

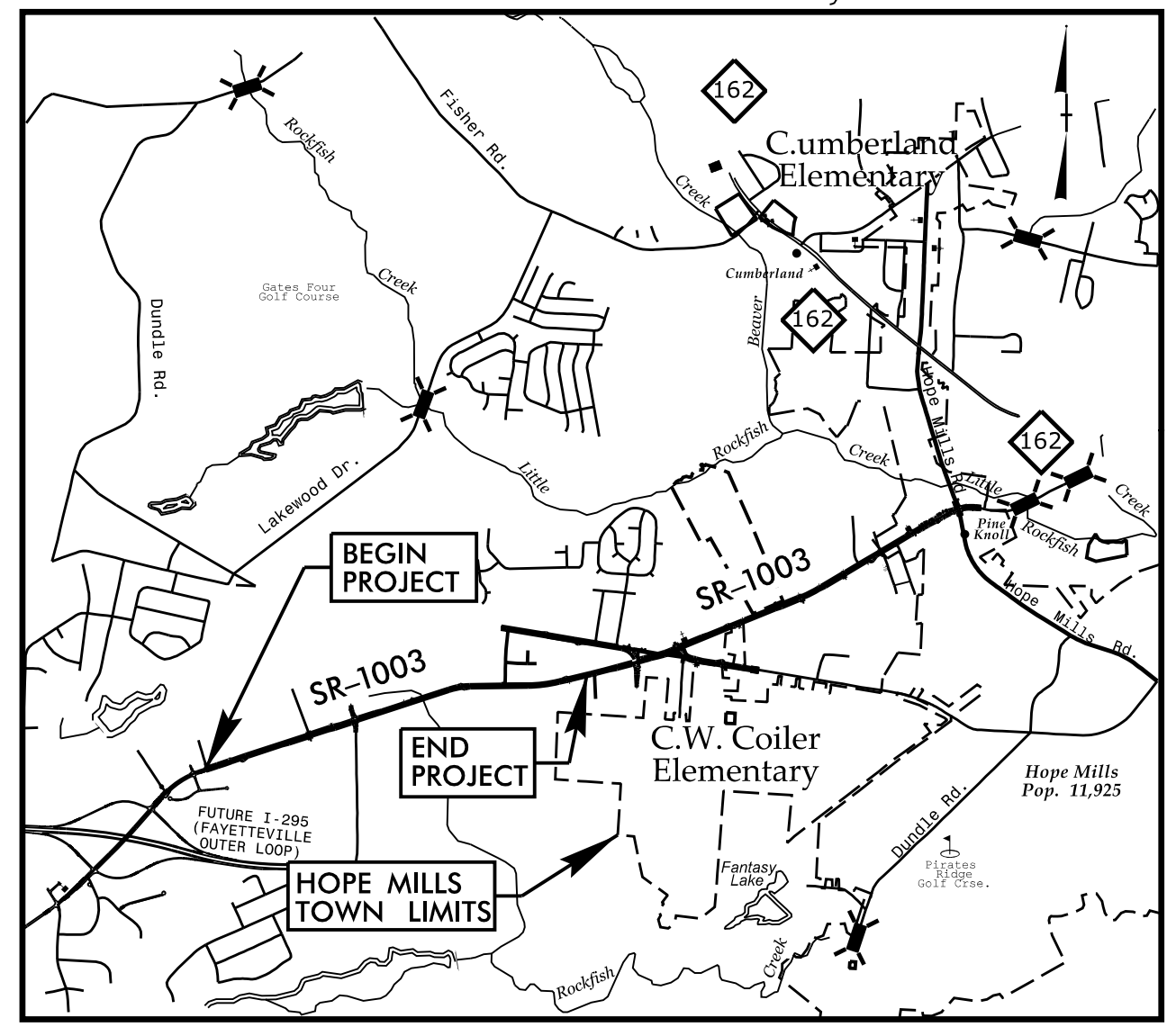
09\_08/2019

TIP PROJECT: U-3422A

CONTRACT: C204988

PLOT DRIVER: NCDOT\_pdf\_color\_eng\_50p.plt  
USER: ASNIDER  
DATE: 10/7/2024  
TIME: 10:50:06 AM  
FILE: \

See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols



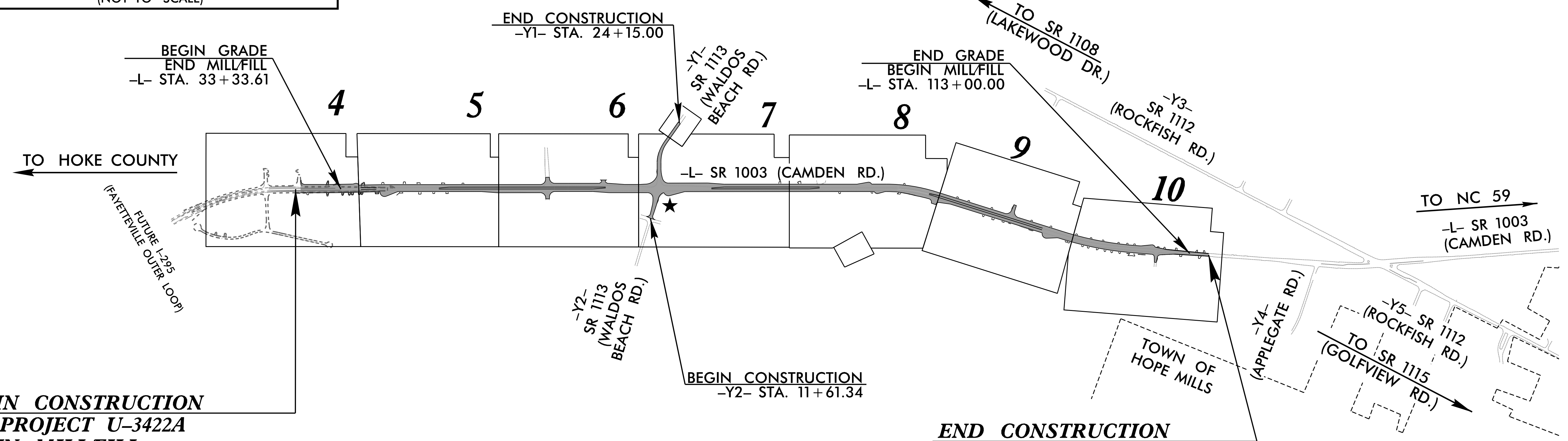
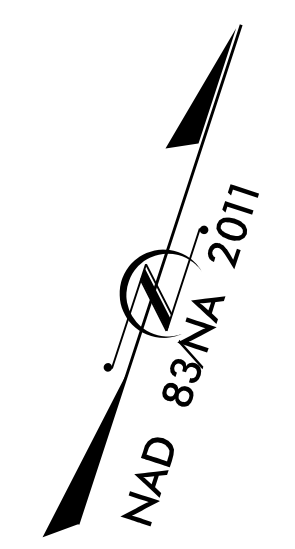
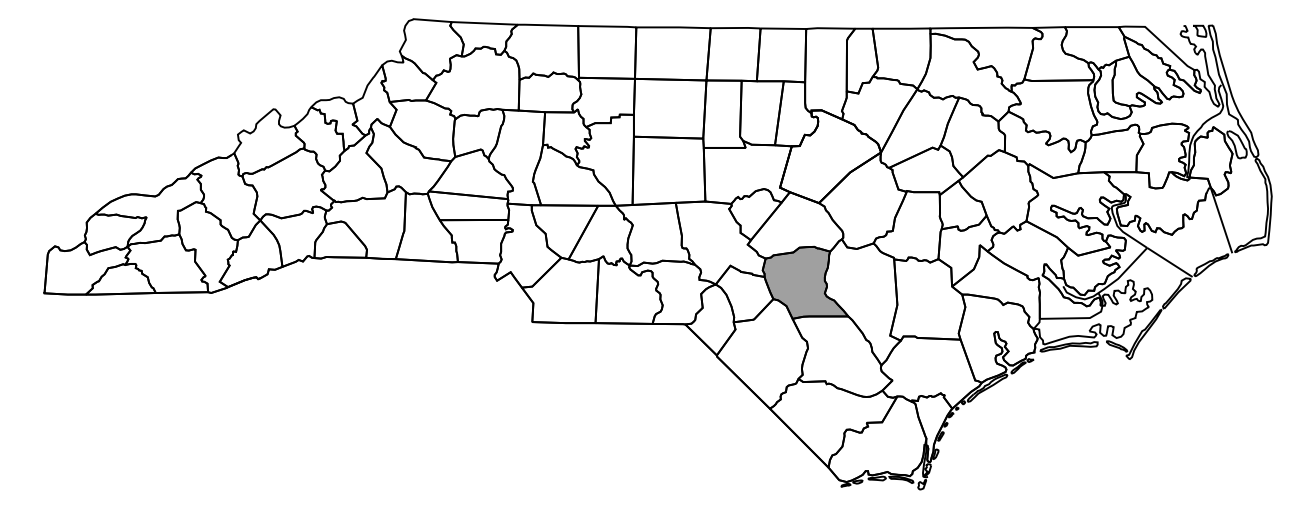
VICINITY MAP  
(NOT TO SCALE)

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS CUMBERLAND COUNTY

**LOCATION:** SR 1003 (Camden Road) from Proposed Fayetteville Outer Loop (U-2519)  
To Just West of SR 1112 (Rockfish Rd)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3422A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39001.1.2		P.E.	
39001.2.1	STP-1003(179)	ROW	
39001.2.2	STP-1003(179)	UTILITIES	
39001.3.2		CONSTRUCTION	



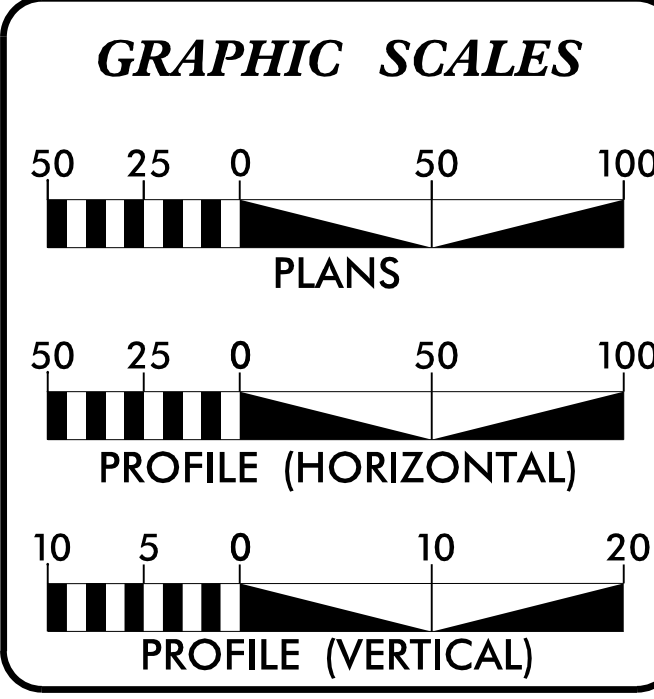
**BEGIN CONSTRUCTION**  
**TIP PROJECT U-3422A**  
**BEGIN MILL/FILL**  
**-L- STA. 29+13.20**  
**TIE TO U-2519BA (BY OTHERS)**

**END CONSTRUCTION**  
**TIP PROJECT U-3422A**  
**END MILL/FILL**  
**-L- STA. 114+75.00**  
**TIE TO U-3422B (BY OTHERS)**

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

★ PROPOSED TRAFFIC SIGNAL  
SR 1003 (CAMDEN RD.) AND WALDOS BEACH RD.

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

ADT 2017 =	26,100
ADT 2040 =	38,500
K =	9 %
D =	60 %
T =	4 % *
V =	50 MPH

(\* TTST 1% + DUAL 3%)  
FUNC CLASS = MINOR ARTERIAL  
STATEWIDE TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT U-3422A =	1.622 MILES
TOTAL LENGTH TIP PROJECT U-3422A =	1.622 MILES

Prepared by the Office of:  
**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

2024 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
JULY 30, 2021

**LETTING DATE:**  
DECEMBER 17, 2024

<b>PHILLIP E. ROGERS, PE</b> PROJECT ENGINEER
<b>ALEXANDER D. SNIDER, PE</b> PROJECT DESIGN ENGINEER
<b>SEAN MATUSZEWSKI, PE</b> NCDOT CONTACT

**HYDRAULICS ENGINEER**

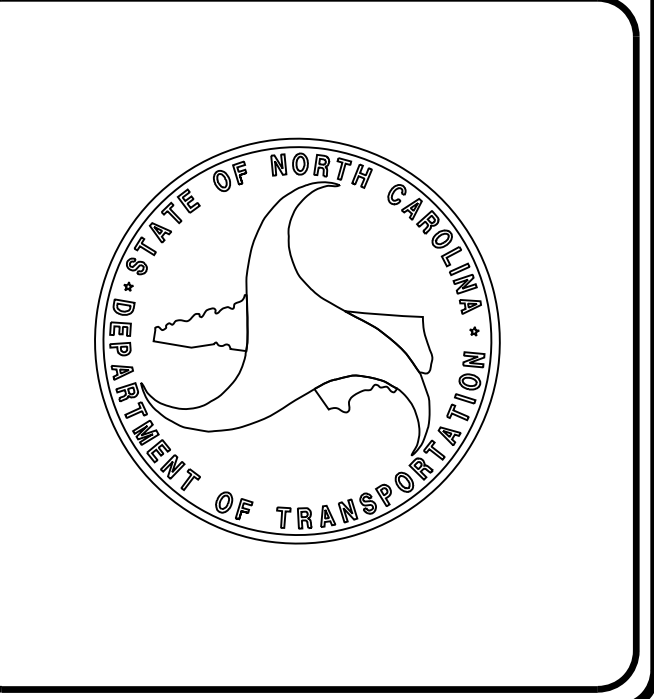
10/7/2024

*Juliana J. Maszrak*  
SIGNATURE: P.E.

**ROADWAY DESIGN ENGINEER**

10/7/2024

*Alexander D. Snider*  
SIGNATURE: P.E.





# INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-4	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-3	ROADWAY DETAILS
2C-1 THRU 2C-8	ROADWAY SPECIAL DETAILS
2G-1	GEOTECHNICAL SPECIAL DETAILS
3B-1 THRU 3B-3	ROADWAY SUMMARIES
3D-1 THRU 3D-8	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEETS
4 THRU 10	PLAN SHEETS
11 THRU 15	PROFILE SHEETS
RW01 THRU RW19B	ROW PLAN SHEETS
TMP-1 THRU TMP-4.16	TRANSPORTATION MANAGEMENT PLAN SHEETS
PMP-1 THRU PMP-8	PAVEMENT MARKING PLAN SHEETS
EC-1 THRU EC-17	EROSION CONTROL PLAN SHEETS
SIGN-1 THRU SIGN-9	SIGNING PLAN SHEETS
SIG-1.0 THRU SIG-8.2	SIGNAL PLAN SHEETS
SIG.M1A THRU SIG.M9	SIGNAL DETAILS
SCP-1 THRU SCP-11	SIGNAL COMMUNICATION PLAN SHEETS
UC-1 THRU UC-27	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-8	UTILITIES BY OTHERS PLAN SHEETS
X-0 THRU X-33	CROSS-SECTIONS
W-1 THRU W-2	RETAINING WALL SHEETS

# GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-16-2024  
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:  
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 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. 560.01

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. 848.03 AT LOCATIONS SHOWN ON 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".

UTILITIES:  
UTILITY OWNERS ON THIS PROJECT ARE LREMC, PNG, AT&T TRANSMISSION, BRIGHTSPEED, LUMEN, SPECTRUM, METRONET, FAYETTEVILLE PWC  
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.

CURB RAMPS  
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.06.

PROJECT REFERENCE NO.	SHEET NO.
U-3422A	1A
RW SHEET NO.	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
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 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2024  
REV.

## 2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.06	Curb Ramp
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property 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-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
Contaminated Site: Known or Potential	☠?

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
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	---WLB---
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

### 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	●

Note: Not to Scale \*S.U.E. = Subsurface Utility Engineering

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:

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 LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊞
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

### TV:

TV Pedestal	⊞
TV Tower	⊗
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	-----
U/G TV Cable LOS C (S.U.E.*)	-----
U/G TV Cable LOS D (S.U.E.*)	-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----

### GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	-----
U/G Gas Line LOS C (S.U.E.*)	-----
U/G Gas Line LOS D (S.U.E.*)	-----
Above Ground Gas Line	-----

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

### MISCELLANEOUS:

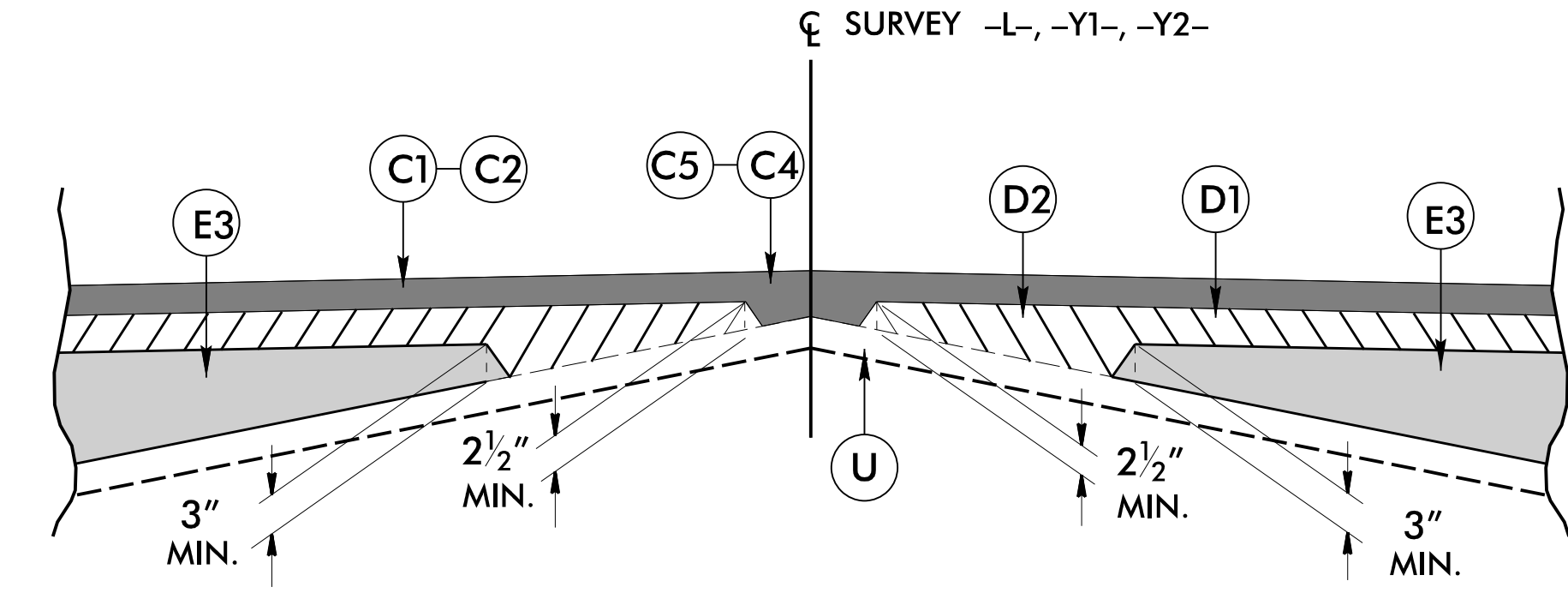
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊞
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)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



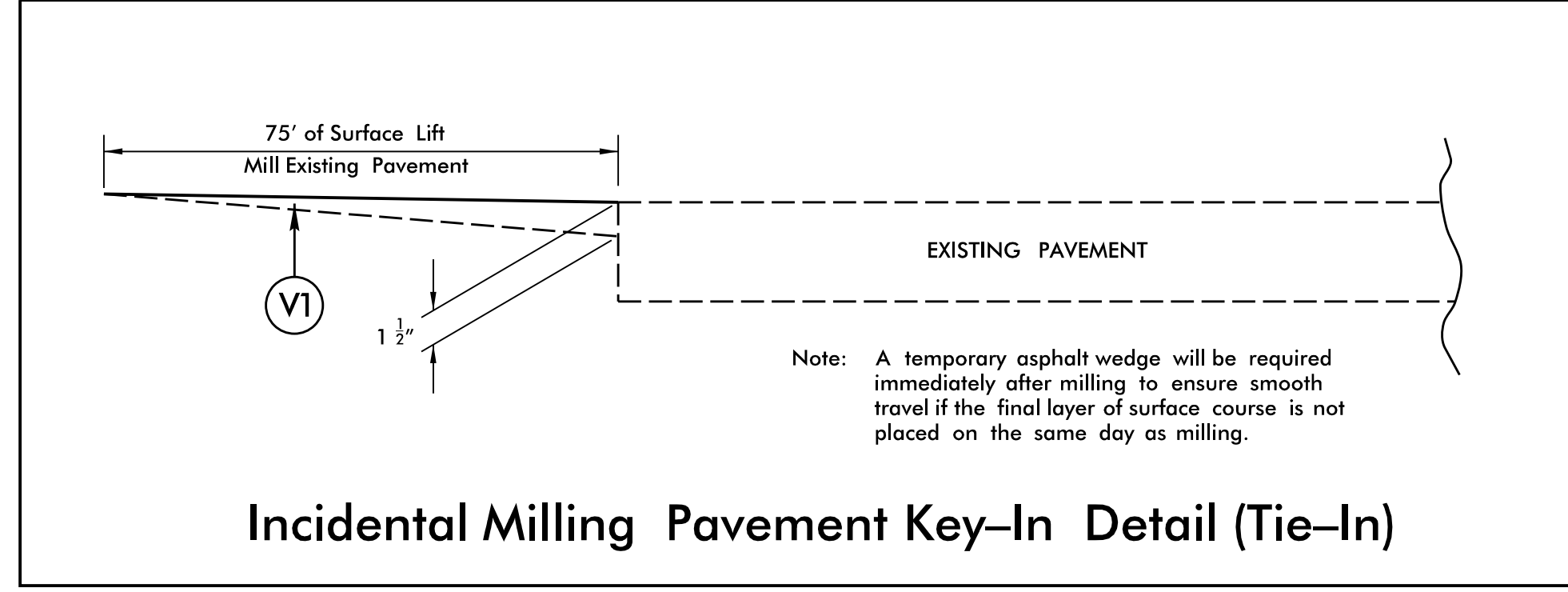
6/2/2024

PAVEMENT SCHEDULE			
(FINAL PAVEMENT DESIGN 2/28/2023)			
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	N	GEOTEXTILE FOR SUBGRADE STABILIZATION
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	1'-6" CONCRETE CURB AND GUTTER.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R2	2'-6" CONCRETE CURB AND GUTTER.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	S	4" CONCRETE SIDEWALK
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	U	EXISTING PAVEMENT.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V1	INCIDENTAL MILLING.
E2	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	V2	1.5" DEPTH MILLING
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.	V3	VARIABLE DEPTH MILLING 0" TO 1.5".
K	12" CLASS IV SUBGRADE STABILIZATION.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



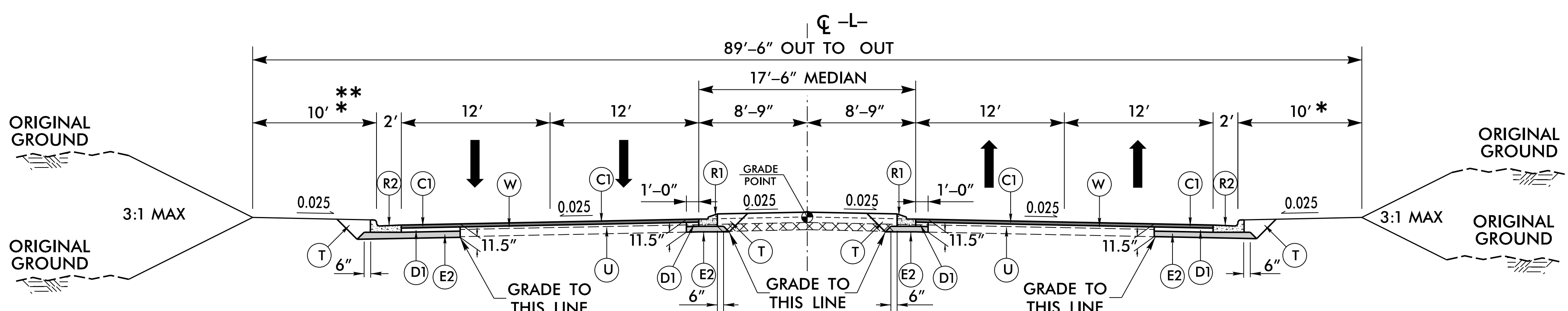
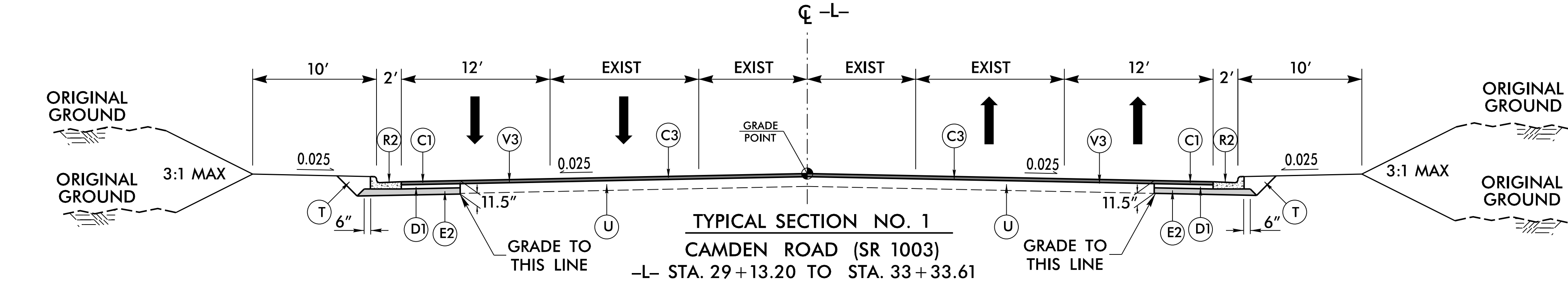
Detail Showing Method of Wedging



