

2/6/2023 P:\aecom-na-pw-bentley.com\AECOM_DS2L_NA_2020\Documents\60581577-NC00T_SMU_BR-0041\900-CAD GIS\910-CAD\70-NC00T_TIP_Roadway\Design\BR0041_BR0043_Rdy_tsh_combined.dgn
 09_08/2019

CONTRACT: C204793 **TIP PROJECT: BR-0041 / BR-0043**

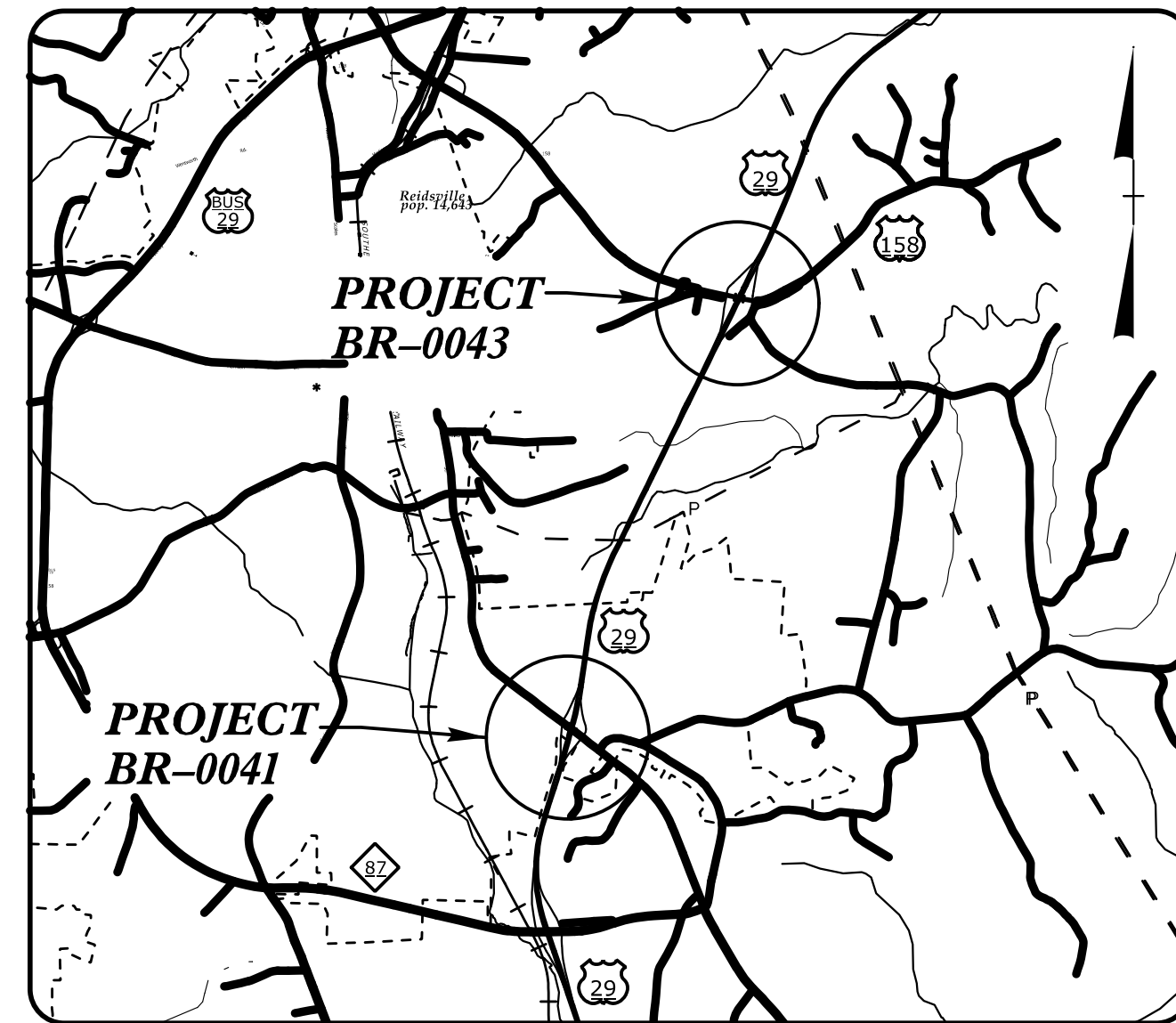
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: US 29 FROM SR2817 (BARNES ST) TO US158

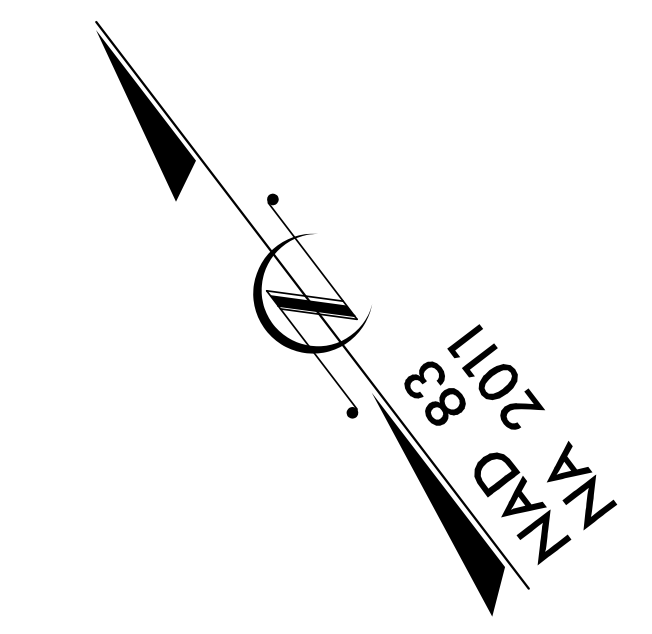
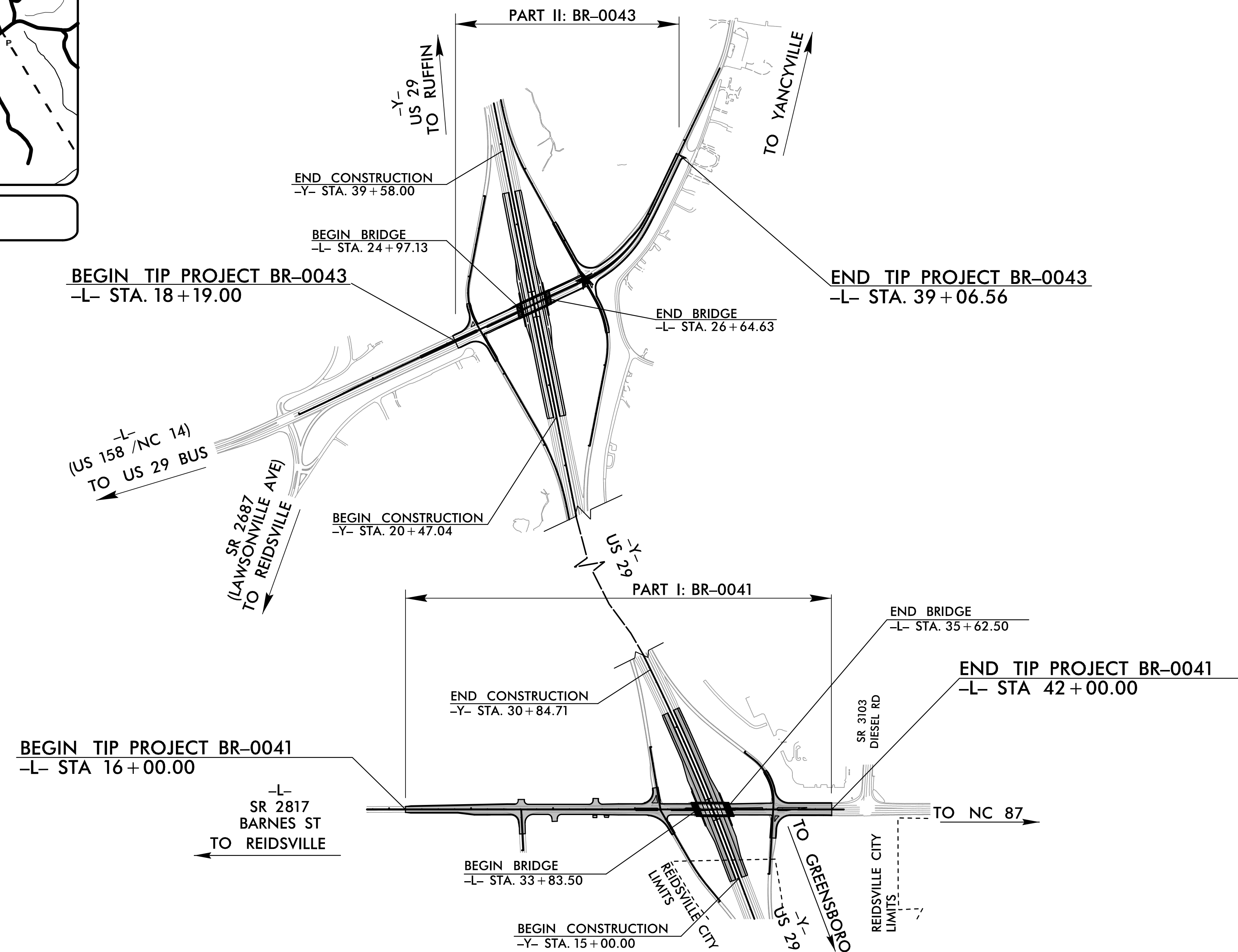
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, STRUCTURES, AND RETAINING WALLS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0041/BR-0043	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67041.1.1		PE	
67041.2.1		RW / UTIL	
67041.3.1		CONSTRUCTION	
67043.1.1		PE	
67043.2.1		RW/Utility	
67043.3.1		CONSTRUCTION	



VICINITY MAP

NOT TO SCALE



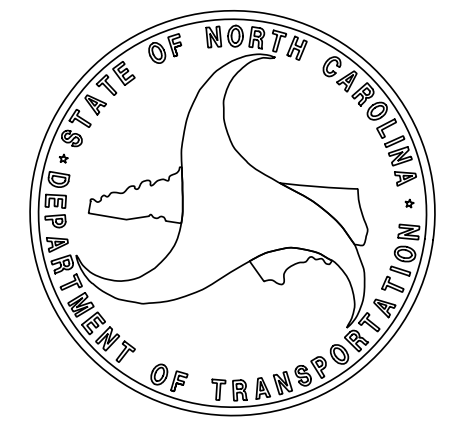
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT BR-0041=	0.458 MI
LENGTH STRUCTURE TIP PROJECT BR-0041=	0.034 MI
TOTAL LENGTH TIP PROJECT BR-0041=	0.492 MI
LENGTH ROADWAY TIP PROJECT BR-0043 =	0.363 MI
LENGTH STRUCTURE TIP PROJECT BR-0043 =	0.032 MI
TOTAL LENGTH TIP PROJECT BR-0043 =	0.395 MI

Prepared in the Office of:

AECOM
 NC FIRM LICENSE No: F-0342
 5438 Wade Park Blvd., Suite 200
 Raleigh, NC 27607
 (919) 854-6200 - (919) 854-6259(FAX)

2018 STANDARD SPECIFICATIONS	GREGORY COLS, P.E. PROJECT ENGINEER - BR-0041
RIGHT OF WAY DATE: BR-0041: JUNE 15, 2022	JOHN CASEY MORRISON, PE PROJECT ENGINEER - BR-0043
RIGHT OF WAY DATE: BR-0043: AUGUST 18, 2022	ED EDENS, P.E. PROJECT DESIGN ENGINEER
LETTING DATE: APRIL 18, 2023	DAVID STUTTS, P.E. NCDOT PROJECT ENGINEER



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

INDEX OF SHEETS, GENERAL NOTES AND 2018 ROADWAY ENGLISH STANDARD DRAWINGS

PROJECT REFERENCE NO. BR-0041/BR-0043 SHEET NO. 1A ROADWAY DESIGN ENGINEER AECOM DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

EFF. 01-16-2018 REV.

SHEET NUMBER 1 1A 1B SHEET TITLE SHEET INDEX OF SHEETS, GENERAL NOTES, LIST OF STANDARDS CONVENTIONAL SYMBOLS

2018 ROADWAY ENGLISH STANDARD DRAWINGS The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01-16-2018 REVISED:

GRADING AND SURFACING: THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION: ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 AND STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION: ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02.

SIDE ROADS: THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS: SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS: DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT: STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL: THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING: SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS: THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES: UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, AT&T, CITY OF REIDSVILLE, PIEDMONT NATURAL GAS, MCNC, CHARTER COMMUNICATIONS. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS: ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

PART I BR-0041: INDEX OF SHEETS

Table listing sheet numbers (01, 2A-1, 2B-1, etc.) and titles (TITLE SHEET, TYPICAL SECTIONS, TEMPORARY DETOUR AND PAVEMENT DETAILS, etc.)

PART II BR-0043: INDEX OF SHEETS

Table listing sheet numbers (01, 2A-1, 2B-1, etc.) and titles (TITLE SHEET, TYPICAL SECTIONS, TEMPORARY DETOUR AND PAVEMENT DETAILS, etc.)

Table listing standard numbers (200.02, 225.01, etc.) and titles (DIVISION 2 - EARTHWORK, Method of Clearing, Guide for Grading Subgrade, etc.)

Vertical text on the left margin: \$\$\$\$\$\$ TIME\$\$\$\$\$ ON\$\$\$\$\$

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin (EIP)	○
Computed Property Corner	×
Existing Concrete Monument (ECM)	□
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	-S-S-
Potential Contamination Area: Soil	-S-S-
Known Contamination Area: Water	-W-W-
Potential Contamination Area: Water	-W-W-
Contaminated Site: Known or Potential	☠ ☢

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	×
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	_____
Hydro, Pool or Reservoir	_____
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⬇
Proposed Lateral, Tail, Head Ditch	→
False Sump	▽

RAILROADS:

Standard Gauge	_____
RR Signal Milepost	○
Switch	□
RR Abandoned	_____
RR Dismantled	_____

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Secondary Horiz and Vert Control Point	◆
Vertical Benchmark	⊠
Existing Right of Way Monument	△
Proposed Right of Way Monument (Rebar and Cap)	▲
Proposed Right of Way Monument (Concrete)	⊙
Existing Permanent Easement Monument	◇
Proposed Permanent Easement Monument (Rebar and Cap)	◆
Existing C/A Monument	△
Proposed C/A Monument (Rebar and Cap)	▲
Proposed C/A Monument (Concrete)	⊙
Existing Right of Way Line	_____
Proposed Right of Way Line	_____
Existing Control of Access Line	_____
Proposed Control of Access Line	_____
Proposed ROW and CA Line	_____
Existing Easement Line	_____
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Drainage/Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____
Existing Curb	_____
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	_____
Existing Metal Guardrail	_____
Proposed Guardrail	_____
Existing Cable Guiderail	_____
Proposed Cable Guiderail	_____
Equality Symbol	⊕
Pavement Removal	_____
VEGETATION:	
Single Tree	○
Single Shrub	○
Hedge	_____

Woods Line	_____
Orchard	_____
Vineyard	_____

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	_____
Bridge Wing Wall, Head Wall and End Wall	_____
MINOR:	
Head and End Wall	_____
Pipe Culvert	_____
Footbridge	_____
Drainage Box: Catch Basin, DI or JB	_____
Paved Ditch Gutter	_____
Storm Sewer Manhole	_____
Storm Sewer	_____

UTILITIES:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	⊠
H-Frame Pole	●
U/G Power Line Test Hole (SUE - LOS A)*	⊙
U/G Power Line (SUE - LOS B)*	_____
U/G Power Line (SUE - LOS C)*	_____
U/G Power Line (SUE - LOS D)*	_____

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊙
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	⊠
U/G Telephone Test Hole (SUE - LOS A)*	⊙
U/G Telephone Cable (SUE - LOS B)*	_____
U/G Telephone Cable (SUE - LOS C)*	_____
U/G Telephone Cable (SUE - LOS D)*	_____
U/G Telephone Conduit (SUE - LOS B)*	_____
U/G Telephone Conduit (SUE - LOS C)*	_____
U/G Telephone Conduit (SUE - LOS D)*	_____
U/G Fiber Optics Cable (SUE - LOS B)*	_____
U/G Fiber Optics Cable (SUE - LOS C)*	_____
U/G Fiber Optics Cable (SUE - LOS D)*	_____

WATER:

Water Manhole	⊙
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line Test Hole (SUE - LOS A)*	⊙
U/G Water Line (SUE - LOS B)*	_____
U/G Water Line (SUE - LOS C)*	_____
U/G Water Line (SUE - LOS D)*	_____
Above Ground Water Line	_____
TV:	
TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	⊠
U/G TV Test Hole (SUE - LOS A)*	⊙
U/G TV Cable (SUE - LOS B)*	_____
U/G TV Cable (SUE - LOS C)*	_____
U/G TV Cable (SUE - LOS D)*	_____
U/G Fiber Optic Cable (SUE - LOS B)*	_____
U/G Fiber Optic Cable (SUE - LOS C)*	_____
U/G Fiber Optic Cable (SUE - LOS D)*	_____

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line Test Hole (SUE - LOS A)*	⊙
U/G Gas Line (SUE - LOS B)*	_____
U/G Gas Line (SUE - LOS C)*	_____
U/G Gas Line (SUE - LOS D)*	_____
Above Ground Gas Line	_____
SANITARY SEWER:	
Sanitary Sewer Manhole	⊙
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	_____
Above Ground Sanitary Sewer	_____
SS Force Main Line Test Hole (SUE - LOS A)*	⊙
SS Force Main Line (SUE - LOS B)*	_____
SS Force Main Line (SUE - LOS C)*	_____
SS Force Main Line (SUE - LOS D)*	_____

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line (SUE - LOS B)*	_____
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊠
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

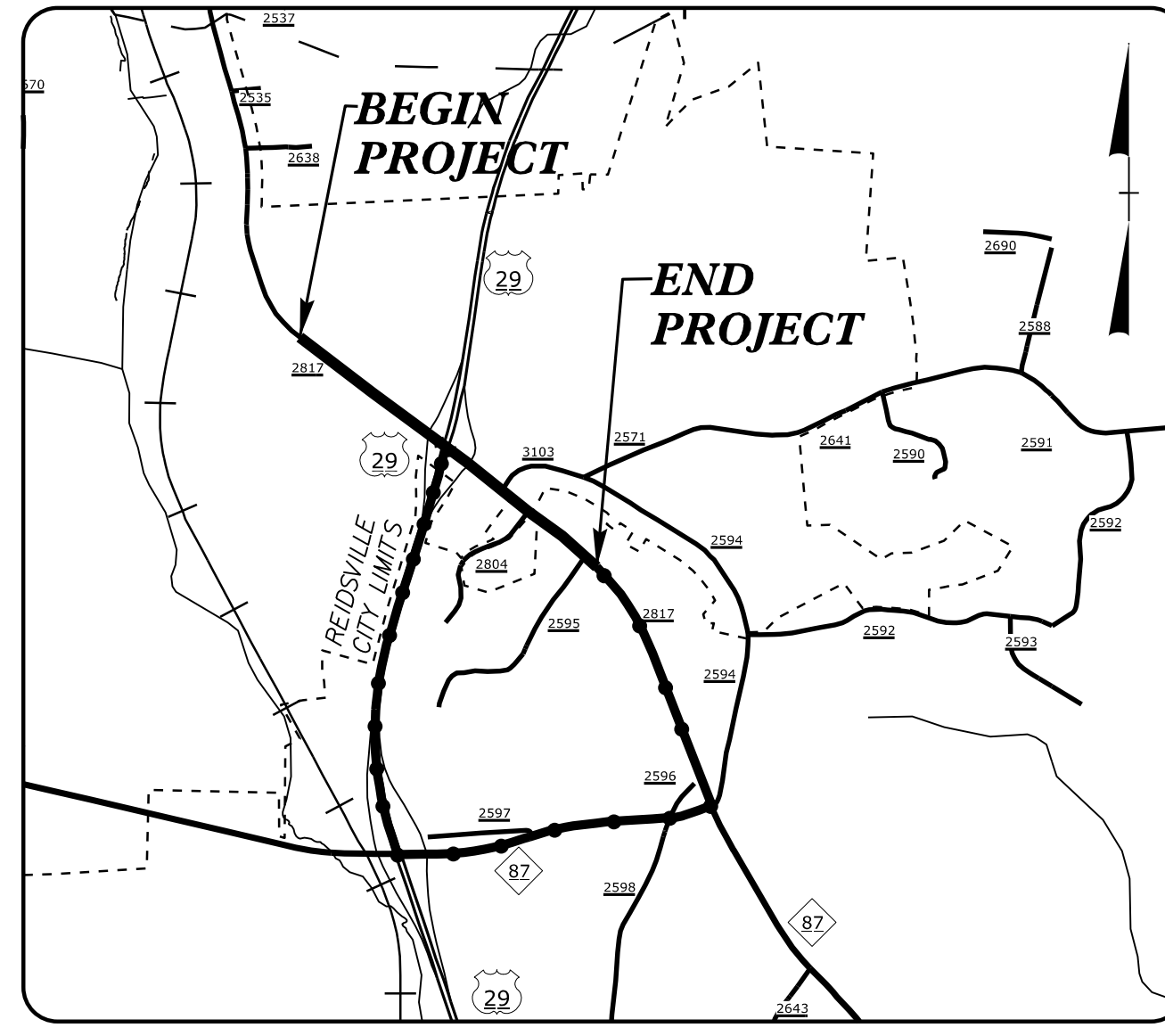
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0041	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67041.1.1		PE	
67041.2.1		RAW / UTIL	
67041.3.1		CONSTRUCTION	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: BRIDGE 780001 ON SR 2817 (BARNES ST)
OVER US 29

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, AND STRUCTURE



VICINITY MAP

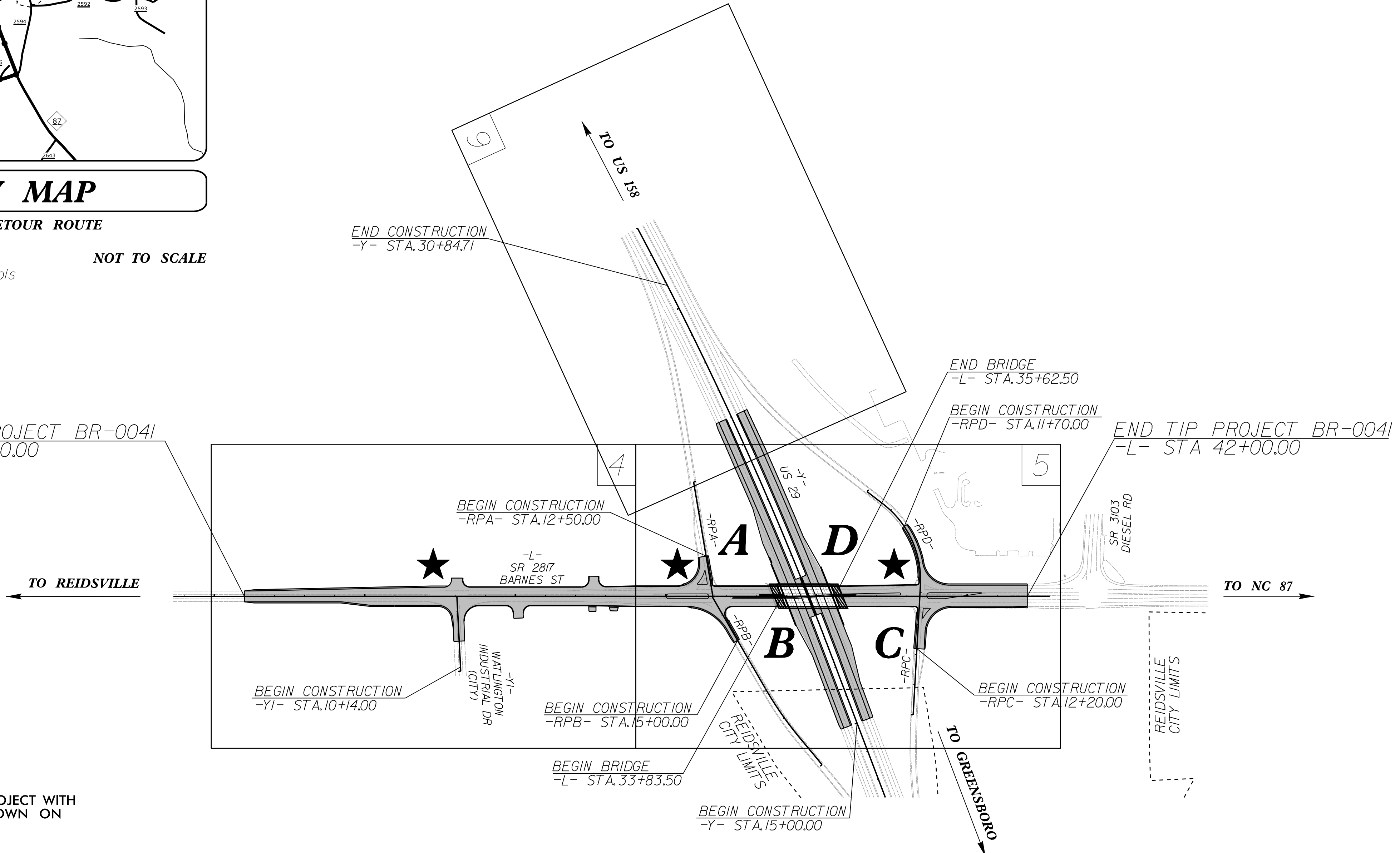
DETOUR ROUTE

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
NOT TO SCALE

TIP PROJECT: BR-0041

CONTRACT: C204793

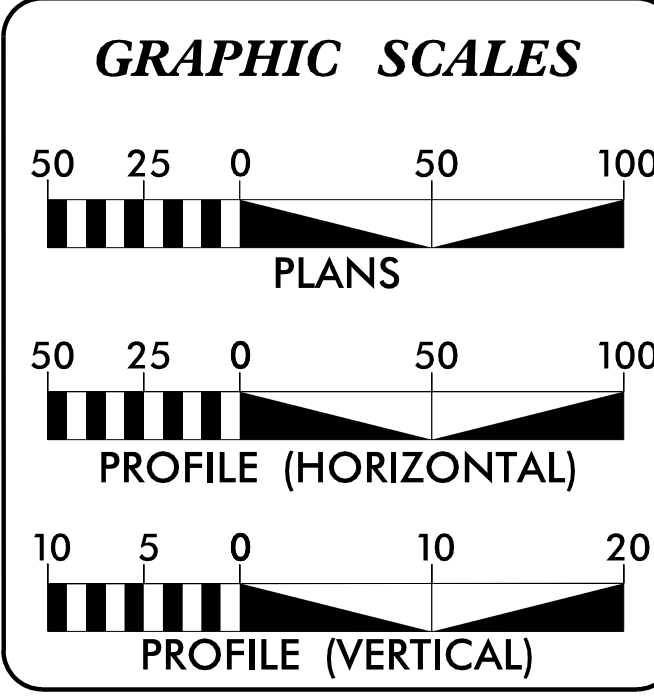
BEGIN TIP PROJECT BR-0041
-L- STA 16+00.00



