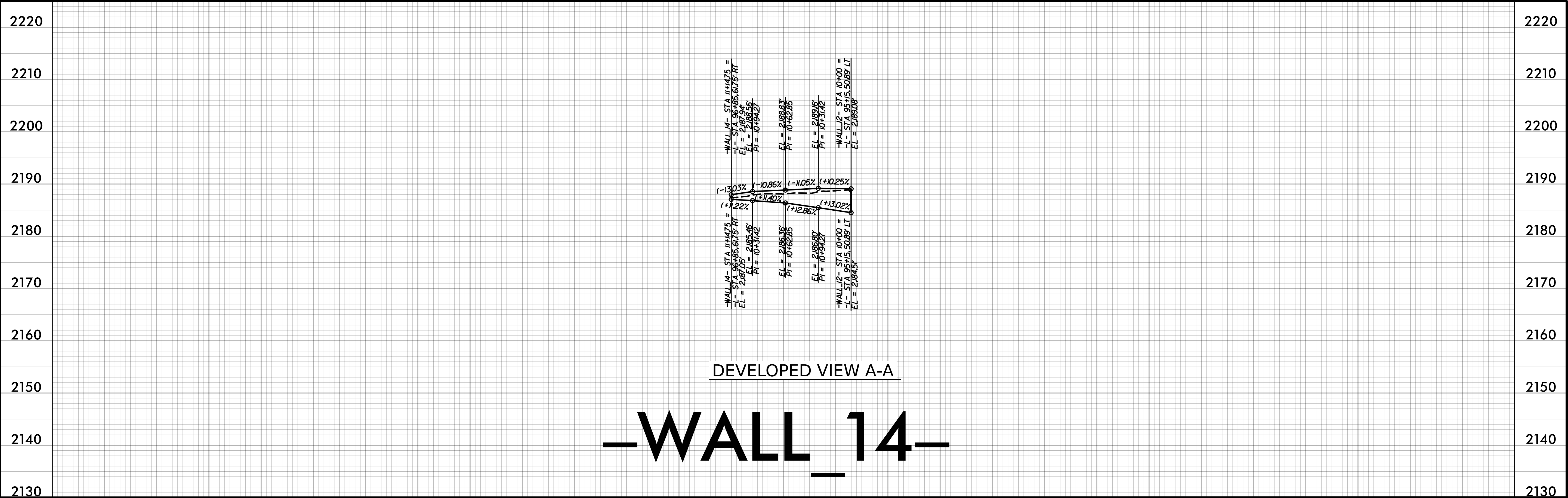
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PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_8-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**WALL 8
ALIGNMENT AND ENVELOPE**

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
				TOTAL SHEETS	46



PLAN OF WALL 14

HORIZONTAL CURVE DATA -WALL 14-

PI STA. 10+57.41
 $\Delta = 04^\circ 49' 41.9''$ (LT.)
D = $04^\circ 12' 27.0''$
L = 114.75'
T = 57.41'
R = 1361.75'

WALL STRUCTURE DESIGN NOTE:
-WALL 14- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (61.75' LT OF -L-).
WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED, TO SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL 14- ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (TO 61.75' LT OF -L-).

**STANDARD SEGMENTAL GRAVITY
WALL QUANTITIES
(SQUARE FEET)**

STANDARD SEGMENTAL GRAVITY WALL NO. 14 | 320 SF

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: A. SNIDER DATE : 02/25 DWG BY: B. PETERSON DATE : 02/25
DES CHK: E. BROOKS DATE : 05/25 CHK BY: A. SNIDER DATE : 05/25

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 14-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

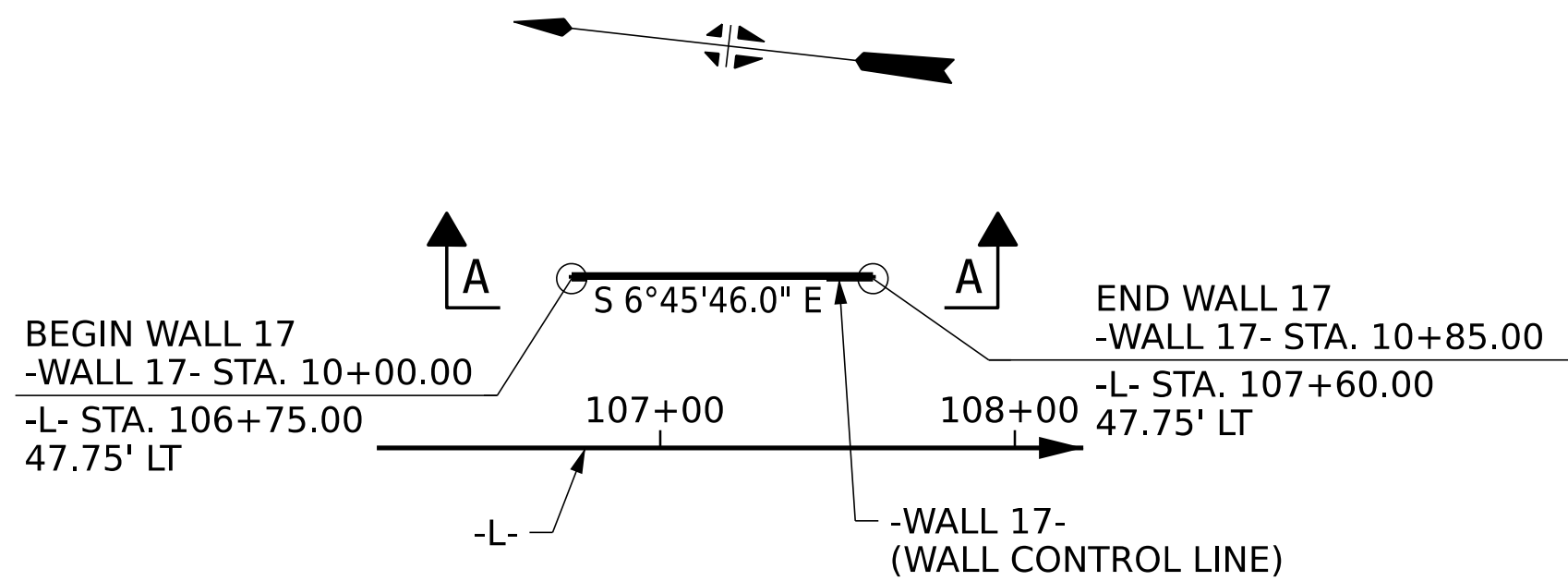
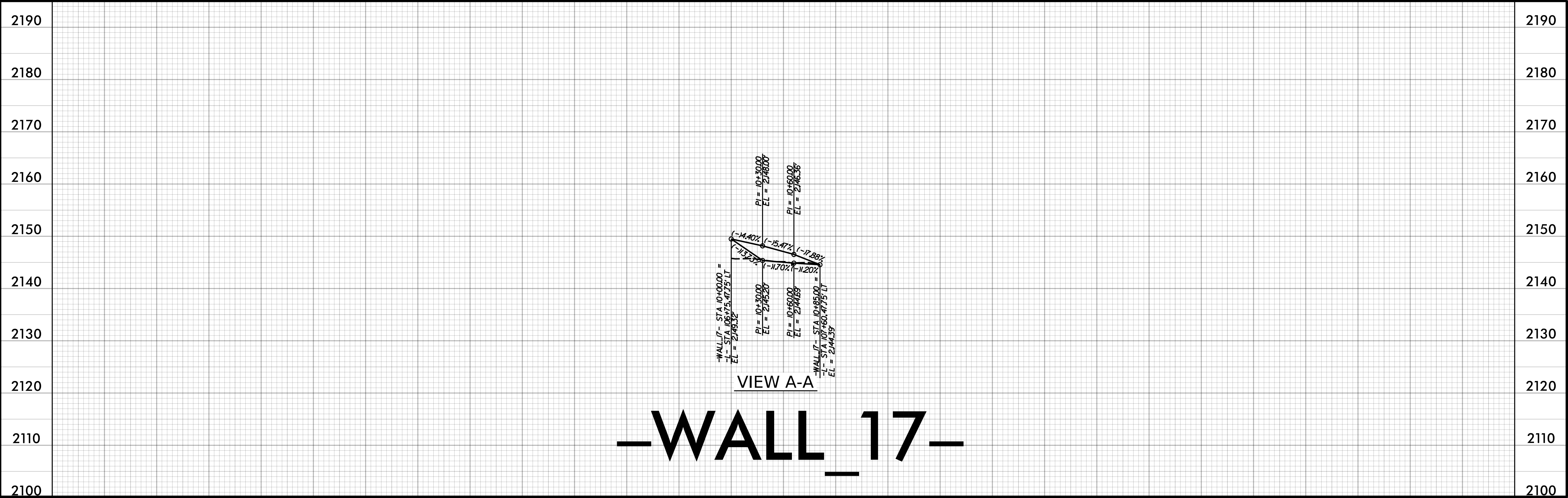
**WALL 14
ALIGNMENT AND ENVELOPE**

REVISIONS						SHEET NO. W-08
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



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STANDARD SEGMENTAL GRAVITY WALL QUANTITIES (SQUARE FEET)	
STANDARD SEGMENTAL GRAVITY WALL NO. 17	130 SF

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

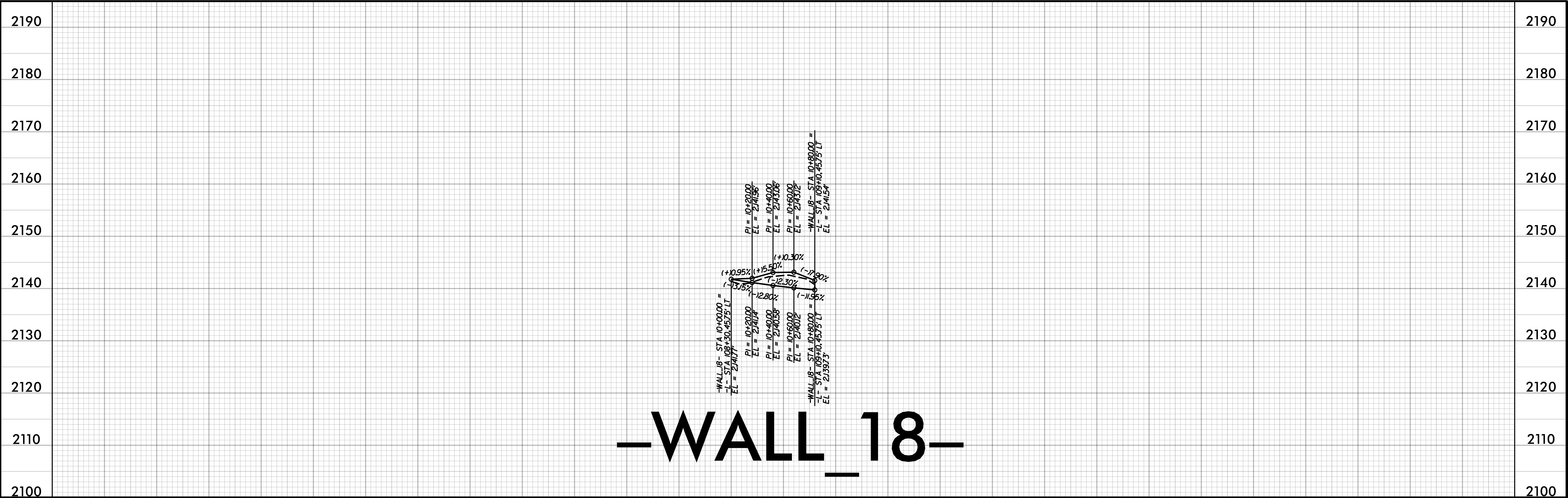
DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>



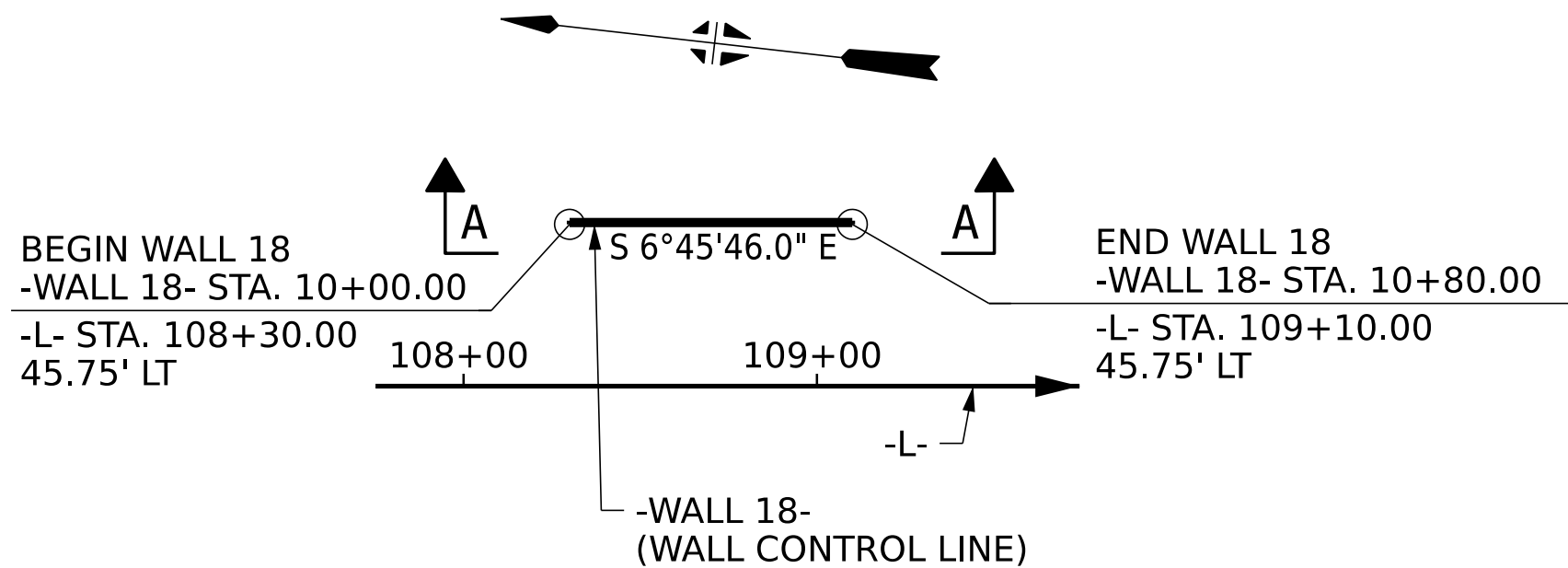
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PROJECT NO. R-5600
JACKSON COUNTY
STATION: 10+00.00 -WALL_17-

REVISIONS						SHEET NO. W-09
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



VIEW A-A



PLAN OF WALL 18

WALL STRUCTURE DESIGN NOTE:
-WALL_18- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (45.75' LT OF -L-).
WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED, TO
SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL_18-
ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (TO 45.75' LT OF -L-).

STANDARD SEGMENTAL GRAVITY WALL QUANTITIES (SQUARE FEET)	
STANDARD SEGMENTAL GRAVITY WALL NO. 18	144 SF

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND
BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE
DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE
STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF
WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL
DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION
AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

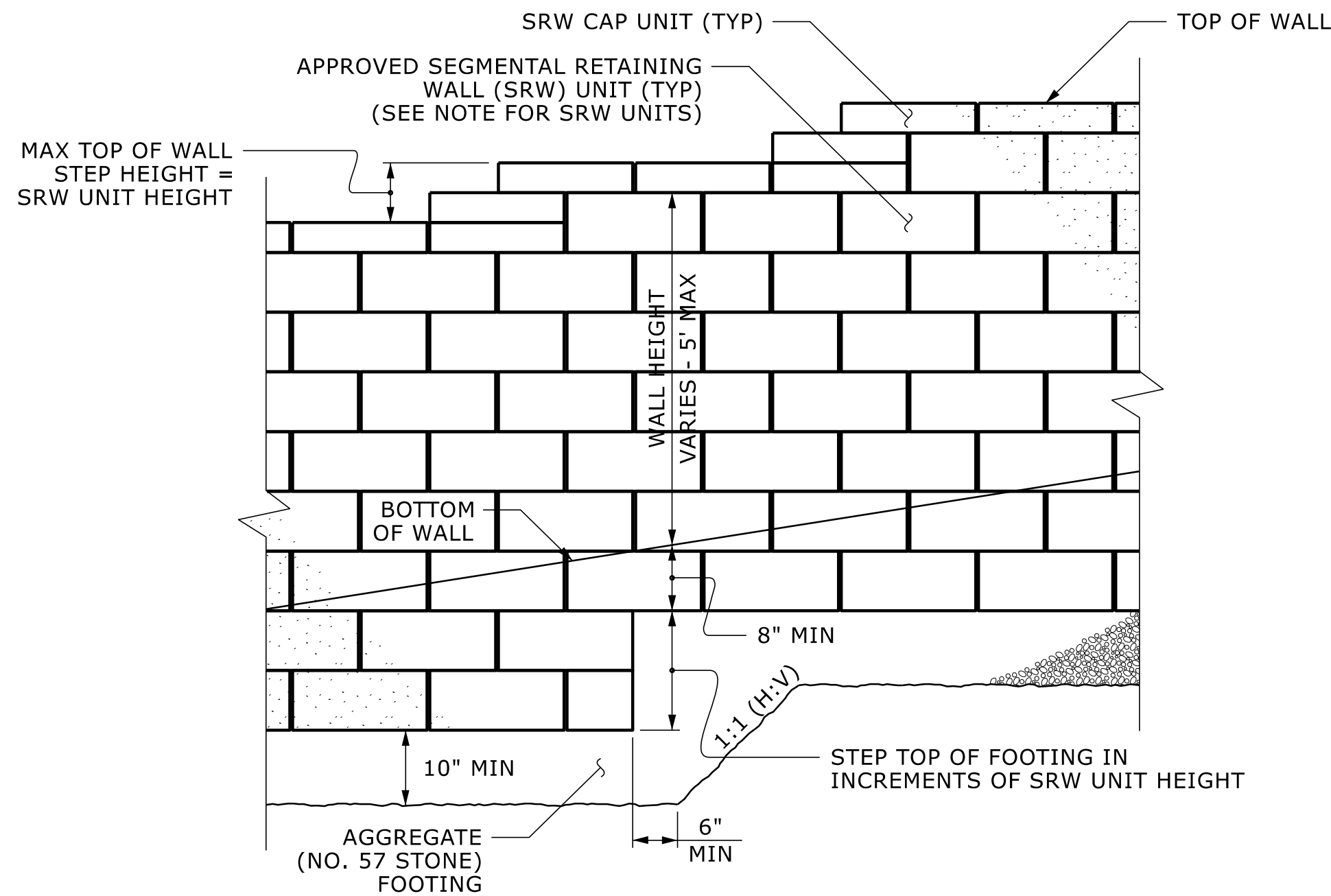
DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>



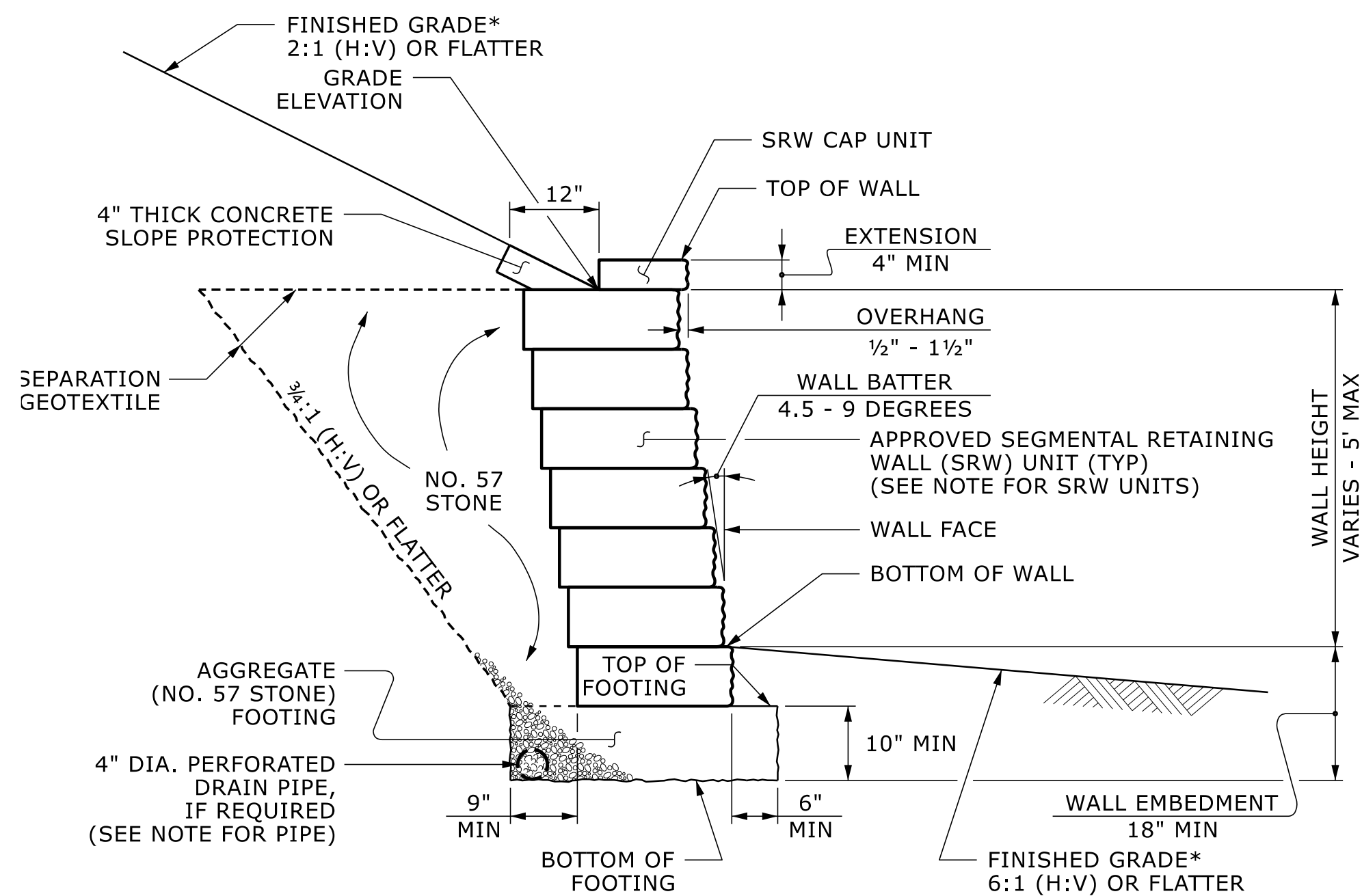
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PROJECT NO. R-5600
JACKSON COUNTY
STATION: 10+00.00 -WALL_18-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
WALL 18 ALIGNMENT AND ENVELOPE					
REVISIONS					SHEET NO. W-10
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
TOTAL SHEETS					46

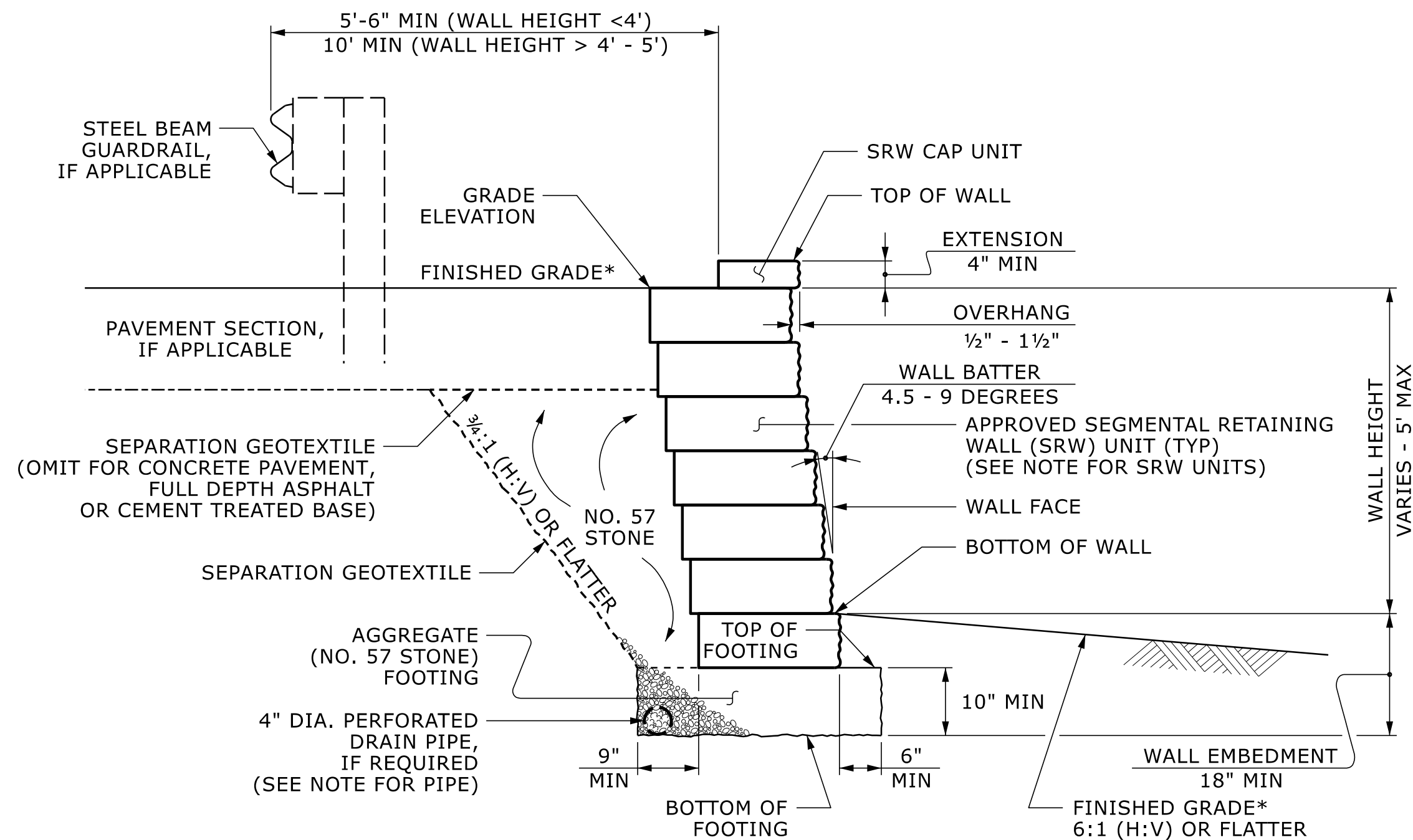


STANDARD SEGMENTAL GRAVITY WALL - PARTIAL ELEVATION



STANDARD SEGMENTAL GRAVITY WALL WITH SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



STANDARD SEGMENTAL GRAVITY WALL WITHOUT SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

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.

FREEZE-THAW DURABLE SRW UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS ARE REQUIRED.