Incidental Milling Pavement Key-In Detail (Tie-In)

REMOVE EXIST. PAVEMENT WITHIN LIMITS OF RAISED MEDIAN

PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>2A-1</b>
ROADWAY DESIGN ENGINEER SEAL 041473 ANDER D.	PAVEMENT DESIGN ENGINEER SEAL 030788 PU ZHANG
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
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	




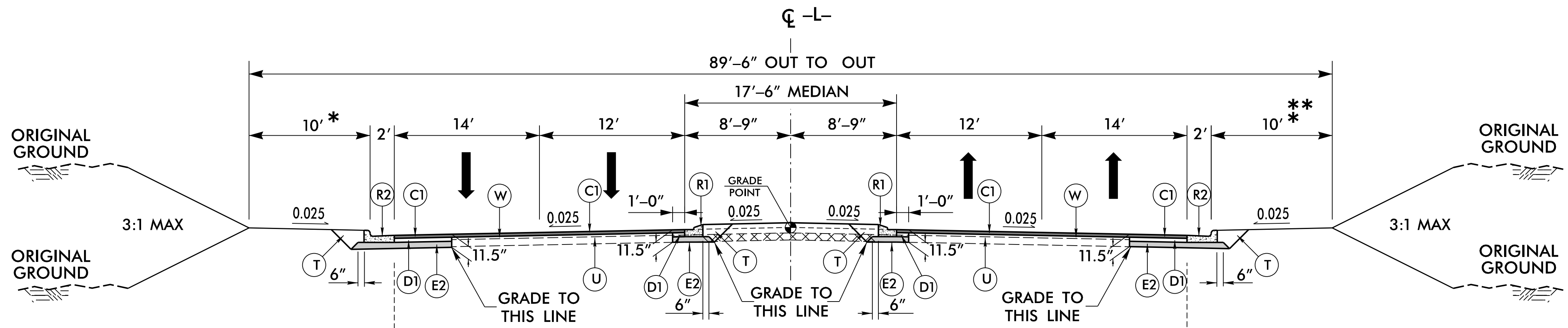
\* REDUCE TO 8' BERM WIDTH AT THE FOLLOWING LOCATIONS:  
 -L- STA. 53+00.00 TO STA. 63+55.00 RT  
 -L- STA. 57+00.00 TO STA. 63+55.00 LT  
 \*\* REDUCE TO 6' BERM WIDTH AT THE FOLLOWING LOCATIONS:  
 -L- STA. 53+00.00 TO STA. 57+00.00 LT

PLOT DRIVER: NCDOT\_color\_eng\_50.plt  
 USER: ASNIDER  
 DATE: 10/3/2024  
 TIME: 7:53:00 AM  
 PENTABLE: U3422.dshp.f.tbi  
 FILE: \



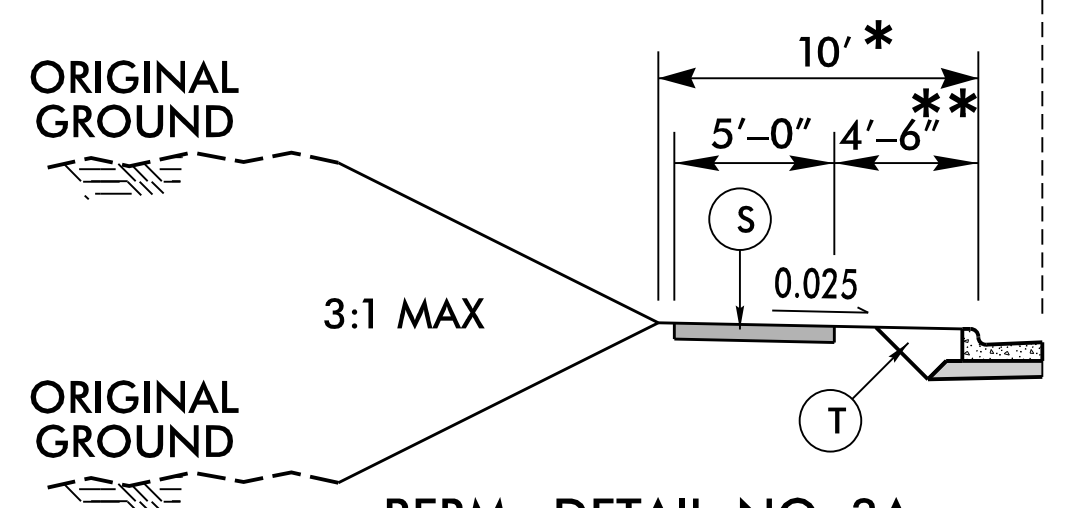
6/2/2024

PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>2A-2</b>
ROADWAY DESIGN ENGINEER SEAL 041473 ANDER D. SNIDER	PAVEMENT DESIGN ENGINEER SEAL 030788 PU ZHANG
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
 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	

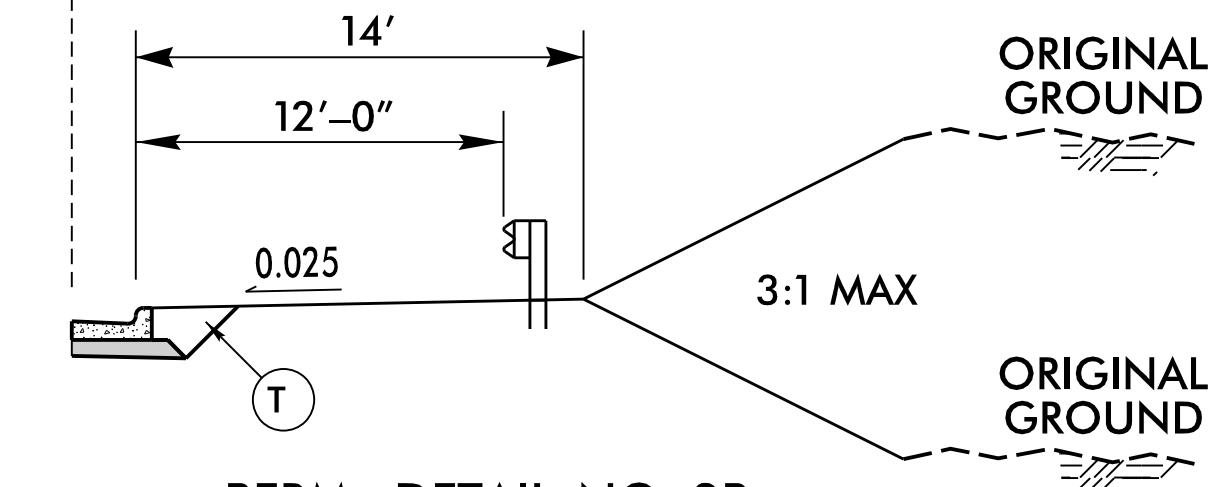


**TYPICAL SECTION NO. 3**  
**CAMDEN ROAD (SR 1003) & ROCKFISH ROAD (SR 1112)**  
 -L- STA. 63+55.00 TO STA. 110+27.71

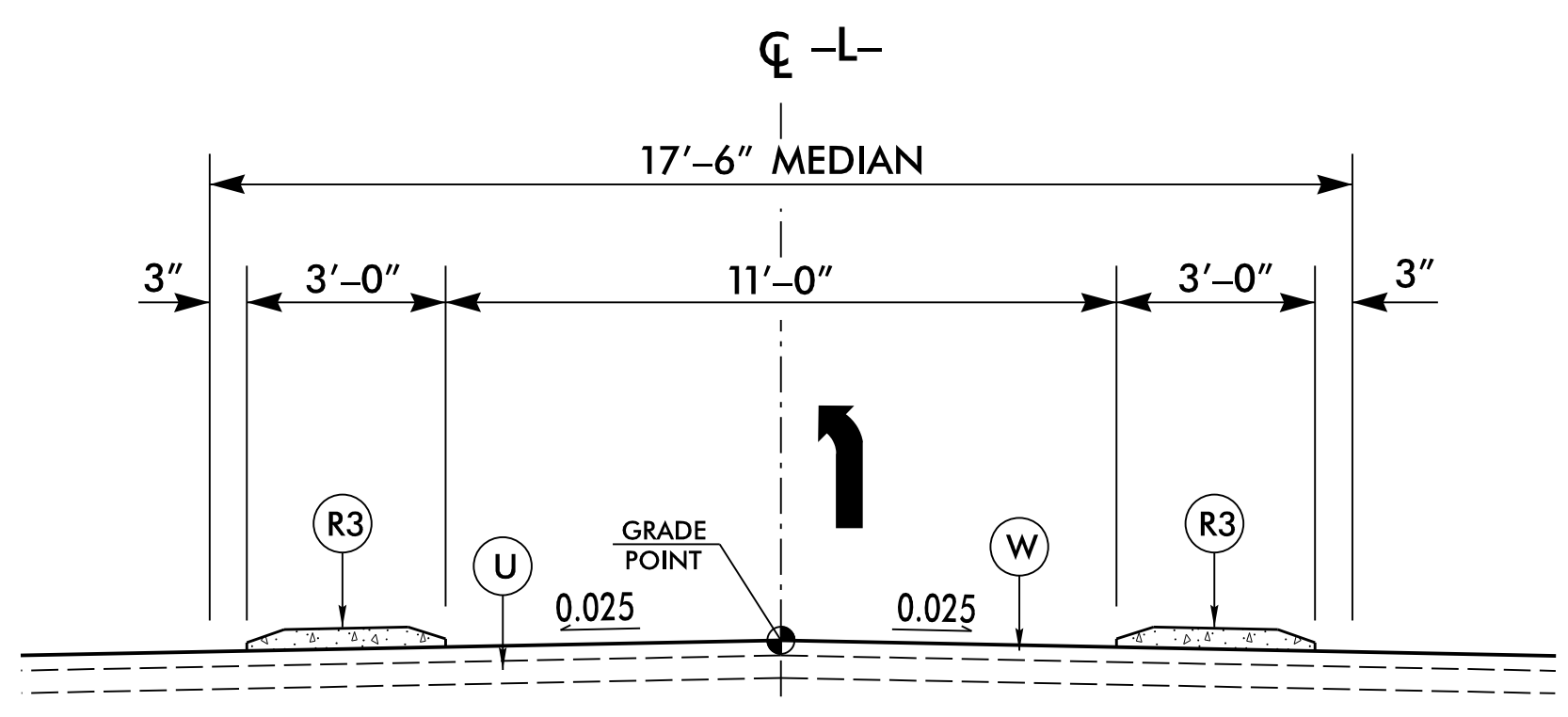
**\* REDUCE TO 8' BERM WIDTH AT THE FOLLOWING LOCATIONS:**  
 -L- STA. 95+50.00 TO STA. 110+27.71



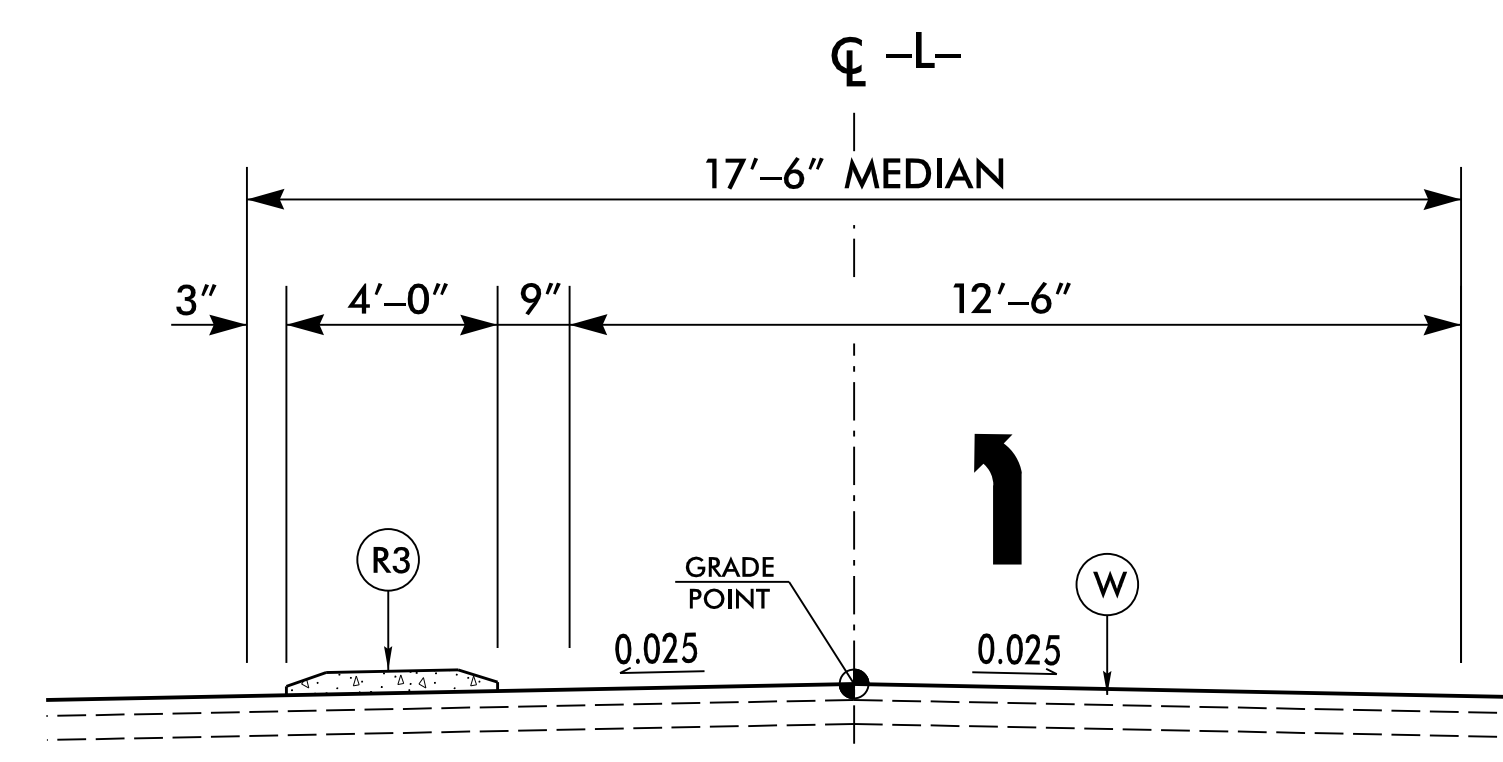
**BERM DETAIL NO. 3A**  
**SIDEWALK DETAIL**  
 (SEE PLANS FOR LOCATIONS)  
**\*\* REDUCE TO 2'-6" UTILITY STRIP WIDTH WHEN BERM WIDTH IS 8'**



**BERM DETAIL NO. 3B**  
**GUARDRAIL PLACEMENT**  
 (SEE PLANS FOR LOCATIONS)



**LEFT TURN DETAIL 3C**  
 (SEE PLANS FOR LOCATIONS)  
**USE LEFT TURN DETAIL 3C**  
 -L- STA. 34+15 TO STA. 34+65  
 -L- STA. 37+65 TO STA. 38+05  
 -L- STA. 86+07 TO STA. 86+57  
 -L- STA. 87+53 TO STA. 88+03  
 -L- STA. 99+60 TO STA. 100+10  
 -L- STA. 108+82 TO STA. 109+45  
 -L- STA. 109+87 TO STA. 110+28



**LEFT TURN DETAIL 3D**  
 (SEE PLANS FOR LOCATIONS)

**USE LEFT TURN DETAIL 3D**  
 -L- STA. 30+65 TO STA. 34+17  
 -L- STA. 39+03 TO STA. 41+90  
 -L- STA. 82+50 TO STA. 85+06  
 -L- STA. 89+03 TO STA. 91+08  
 -L- STA. 105+07 TO STA. 107+85

**NOTE: TRANSITION LANE WIDTH FROM 12'-6" TO 11'-0" AT EACH LOCATION IN ACCORDANCE WITH DETAILS 3C AND 3D**


PAVEMENT SCHEDULE <small>(FINAL PAVEMENT DESIGN)</small>	
C1	3" S9.5C
C2	3" S9.5B
C3	1.5" S9.5C
C4	VAR. S9.5C
C5	VAR. S9.5B
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	4.5" B25.0C
E3	VAR. B25.0C
K	SUBGRADE STABILIZATION
N	GEOTEXTILE
R1	1'-6" CURB & GUTTER
R2	2'-6" CURB & GUTTER
R3	5" MONOLITHIC CONC. ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	INCIDENTAL MILLING
V2	1.5" DEPTH MILLING
V3	VAR. MILLING 0" TO 1.5"
W	VAR. DEPTH ASPHALT PAVEMENT

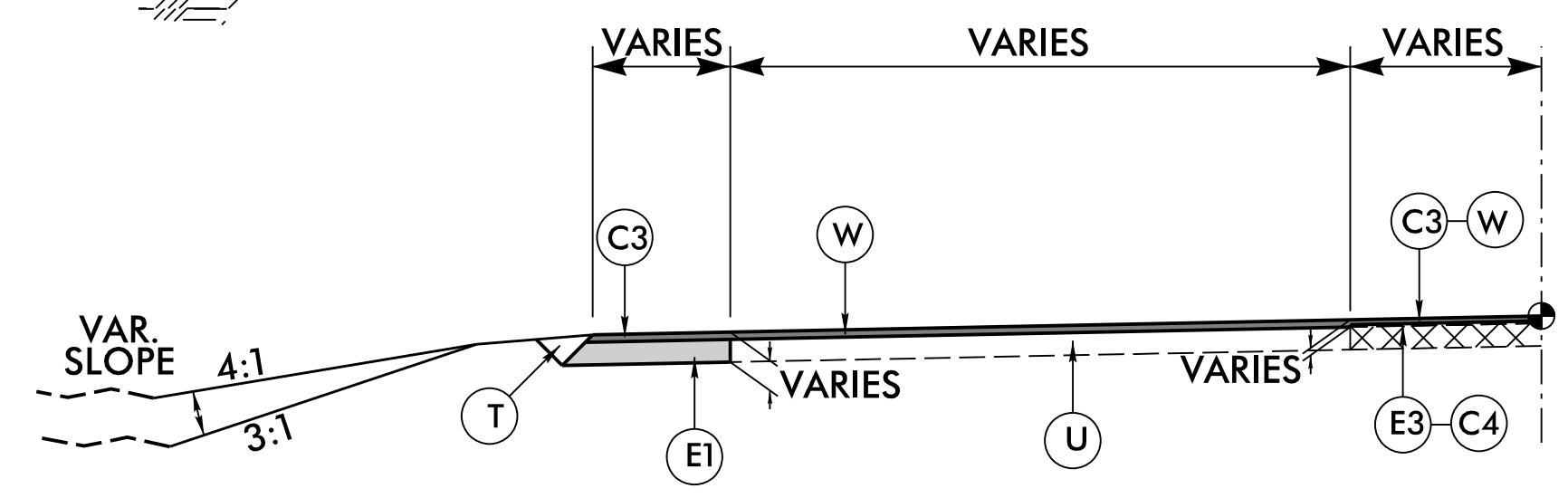
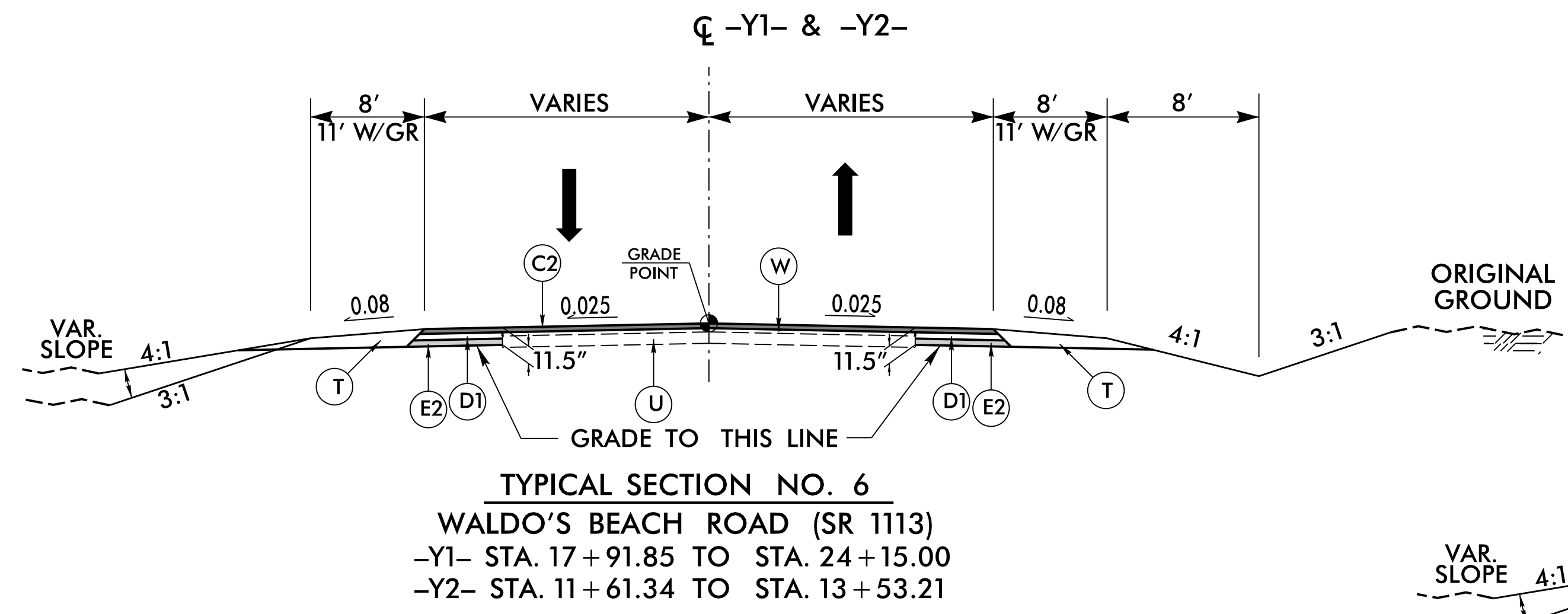
PLOT DRIVER: NCDOT\_.pdf\_color\_eng\_50.ppt  
 USER: ASNIDER  
 DATE: 9/27/2024  
 TIME: 3:30:24 PM  
 FILE: \