THIS IS A PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

★ **UPGRADED SIGNAL**
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

MAD 83
MAY 2011



DESIGN DATA

ADT 2023 =	13,174
ADT 2043 =	15,087
K =	8 %
D =	55 %
T =	6 % *
V =	50 MPH
* TTST =	4% DUAL 2%
FUNC CLASS =	PRINCIPAL ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0041 =	0.458 MI
LENGTH STRUCTURE TIP PROJECT BR-0041 =	0.034 MI
TOTAL LENGTH TIP PROJECT BR-0041 =	0.492 MI

Prepared in the Office of:

AECOM
2018 STANDARD SPECIFICATIONS

NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd., Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

GREGORY COLS, P.E.
PROJECT ENGINEER

ED EDENS, P.E.
PROJECT DESIGN ENGINEER

DAVID STUTTS, P.E.
NCDOT PROJECT ENGINEER

RIGHT OF WAY DATE:
JUNE 15, 2022

LETTING DATE:
APRIL 18, 2023

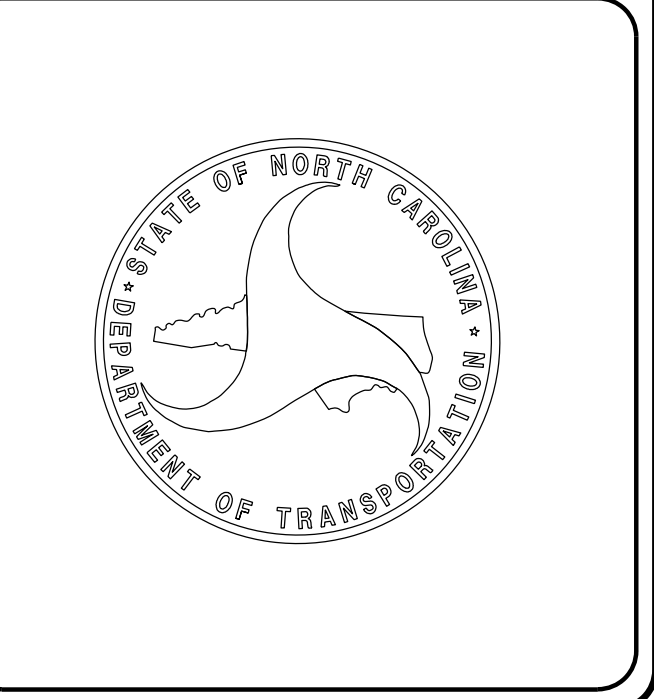
HYDRAULICS ENGINEER

DocuSigned by:
Gregory Colson
SIGNATURE: 2/21/2023

ROADWAY DESIGN ENGINEER

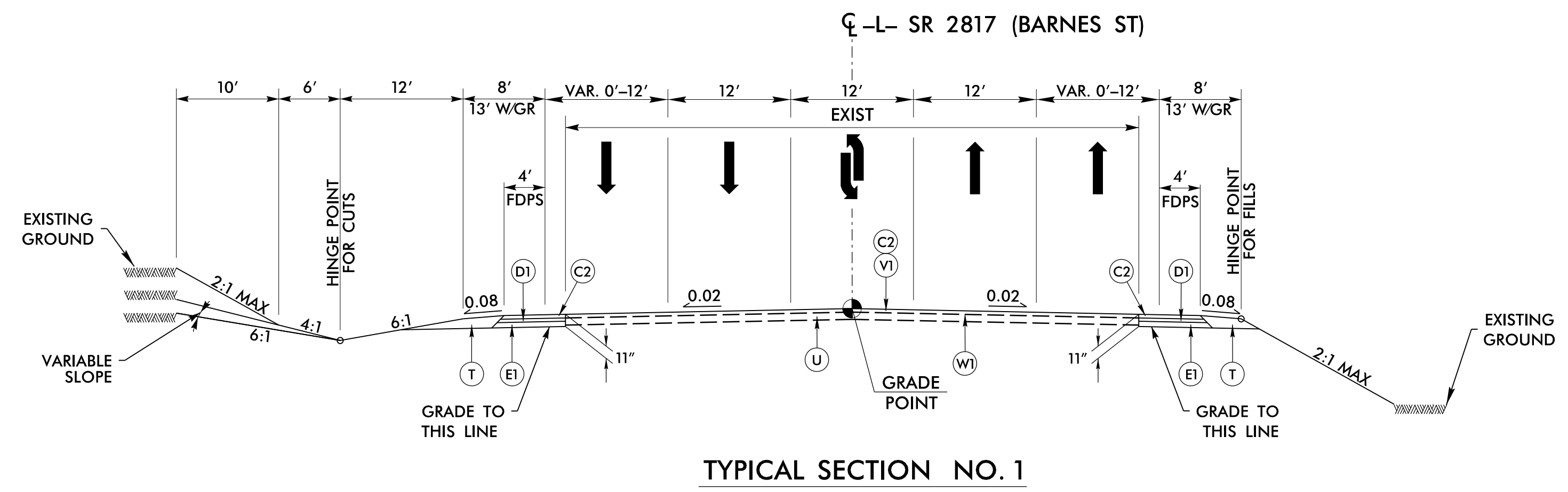
DocuSigned by:
Ed Edens
SIGNATURE: 2/21/2023

Professional Engineer Seals for Gregory Colson and Ed Edens.



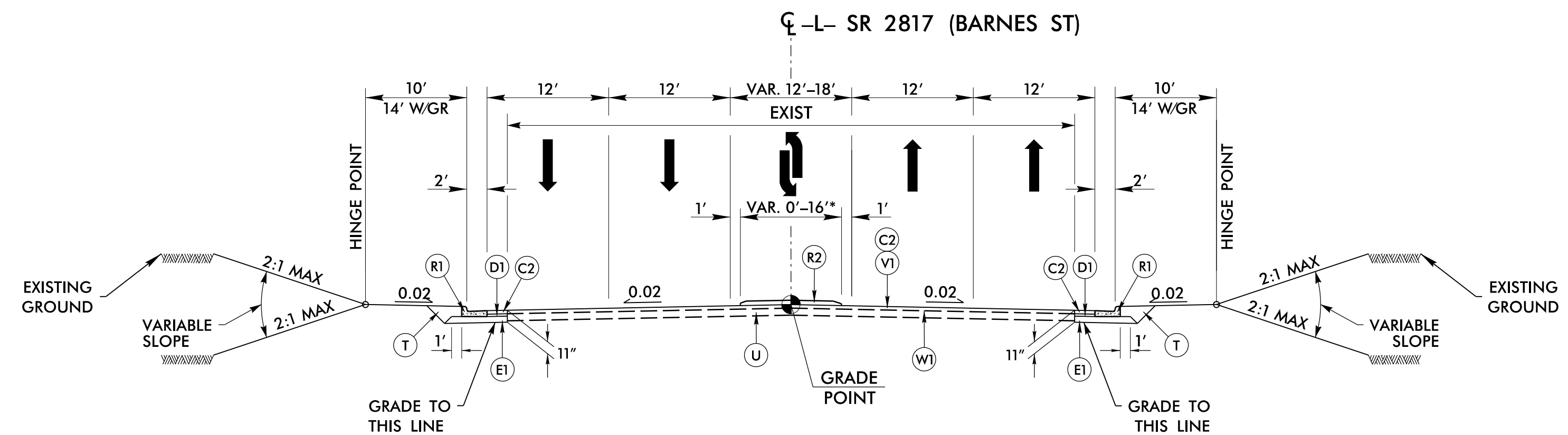
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PROJECT REFERENCE NO. <i>BR-0041</i>	SHEET NO. <i>2A-2</i>
ROADWAY DESIGN ENGINEER <i>Seal 18470</i>	PAVEMENT DESIGN ENGINEER <i>Seal 22896</i>
Prepared in the Office of: AECOM <small>NC FIRM LICENSE No. F-0342 5438 Wade Park, Boulevard Suite 200 Charlotte, NC 28207 (919) 854-6000 • (919) 854-6259(FAX)</small>	
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TYPICAL SECTION NO. 1

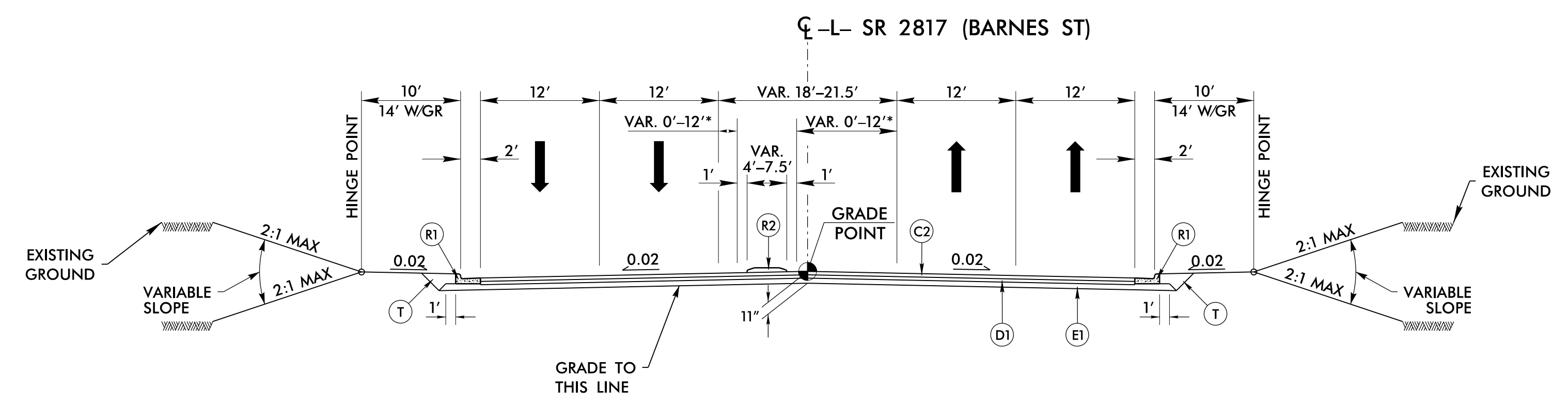
USE TYPICAL SECTION NO. 1
-L- STA. 16+00.00 TO -L- STA. 23+49.02



TYPICAL SECTION NO. 2

* SEE PLANS FOR CENTER TURN LANE AND ISLAND

USE TYPICAL SECTION NO. 2
-L- STA. 23+49.02 TO -L- STA. 31+86.82



TYPICAL SECTION NO. 3

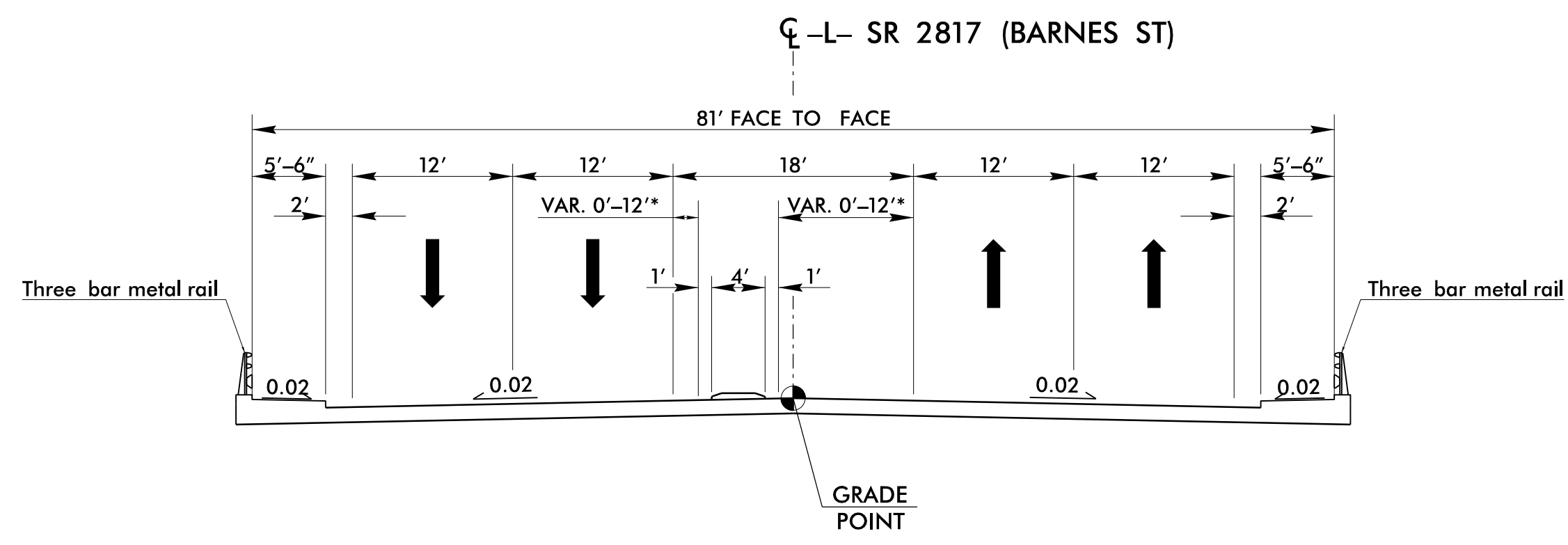
* SEE PLANS FOR CENTER TURN LANE AND ISLAND

USE TYPICAL SECTION NO. 3
-L- STA. 31+86.82 TO -L- STA. 33+83.50 (BEGIN BRIDGE)
-L- STA. 35+62.50 (END BRIDGE) TO -L- STA. 38+36.05

PAVEMENT SCHEDULE	
ITEM	DESCRIPTION
B1	3/4" OGFC TYPE FC-1 MODIFIED
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	8 1/2" B25.0C
E3	VAR. B25.0C
R1	2'-6" C&G
R2	5" MONO. ISLAND
R3	SINGLE FACE CONC. BAR.
R4	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	1 1/2" MILLING
V2	3/4" MILLING
W1	WEDGING DET. #1
W2	WEDGING DET. #2
Y	RUMBLE STRIPS

6/22/99
 p:\aecom-na-pw\ben\lej.com\AECOM_DS21_NA_2020\Documents\60581577-NCDDOT_SMU_BR-0041\900-CAD_GIS\910-CAD\70-NCDDOT_TIP\Roadkey\Design\BR0041_r.dwg_tup.dgn

PROJECT REFERENCE NO. <i>BR-0041</i>	SHEET NO. <i>2A-3</i>
ROADWAY DESIGN ENGINEER <i>Seal</i> 18470	PAVEMENT DESIGN ENGINEER <i>Clark S. Morrison</i> 122896
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park, Boulevard, Suite 200 (919) 854-6500 • (919) 854-6259 (FAX)	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

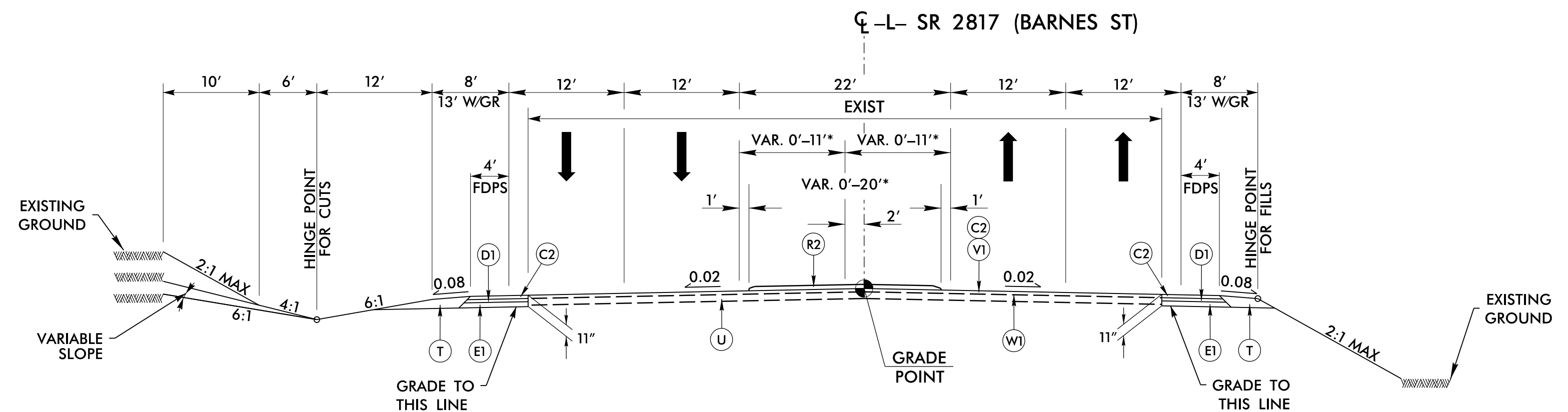


TYPICAL SECTION NO. 4

* SEE PLANS FOR CENTER TURN LANE AND ISLAND

SEE STRUCTURE PLANS FOR CONSTRUCTION STAGING

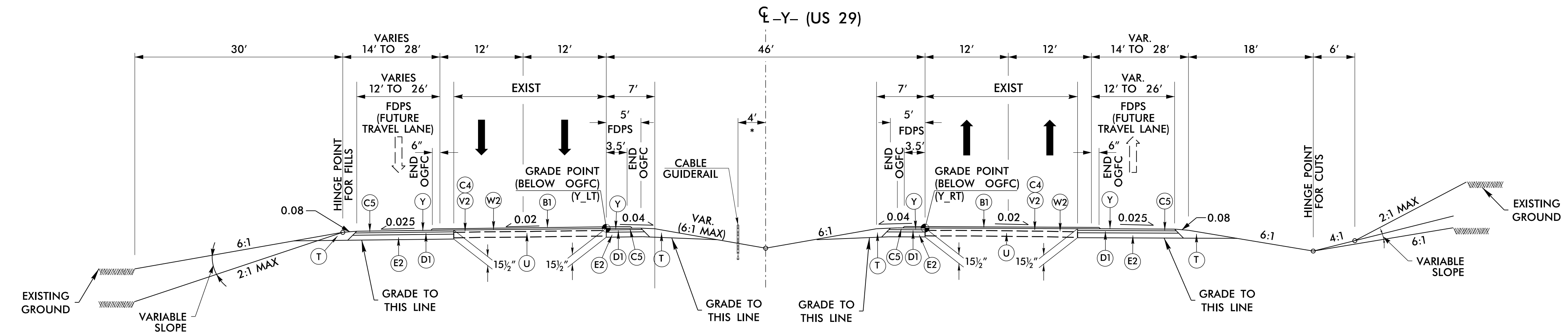
USE TYPICAL SECTION NO. 4
-L- STA. 33+83.50 (BEGIN BRIDGE) TO -L- STA. 35+62.50 (END BRIDGE)



TYPICAL SECTION NO. 5

* SEE PLANS FOR CENTER TURN LANE AND ISLAND

USE TYPICAL SECTION NO. 5
-L- STA. 38+36.05 TO -L- STA. 42+00.00



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-Y- STA. 15+00.00 TO -Y- STA. 26+00.00

NOTE: SEE TMP FOR TEMPORARY SHOULDER PAVEMENT LOCATIONS AND TYPICAL SECTION NO.10 FOR PAVEMENT DESIGN.

* SEE PLANS FOR GUIDERAIL LOCATION

PAVEMENT SCHEDULE	
ITEM	DESCRIPTION
B1	3/4" OGFC TYPE FC-1 MODIFIED
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	8 1/2" B25.0C
E3	VAR. B25.0C
R1	2'-6" C&G
R2	5" MONO. ISLAND
R3	SINGLE FACE CONC. BAR.
R4	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	1 1/2" MILLING
V2	3/4" MILLING
W1	WEDGING DET. #1
W2	WEDGING DET. #2
Y	RUMBLE STRIPS

5/14/99

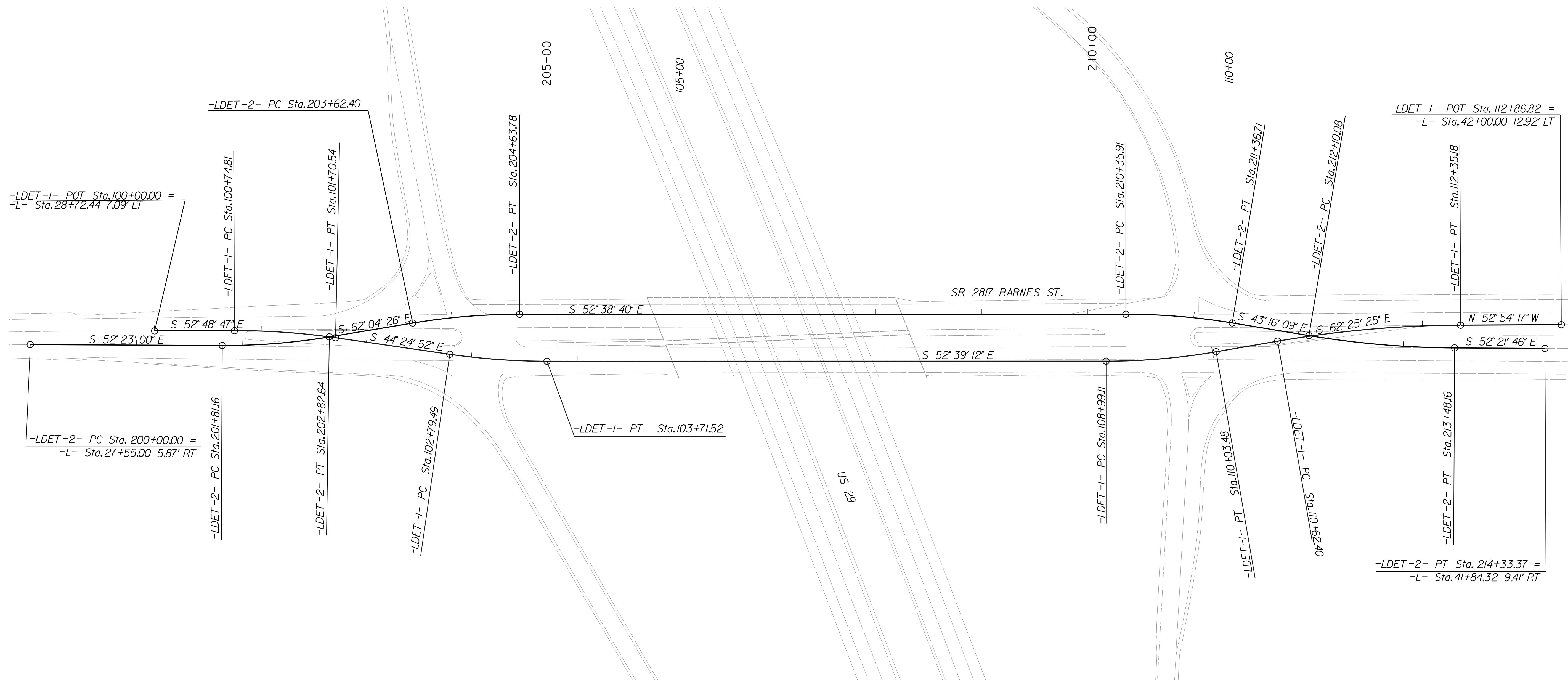
PROJECT REFERENCE NO. BR-0041	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
Prepared in the Office of: AECOM <small>5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MAP 83 MAY 83 C.M.