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.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **- -**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD SEGMENTAL GRAVITY WALLS DETAILS

WALLS 2, 3, 5, 6, 8, 14, 17 & 18

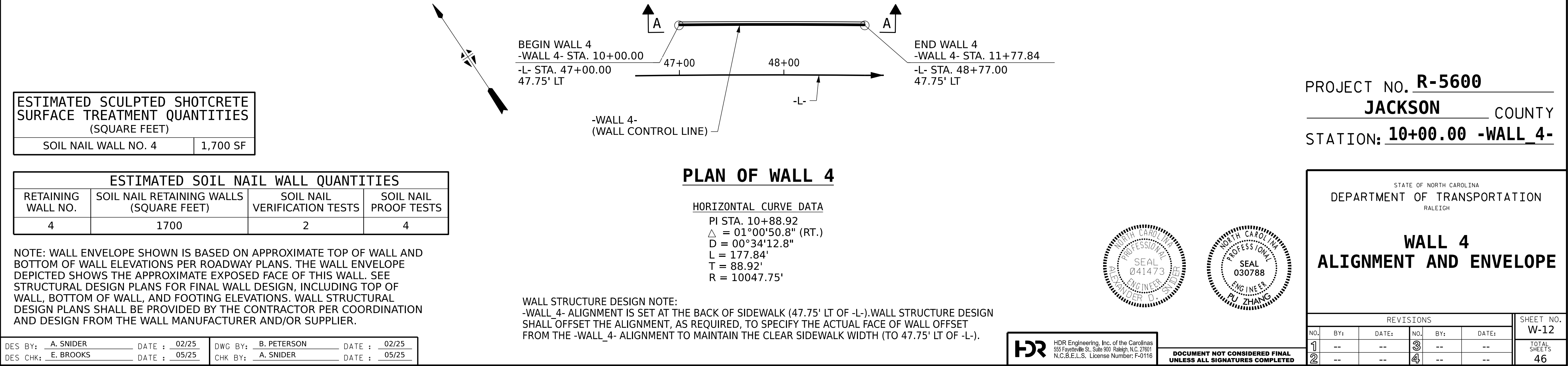
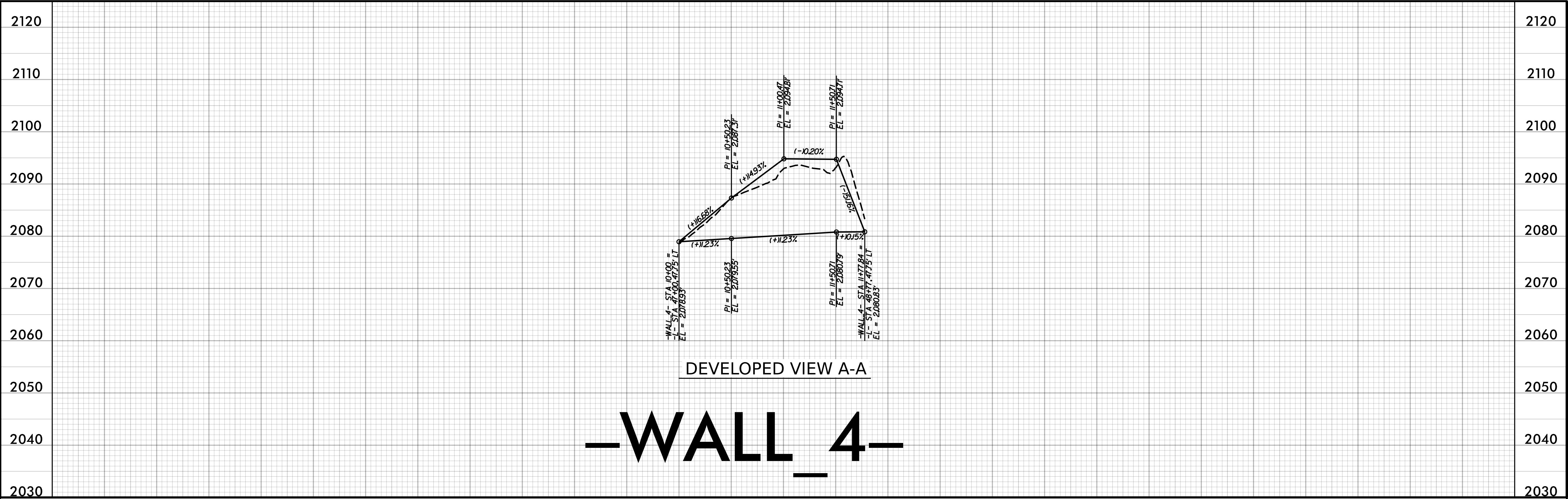
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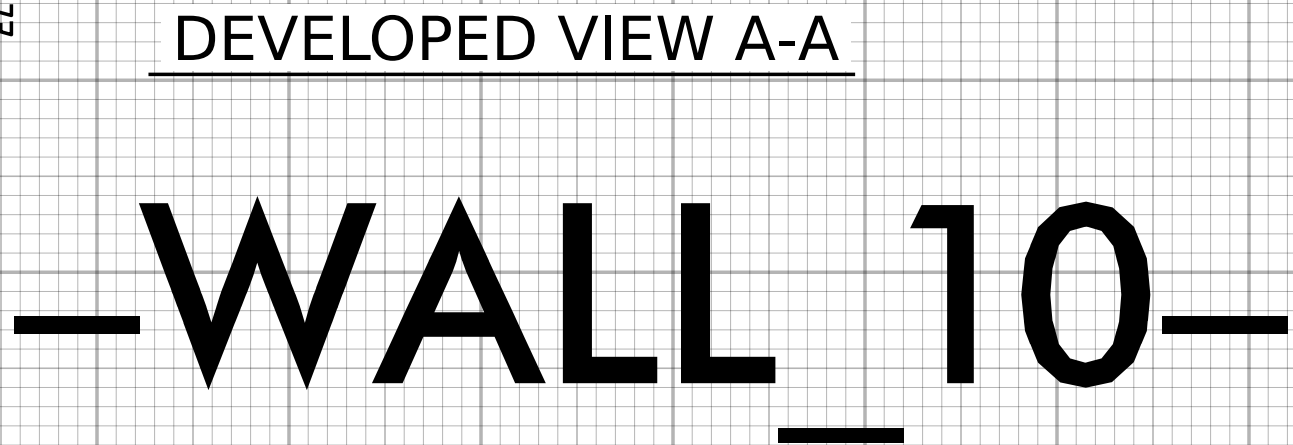
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DES BY: P. ZHANG DATE : 02/25 DWG BY: B. PETERSON DATE : 01/25
DES CHK: K. BUSSEY DATE : 03/25 CHK BY: P. ZHANG DATE : 02/25



REVISIONS						SHEET NO. W-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
10	1,009	2	3

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

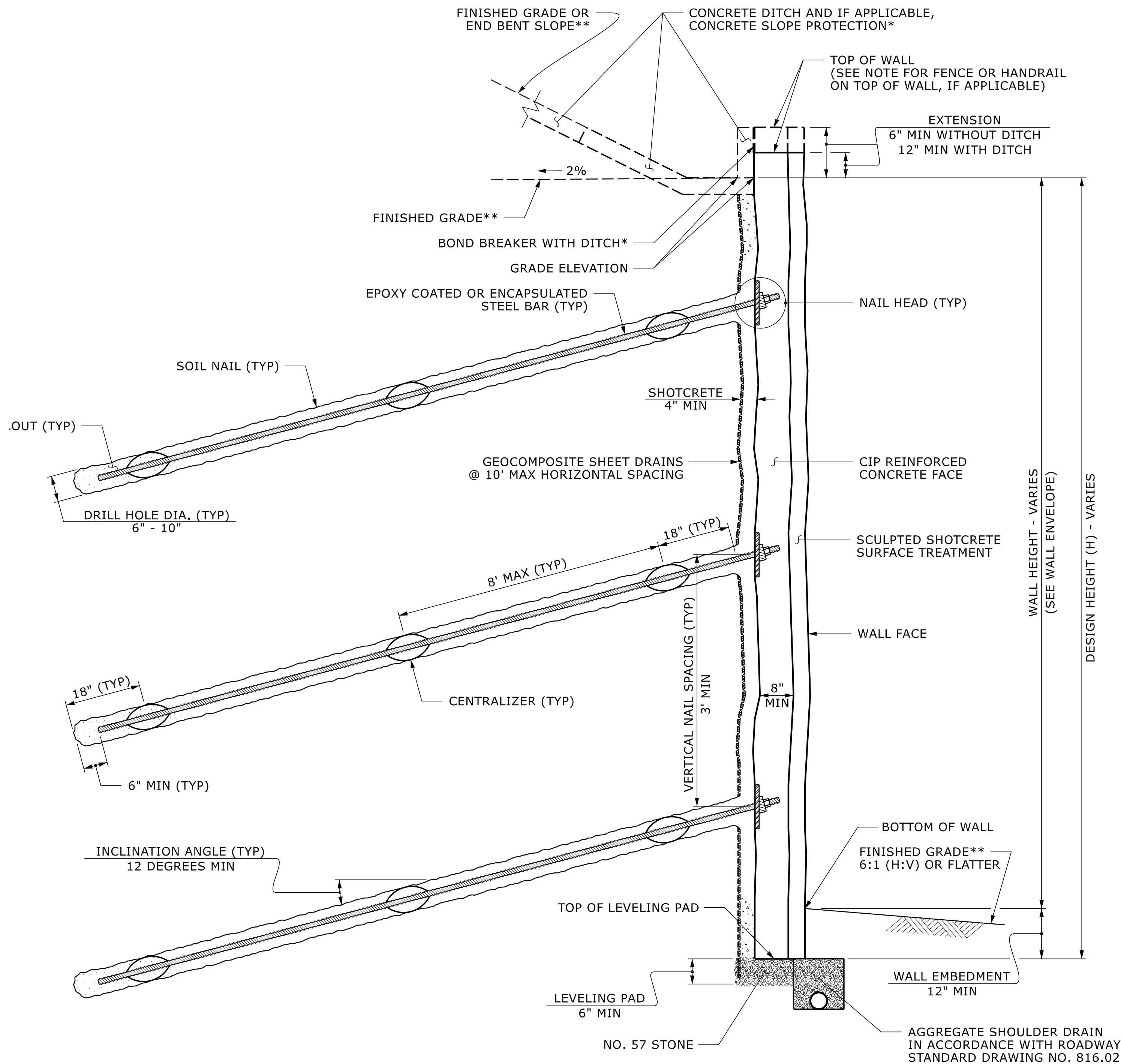
WALL 10

ALIGNMENT AND ENVELOPE

REVISIONS						SHEET NO. W-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	

A circular professional engineer seal for the State of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "PU ZHANG" at the bottom. The inner ring contains the text "PROFESSIONAL" at the top and "ENGINEER" at the bottom. In the center, it reads "SEAL" and "030788". HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

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SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 10. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 10.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 10, 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. 10 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 26 DEGREES
COHESION, c = 50 PSF

DESIGN RETAINING WALL NO. 10 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 10 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 10.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 0.8H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 10-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 10

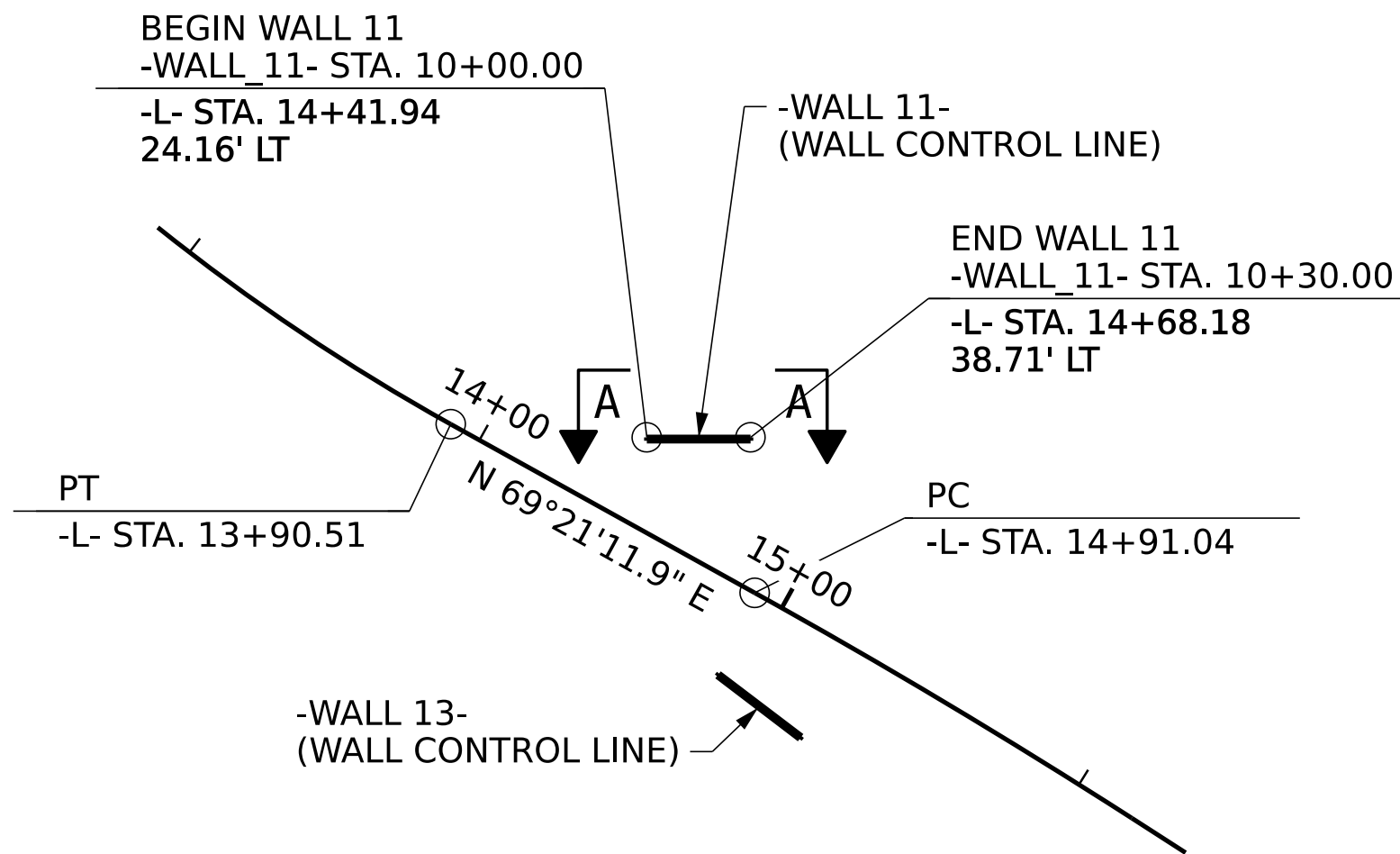
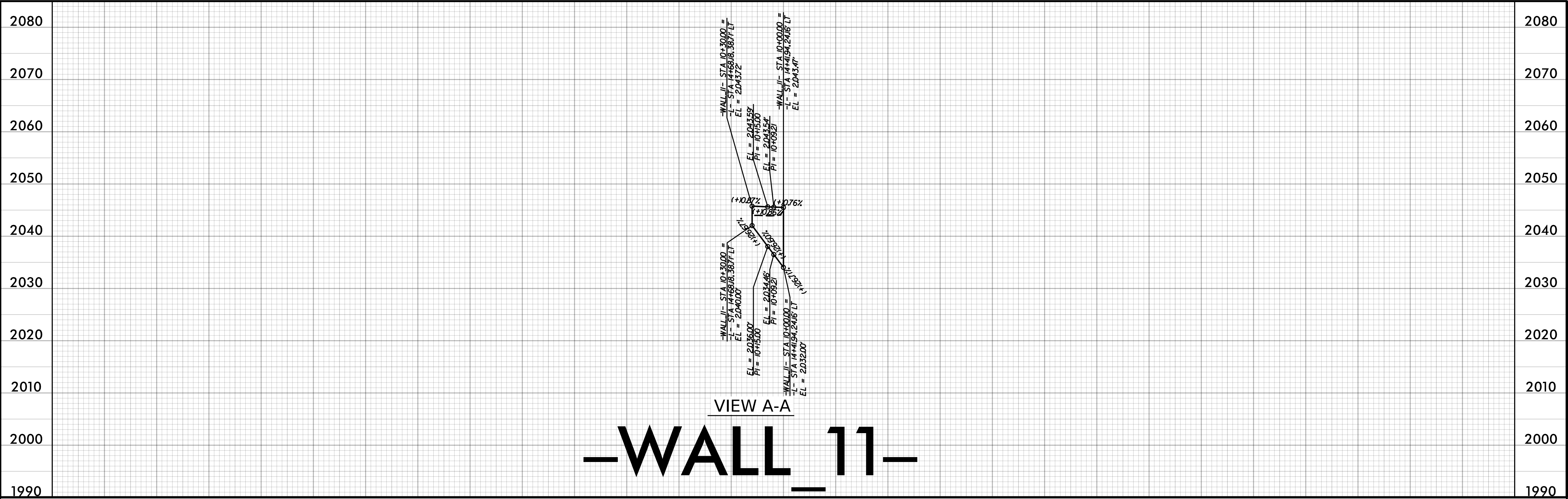
REVISIONS						SHEET NO. W-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



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DES BY: P. ZHANG	DATE : 02/25	DWG BY: B. PETERSON	DATE : 01/25
DES CHK: K. BUSSEY	DATE : 03/25	CHK BY: P. ZHANG	DATE : 02/25

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PLAN OF WALL 11

ESTIMATED SCULPTED SHOTCRETE SURFACE TREATMENT QUANTITIES (SQUARE FEET)	
SOIL NAIL WALL NO. 11	228 SF

ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
11	228	2	2

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_11-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

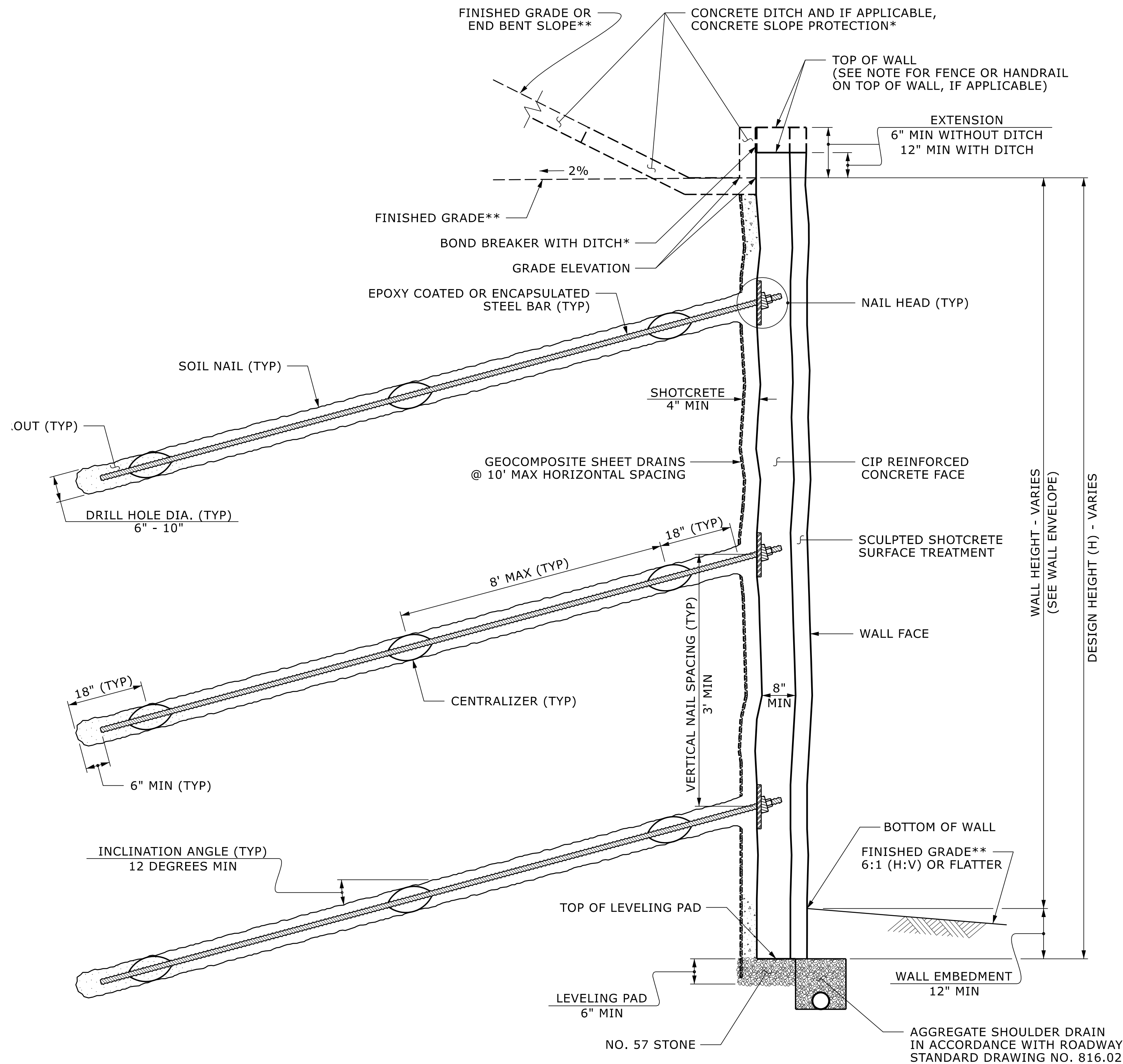
**WALL 11
ALIGNMENT AND ENVELOPE**

REVISIONS						SHEET NO. W-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



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SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 11. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 11.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 11, 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. 11 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 28 DEGREES
COHESION, c = 50 PSF

DESIGN RETAINING WALL NO. 11 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 11 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 11.

FOUNDATIONS FOR END BENT NO. 2 LOCATED AT STATION 14+66.4 -L- WILL or MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 11. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 0.8H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 11-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 11

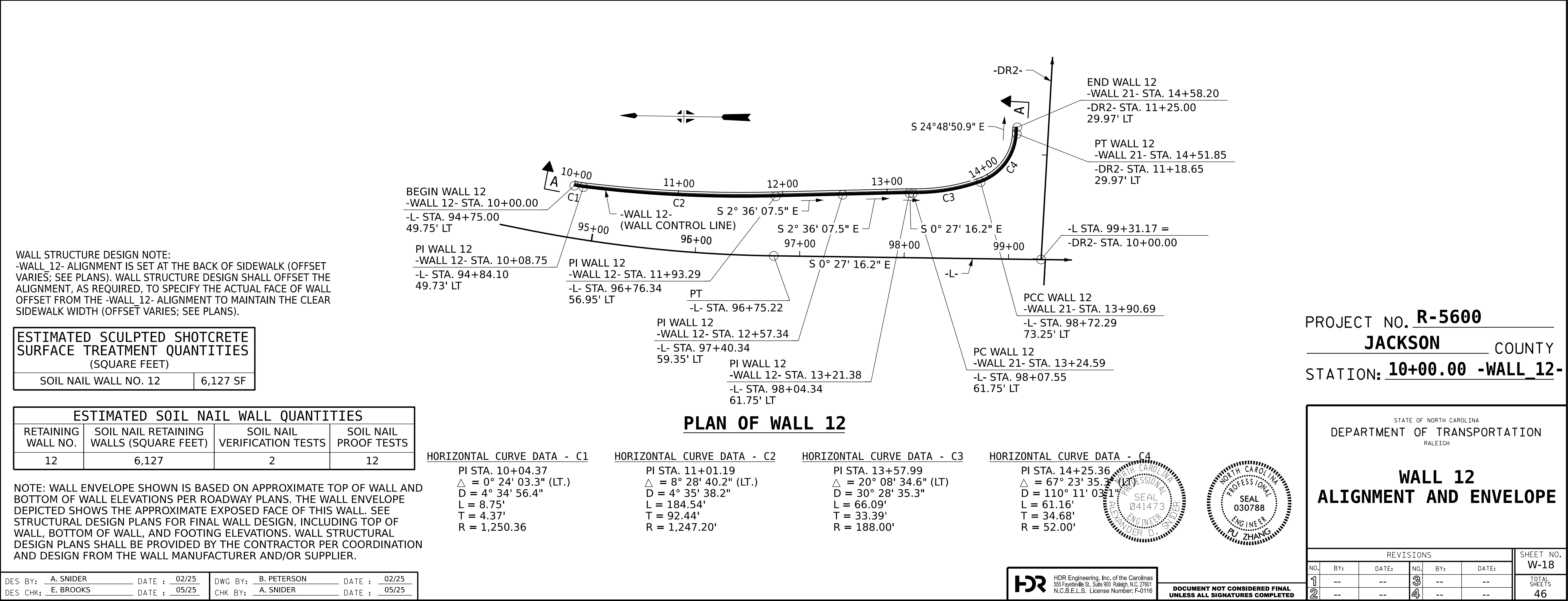
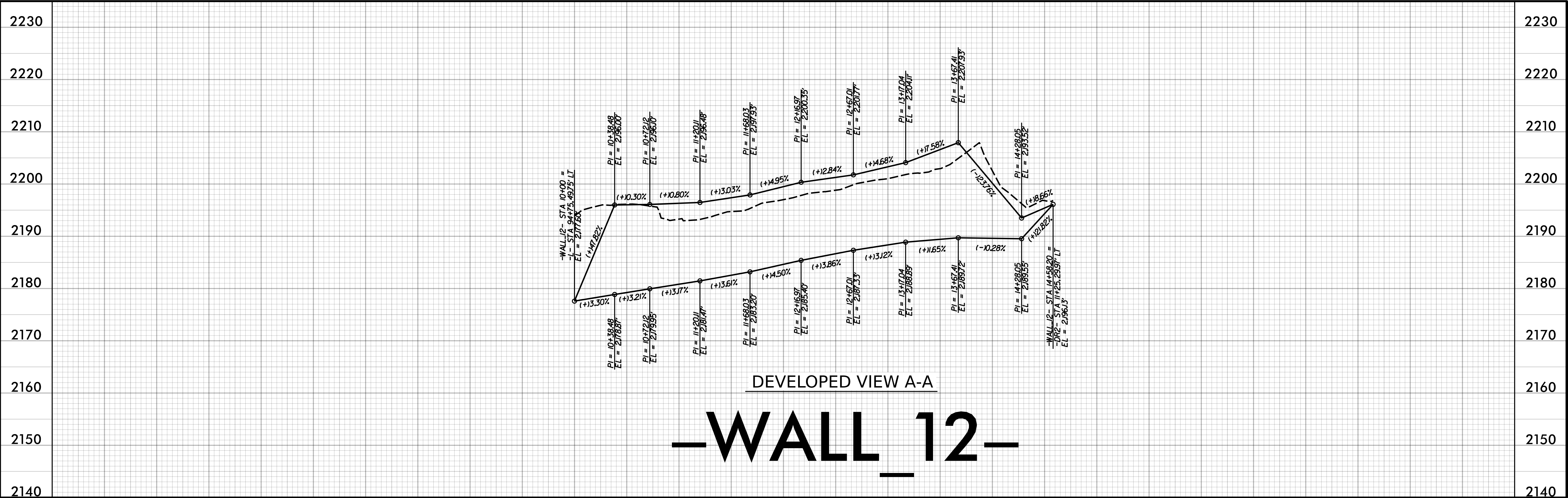
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46

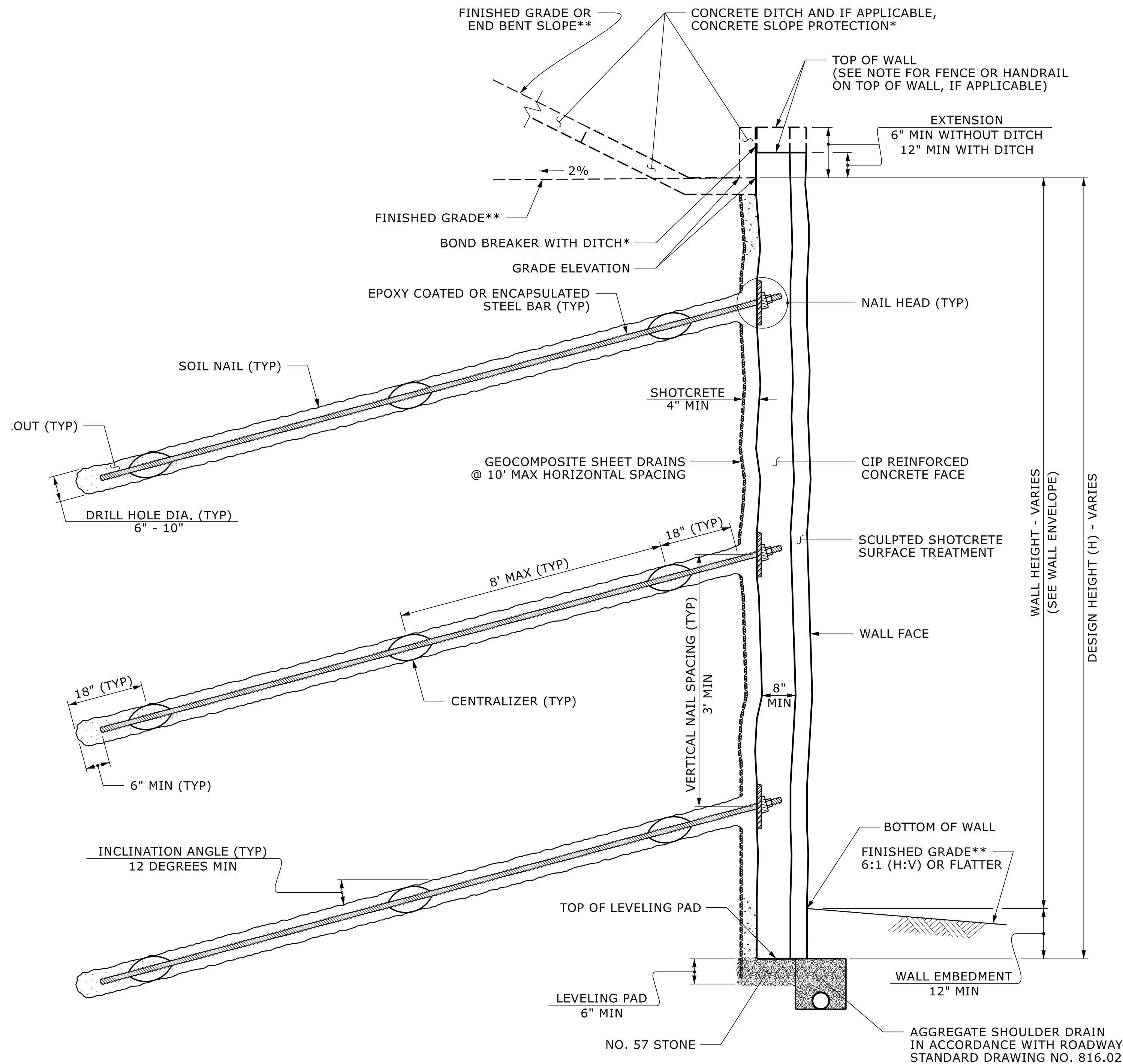


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N.C.B.E.L.S. License Number: F-0116

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DES BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>





SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 12. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 12.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 12, 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. 12 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 26 DEGREES
COHESION, c = 50 PSF

DESIGN RETAINING WALL NO. 12 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 12 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 12.