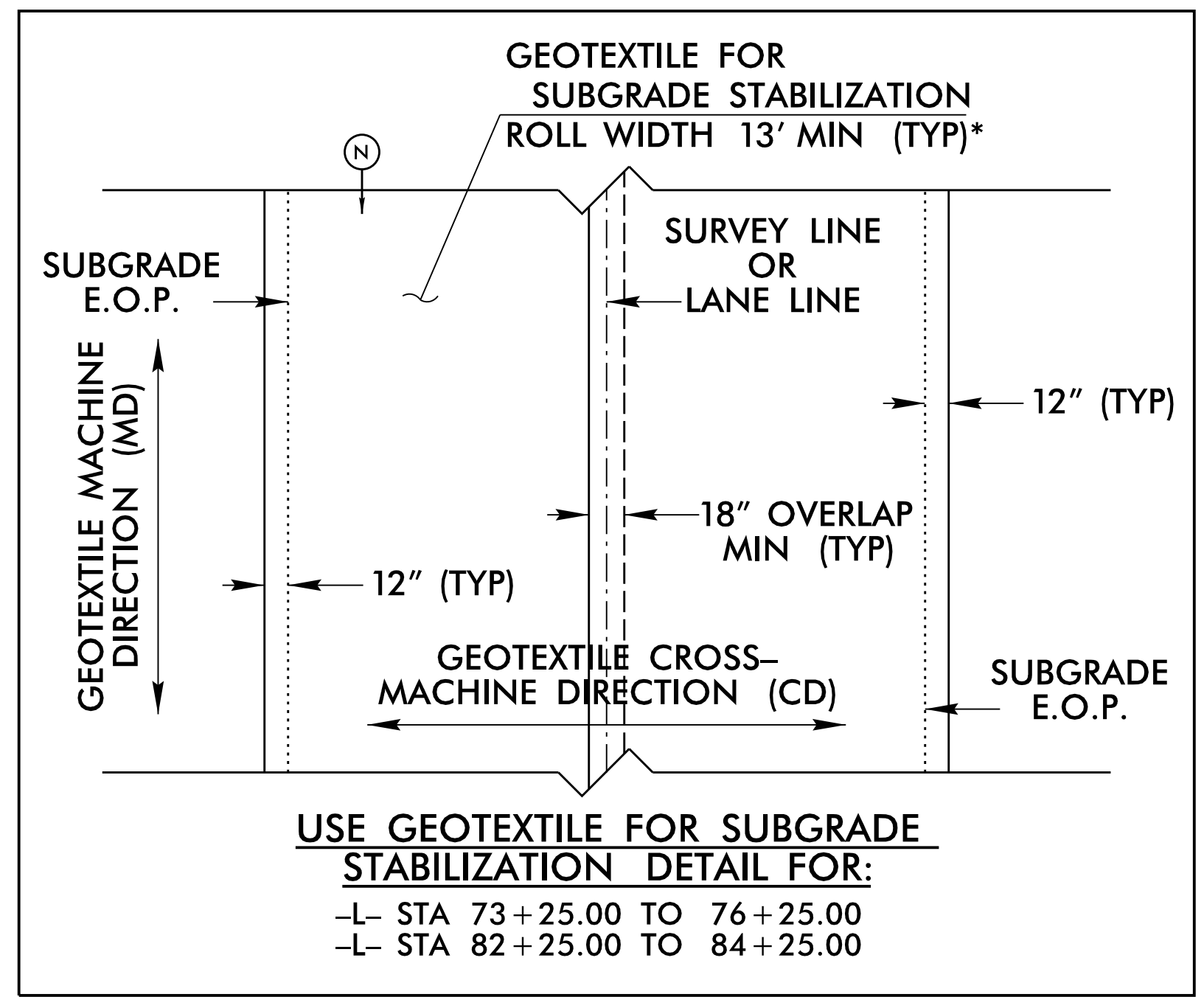
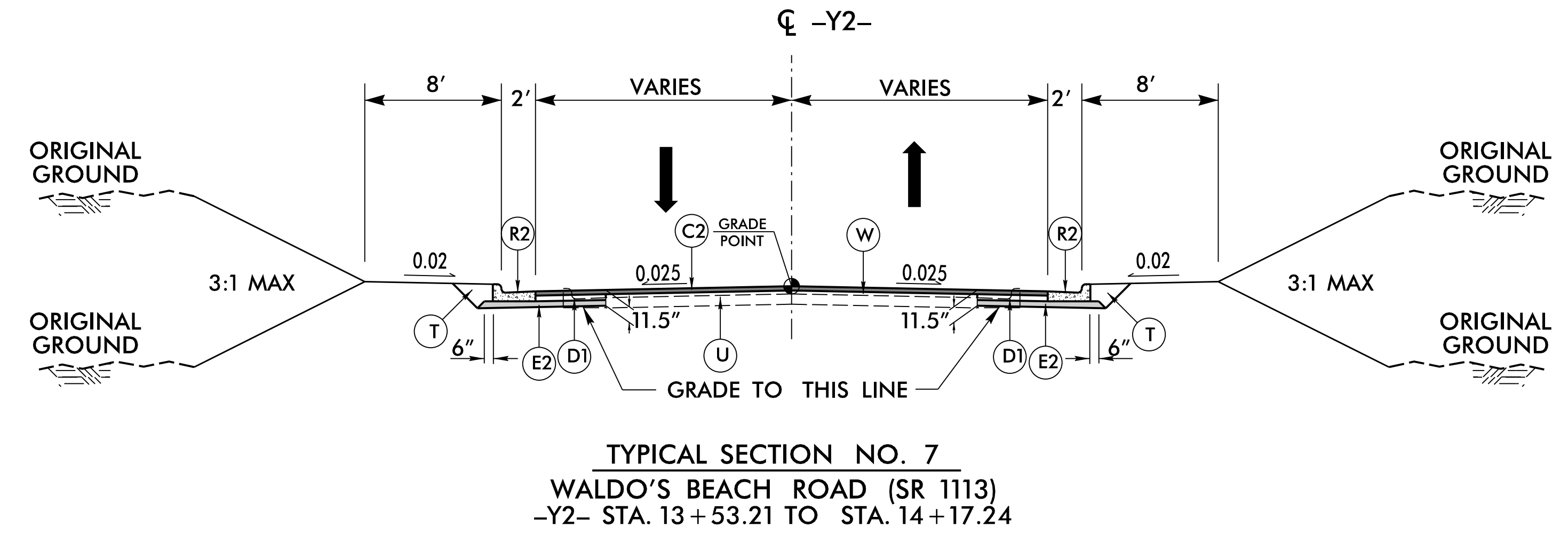


6/2/2024

PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>2A-4</b>
ROADWAY DESIGN ENGINEER SEAL 041473 ANDER D.	PAVEMENT DESIGN ENGINEER SEAL 030788 PU ZHANG
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
 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	



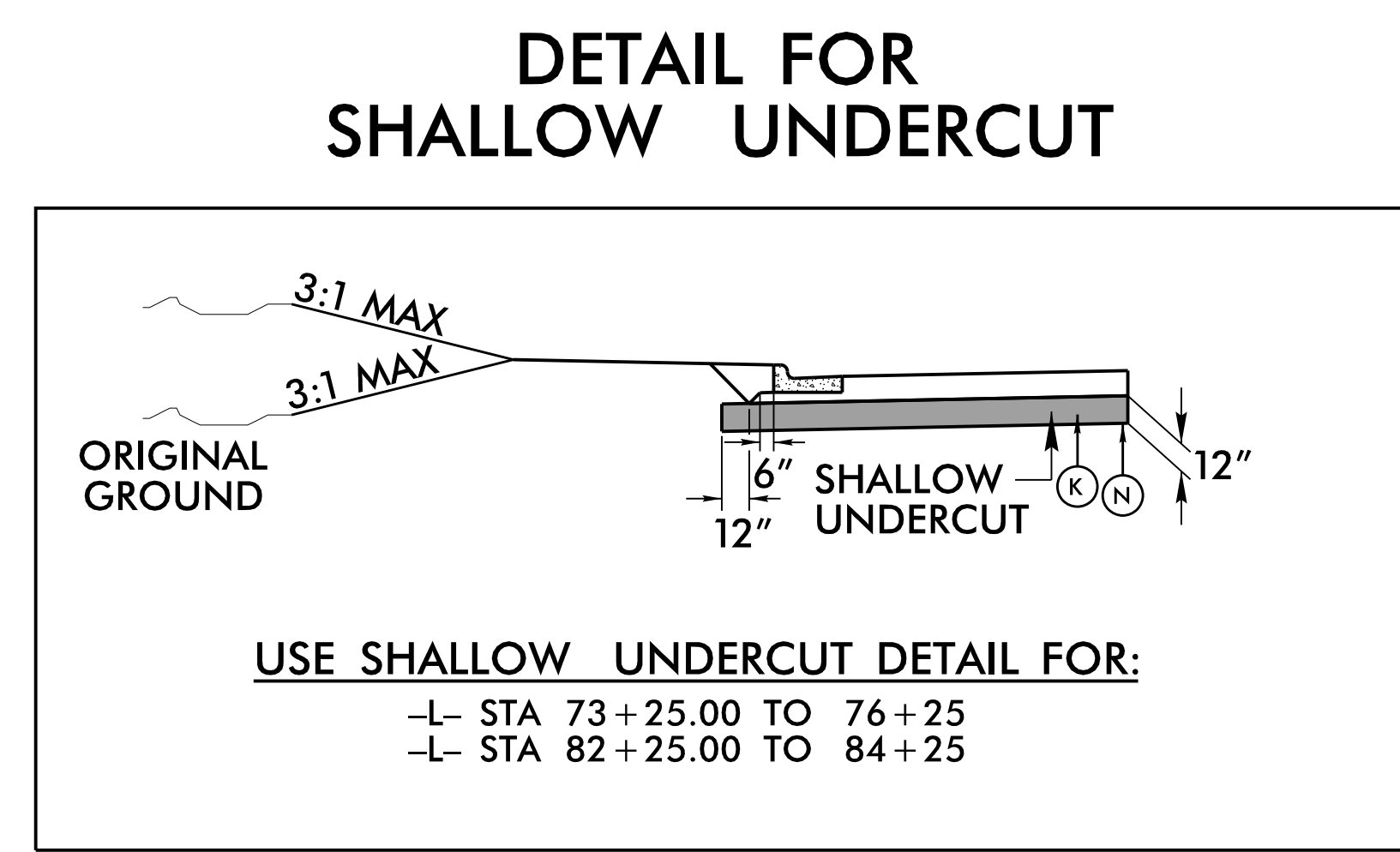
- L- 74+24 +/- TO 81+14 +/- LT
- L- 42+44 +/- TO 57+94 +/- CL
- L- 67+76 +/- TO 77+81 +/- CL
- L- 88+04 +/- TO 99+05 +/- CL



**GEOTEXTILE FOR SUBGRADE  
STABILIZATION (PLAN VIEW)**

**100% COVERAGE**

\*INSTALL GEOTEXTILE FOR SUBGRADE STABILIZATION  
WITH MINIMUM ROLL WIDTH UNDER ROADWAY EDGES  
AND SHOULDERS ADJACENT TO FILL SLOPES



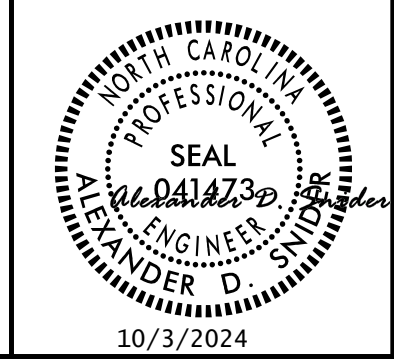
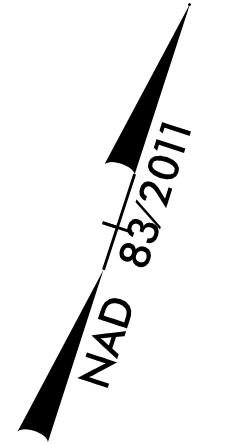
PAVEMENT SCHEDULE <small>(FINAL PAVEMENT DESIGN)</small>	
C1	3" S9.5C
C2	3" S9.5B
C3	1.5" S9.5C
C4	VAR. S9.5C
C5	VAR. S9.5B
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	4.5" B25.0C
E3	VAR. B25.0C
K	SUBGRADE STABILIZATION
N	GEOTEXTILE
R1	1'-6" CURB & GUTTER
R2	2'-6" CURB & GUTTER
R3	5" MONOLITHIC CONC. ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	INCIDENTAL MILLING
V2	1.5" DEPTH MILLING
V3	VAR. MILLING 0" TO 1.5"
W	VAR. DEPTH ASPHALT PAVEMENT

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 DATE: 9/27/2024  
 TIME: 3:30:24 PM  
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PLOT DRIVER: NCD0T\_.pdf\_color\_eng\_50.plt  
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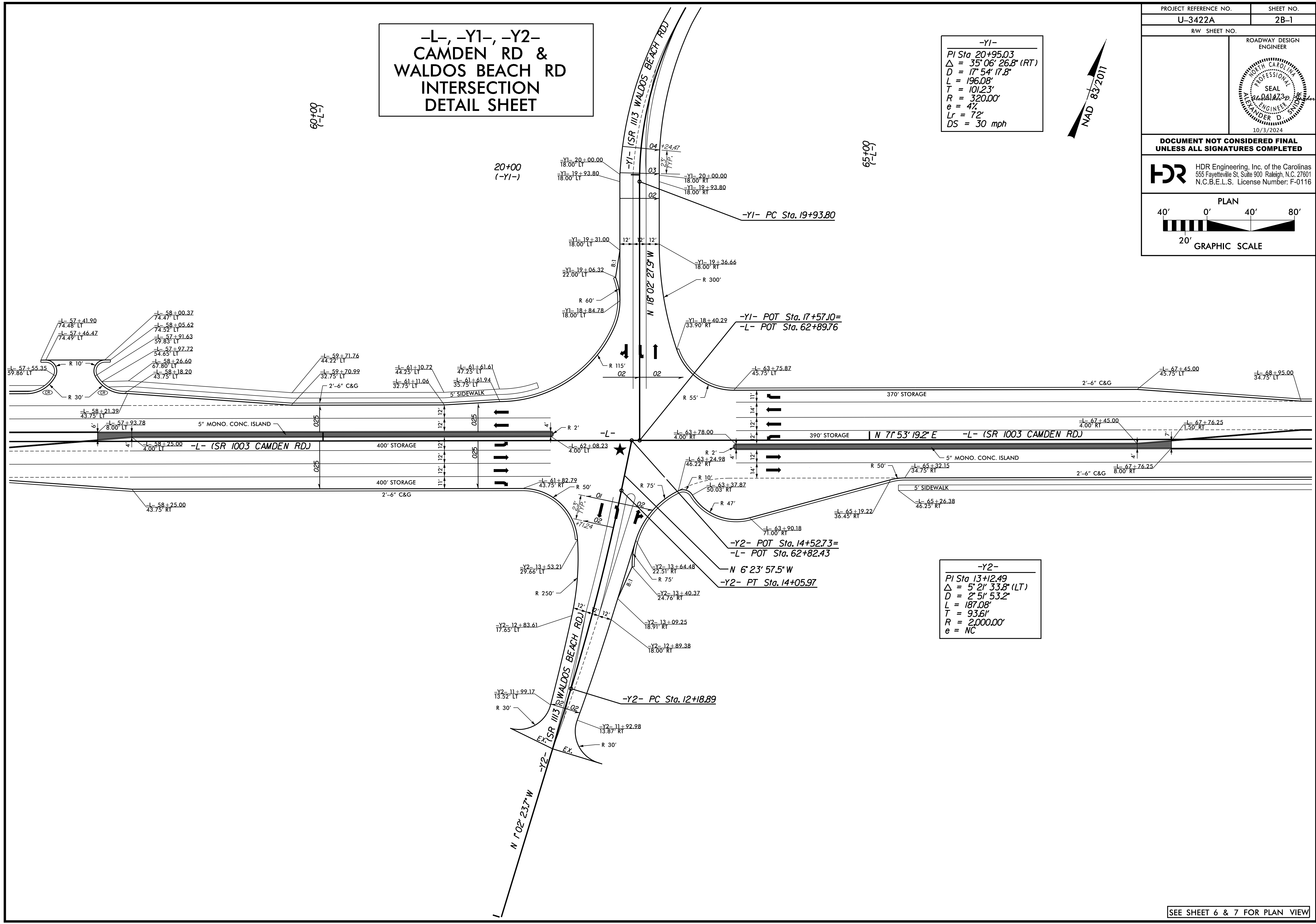
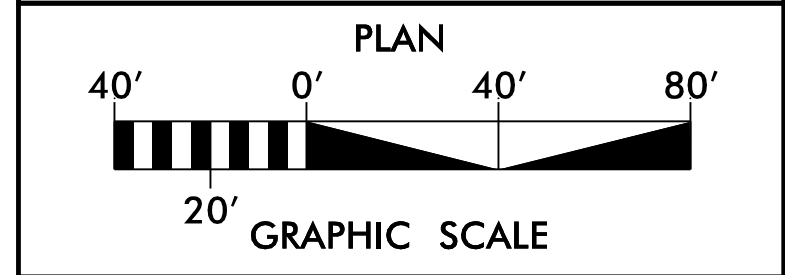
# -L-, -Y1-, -Y2- CAMDEN RD & WALDOS BEACH RD INTERSECTION DETAIL SHEET

**-Y1-**  
 PI Sta 20+95.03  
 $\Delta = 35^{\circ}06'26.8"$  (RT)  
 $D = 17^{\circ}54'17.8"$   
 $L = 196.08'$   
 $T = 101.23'$   
 $R = 320.00'$   
 $e = 4'$   
 $Lr = 72'$   
 $DS = 30$  mph



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

**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-01116

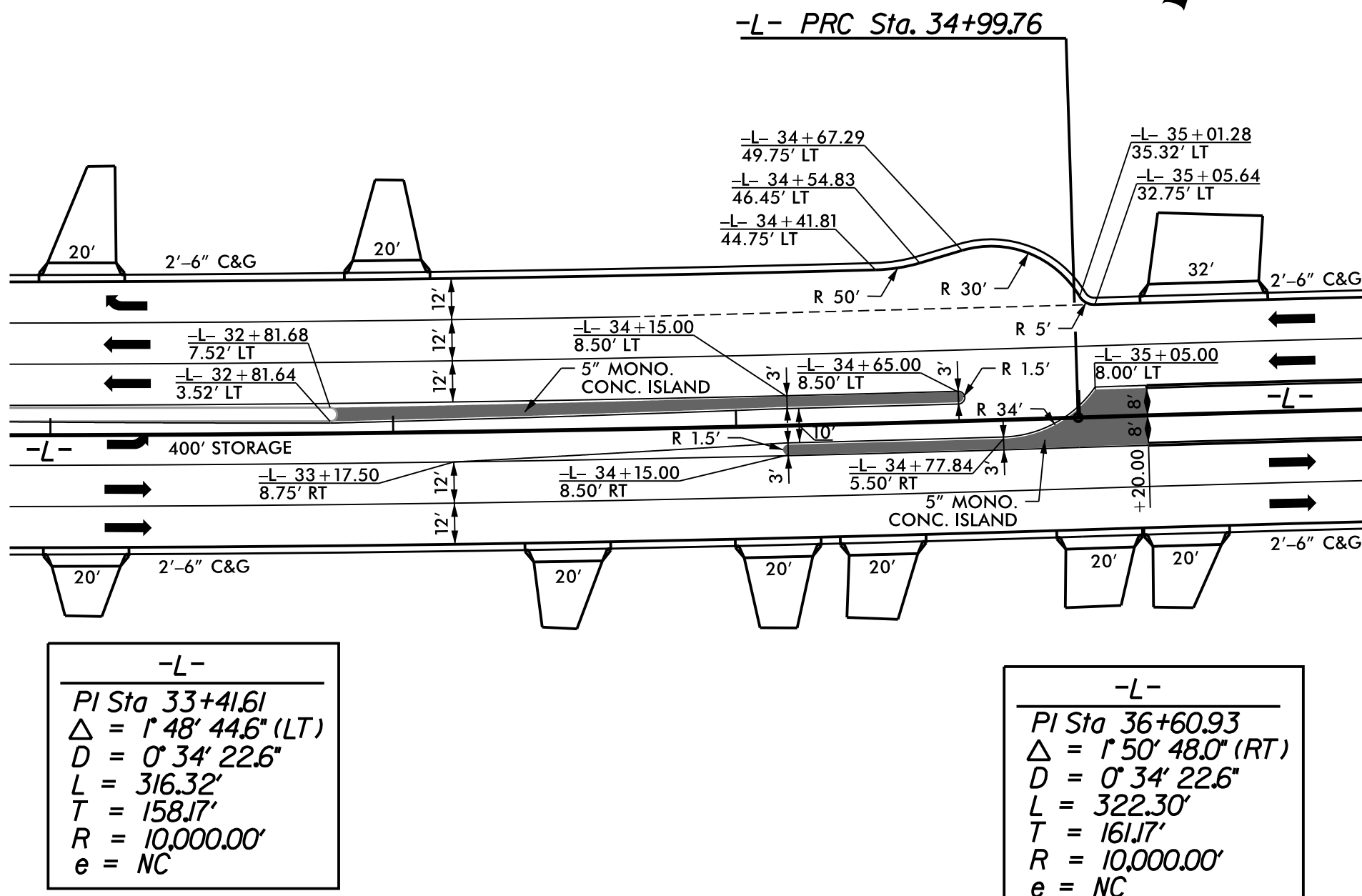


**-Y2-**  
 PI Sta 13+12.49  
 $\Delta = 5^{\circ}21'33.8"$  (LT)  
 $D = 2^{\circ}51'53.2"$   
 $L = 187.08'$   
 $T = 93.61'$   
 $R = 2,000.00'$   
 $e = NC$

SEE SHEET 6 & 7 FOR PLAN VIEW



### -L- BULB-OUT (35 + 00) DETAIL

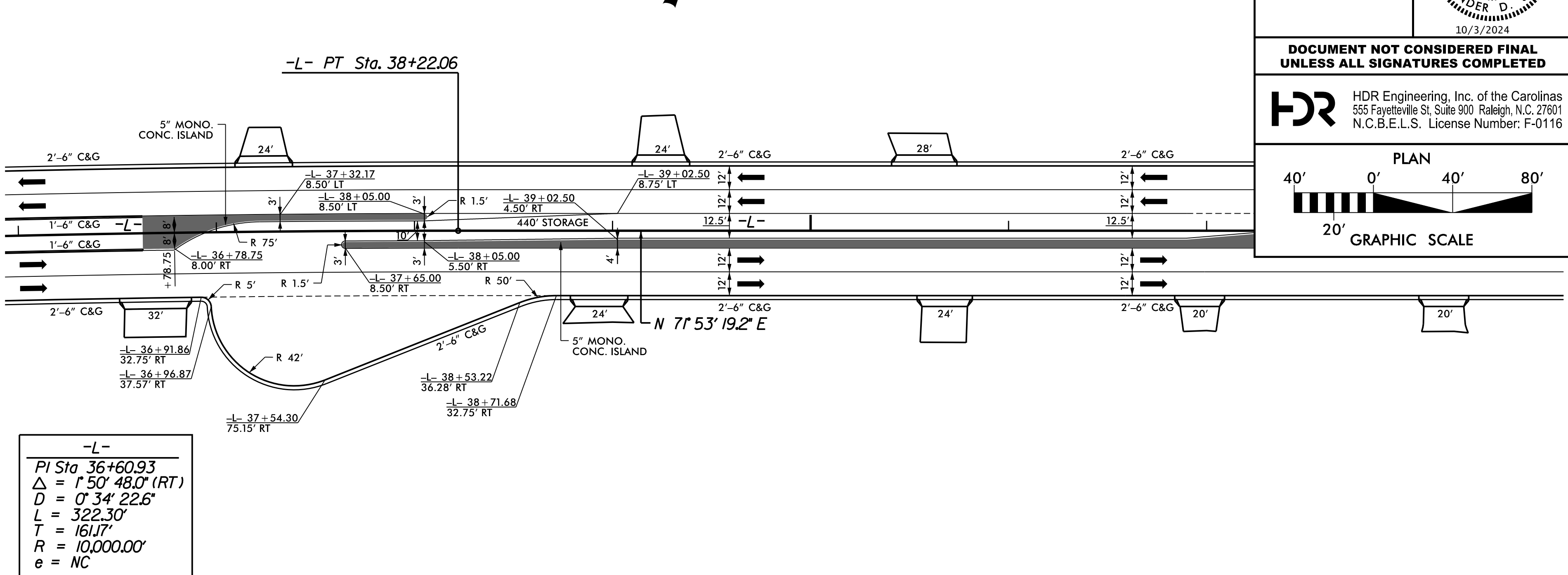


-L-  
 PI Sta 33+41.61  
 $\Delta = 1' 48' 44.6''$  (LT)  
 $D = 0' 34' 22.6''$   
 $L = 316.32'$   
 $T = 158.17'$   
 $R = 10,000.00'$   
 $e = NC$

-L-  
 PI Sta 36+60.93  
 $\Delta = 1' 50' 48.0''$  (RT)  
 $D = 0' 34' 22.6''$   
 $L = 322.30'$   
 $T = 161.17'$   
 $R = 10,000.00'$   
 $e = NC$

SEE SHEET 4 & 5 FOR PLAN VIEW

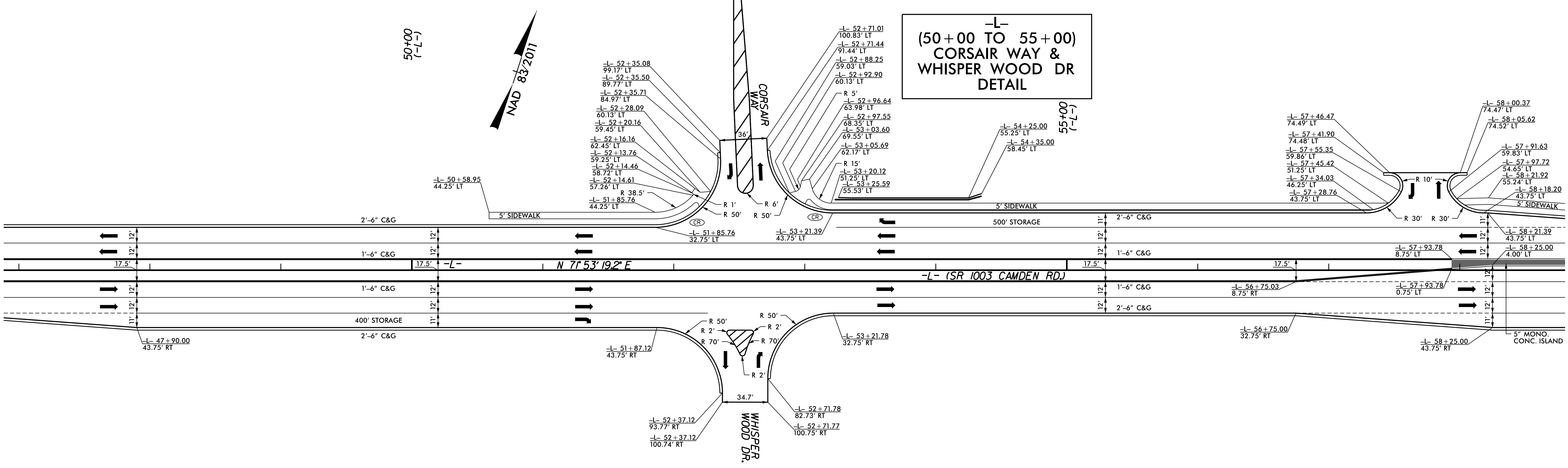
### -L- BULB-OUT (38 + 00) DETAIL



-L-  
 PI Sta 36+60.93  
 $\Delta = 1' 50' 48.0''$  (RT)  
 $D = 0' 34' 22.6''$   
 $L = 322.30'$   
 $T = 161.17'$   
 $R = 10,000.00'$   
 $e = NC$