DETOUR ALIGNMENTS; LDET-1 & LDET-2

-LDET-1- CURVE DATA

PI Sta 101+22.76 Δ = 8° 26' 16.8" (RT) D = 8' 48" 53.0" L = 95.73' T = 47.95' R = 650.00'	PI Sta 103+25.59 Δ = 8° 14' 19.1" (LT) D = 8' 57" 08.9" L = 92.03' T = 46.09' R = 640.00'	PI Sta 109+51.42 Δ = 9° 46' 13.7" (LT) D = 9' 21' 43.4" L = 104.36' T = 52.31' R = 612.00'	PI Sta 111+48.99 Δ = 9° 31' 07.8" (RT) D = 5' 30' 33.2" L = 172.78' T = 86.59' R = 1,040.00'
--	--	---	---



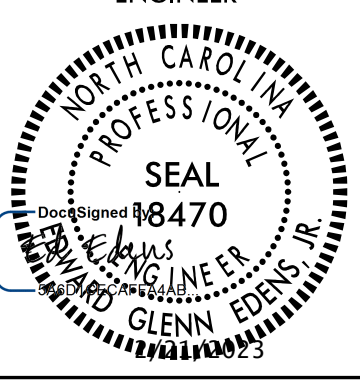
-LDET-2- CURVE DATA

PI Sta 29+99.23 Δ = 12° 30' 13.8" (LT) D = 7' 57' 27.9" L = 157.13' T = 78.88' R = 720.00'	PI Sta 31+50.90 Δ = 11° 38' 42.7" (RT) D = 7' 57' 27.9" L = 146.34' T = 73.42' R = 720.00'	PI Sta 38+65.54 Δ = 12° 17' 03.7" (RT) D = 7' 57' 27.9" L = 154.37' T = 77.48' R = 720.00'	PI Sta 40+17.46 Δ = 11° 53' 53.5" (LT) D = 7' 57' 27.9" L = 149.52' T = 75.03' R = 720.00'
---	---	---	---

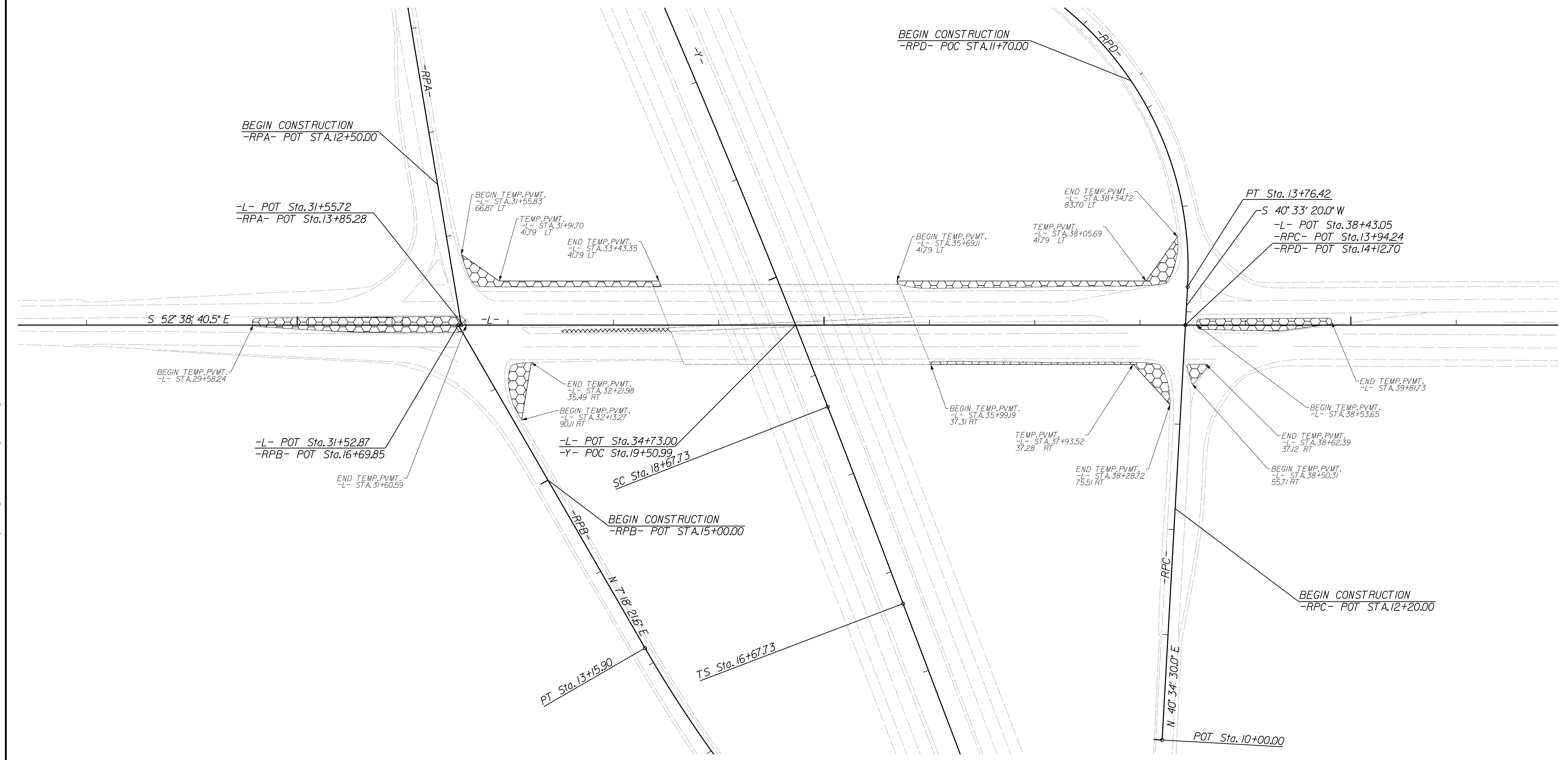
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5/14/99

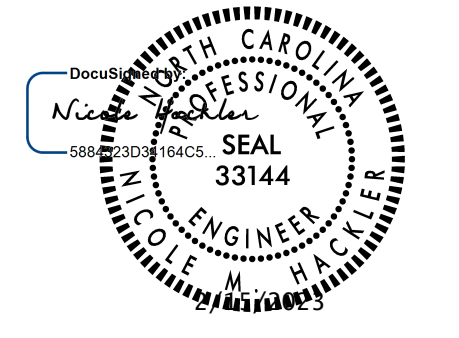
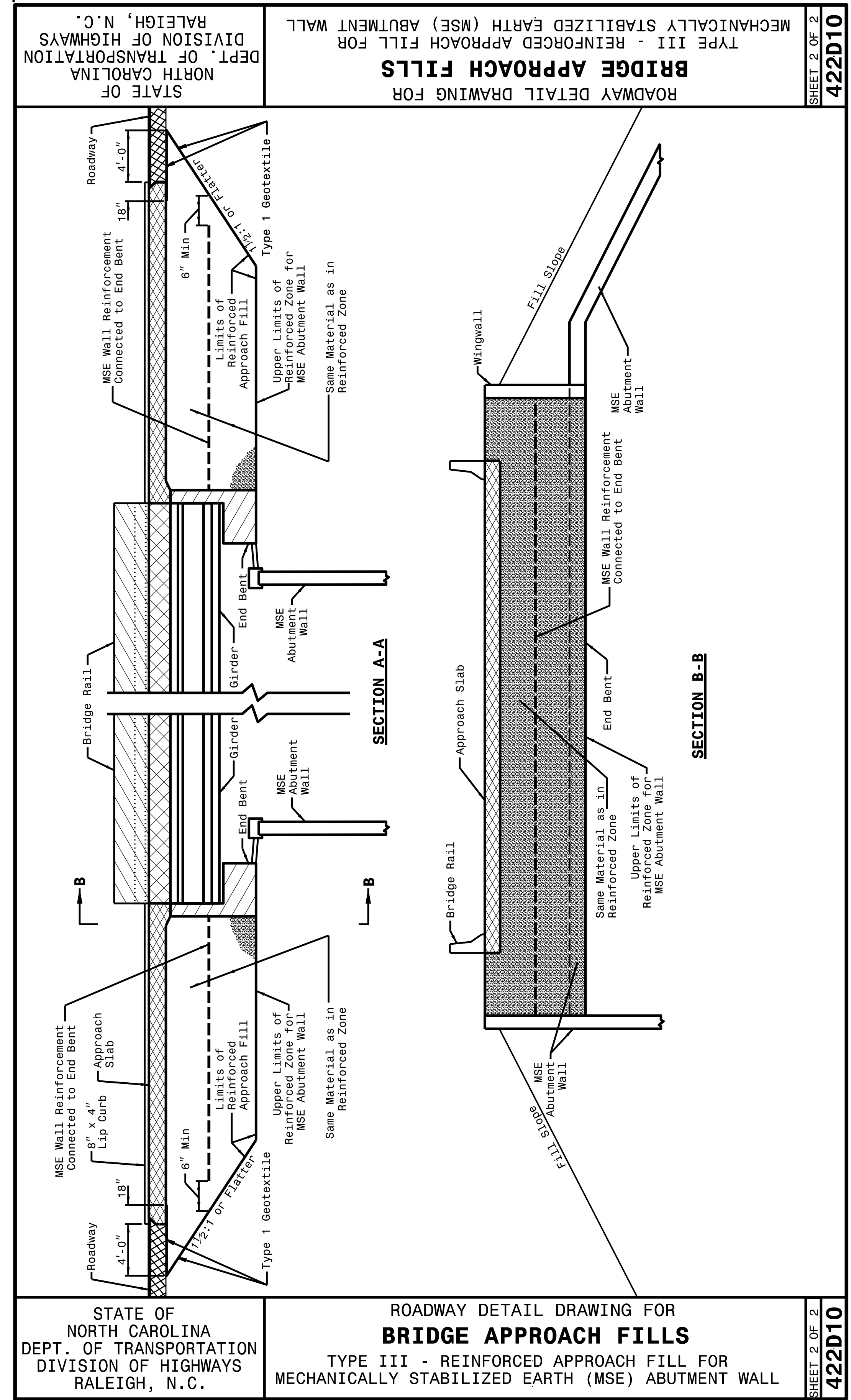
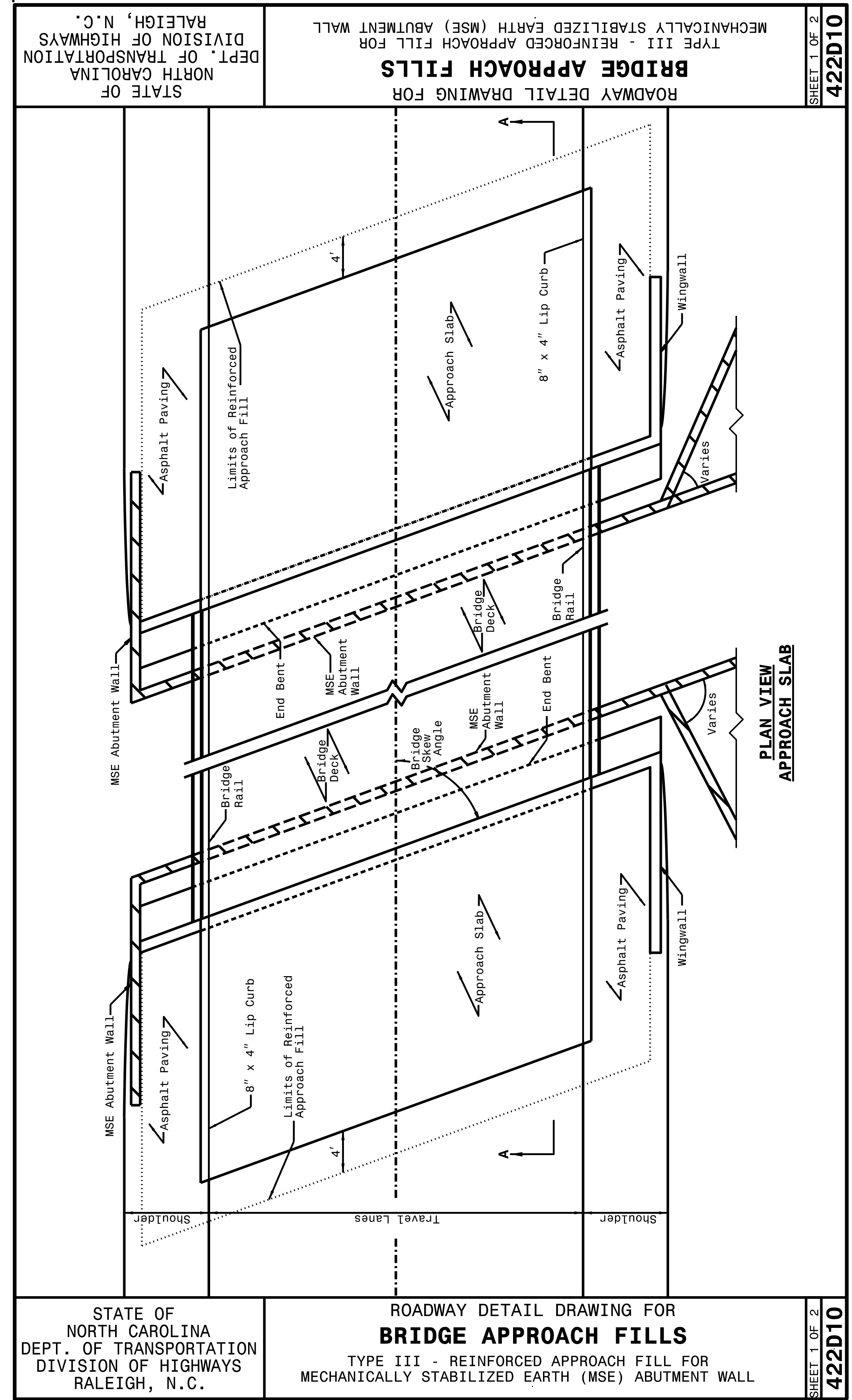
MAP 83 NA 2017

PROJECT REFERENCE NO. <i>BR-0041</i>	SHEET NO. <i>2B-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
Prepared in the Office of: AECOM <small>NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

TEMPORARY PAVEMENT LOCATIONS



ents\505581\77\0001T SMU BR-0041\900-CAD GIS\910-CAD\70-NCDDOT_TIP\Roadway\Design\BR0041_rdy_2B-2.dgn



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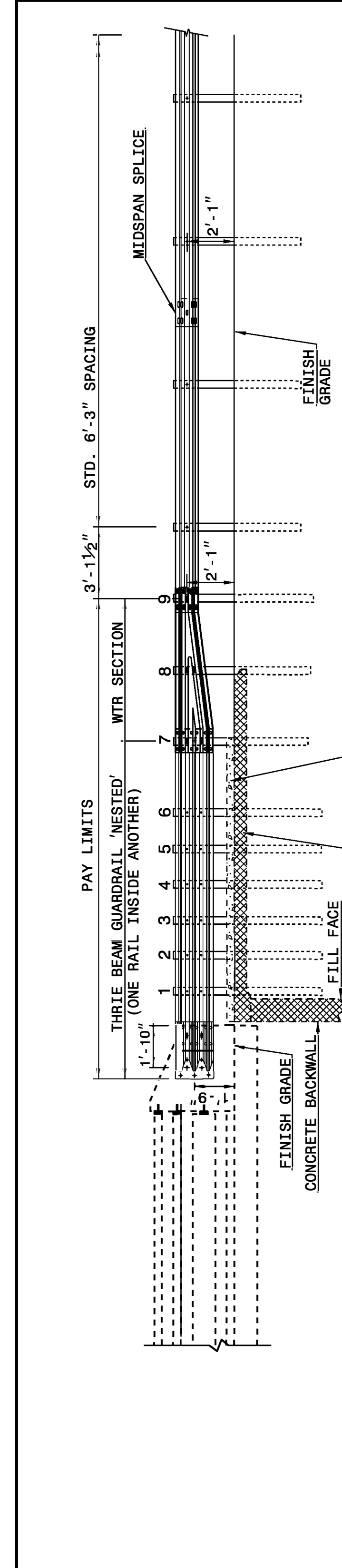
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**TYPE III
REINFORCED
APPROACH FILLS**

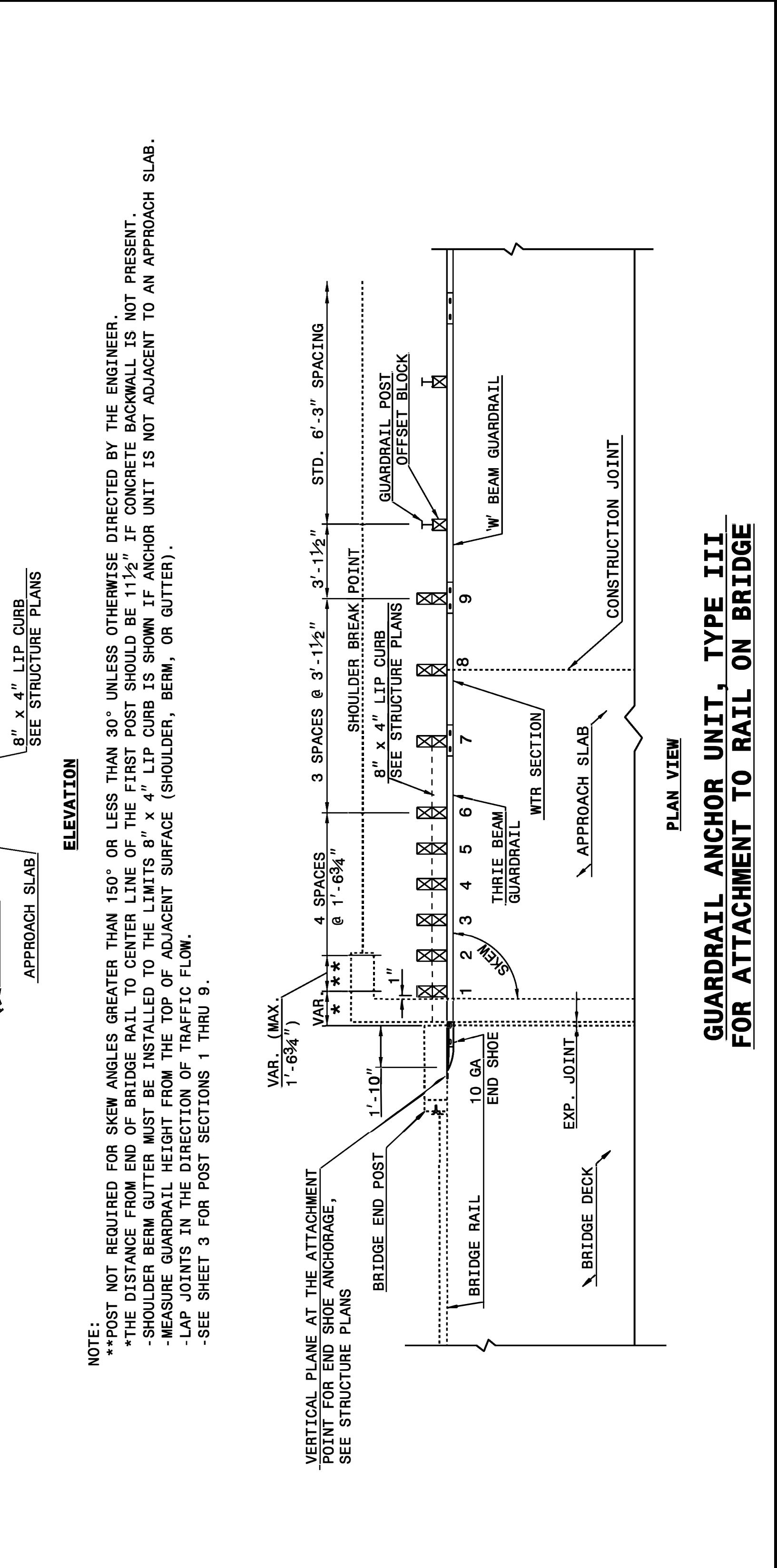
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.



ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE



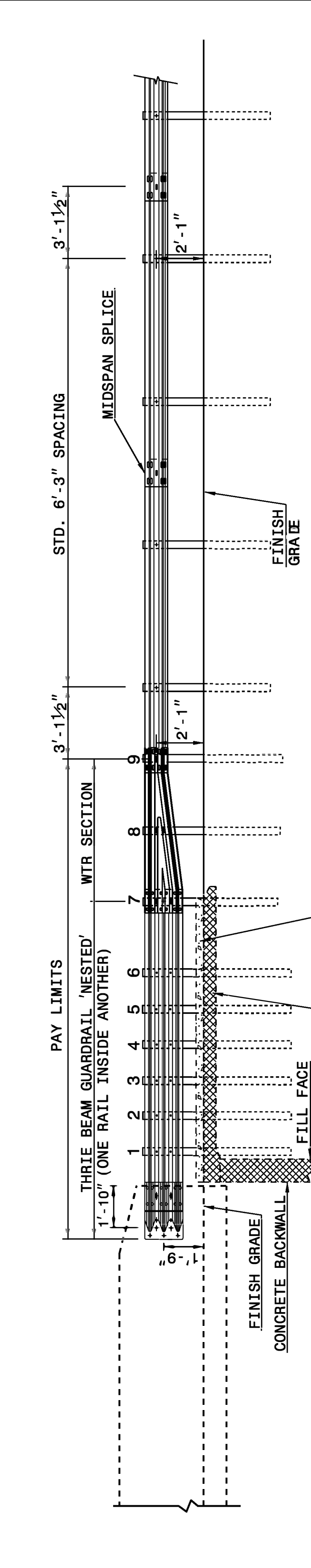
SHEET 1 OF 7 862D03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

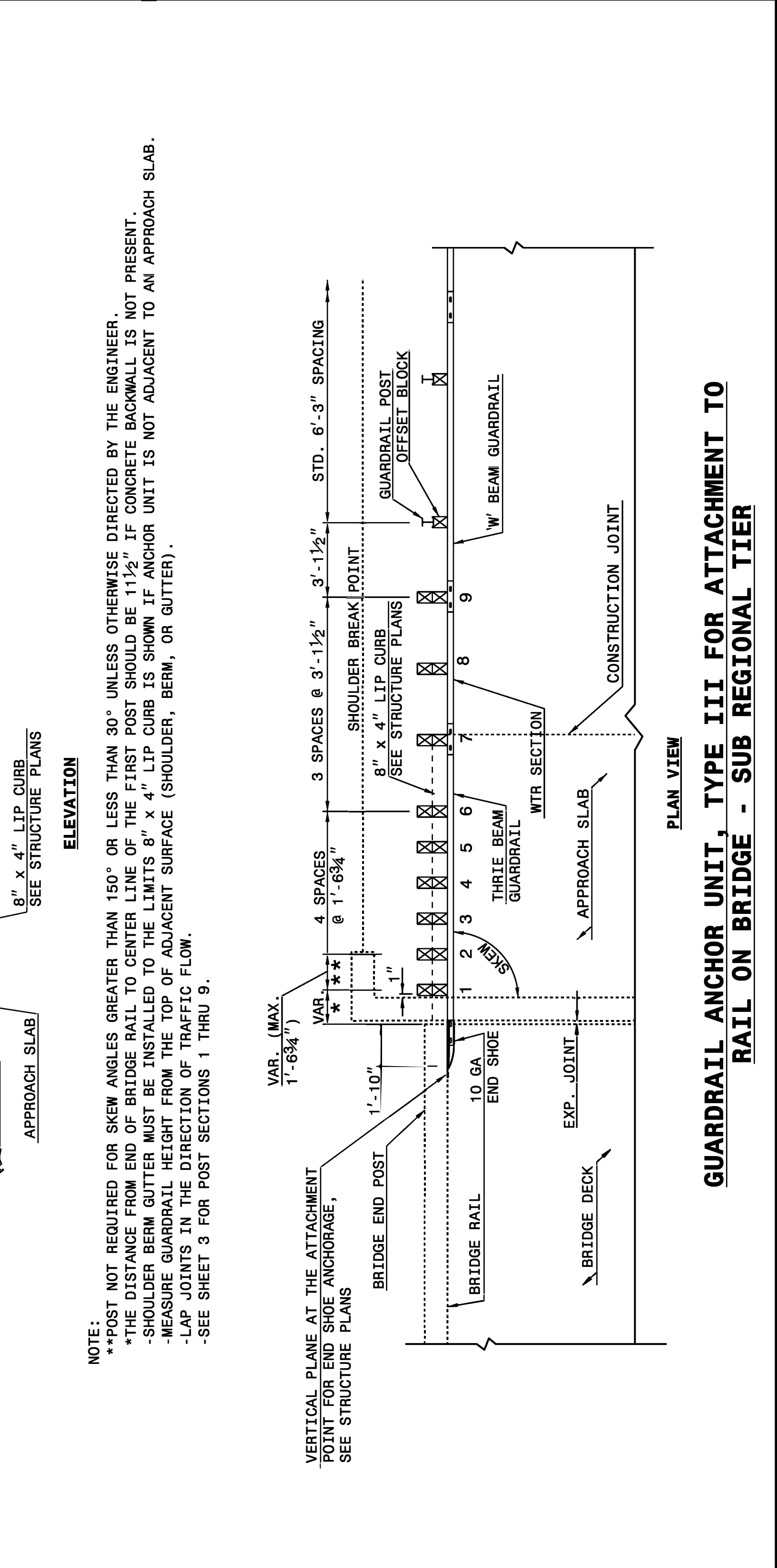
ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7 862D03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.



ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

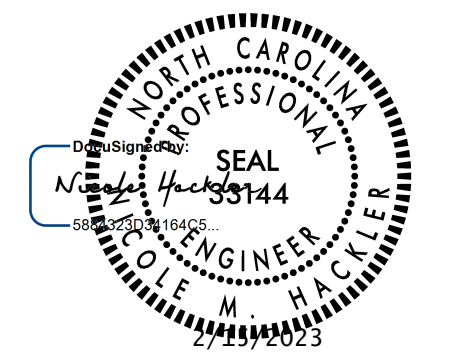


SHEET 2 OF 7 862D03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7 862D03



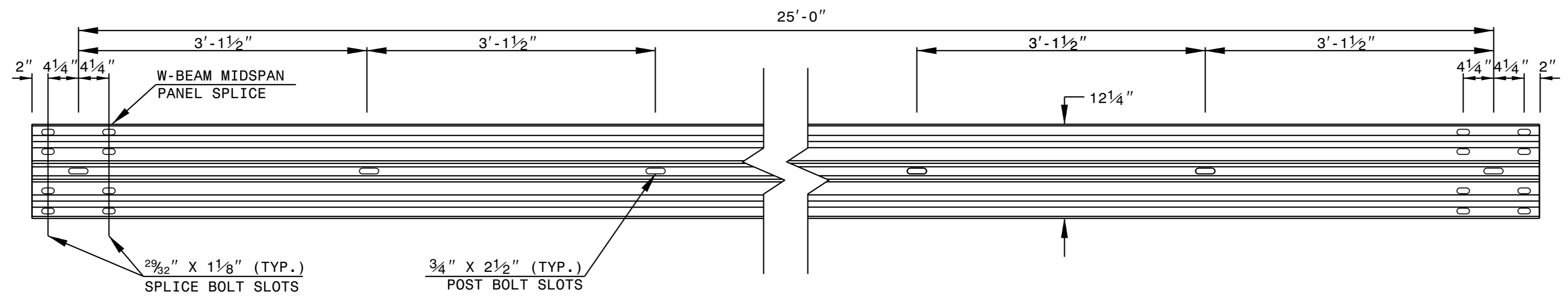
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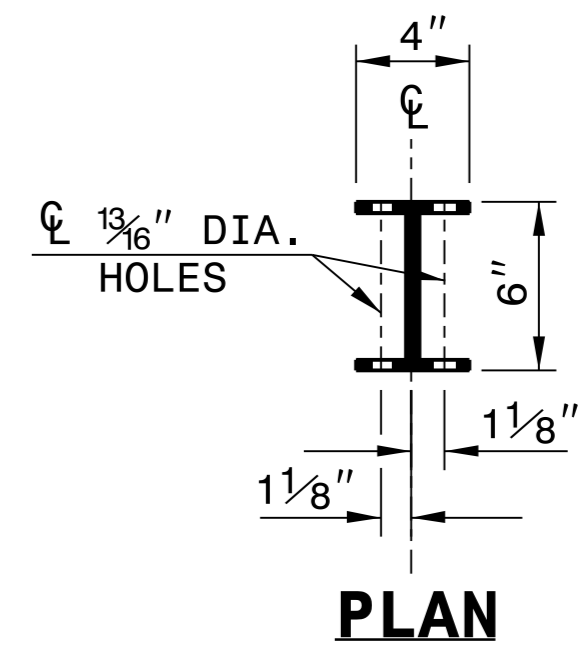
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

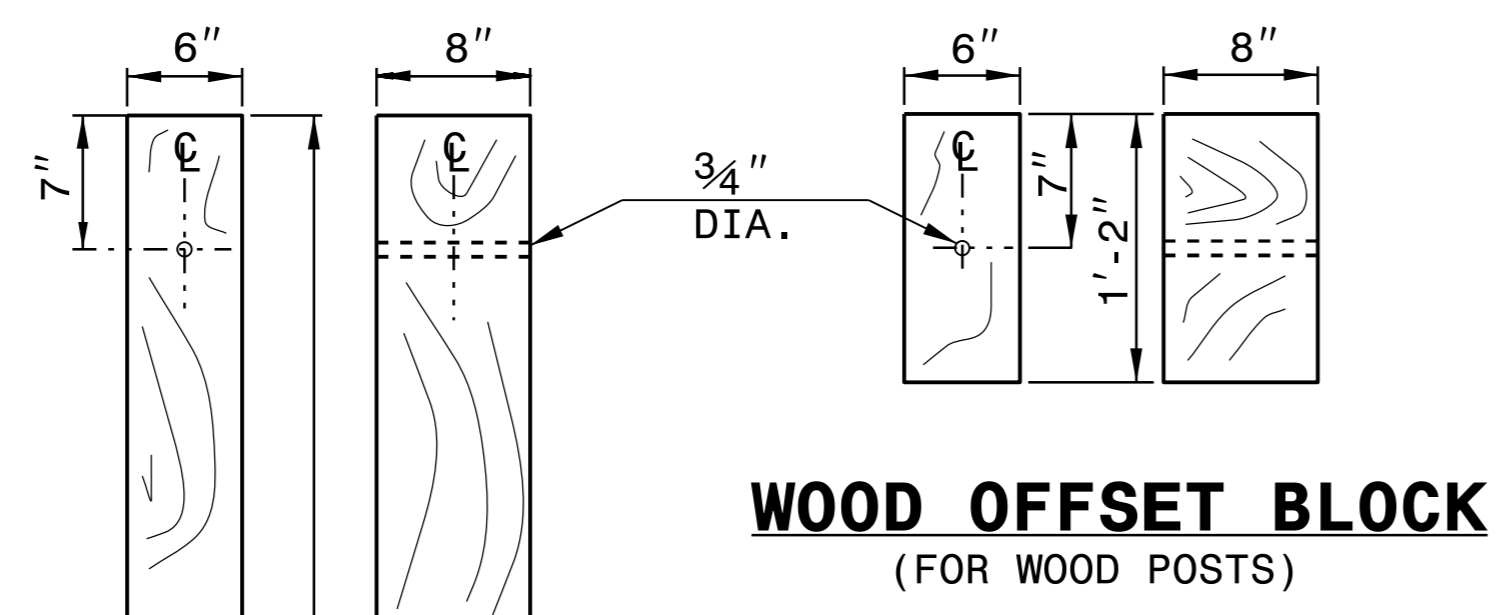
SHEET 6 OF 8
862D02



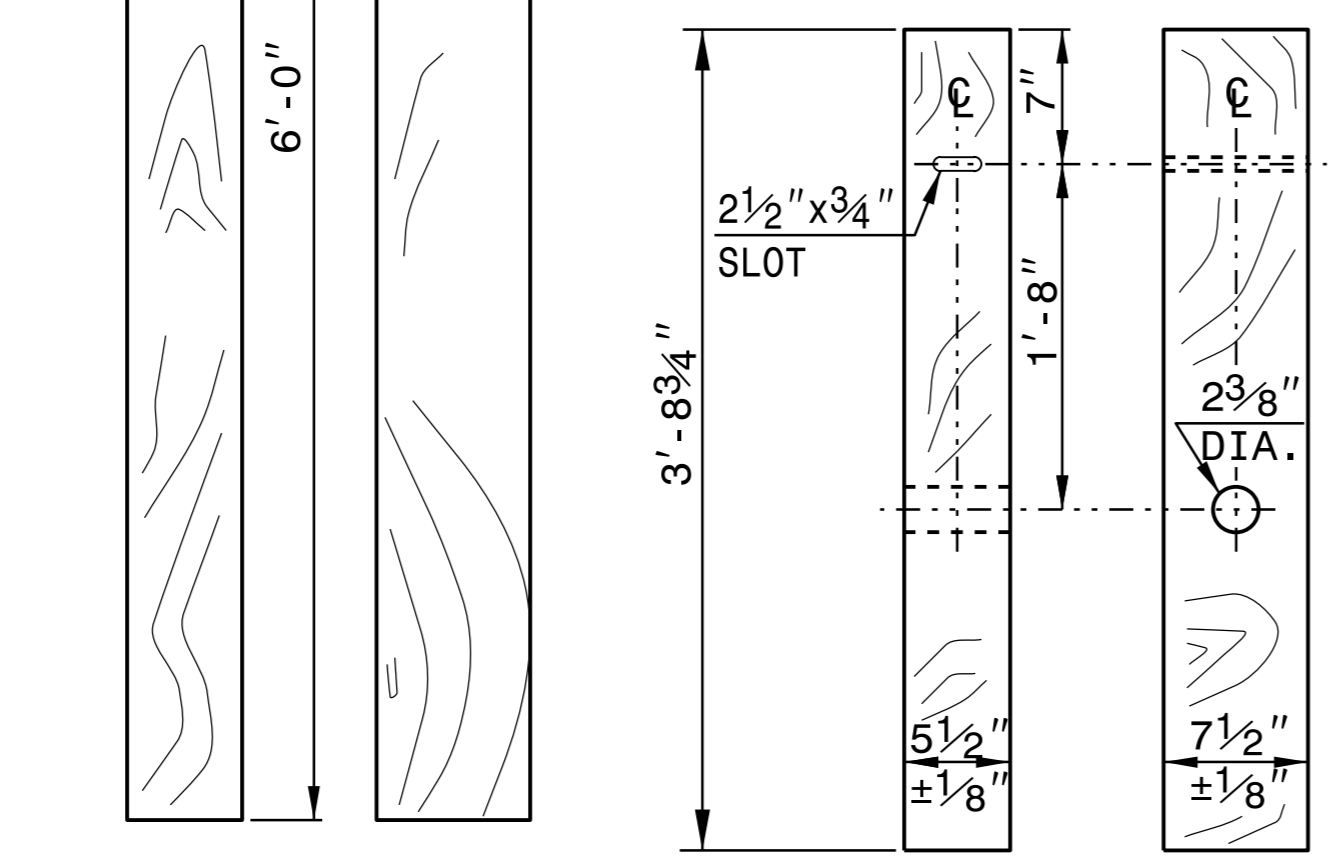
STANDARD W-BEAM GUARDRAIL



PLAN

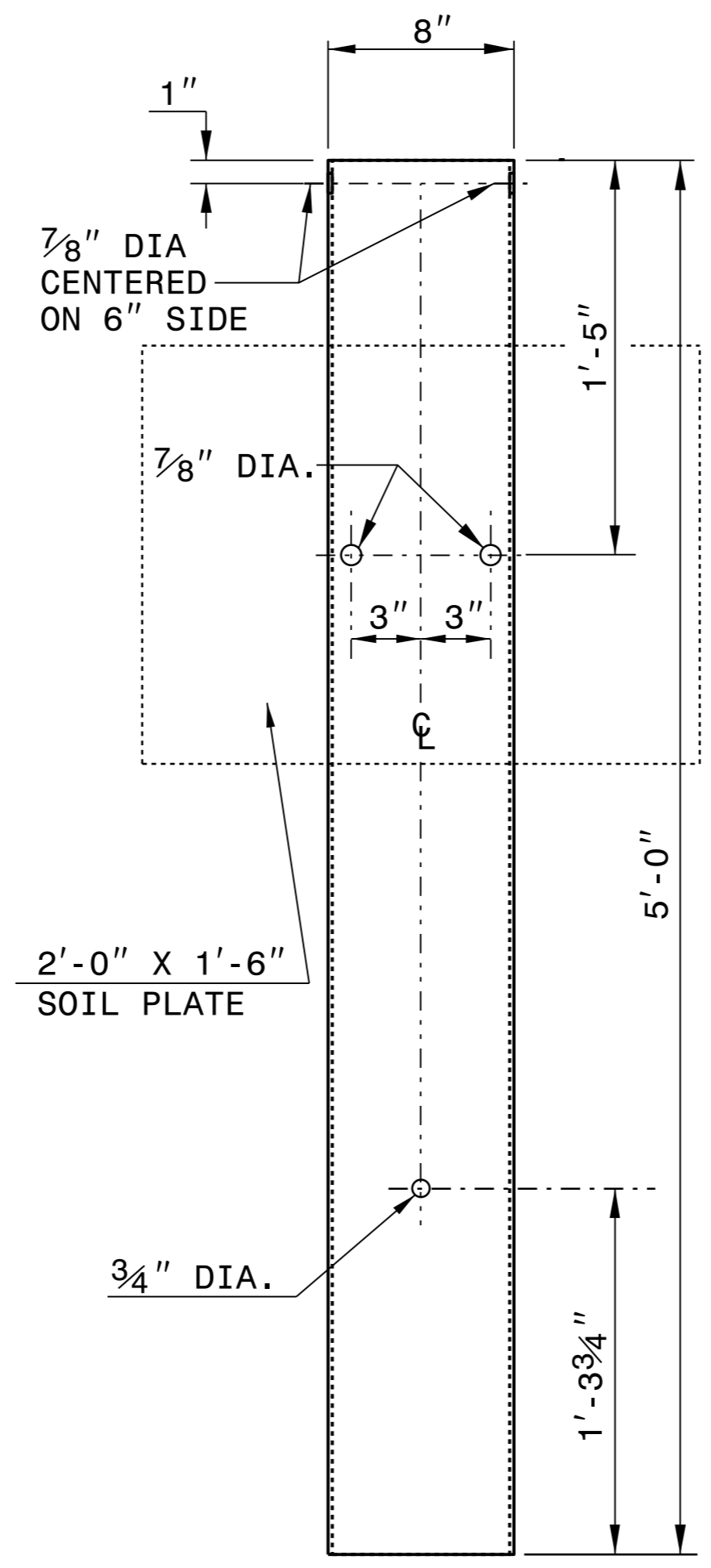


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

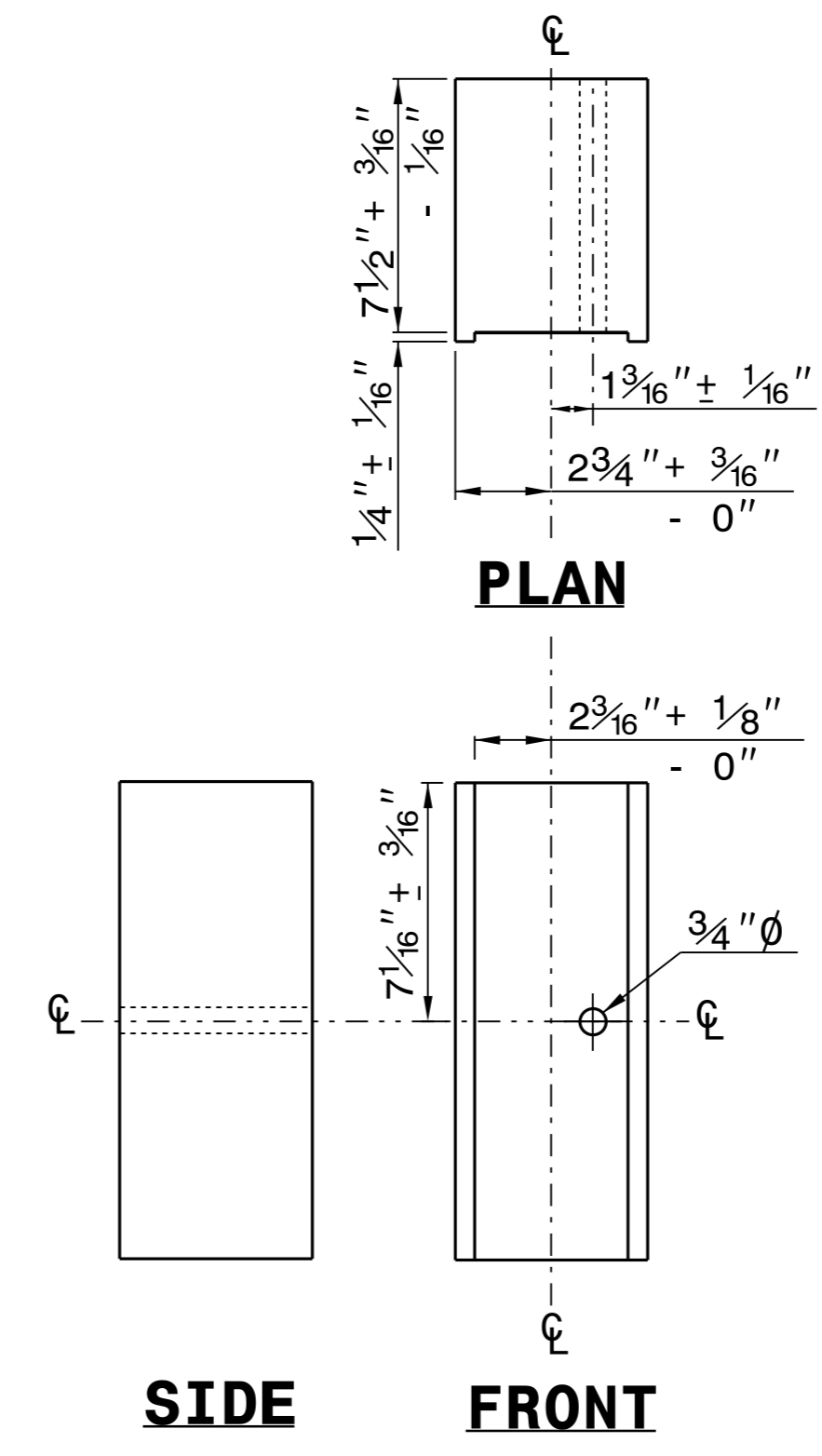


**STANDARD
LINE POST**

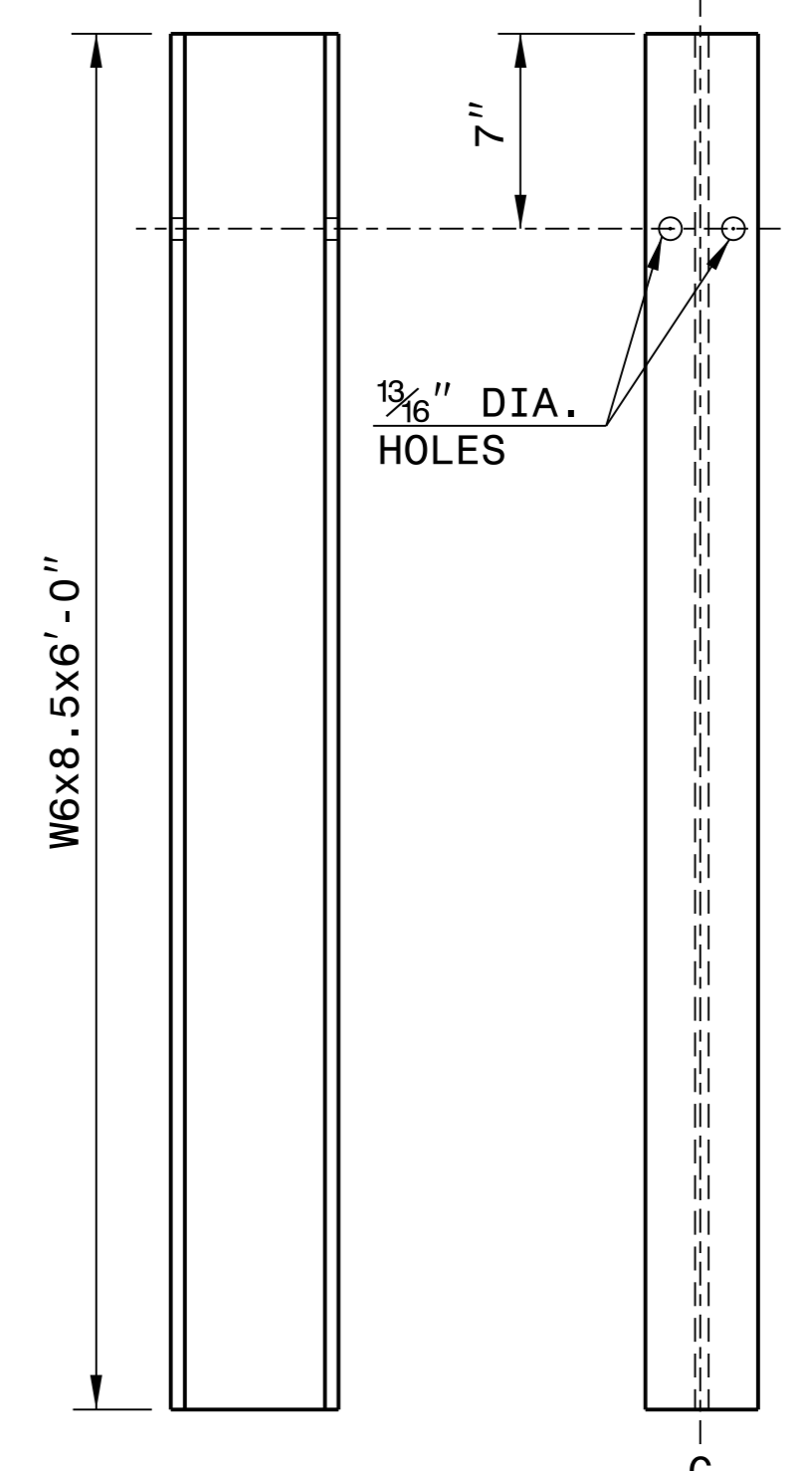
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**



**ROUTED
OFFSET BLOCK**



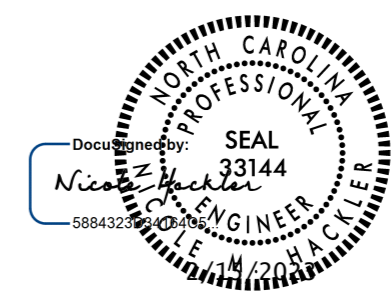
"W6" STEEL POST

SYSTEM PARTS

STATE OF NORTH CAROLINA
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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