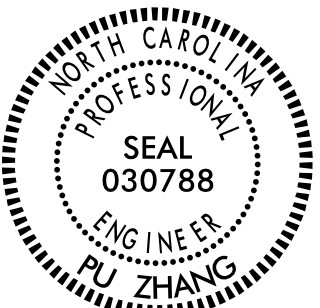
IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 1.2H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 12-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL
DETAILS AND NOTES
WALL 12

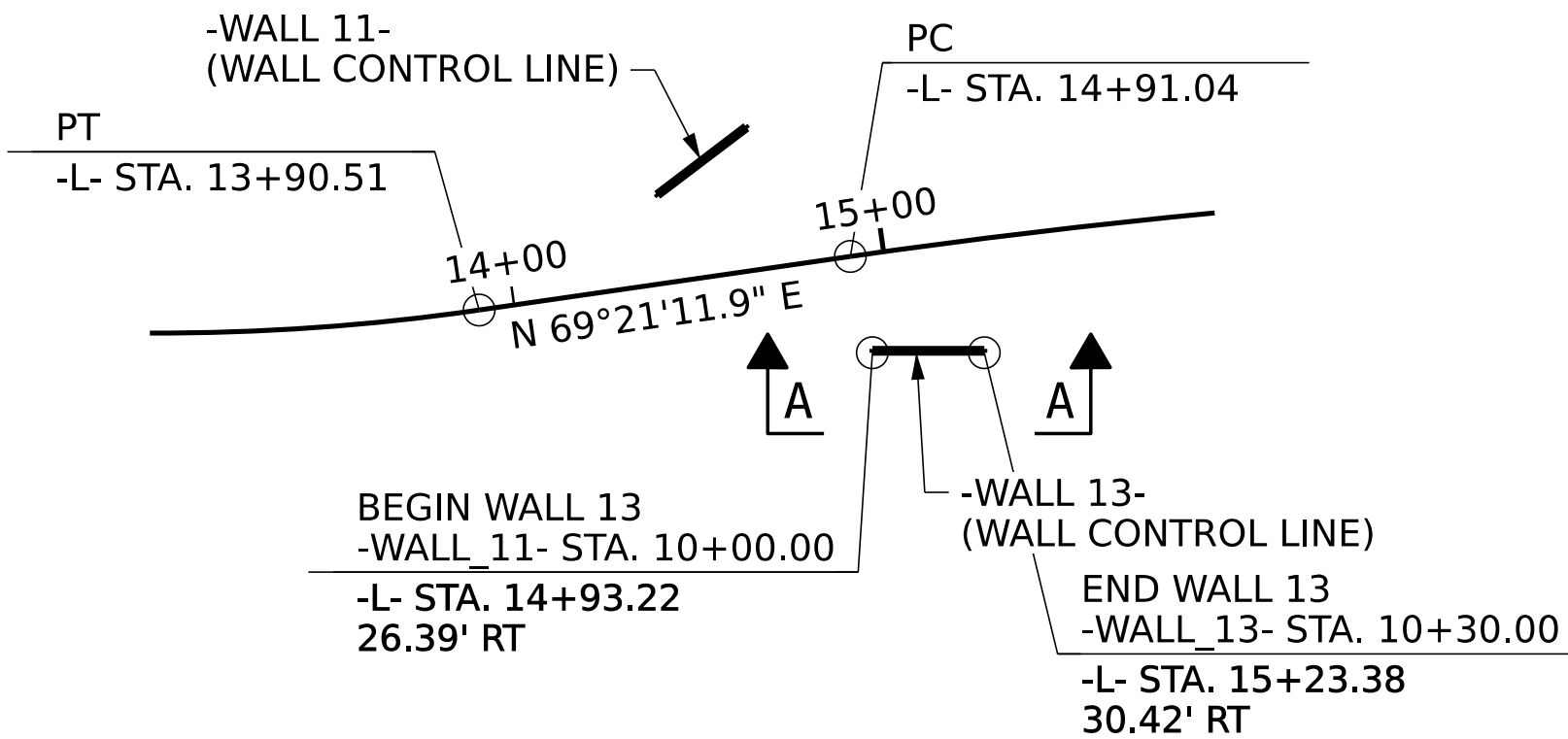
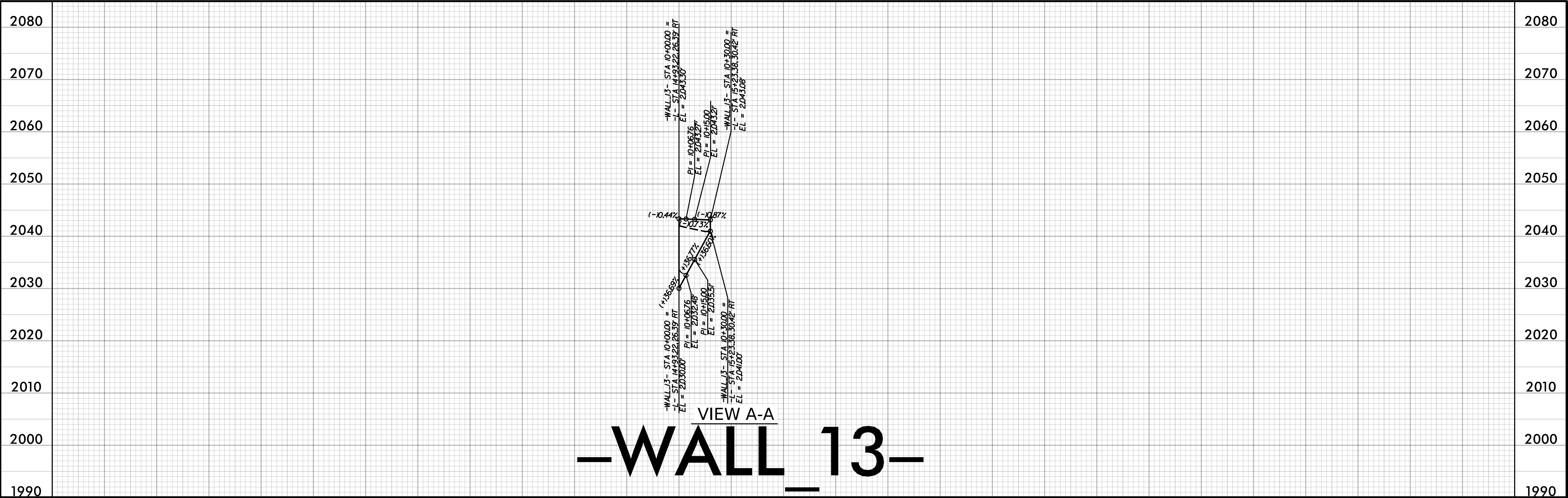
REVISIONS						SHEET NO. W-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



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DES BY: P. ZHANG	DATE : 02/25	DWG BY: B. PETERSON	DATE : 01/25
DES CHK: K. BUSSEY	DATE : 03/25	CHK BY: P. ZHANG	DATE : 02/25

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



ESTIMATED SCULPTED SHOTCRETE SURFACE TREATMENT QUANTITIES (SQUARE FEET)	
SOIL NAIL WALL NO. 13	231 SF

ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
13	231	2	3

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

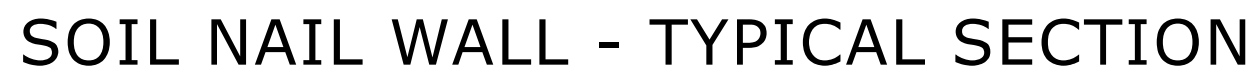
DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>



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PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_13-**

REVISIONS						SHEET NO. W-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



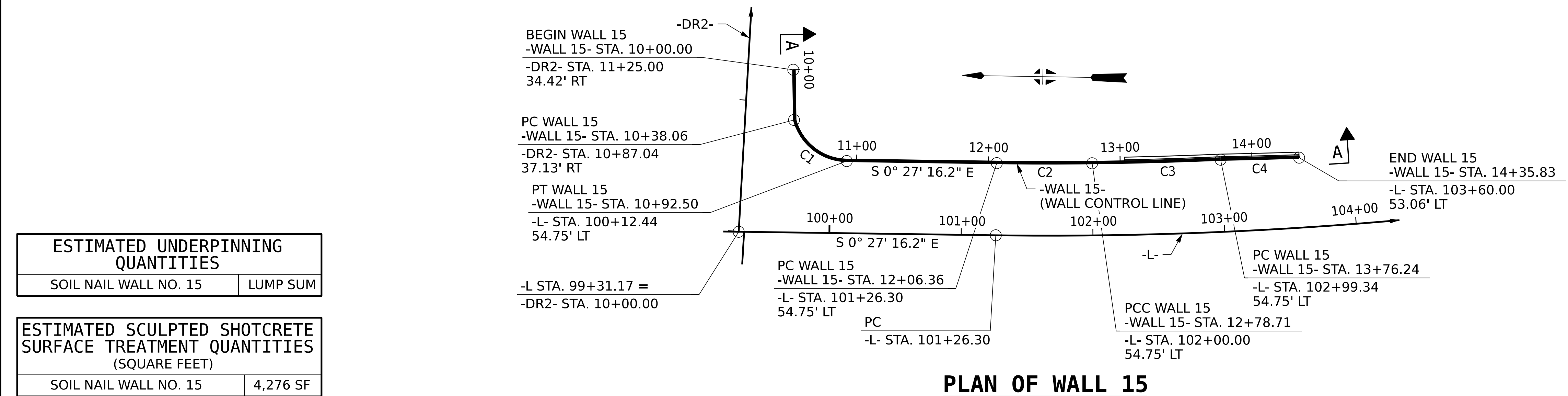
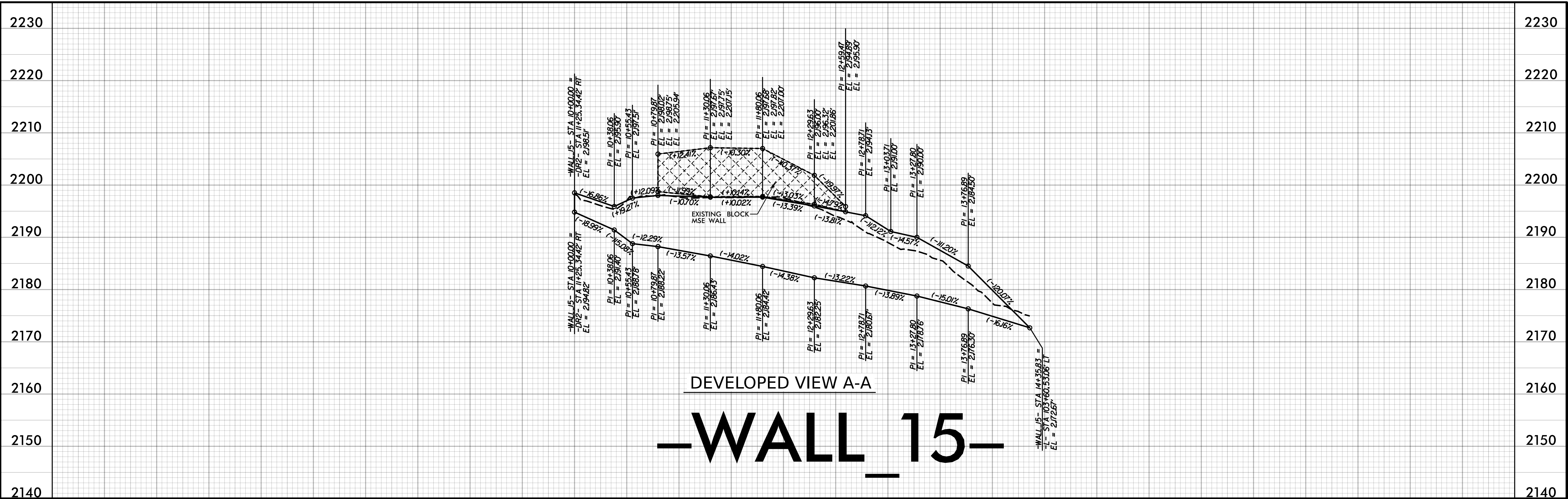
DES BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 0.8H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

REVISIONS						SHEET NO. W-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



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



ESTIMATED UNDERPINNING QUANTITIES	
SOIL NAIL WALL NO. 15	LUMP SUM

ESTIMATED SCULPTED SHOTCRETE SURFACE TREATMENT QUANTITIES (SQUARE FEET)	
SOIL NAIL WALL NO. 15	4,276 SF

ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
15	4,276	2	9

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: A. SNIDER	DATE : 02/25	DWG BY: B. PETERSON	DATE : 02/25
DES CHK: E. BROOKS	DATE : 05/25	CHK BY: A. SNIDER	DATE : 05/25

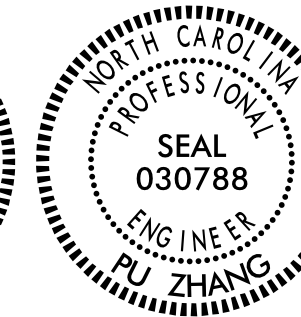
HORIZONTAL CURVE DATA - C1
PI STA. 10+69.86
 $\Delta = 74^\circ 16' 08.5''$ (LT)
D = $136^\circ 25' 06.7''$
L = 54.44'
T = 31.80'
R = 42.00'

HORIZONTAL CURVE DATA - C2
PI STA. 12+42.54
 $\Delta = 1^\circ 24' 27.4''$ (LT)
D = $1^\circ 56' 43.3''$
L = 72.36'
T = 36.18'
R = 2,945.25'

HORIZONTAL CURVE DATA - C3
PI STA. 13+27.48
 $\Delta = 0^\circ 53' 50.1''$ (LT)
D = $1^\circ 56' 43.3''$
L = 97.53'
T = 48.77'
R = 2,945.25'

HORIZONTAL CURVE DATA - C4
PI STA. 14+06.04
 $\Delta = 0^\circ 55' 10.2''$ (LT)
D = $1^\circ 32' 34.6''$
L = 59.59'
T = 29.80'
R = 3,713.42'

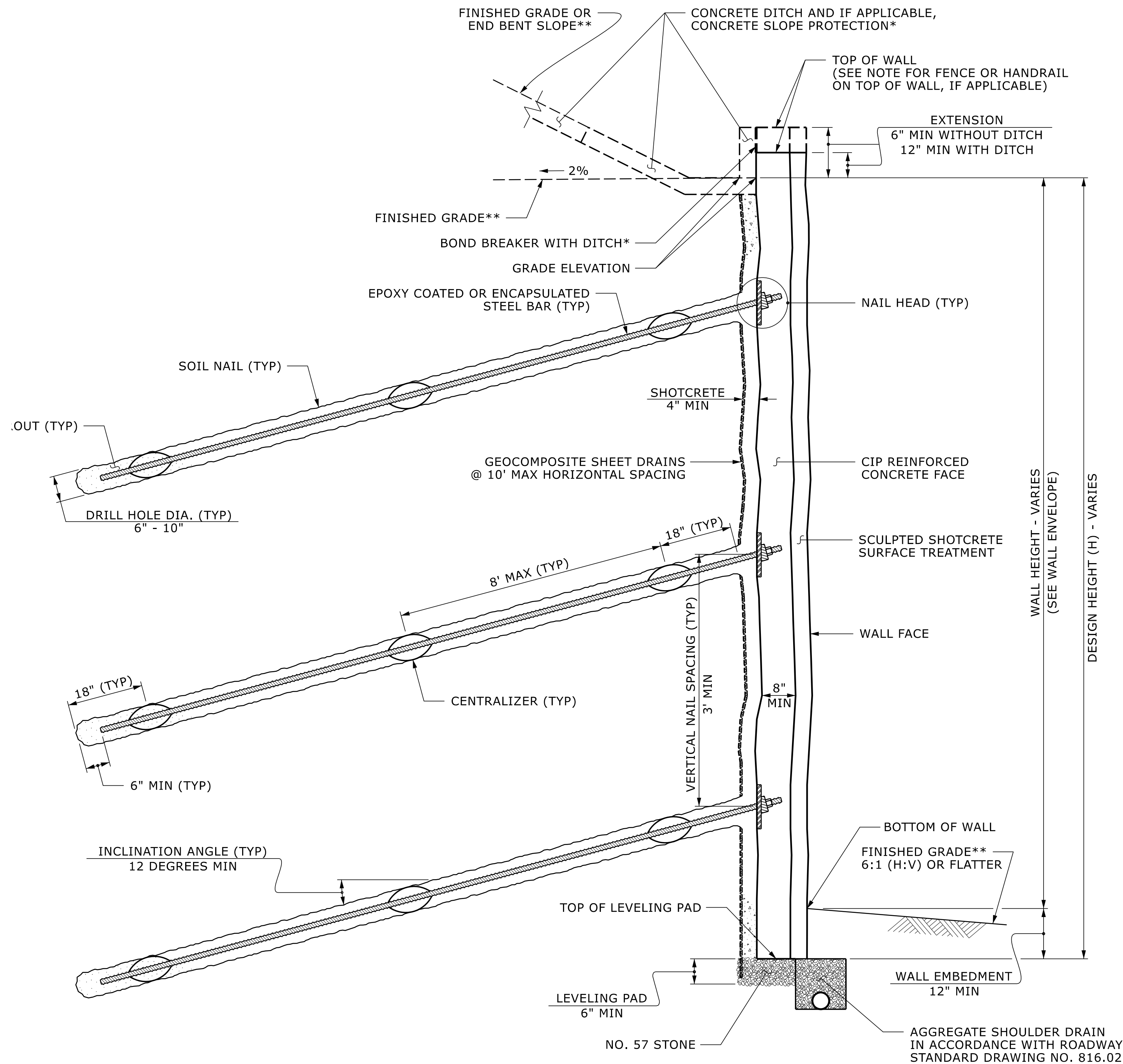
WALL STRUCTURE DESIGN NOTE:
-WALL 15- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (OFFSET VARIES; SEE PLANS). WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED, TO SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL 15- ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (OFFSET VARIES; SEE PLANS).



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 15-**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
WALL 15 ALIGNMENT AND ENVELOPE					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
TOTAL SHEETS					46



SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 15. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 15.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 15, 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. 15 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 26 DEGREES
COHESION, c = 50 PSF

DESIGN RETAINING WALL NO. 15 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 15 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

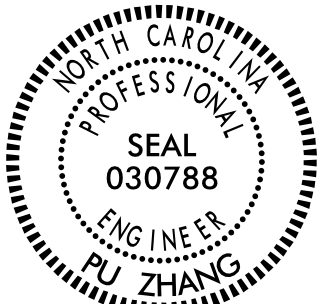
EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 15.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 1.2H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 15-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL
DETAILS AND NOTES
WALL 15

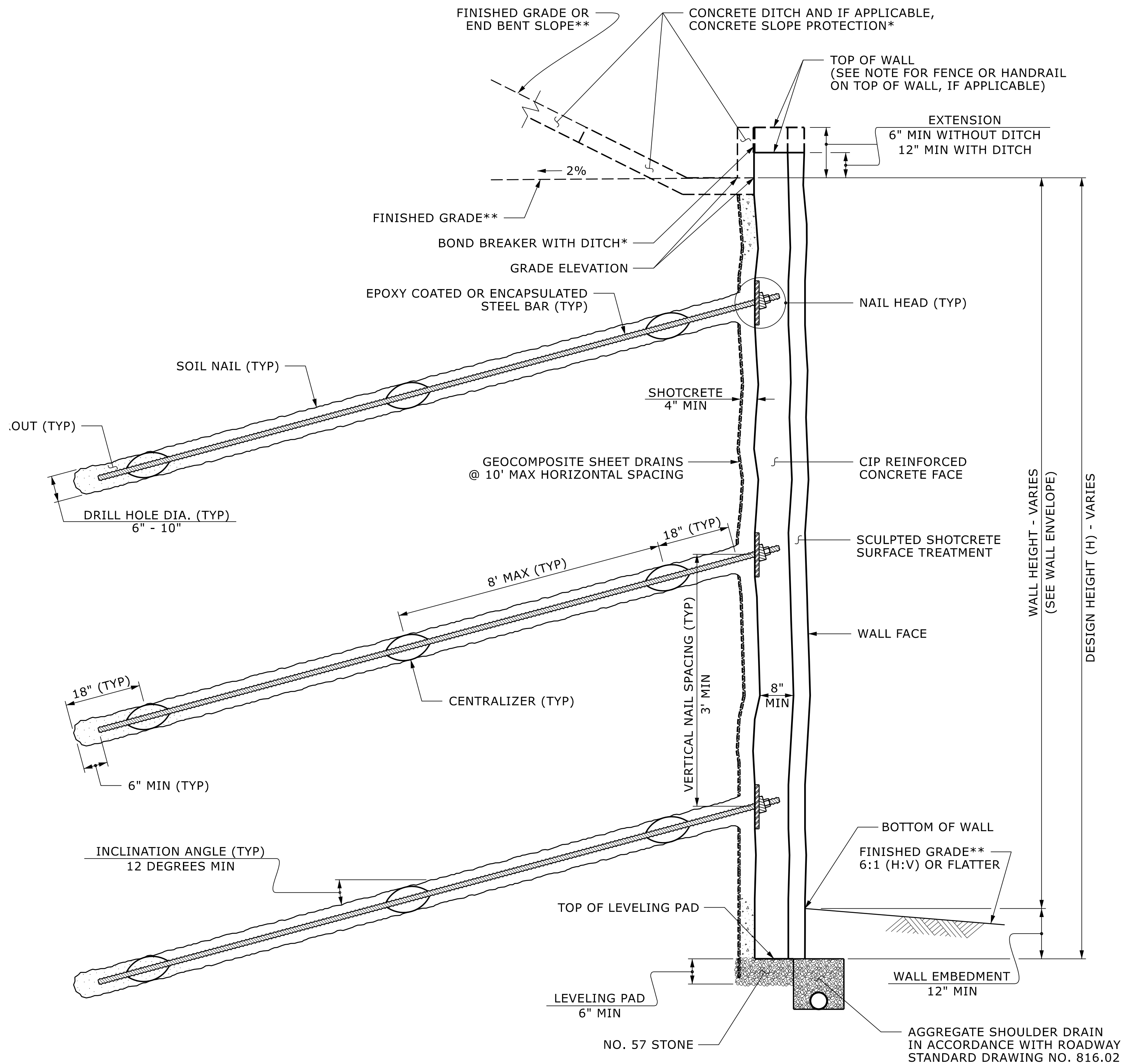


DES BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>A. VARRI</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>03/25</u>

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N.C.B.E.L.S. License Number: F-0116

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REVISIONS						SHEET NO. W-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 20. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 20.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 20, 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. 20 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 26 DEGREES
COHESION, c = 50 PSF

DESIGN RETAINING WALL NO. 20 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 20 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 20.

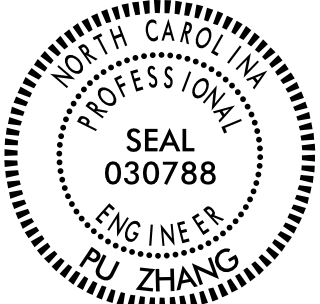
IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 2.0H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 20-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 20

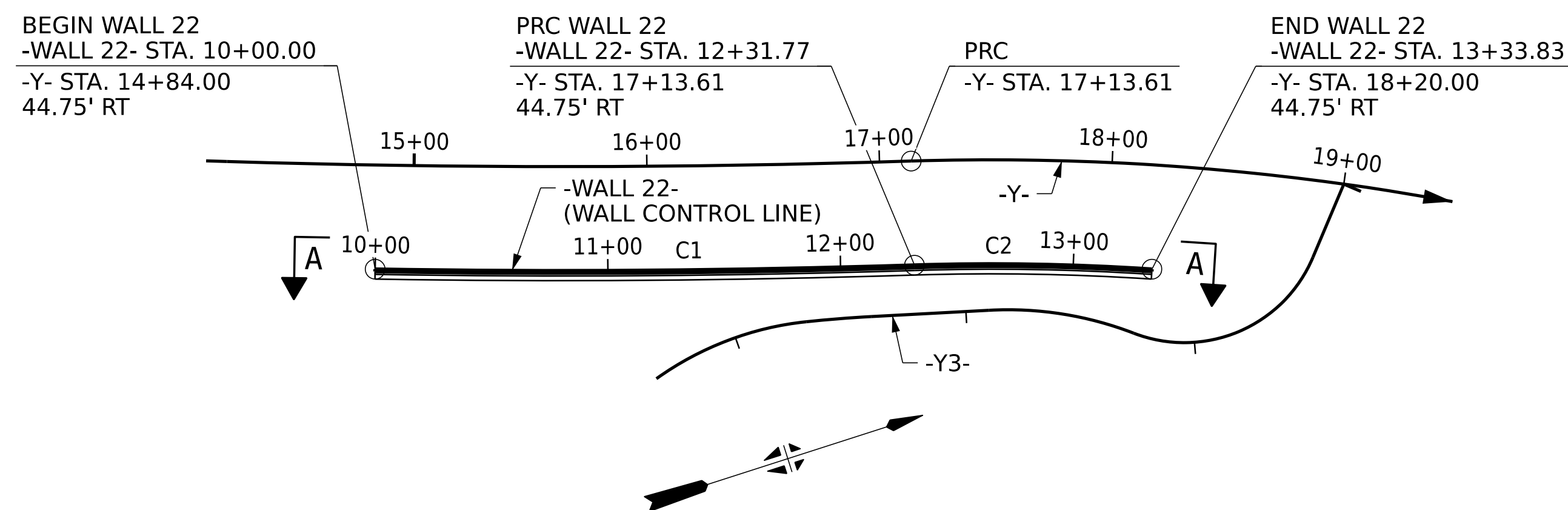
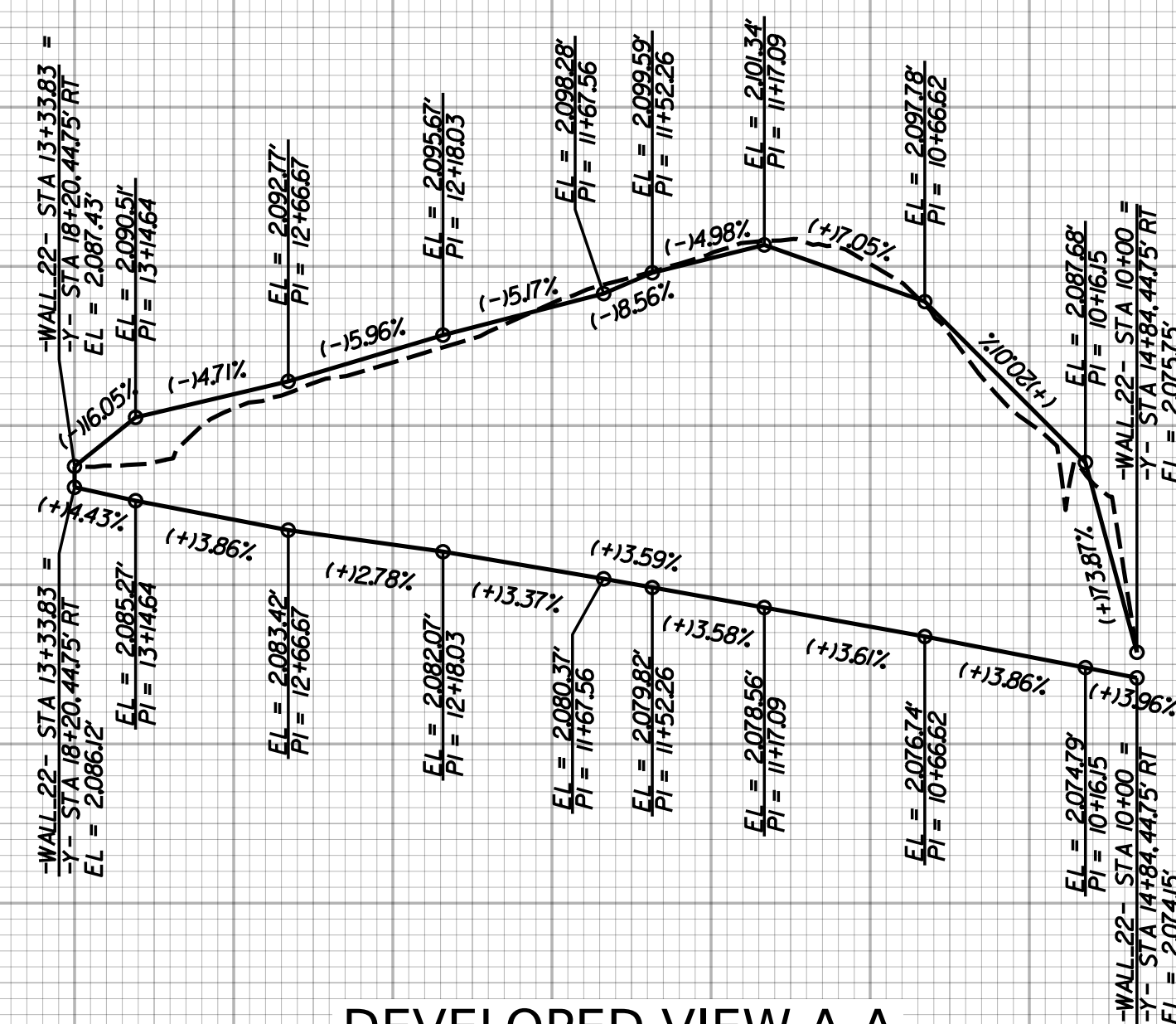
REVISIONS						SHEET NO. W-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



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N.C.B.E.L.S. License Number: F-0116

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UNLESS ALL SIGNATURES COMPLETED

DES BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>



ESTIMATED SCULPTED SHOTCRETE SURFACE TREATMENT QUANTITIES (SQUARE FEET)	
SOIL NAIL WALL NO. 22	4,882 SF

ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
22	4,882	2	10

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

HORIZONTAL CURVE DATA - C1	HORIZONTAL CURVE DATA - C2
PI STA. 11+15.91	PI STA. 12+82.84
$\Delta = 2^{\circ} 45' 29.0''$ (LT)	$\Delta = 5^{\circ} 32' 28.8''$ (RT)
D = $1^{\circ} 11' 24.0''$	D = $5^{\circ} 25' 46.5''$
L = 231.77'	L = 102.06'
T = 115.91'	T = 51.07'
R = 4,814.75'	R = 1,055.25'

WALL STRUCTURE DESIGN NOTE:
-WALL 22- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (44.75' RT OF -L-).
WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED, TO
SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL 22-
ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (44.75' RT OF -L-).



PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 22-**

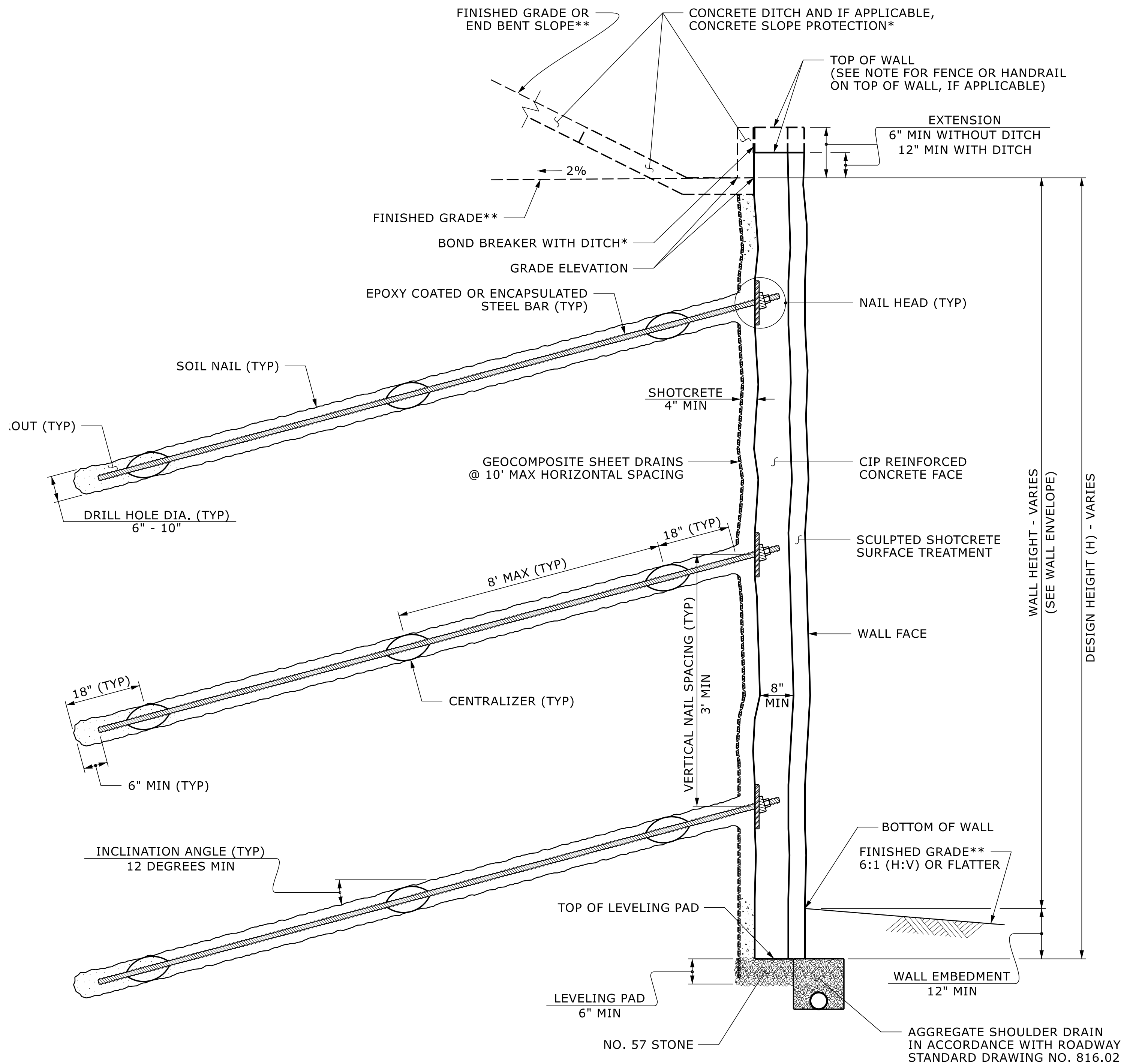
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WALL 22 ALIGNMENT AND ENVELOPE

REVISIONS						SHEET NO. W-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



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



SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 22. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 22.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 22, 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. 22 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 28 DEGREES
COHESION, c = 50 PSF

DESIGN RETAINING WALL NO. 22 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 22 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 22.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 0.8H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 22-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 22

