

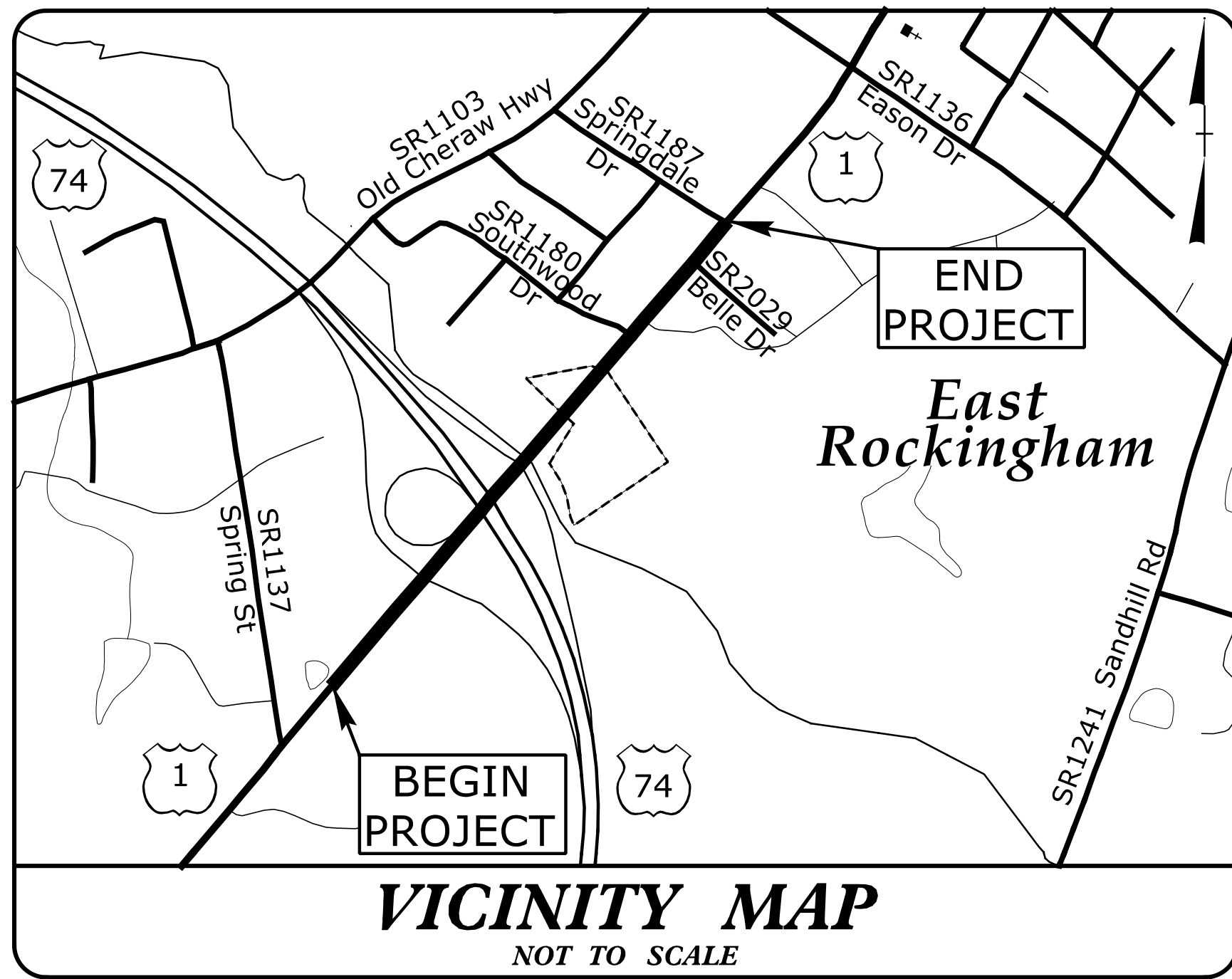
09\_08/2019

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

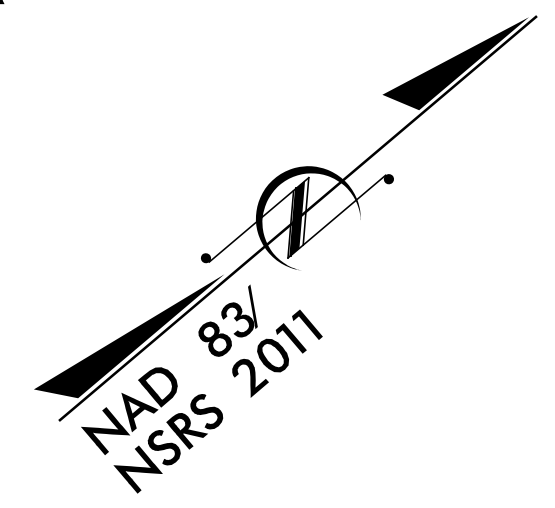
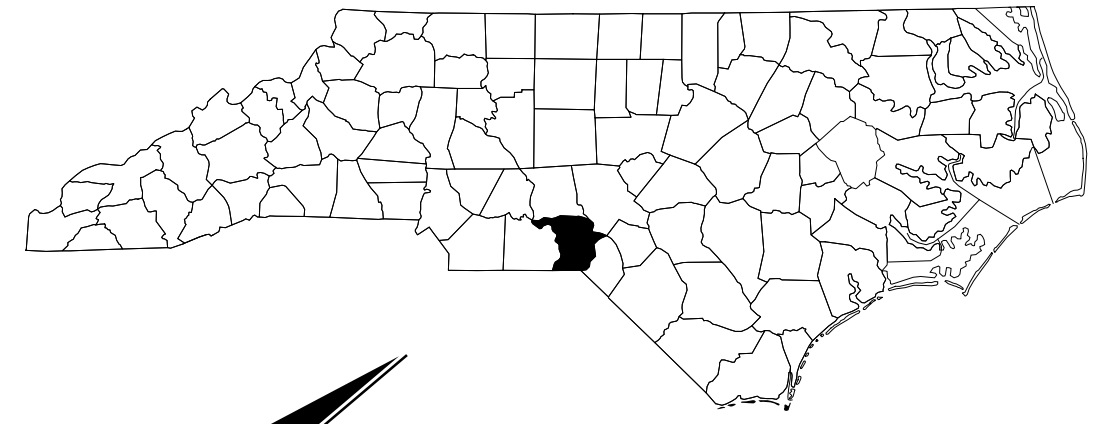
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5979	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46963.1.1		PE	
46963.2.1	0074227	R/W	
46963.2.2	0074227	UTIL.	
46963.3.1	0074227	CONST.	

TIP PROJECT: I-5979

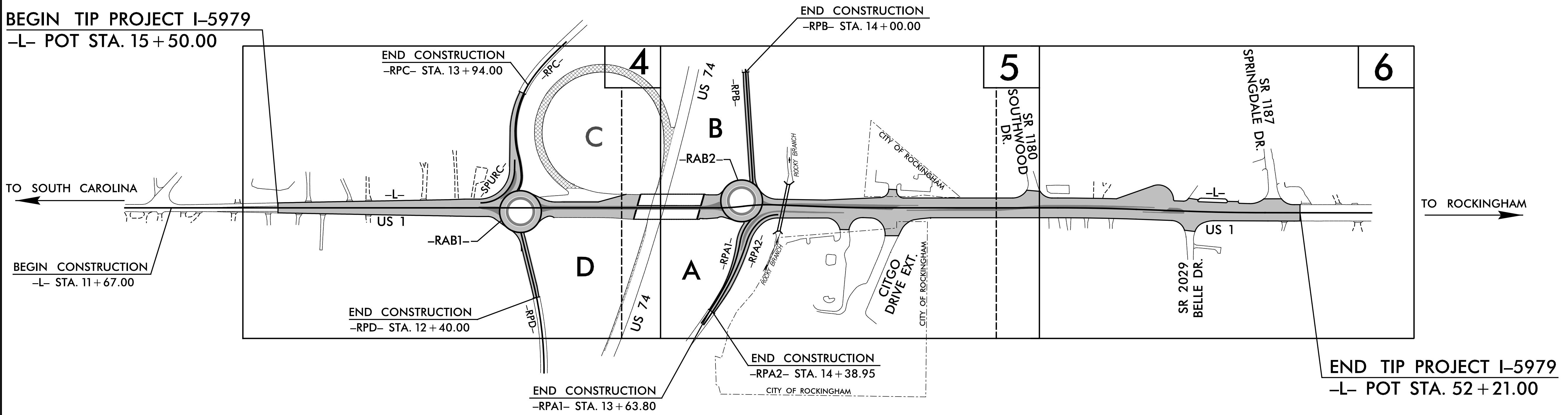


LOCATION: US 74 (FUTURE I-74) /US 1 (EXIT 311).  
INTERCHANGE IMPROVEMENTS AT US 1  
FROM JUST WEST OF THE EASTBOUND US 74 RAMP  
TO SR 1187 (SPRINGDALE DR.)

TYPE OF WORK: DRAINAGE, GRADING, PAVING, BRIDGE PRESERVATION  
AND LIGHTING

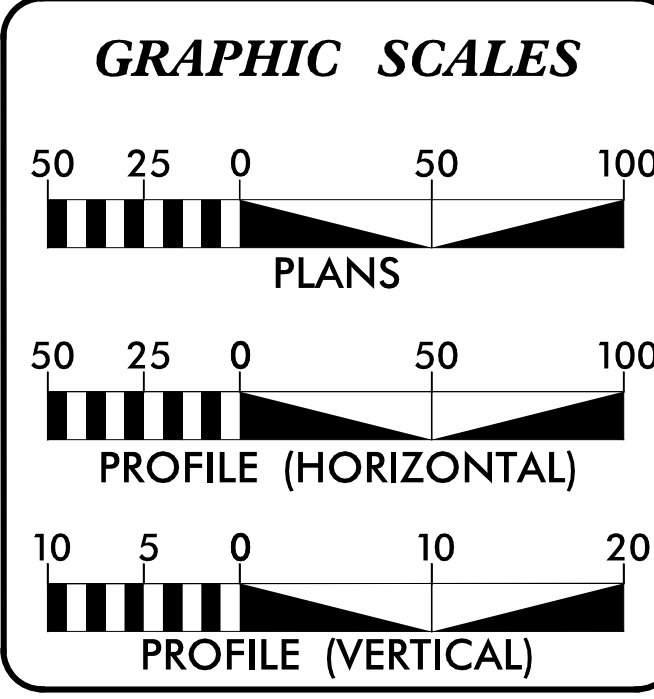


CONTRACT: C204940



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

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

ADT 2024 =	13,200
ADT 2040 =	13,200
K =	8 %
D =	55 %
T =	23 % *
V =	50 MPH
* (TTST 19 + DUAL 4)	
FUNC CLASS =	PRINCIPAL ARTERIAL

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT I-5979	=	0.652 MI.
LENGTH EXISTING STRUCTURE	=	0.043 MI.
TOTAL LENGTH OF TIP PROJECT I-5979	=	0.695 MI.

Prepared for the North Carolina Department of Transportation  
In the Office of:

**vhb**  
VHB Engineering Inc., P.C. © 2020  
10000 Park Road, Suite 200  
Charlotte, NC 28226

2024 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	JIMMY GOODNIGHT, PE PROJECT ENGINEER
MAY 24, 2022	
LETTING DATE:	JERRY JAVELLANA, PE PROJECT DESIGN ENGINEER
FEBRUARY 18, 2025	
NCDOT CONTACT	GREG DAVIS, PE DIVISION PROJECT ENGINEER

**HYDRAULICS ENGINEER**

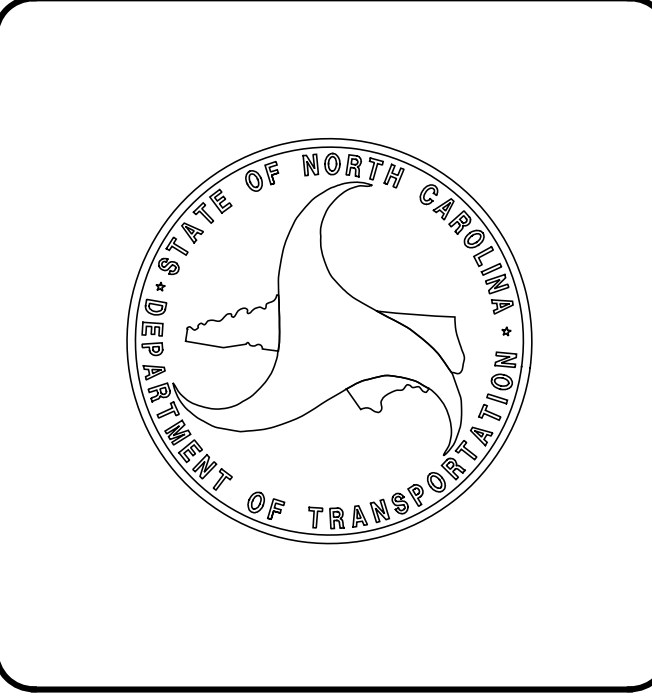
12/18/2024

DocuSigned by:  
Reid B. Robel  
SIGNATURE:

**ROADWAY DESIGN ENGINEER**

12/18/2024

DocuSigned by:  
Jimmy Goodnight  
SIGNATURE:



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R:\Roadway\Proj\I5979\_rdy\_tsh.dgn  
Jjavellana

8/17/24



PROJECT REFERENCE NO.	SHEET NO.
1-5979	1A
ROADWAY DESIGN ENGINEER	
Docusign Jimmy L. Gooch 8/17/2024	

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

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-6	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-3	ROADWAY DETAILS
2C-1	METHOD OF PIPE INSTALLATION
2C-2 THRU 2C-3	GUARDRAIL PLACEMENT DETAILS
3B-1 THRU 3B-2	ROADWAY SUMMARIES
3D-1 THRU 3D-3	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 10	PLAN AND PROFILE SHEETS
RW01 THRU RW-06	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES
TMP-1 THRU TMP-12	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-5	PAVEMENT MARKING PLANS
E-1 THRU E-2	LIGHTING AND ELECTRICAL PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-13	SIGNING PLANS
UC-1 THRU UC-8	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-4	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION INDEX AND SUMMARY SHEET
X-1 THRU X-29	CROSS-SECTIONS
1 THRU S-06	BRIDGE PRESERVATION PLANS

**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 III.

**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. 560.02

**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.

**BERM DITCHES:**

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

**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 RADIUS OR RADIUS 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 RADIUS 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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

**UTILITIES:**

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY - POWER; PNG - GAS; AT&T AND CHARTER - COMMUNICATIONS; RICHMOND COUNTY WATER DEPT. - WATER; CITY OF ROCKINGHAM - SEWER

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 CONTRACT.