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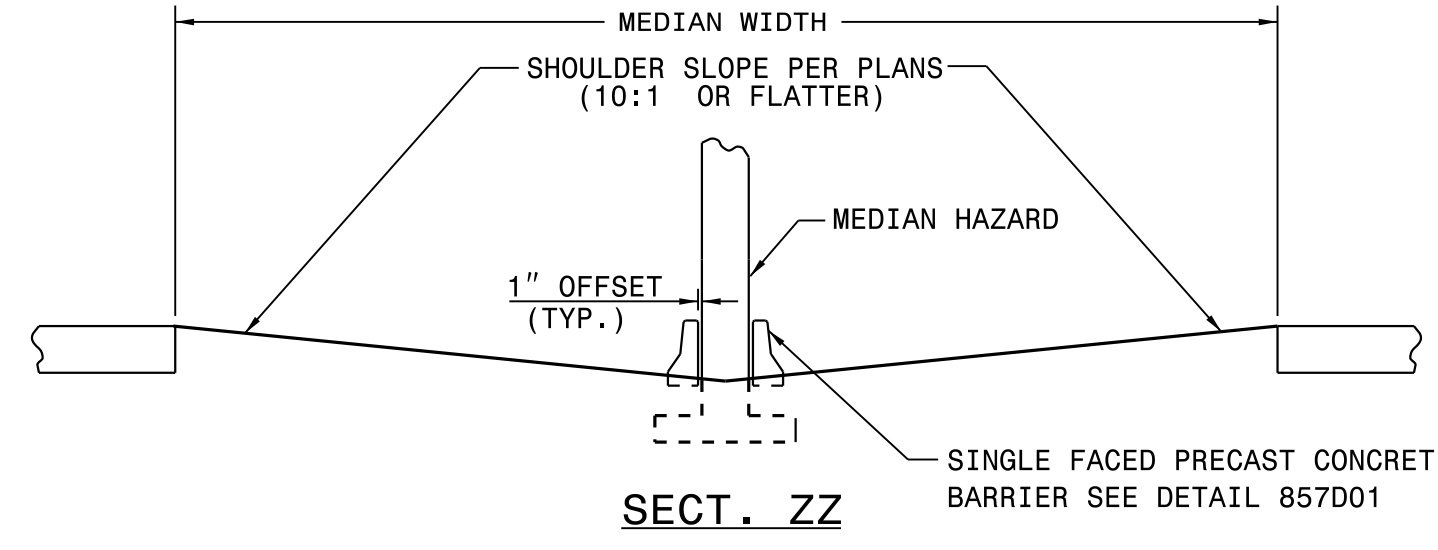
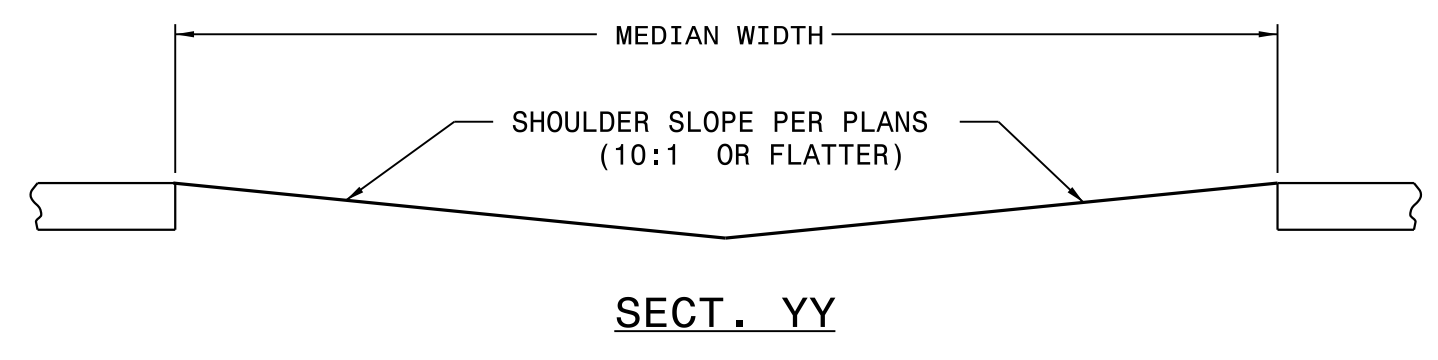
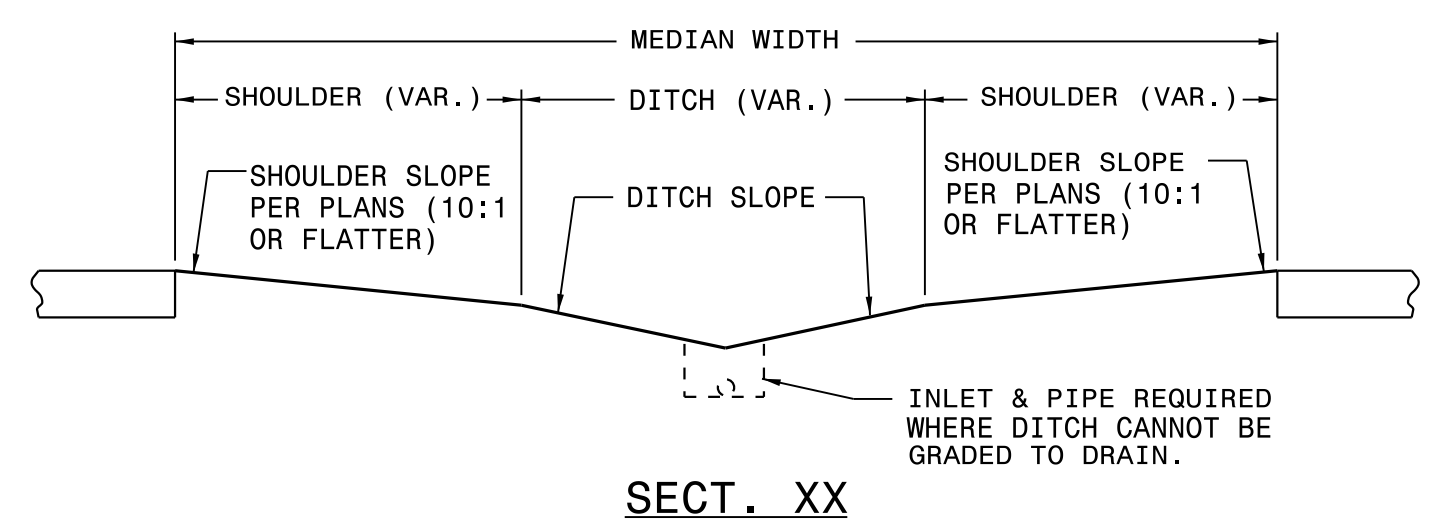
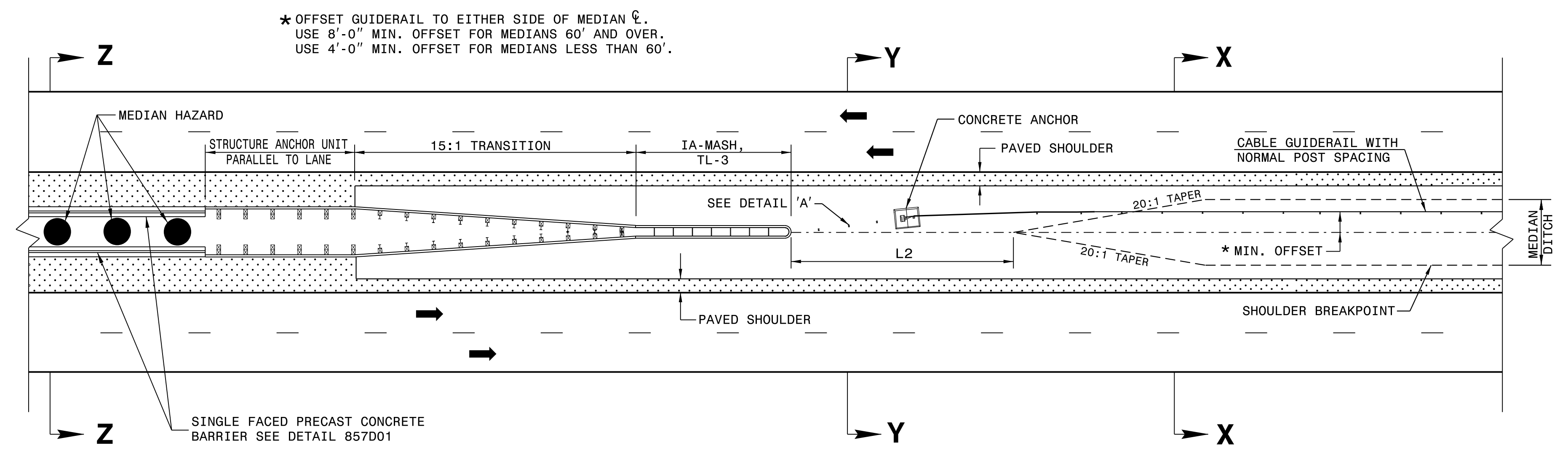
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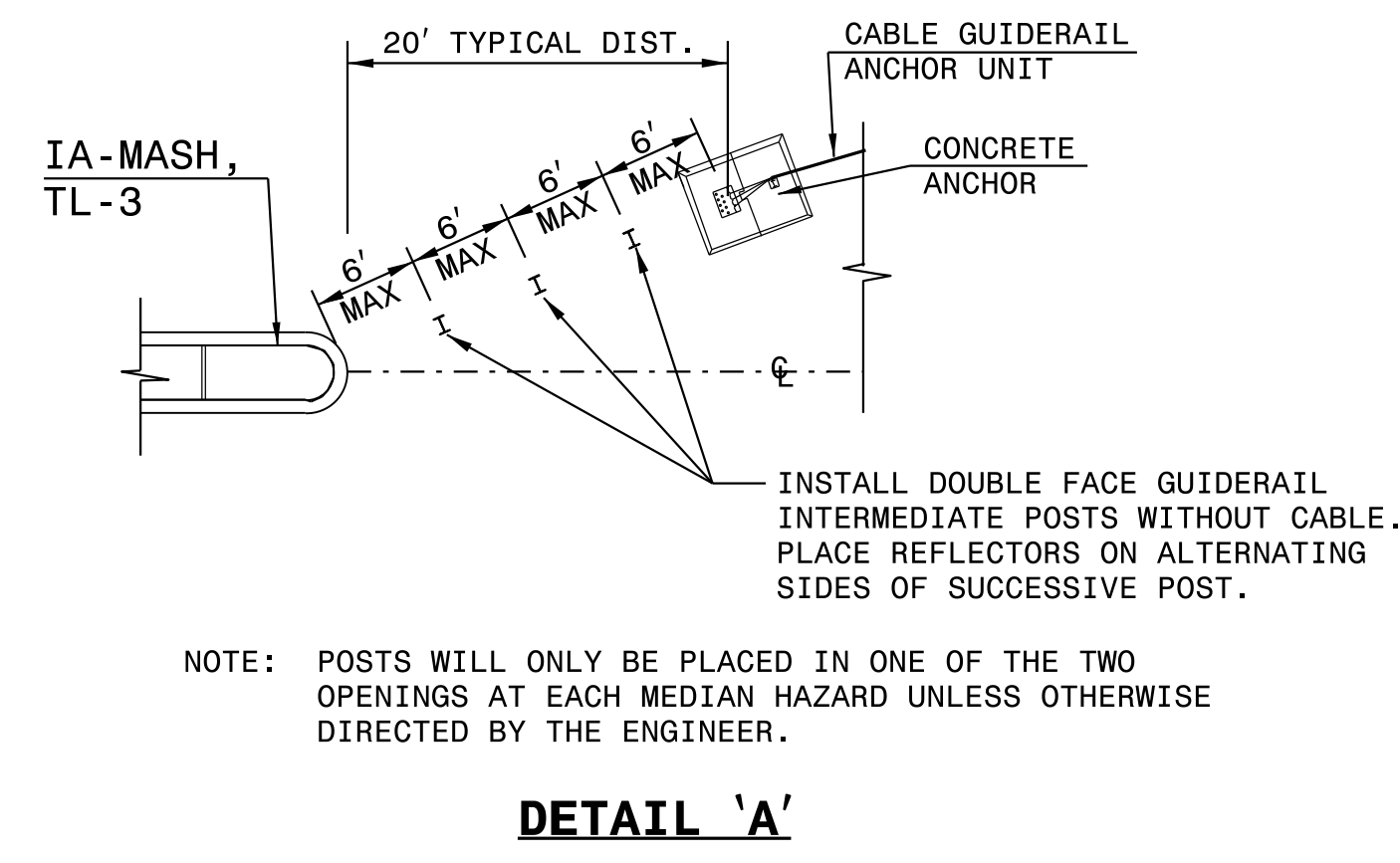
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
CABLE GUIDERAIL
MEDIAN HAZARD GUIDERAIL LAYOUT

SHEET 1 OF 12
865D01



LIMITS OF -L2-	
MEDIAN WIDTH	-L2- DIMENSION
30'	80.0'
36'	60.0'
40' & ABOVE	40.0'

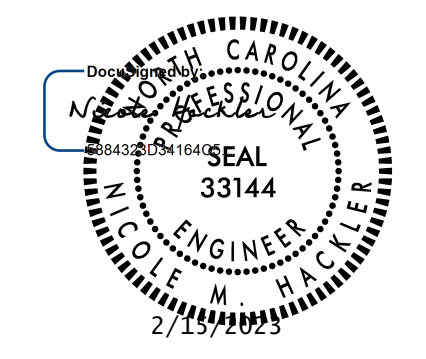


DETAIL OF TREATMENT AT MEDIAN HAZARDS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
CABLE GUIDERAIL
MEDIAN HAZARD GUIDERAIL LAYOUT

SHEET 1 OF 12
865D01



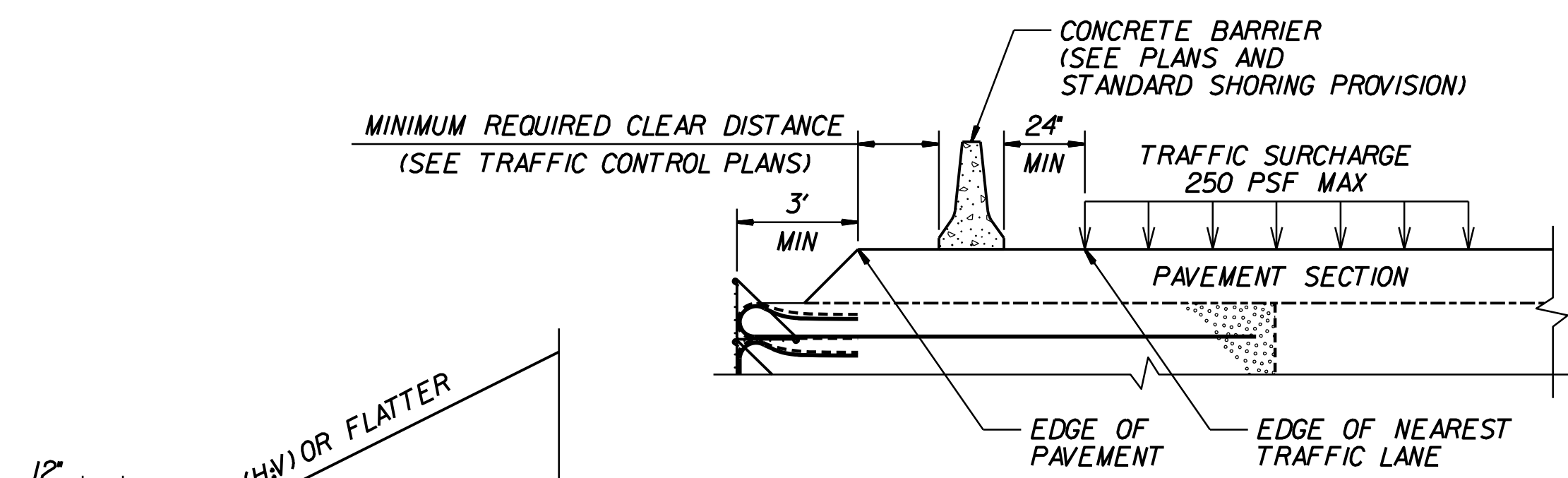
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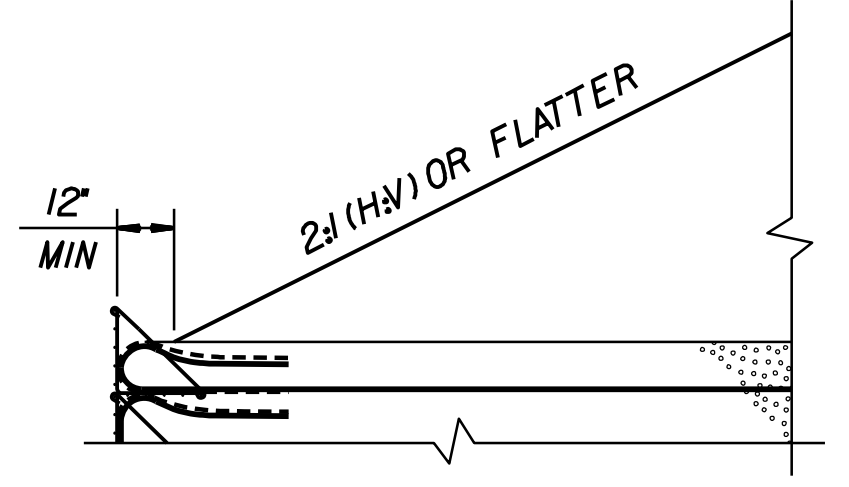
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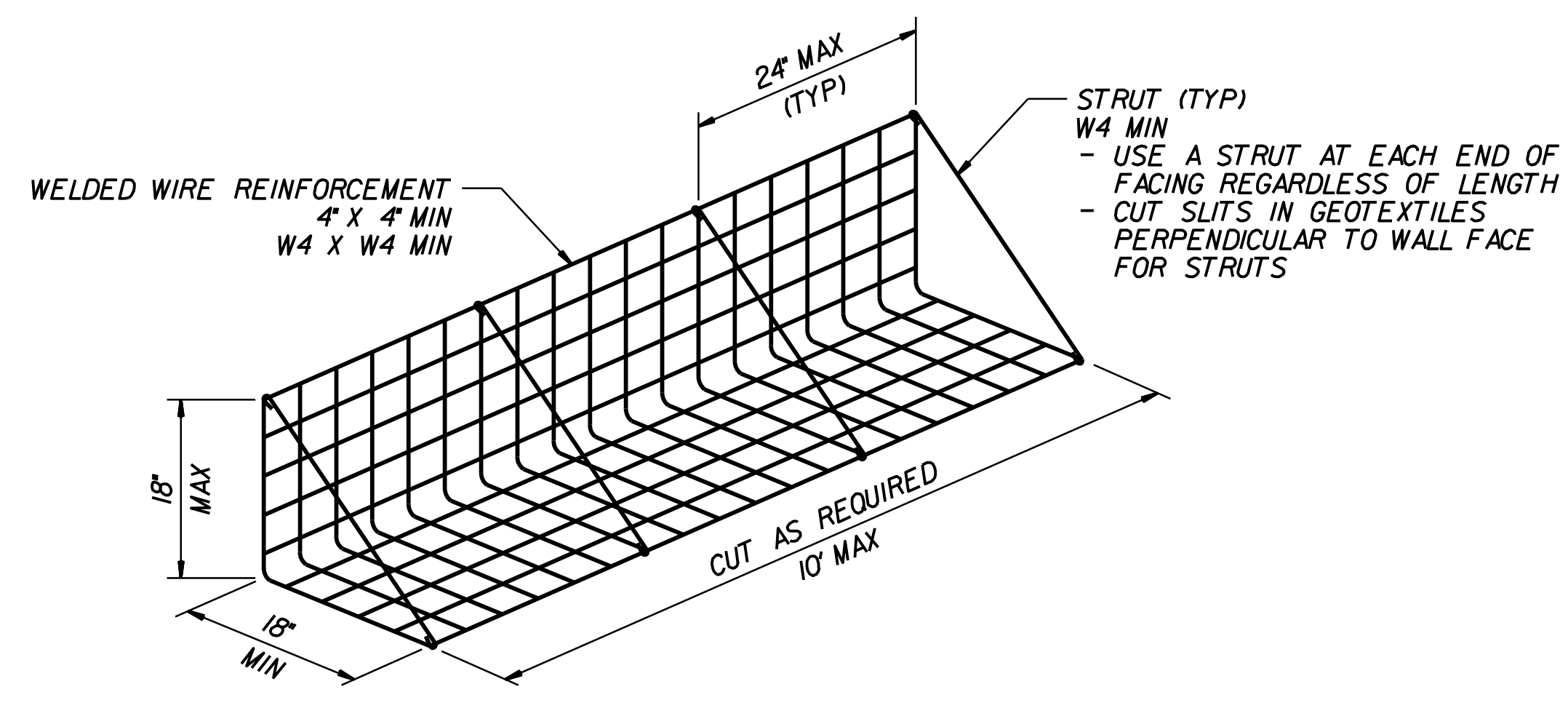
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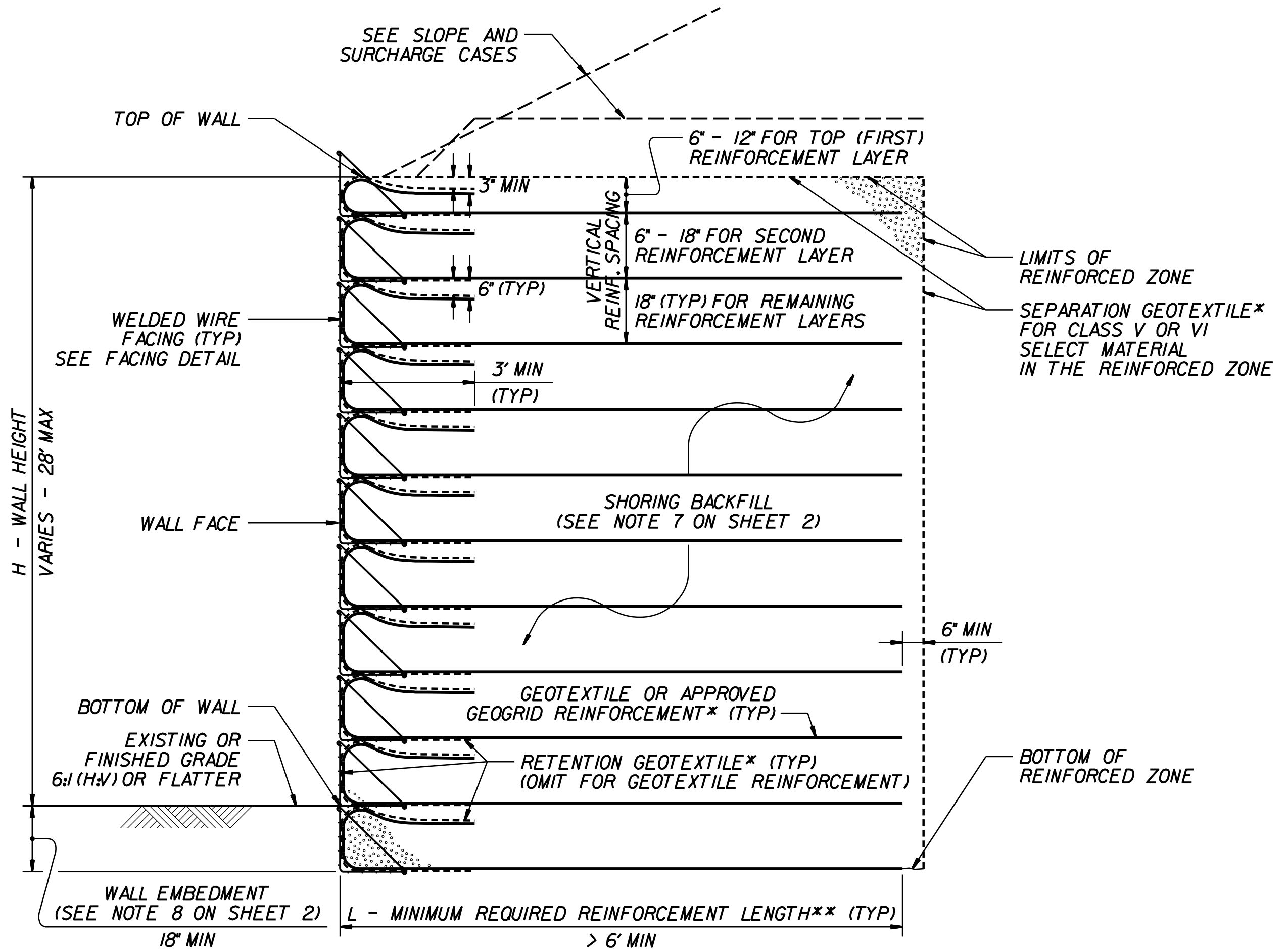
SURCHARGE CASE