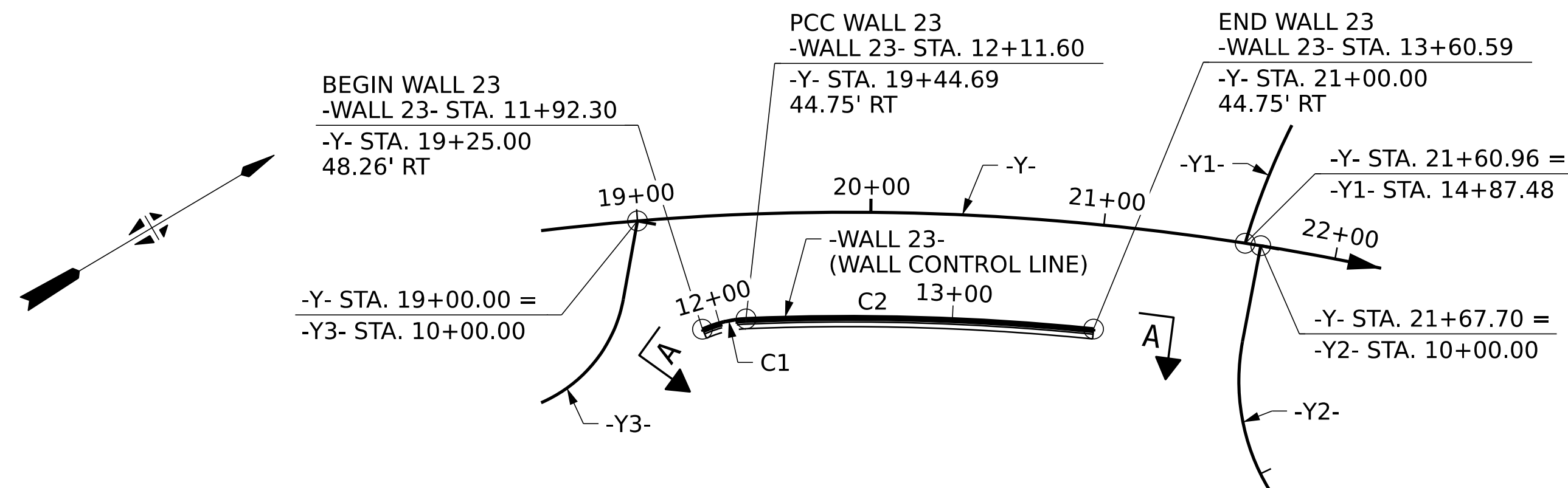
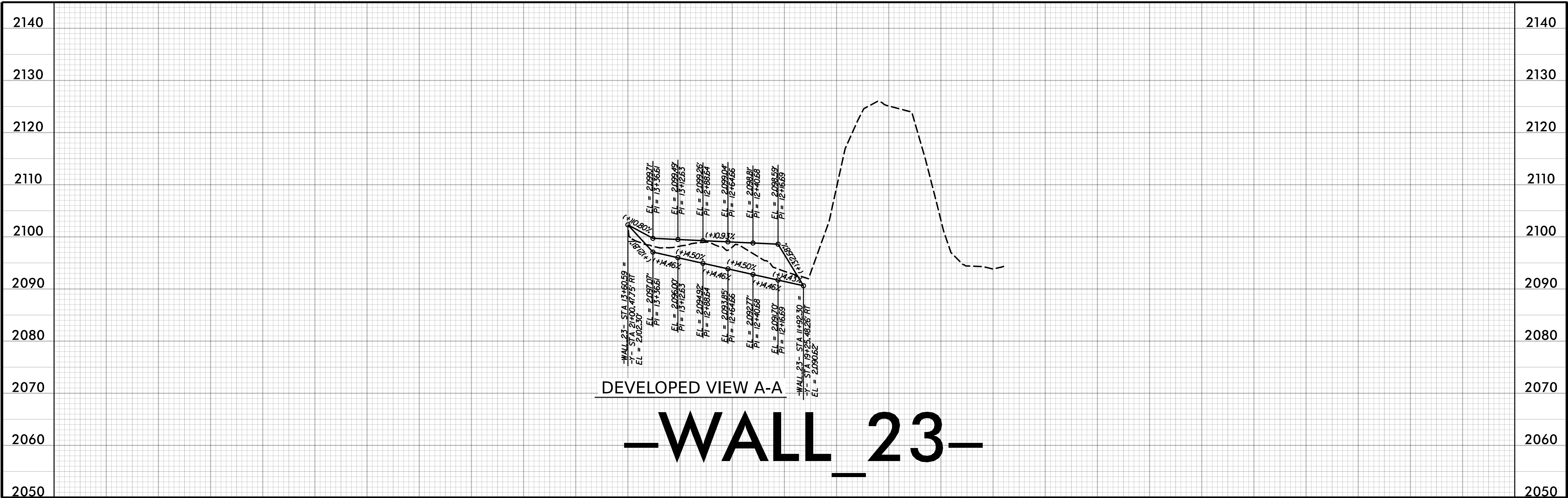
REVISIONS						SHEET NO. W-27
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



DES BY: P. ZHANG DATE : 02/25 DWG BY: B. PETERSON DATE : 01/25
DES CHK: K. BUSSEY DATE : 03/25 CHK BY: P. ZHANG DATE : 02/25

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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



PLAN OF WALL 23

HORIZONTAL CURVE DATA - C1

PI STA. 12+02.07
 $\Delta = 22^\circ 06' 58.2''$ (RT)
D = 114° 35' 29.6"
L = 19.30'
T = 9.77'
R = 50.00'

HORIZONTAL CURVE DATA - C2

PI STA. 12+86.22
 $\Delta = 8^\circ 05' 22.6''$ (RT)
D = 5° 25' 46.5"
L = 148.99'
T = 74.62'
R = 1,055.25'

WALL STRUCTURE DESIGN NOTE:
-WALL 23- ALIGNMENT IS SET AT THE BACK OF SIDEWALK (OFFSET VARIES; SEE PLANS). WALL STRUCTURE DESIGN SHALL OFFSET THE ALIGNMENT, AS REQUIRED, TO SPECIFY THE ACTUAL FACE OF WALL OFFSET FROM THE -WALL 23- ALIGNMENT TO MAINTAIN THE CLEAR SIDEWALK WIDTH (OFFSET VARIES; SEE PLANS).

ESTIMATED SCULPTED SHOTCRETE SURFACE TREATMENT QUANTITIES (SQUARE FEET)	
SOIL NAIL WALL NO. 23	687 SF

ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
23	687	2	2

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

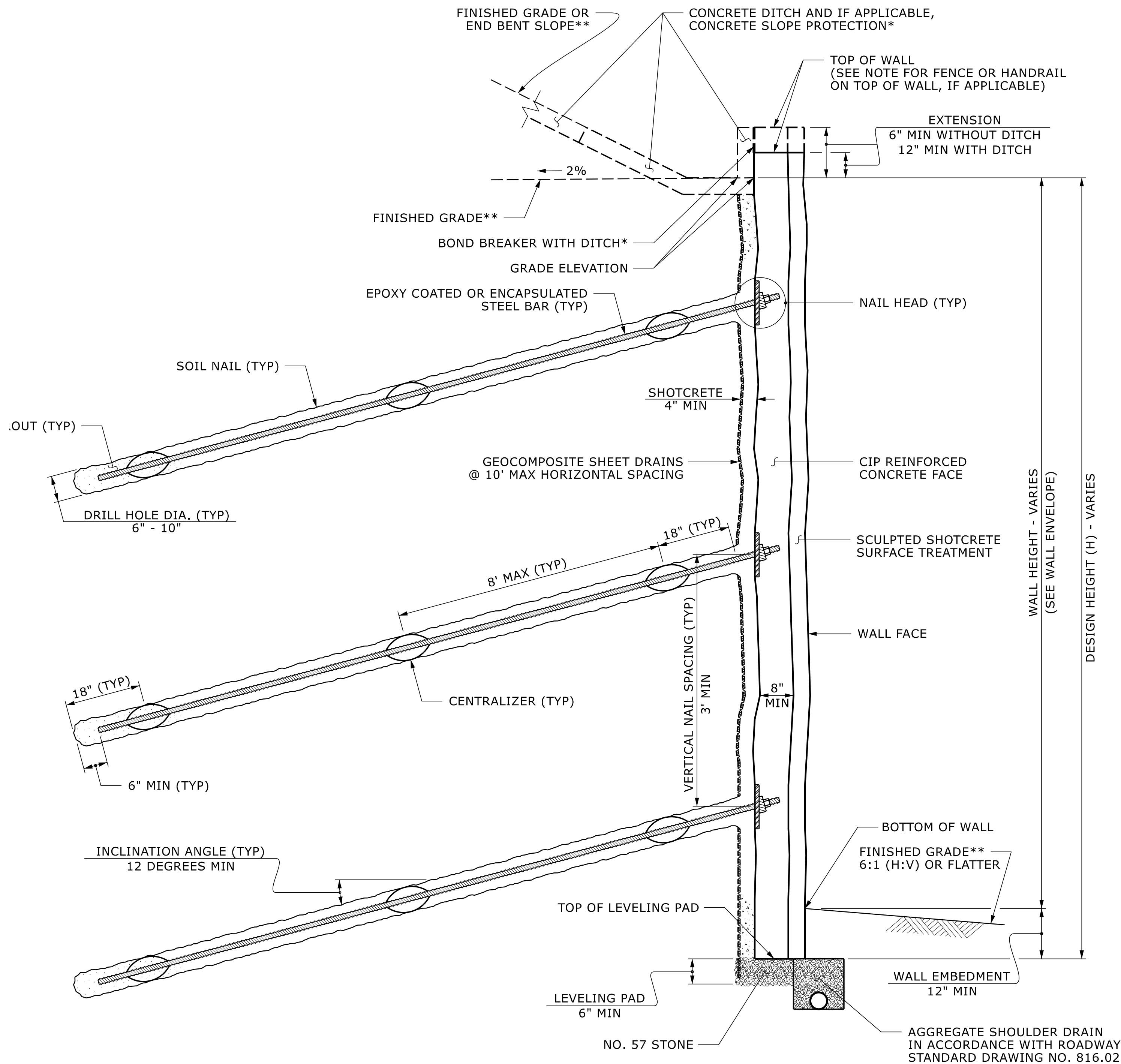
DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **11+92.30 -WALL_23-**

REVISIONS						SHEET NO. W-28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 23. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 23.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 23, 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. 23 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 28 DEGREES
COHESION, c = 50 PSF

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 23 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 23.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 2.0H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 23-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 23

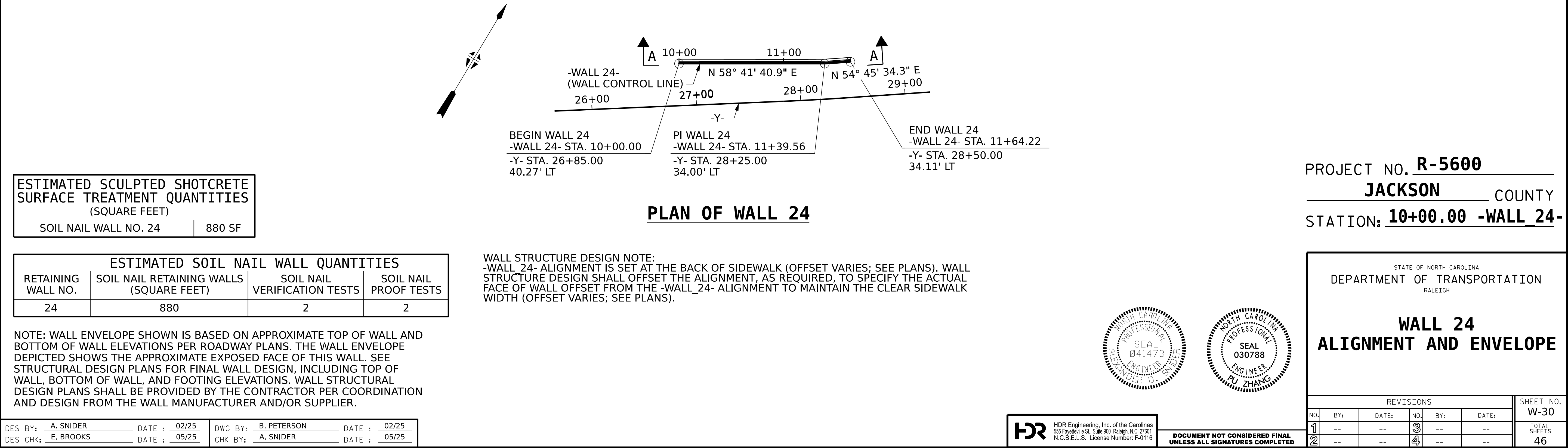
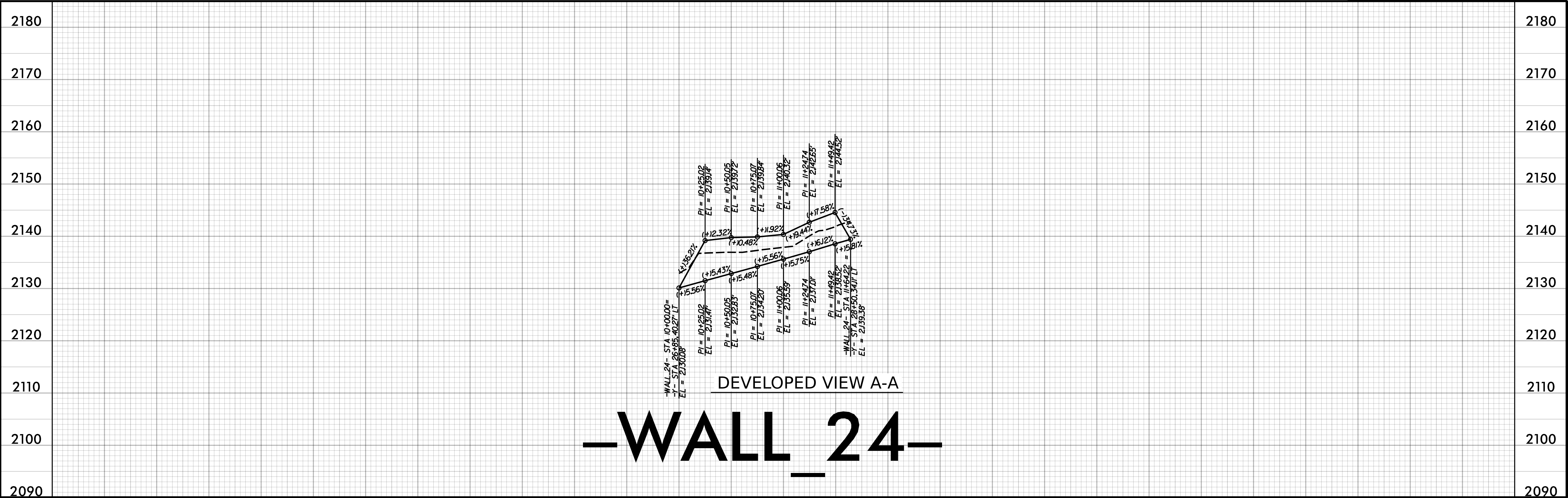
REVISIONS						SHEET NO. W-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	

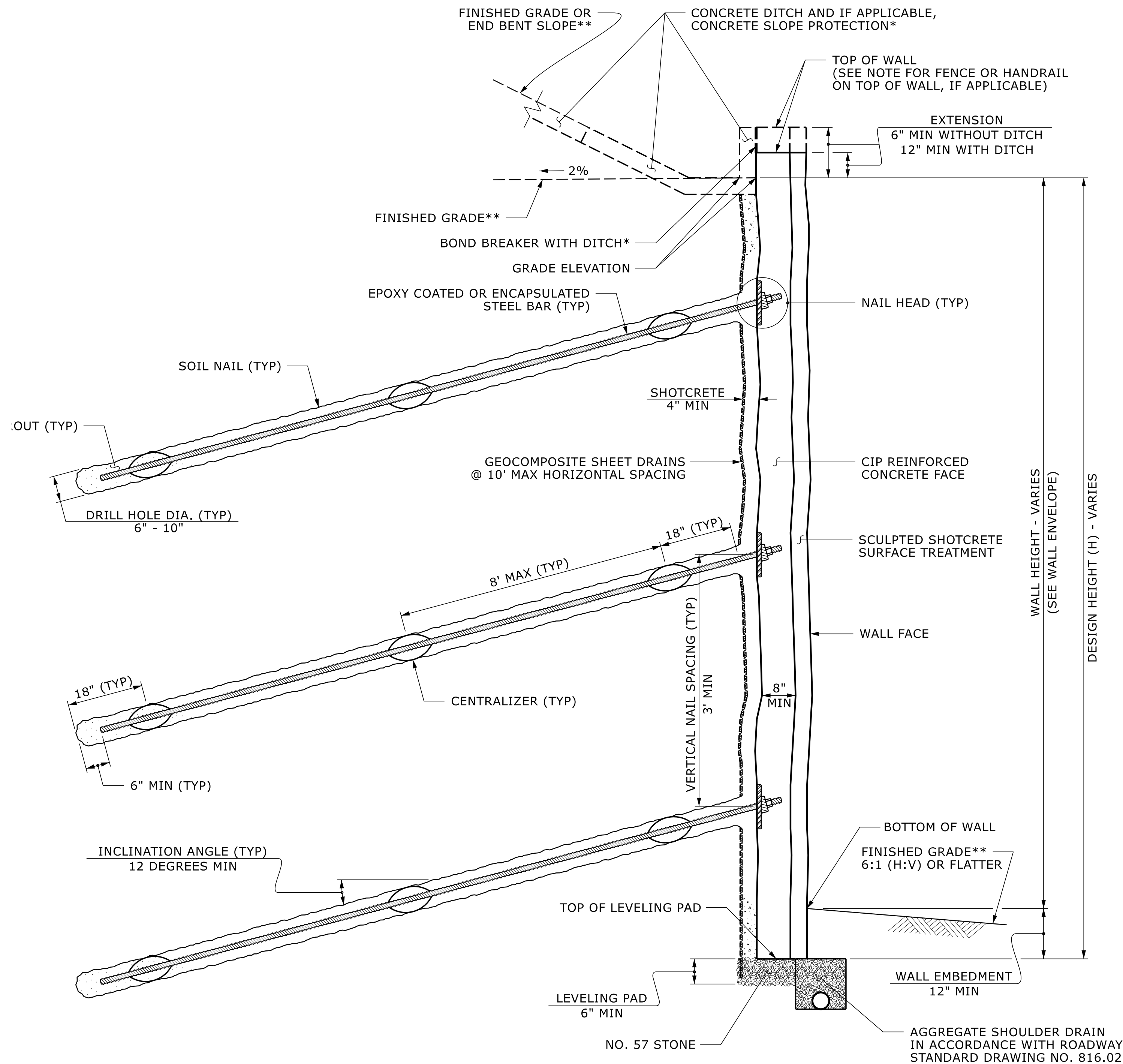


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N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DES BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>





SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 24. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 24.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 24, 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. 24 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 28 DEGREES
COHESION, c = 50 PSF

DESIGN RETAINING WALL NO. 24 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 24 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 24.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY $2.5H$ WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 24-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 24

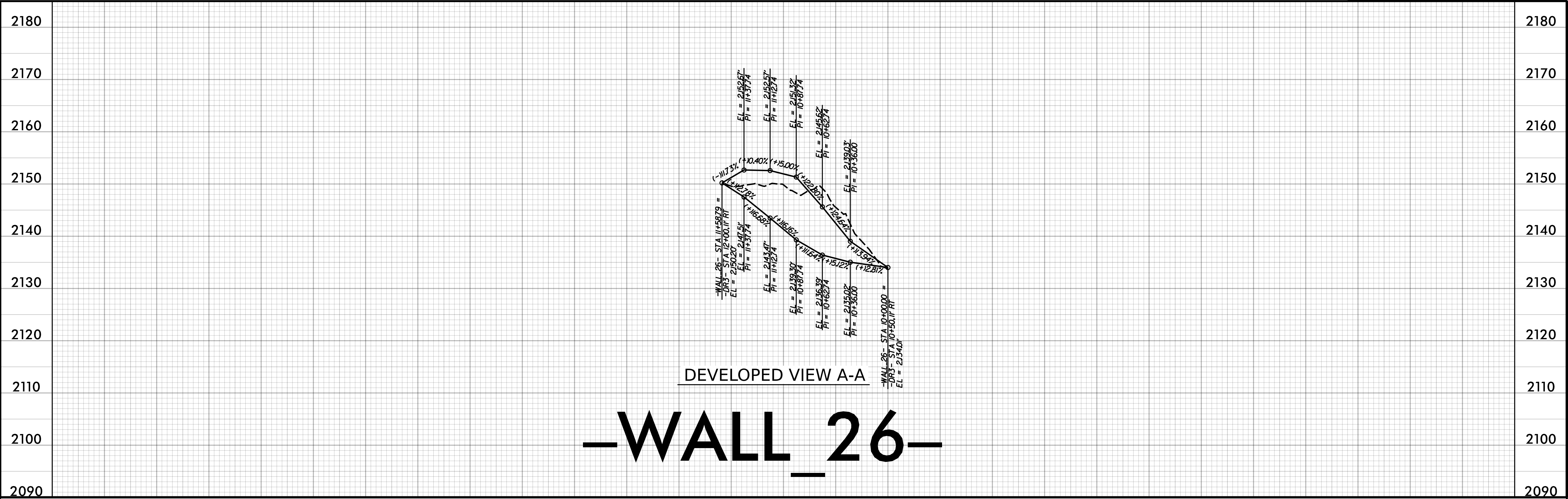
REVISIONS						SHEET NO. W-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46



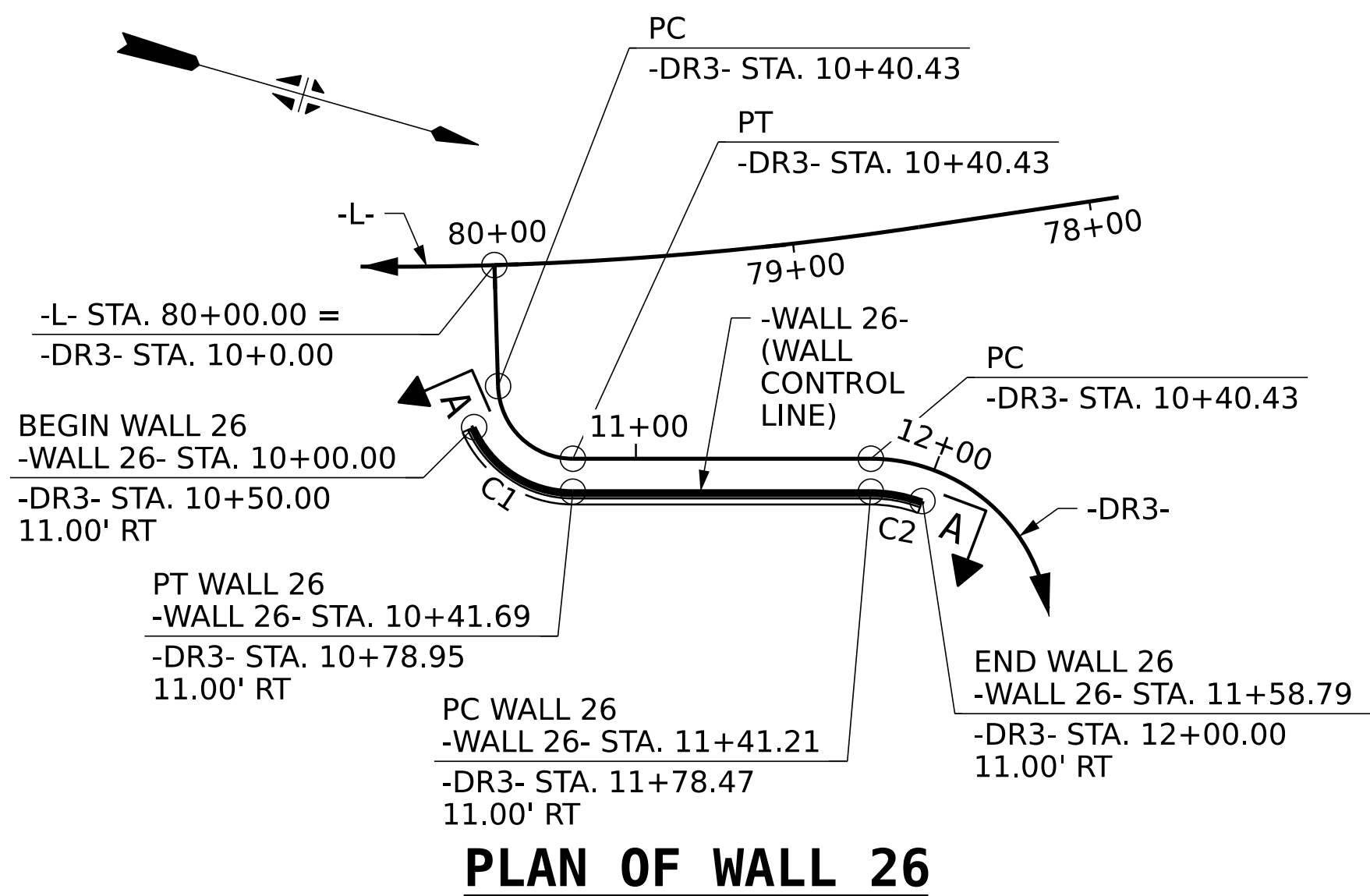
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N.C.B.E.L.S. License Number: F-0116

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UNLESS ALL SIGNATURES COMPLETED

DES BY: P. ZHANG DATE : 02/25 DWG BY: B. PETERSON DATE : 01/25
DES CHK: K. BUSSEY DATE : 03/25 CHK BY: P. ZHANG DATE : 02/25



-WALL_26-



ESTIMATED SCULPTED SHOTCRETE SURFACE TREATMENT QUANTITIES (SQUARE FEET)	
SOIL NAIL WALL NO. 26	1,011 SF

ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
26	1,011	2	2

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

HORIZONTAL CURVE DATA - C1	HORIZONTAL CURVE DATA - C2
PI STA. 10+23.54 Δ = 66° 21' 05.4" (LT) D = 159° 09' 17.8" L = 41.69' T = 23.54' R = 36.00'	PI STA. 11+50.09 Δ = 20° 33' 46.7" (RT) D = 116° 55' 48.6" L = 17.59' T = 8.89' R = 49.00'

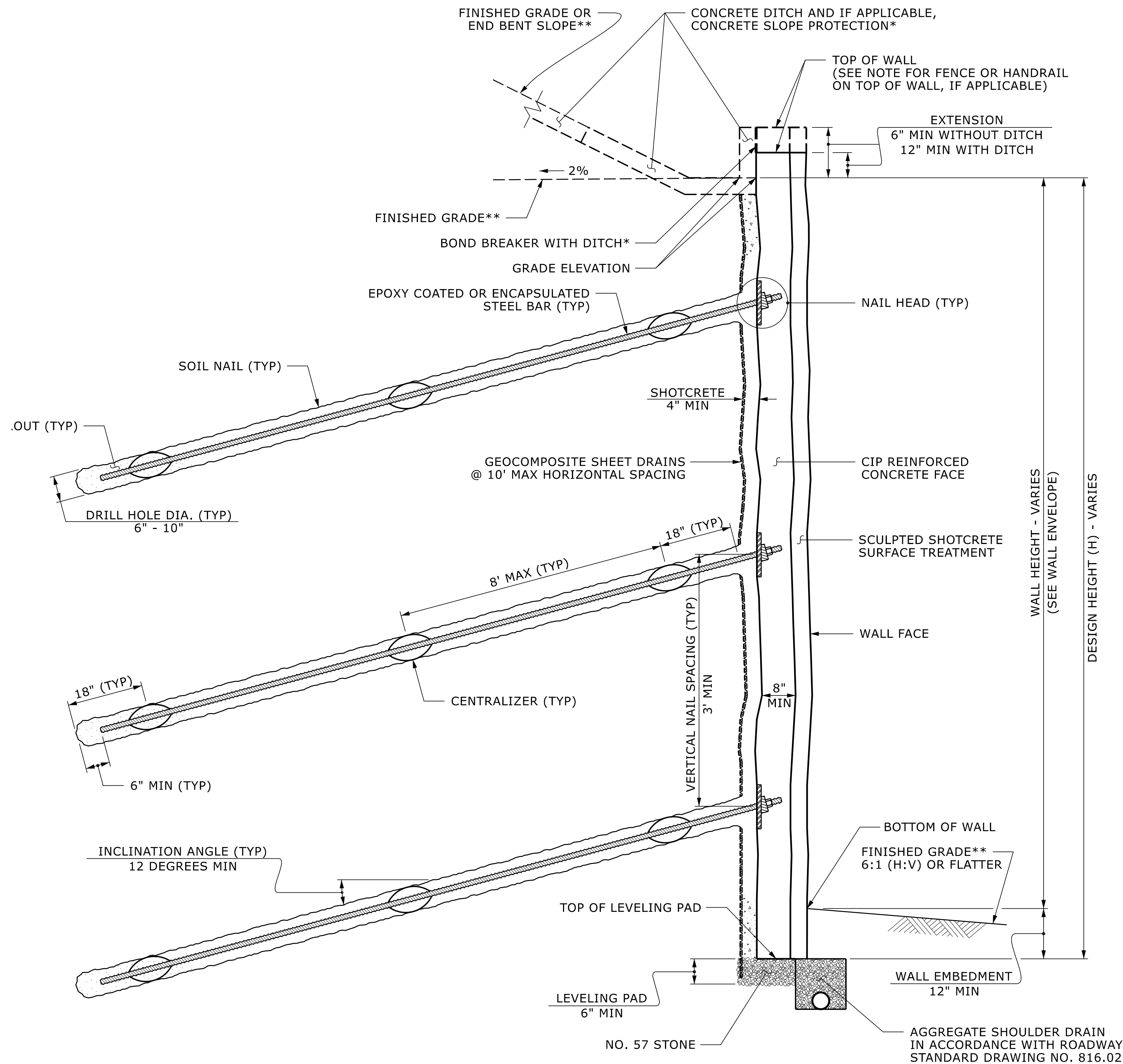
PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_26-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**WALL 26
ALIGNMENT AND ENVELOPE**

REVISIONS						SHEET NO. W-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46





SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 26. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 26.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 26, 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. 26 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 26 DEGREES
COHESION, c = 50 PSF

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 26 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 26.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 1.5H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 26-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 26