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
<b>DIVISION 2 - EARTHWORK</b>	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
240.01	Guide for Berm Ditch Construction
275.01	Rock Paving
<b>DIVISION 3 - PIPE CULVERTS</b>	
310.10	Driveway Pipe Construction
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.02	Method of Shoulder Construction - High Side of Super-elevated Curve - Method II
<b>DIVISION 6 - ASPHALT BASES AND PAVEMENTS</b>	
654.01	Pavement Repairs
665.01	Asphalt Shoulders - Milled Rumble Strips
665.02	Limits for Asphalt Shoulders - Milled Rumble Strips
<b>DIVISION 8 - INCIDENTALS</b>	
806.01	Concrete Right-of-Way Marker
806.03	Concrete Control of Access Marker
815.02	Subsurface Drain
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
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide 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
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - for B-77 and B-83 Anchor Units
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

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

Note: Not to Scale

BOUNDARIES AND PROPERTY:

Table listing boundary and property symbols: 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, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary, Existing Historic Property Boundary, Known Contamination Area: Soil, Potential Contamination Area: Soil, Known Contamination Area: Water, Potential Contamination Area: Water, Contaminated Site: Known or Potential.

BUILDINGS AND OTHER CULTURE:

Table listing building and culture symbols: Gas Pump Vent or U/G Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing hydrology symbols: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Wetland, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing railroad symbols: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY & PROJECT CONTROL:

Table listing right of way and project control symbols: 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, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Drainage/Utility Easement, Proposed Permanent Utility Easement, Proposed Temporary Utility Easement, Proposed Aerial Utility Easement.

ROADS AND RELATED FEATURES:

Table listing road and related features symbols: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Curb Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal, VEGETATION: Single Tree, Single Shrub, Hedge.

Table listing other symbols: Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing existing structures symbols: 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:

Table listing utility symbols: 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:

Table listing water symbols: 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:

Table listing TV symbols: 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:

Table listing gas symbols: 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:

Table listing sanitary sewer symbols: 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:

Table listing miscellaneous symbols: 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, End of Information.

6/2/2024

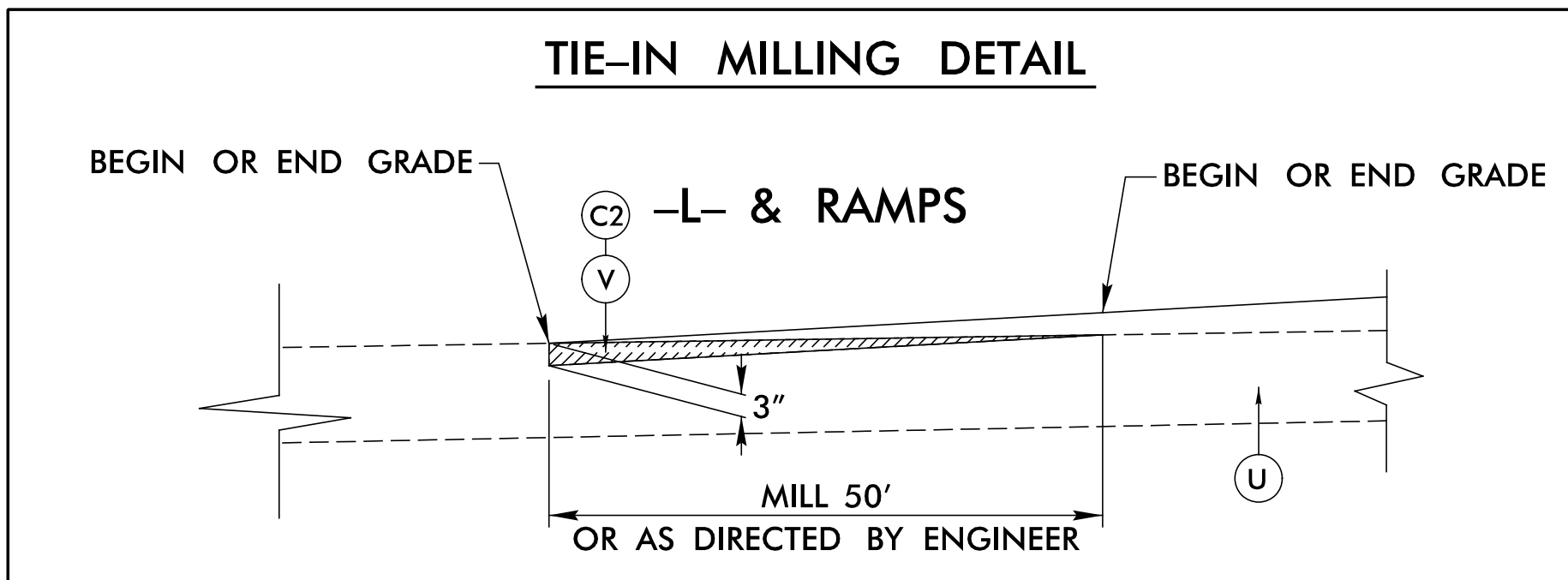
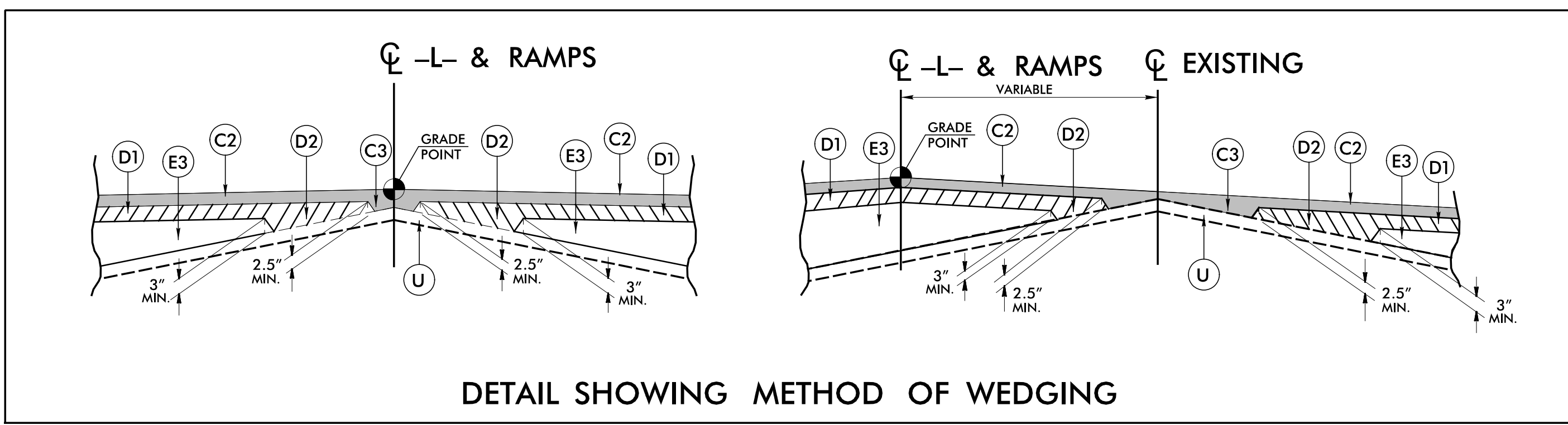
# PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN: DATED JANUARY 10, 2022)

A1	12" DOWELED JOINTED CONCRETE (WITH 4x4-W5.5xW5.5 OR 6x6-W8.5xW8.5 WELDED WIRE MESH REINFORCEMENT)
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	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
C3	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
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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 5.5" IN DEPTH
K	PROP. 12" CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	EXPRESSWAY GUTTER
R4	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R5	4" CONCRETE ISLAND COVER
R6	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
V1	MILLING BITUMINOUS PAVEMENT, 0" TO 3" DEPTH
V2	MILLING BITUMINOUS PAVEMENT, 1.5" DEPTH
V3	MILLING BITUMINOUS PAVEMENT, 3" DEPTH
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

USE THE FOLLOWING PAVEMENT DESIGN FOR DRIVEWAYS  
 6" OF ABC IF EXISTING DRIVEWAY IS GRAVEL  
 6" OF ABC, 2" OF S9.5B AND PRIME COAT IF EXISTING DRIVEWAY IS ASPHALT

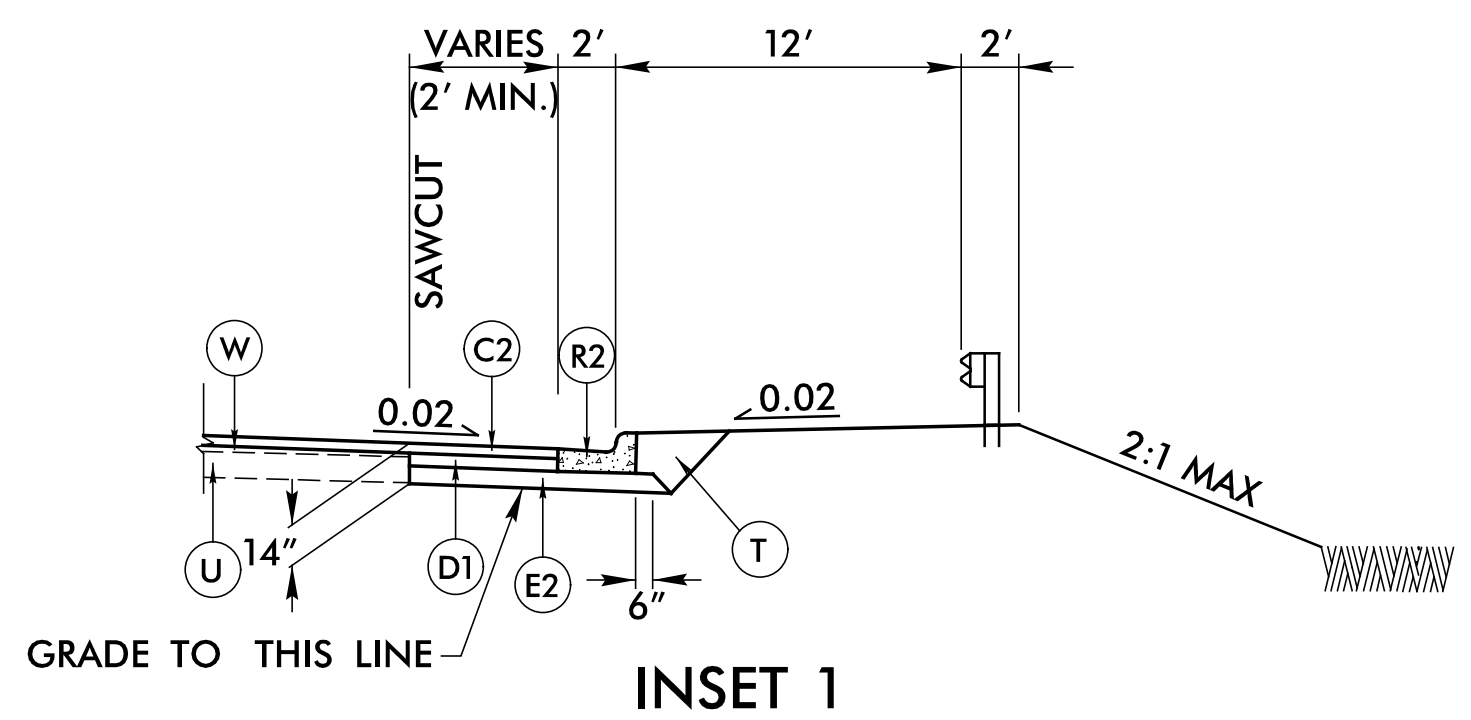
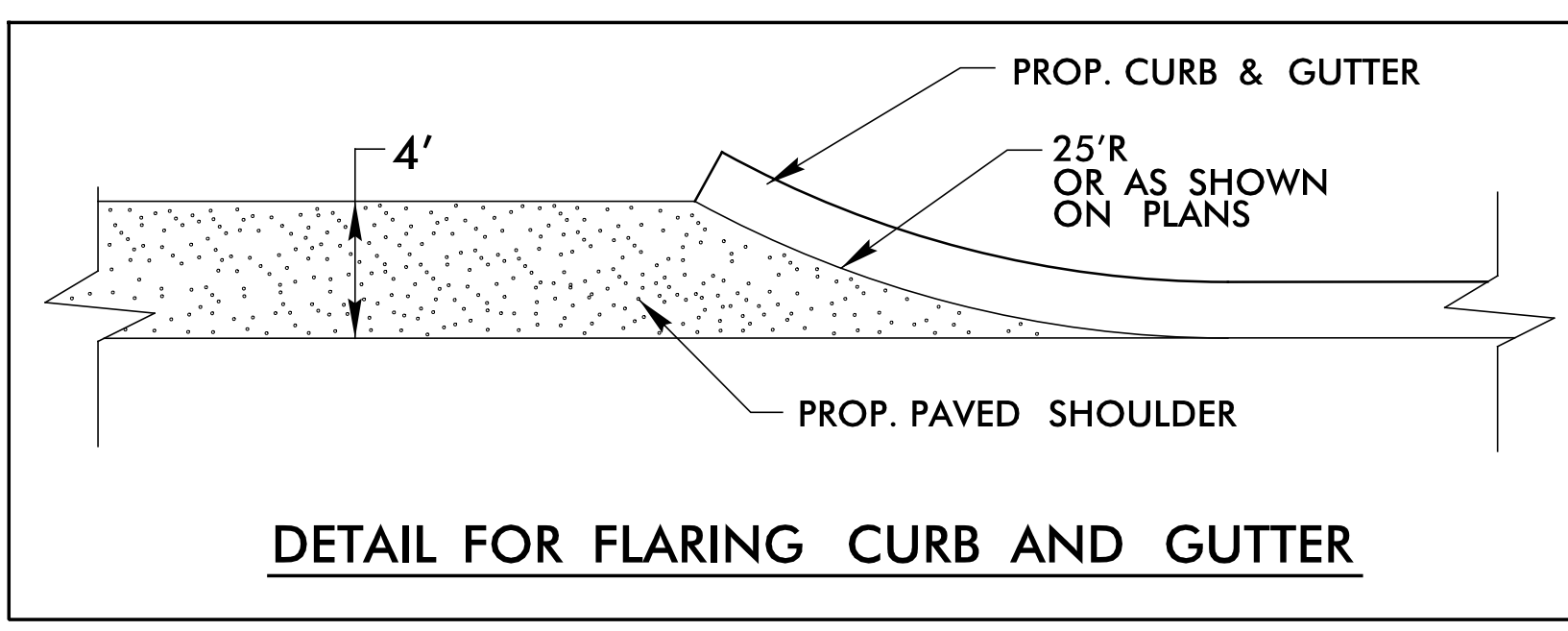


**NOTES TO CONTRACTOR**

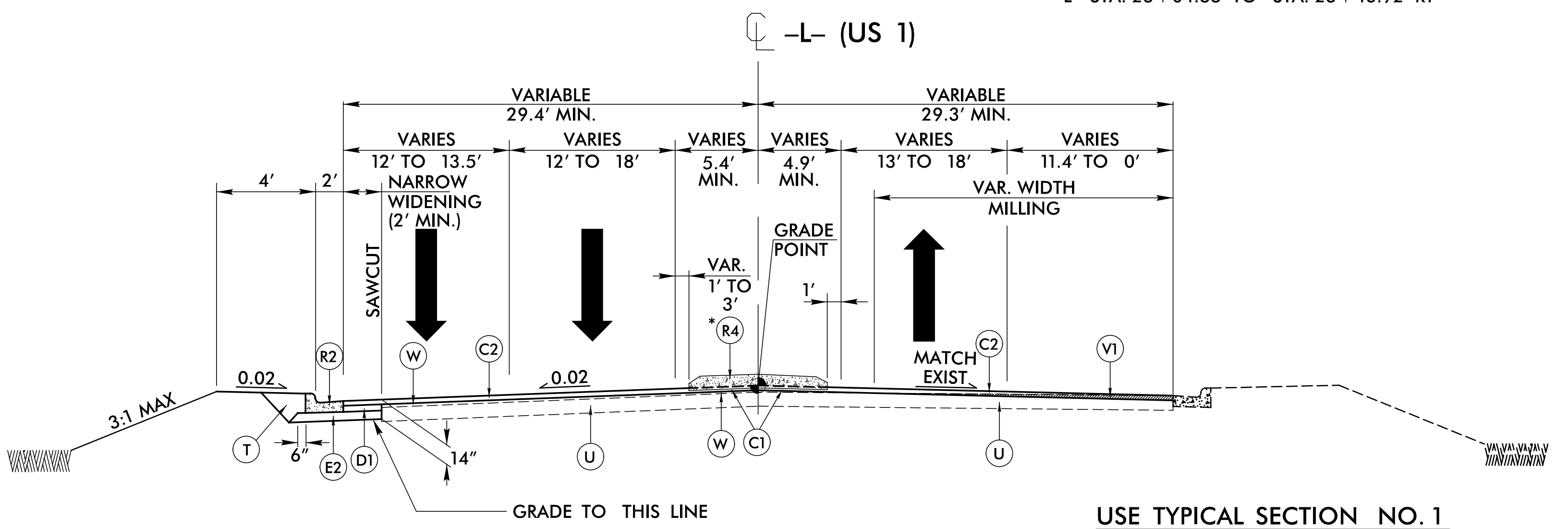
For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.