SEE SHEET 5 FOR PLAN VIEW

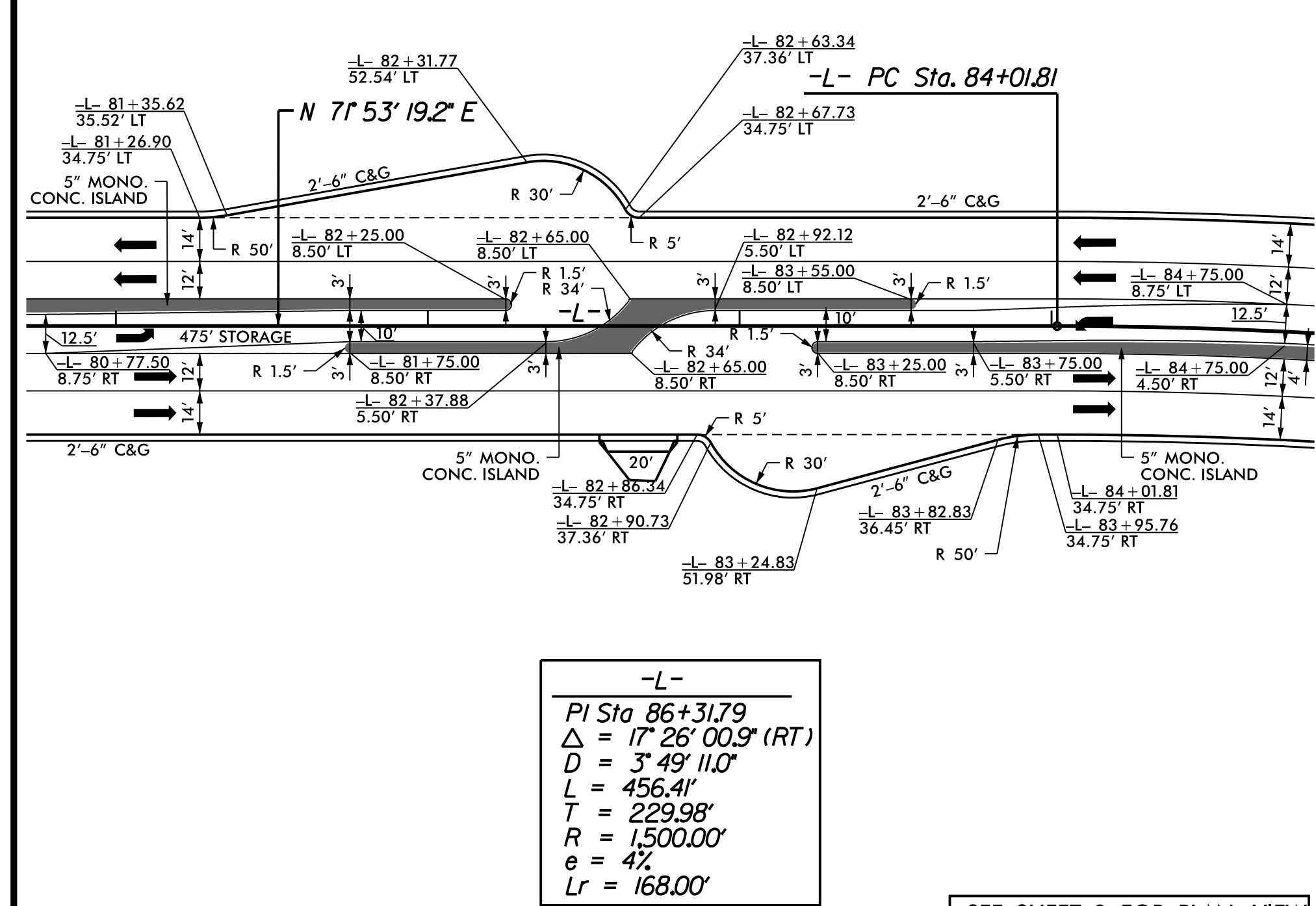
### -L- (50 + 00 TO 55 + 00) CORSAIR WAY & WHISPER WOOD DR DETAIL



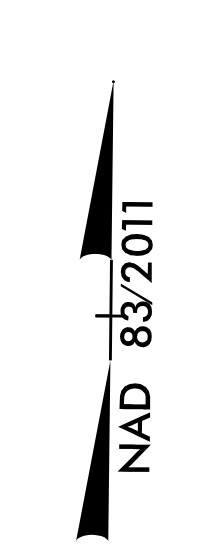
SEE SHEET 6 FOR PLAN VIEW

PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>2B-2</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
10/3/2024	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-01116	
PLAN 	
20' GRAPHIC SCALE	

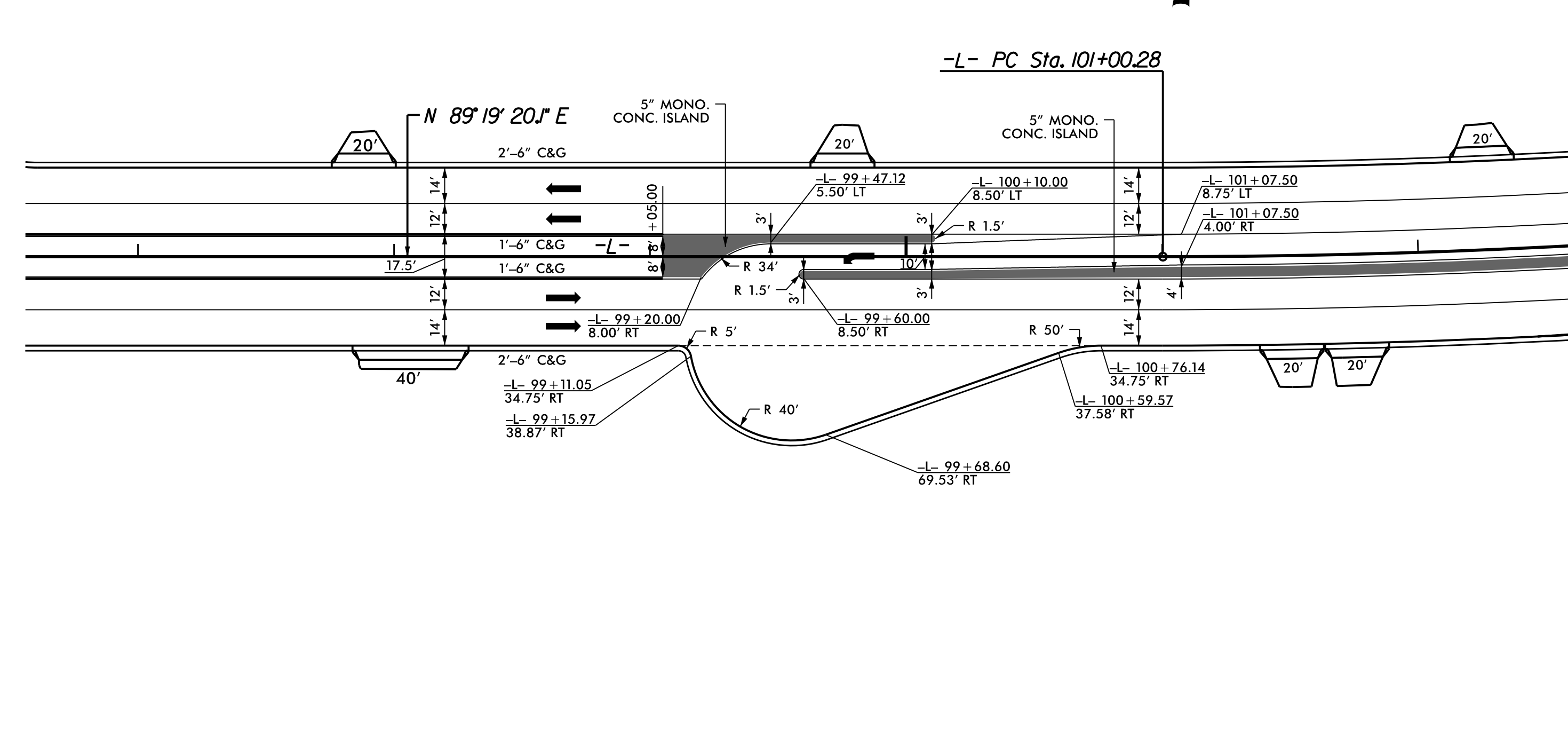
### -L- BULB-OUT (81+00 TO 84+00) DETAIL



### -L- BULB-OUT (100+00) DETAIL

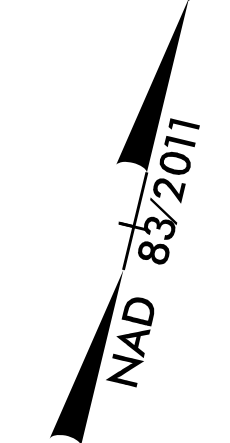


**-L-**  
 PI Sta 104+39.87  
 $\Delta = 12' 54' 58.2''$  (LT)  
 $D = 1' 54' 35.5''$   
 $L = 676.29'$   
 $T = 339.58'$   
 $R = 3,000.00'$   
 $e = 3\%$   
 $Lr = 126.00'$

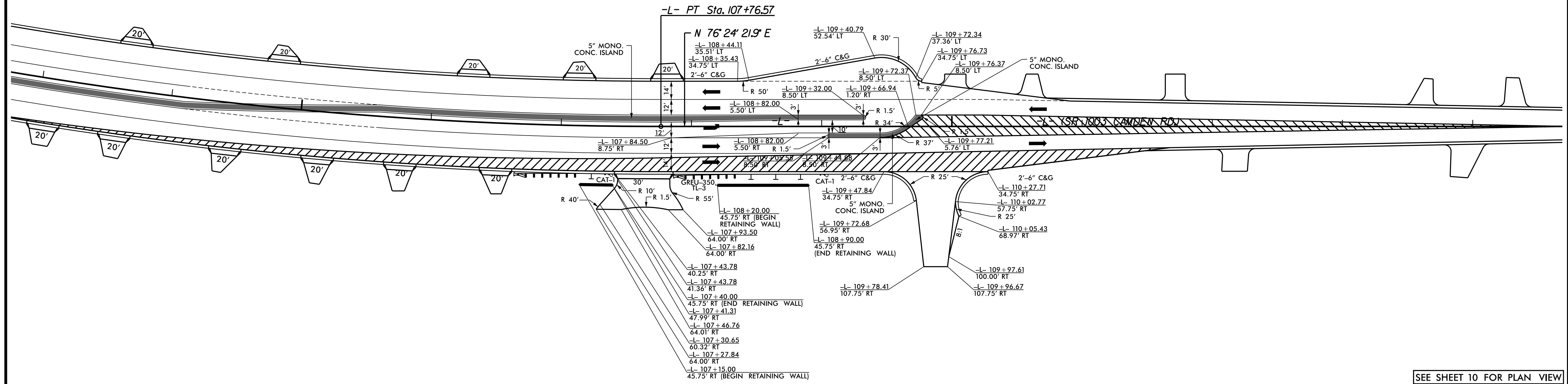


PROJECT REFERENCE NO. U-3422A	SHEET NO. 2B-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
10/3/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-01116	
PLAN 	

### -L- BULB-OUT (110+00) DETAIL



**-L-**  
 PI Sta 104+39.87  
 $\Delta = 12' 54' 58.2''$  (LT)  
 $D = 1' 54' 35.5''$   
 $L = 676.29'$   
 $T = 339.58'$   
 $R = 3,000.00'$   
 $e = 3\%$   
 $Lr = 126.00'$



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 FILE: \

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 DATE: 8/7/2024









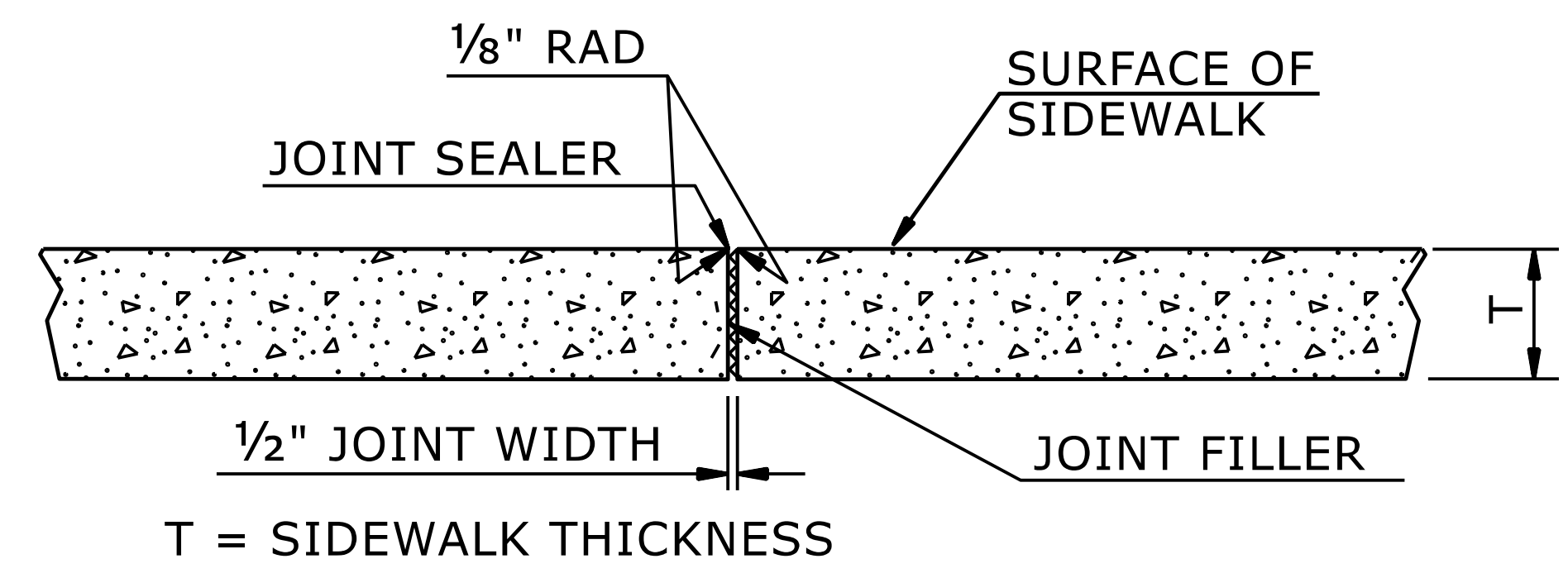


NOTES:

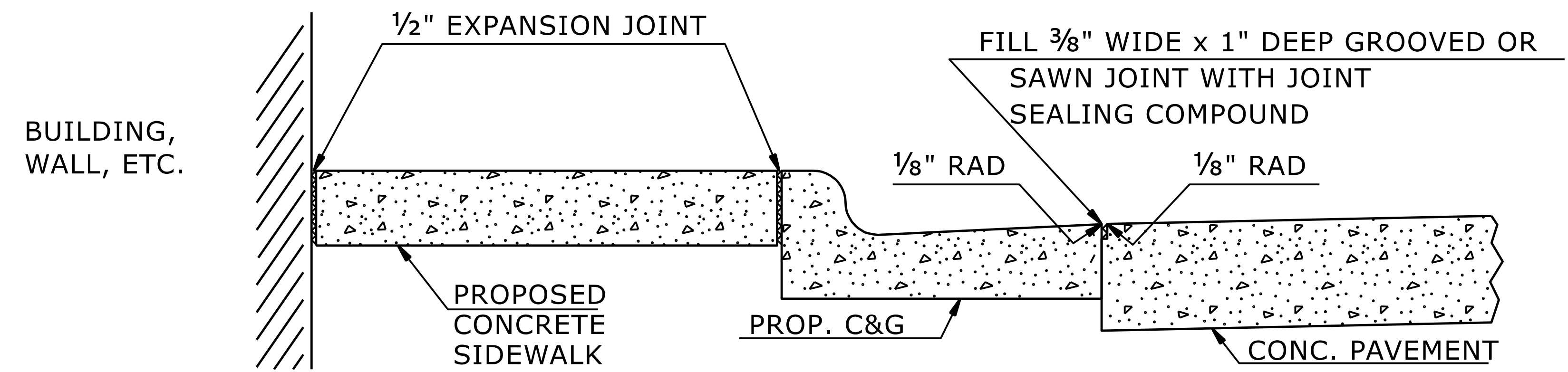
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

PLACE A GROOVE JOINT 1" DEEP WITH 1/8" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

SEE STD. DWG. 848.06 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.



TRANSVERSE EXPANSION JOINT IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

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

ROADWAY DETAIL DRAWING FOR  
**CONCRETE SIDEWALK**



9/23/2024

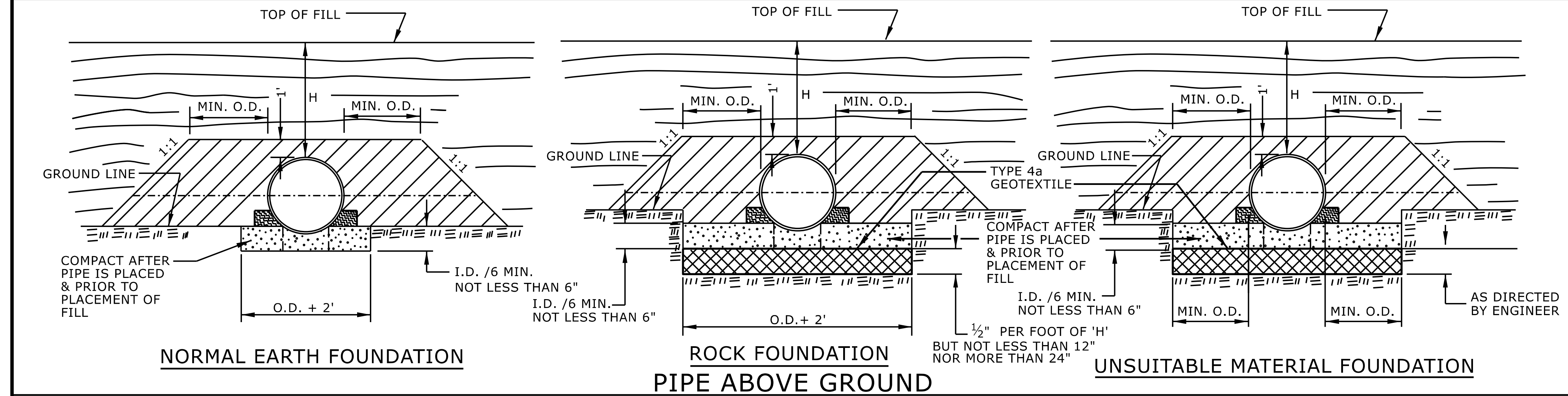
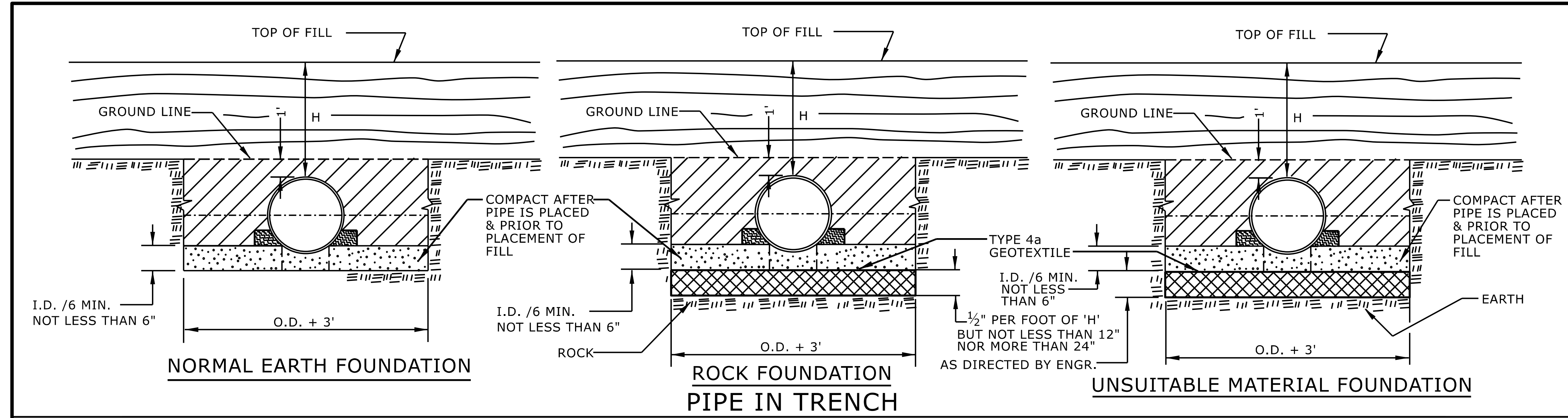
SHEET 1 OF 1  
**848D01**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

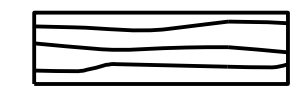

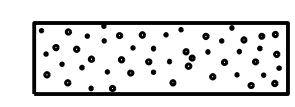
**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

ORIGINAL BY: S.CALHOUN	DATE: 7-25-2024
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

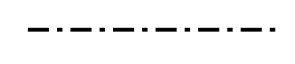
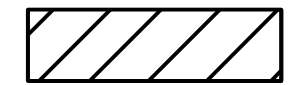
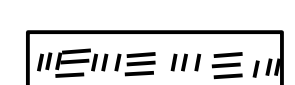
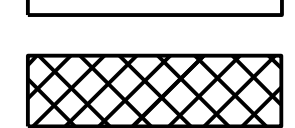


**GENERAL NOTES:**  
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.  
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.  
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

 APPROVED SUITABLE LOCAL MATERIAL.  
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.  
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

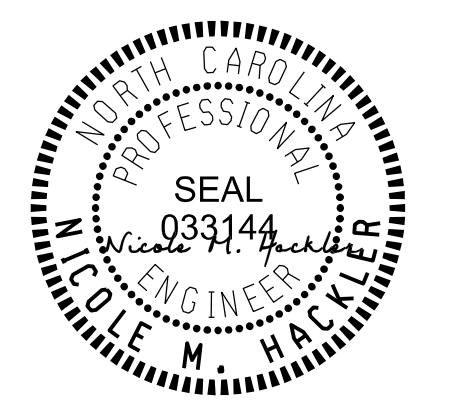
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

 SPRINGLINE OF PIPE  
 SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.  
 UNDISTURBED EARTH MATERIAL  
 SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR  
**METHOD OF PIPE INSTALLATION**  
 FLEXIBLE PIPE



9/23/2024

SHEET 1 OF 2  
**300.01**

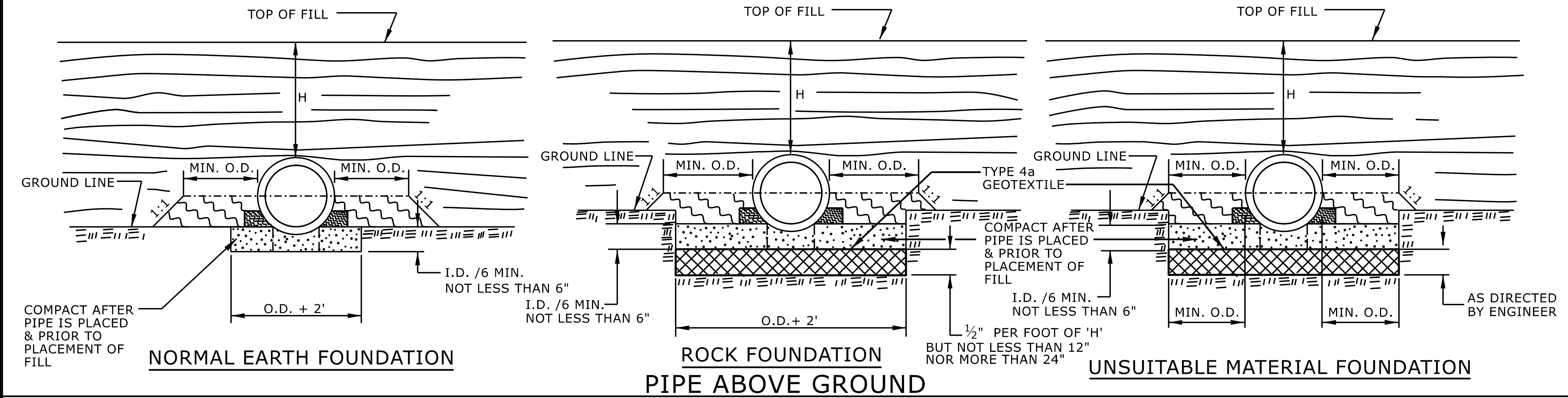
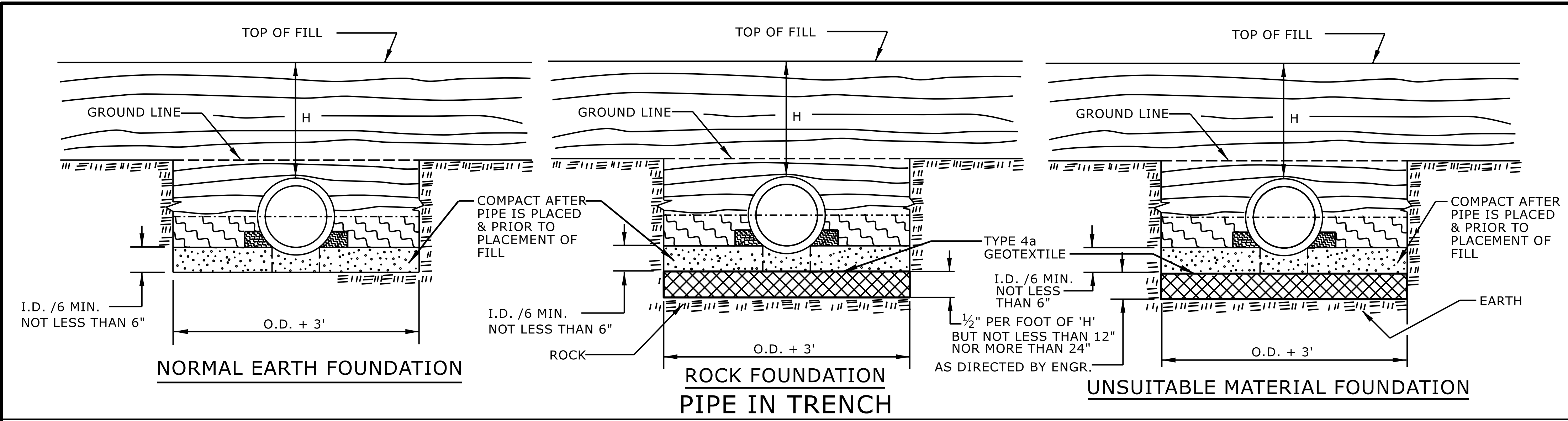
DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