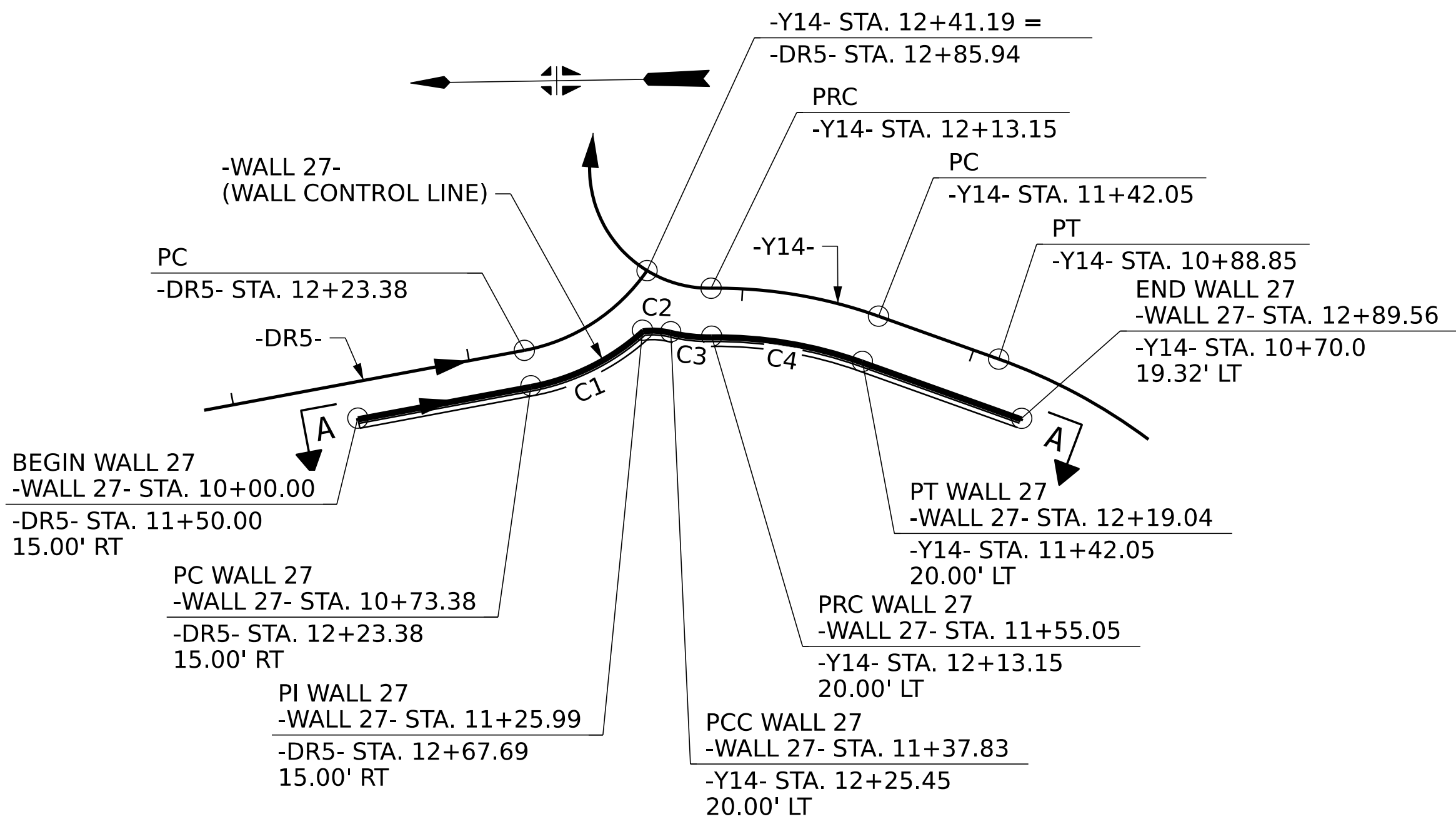
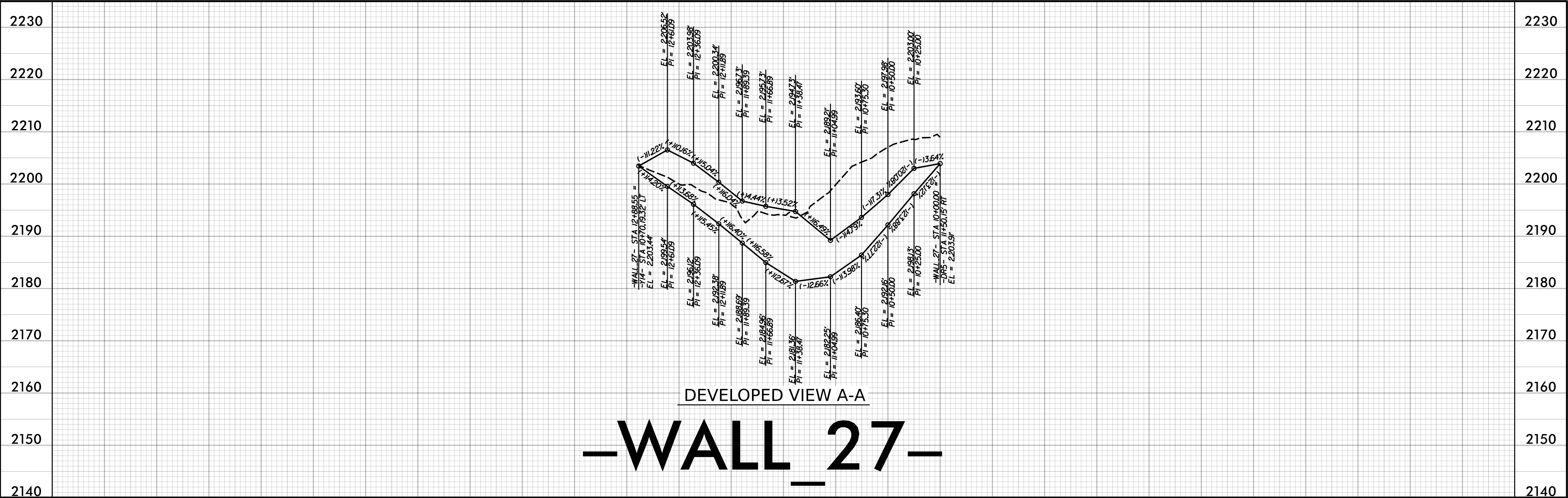
REVISIONS						SHEET NO. W-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



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N.C.B.E.L.S. License Number: F-0116

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UNLESS ALL SIGNATURES COMPLETED

DES BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>



ESTIMATED SCULPTED SHOTCRETE SURFACE TREATMENT QUANTITIES (SQUARE FEET)	
SOIL NAIL WALL NO. 27	2,117 SF

ESTIMATED SOIL NAIL WALL QUANTITIES			
RETAINING WALL NO.	SOIL NAIL RETAINING WALLS (SQUARE FEET)	SOIL NAIL VERIFICATION TESTS	SOIL NAIL PROOF TESTS
27	2,117	2	4

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

HORIZONTAL CURVE DATA - C1

PI STA. 11+00.38
Δ = 31° 43' 54.5" (LT)
D = 60° 18' 40.8"
L = 52.61'
T = 27.00'
R = 95.00'

HORIZONTAL CURVE DATA - C2

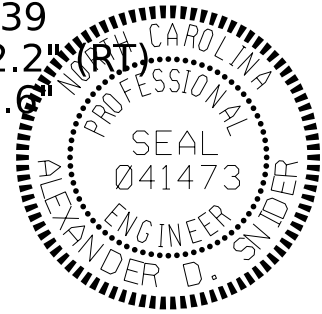
PI STA. 11+31.99
Δ = 22° 36' 19.4" (RT)
D = 190° 59' 09.4"
L = 11.84'
T = 6.00'
R = 30.00'

HORIZONTAL CURVE DATA - C3

PI STA. 11+46.48
Δ = 14° 05' 43.1" (LT)
D = 81° 51' 04.0"
L = 17.22'
T = 8.65'
R = 70.00'

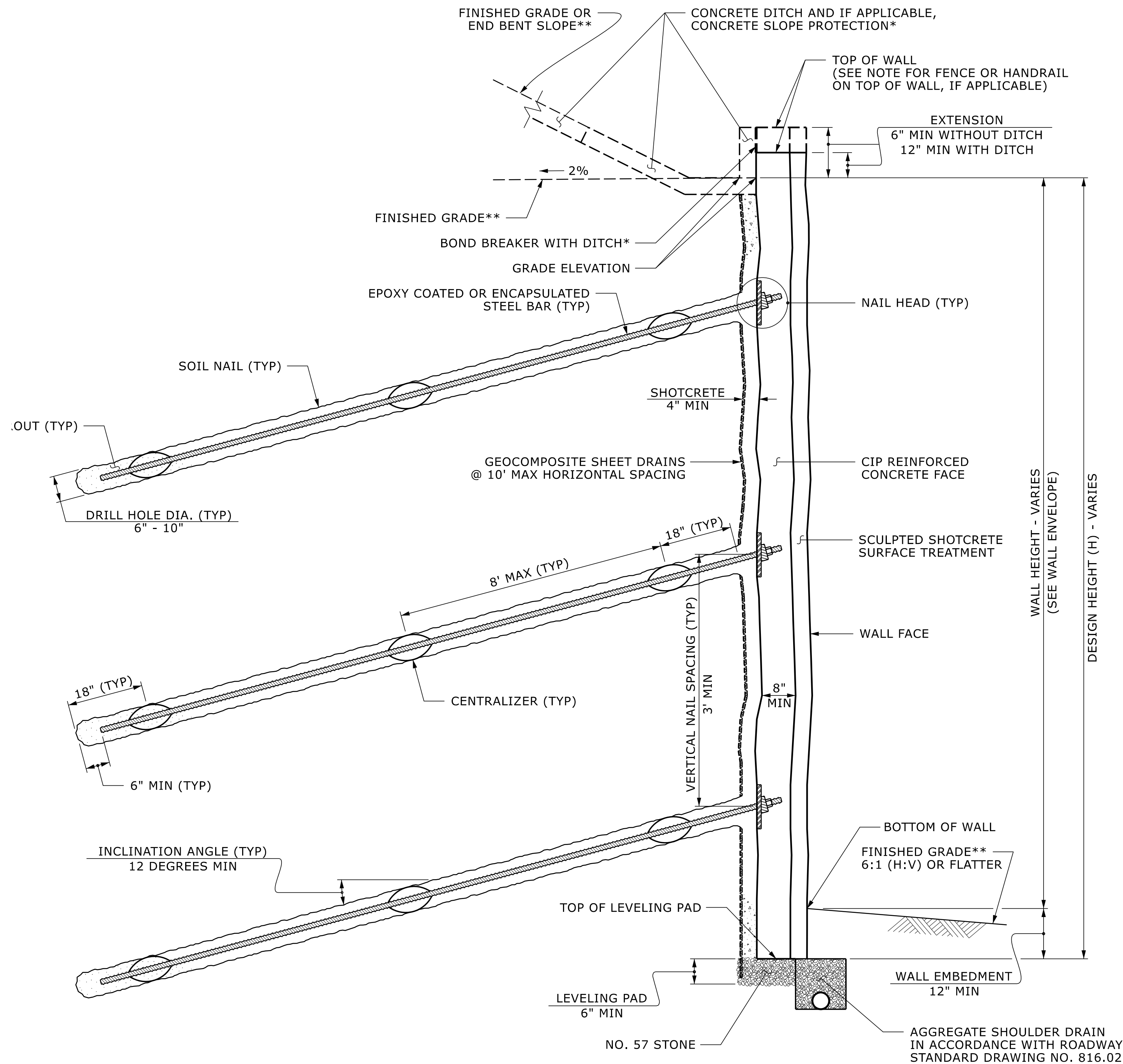
HORIZONTAL CURVE DATA - C4

PI STA. 11+87.39
Δ = 20° 22' 12.2" (RT)
D = 31° 49' 51.6"
L = 63.99'
T = 32.34'
R = 180.00'



PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 27-**

DEPARTMENT OF TRANSPORTATION RALEIGH					
WALL 27 ALIGNMENT AND ENVELOPE					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
TOTAL SHEETS					46



SOIL NAIL WALL - TYPICAL SECTION

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

NOTES:

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS PROVISION.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 27. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

A SCULPTED SHOTCRETE SURFACE TREATMENT IS REQUIRED FOR THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 27.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL NO. 27, 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. 27 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) IN-SITU ASSUMED MATERIAL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 28 DEGREES
COHESION, c = 50 PSF

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS WILL BE LOCATED BEHIND RETAINING WALL NO. 27 AND MAY INTERFERE WITH SOIL NAILS. SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS WITH THE SOIL NAIL WALL CONSTRUCTION PLAN.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL NO. 27.

IT IS ESTIMATED THAT A MINIMUM SOIL NAIL LENGTH OF APPROXIMATELY 2.0H WILL BE REQUIRED FOR ADEQUATE GLOBAL STABILITY. ADDITIONAL LENGTH MAY BE REQUIRED FOR INTERNAL STABILITY.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 27-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOIL NAIL WALL DETAILS AND NOTES WALL 27

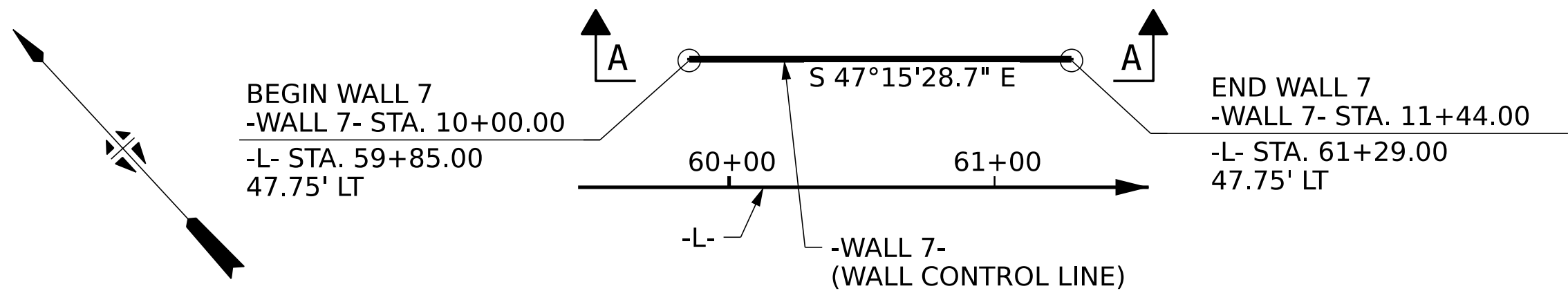
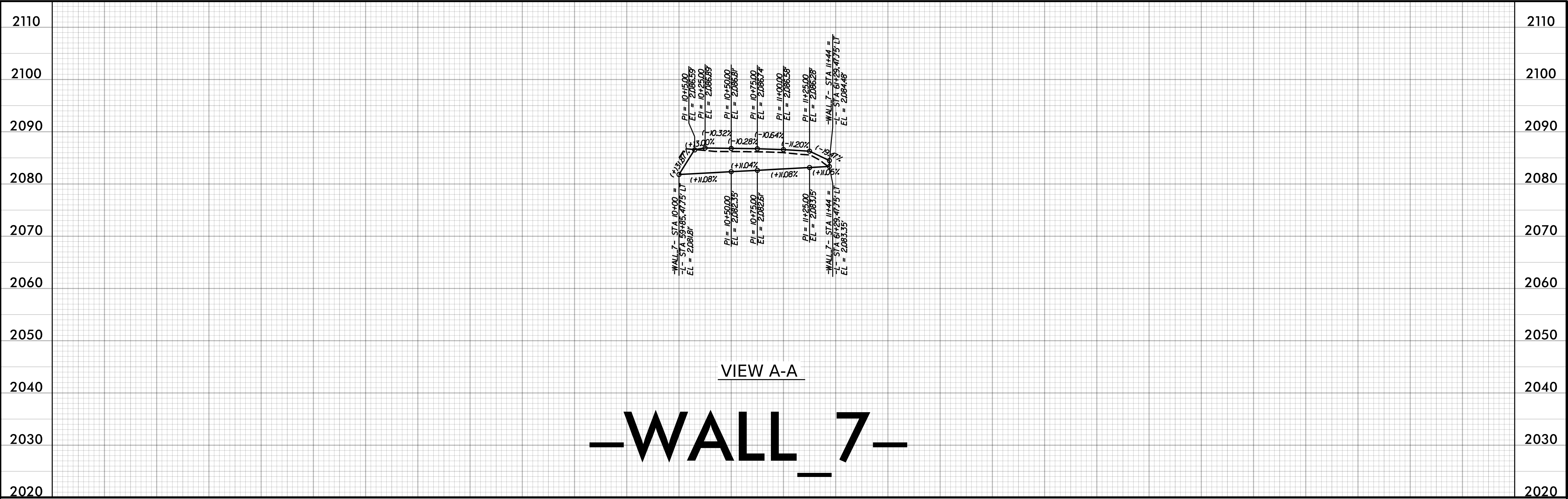


DES BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE : <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE : <u>02/25</u>

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REVISIONS						SHEET NO. W-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



PLAN OF WALL 7

PRECAST GRAVITY WALL QUANTITIES (SQUARE FEET)	
PRECAST GRAVITY WALL NO. 7	529 SF

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

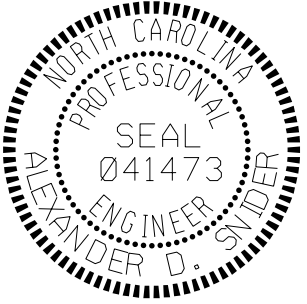
DES BY: A. SNIDER	DATE : 02/25	DWG BY: B. PETERSON	DATE : 02/25
DES CHK: E. BROOKS	DATE : 05/25	CHK BY: A. SNIDER	DATE : 05/25

HDR

HDR Engineering, Inc. of the Carolinas

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N.C.B.E.L.S. License Number: F-0116



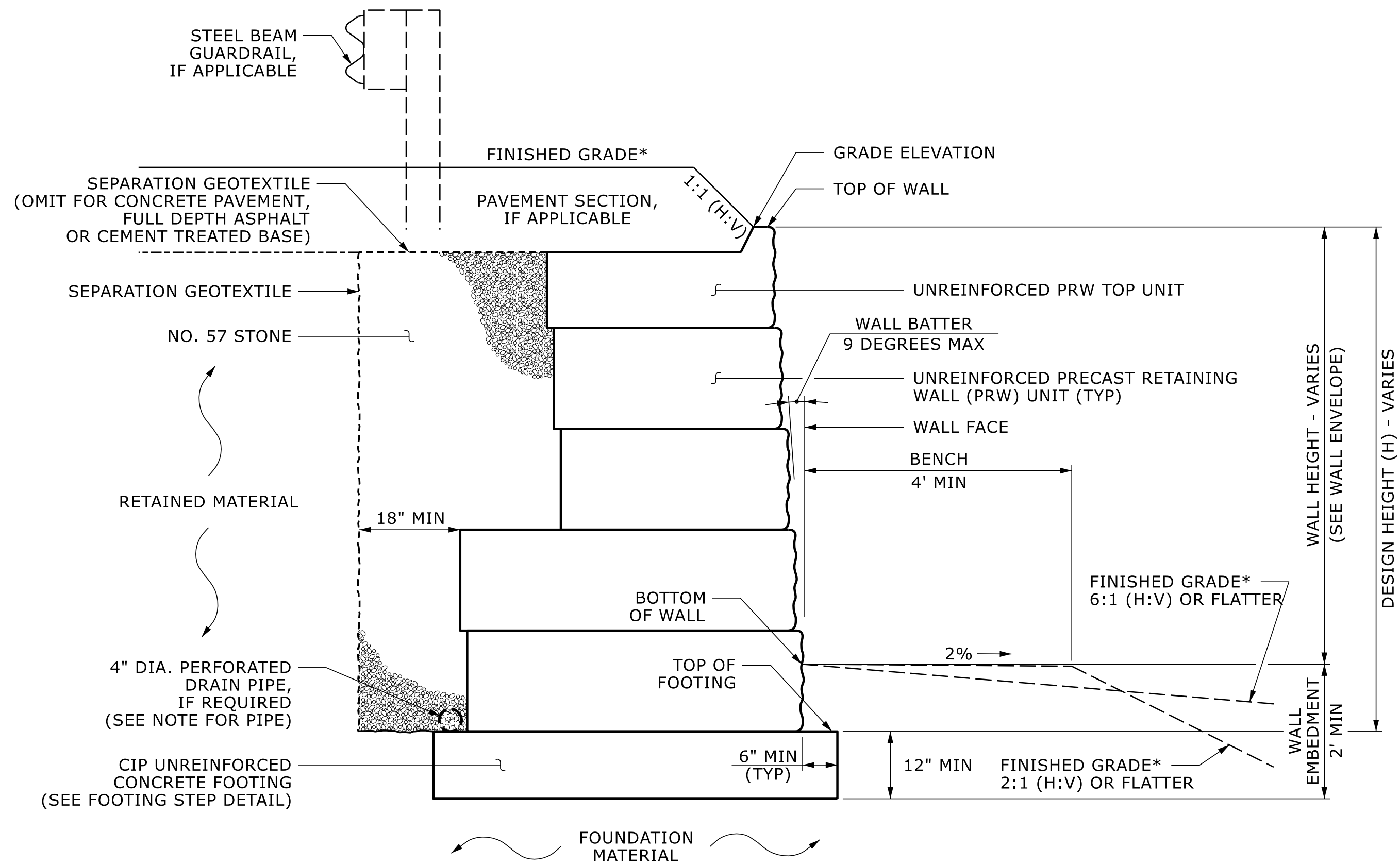
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UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL 7-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**WALL 7
ALIGNMENT AND ENVELOPE**

REVISIONS						SHEET NO. W-36
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



PRECAST GRAVITY WALL WITH
TOP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

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

USE PRW UNITS WITH A SCULPTED SHOTCRETE FACE FOR RETAINING WALL NO. 7.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 7.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 7, 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. 7 FOR DESIGN HEIGHTS EQUAL TO THE WALL HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

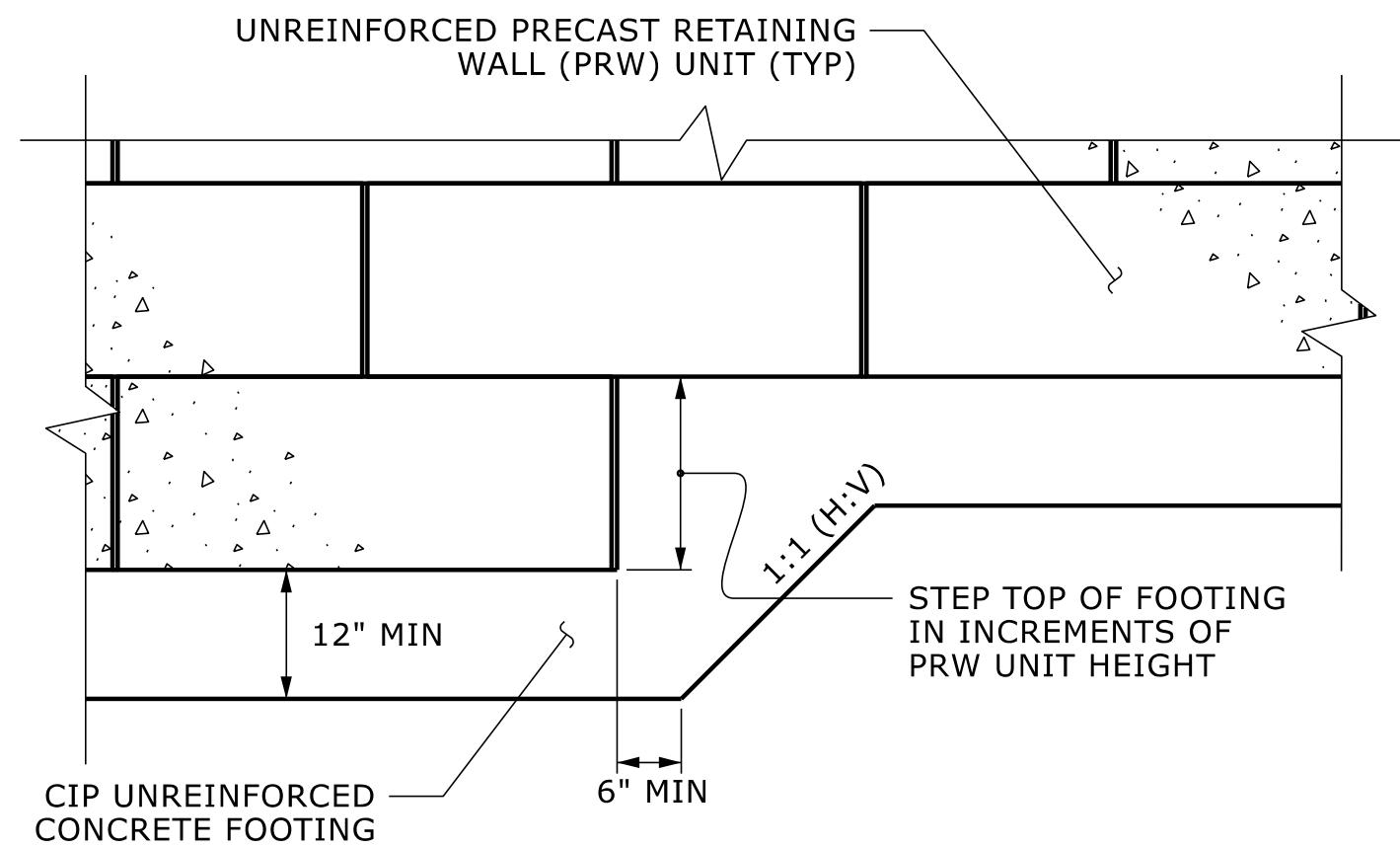
DESIGN RETAINING WALL NO. 7 FOR THE FOLLOWING:

- 1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF
- 2) MINIMUM WALL EMBEDMENT ELEVATION = 2 FT
- 3) IN-SITU ASSUMED MATERIAL PARAMETERS:

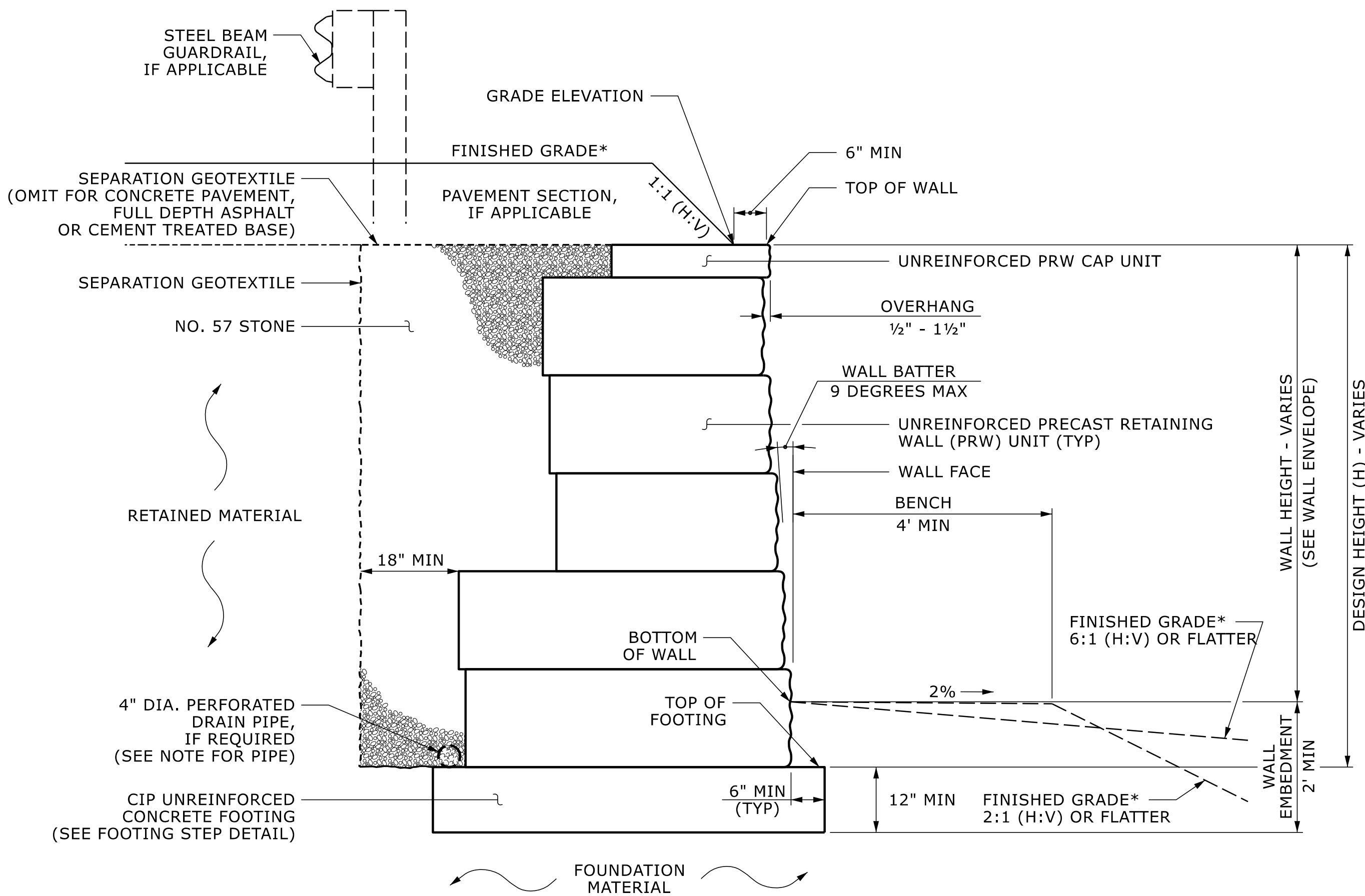
MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	120	28	0

DESIGN RETAINING WALL NO. 7 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 7 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



FOOTING STEP DETAIL



PRECAST GRAVITY WALL
WITH CAP PRW UNIT
TYPICAL SECTION

*SEE ROADWAY PLANS FOR
FINISHED GRADE DETAILS.