Perform the work in accordance with Section 607 of the January 2024 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



USE IN CONJUNCTION WITH T.S. #1  
 -L- STA. 23+04.88 TO STA. 23+46.92 RT



\*SEE PLANS FOR LIMITS OF CONC. ISLAND

**TYPICAL SECTION NO. 1**  
 SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL

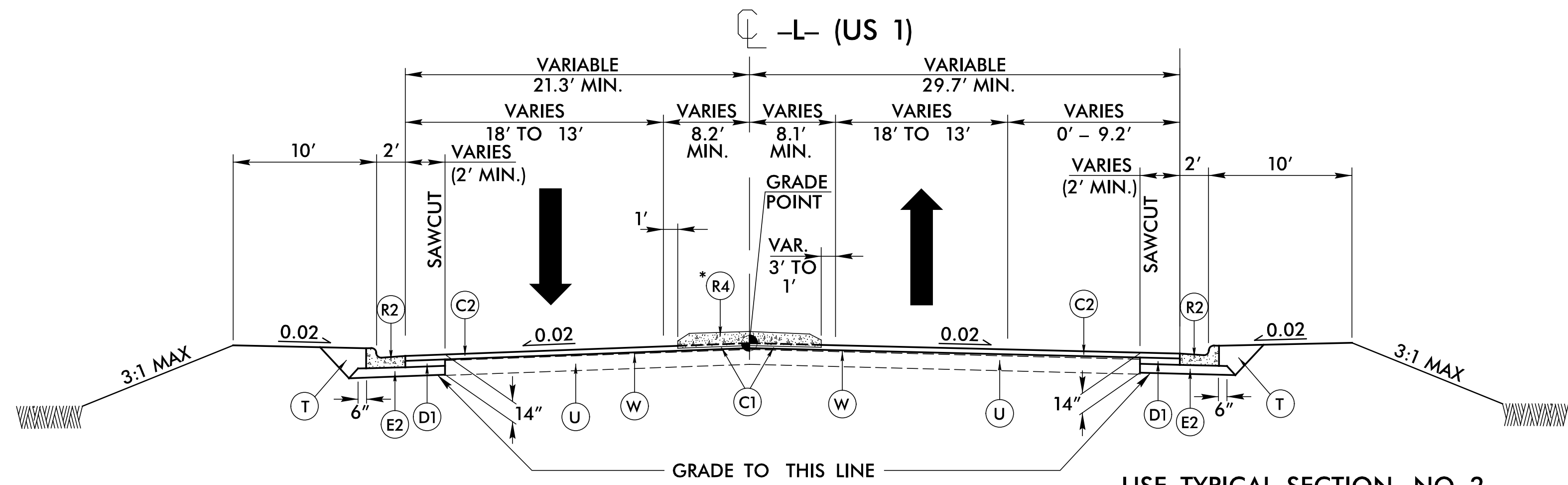
USE TYPICAL SECTION NO. 1  
 -L- STA. 21+69.00 TO STA. 23+46.92  
 INCIDENTAL MILLING MAY BE REQUIRED IN VARIOUS AREAS IN ORDER TO FACILITATE THE 3" SURFACE COURSE.

NOTE: MILL WITH (V3) AND RESURFACE WITH (C2)  
 -L- STA. 15+50.00 TO STA. 21+69.00

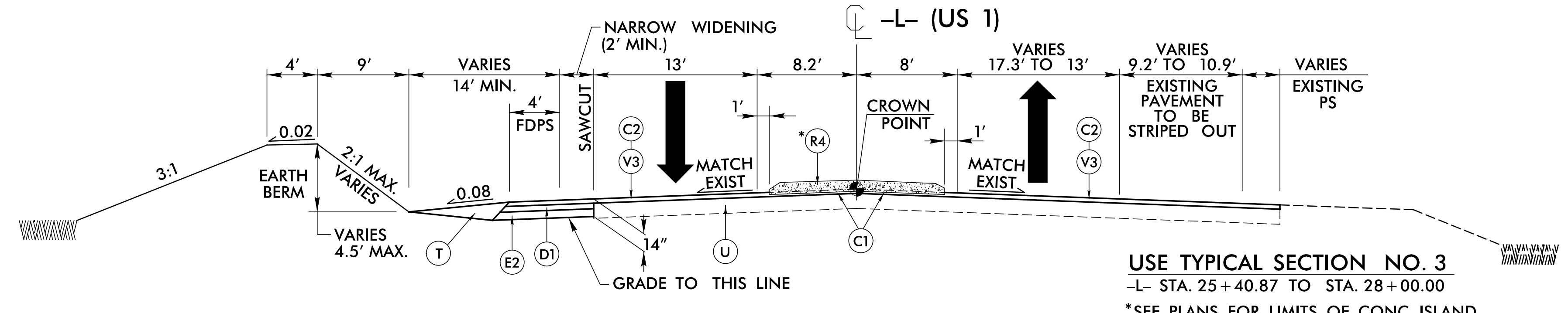
PROJECT REFERENCE NO. 1-5979	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER SEAL 014493 12/19/2024	PAVEMENT DESIGN ENGINEER SEAL 038176 12/19/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 VHB Engineering, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27605	

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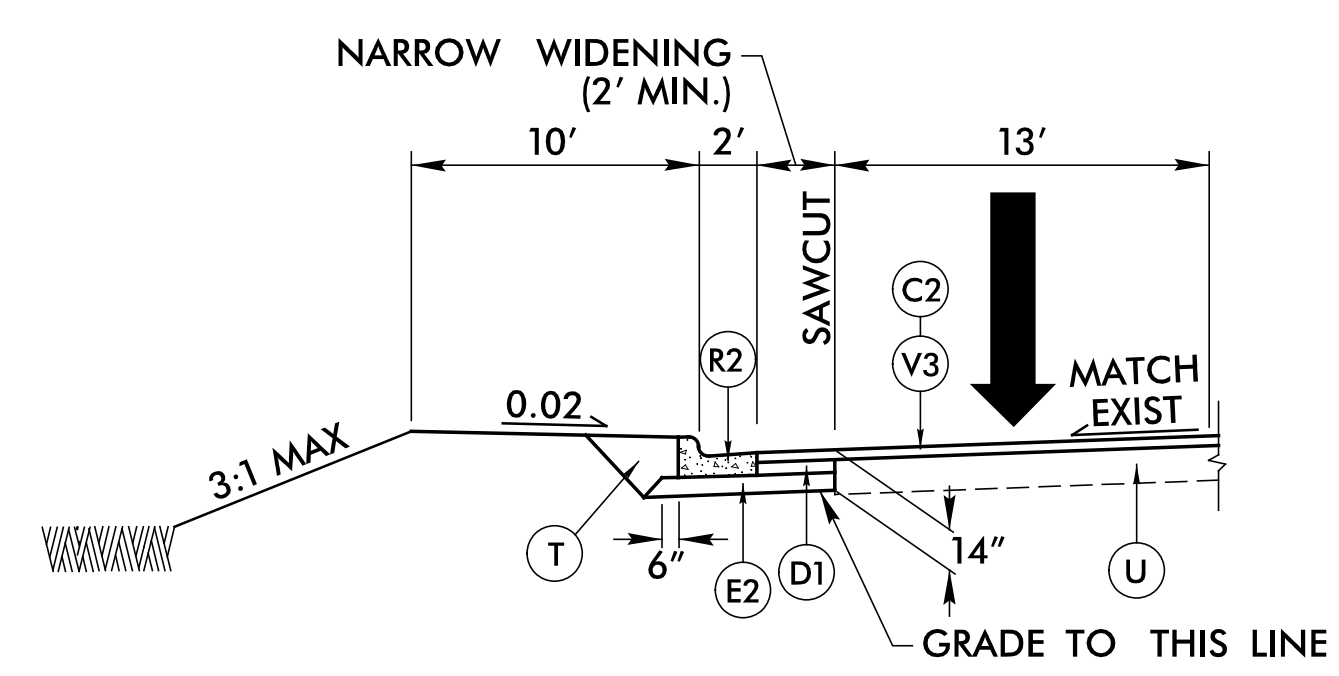
6/2/2024



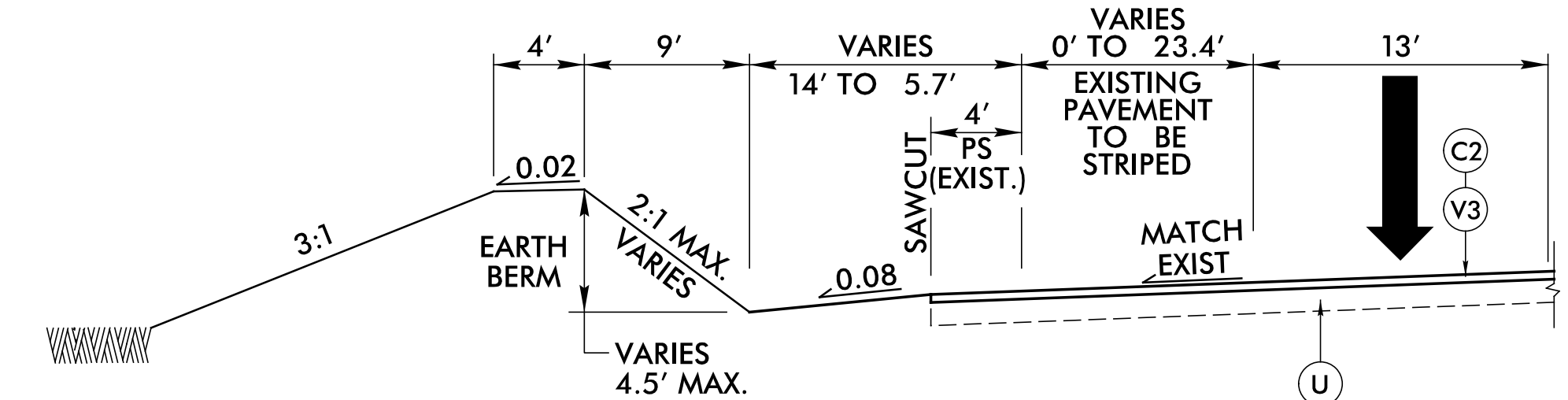
**TYPICAL SECTION NO. 2**  
 -L- STA. 24+94.50 TO STA. 25+40.87  
 USE TYPICAL SECTION NO. 2  
 INCIDENTAL MILLING MAY BE REQUIRED IN VARIOUS AREAS IN ORDER TO FACILITATE THE 3" SURFACE COURSE OVERLAY.  
 \*SEE PLANS FOR LIMITS OF CONC. ISLAND  
 SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL



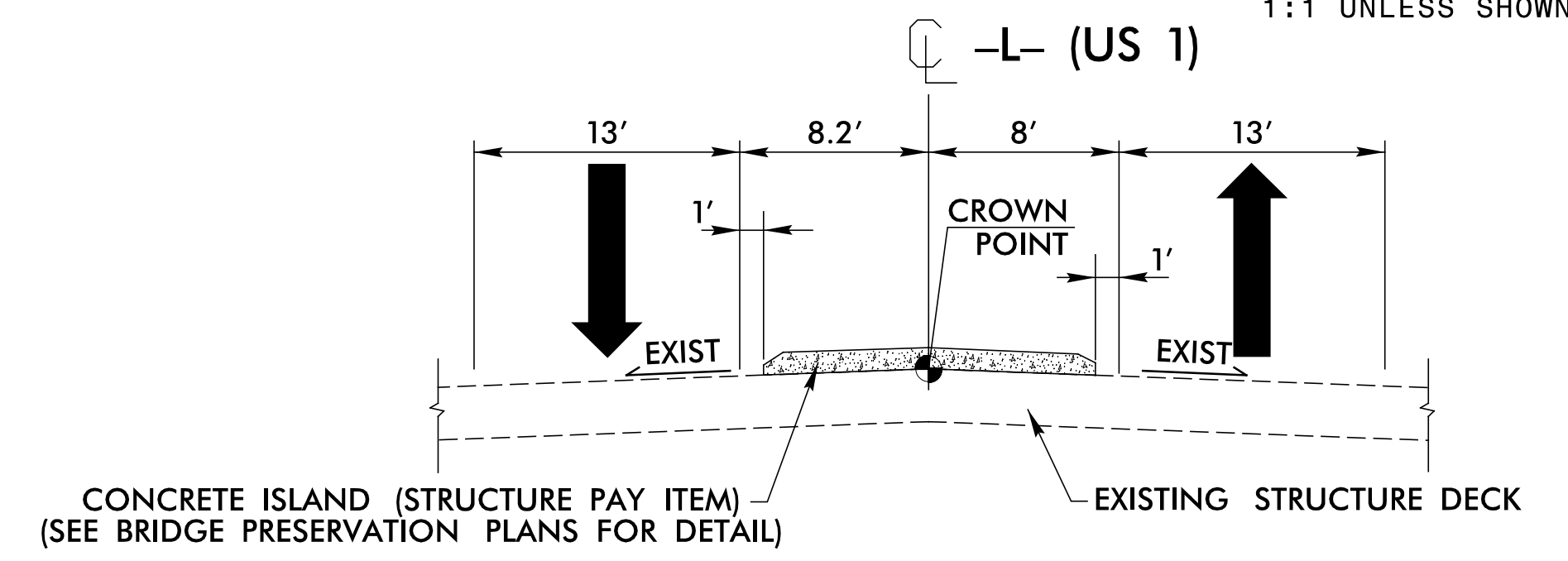
**TYPICAL SECTION NO. 3**  
 -L- STA. 25+40.87 TO STA. 28+00.00  
 USE TYPICAL SECTION NO. 3  
 \*SEE PLANS FOR LIMITS OF CONC. ISLAND  
 SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL  
 NOTE: MILL WITH (V3) AND RESURFACE WITH (C2)  
 -L- STA. 28+00.00 TO STA. 28+38.30 (BEGIN EXISTING BRIDGE)  
 -L- STA. 30+66.70 (END EXISTING BRIDGE) TO STA. 30+86.00