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

**SEE TITLE BLOCK**

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.:





**GENERAL NOTES:**  
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.  
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.  
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

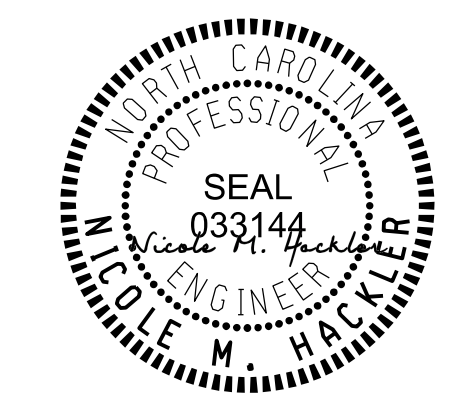
APPROVED SUITABLE LOCAL MATERIAL.  
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.  
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

- SPRINGLINE OF PIPE
- SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
- UNDISTURBED EARTH MATERIAL
- SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.  
 ROADWAY DETAIL DRAWING FOR  
**METHOD OF PIPE INSTALLATION**  
 RIGID PIPE



9/23/2024

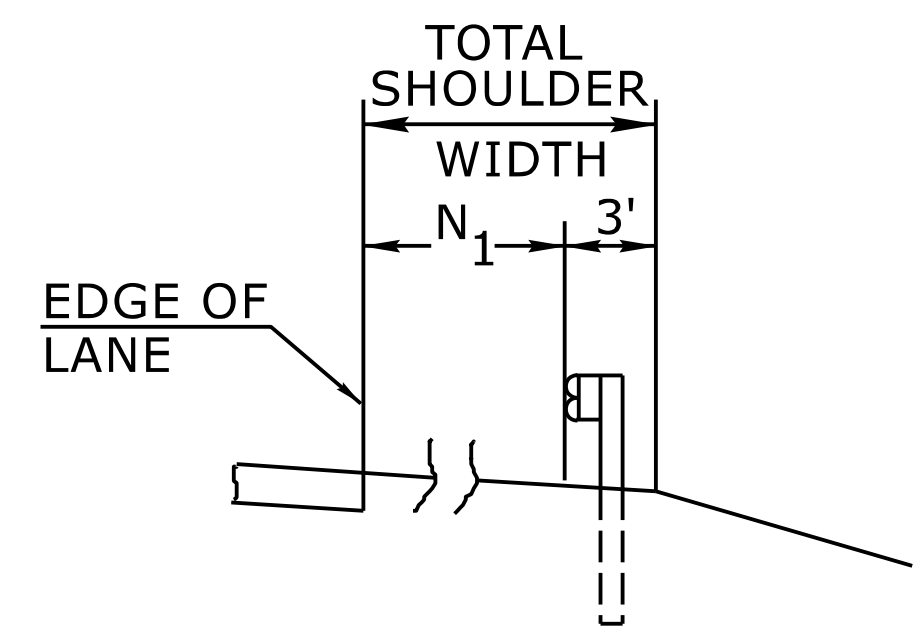
SHEET 2 OF 2  
**300.01**

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

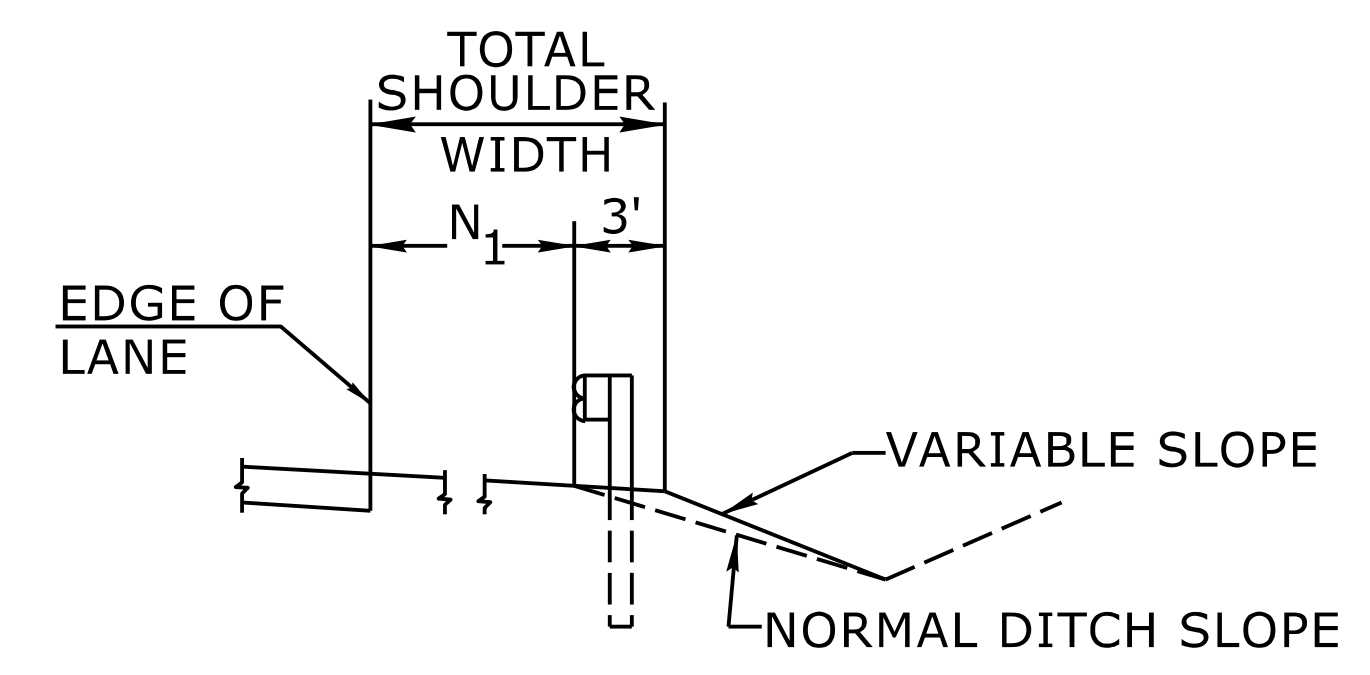
**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024  
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 CHECKED BY: DATE: \_\_\_\_\_  
 FILE SPEC.: \_\_\_\_\_

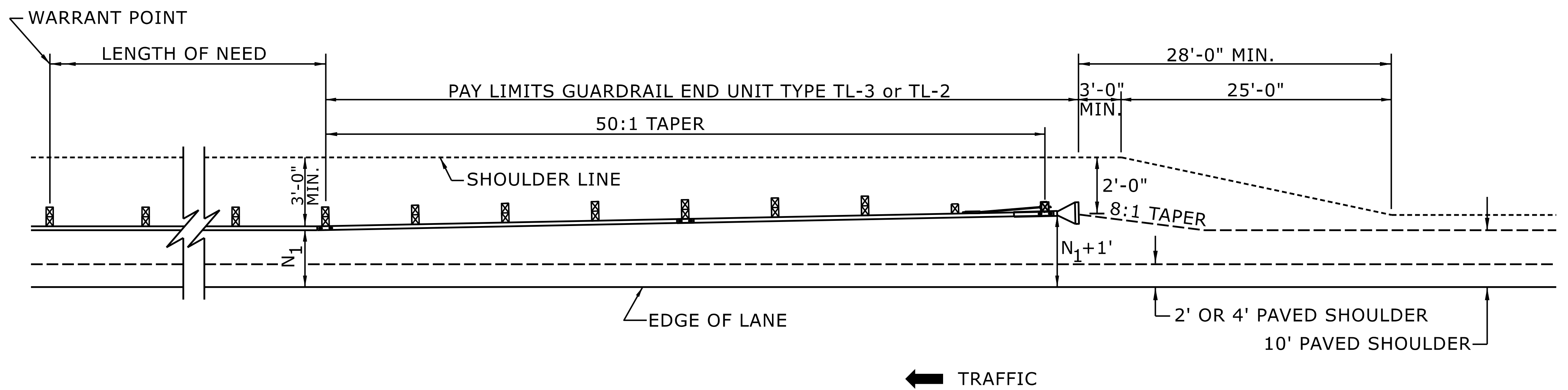


**FILL SECTION**



**CUT SECTION**

"N<sub>1</sub>" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3  
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

**DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION**

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

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**



9/23/2024

SHEET 6 OF 15  
**862D01**

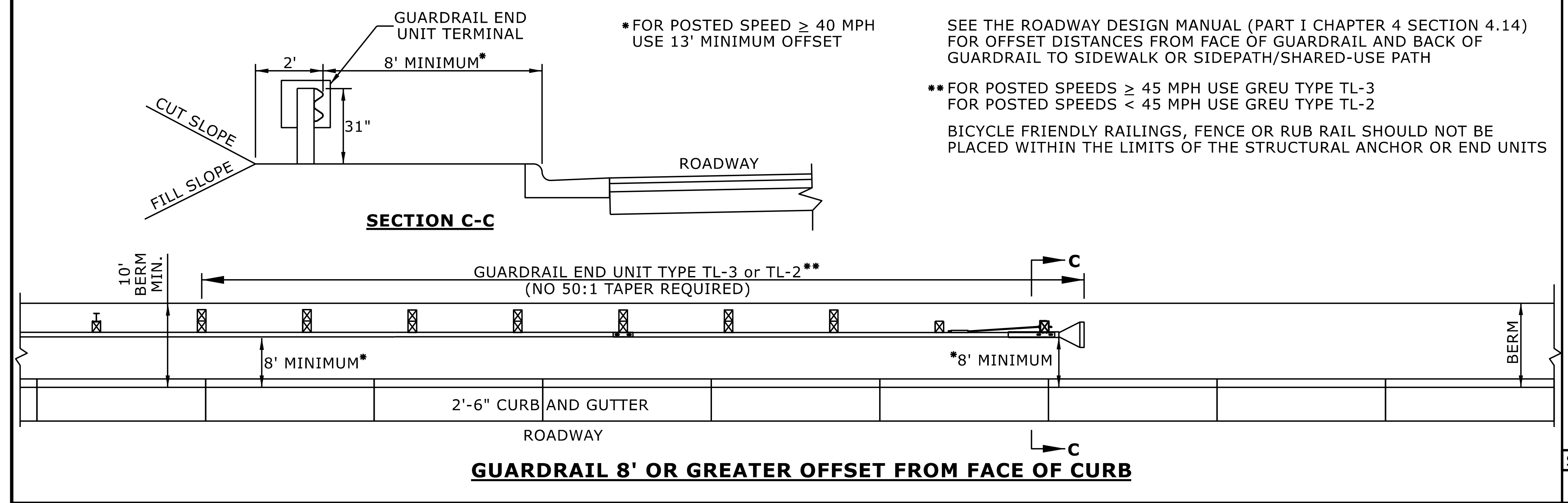
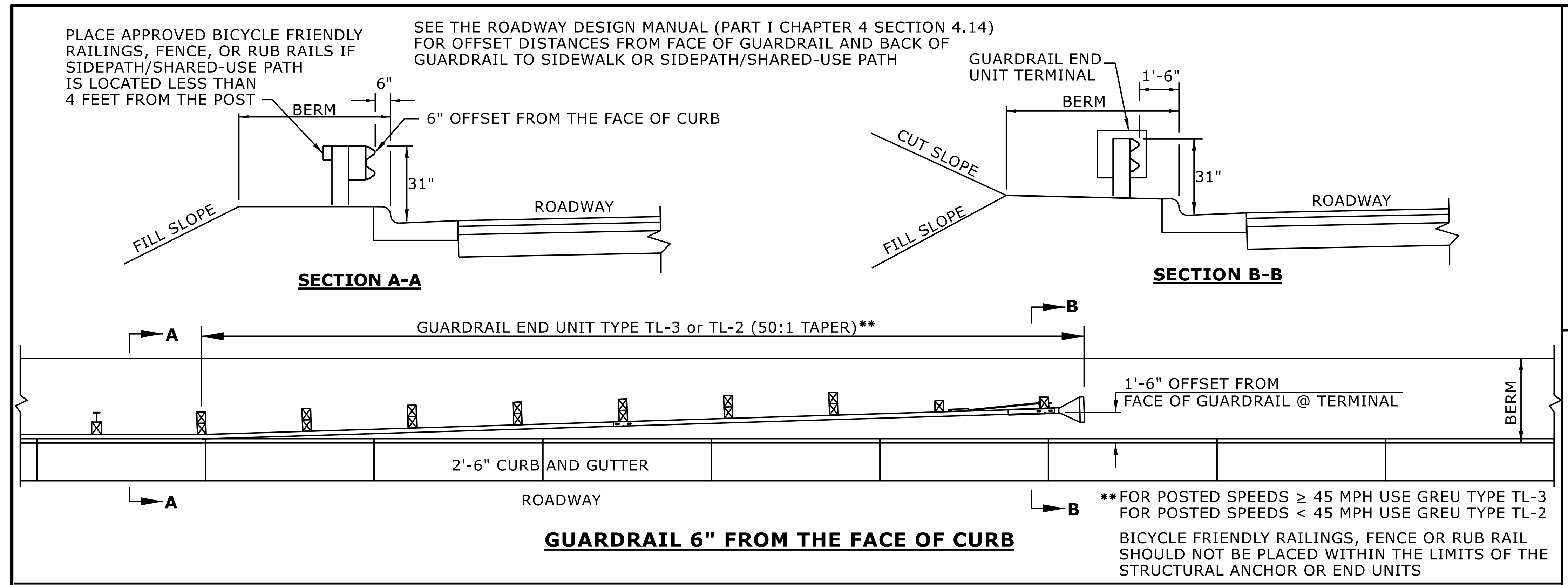
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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

**SEE TITLE BLOCK**

ORIGINAL BY: S.CALHOUN	DATE: 7-25-2024
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	





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

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**  
GUARDRAIL TREATMENT AT CURB AND GUTTER



9/23/2024

SHEET 12 OF 15  
**862D01**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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

**SEE TITLE BLOCK**

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024  
MODIFIED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
FILE SPEC.: \_\_\_\_\_

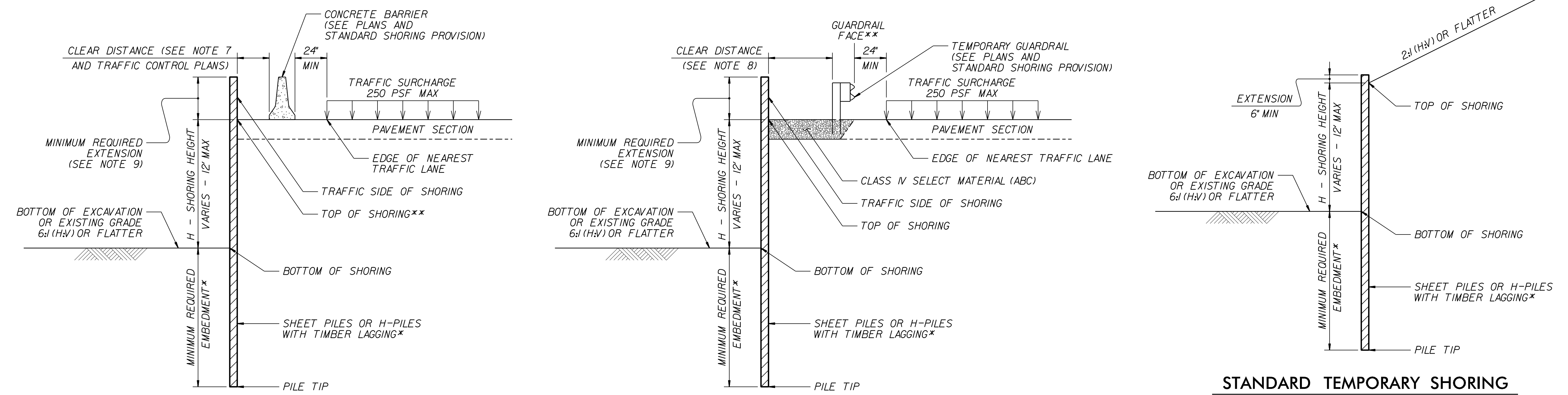




GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
			HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73	
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

- NOTES:**
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
  - FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
  - STANDARD TEMPORARY SHORING IS 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 SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
  - DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
  - USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
  - AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
  - AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
  - MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
  - MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
  - SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:  
[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
  - CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

**MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS**  
**\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**



**CONCRETE BARRIER**  
**\*\*TOP OF SHORING = EDGE OF PAVEMENT**  
**STANDARD TEMPORARY SHORING**  
**(SURCHARGE CASE)**  
**\*SEE TABLE ABOVE.**

**TEMPORARY GUARDRAIL**  
**\*\*GUARDRAIL FACE = EDGE OF PAVEMENT**  
**STANDARD TEMPORARY SHORING**  
**(SLOPE CASE)**  
**\*SEE TABLE ABOVE.**

COMPUTED BY: ADS      DATE: 9/23/24  
 CHECKED BY: HWB      DATE: 9/23/24

PROJECT REFERENCE NO. U-3422A    SHEET NO. 3B-1

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**GUARDRAIL SUMMARY**

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL  
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL  
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

G = GATING IMPACT ATTENUATOR TYPE 350  
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350	SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	25' CLEAR SPAN GUARDRAIL SECTIONS	REMARKS			
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL-3	GREU TL-2	AT-1	CAT-1	VI MOD	TES	TYPE III	G						NG		
L	76+05.00	78+30.00	RT	225.00			76+05.00	78+30.00	12	14	50		1				1			1												Some guardrail posts will be omitted for the 60" RCP
L	106+65.00	107+40.00	RT	75.00			106+65.00	107+40.00	2	8	50		1				1			1												
L	107+86.25	109+05.00	RT	118.75			107+86.25	109+05.00	2	8	50		1				1			1												
TOTALS				418.75													3			3												
DEDUCTIONS FOR ANCHOR UNITS																																
	GREU TL-3	3	50	-150																												
	CAT-1	3	6.25	-18.75																												
	TYPE III	0	22.875	0																												
	AT-1	0	6.25	0																												
GRAND TOTAL				250.00													3			3												
SAY				250.00			5 EACH ADDITIONAL GUARDRAIL POSTS																									
NOTE: GUARDRAIL AND REMOVAL LENGTHS ARE IN LINEAR FEET UNLESS OTHERWISE NOTED.																																



RD:

## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS SUMMARY OF EARTHWORK

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	UNDERCUT C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.
<b>SUMMARY 1</b>							
-L- LT	30+00.00	114+75.00	4,161		10,669	6,508	
-L- RT	29+50.00	114+75.00	1,290		9,070	7,780	
-Y1-	18+50.00	24+15.00	741		436		305
-Y2-	12+00.00	13+50.00	216		5		211
<b>SUBTOTAL</b>			<b>6,408</b>		<b>20,180</b>	<b>14,288</b>	<b>516</b>
<b>SUMMARY 2</b>							
-L- LT	75+50.00	80+50.00	7		505	498	
<b>SUBTOTAL</b>			<b>7</b>		<b>505</b>	<b>498</b>	
<b>SUMMARY 3</b>							
-L-	42+50.00	57+50.00	37		1,674	1,637	
-L-	68+00.00	75+00.00	37		358	321	
-L-	88+50.00	99+00.00	108		488	380	
<b>SUBTOTAL</b>			<b>182</b>		<b>2,519</b>	<b>2,337</b>	
<b>SHEET TOTALS</b>			<b>6,597</b>		<b>23,204</b>	<b>17,123</b>	<b>516</b>
<b>LOSS DUE TO CLEARING AND GRUBBING</b>			<b>-200</b>			<b>200</b>	
<b>MATERIAL FOR SHOULDER CONSTRUCTION</b>					<b>1,875</b>	<b>1,875</b>	
<b>EARTH WASTE IN LIEU OF BORROW</b>							<b>-516</b>
<b>PROJECT TOTAL</b>			<b>6,397</b>		<b>25,079</b>	<b>18,682</b>	
<b>EST. 5% TO REPLACE TOP SOIL ON BORROW PIT</b>						<b>934</b>	
<b>GRAND TOTAL</b>			<b>6,397</b>			<b>19,616</b>	
<b>SAY</b>			<b>6,400</b>			<b>19,620</b>	
DRAINAGE DITCH EXCAVATION = 7140 C.Y. ESTIMATED UNDERCUT = 100 C.Y. ESTIMATED SHALLOW UNDERCUT = 1250 C.Y.							

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	UNDERCUT C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.
Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Asphalt Pavement will be paid for at the contract lump sum price for "Grading."							
Note: Quantities are approximate only. The Resident Engineer will use methods including but not limited to recross-sectioning, truck measurements, and aerial surveys to compute final quantities which the contractor will be paid.							
Note: Earthwork quantities are calculated by Roadway Engineer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.							
Note: The Total Embankment column does not include backfill for Undercut.							





























COMPUTED BY: Nicholas Moore DATE: 06-13-2024  
 CHECKED BY: Thein Tun Zan DATE: 06-13-2024

(2-3-23)

PROJECT NO.	SHEET NO.
U-3422A	3G-1

## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

### SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L-	31+00	44+00	LT & RT	SD	3600
-L-	52+00	85+00	LT & RT	SD	6400
CONTINGENCY					
<b>TOTAL LF:</b>					10000

\*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 Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L-	73+25	76+25	ASU	12	600	1200	1800		
-L-	82+25	84+25	ASU	12	400	800	1200		
CONTINGENCY			ASU	12	250	500	750		
<b>TOTAL CY/TONS/SY:</b>					1250	2500**	3750**	0	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 Subgrade 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.