PROJECT NO. **R-5600**

JACKSON COUNTY

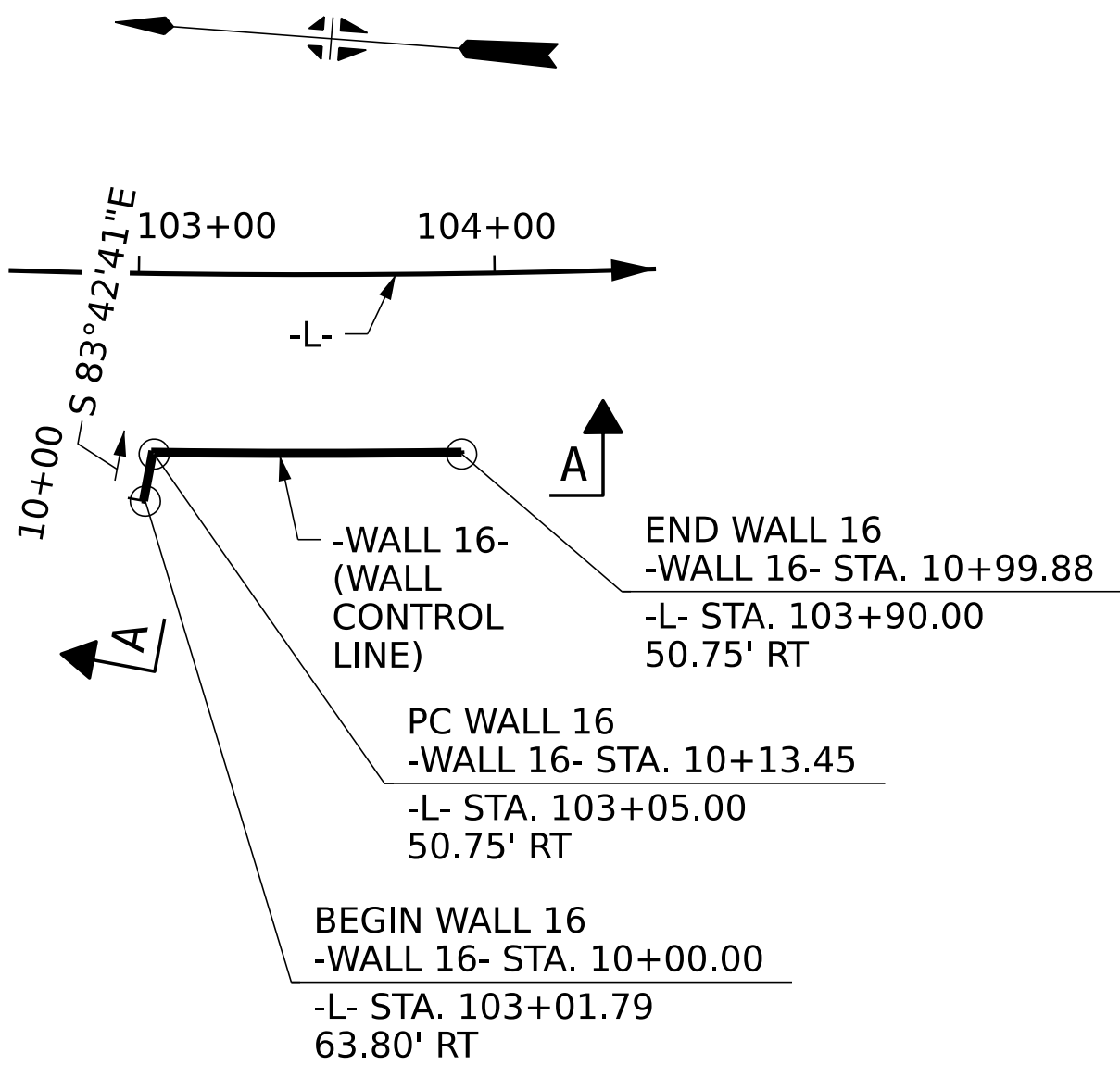
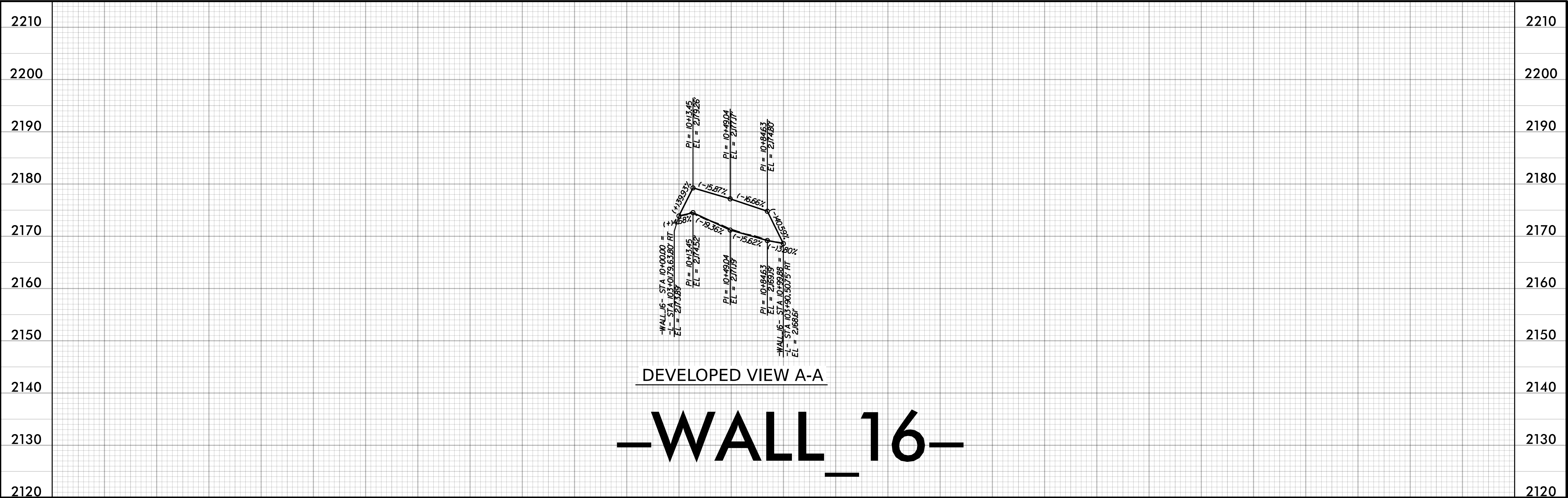
STATION: **10+00.00 -WALL 7-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST GRAVITY WALL
DETAILS AND NOTES
WALL 7

REVISIONS						SHEET NO. W-37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46





PRECAST GRAVITY WALL QUANTITIES (SQUARE FEET)	
PRECAST GRAVITY WALL NO. 16	472 SF

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

WALL STRUCTURE DESIGN NOTE:
-WALL_16- ALIGNMENT IS ASSUMED TO BE AT FACE OF WALL, AND IS SET BASED ON AN APPROXIMATE 1' OFFSET FROM BACK OF SIDEWALK (49.75' RT OF -L-). WALL STRUCTURE DESIGN SHALL FURTHER OFFSET THE ACTUAL FACE OF WALL BEYOND THE -WALL_16- DESIGNED ALIGNMENT, AS REQUIRED, TO MAINTAIN THE CLEAR SIDEWALK WIDTH (TO 49.75' RT OF -L-).

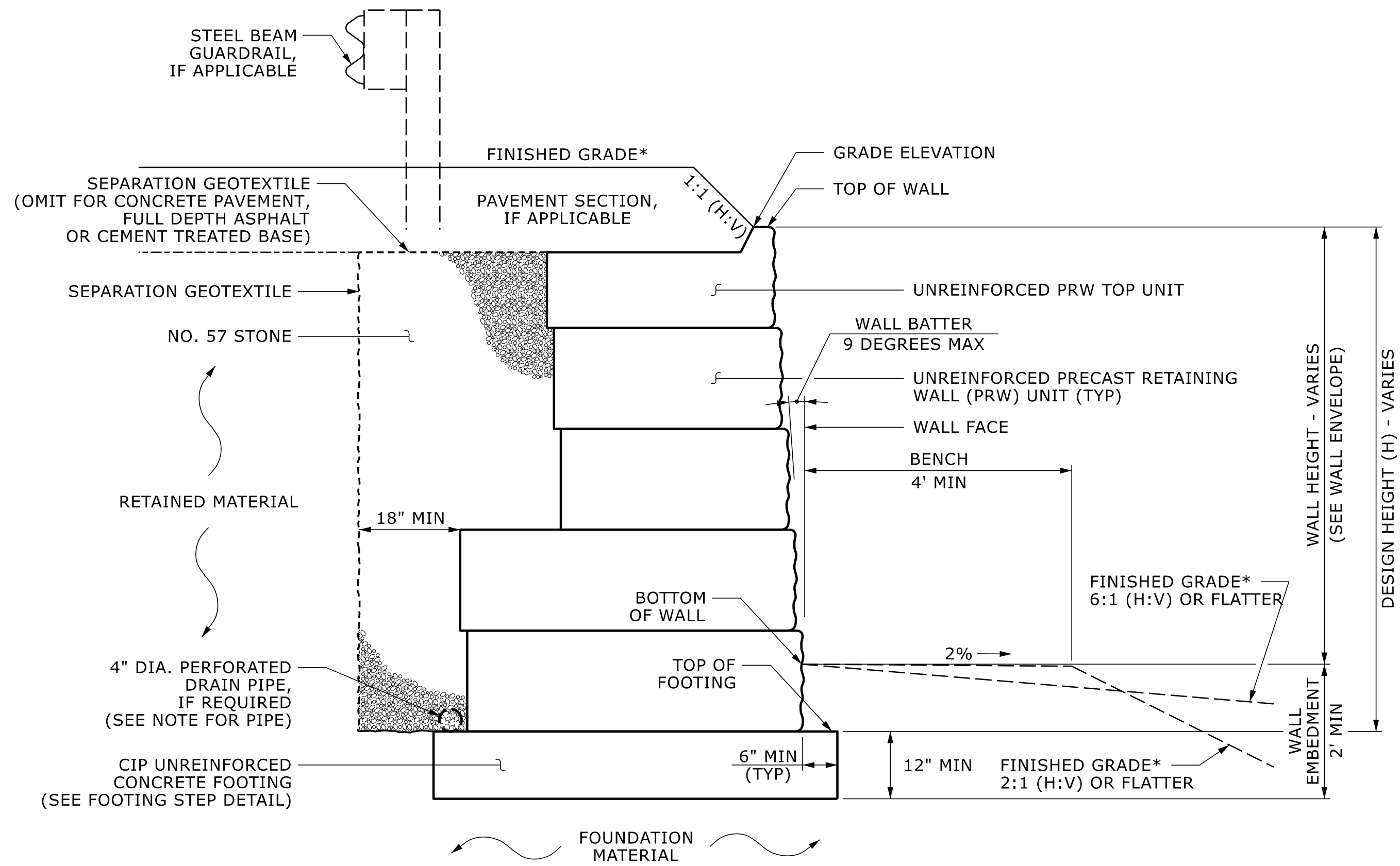
PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_16-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WALL 16
ALIGNMENT AND ENVELOPE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	W-38
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46





PRECAST GRAVITY WALL WITH TOP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

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

USE PRW UNITS WITH A SCULPTED SHOTCRETE FACE FOR RETAINING WALL NO. 16.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 16.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 16, 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. 16 FOR DESIGN HEIGHTS EQUAL TO THE WALL HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

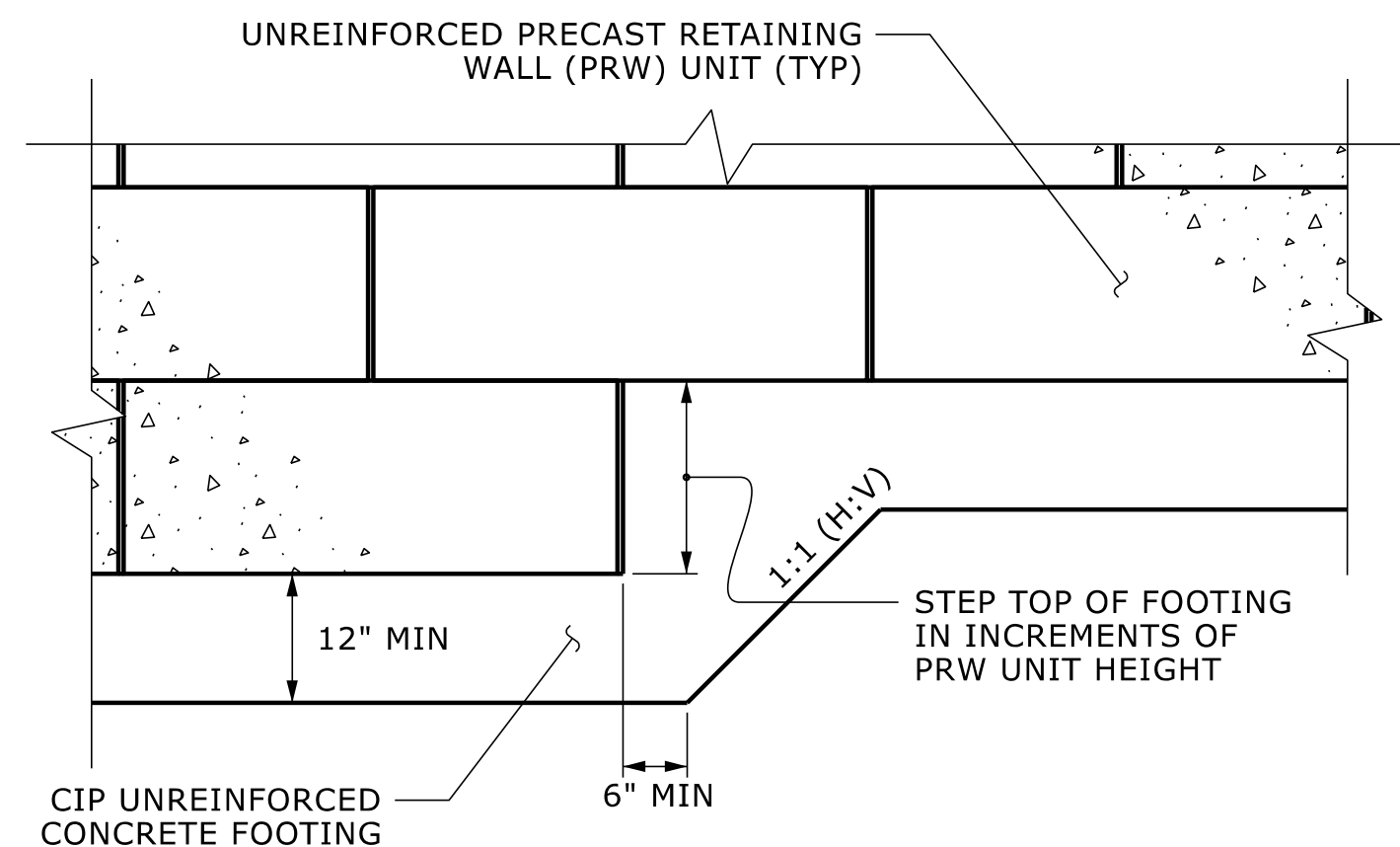
DESIGN RETAINING WALL NO. 16 FOR THE FOLLOWING:

- 1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF
- 2) MINIMUM WALL EMBEDMENT ELEVATION = 2 FT
- 3) IN-SITU ASSUMED MATERIAL PARAMETERS:

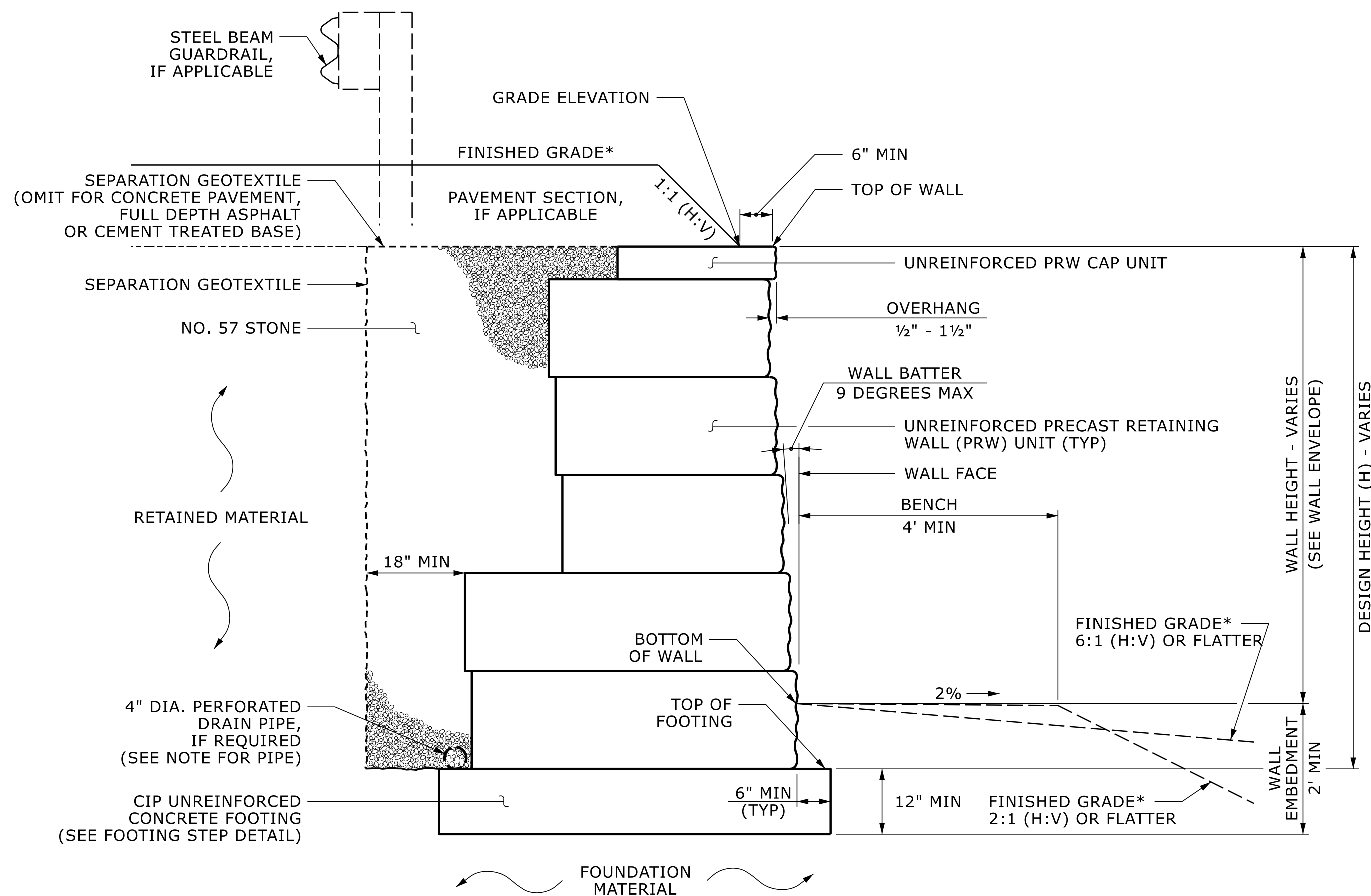
MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	120	26	0

DESIGN RETAINING WALL NO. 16 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 16 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



FOOTING STEP DETAIL



PRECAST GRAVITY WALL WITH CAP PRW UNIT TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO. **R-5600**

JACKSON COUNTY

STATION: **10+00.00 -WALL 16-**

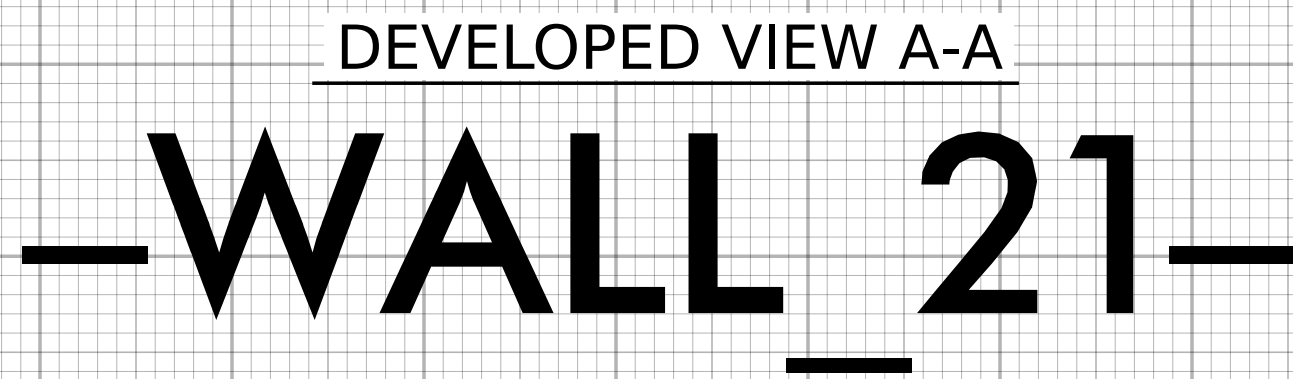
PRECAST GRAVITY WALL DETAILS AND NOTES WALL 16

REVISIONS						SHEET NO. W-37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DES BY: <u>P. ZHANG</u>	DATE: <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE: <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE: <u>02/25</u>



PI STA. 10+86.08
 $\Delta = 02^{\circ}17'10.1''$ (LT.)
 $D = 02^{\circ}47'47.8''$
 $L = 81.75'$
 $T = 40.88'$
 $R = 2048.75'$

PRECAST GRAVITY WALL QUANTITIES (SQUARE FEET)

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

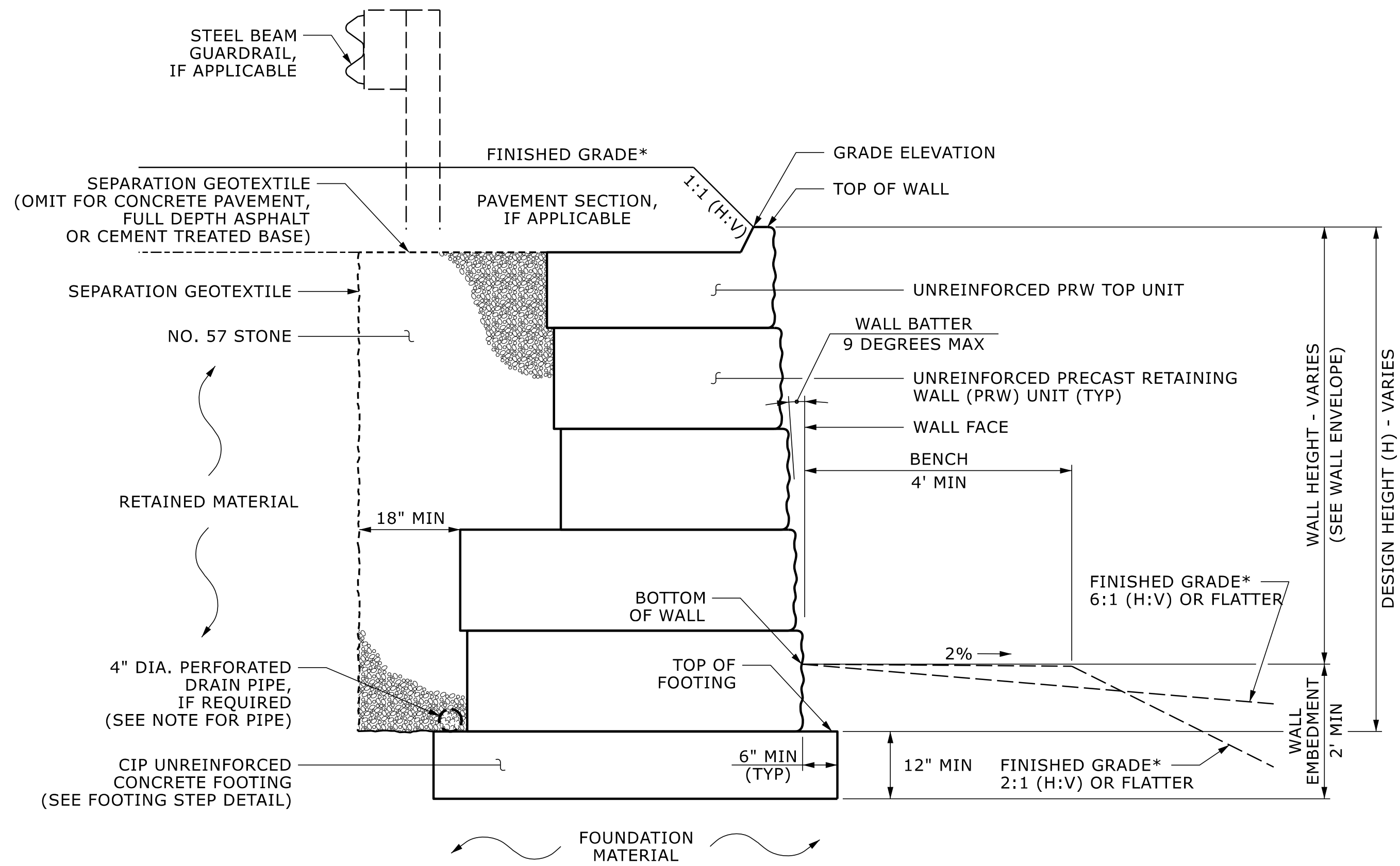
PROJECT NO. **R-5600**
JACKSON COUNTY
 STATION: **10+00.00 -WALL 21-**

WALL 21 ALIGNMENT AND ENVELOPE

REVISONS						SHEET NO. W-40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



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UNLESS ALL SIGNATURES COMPLETED**



PRECAST GRAVITY WALL WITH TOP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

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

USE PRW UNITS WITH A SCULPTED SHOTCRETE FACE FOR RETAINING WALL NO. 21.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 21.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 21, 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. 21 FOR DESIGN HEIGHTS EQUAL TO THE WALL HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

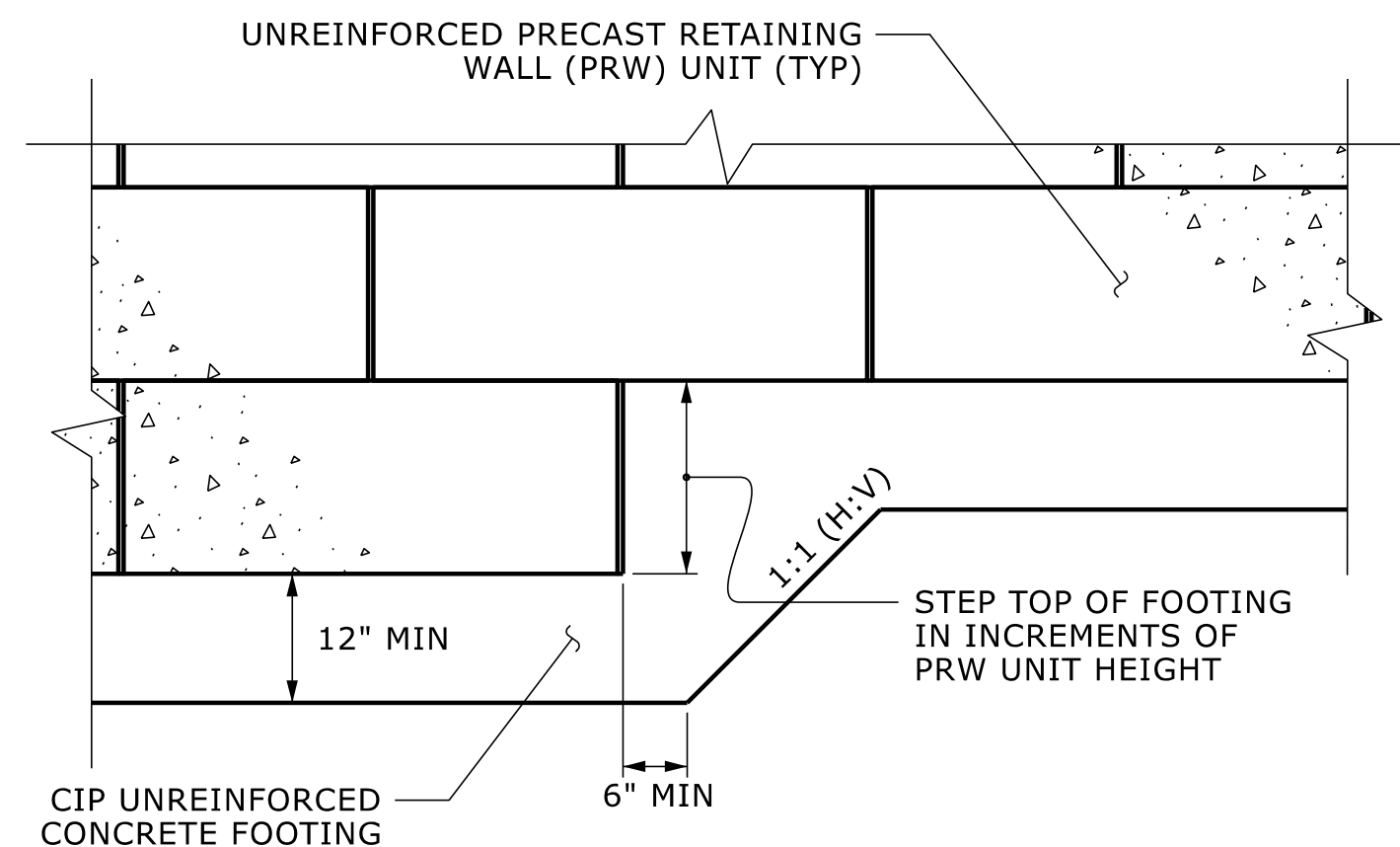
DESIGN RETAINING WALL NO. 21 FOR THE FOLLOWING:

- 1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF
- 2) MINIMUM WALL EMBEDMENT ELEVATION = 2 FT
- 3) IN-SITU ASSUMED MATERIAL PARAMETERS:

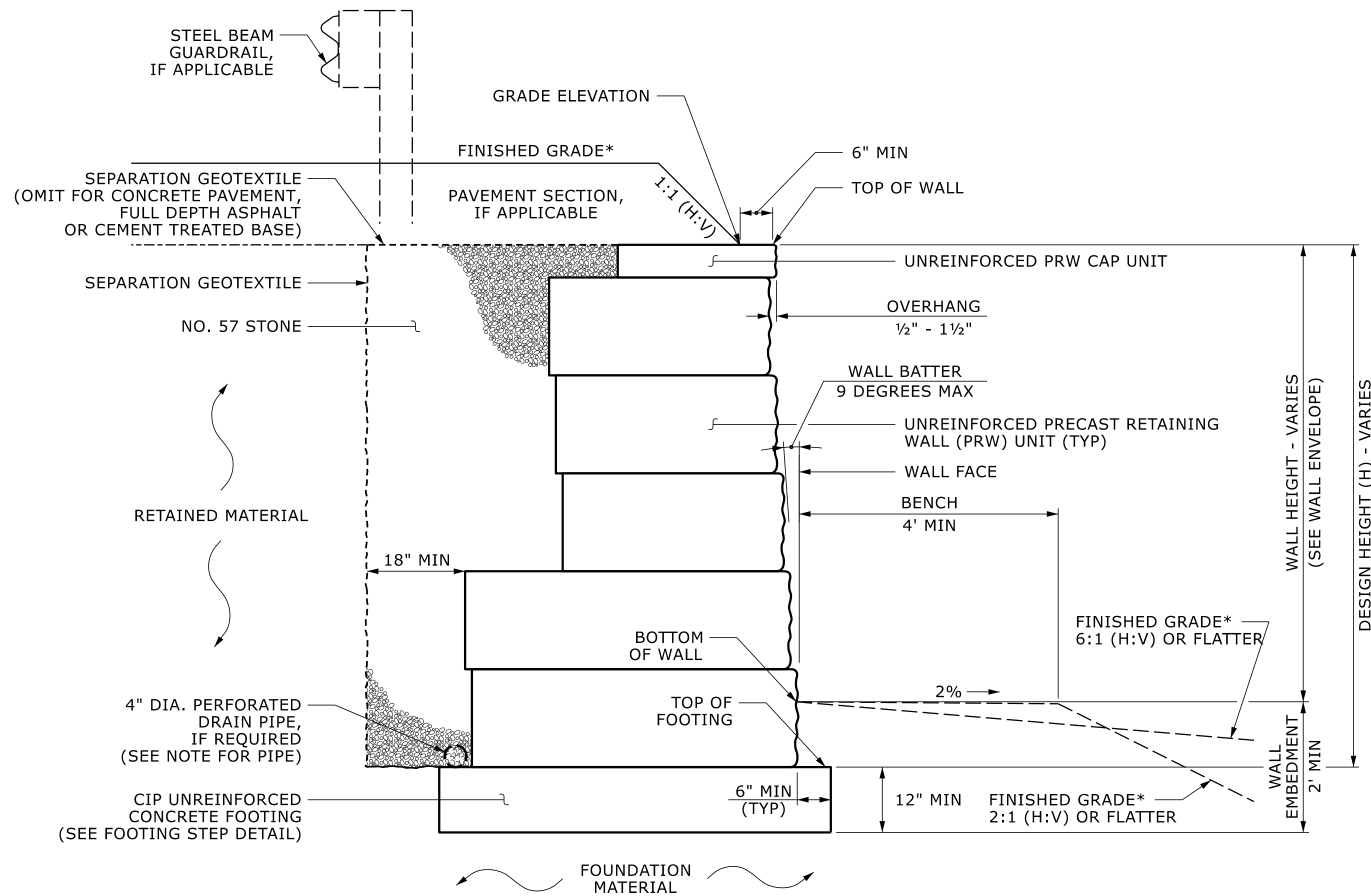
MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	120	26	0