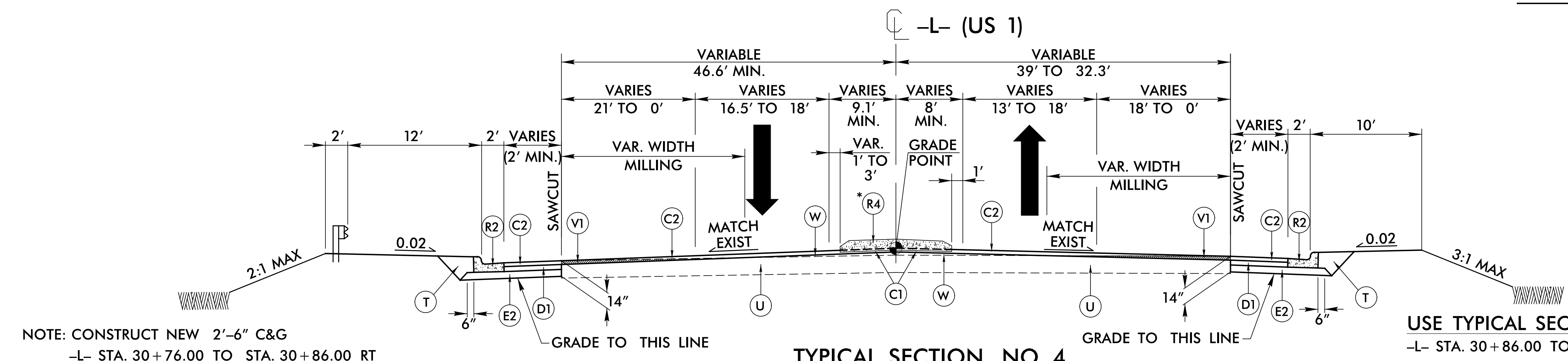
**INSET 3A**  
 USE IN CONJUNCTION WITH T.S. #3  
 -L- STA. 25+40.87 TO STA. 25+71.45 LT



**INSET 3B**  
 USE IN CONJUNCTION WITH T.S. #3  
 -L- STA. 27+00.00 TO STA. 28+00.00 LT



**TYPICAL SECTION OVER EXISTING STRUCTURE**  
 -L- STA. 28+38.30 (BEGIN EXISTING BRIDGE) TO  
 -L- STA. 30+66.70 (END EXISTING BRIDGE)



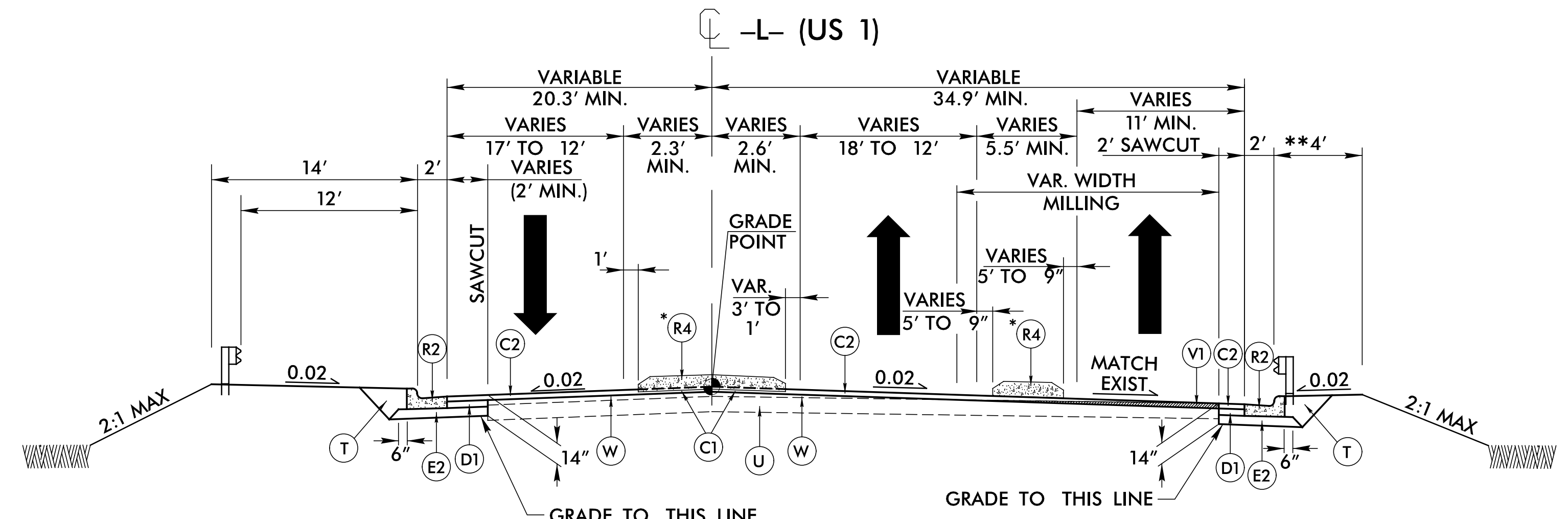
**TYPICAL SECTION NO. 4**  
 -L- STA. 30+76.00 TO STA. 30+86.00 RT  
 USE TYPICAL SECTION NO. 4  
 \*SEE PLANS FOR LIMITS OF CONC. ISLAND  
 SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL

PROJECT REFERENCE NO. 1-5979	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER SEAL 014493 JIMMY GOODNIGHT	PAVEMENT DESIGN ENGINEER SEAL 038176 SHIHU CHANG
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED Prepared by VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27605	
<b>FINAL PAVEMENT SCHEDULE</b>	
C1	1.5" TYPE S9.5C
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E2	7" TYPE B25.0C
K	CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SUBGRADE STABILIZATION
R2	2'-6" C&G
R4	5" CONCRETE ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 0"-3" DEPTH
V3	MILLING 3" DEPTH
W	WEDGING

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

I:\5\2024\15979\15979\_rdlj\_tjip.dgn  
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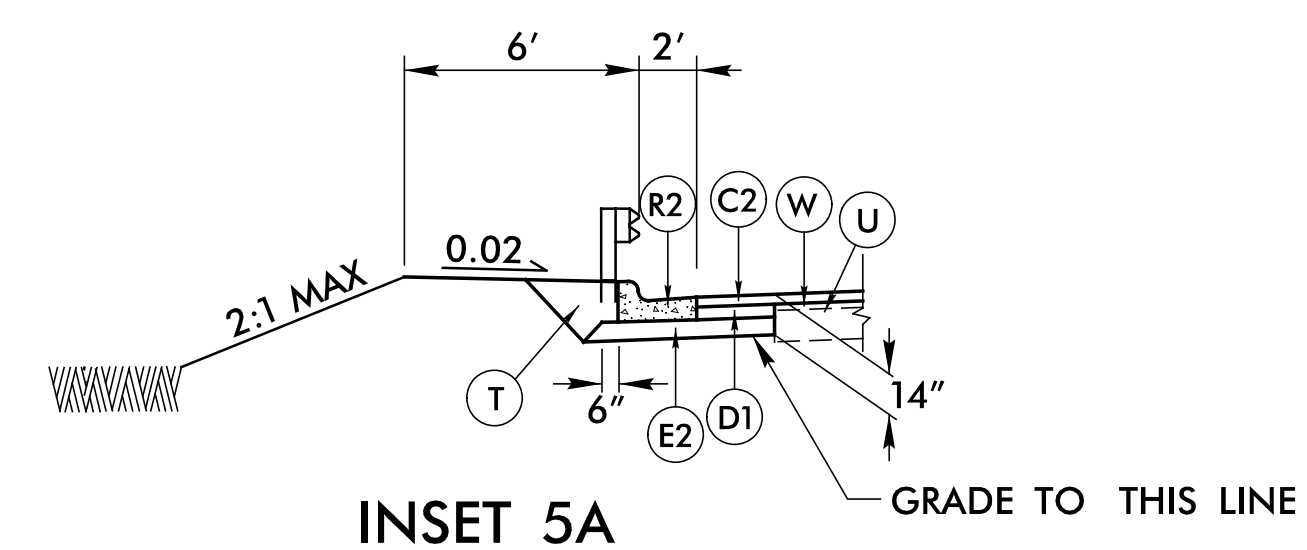
6/2/2024



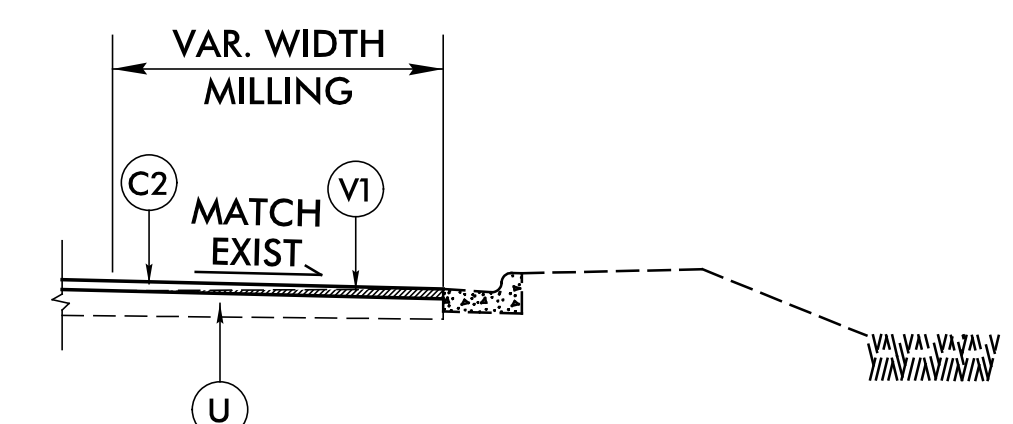
**TYPICAL SECTION NO. 5**

USE TYPICAL SECTION NO. 5  
 -L- STA. 32+89.02 TO STA. 36+60.00  
 INCIDENTAL MILLING MAY BE REQUIRED IN VARIOUS AREAS  
 IN ORDER TO FACILITATE THE 3" SURFACE COURSE.

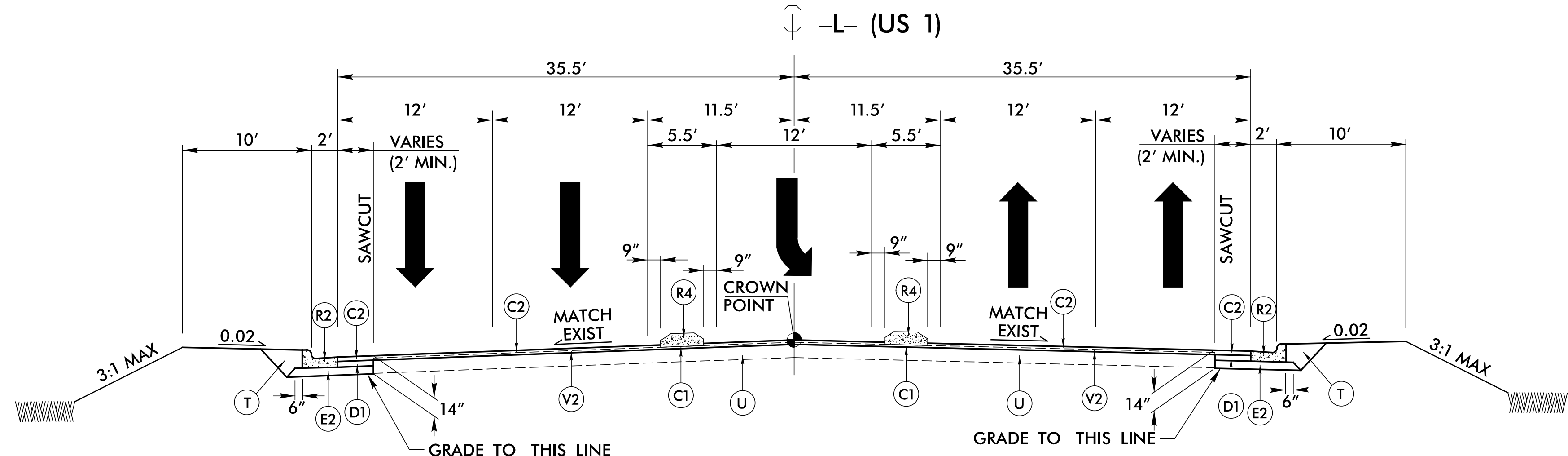
\*SEE PLANS FOR LIMITS OF CONC. ISLAND  
 \*\*10' FROM -L- STA. 36+27.00 TO STA. 36+60.00  
 SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL



**INSET 5A**  
 USE IN CONJUNCTION WITH T.S. #5  
 -L- STA. 34+00.00 TO STA. 36+60.00 LT



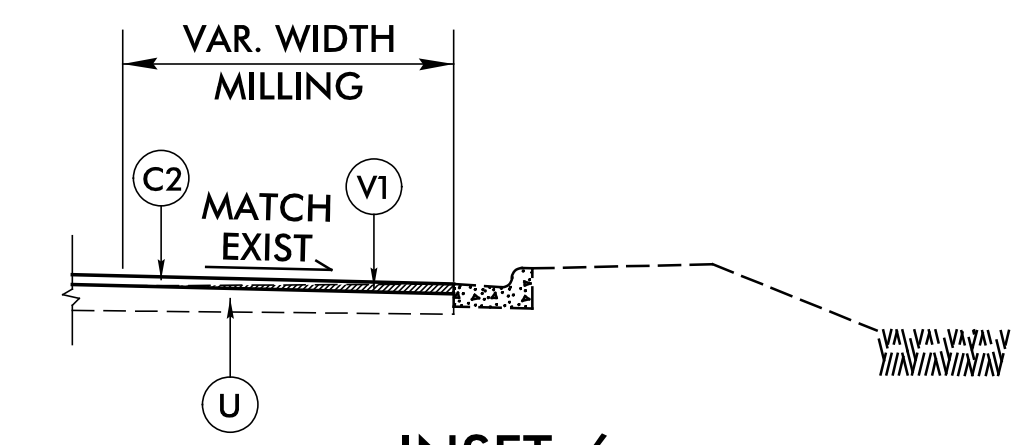
**INSET 5B**  
 USE IN CONJUNCTION WITH T.S. #5  
 -L- STA. 35+20.00 TO STA. 36+27.00 RT