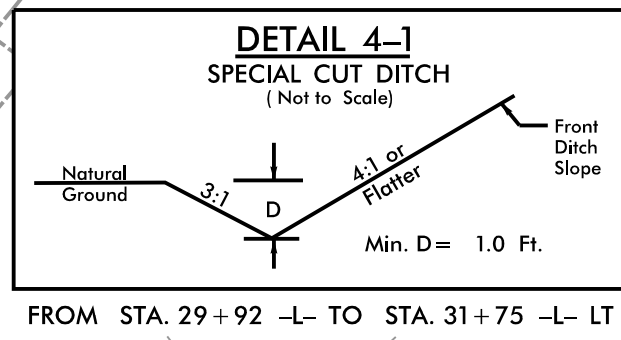
**STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS**

**PARCEL INDEX SHEET**

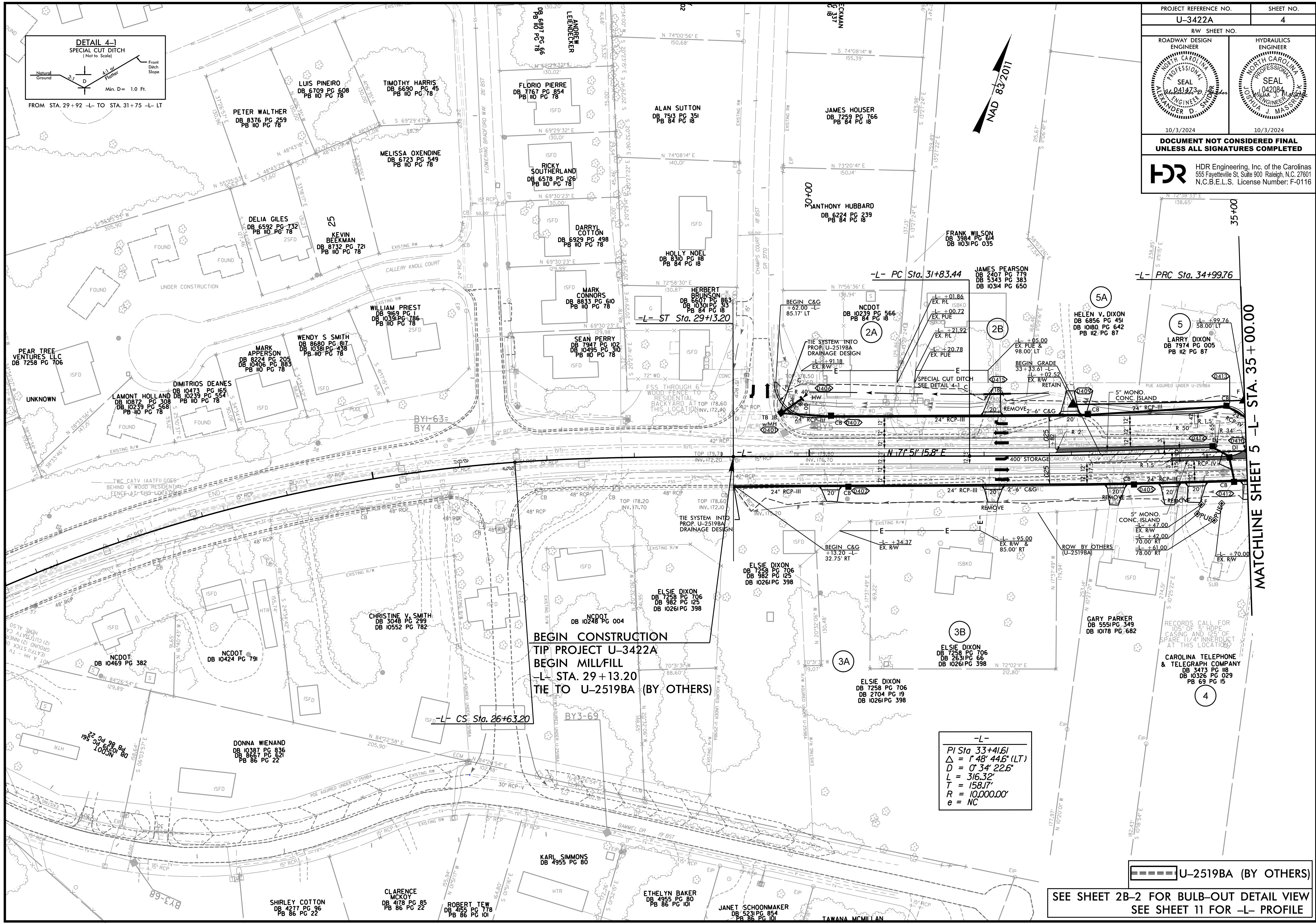
PARCEL No.	SHEET No.	PROPERTY OWNER NAME
2A	4	NCDOT
2B	4	JAMES PEARSON
3A	4	ELSIE DIXON
3B	4	ELSIE DIXON
4	4	CAROLINA TELEPHONE & TELEGRAPH COMPANY
5	4	LARRY DIXON
5A	4	HELEN V. DIXON
6	5	JESUS FIRST CHRISTIAN CHURCH
7	5	ANTONIO GERALD
8	5	CUMBERLAND COUNTY
9	5	CAMDEN VENTURES, LLC
10	5	ROBERT W. REX
11	5	RONNEY EDWARD HENSLEY, ET UX
12	5	MORGAN MARTIN, ET AL.
13	5	JEFFREY ORSON MOSS, ET UX
14	5	JEREMIAH D. LINDSTROM, ET UX
15	5	ASTRA WILLIAMS
16	5	HOANG LONG VUONG, ET UX
17	5	TATYANA PUSTYLNİK
18	5	ADRIENNE FREDRICK
19	5	LAVERNE RUDDER
20	5	EVELYN MCDOUGALD
21	5	EUGENE LOWERY
22	5	EDWARD S. OXENDINE, ET UX
23	5	HUNTER B. TAYLOR
24	5	TIMOTHY RAY DAVIS
25	5, 6	KATY WELSH DAVIS, HEIRS
26	6	MARCUS A. JACKSON, ET UX
27	6	MATHEW J. TERRY, ET UX
28	6	TAT WING CHAN, ET UX
29	6	ROBERT WAYNE COLVIN III, ET UX
30	6	EDITH ADRIANA CHURBE, ET VIR
31	6	JOHN T. CORLEY, ET UX
32	6	JOHN T. NOVAC, ET UX
33	6	SAMUEL D. HUTCHINSON, ET AL
34	6	CHAD ALLEN COLE, ET UX
35	6	ROSHAN PHILLIP TAHERI, ET UX
36	6	MALIKA MCKELLER
37	6	AMY L. ADKINS
38	6	CHAUNCEY L. DOUGHTY, JR.
39	6	RANEY LEE JONES, SR. ET UX
40	6	SCOTT A. WILLIAMS, ET UX
40A	7	SHERRY R. FLIPPEN, ET AL
41	6,7	KINGS QUARTERS SOUTHEAST, LLC
43	7	CUMBERLAND COUNTY BOARD OF EDUCATION
44	7	ESTATES OF CAMDEN HOMEOWNERS ASSOC. INC.
45	7	BRYANT PROPERTIES, LLC
46	7	MATTHEW GEORGE O'CONNEL, ET UX
47	7	GREGORY SHAWN MAJOR, ET UX
48	7	YUN QING GUO
49	7	YALE KODWO NYAMEAZEA, ET AL
50	7	KURT B. ADAMSON, ET UX
51	7	TINA PATEL, ET AL
52	7	RUTH AILENE KIMBROUGH
53	7	PAUL D. POSENER, ET UX
54	7	HENRY LEE DABNEY, ET UX
55	7	LINDSEY FULTON
56	7	ZOLETTA L. TAYLOR
57	7, 8	FELIX MANYWEATHER II
58	7	CBMM PROPERTIES, LLC

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
59	7	BARBARA M. JOHNSON, HEIRS
61	7, 8	INCREASING WORD MINISTRY
63	8	JULIA UELTZEN, ET VIR
64	8	BRUNHILDE BARNEY LIFE ESTATE, ET AL.
65	8	BARBARA M. JOHNSON, HEIRS
66	8	KARLA COLEMAN JOHNSON
69	8	PELICAN PROPERTY HOLDINGS, LLC
70	8	BARBARA M. JOHNSON
71	8, 9	BARBARA M. JOHNSON
72	8	BARBARA M. JOHNSON
73	9	STACI R. CAGLE, ET VIR
74	9	GWENDOLYN D. HENRY, ET AL.
75	9	ALBERT McCALL III, ET UX
76	9	ALBERT McCALL JR., ET UX
77	9	BIG DEAL PROPERTIES, LLC
78	9	BRAGG SHOPS PLAZA, LLC
79	9, 10	BRAGG SHOPS PLAZA, LLC
80	9	BARBARA M. JOHNSON
81	9	DONNA C. HICKS
82	9	CLIFTON E. McCLAIN, ET UX
84	9	RAEFORD BUILDERS, LLC
85	9	LONNIE D. CHAVIS, ET UX
86	9, 10	RICHARD L. MIRAGLIOTTA, ET UX
87	10	KEVIN S. WILLIAMS
88	10	LENORA JUDITH DENSON
89	10	MAE REVELS SWINK
91	10	MARCO A. GARCIA
92	10	DERRICK F. THOMPSON, ET UX
93	10	JORGE IVAN TORO- MARTINEZ
94	10	ALVIN REMONE AUTRY, JR. ET UX
95	10	SHEILA G. TURNER
96	10	EDWARD VENTURA, ET UX
97	10	SANDRA L. HALL, ET VIR
98	10	TERRY W. ESTEP, ET UX
99	10	EDNA GRIFFIN LOYD
100	10	STUART HITE, ET UX
101	10	WILLIAM S. SWINDELL, ET UX
102	10	ELMER MILTON BAXLEY, ET UX
103	10	MARCO GARCIA
104	10	MATTEW WATSON, ET AL.
105	10	WALLARD BROCK, ET AL.
106	10	WILLARD BROCK, ET AL.
107	10	WILLARD BROCK, ET AL.
108	10	LAURA A. McMILLAN BROWN
109	10	BARBARA S. YEAZEL
110	10	ARMERLINE KING





PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>4</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
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	



**BEGIN CONSTRUCTION**  
**TIP PROJECT U-3422A**  
**BEGIN MILLFILL**  
**-L- STA. 29+13.20**  
**TIE TO U-2519BA (BY OTHERS)**

**-L-**  
 PI Sta 33+41.61  
 $\Delta = 1' 48' 44.6" (LT)$   
 $D = 0' 34' 22.6"$   
 $L = 316.32'$   
 $T = 158.17'$   
 $R = 10,000.00'$   
 $e = NC$

==== U-2519BA (BY OTHERS)

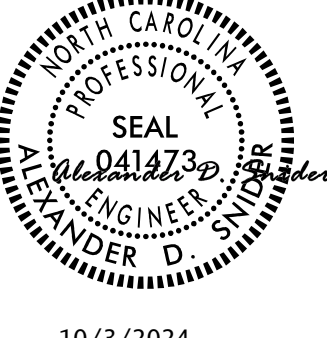


SEE SHEET 2B-2 FOR BULB-OUT DETAIL VIEW  
 SEE SHEET 11 FOR -L- PROFILE

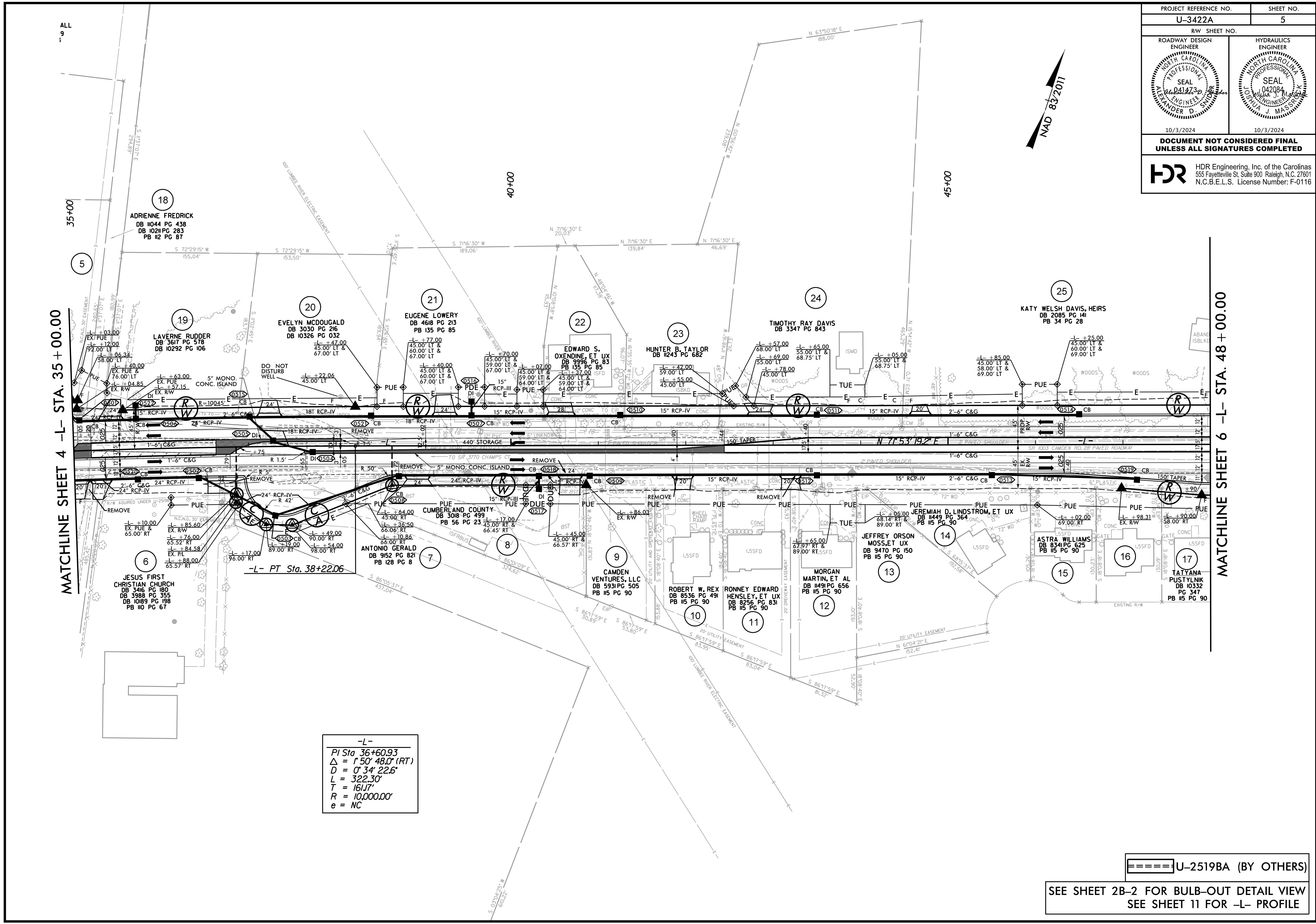
MATCHLINE SHEET 5 -L- STA. 35+00.00

PLOT DRIVER: NCDOT\_color\_eng\_50.plt  
 USER: ASNIDER  
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PENTABLE: U3422.dshp.dxf.tbl  
 TIME: 8:49:09 AM



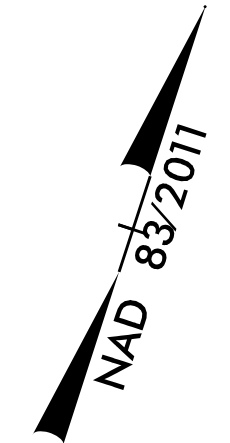
PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



MATCHLINE SHEET 4 -L- STA. 35 + 00.00

MATCHLINE SHEET 6 -L- STA. 48 + 00.00

ALL 9 1



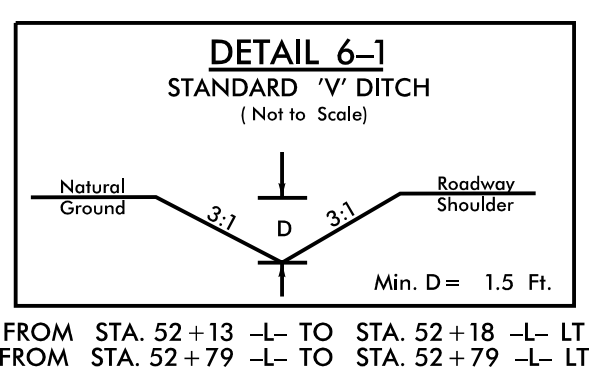
-L-  
 PI Sta 36+60.93  
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 $L = 322.30'$   
 $T = 161.17'$   
 $R = 10,000.00'$   
 $e = NC$

==== U-2519BA (BY OTHERS)

SEE SHEET 2B-2 FOR BULB-OUT DETAIL VIEW  
SEE SHEET 11 FOR -L- PROFILE

PLOT DRIVER: NCDOT\_color\_eng\_50.plt  
 USER: ASNIDER  
 DATE: 9/3/2024  
 TIME: 11:42:14 AM  
 FILE: \



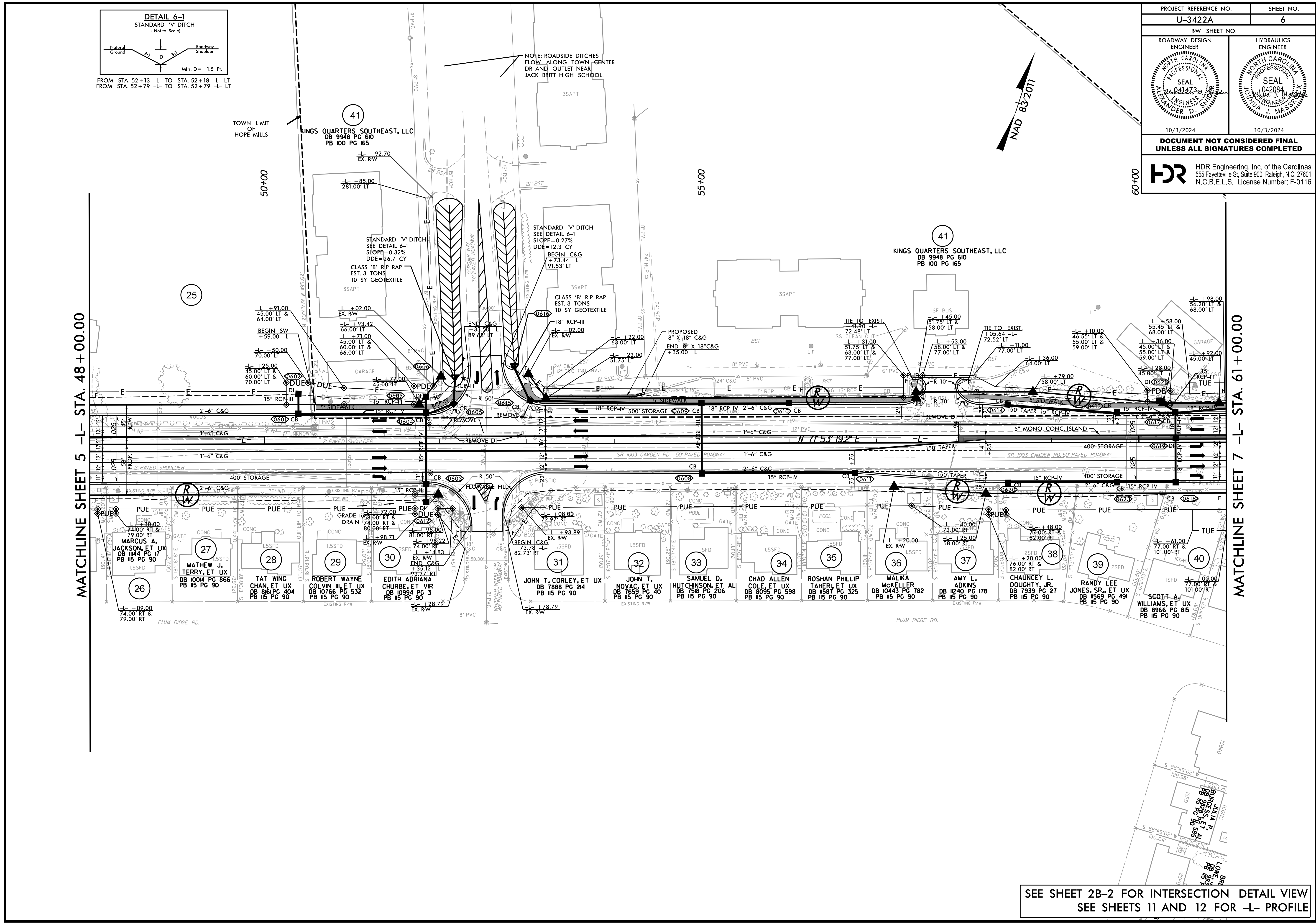


NOTE: ROADSIDE DITCHES  
FLOW ALONG TOWN CENTER  
DR AND OUTLET NEAR  
JACK BRITT HIGH SCHOOL

PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>6</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <b>SEAL</b> 10/3/2024	HYDRAULICS ENGINEER <b>SEAL</b> 10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
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	

MATCHLINE SHEET 5 -L- STA. 48 + 00.00

MATCHLINE SHEET 7 -L- STA. 61 + 00.00

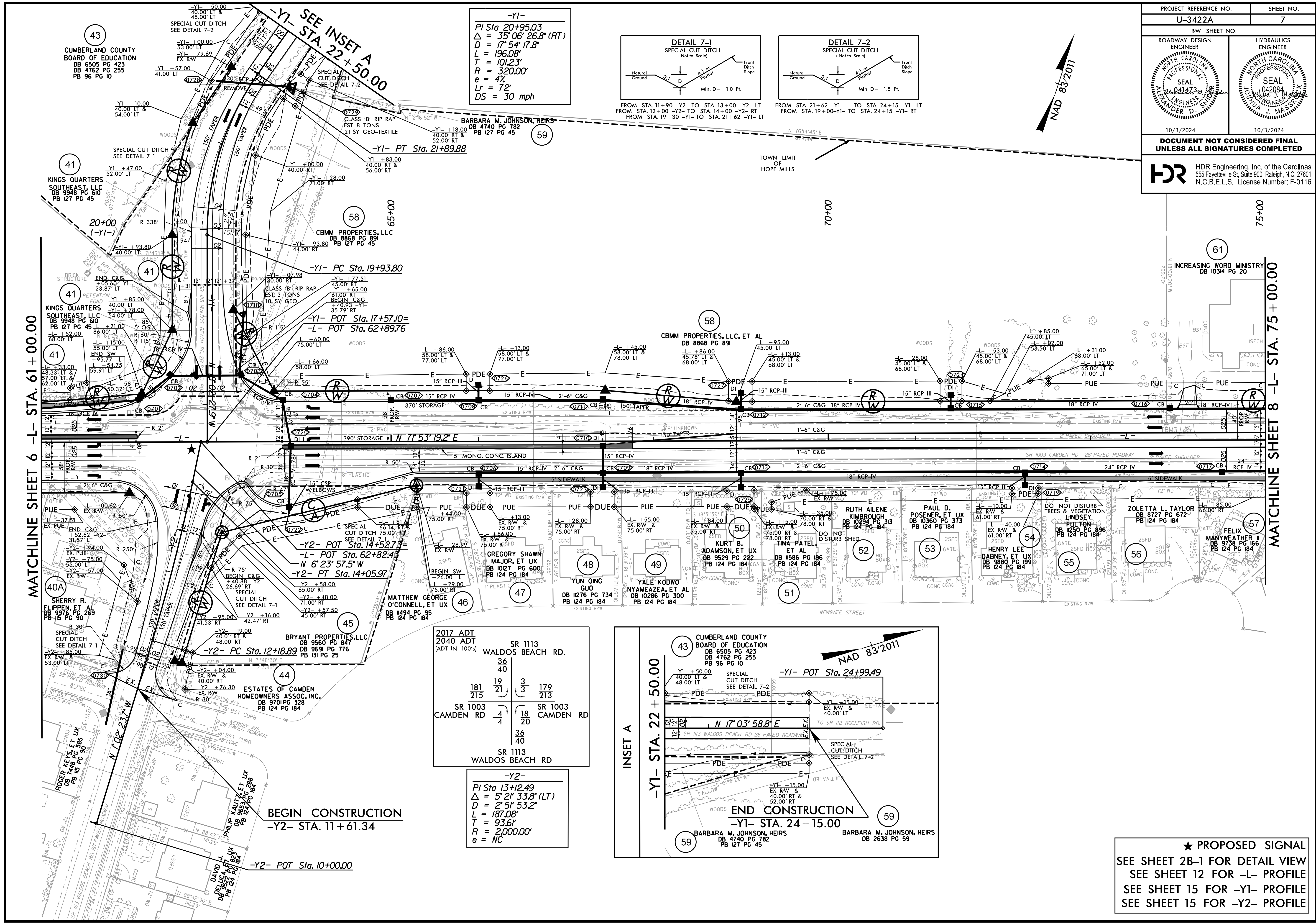


SEE SHEET 2B-2 FOR INTERSECTION DETAIL VIEW  
SEE SHEETS 11 AND 12 FOR -L- PROFILE

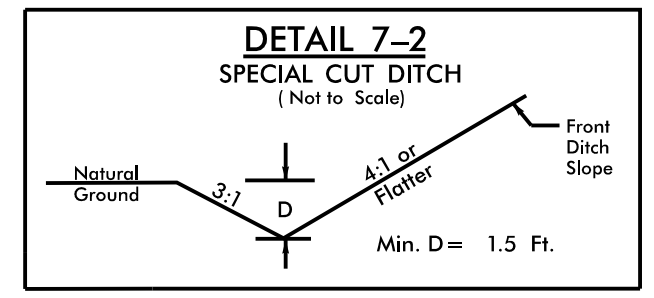
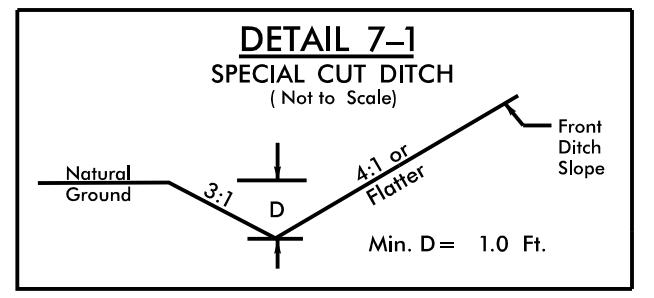
PLOT DRIVER: NCDOT\_color\_eng\_50.plt  
USER: ASNIDER  
DATE: 10/3/2024  
TIME: 8:20:48 AM  
PENTABLE: U3422.dshp.dwg  
FILE: \



PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>7</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <b>SEAL</b> NORTH CAROLINA PROFESSIONAL ENGINEER 041873 ALEXANDER D. SMITH	HYDRAULICS ENGINEER <b>SEAL</b> NORTH CAROLINA PROFESSIONAL ENGINEER 042084 OSWALD J. MARRAS
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
<b>HDR</b> 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	