DESIGN RETAINING WALL NO. 21 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 21 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



FOOTING STEP DETAIL



PRECAST GRAVITY WALL WITH CAP PRW UNIT TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO. **R-5600**

JACKSON COUNTY

STATION: **10+00.00 -WALL 21-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST GRAVITY WALL DETAILS AND NOTES WALL 21

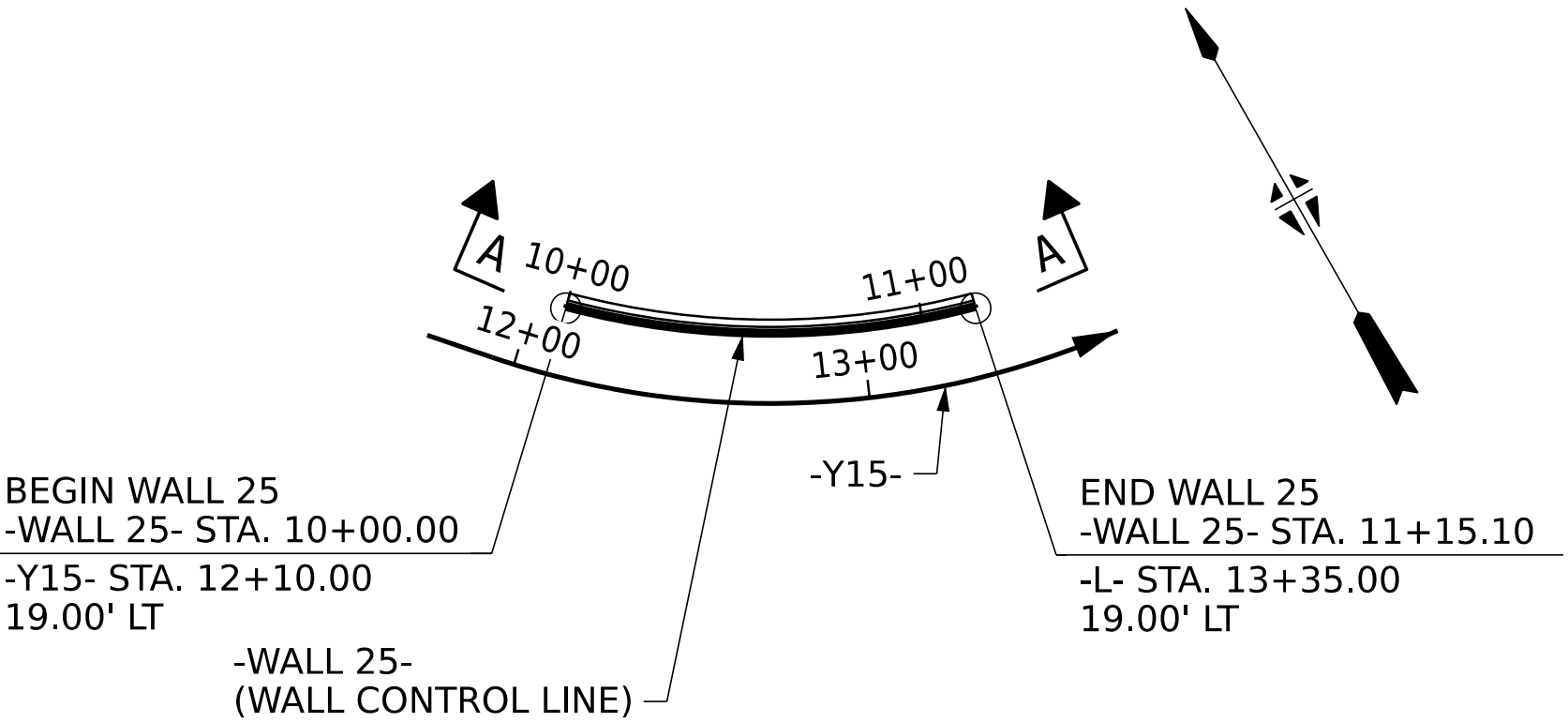
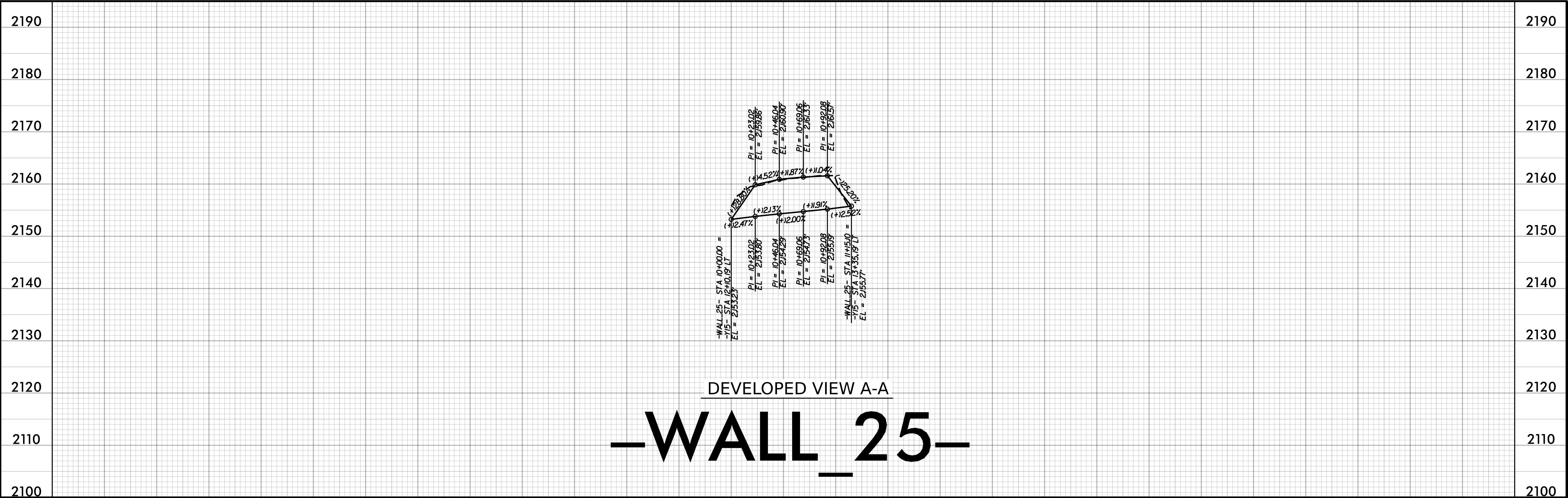
REVISIONS						SHEET NO. W-39
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



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555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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UNLESS ALL SIGNATURES COMPLETED

DES BY: <u>P. ZHANG</u>	DATE: <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>01/25</u>
DES CHK: <u>K. BUSSEY</u>	DATE: <u>03/25</u>	CHK BY: <u>P. ZHANG</u>	DATE: <u>02/25</u>



HORIZONTAL CURVE DATA
PI STA. 10+58.89
Δ = 29°50'29.6" (LT.)
D = 25°55'32.5"
L = 115.10'
T = 58.89'
R = 221.00'

PRECAST GRAVITY WALL QUANTITIES (SQUARE FEET)			
PRECAST GRAVITY WALL NO. 25		590 SF	

NOTE: WALL ENVELOPE SHOWN IS BASED ON APPROXIMATE TOP OF WALL AND BOTTOM OF WALL ELEVATIONS PER ROADWAY PLANS. THE WALL ENVELOPE DEPICTED SHOWS THE APPROXIMATE EXPOSED FACE OF THIS WALL. SEE STRUCTURAL DESIGN PLANS FOR FINAL WALL DESIGN, INCLUDING TOP OF WALL, BOTTOM OF WALL, AND FOOTING ELEVATIONS. WALL STRUCTURAL DESIGN PLANS SHALL BE PROVIDED BY THE CONTRACTOR PER COORDINATION AND DESIGN FROM THE WALL MANUFACTURER AND/OR SUPPLIER.

DES BY: <u>A. SNIDER</u>	DATE : <u>02/25</u>	DWG BY: <u>B. PETERSON</u>	DATE : <u>02/25</u>
DES CHK: <u>E. BROOKS</u>	DATE : <u>05/25</u>	CHK BY: <u>A. SNIDER</u>	DATE : <u>05/25</u>

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **10+00.00 -WALL_25-**

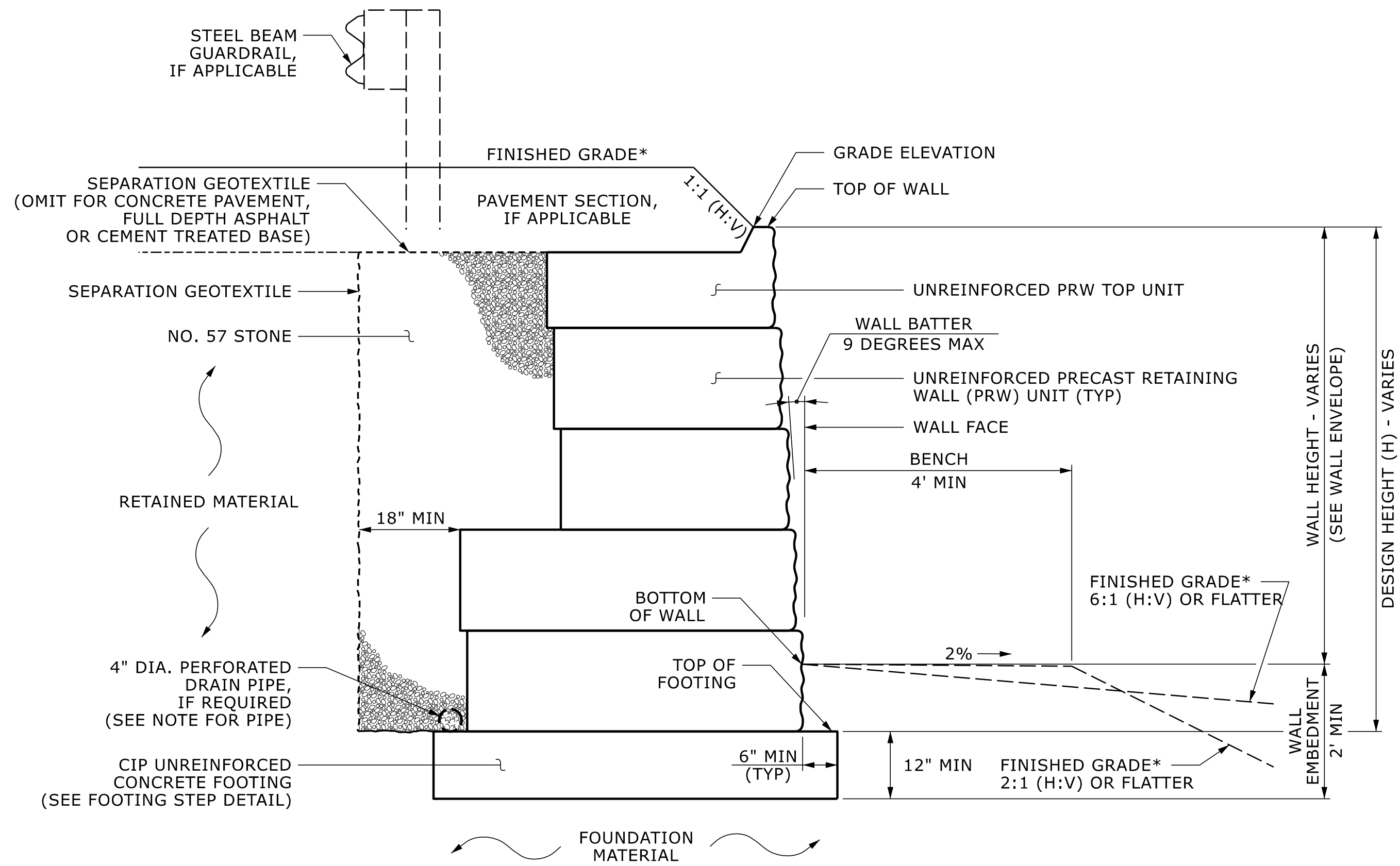
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**WALL 25
ALIGNMENT AND ENVELOPE**



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

TOTAL SHEETS	46
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PRECAST GRAVITY WALL WITH TOP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

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

USE PRW UNITS WITH A SCULPTED SHOTCRETE FACE FOR RETAINING WALL NO. 25.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 25.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 25, 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. 25 FOR DESIGN HEIGHTS EQUAL TO THE WALL HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

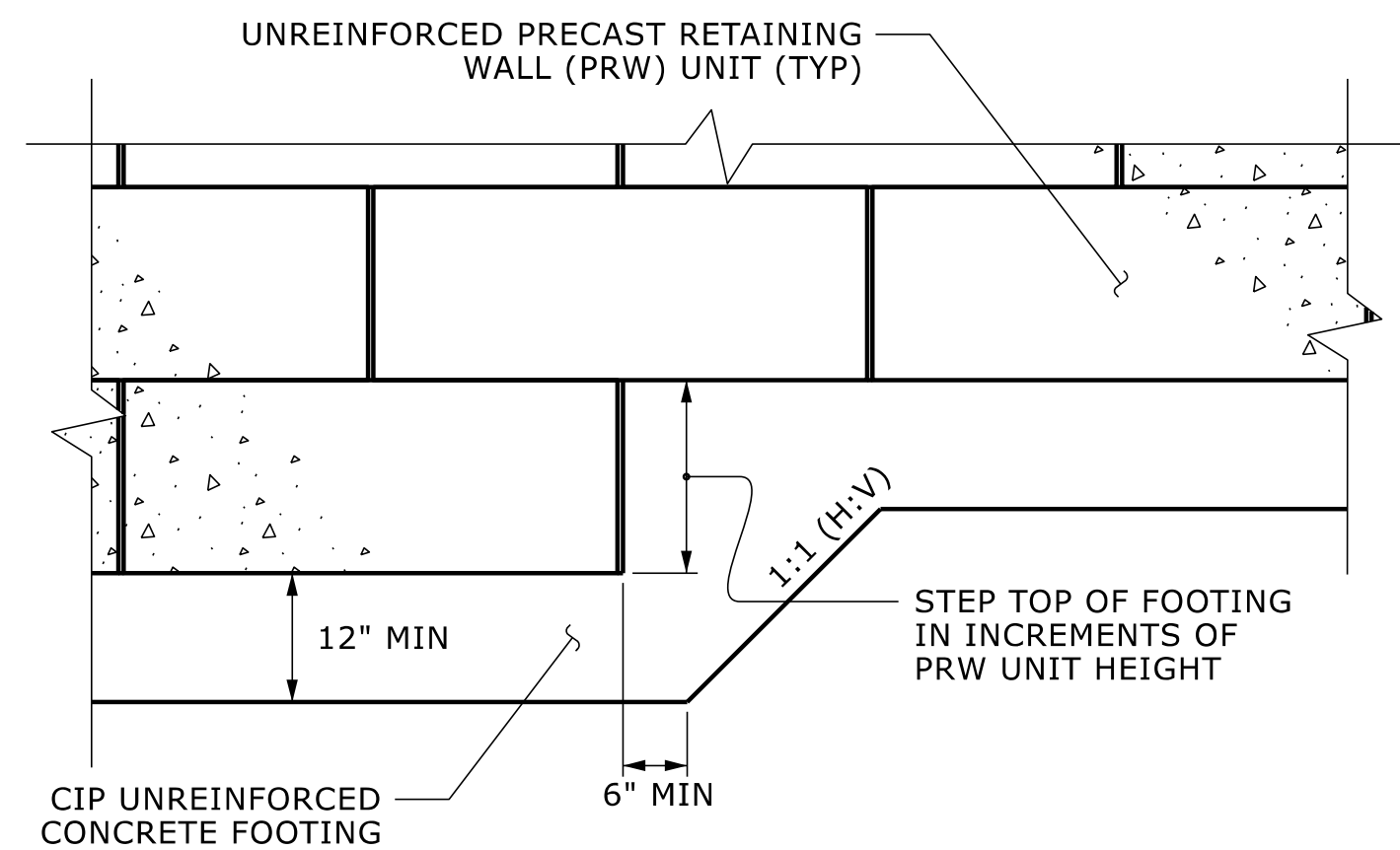
DESIGN RETAINING WALL NO. 25 FOR THE FOLLOWING:

- 1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF
- 2) MINIMUM WALL EMBEDMENT ELEVATION = 2 FT
- 3) IN-SITU ASSUMED MATERIAL PARAMETERS:

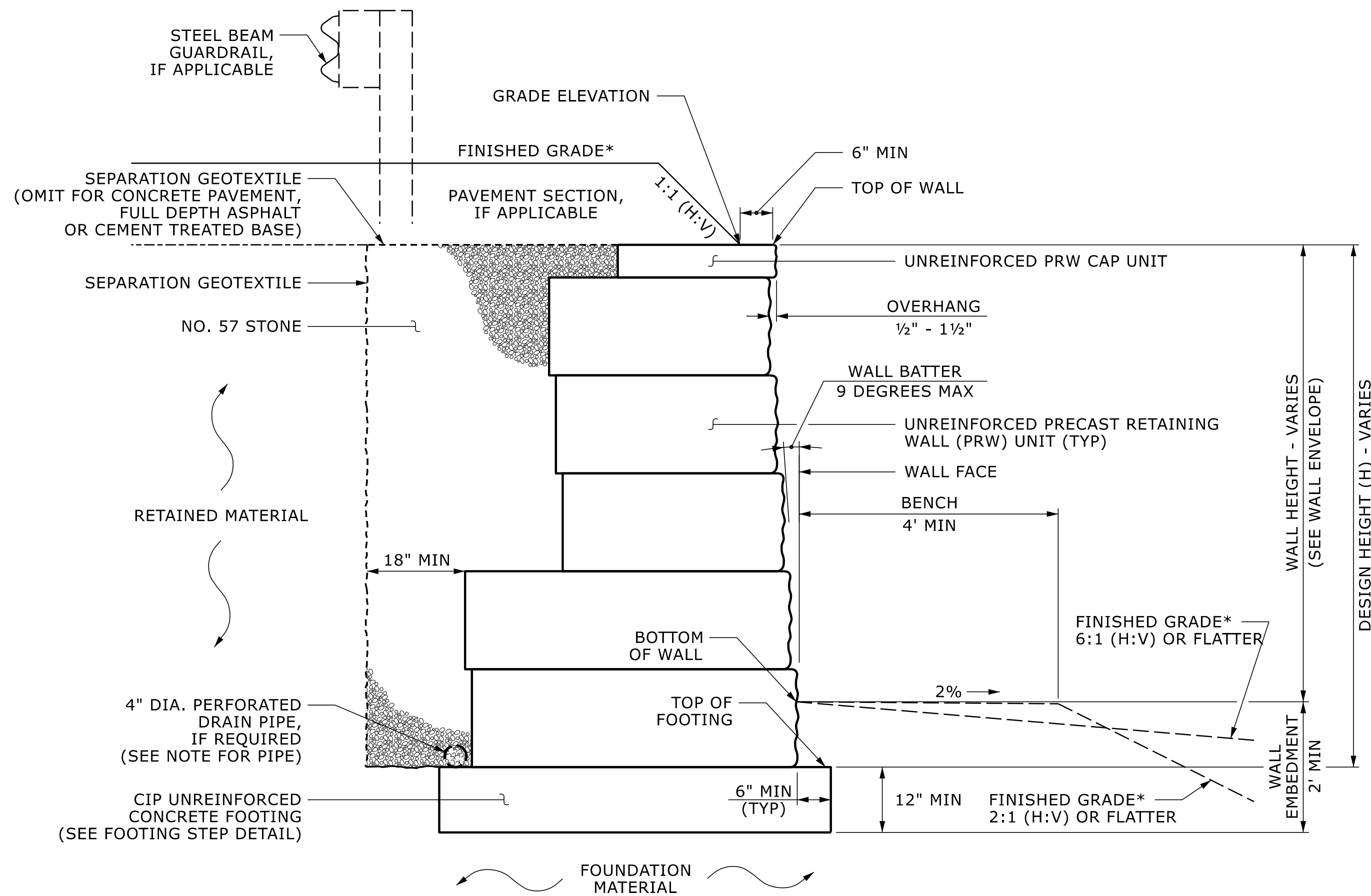
MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	120	28	0

DESIGN RETAINING WALL NO. 25 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 25 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



FOOTING STEP DETAIL



PRECAST GRAVITY WALL WITH CAP PRW UNIT TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO. **R-5600**

JACKSON COUNTY

STATION: **10+00.00 -WALL 25-**

PRECAST GRAVITY WALL DETAILS AND NOTES WALL 25

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

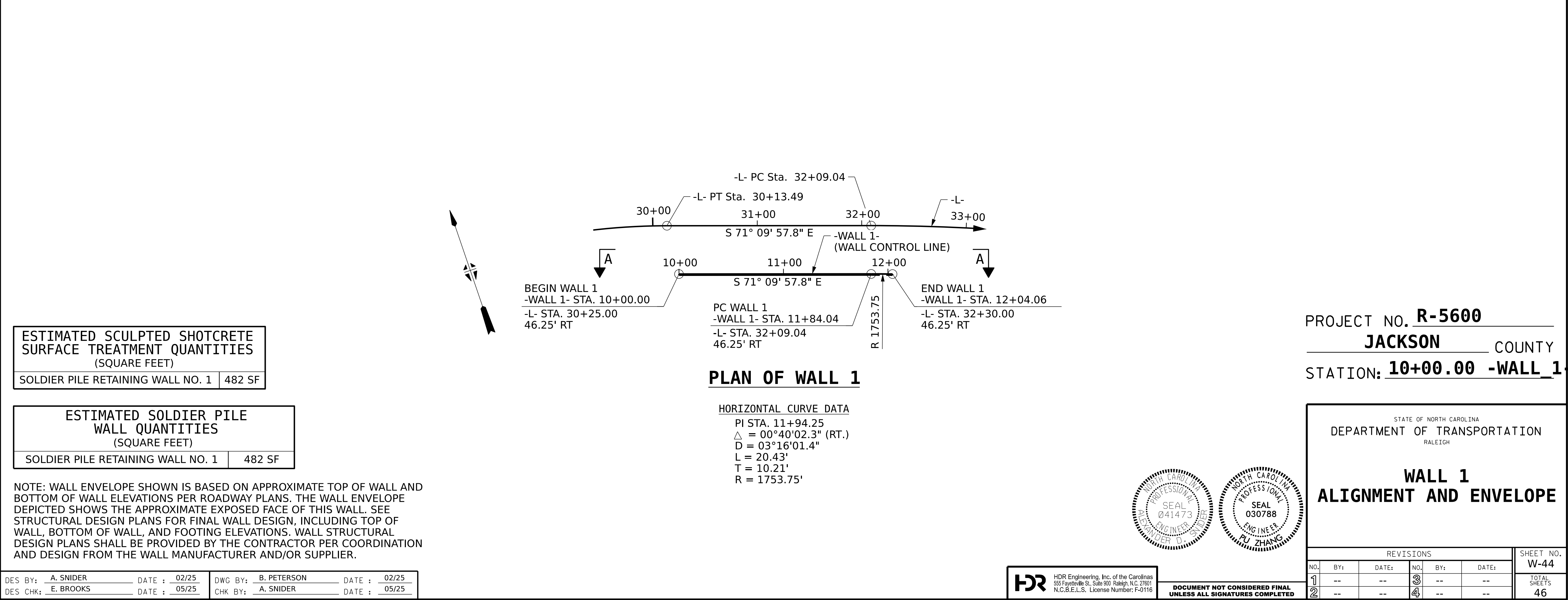
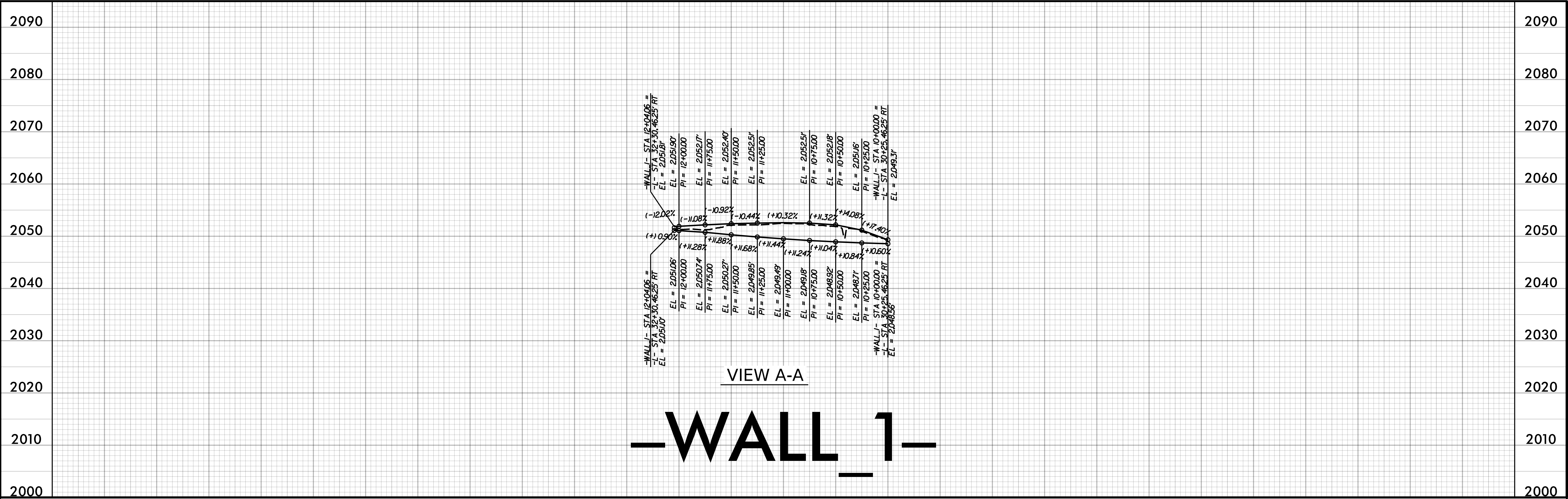
REVISIONS						SHEET NO. W-43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	