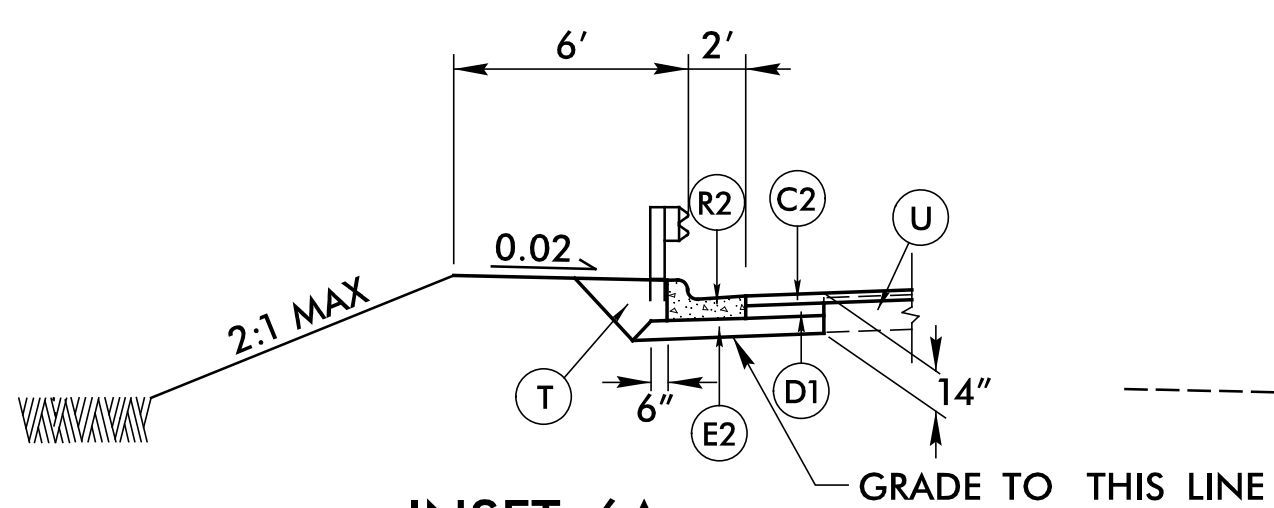
**TYPICAL SECTION NO. 6**

USE TYPICAL SECTION NO. 6  
 -L- STA. 36+60.00 TO STA. 51+05.67

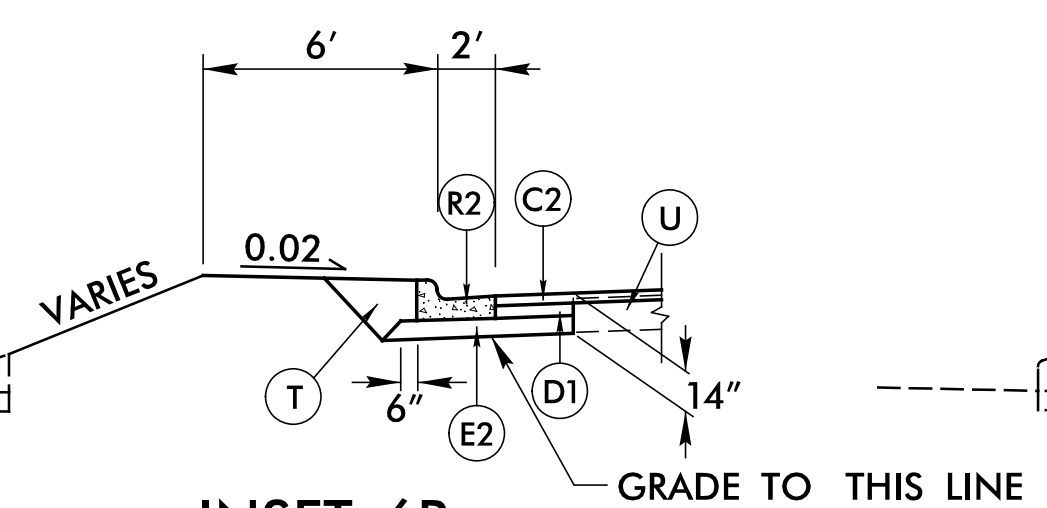
NOTES:  
 SEE PLANS FOR LOCATIONS OF CONCRETE ISLANDS, TURN LANES AND TAPERS.  
 MILL WITH (V3) AND RESURFACE WITH (C2) FROM -L- STA. 51+05.67 TO STA. 52+21.00  
 SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL



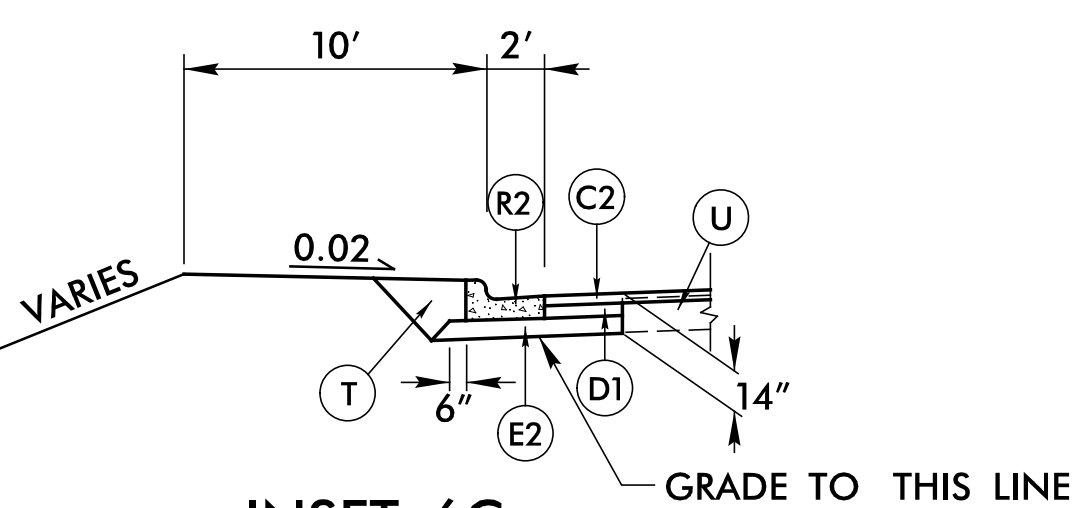
**INSET 6**  
 USE IN CONJUNCTION WITH T.S. #6  
 -L- STA. 36+60.00 TO STA. 38+94.18 RT