SLOPE CASE

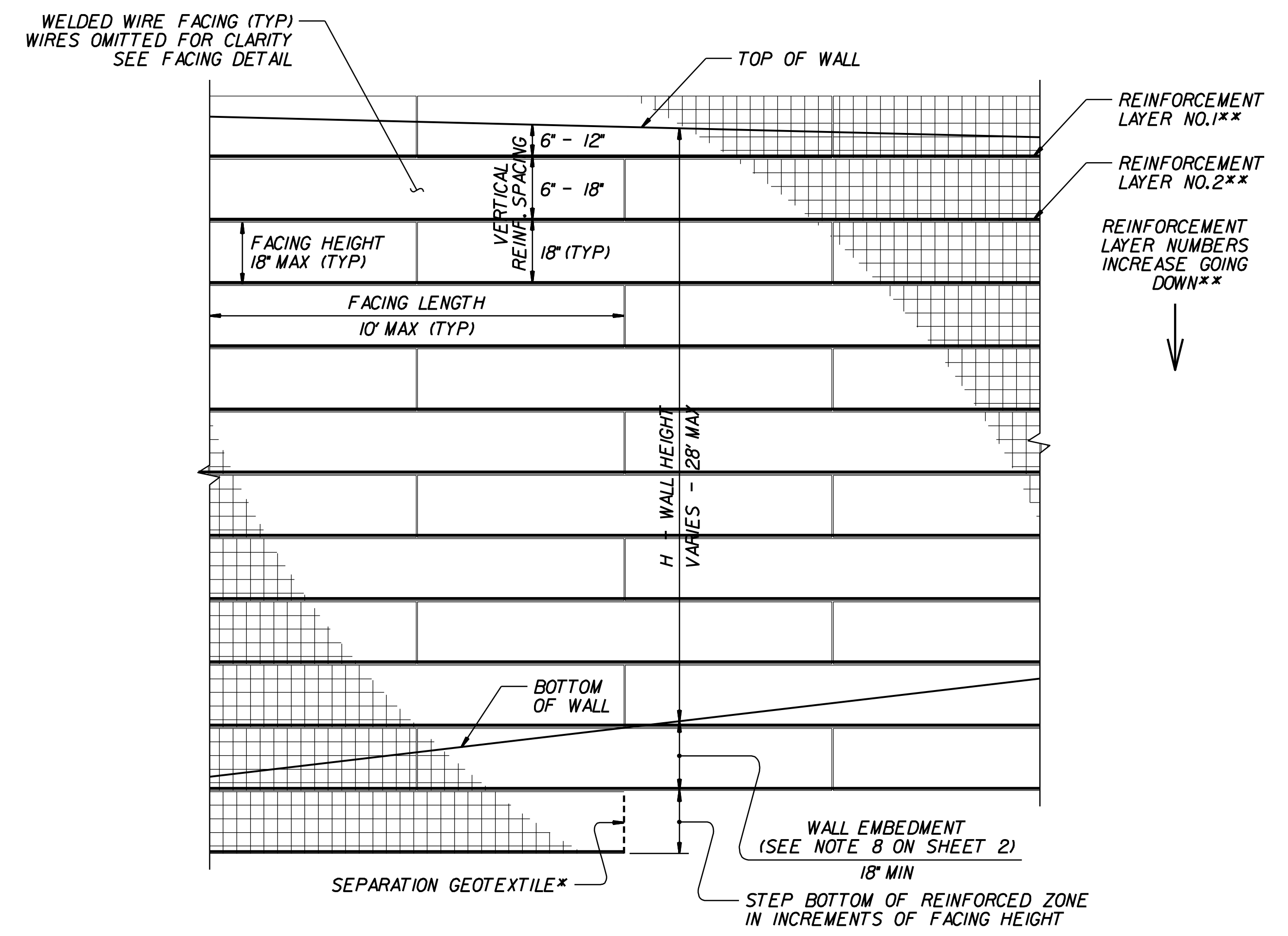


FACING DETAIL



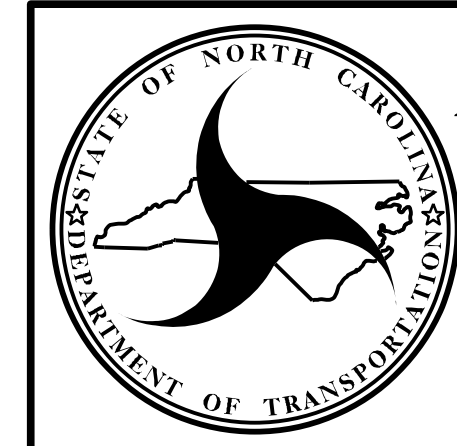
STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
 *SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

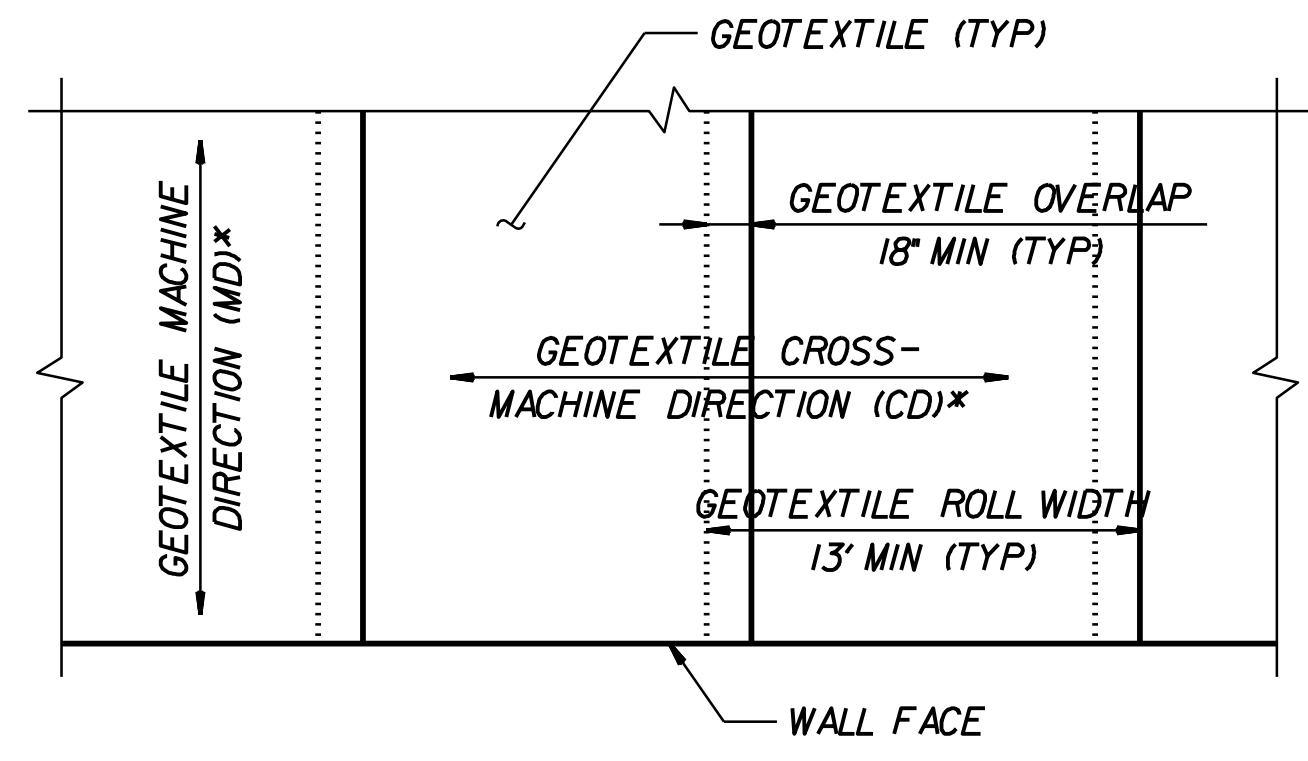
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.



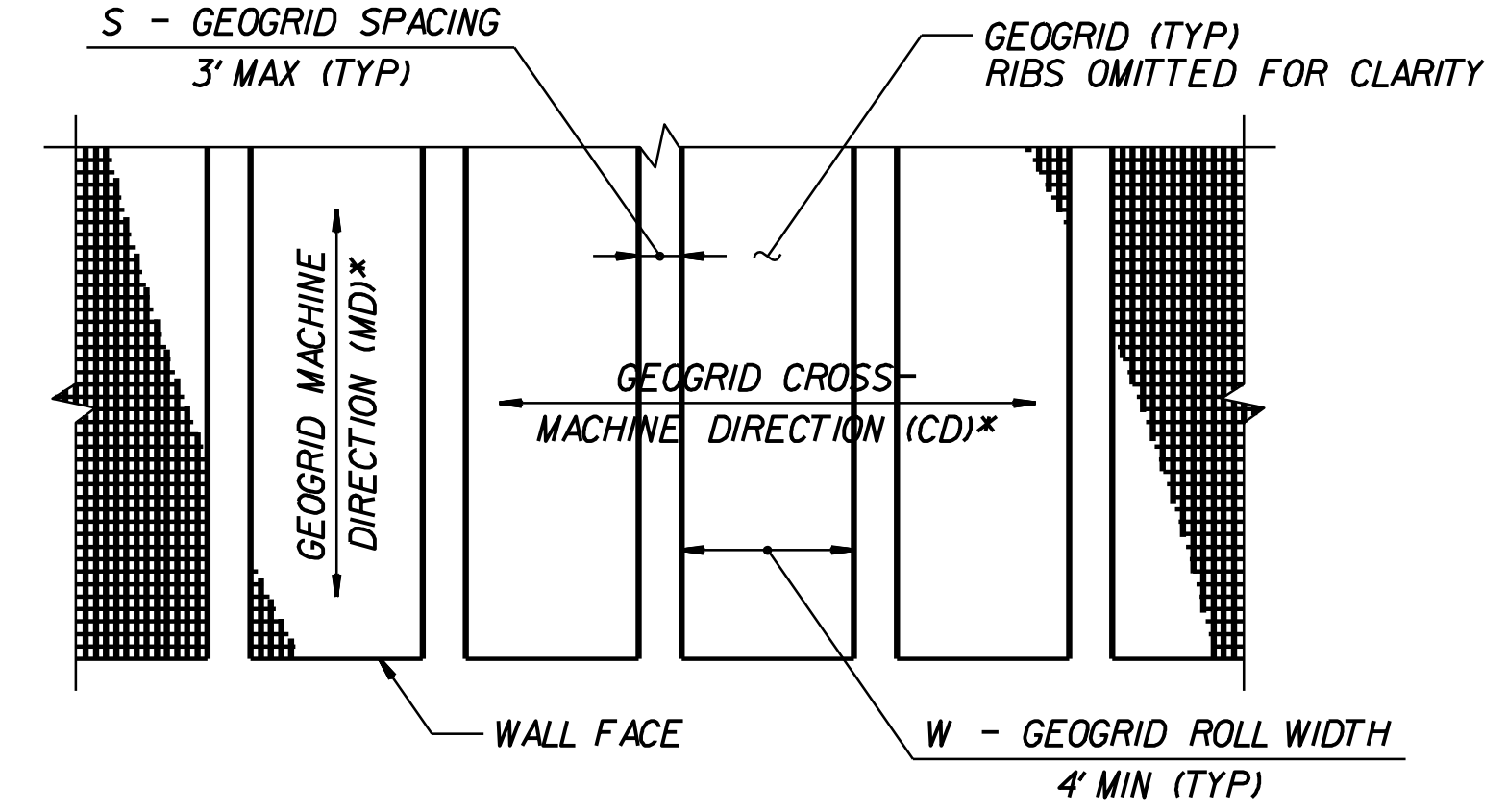
NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
**GEOTECHNICAL
 ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD
 TEMPORARY WALL
 SHEET 1 OF 3

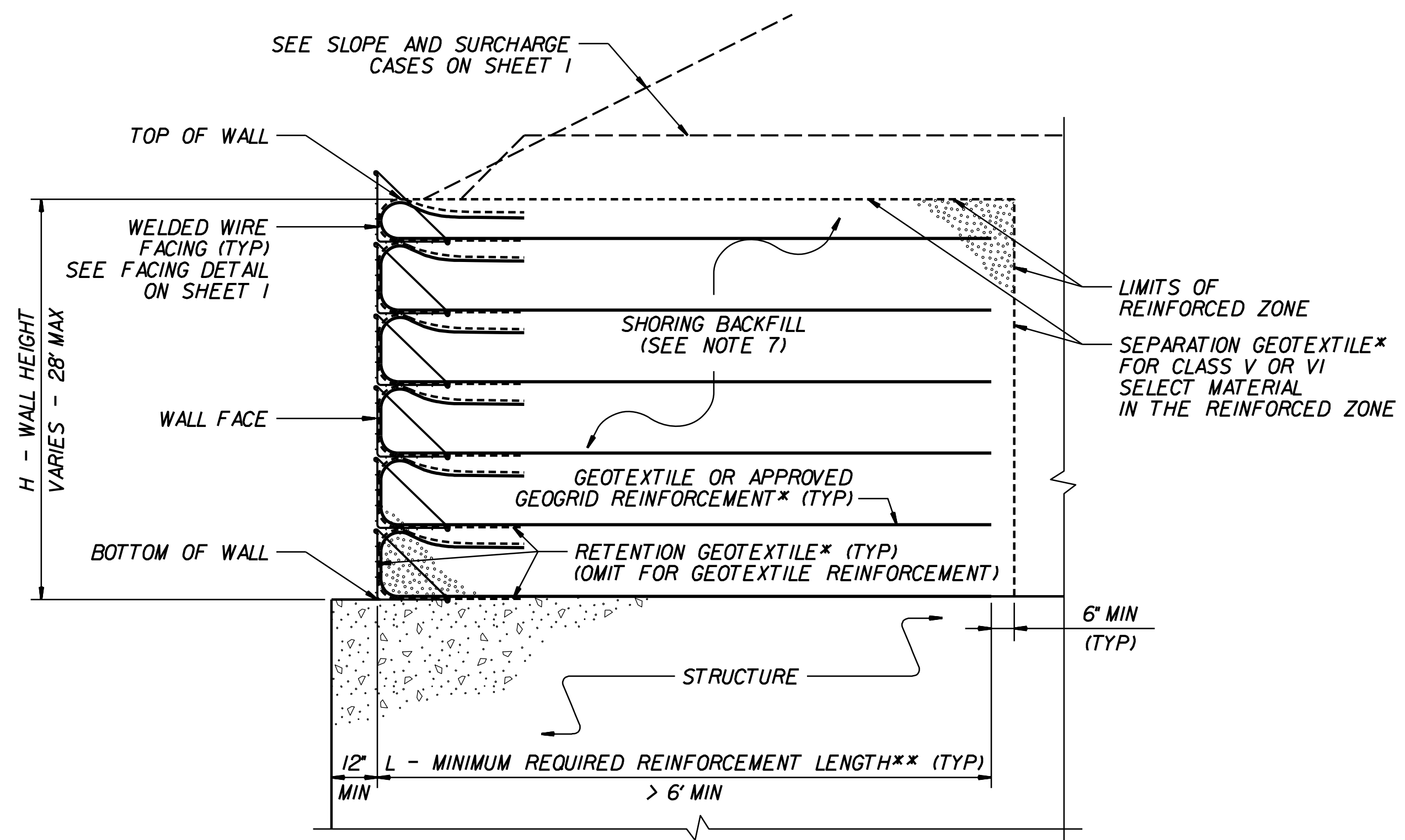


GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



GEOGRID PLACEMENT
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS
(PLAN VIEW)
*SEE NOTE 12.



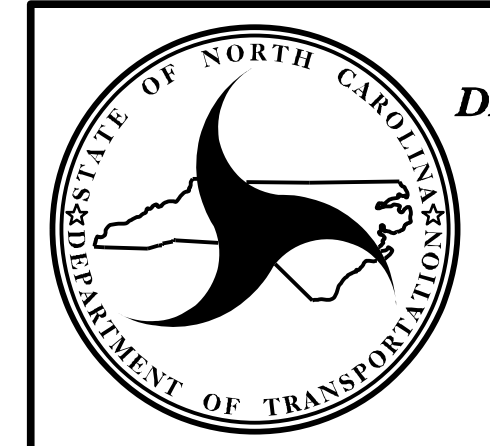
TEMPORARY WALL ON STRUCTURE DETAIL
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
- AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
- W (REINFORCEMENT ROLL WIDTH) \geq (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
- REINFORCEMENT STRENGTH IN CD \geq MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
- SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
- DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
- CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
- FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
- FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

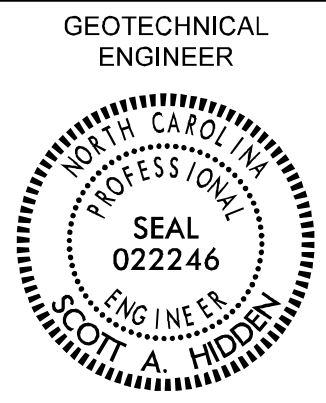


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 2 OF 3

PROJECT REFERENCE NO. BR-0041	SHEET NO. 2G-3
 GEOTECHNICAL ENGINEER ENGINEER	ENGINEER _____ DATE _____
Documented by: <i>Scott A. Hadden</i> 03/10/2023 SIGNATURE DATE SIGNATURE DATE	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19	

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

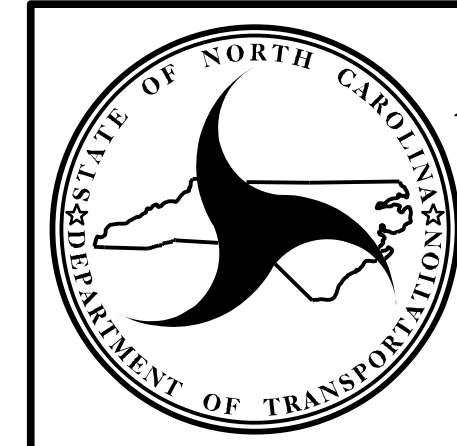
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

**GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)**

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

**GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)**
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02
STANDARD TEMPORARY WALL SHEET 3 OF 3
DATE: 11-19-13

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
				SD	200
CONTINGENCY					
TOTAL LF:					200

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

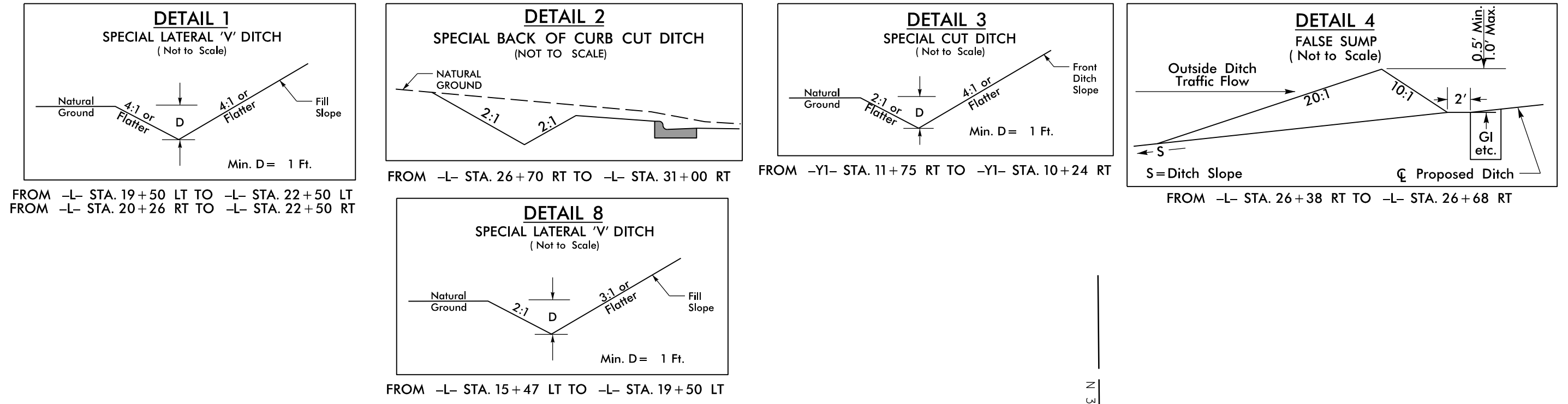
LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L-	18+25	20+75		12	110	220	400		
Wall 1							15		
Wall 2							100		
CONTINGENCY					1000	2000	3225		
TOTAL CY/TONS/SY:						1110	2220**	3740**	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)

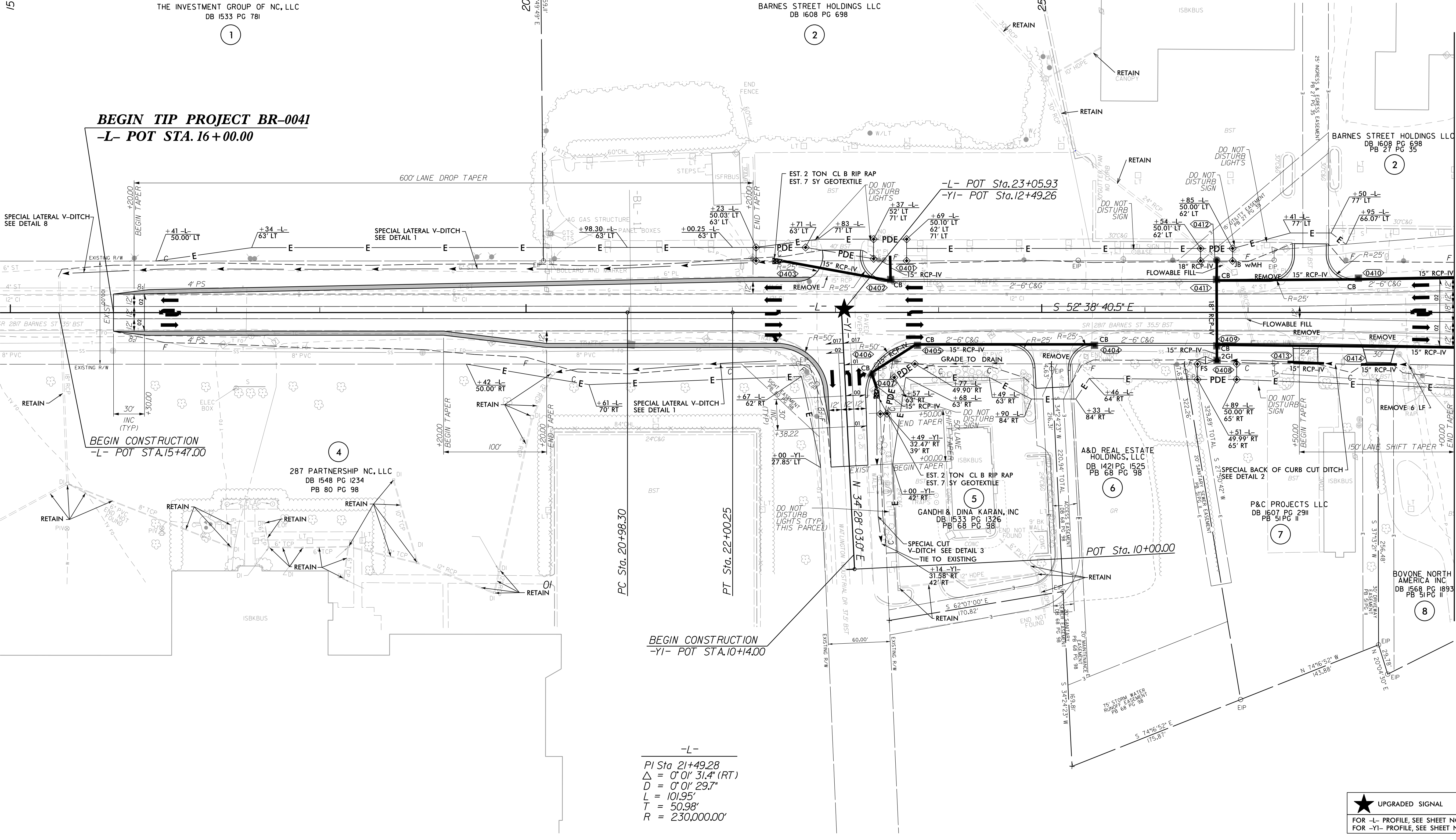
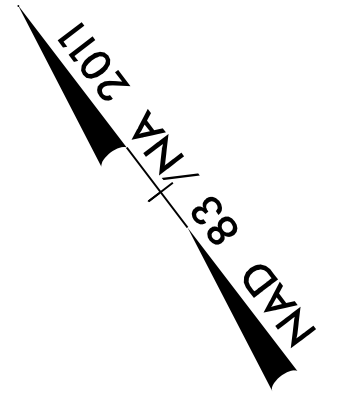
*AST = Aggregate Stabilization

**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

PROJECT REFERENCE NO. <i>BR-0041</i>		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 18470	
SEAL 18470		SEAL 037863	
NORTH CAROLINA PROFESSIONAL ENGINEER		NORTH CAROLINA PROFESSIONAL ENGINEER	
WARD GLENN EDELS, JR.		D. BUSCEMI	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 FAX1			
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NOTE: STRUCTURE 0412 TO BE CONSTRUCTED ON EXISTING PIPE



15

THE INVESTMENT GROUP OF NC, LLC
DB 1533 PG 781

BARNES STREET HOLDINGS LLC
DB 1608 PG 698

BARNES STREET HOLDINGS LLC
DB 1608 PG 698
PB 21 PG 35

287 PARTNERSHIP NC, LLC
DB 1548 PG 1234
PB 80 PG 98

GANDHI & DINA KARAN, INC
DB 1533 PG 1326
PB 68 PG 98

P&C PROJECTS LLC
DB 1607 PG 2911
PB 51 PG 11

BOVONE NORTH AMERICA INC
DB 1568 PG 1893
PB 51 PG 11

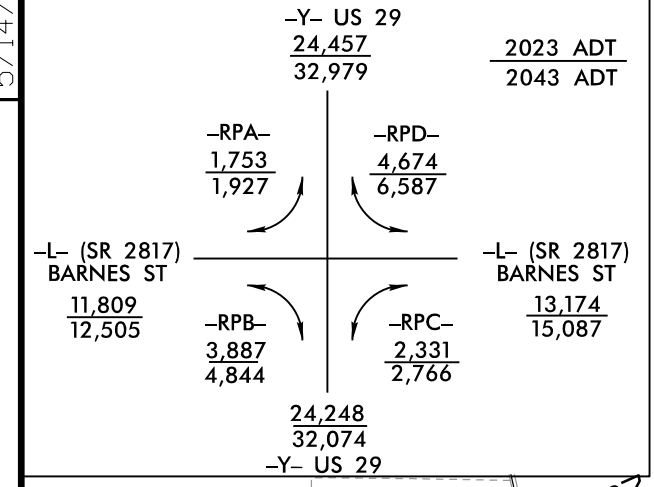
-L-
 PI Sta. 21+49.28
 $\Delta = 0' 01' 31.4''$ (RT)
 $D = 0' 01' 29.7''$
 $L = 101.95'$
 $T = 50.98'$
 $R = 230,000.00'$