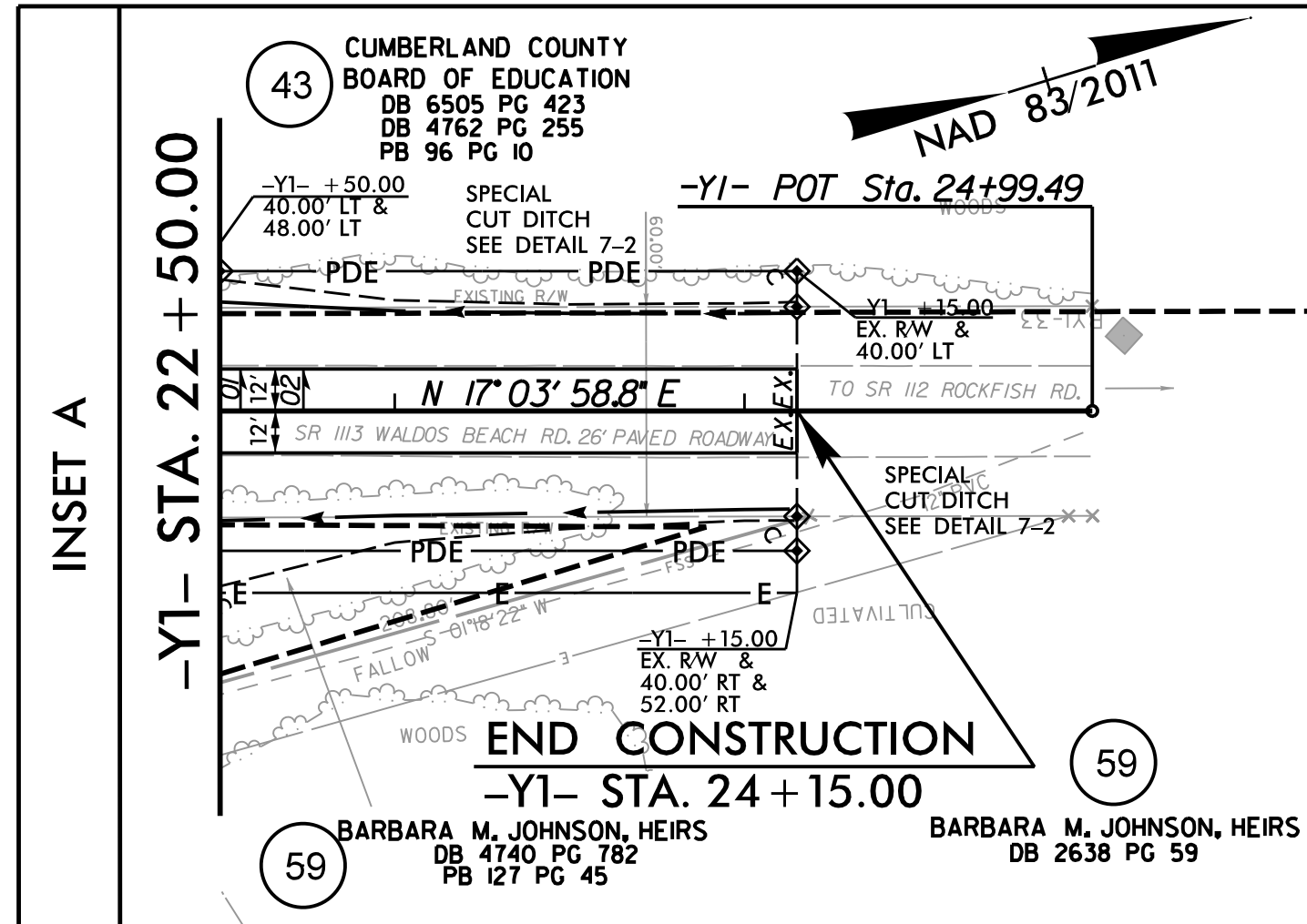
**-Y1-**  
 PI Sta 20+95.03  
 $\Delta = 35^{\circ} 06' 26.8''$  (RT)  
 $D = 17^{\circ} 54' 17.8''$   
 $L = 196.08'$   
 $T = 101.23'$   
 $R = 320.00'$   
 $e = 4'$   
 $Lr = 72'$   
 $DS = 30$  mph



2017 ADT  
2040 ADT  
(ADT IN 100'S)

SR 1113 WALDOS BEACH RD.	36 40	3 3	179 213
SR 1003 CAMDEN RD	4 4	18 20	36 40
SR 1113 WALDOS BEACH RD	36 40		

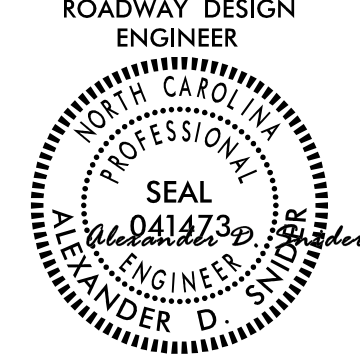
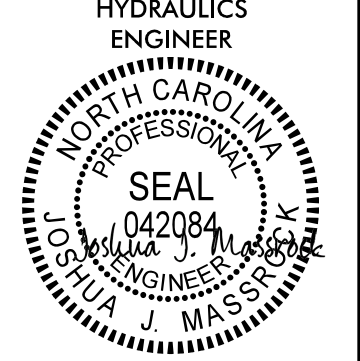

**-Y2-**  
 PI Sta 13+12.49  
 $\Delta = 5^{\circ} 21' 33.8''$  (LT)  
 $D = 2^{\circ} 51' 53.2''$   
 $L = 187.08'$   
 $T = 93.61'$   
 $R = 2,000.00'$   
 $e = NC$

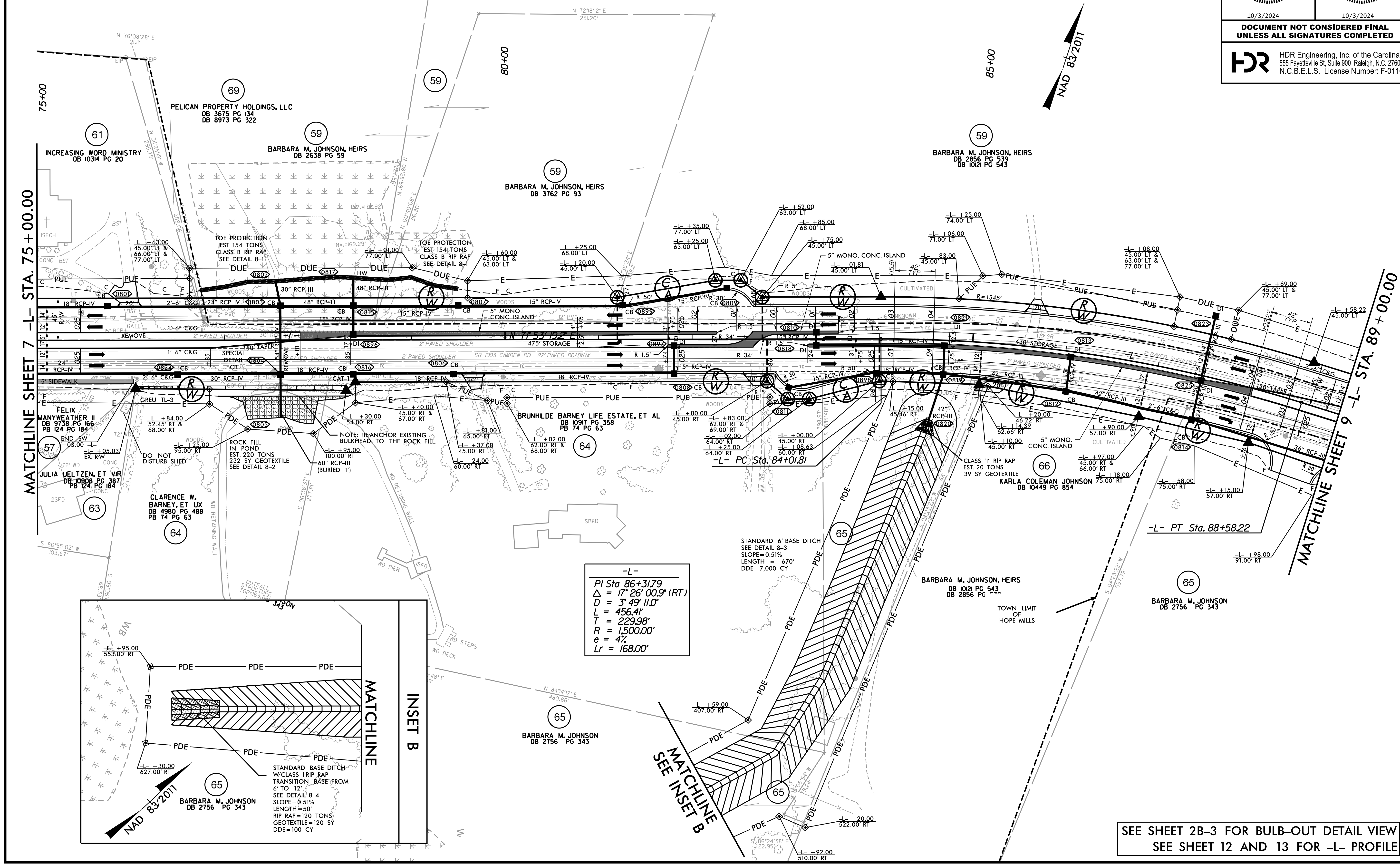
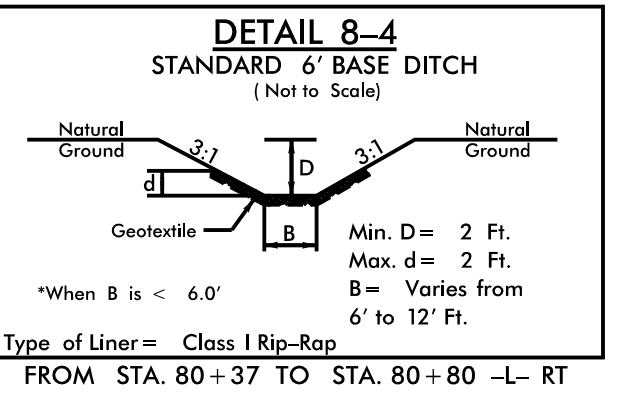
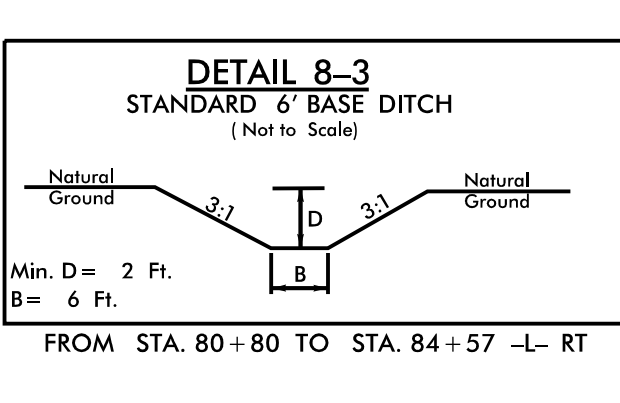
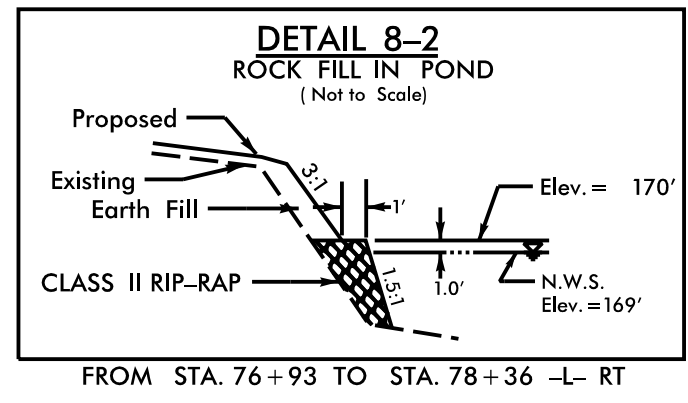
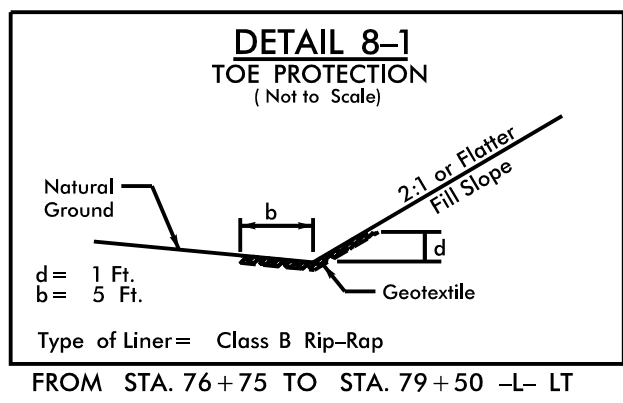


★ **PROPOSED SIGNAL**  
 SEE SHEET 2B-1 FOR DETAIL VIEW  
 SEE SHEET 12 FOR -L- PROFILE  
 SEE SHEET 15 FOR -Y1- PROFILE  
 SEE SHEET 15 FOR -Y2- PROFILE

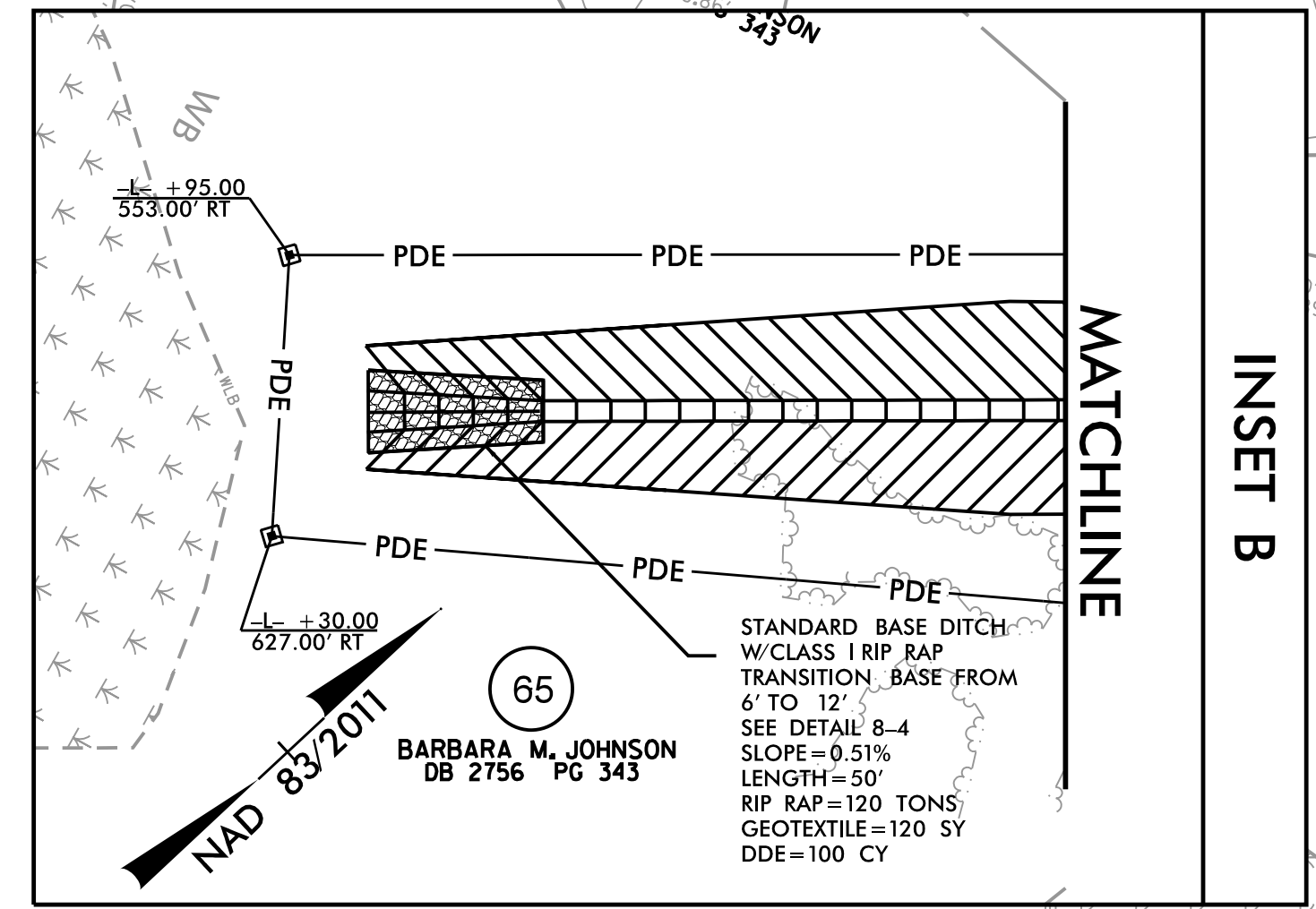
PLOT DRIVER: NCDOT...  
 USER: ASNIDER  
 DATE: 8/9/2024  
 TIME: 8:57:21 AM



PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>8</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-01116	






**-L-**  
 PI Sta 86+31.79  
 $\Delta = 17' 26'' 00.9''$  (RT)  
 $D = 3' 49'' 11.0''$   
 $L = 456.41'$   
 $T = 229.98'$   
 $R = 1,500.00'$   
 $e = 4\%$   
 $Lr = 168.00'$

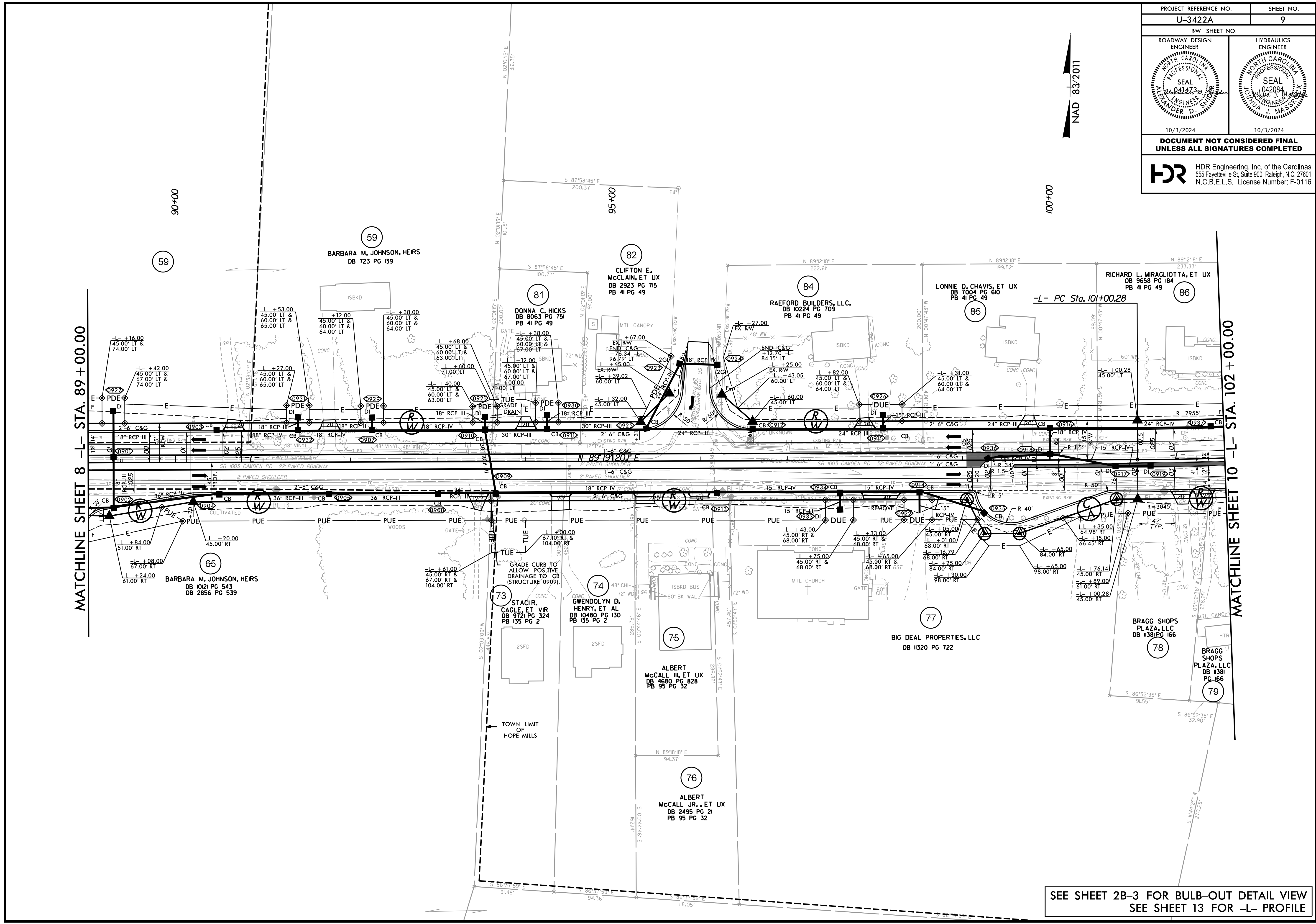


SEE SHEET 2B-3 FOR BULB-OUT DETAIL VIEW  
SEE SHEET 12 AND 13 FOR -L- PROFILE

PLOT DRIVER: NCD01.pdf\_color\_eng\_50.pht  
 USER: ASNIDER  
 DATE: 10/3/2024  
 TIME: 8:21:15 AM  
 FILE: PENTABLE1\_U34222\_pshp.dxf



PROJECT REFERENCE NO. <b>U-3422A</b>		SHEET NO. <b>9</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
10/3/2024		10/3/2024	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			
 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			






MATCHLINE SHEET 8 -L- STA. 89+00.00

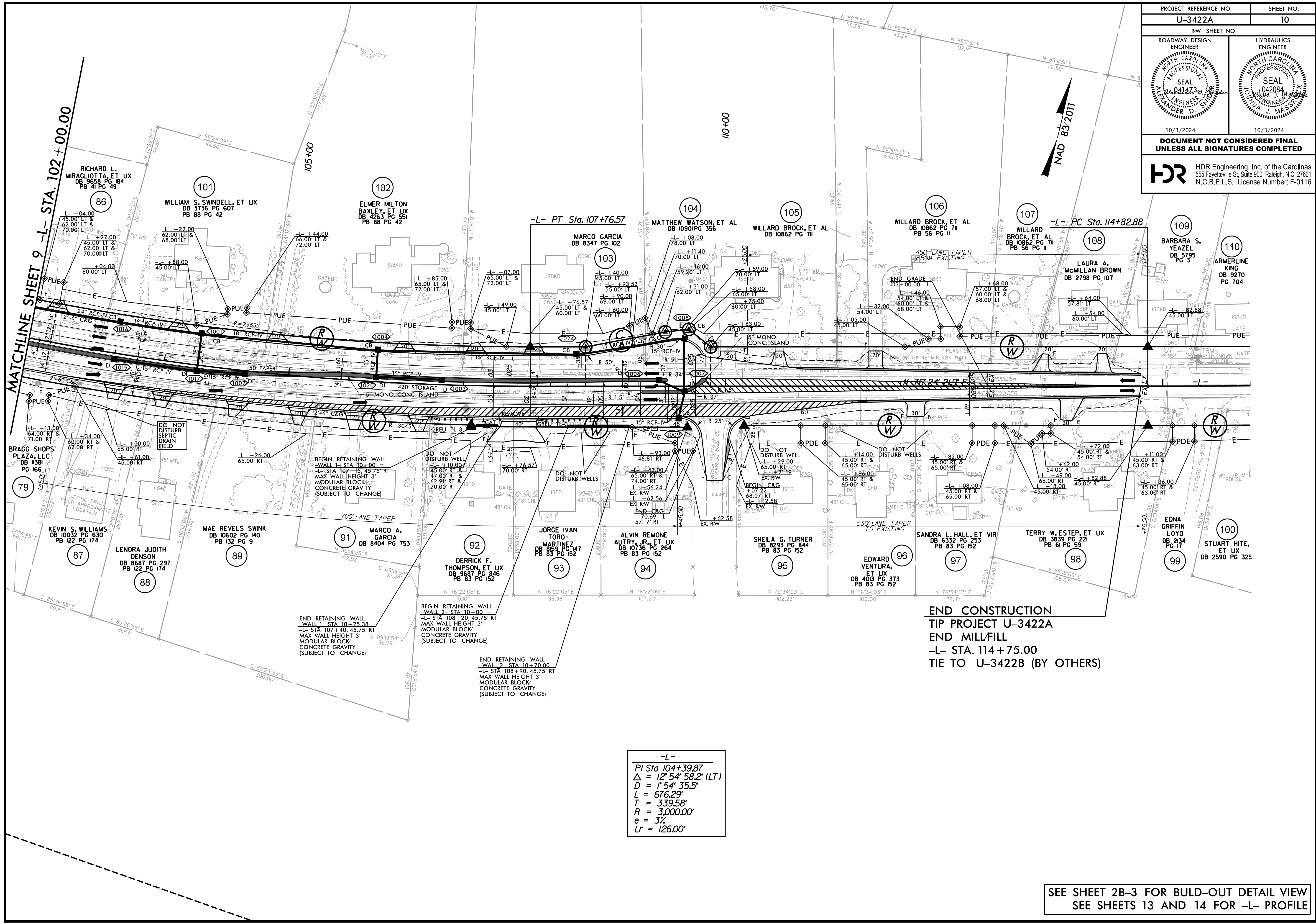
MATCHLINE SHEET 10 -L- STA. 102+00.00

SEE SHEET 2B-3 FOR BULB-OUT DETAIL VIEW  
SEE SHEET 13 FOR -L- PROFILE

PLOT DRIVER: NCDOT\_color\_eng\_50.plt  
USER: ASNIDER  
DATE: 8/7/2024  
TIME: 8:49:25 AM  
PENTABLE: U3422\_color\_eng\_50.plt  
FILE: \



PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>10</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
 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	



**END CONSTRUCTION  
TIP PROJECT U-3422A  
END MILL/FILL  
-L- STA. 114+75.00  
TIE TO U-3422B (BY OTHERS)**

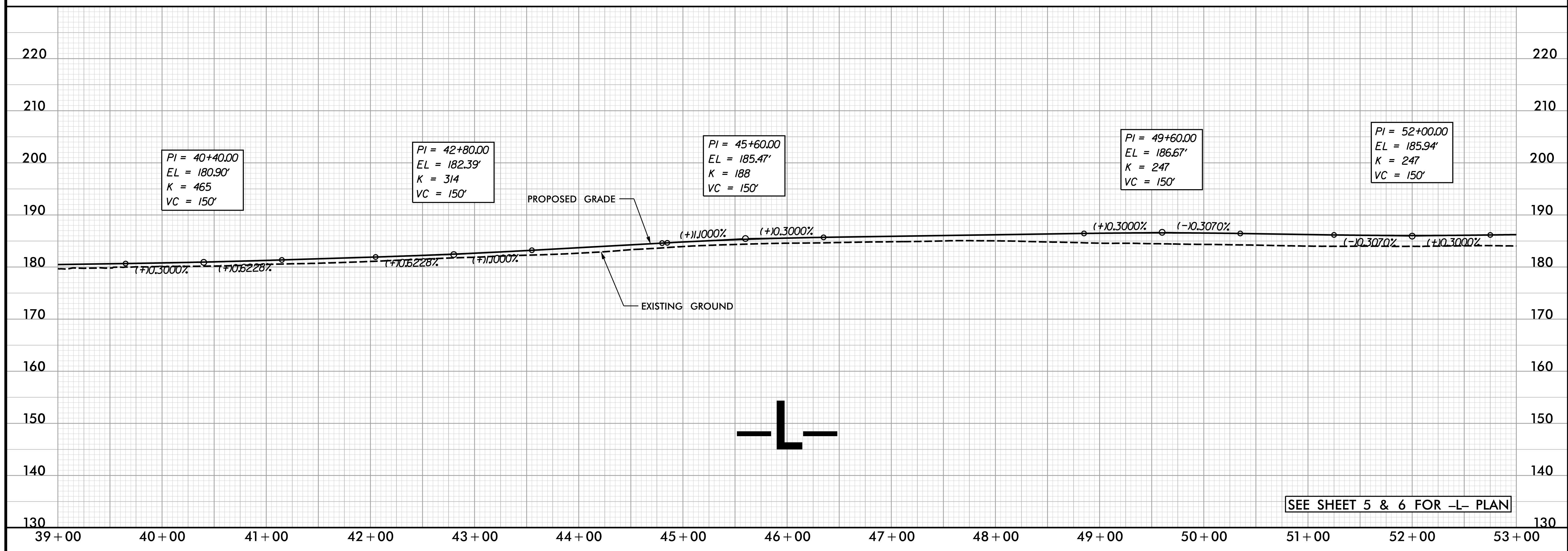
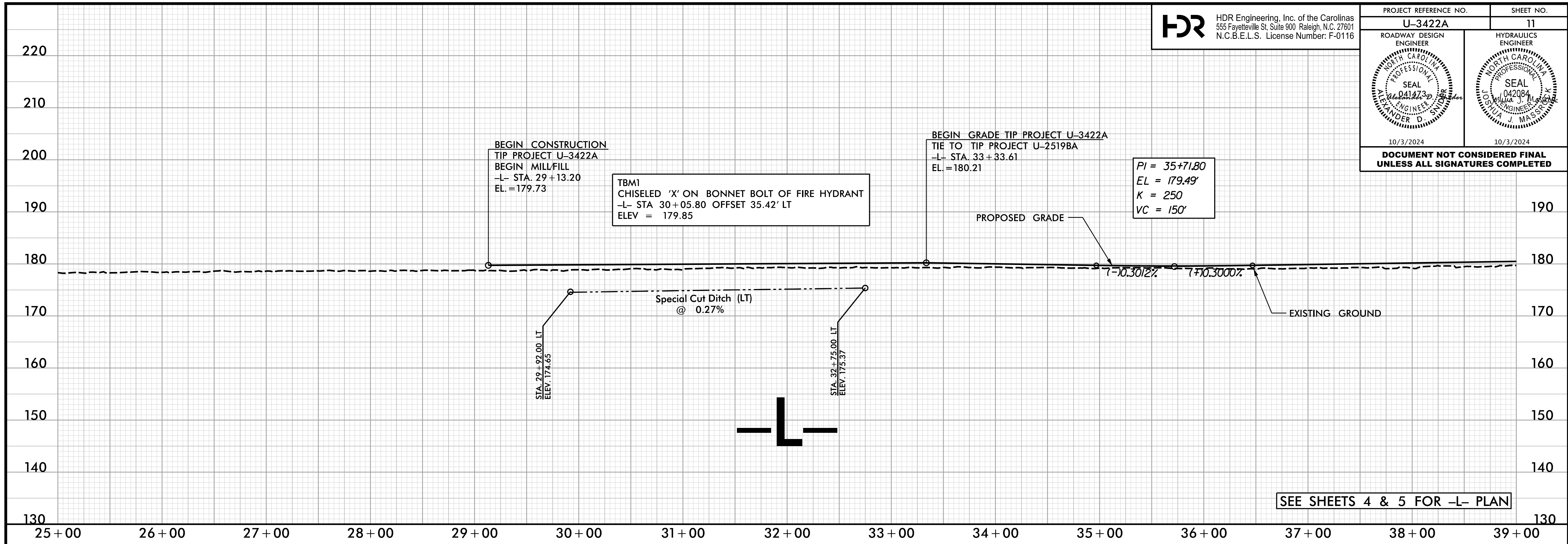
**-L-**  
 PI Sta 104+39.87  
 $\Delta = 12^{\circ} 54' 58.2" (LT)$   
 $D = 154' 35.5"$   
 $L = 676.29'$   
 $T = 339.58'$   
 $R = 3,000.00'$   
 $e = 3\%$   
 $Lr = 126.00'$

**SEE SHEET 2B-3 FOR BULD-OUT DETAIL VIEW  
SEE SHEETS 13 AND 14 FOR -L- PROFILE**

PLOT DRIVER: NCDOT...  
 USER: ASNIDER  
 DATE: 9/23/2024  
 TIME: 1:40:07 PM



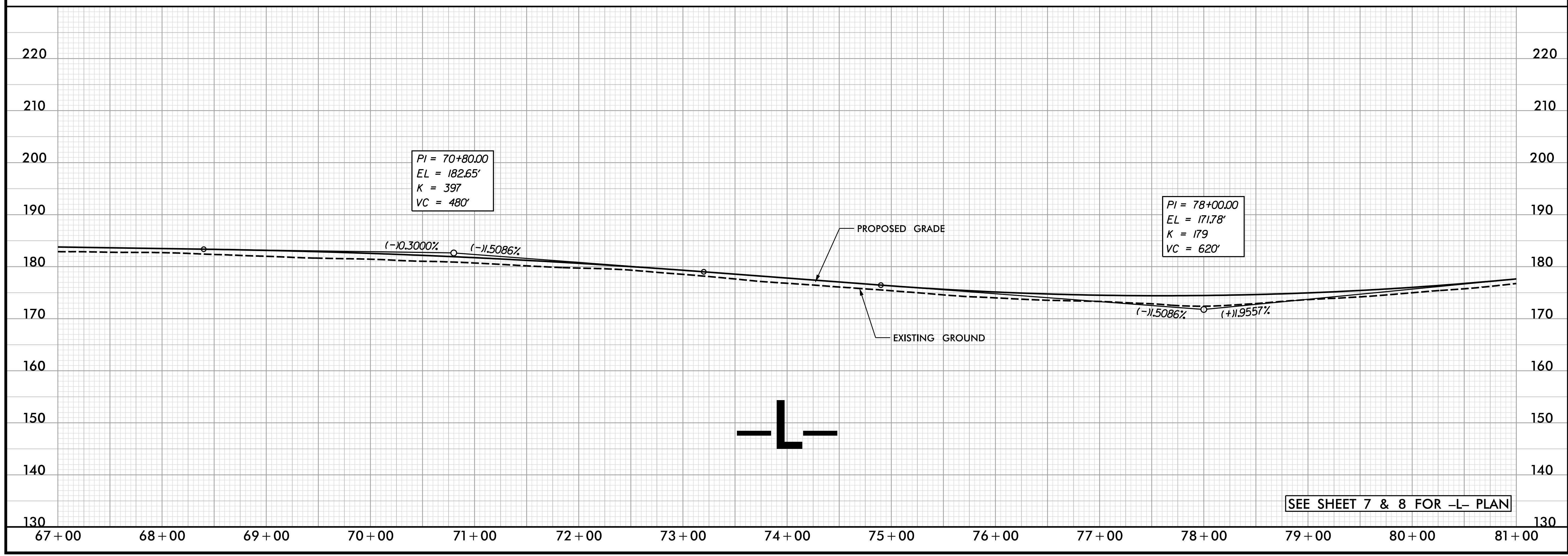
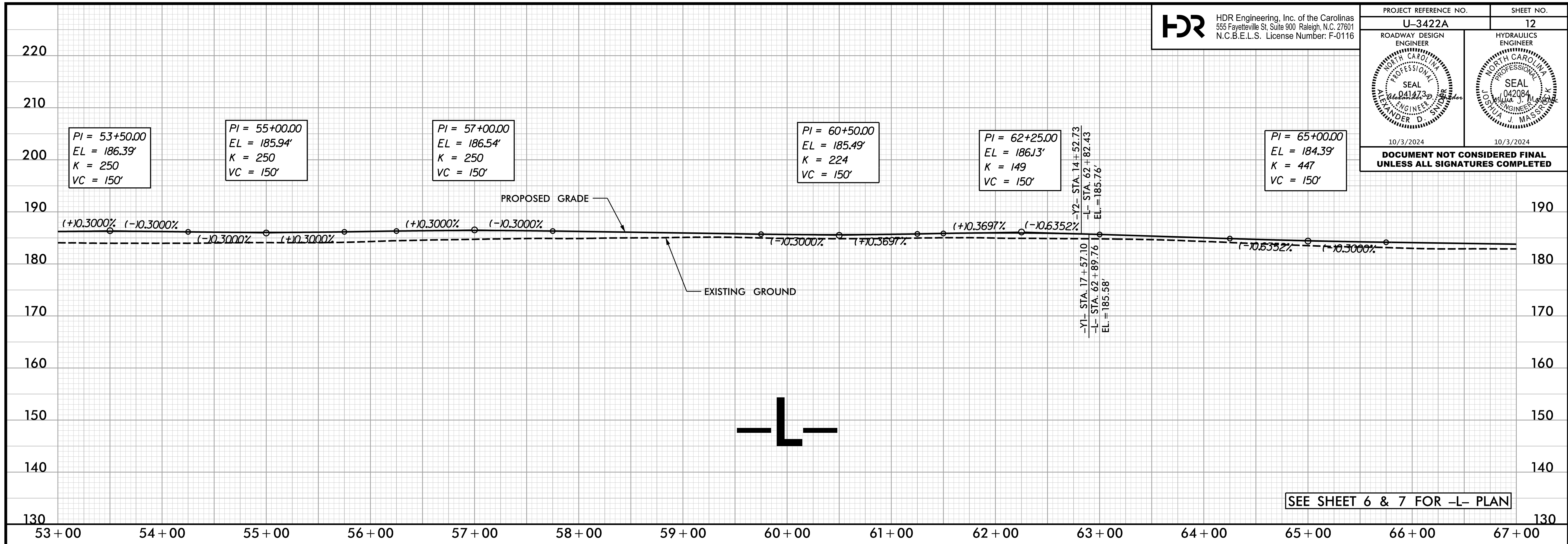
PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>11</b>
ROADWAY DESIGN ENGINEER SEAL 041473 ALEXANDER D.	HYDRAULICS ENGINEER SEAL 042084 DANIEL J. M... ALEXANDER D.
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



PLOT DRIVER: NCDOT\_pdf\_color\_eng\_50.plt  
USER: ASNIDER  
DATE: 8/7/2024  
TIME: 8:49:31 AM  
FILE: \

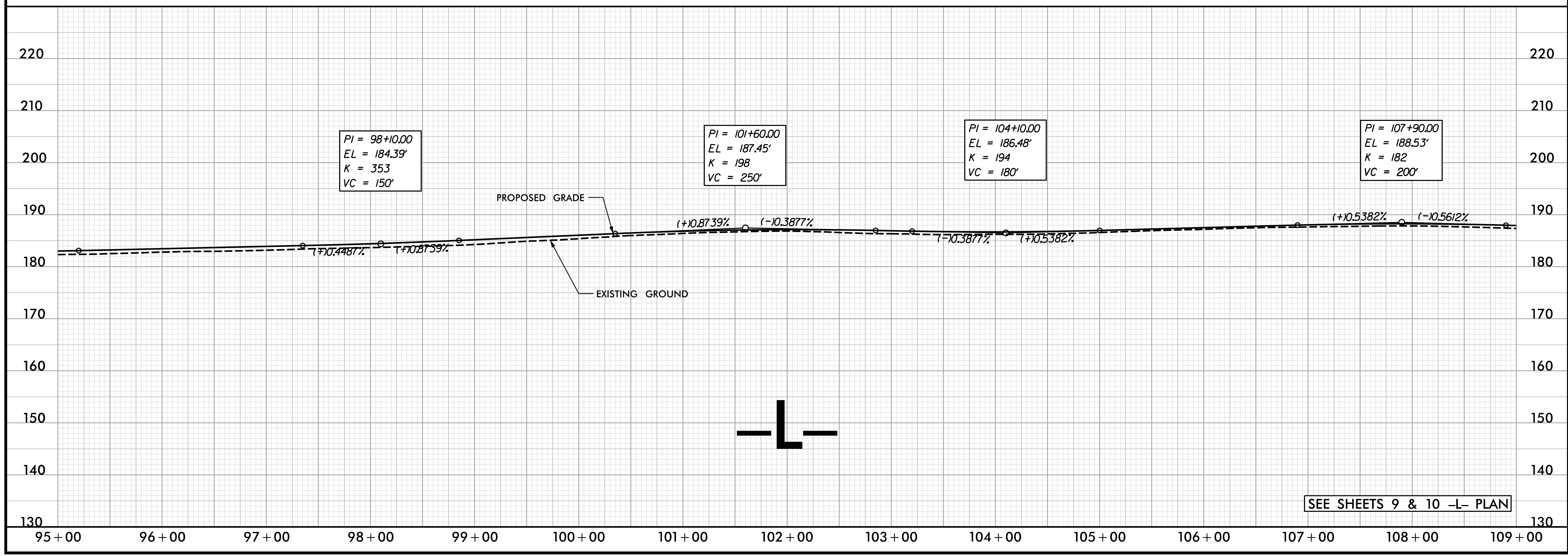
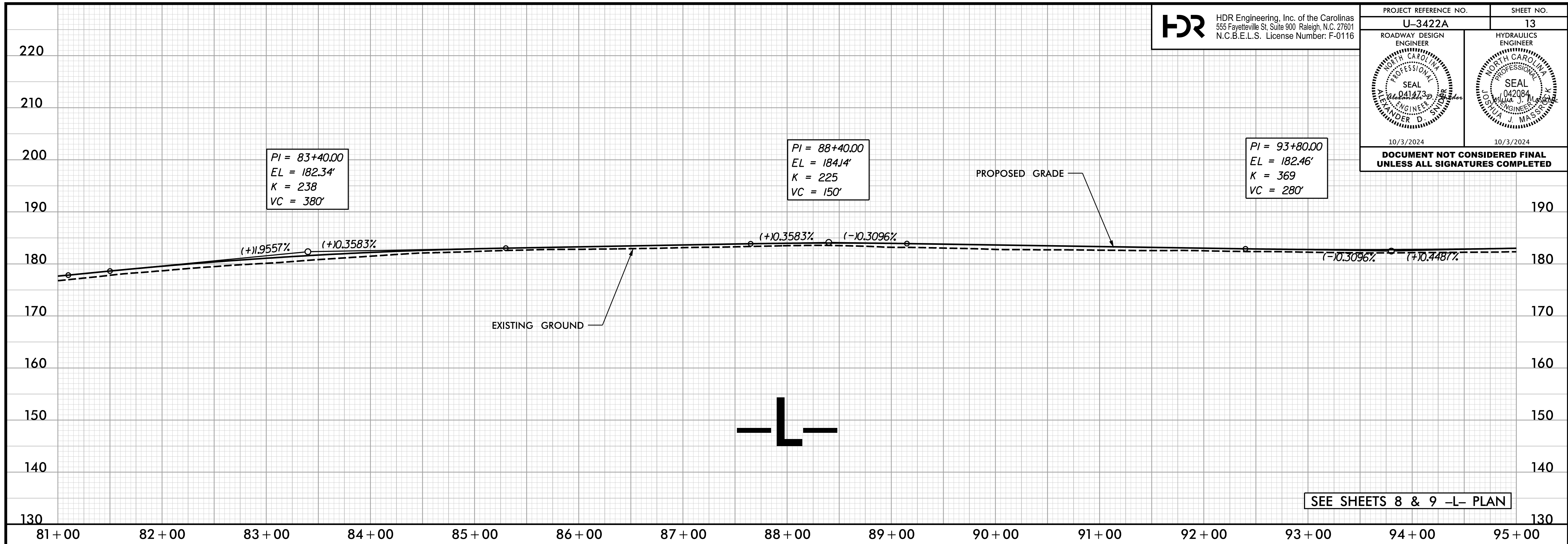


PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>12</b>
ROADWAY DESIGN ENGINEER SEAL 041473 ALEXANDER D. SNYDER	HYDRAULICS ENGINEER SEAL 042084 STEPHAN J. MASSIE
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



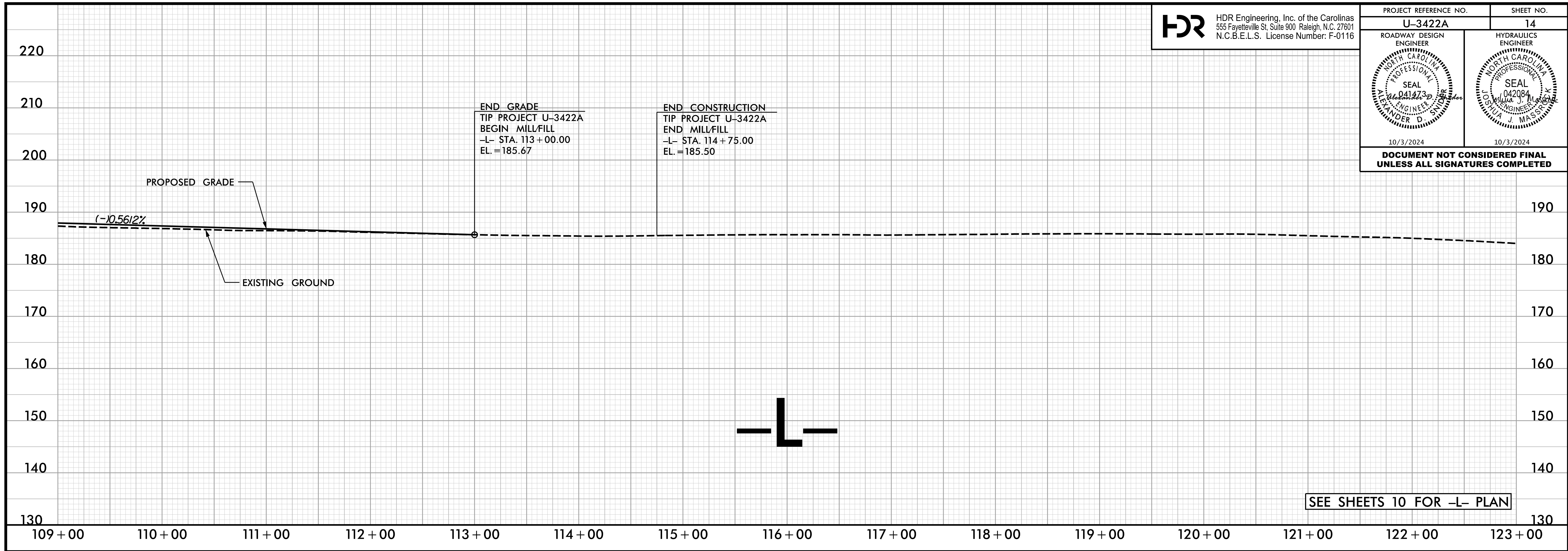
PLOT DRIVER: NCDOT\_pdf\_color\_eng\_50.plt  
 USER: ASNIDER  
 DATE: 8/7/2024  
 PENTABLE: U3422\_pshp.tbl  
 TIME: 8:49:33 AM  
 FILE: \

PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>13</b>
ROADWAY DESIGN ENGINEER SEAL 041473 ALEXANDER D. SNYDER	HYDRAULICS ENGINEER SEAL 042084 DANIEL J. M... J. MASS...
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



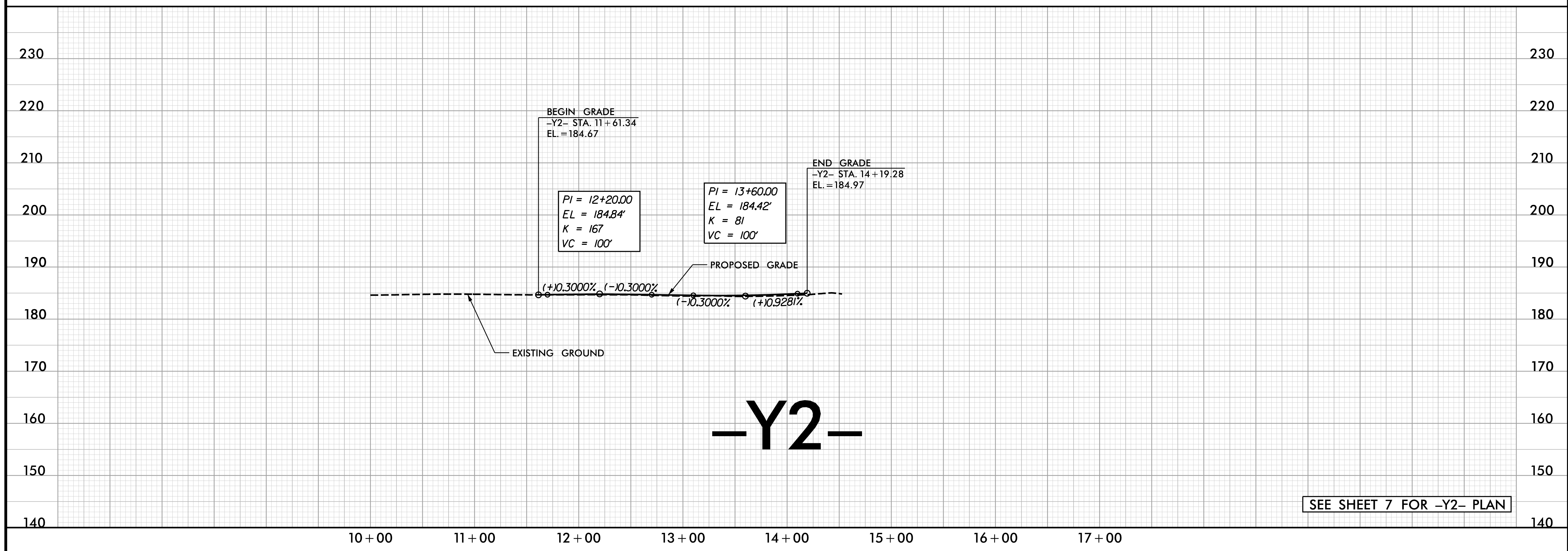
PLOT DRIVER: NCDOT\_pdf\_color\_eng\_50.plt  
 USER: ASNIDER  
 DATE: 8/7/2024  
 TIME: 8:49:35 AM  
 FILE: \

PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>14</b>
ROADWAY DESIGN ENGINEER SEAL ALEXANDER D. SNYDER 041473 10/3/2024	HYDRAULICS ENGINEER SEAL DANIEL J. MANNING 042084 10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	





PROJECT REFERENCE NO. <b>U-3422A</b>	SHEET NO. <b>15</b>
ROADWAY DESIGN ENGINEER SEAL 041473 ANDER D.	HYDRAULICS ENGINEER SEAL 042084 J. M. ...
10/3/2024	10/3/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



PLOT DRIVER: NCDOT\_pdf\_color\_eng\_50.plt  
 USER: ASNIDER  
 FILE: \

PENTABLE: U3422\_pshp.f1.tbl  
 DATE: 9/23/2024  
 TIME: 1:43:16 PM