**INSET 6A**  
 USE IN CONJUNCTION WITH T.S. #6  
 -L- STA. 36+60.00 TO STA. 37+00.00 LT



**INSET 6B**  
 USE IN CONJUNCTION WITH T.S. #6  
 -L- STA. 48+57.27 TO STA. 49+54.62 LT

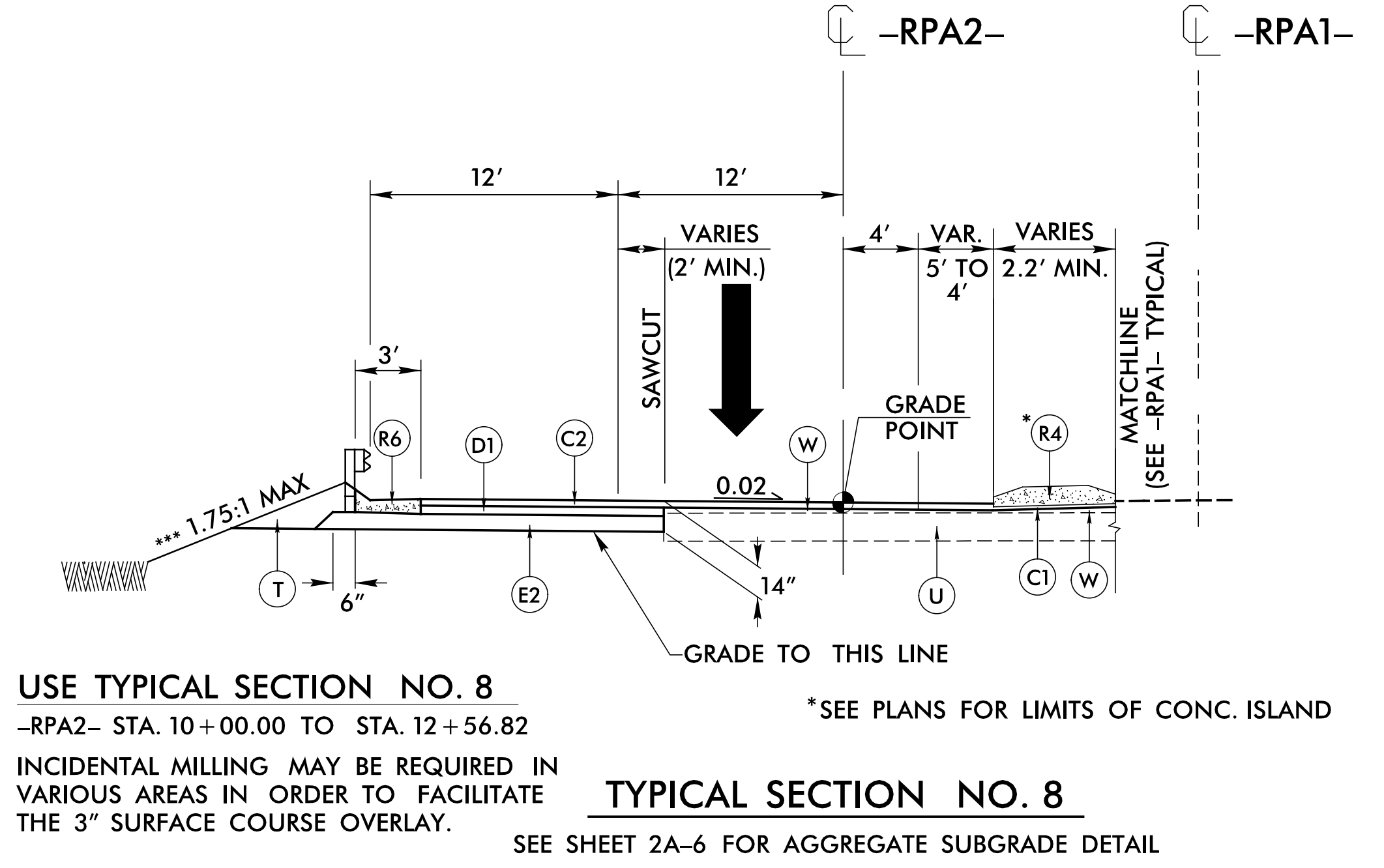
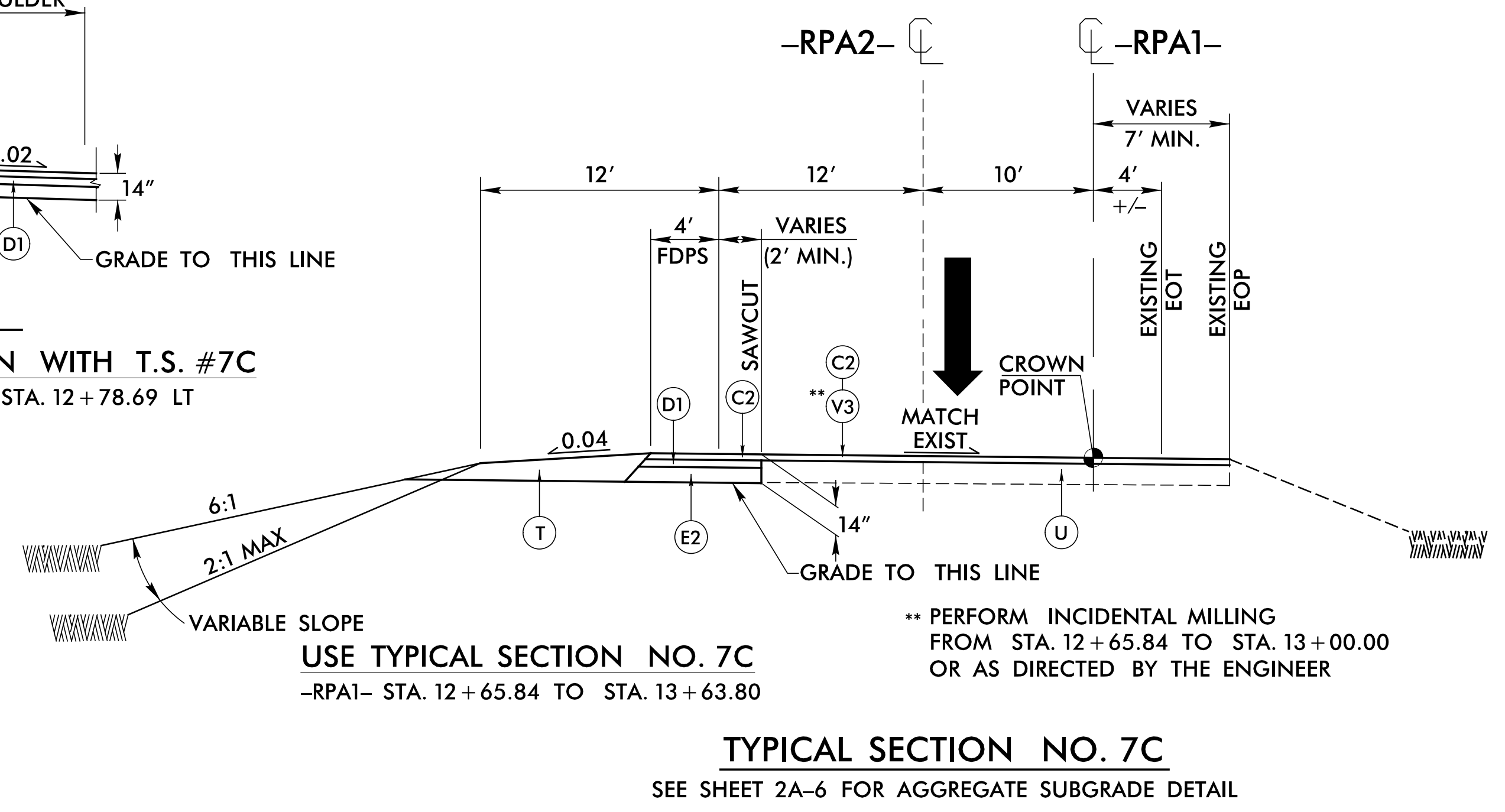
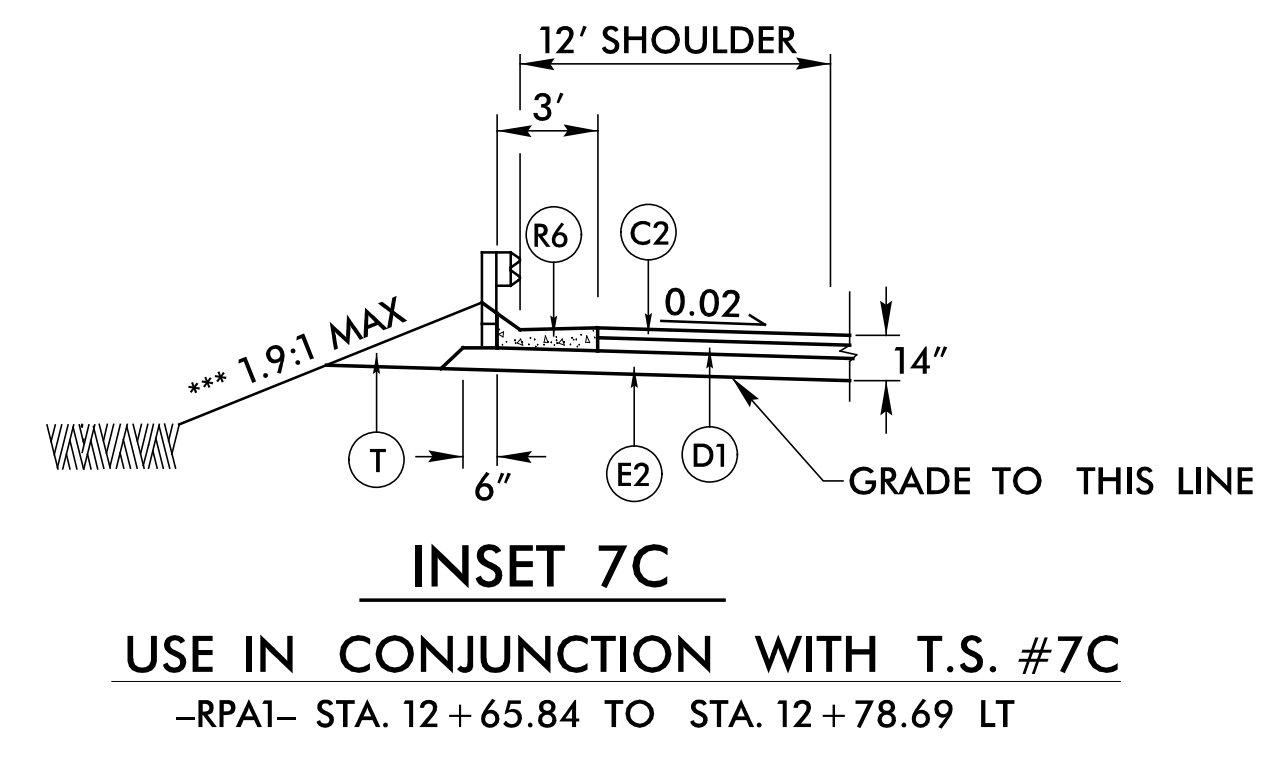
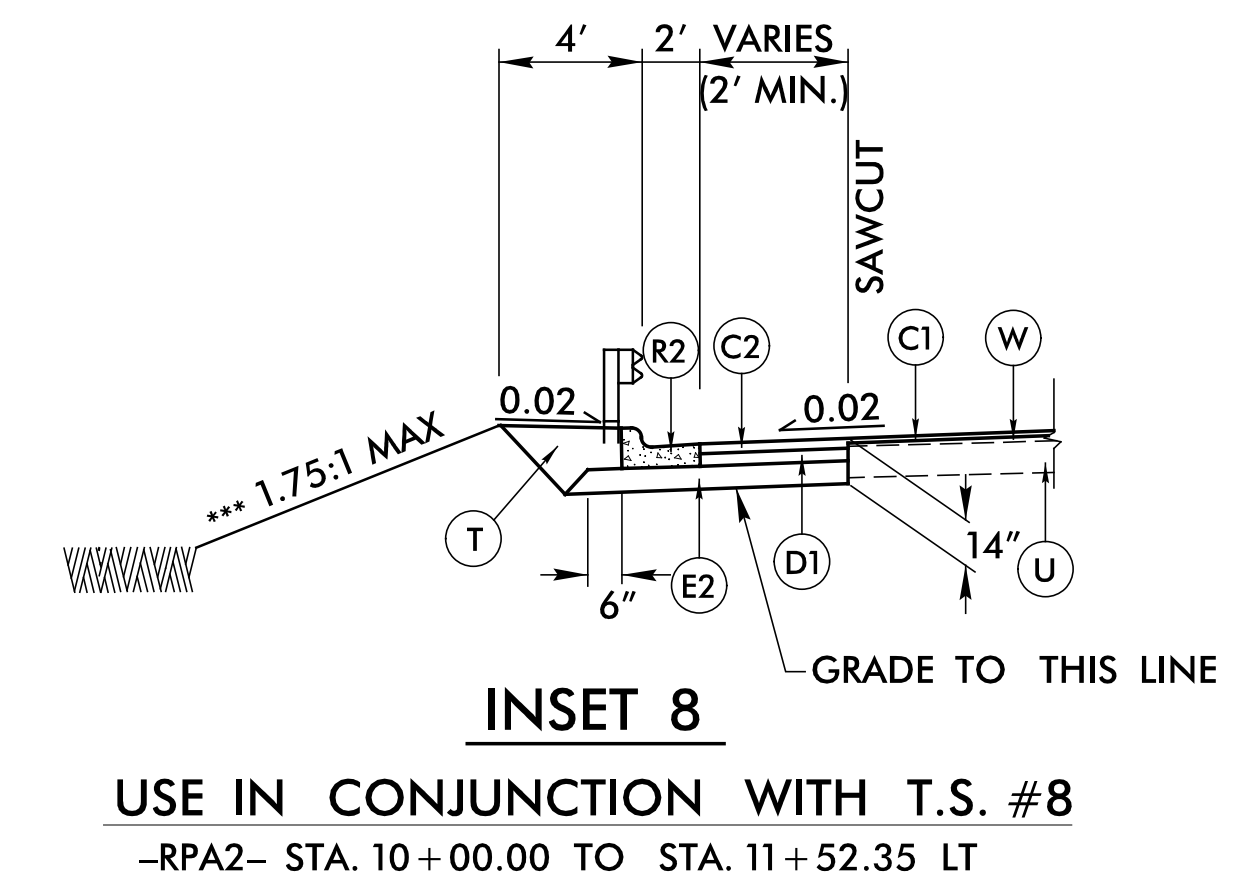
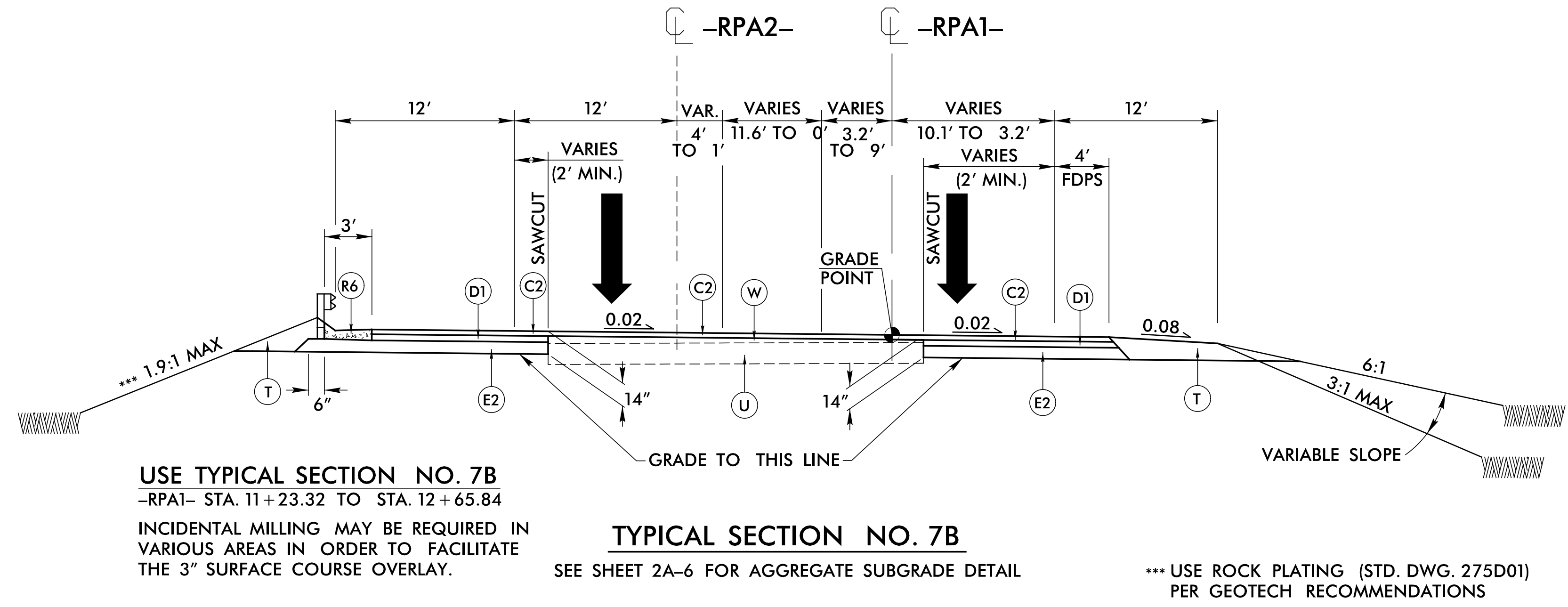
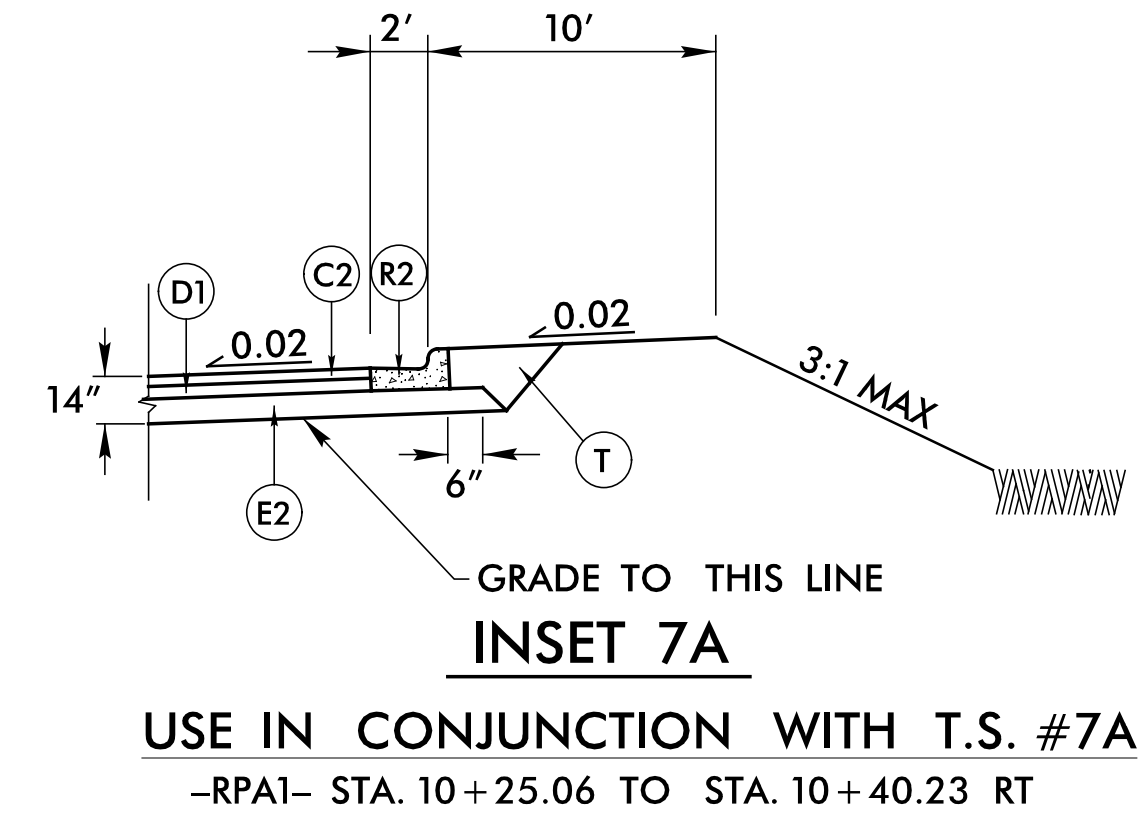
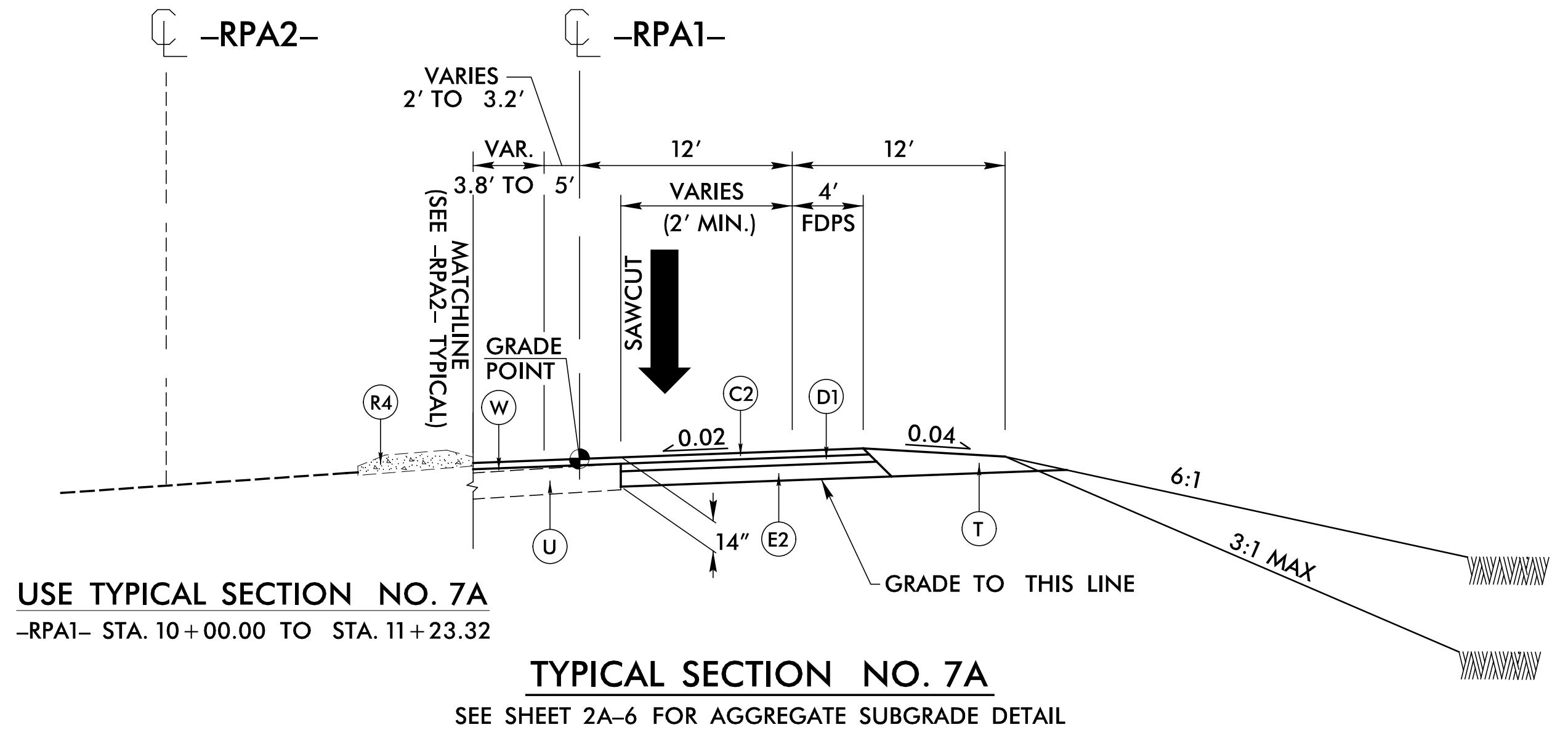