★ UPGRADED SIGNAL
 FOR -L- PROFILE, SEE SHEET NO. 7
 FOR -YI- PROFILE, SEE SHEET NO. 10

REVISIONS

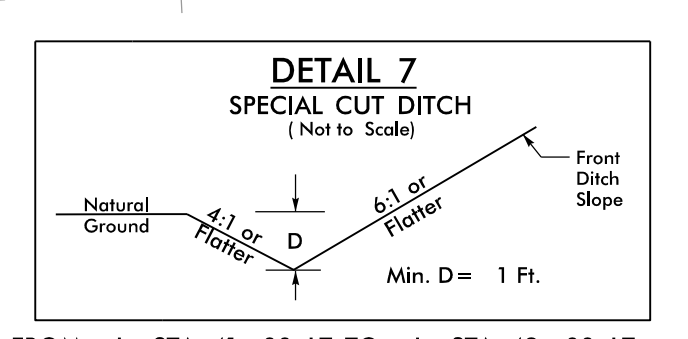
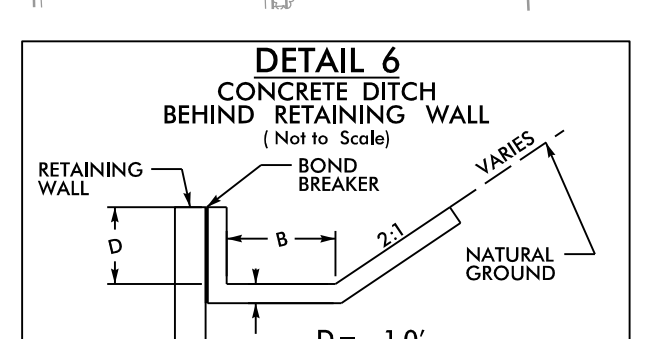
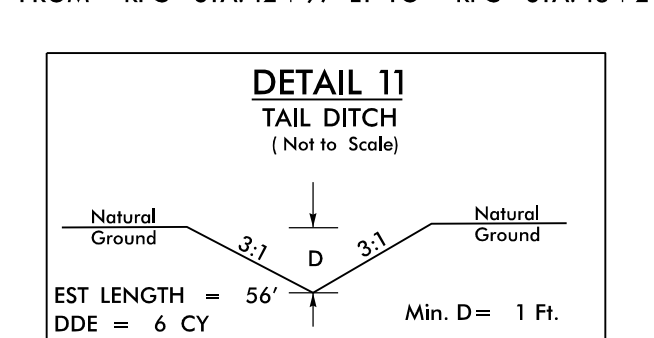
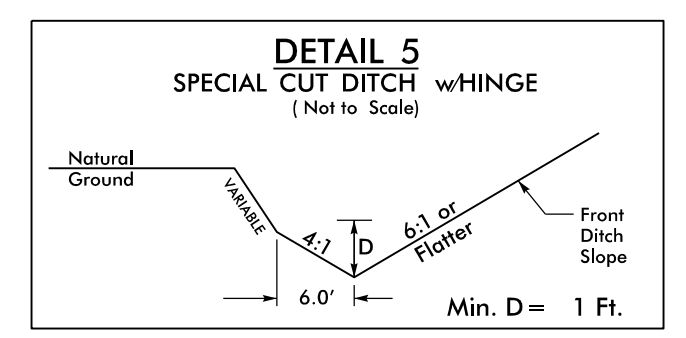
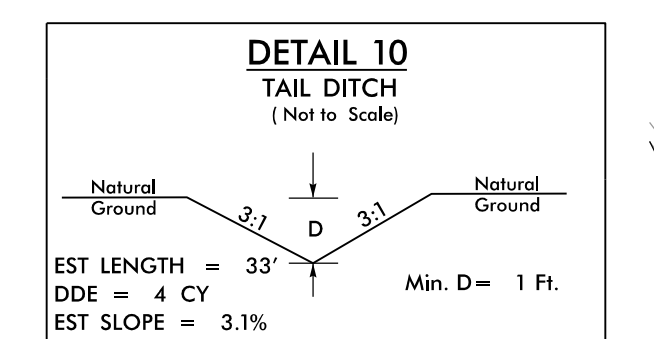
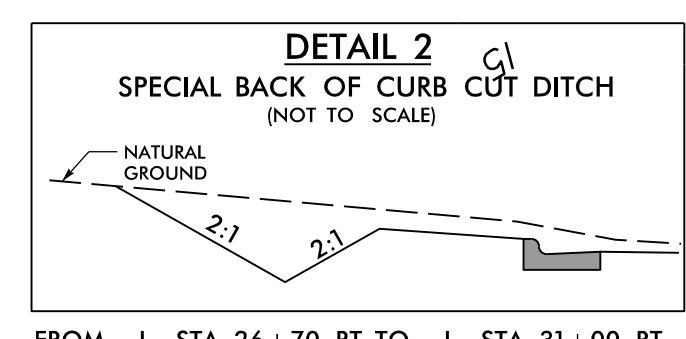
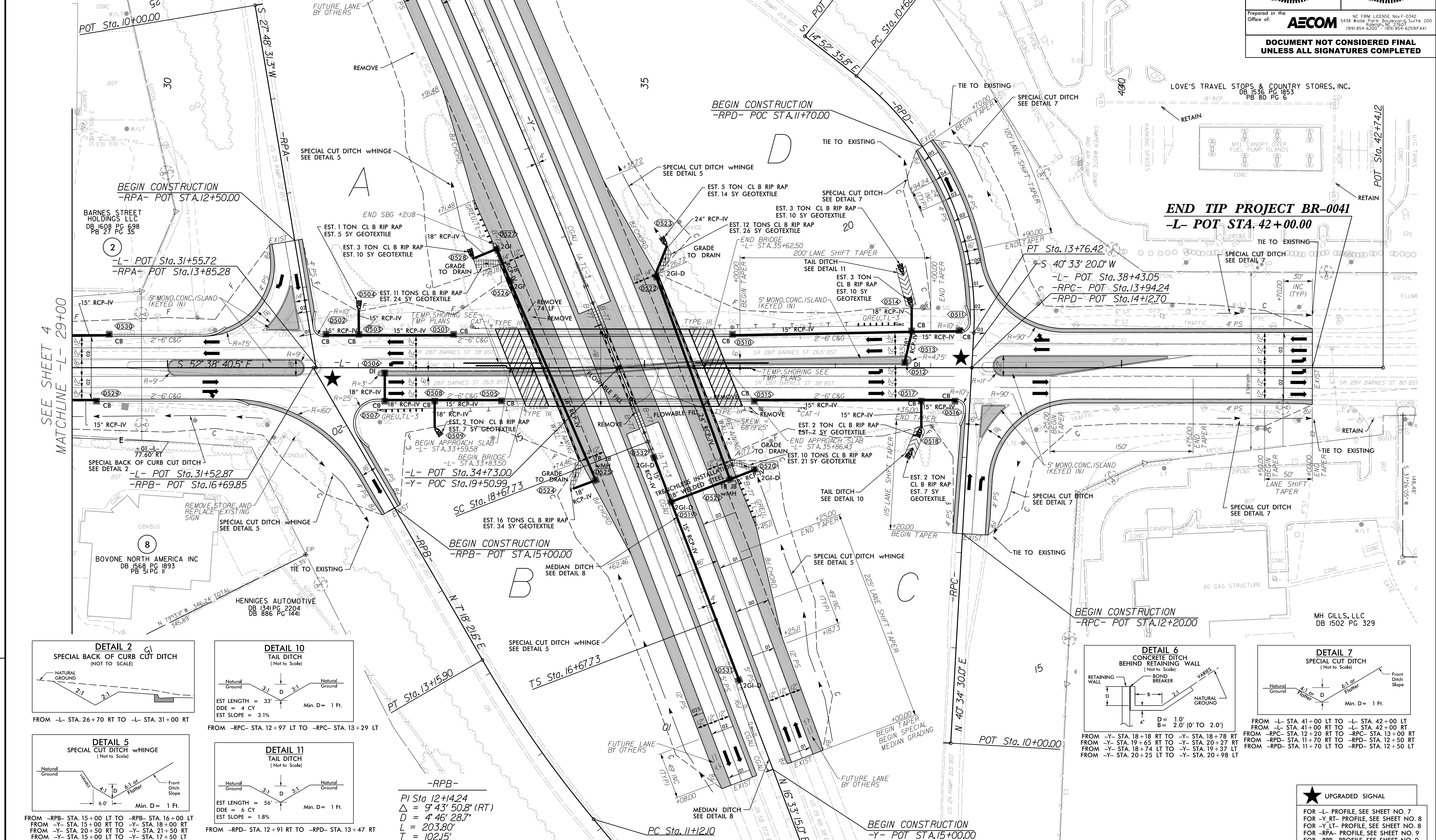
MATCHLINE -L- 29+00
SEE SHEET 5

TRAFFIC DIAGRAM



PROJECT REFERENCE NO. BR-0041 SHEET NO. 5. ROADWAY DESIGN ENGINEER SEAL. HYDRAULICS ENGINEER SEAL. AECOM logo and contact information.

Vertical curve data for PI Sta 18+01.07, PI Sta 26+67.93, and PI Sta 12+35.61. Includes values for Δ, L, T, R, e, and R.O.



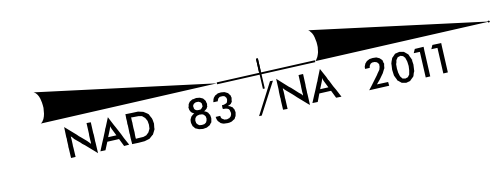
-RPB- PI Sta 12+4.24 Δ = 9' 43" 50.8" (RT) D = 4' 46" 28.7" L = 203.80' T = 102.15' R = 1,200.00'

UPGRADED SIGNAL. FOR -L- PROFILE, SEE SHEET NO. 7. FOR -Y- RT- PROFILE, SEE SHEET NO. 8. FOR -Y- LT- PROFILE, SEE SHEET NO. 8. FOR -RPA- PROFILE, SEE SHEET NO. 9. FOR -RPB- PROFILE, SEE SHEET NO. 9. FOR -RPC- PROFILE, SEE SHEET NO. 9. FOR -RPD- PROFILE, SEE SHEET NO. 9. FOR STRUCTURES SEE SHEETS S1-01 THROUGH S1-48.

5/14/99

PROJECT REFERENCE NO. BR-0041		SHEET NO. 6	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of: AECOM			
NC FIRM LICENSE Nos F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 FAX			
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NOTE: STRUCTURES 0601 AND 0604 ARE 4GI



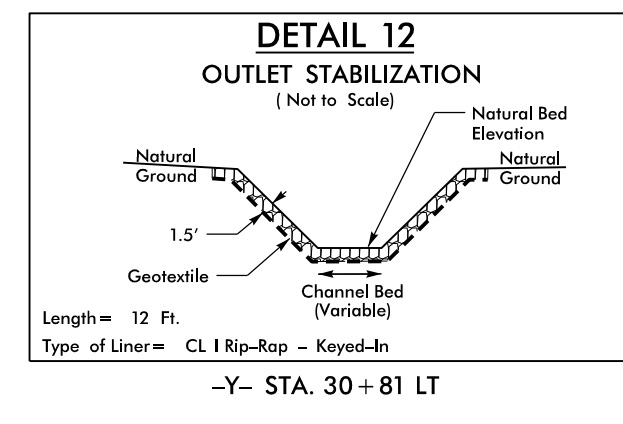
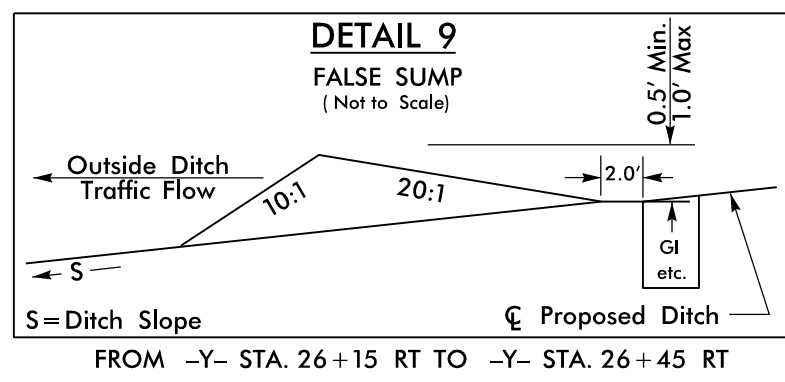
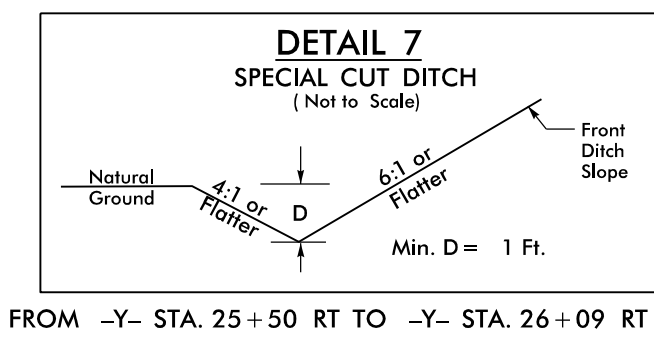
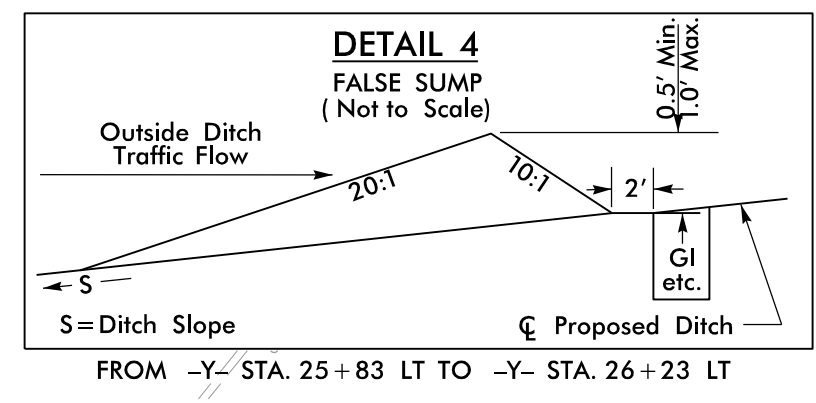
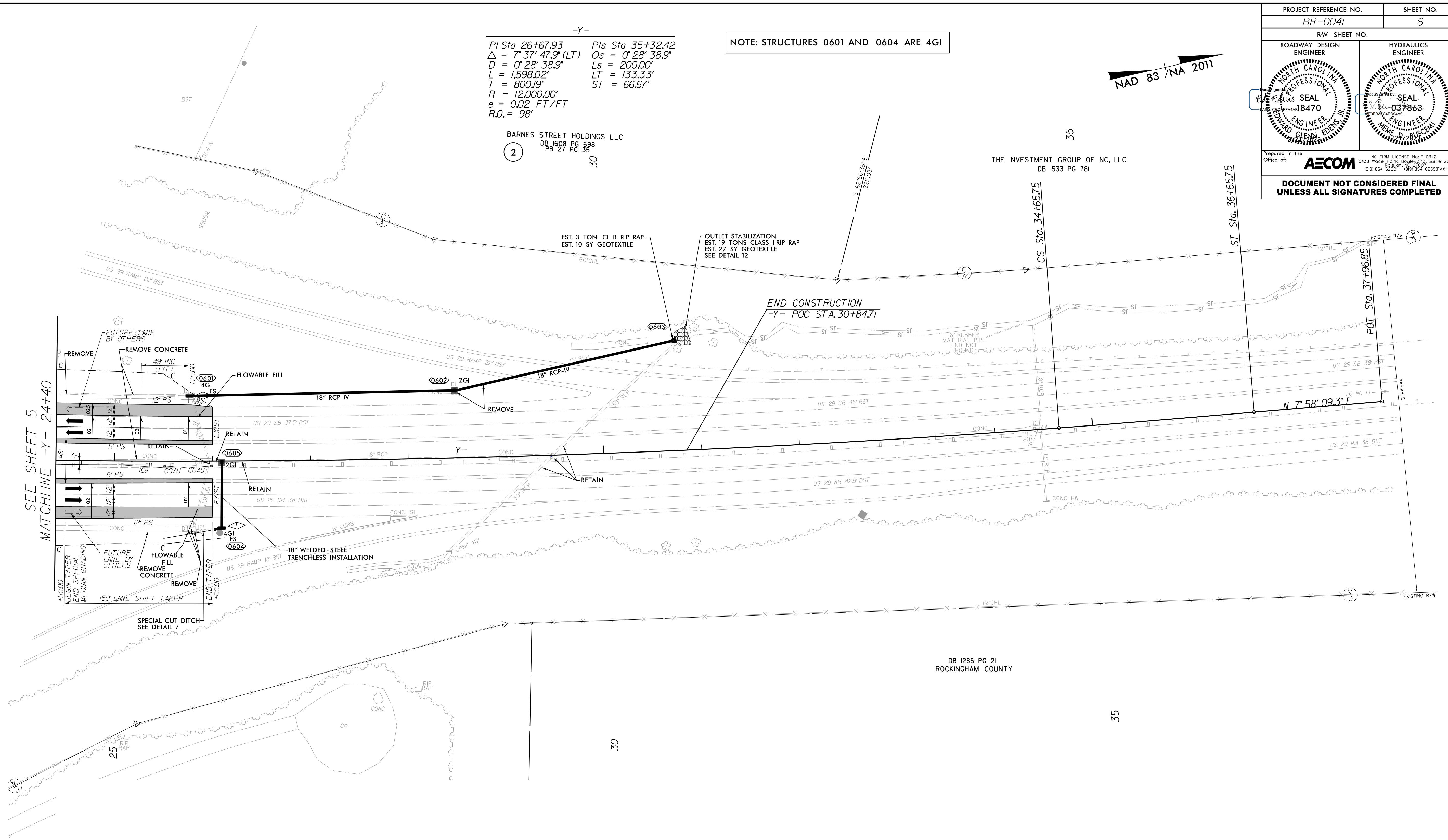
-Y-

PI Sta 26+67.93	PIs Sta 35+32.42
$\Delta = 7' 37' 47.9''$ (LT)	$\Theta_s = 0' 28' 38.9''$
$D = 0' 28' 38.9''$	$L_s = 200.00'$
$L = 1,598.02'$	$LT = 133.33'$
$T = 800.19'$	$ST = 66.67'$
$R = 12,000.00'$	
$e = 0.02$ FT/FT	
$R.O. = 98'$	

BARNES STREET HOLDINGS LLC
 DB 1608 PG 698
 PB 27 PG 35

THE INVESTMENT GROUP OF NC, LLC
 DB 1533 PG 781

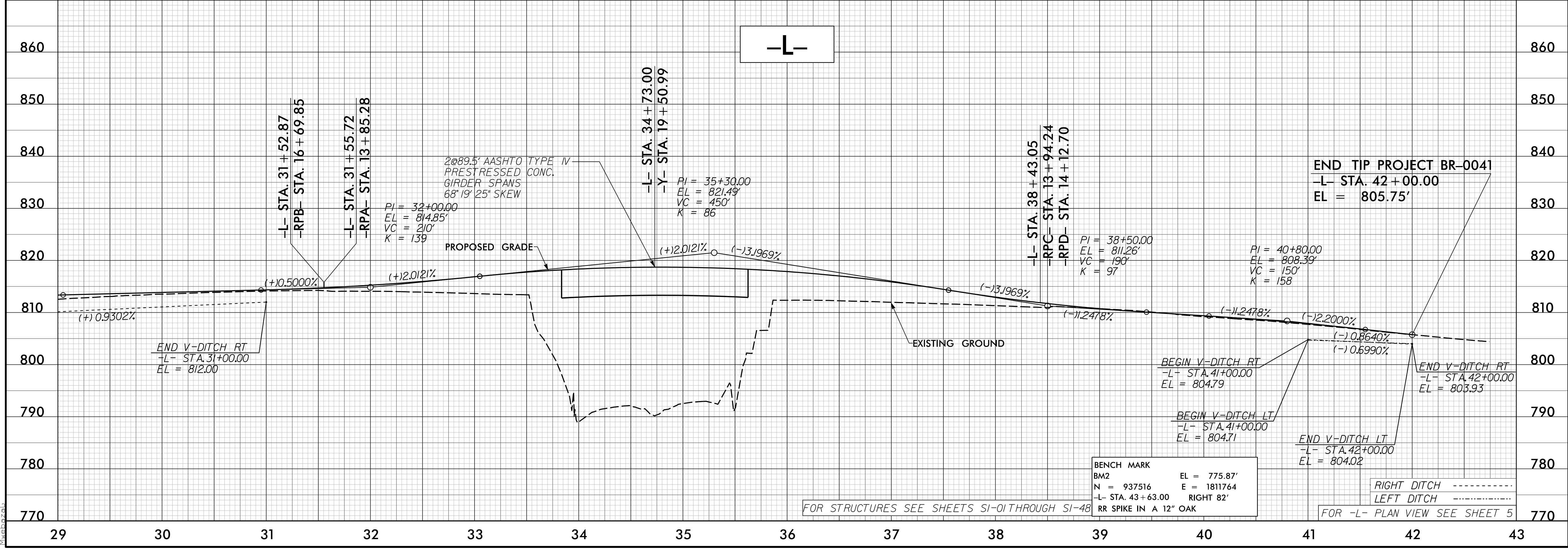
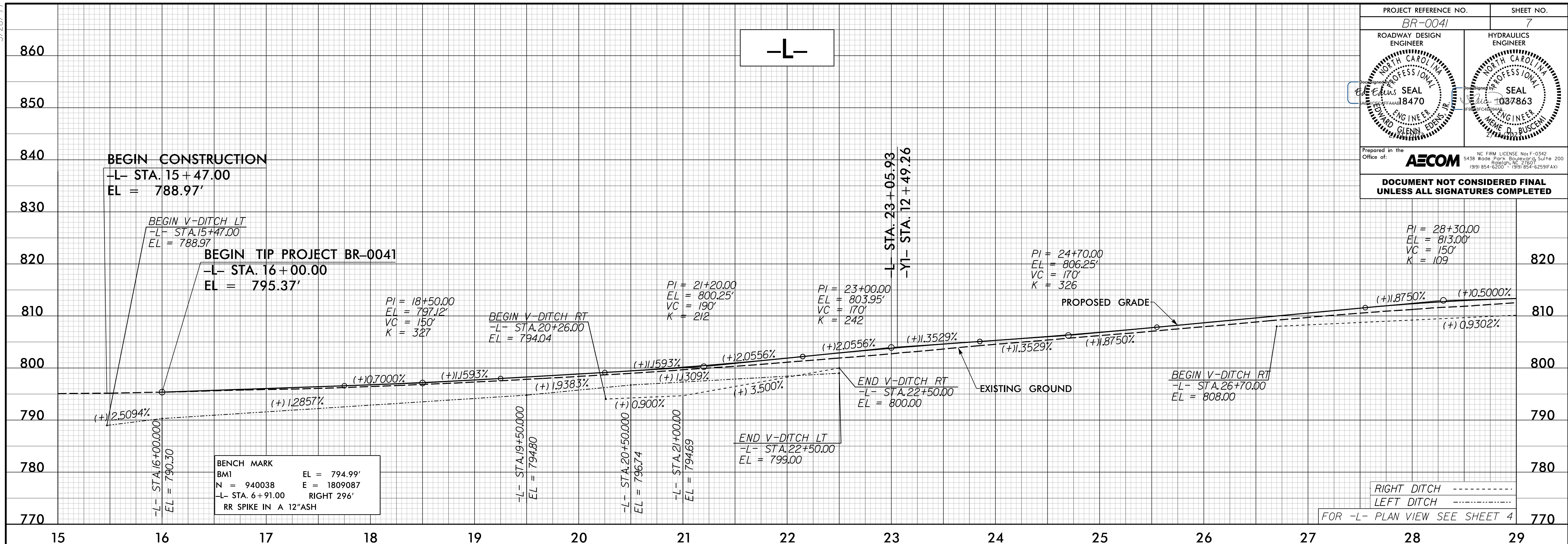
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DB 1285 PG 21
 ROCKINGHAM COUNTY