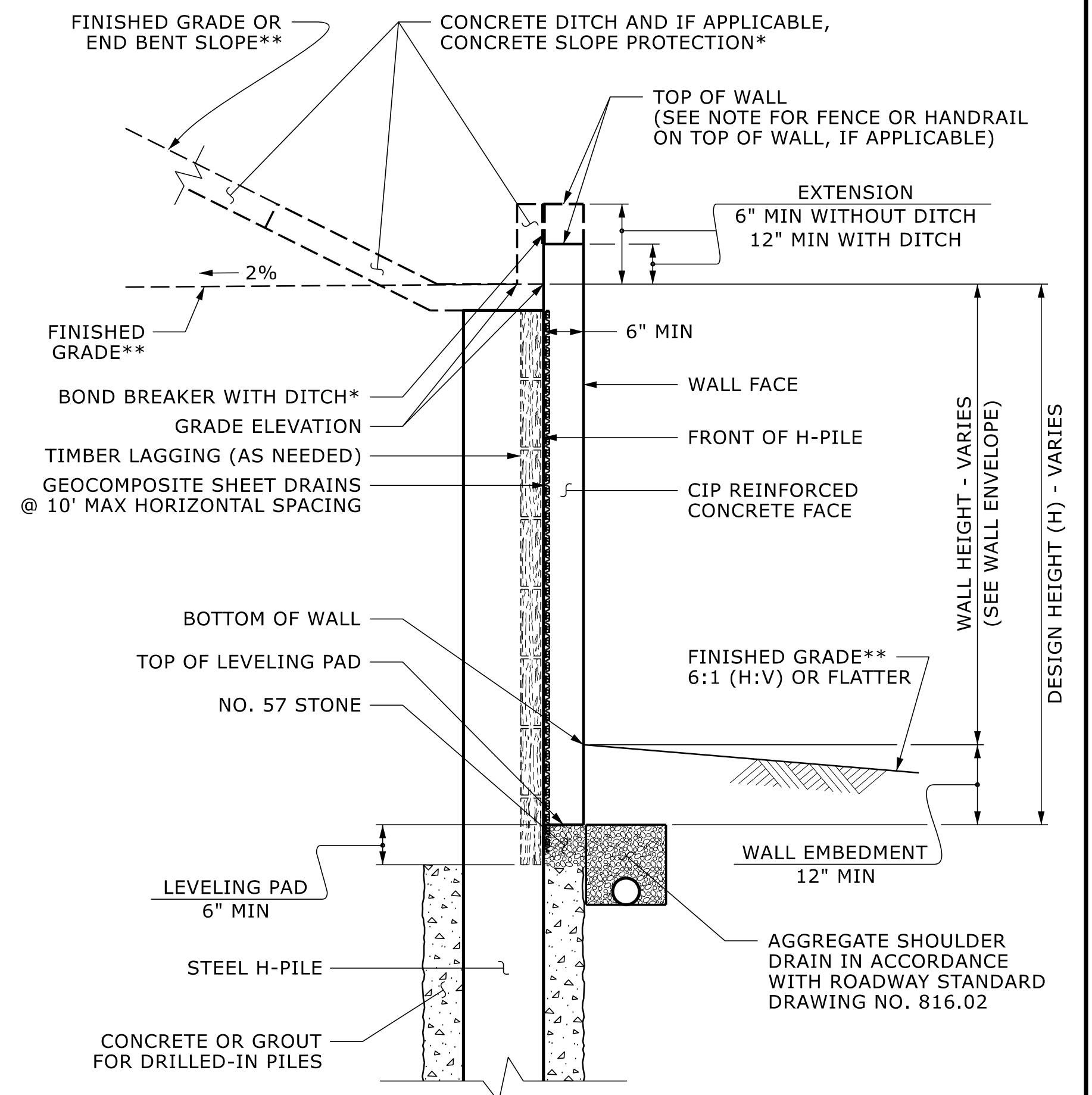
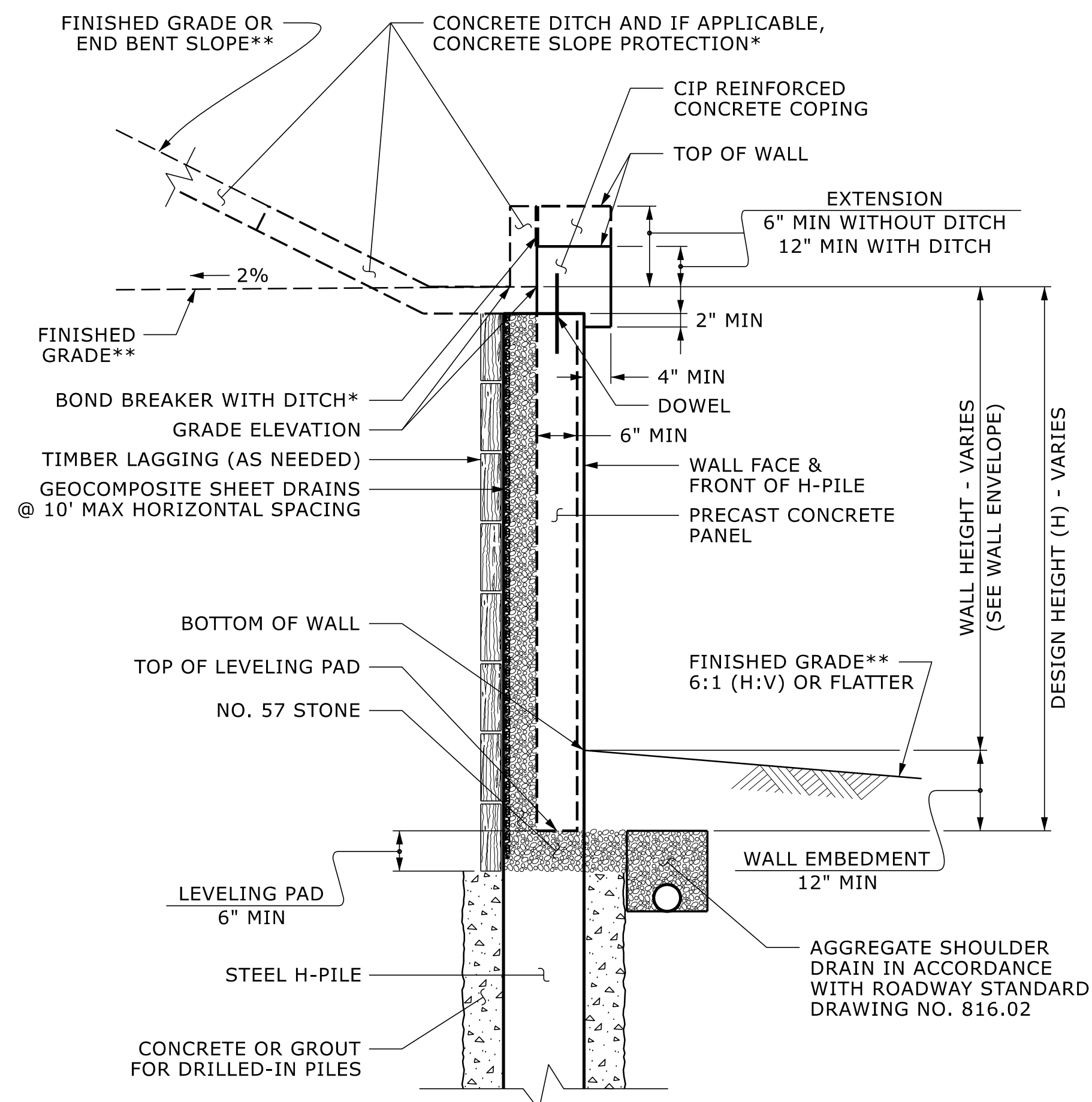
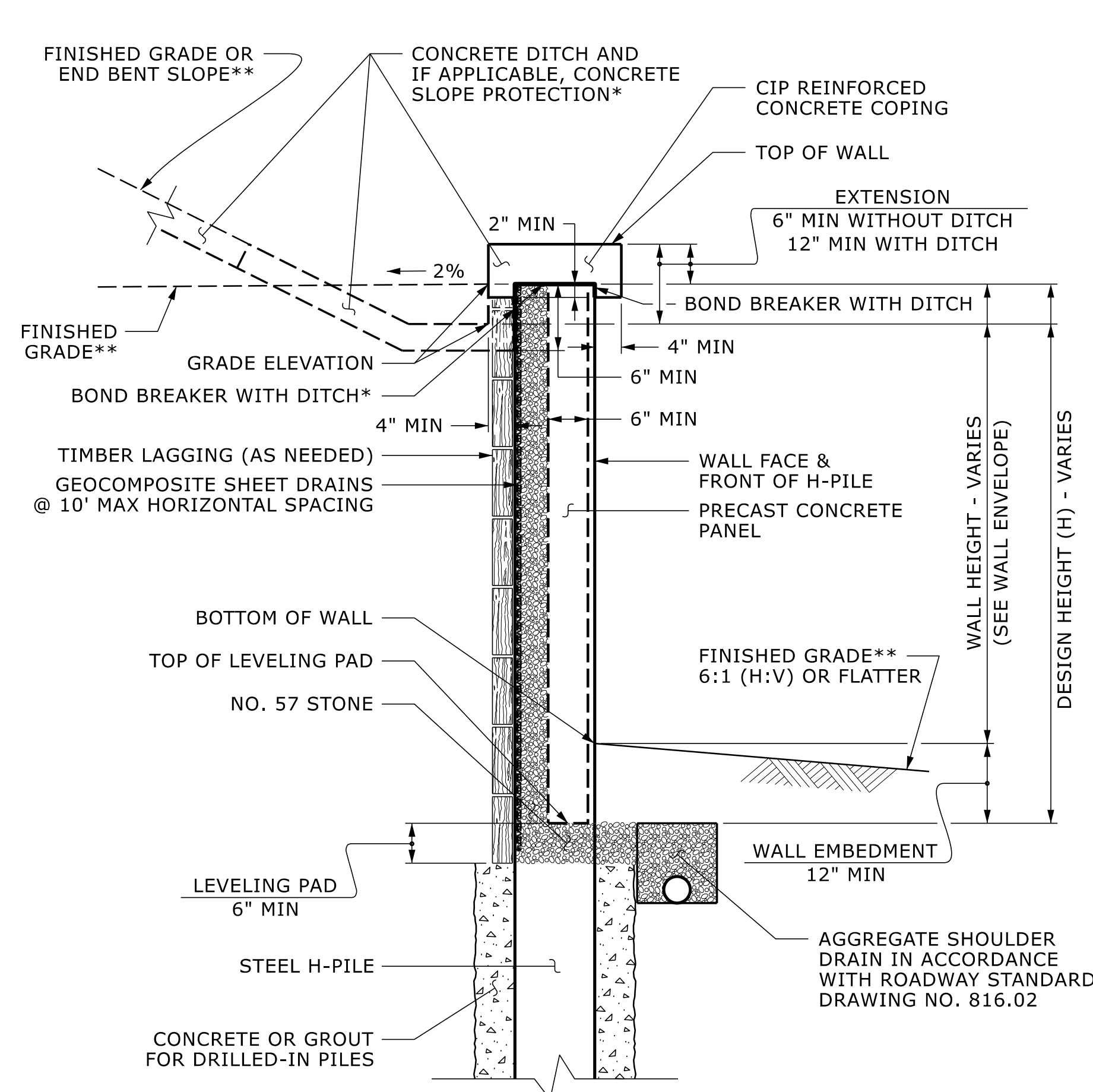


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N.C.B.E.L.S. License Number: F-0116

DES BY: P. ZHANG	DATE: 02/25	DWG BY: B. PETERSON	DATE: 01/25
DES CHK: K. BUSSEY	DATE: 03/25	CHK BY: P. ZHANG	DATE: 02/25





SOLDIER PILE WALL WITH PRECAST PANEL - TYPICAL SECTIONS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO PANELS WITH DOWELS OR EXTEND COPING DOWN BACK OF PANELS AND PILES.

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

A FENCE OR HANDRAIL IS REQUIRED ON TOP OF RETAINING WALL NO. 1. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

USE A SOLDIER PILE RETAINING WALL WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 1.

A SCULPTED SHOTCRETE FINISH IS REQUIRED FOR PRECAST CONCRETE PANELS or THE CIP REINFORCED CONCRETE FACE FOR RETAINING WALL NO. 1.

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:

- 1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) IN-SITU ASSUMED MATERIAL PARAMETERS:
 - UNIT WEIGHT, $\gamma = 120$ PCF
 - FRICTION ANGLE, $\phi = 28$ DEGREES
 - COHESION, $c = 0$ PSF

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

SOLDIER PILE WALL WITH
CIP FACE - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.

**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.

PROJECT NO. R-5600

JACKSON COUNTY

STATION: 10+00.00 -WALL_1-

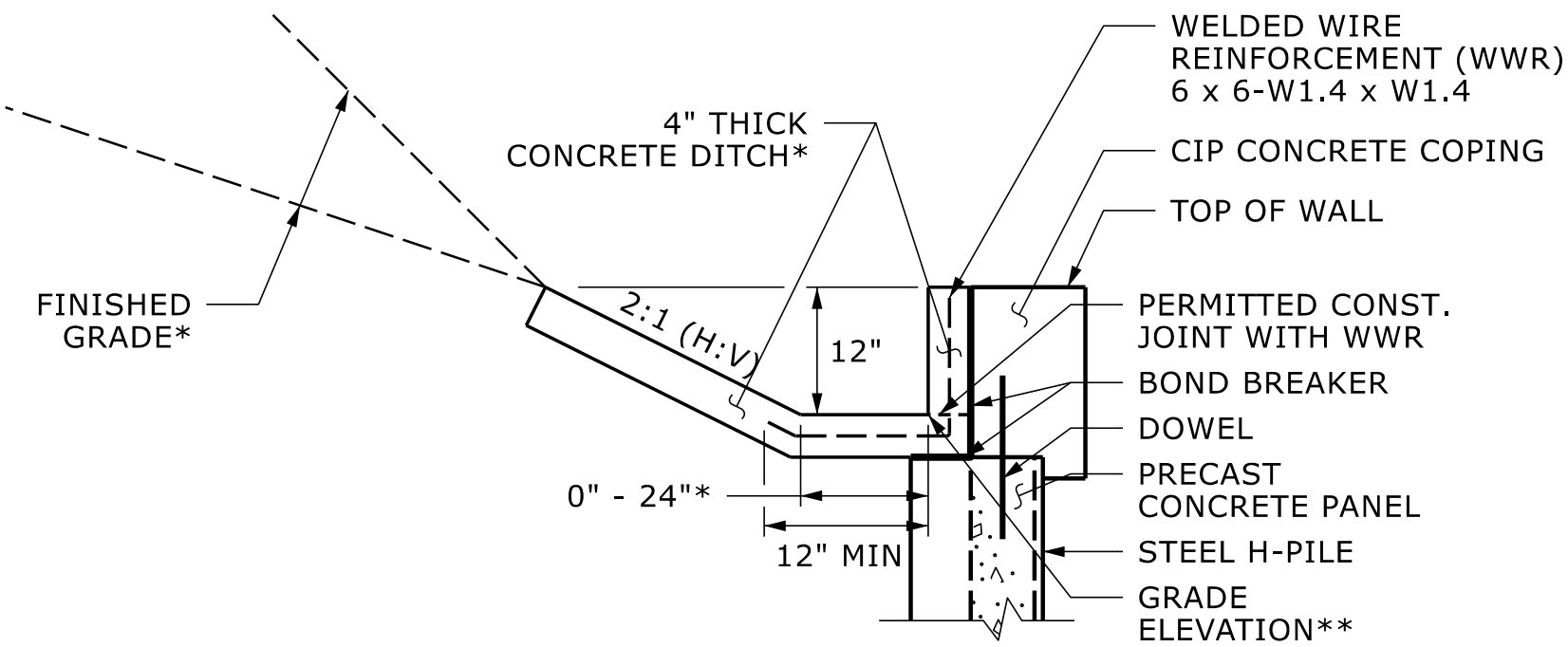
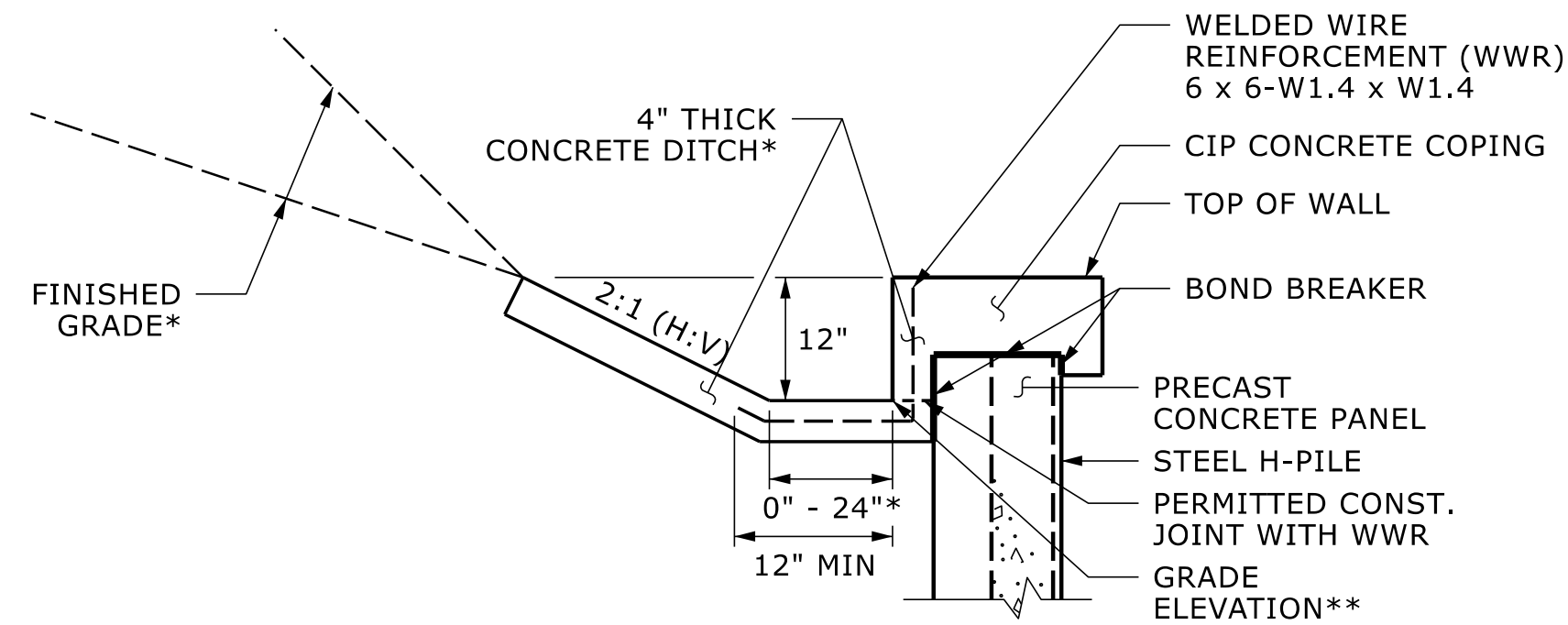
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL DETAILS AND NOTES WALL 1

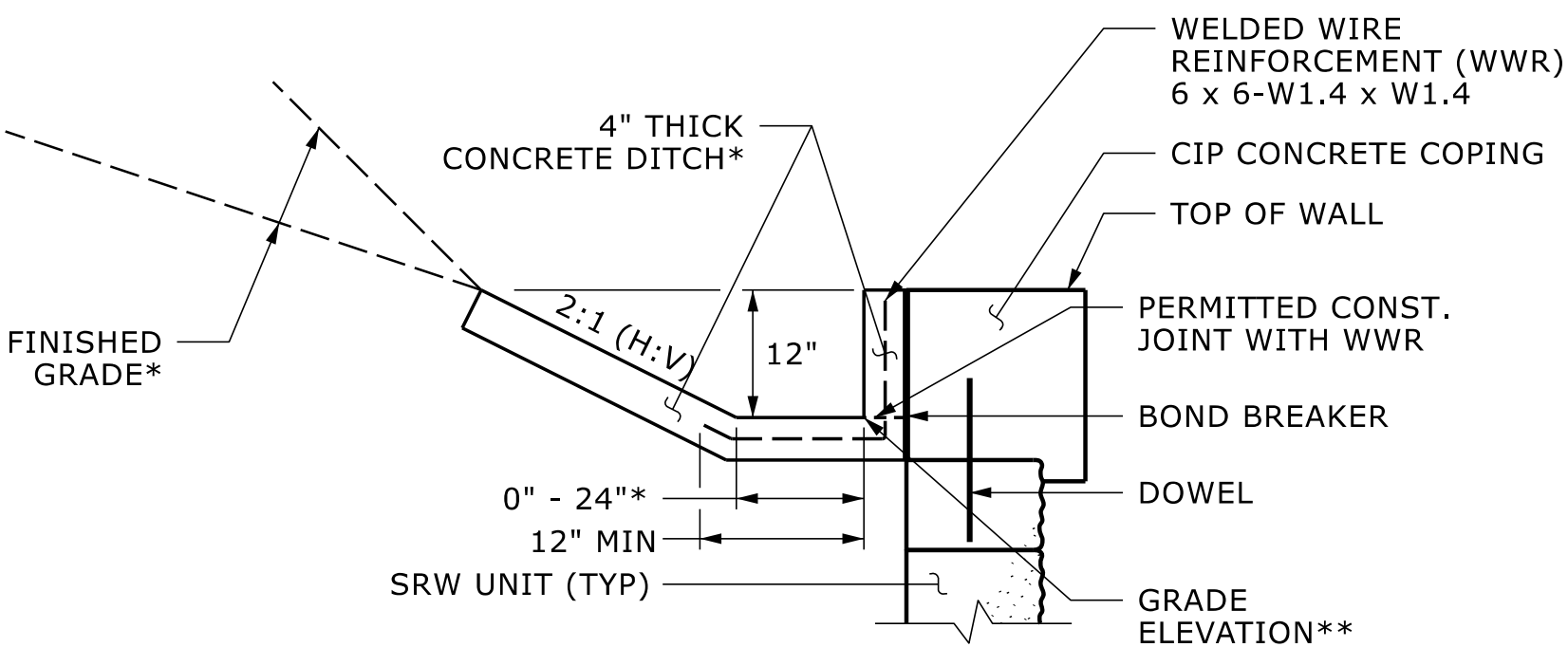
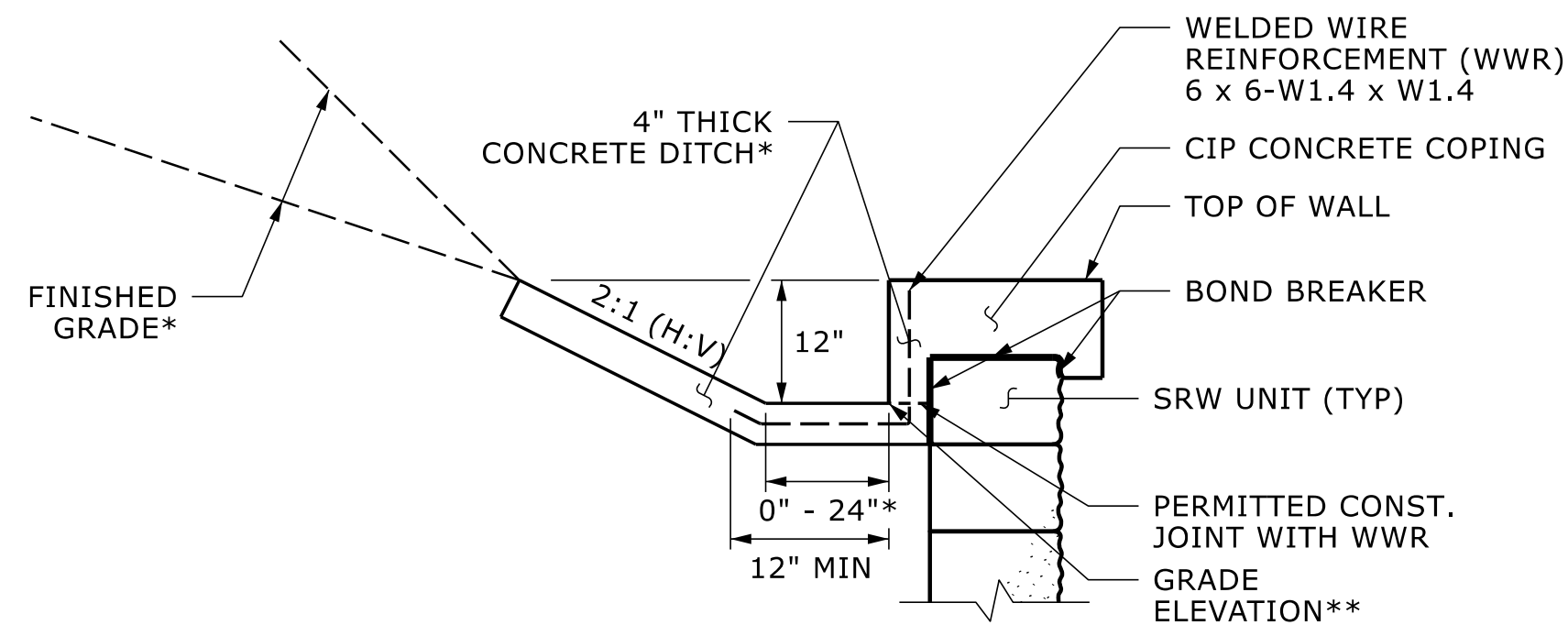
REVISIONS						SHEET NO. W-45
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 46
2	--	--	4	--	--	



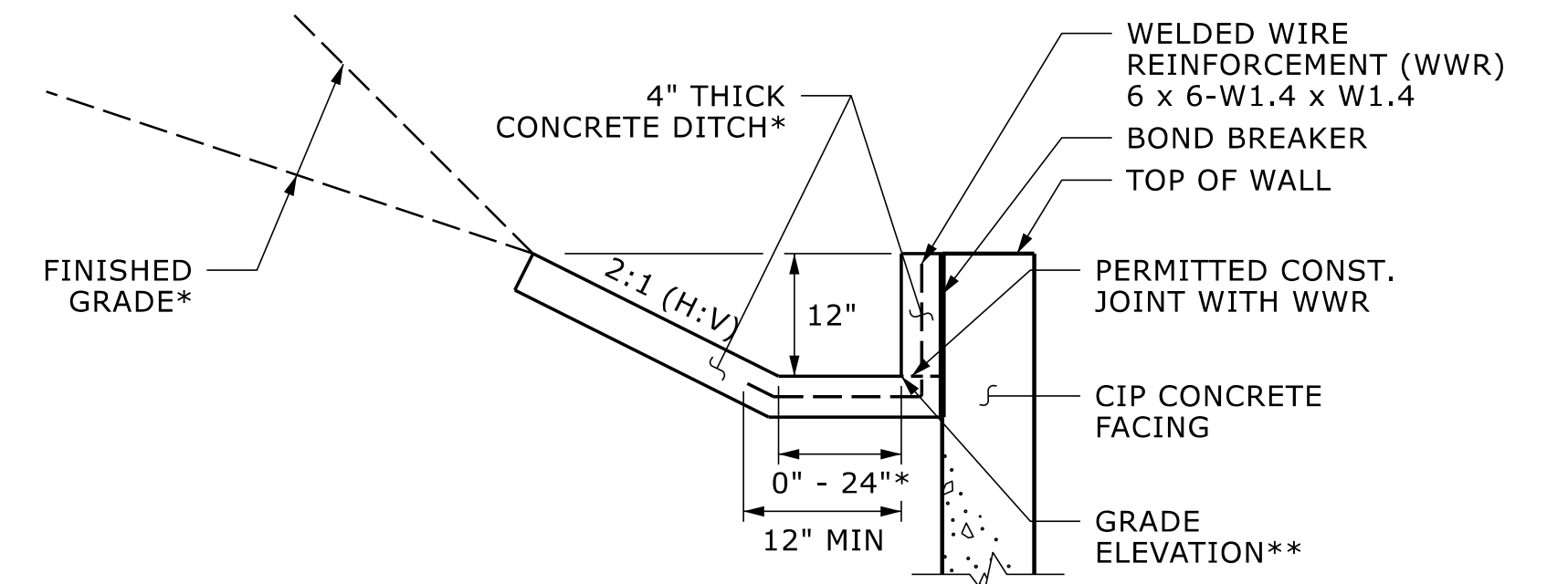
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SOLDIER PILE WALL WITH PRECAST PANELS

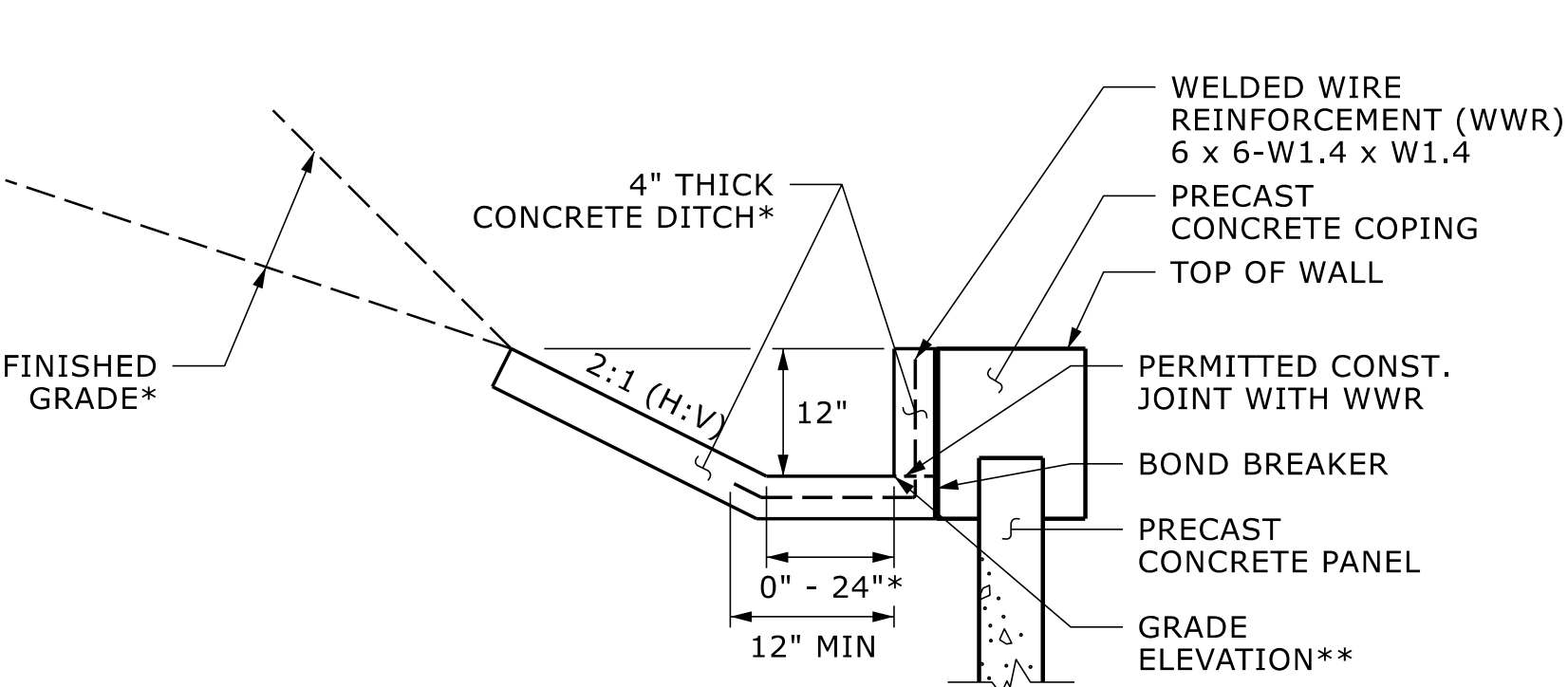
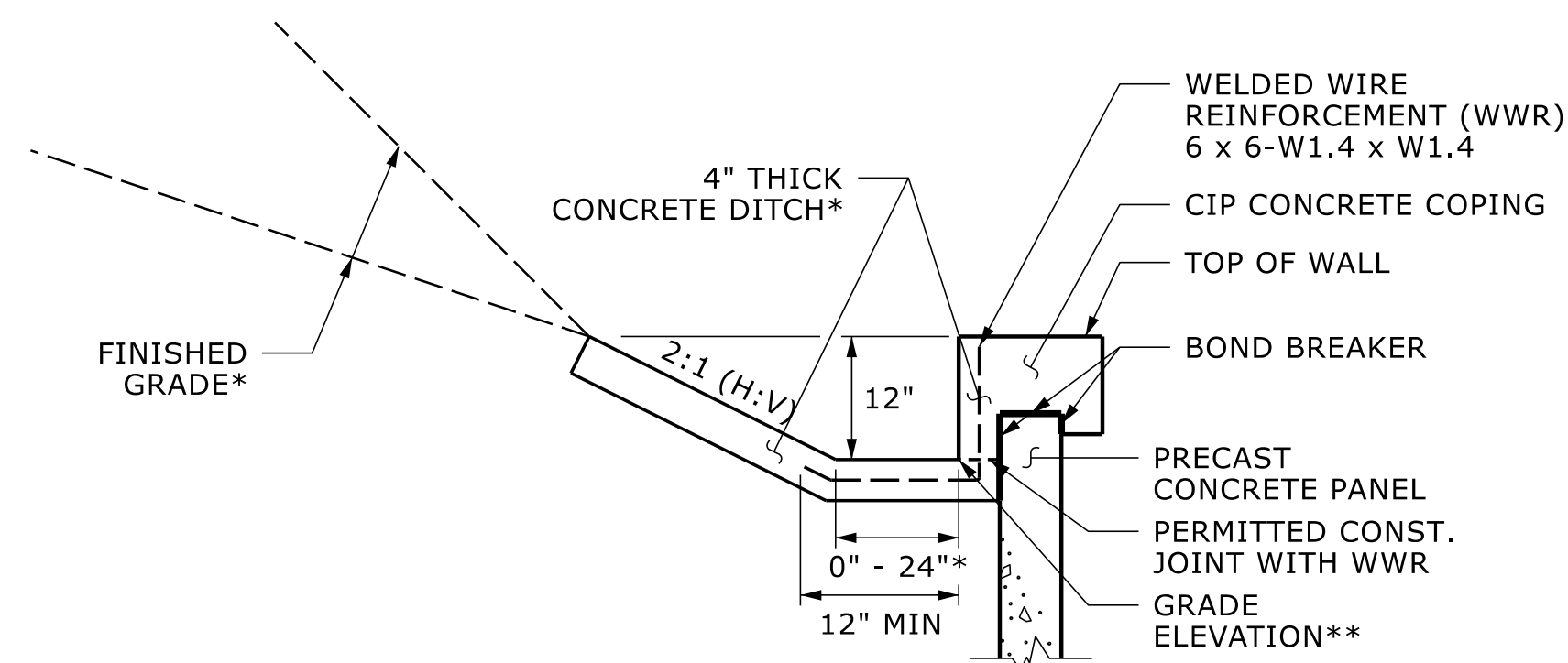


MSE WALL WITH SEGMENTAL RETAINING WALL (SRW) UNITS



CONCRETE DITCH BEHIND WALL WITH CONCRETE FACING

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



MSE WALL WITH PRECAST PANELS

CONCRETE DITCH BEHIND WALL WITH CONCRETE COPING

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

FOR CONCRETE DITCHES, SEE SECTION 850 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. **R-5600**
JACKSON COUNTY
STATION: **VARIOUS**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
CONCRETE DITCH BEHIND WALL WITH SLOPE PROTECTION FOR CONCRETE FACING AND COPING

REVISIONS						SHEET NO. W-46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	46

DES BY: P. ZHANG	DATE : 03/25	DWG BY: B. PETERSON	DATE : 02/25
DES CHK: E. BROOKS	DATE : 05/25	CHK BY: P. ZHANG	DATE : 03/25

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