5/28/2019
2/7/2023
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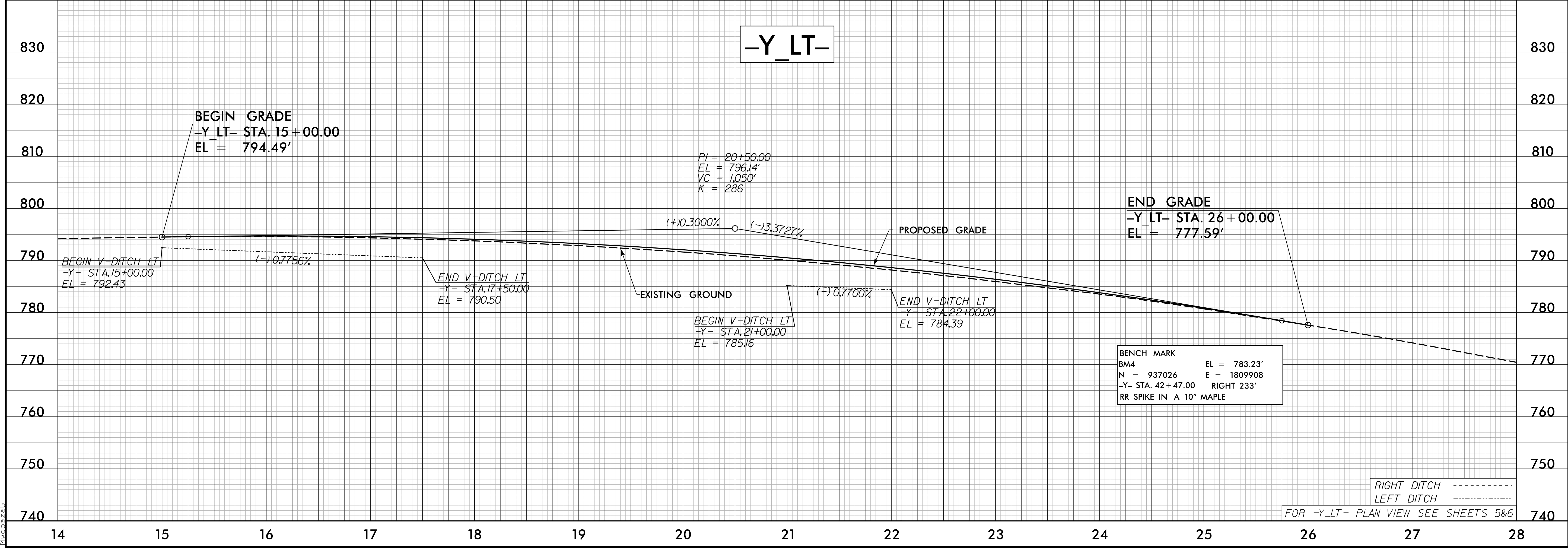
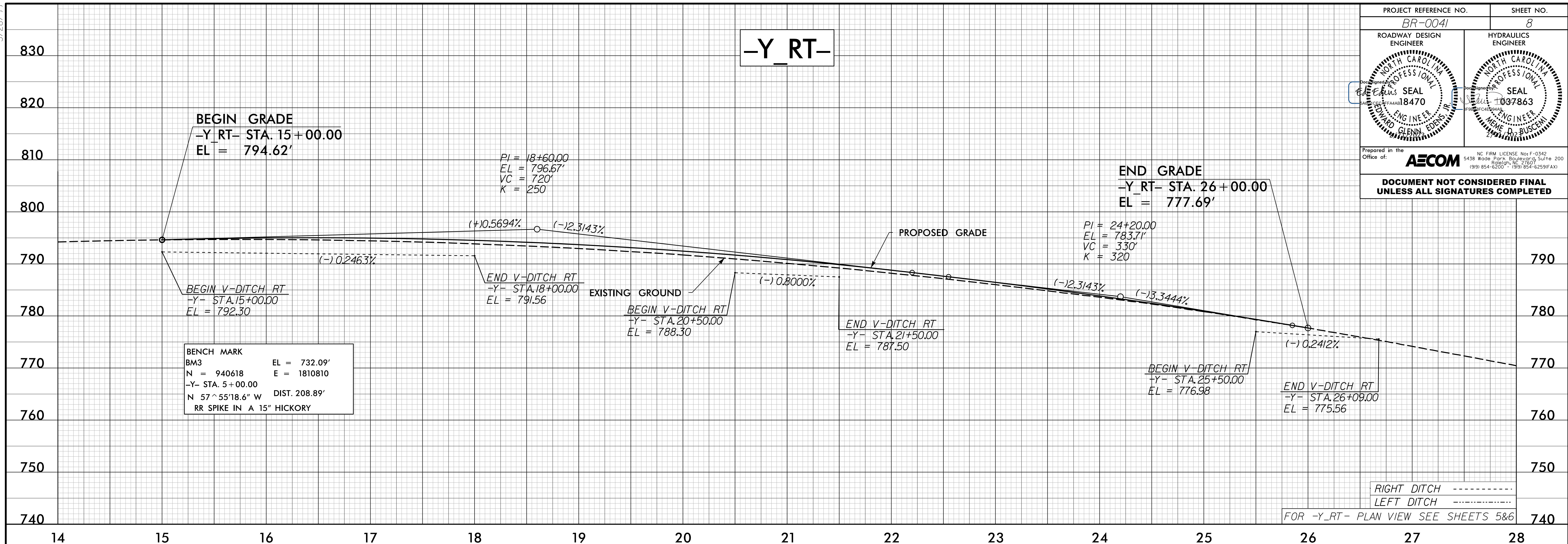
PROJECT REFERENCE NO. BR-0041	SHEET NO. 7
ROADWAY DESIGN ENGINEER SEAL 18470 EDWARD GLENN EDWARDS	HYDRAULICS ENGINEER SEAL 1037863 WENDE D. BUSCEMI
Prepared in the Office of: AECOM	
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5/28/2023

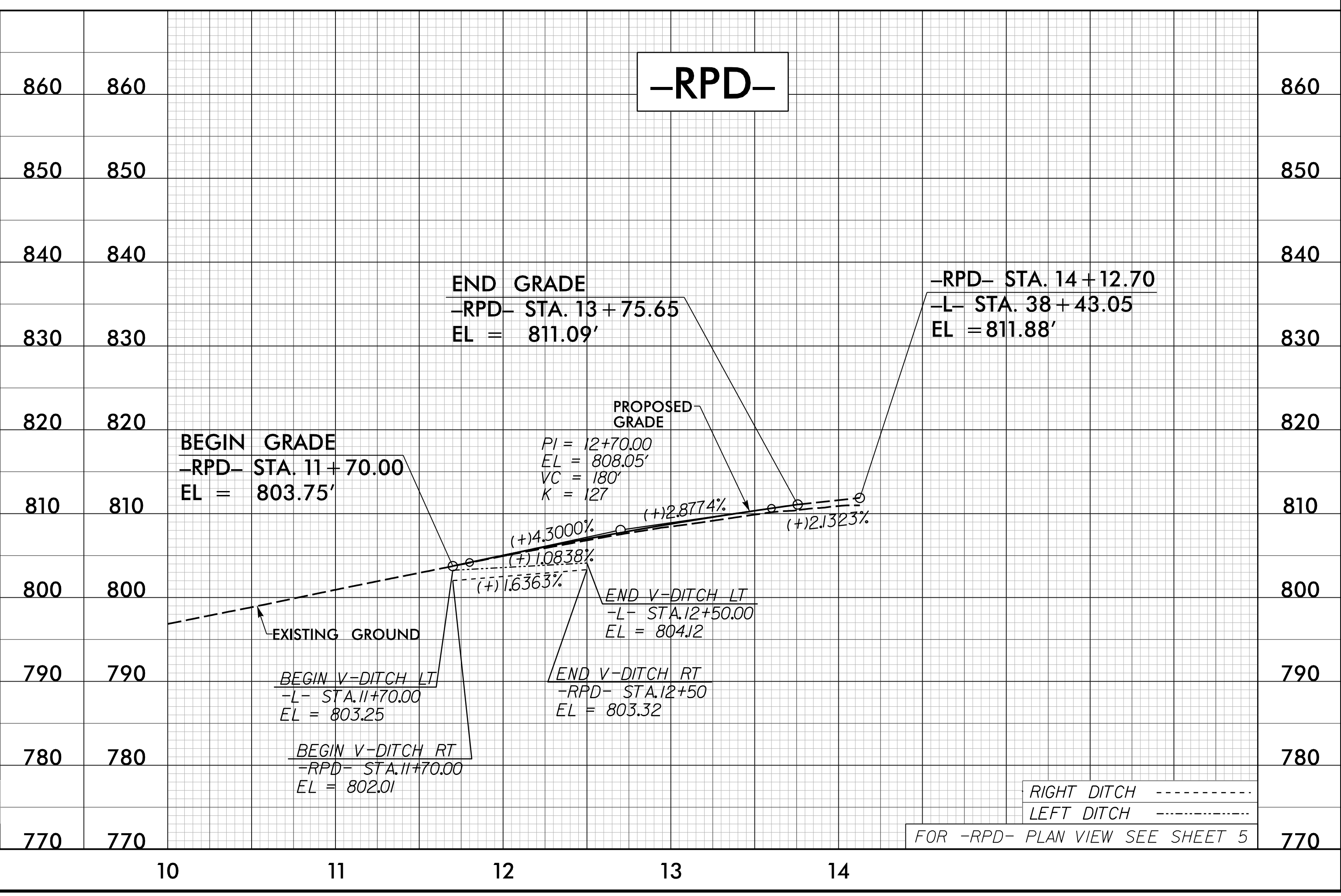
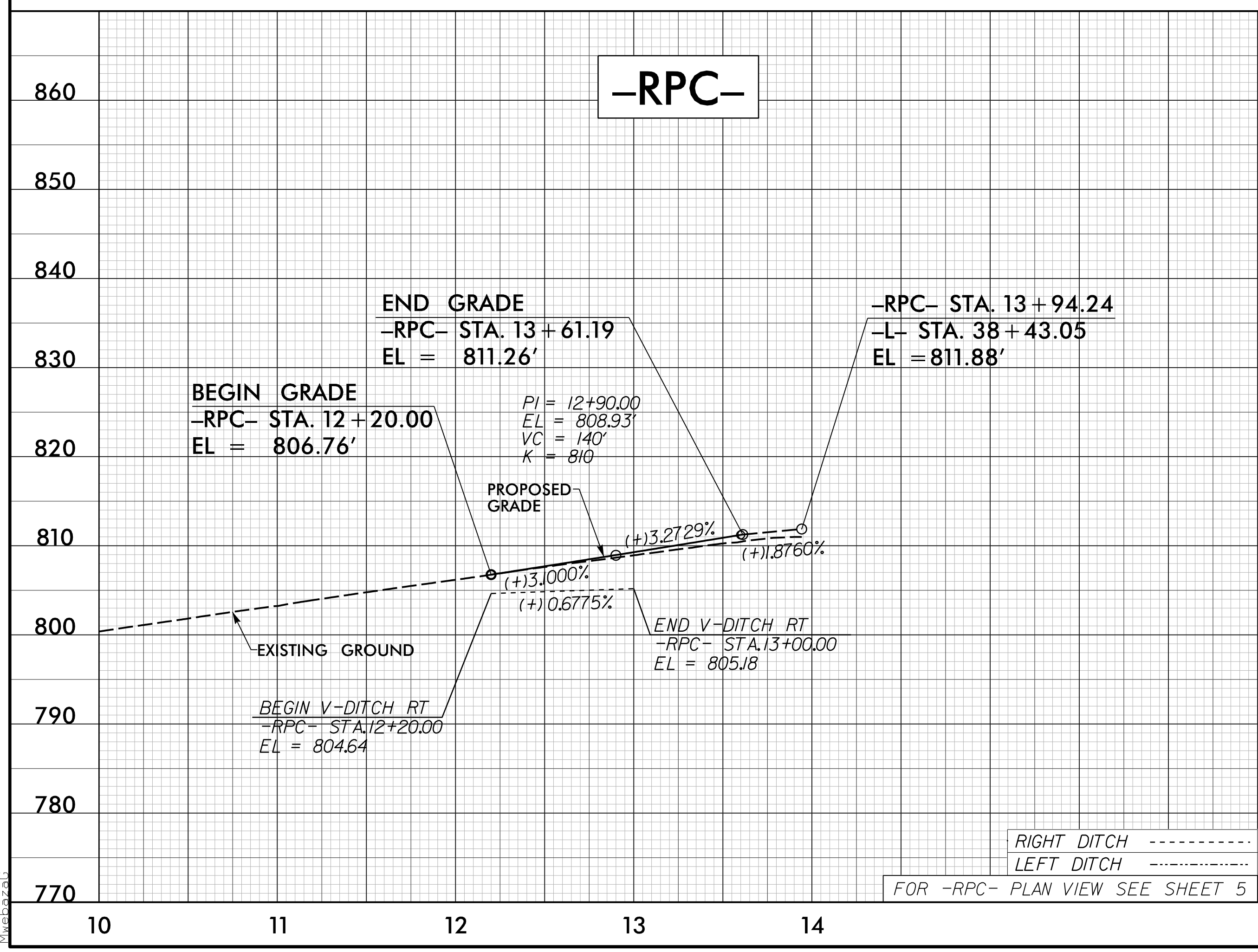
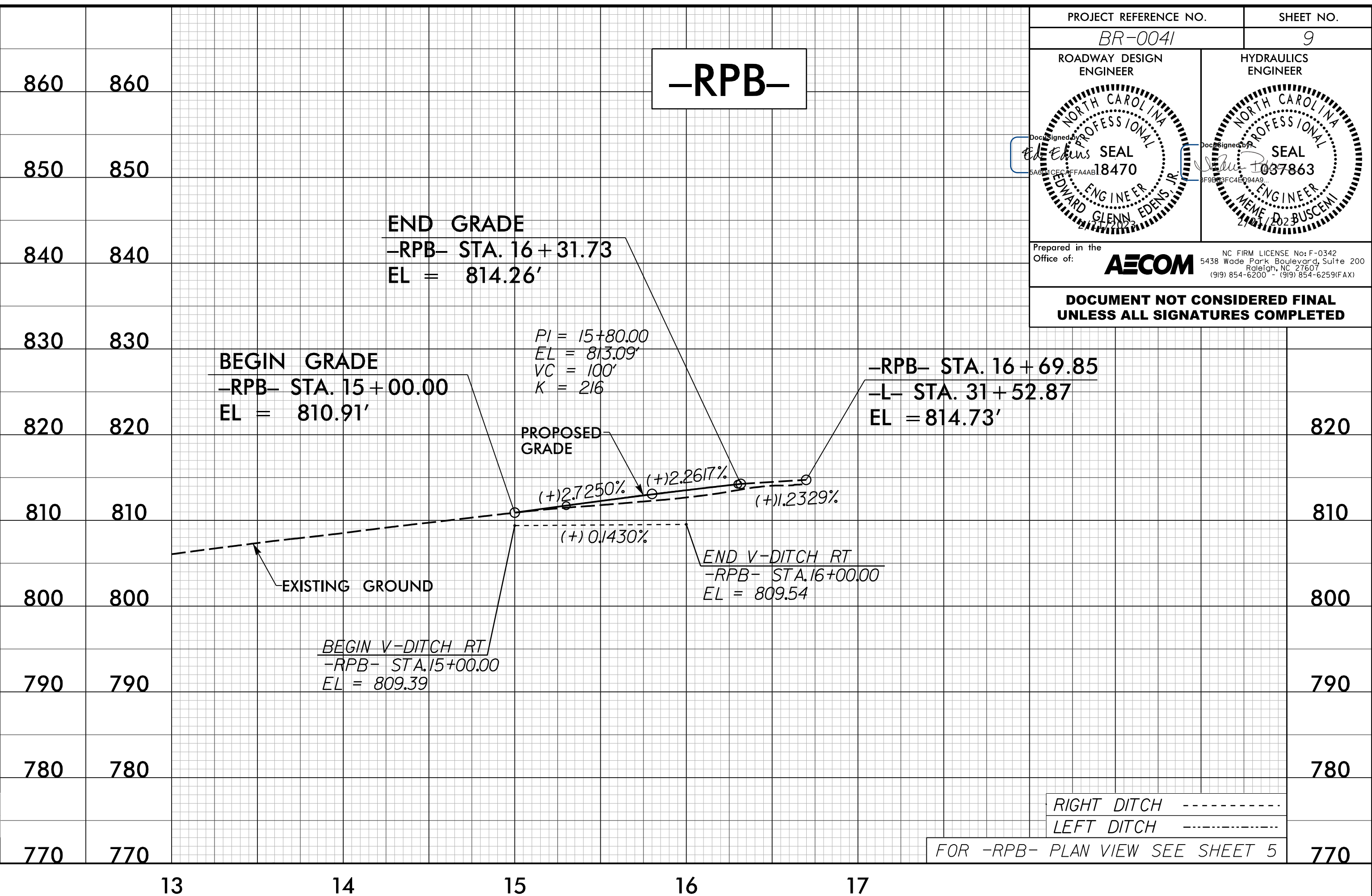
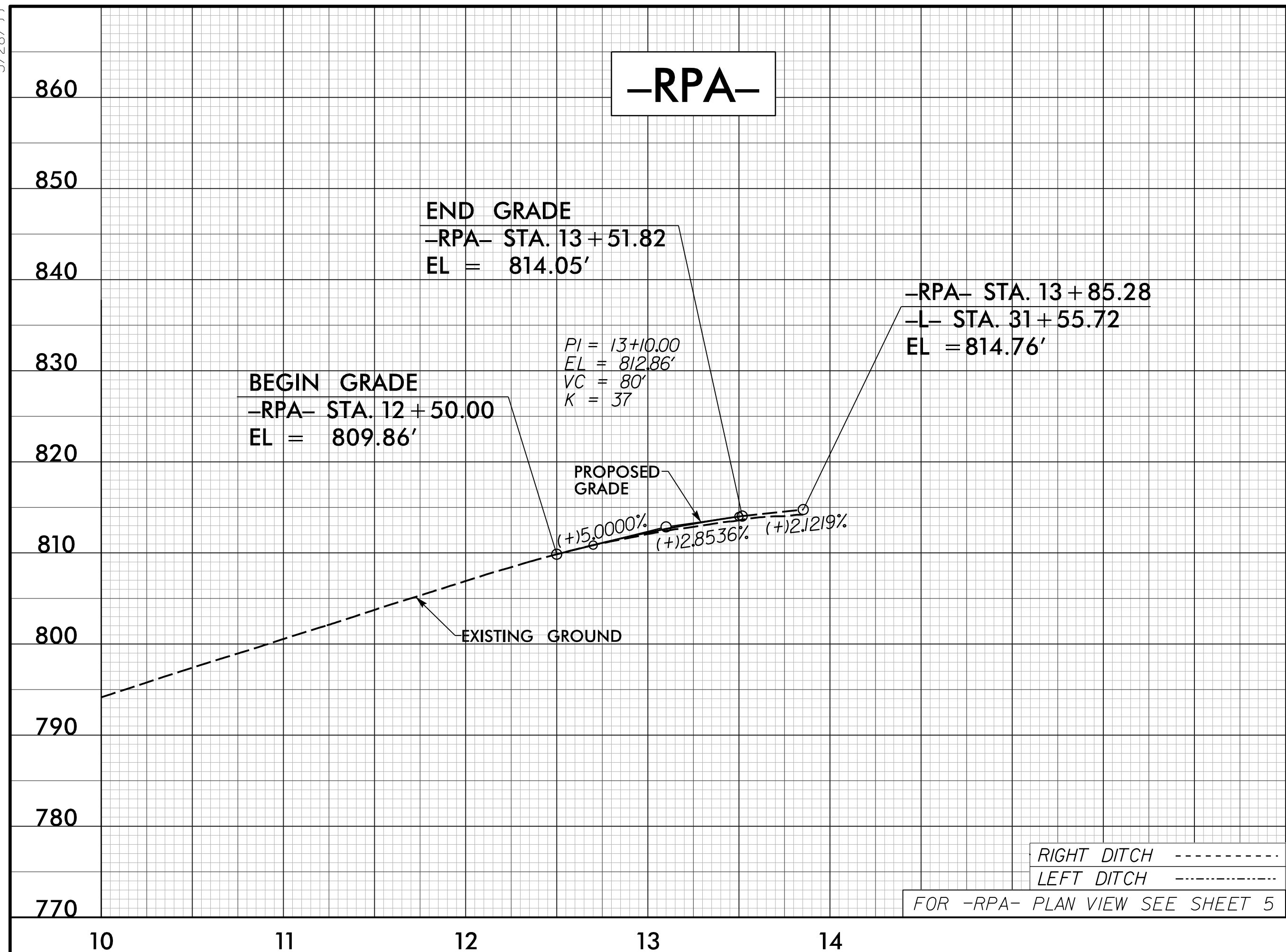
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PROJECT REFERENCE NO. BR-0041	SHEET NO. 8
ROADWAY DESIGN ENGINEER SEAL 18470	HYDRAULICS ENGINEER SEAL 007863
Prepared in the Office of: AECOM <small>NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Charlotte, NC 28207 (919) 854-6000 • (919) 854-6259 FAX</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



5/28/24
2/7/2023
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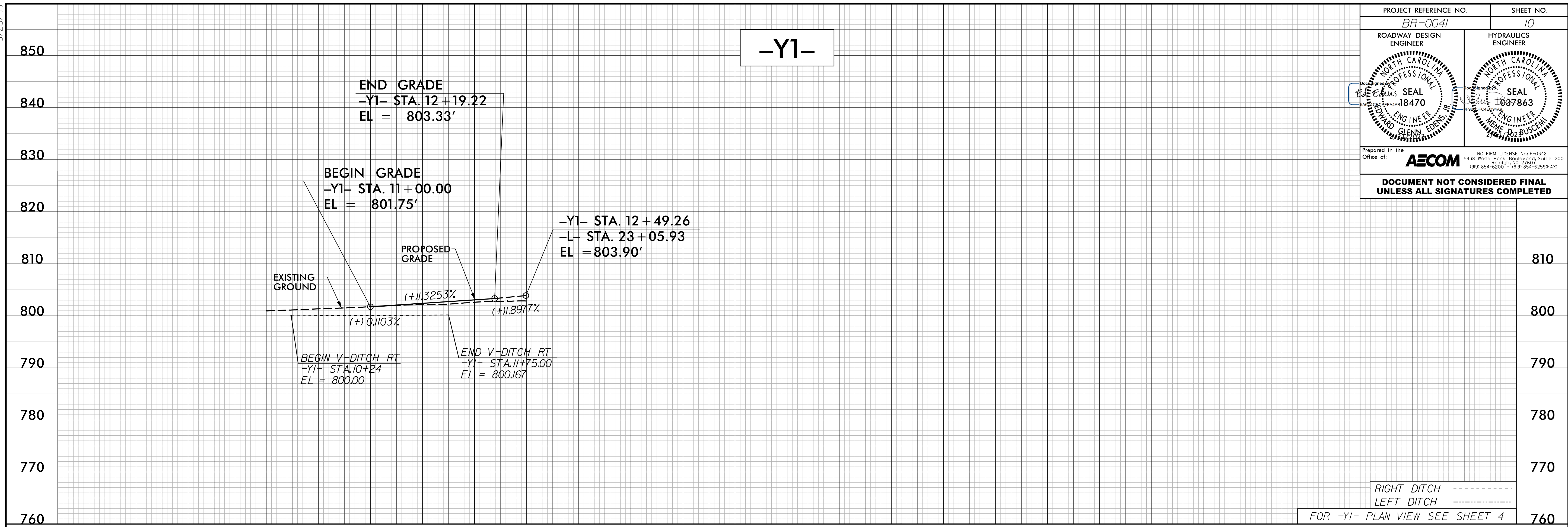
PROJECT REFERENCE NO. BR-0041	SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Charlotte, NC 28207 (919) 854-6000 • (919) 854-6259 (FAX)	
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5/28/99

PROJECT REFERENCE NO. <i>BR-0041</i>		SHEET NO. <i>10</i>	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:		NC FIRM LICENSE No. F-0342 5438 Wade Street, Boulevard, Suite 200 Raleigh, NC 27607 (919) 854-6000 • (919) 854-6259 FAX	
AECOM			
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-Y1-



RIGHT DITCH -----
 LEFT DITCH -----
 FOR -Y1- PLAN VIEW SEE SHEET 4

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