**INSET 6C**  
 USE IN CONJUNCTION WITH T.S. #6  
 -L- STA. 50+03.63 TO STA. 50+39.14 LT

PROJECT REFERENCE NO. 1-5979	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER JIMMY GOODRIGHT 12/3/2024	PAVEMENT DESIGN ENGINEER SHULI BRANG 12/3/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared by <b>vhb</b> VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27605	
FINAL PAVEMENT SCHEDULE	
C1	1.5" TYPE S9.5C
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E2	7" TYPE B25.0C
K	CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SUBGRADE STABILIZATION
R2	2'-6" C&G
R4	5" CONCRETE ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 0" - 3" DEPTH
V2	MILLING 1.5" DEPTH
V3	MILLING 3" DEPTH
W	WEDGING
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE	

10/21/2024  
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6/2/2024

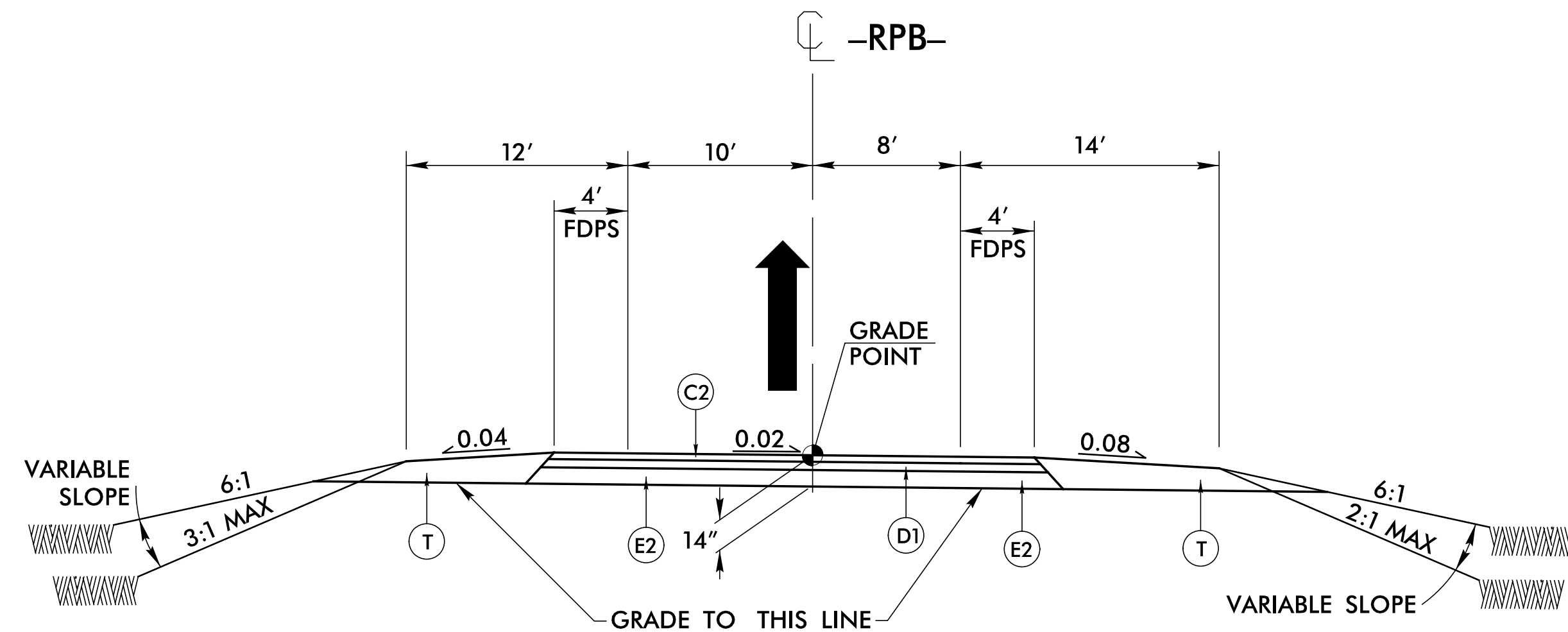


PROJECT REFERENCE NO. 1-5979	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER JIMMY GOODRIGHT 12/3/2024	PAVEMENT DESIGN ENGINEER SHIJI ZHANG 12/3/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27605	
<b>FINAL PAVEMENT SCHEDULE</b>	
C1	1.5" TYPE S9.5C
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E2	7" TYPE B25.0C
K	CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SUBGRADE STABILIZATION
R2	2'-6" C&G
R4	5" CONCRETE ISLAND (KEYED IN)
R6	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V3	MILLING 3" DEPTH
W	WEDGING

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

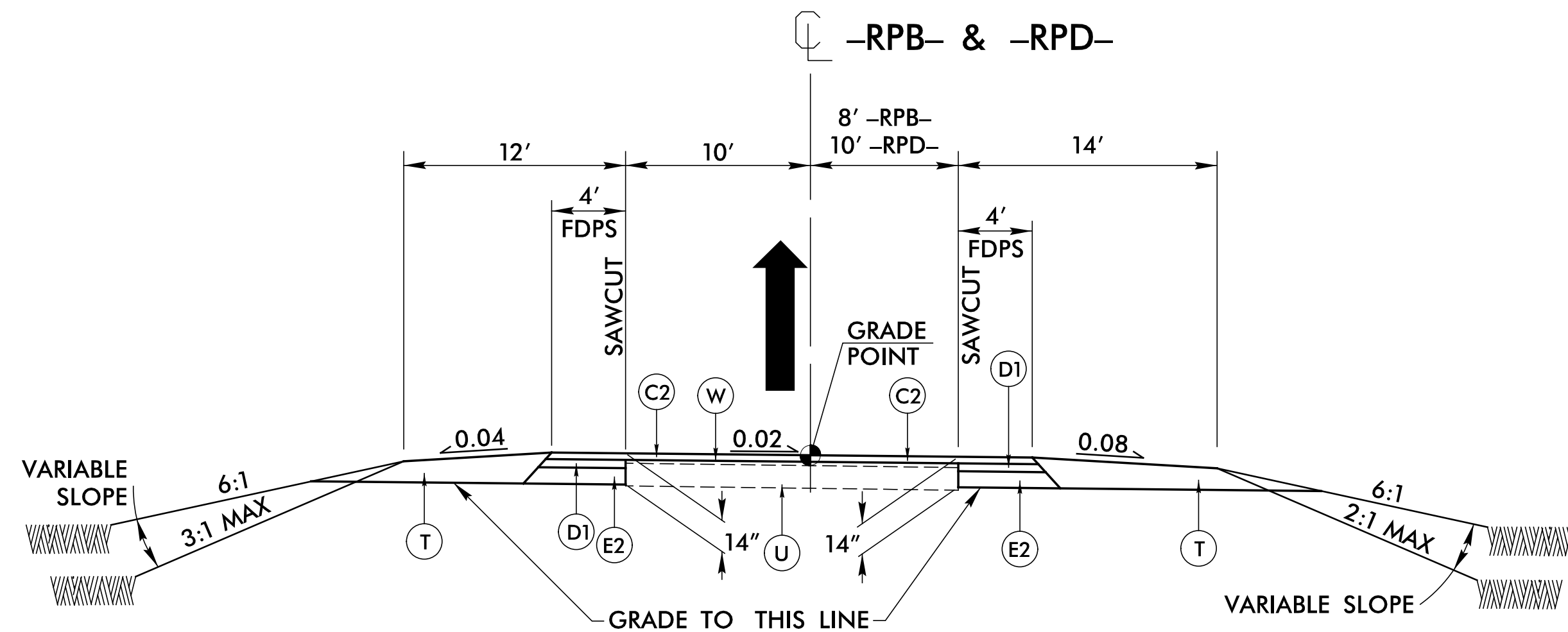
6/2/2024  
15979\_2A-4.dwg  
12/3/2024

6/2/2024



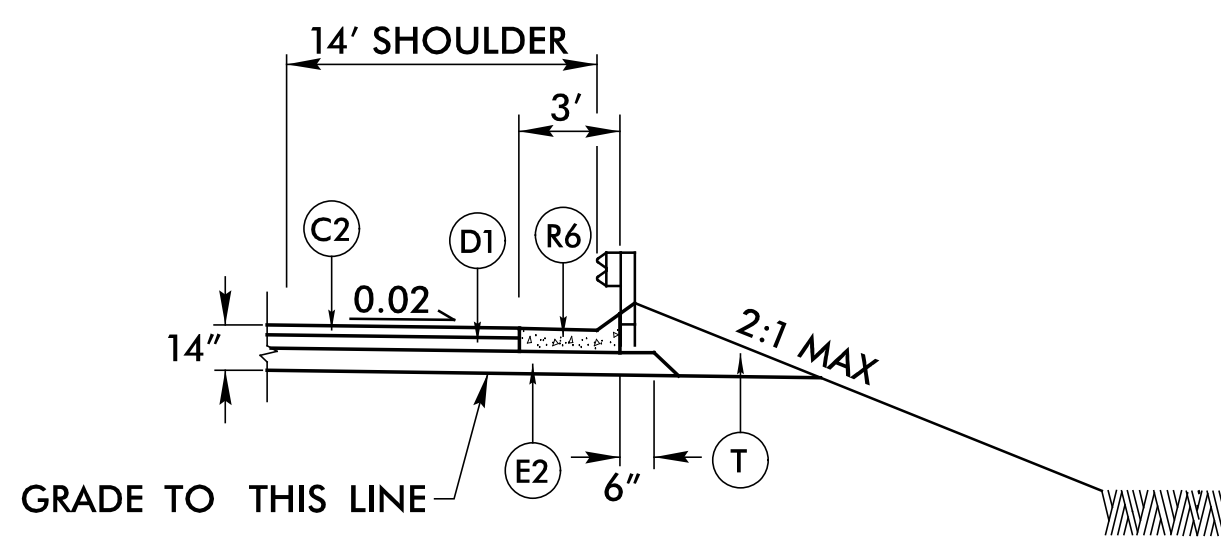
USE TYPICAL SECTION NO. 9  
-RPB- STA. 10+00.00 TO STA. 12+50.00

**TYPICAL SECTION NO. 9**  
SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL

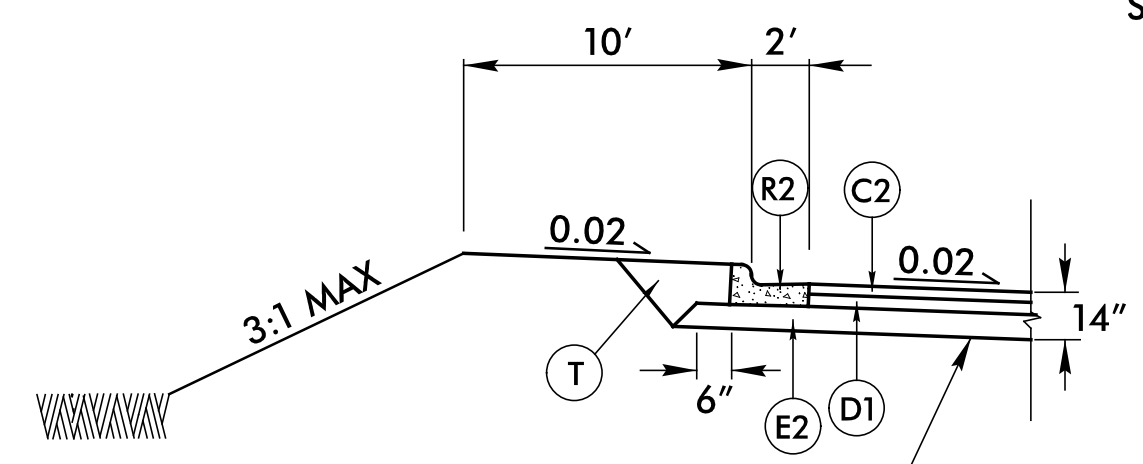


USE TYPICAL SECTION NO. 9A  
-RPB- STA. 12+50.00 TO STA. 14+00.00  
-RPD- STA. 10+00.00 TO STA. 12+40.00

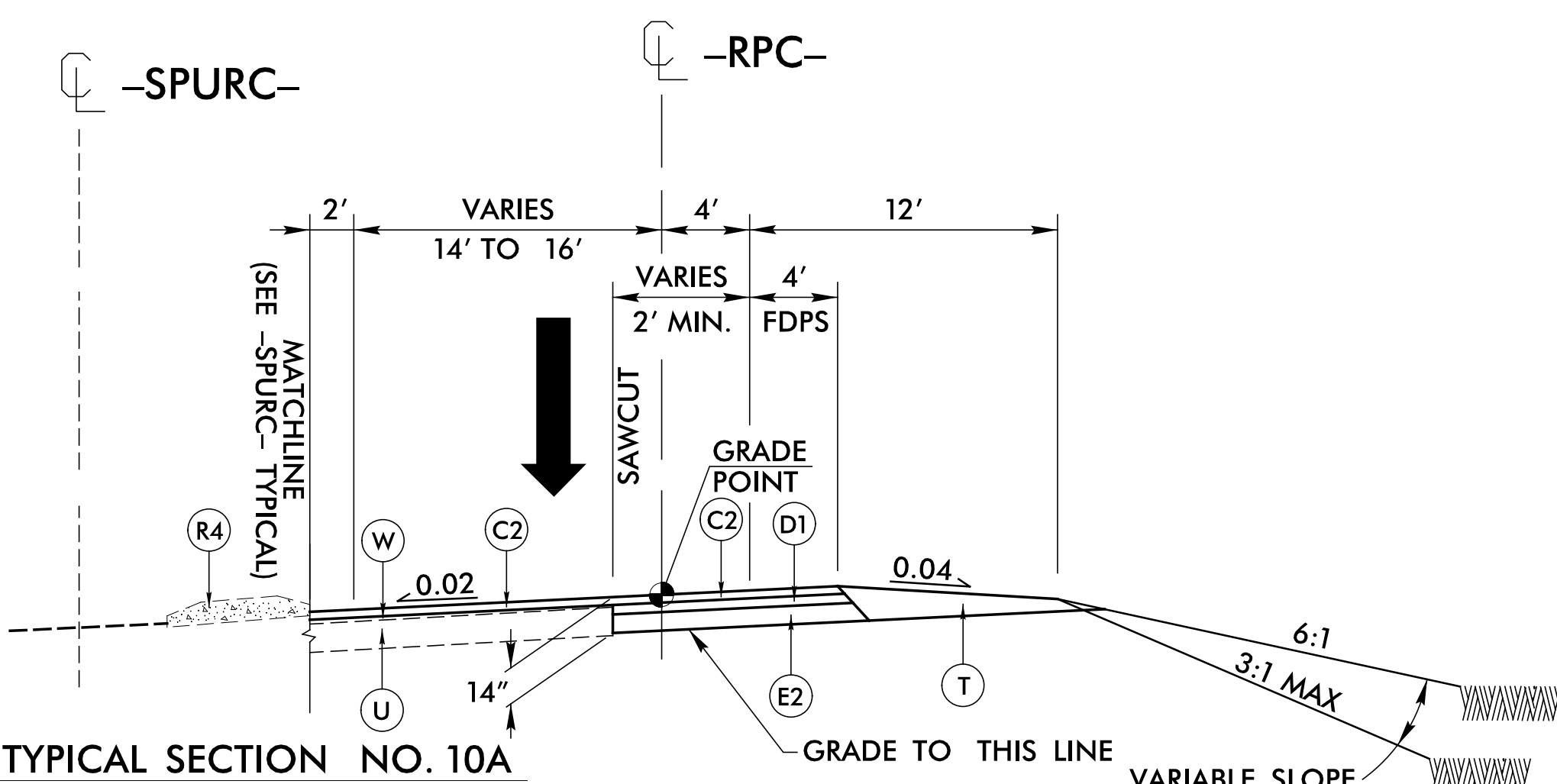
**TYPICAL SECTION NO. 9A**  
SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL



**INSET 9**  
USE IN CONJUNCTION WITH T.S. #9  
-RPB- STA. 10+02.28 TO STA. 12+47.56 RT

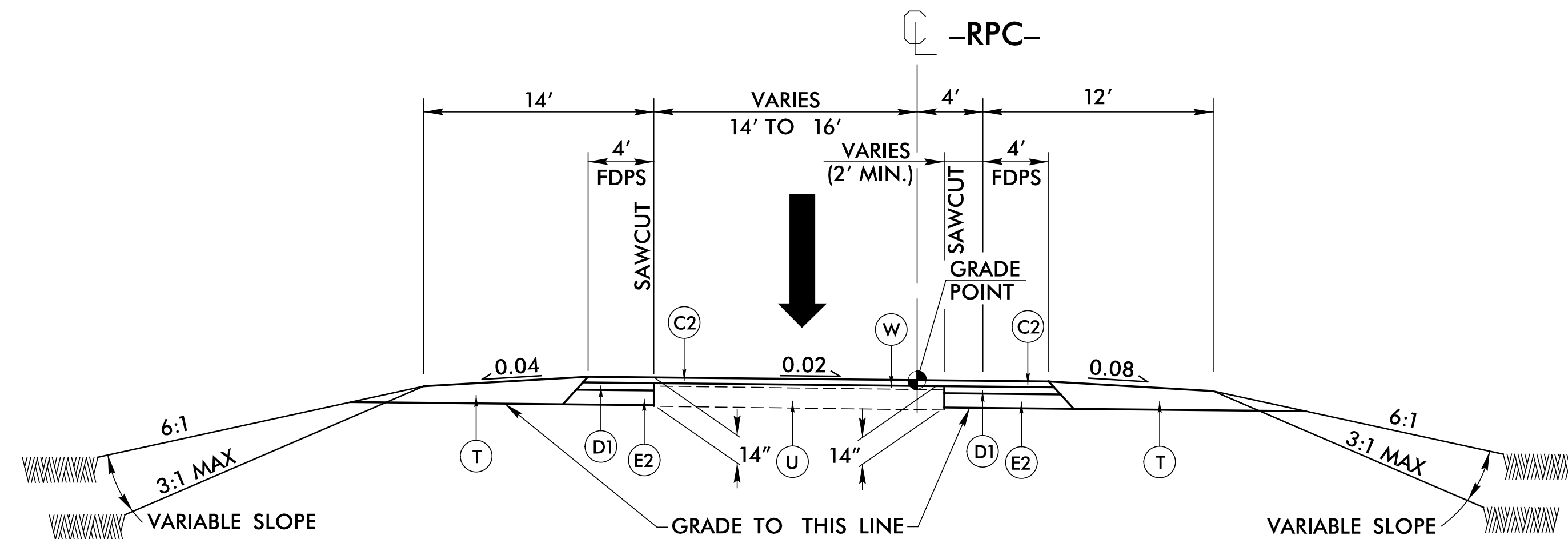


**INSET 9-9A**  
USE IN CONJUNCTION WITH T.S. #9 & 9A  
-RPB- STA. 10+08.59 TO STA. 10+26.15 LT  
-RPD- STA. 10+01.82 TO STA. 10+20.39 LT  
-RPD- STA. 10+00.00 TO STA. 10+64.43 RT (MIRROR)



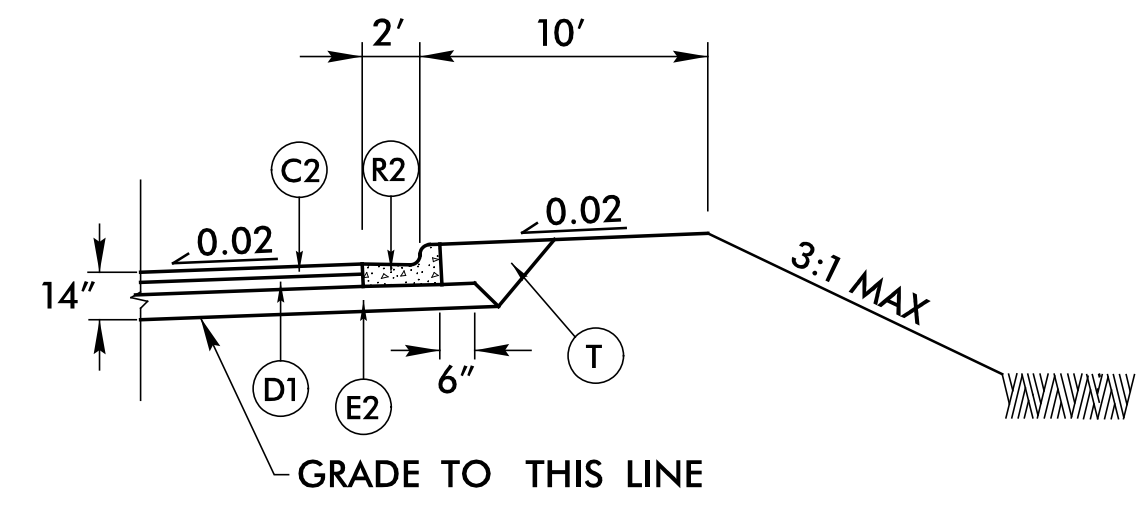
USE TYPICAL SECTION NO. 10A  
-RPC- STA. 10+00.00 TO STA. 11+16.97

**TYPICAL SECTION NO. 10A**  
SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL



USE TYPICAL SECTION NO. 10B  
-RPC- STA. 11+16.97 TO STA. 13+60.00

**TYPICAL SECTION NO. 10B**  
SEE SHEET 2A-6 FOR AGGREGATE SUBGRADE DETAIL



**INSET 10A**  
USE IN CONJUNCTION WITH T.S. #10A  
-RPC- STA. 10+06.35 TO STA. 10+21.42 RT

PROJECT REFERENCE NO. 1-5979	SHEET NO. 2A-5
ROADWAY DESIGN ENGINEER JIMMY GOODNIGHT 12/3/2024	PAVEMENT DESIGN ENGINEER SHILI CHANG 12/3/2024
<p>NOTED IN C&amp;G</p> <p>PROFESSIONAL SEAL 014493</p> <p>ENGINEER</p>	
<p>NOTED IN C&amp;G</p> <p>PROFESSIONAL SEAL 038176</p> <p>ENGINEER</p>	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>Prepared by</p> <p><b>vhb</b></p> <p>VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27605</p>	
<p><b>FINAL PAVEMENT SCHEDULE</b></p>	
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E2	7" TYPE B25.0C
K	CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SUBGRADE STABILIZATION
R2	2'-6" C&G
R4	5" CONCRETE ISLAND (KEYED IN)
R6	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

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

6/2/2024  
K:\Projects\15979\15979\_rdi\_tjip.dgn



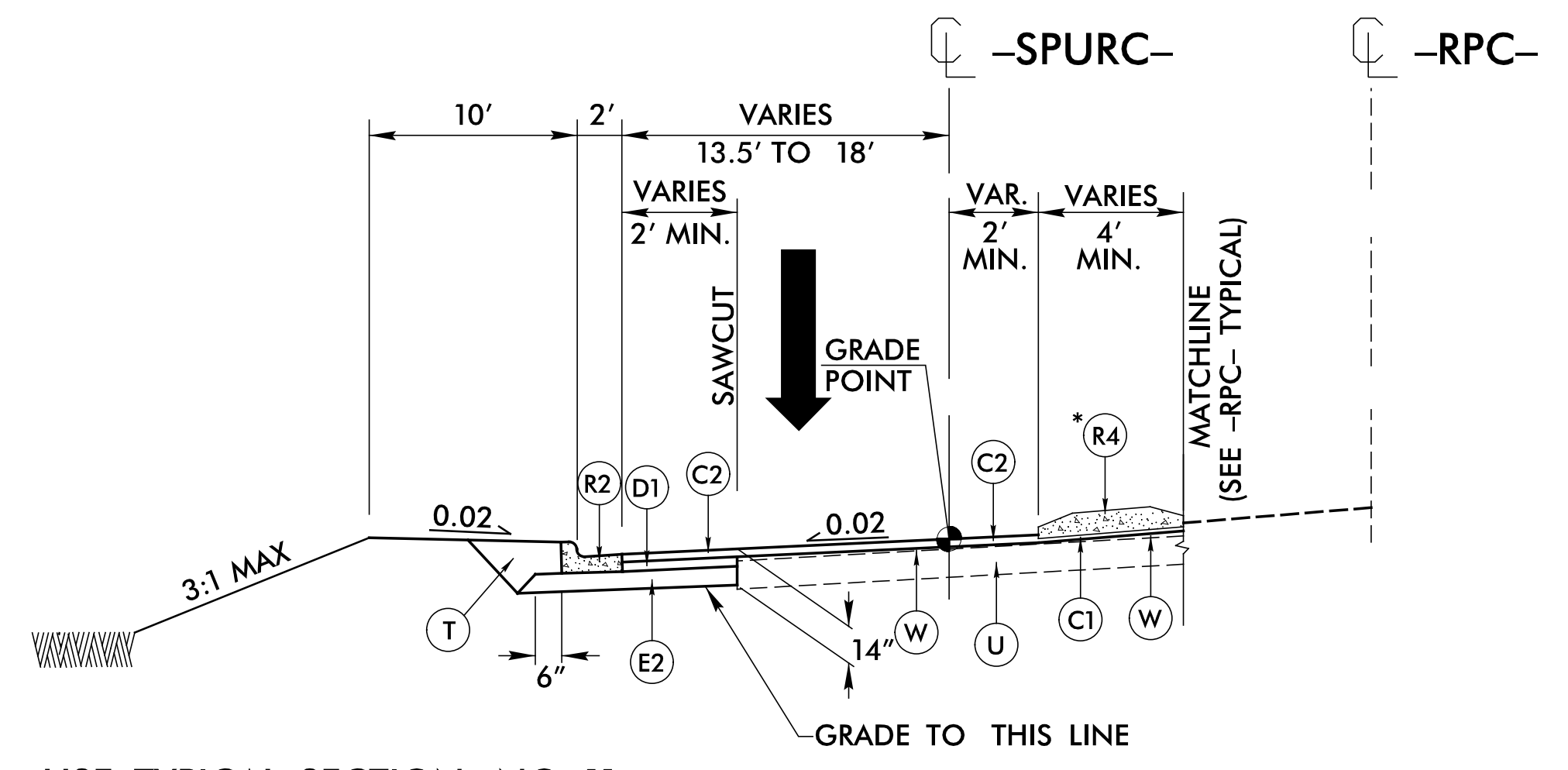
6/2/2024

FINAL PAVEMENT SCHEDULE	
A1	12" CONC. TRUCK APRON
C1	1.5" TYPE S9.5C
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E1	5" TYPE B25.0C
E2	7" TYPE B25.0C
K	CLASS IV SUBGRADE STABILIZATION
N	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	1'-6" C&G
R2	2'-6" C&G
R3	EXPRESSWAY GUTTER
R4	5" CONCRETE ISLAND (KEYED IN)
R5	CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

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

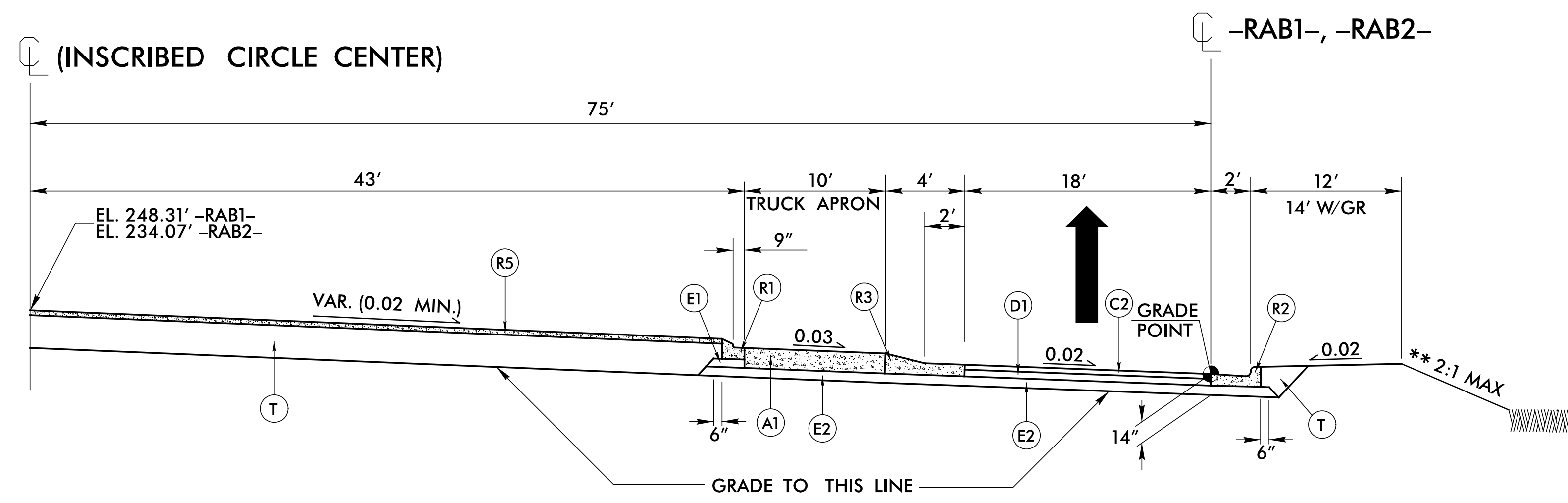
**USE TYPICAL SECTION NO. 12**  
 -RAB1- STA. 10+00.00 TO STA. 10+08.00  
 -RAB1- STA. 10+51.00 TO STA. 11+05.00  
 -RAB1- STA. 11+40.00 TO STA. 12+25.00  
 -RAB1- STA. 12+50.00 TO STA. 12+80.00  
 -RAB1- STA. 13+15.00 TO STA. 13+75.00  
 -RAB1- STA. 14+55.00 TO STA. 14+71.24  
 -RAB2- STA. 10+80.00 TO STA. 11+00.00  
 -RAB2- STA. 11+65.00 TO STA. 12+10.00  
 -RAB2- STA. 12+90.00 TO STA. 14+20.00

**USE TYPICAL SECTION NO. 13**  
 -RAB1- STA. 10+08.00 TO STA. 10+51.00  
 -RAB1- STA. 11+05.00 TO STA. 11+40.00  
 -RAB1- STA. 12+25.00 TO STA. 12+50.00  
 -RAB1- STA. 12+80.00 TO STA. 13+15.00  
 -RAB1- STA. 13+75.00 TO STA. 14+55.00  
 -RAB2- STA. 10+00.00 TO STA. 10+80.00  
 -RAB2- STA. 11+00.00 TO STA. 11+65.00  
 -RAB2- STA. 12+10.00 TO STA. 12+90.00  
 -RAB2- STA. 14+20.00 TO STA. 14+71.24



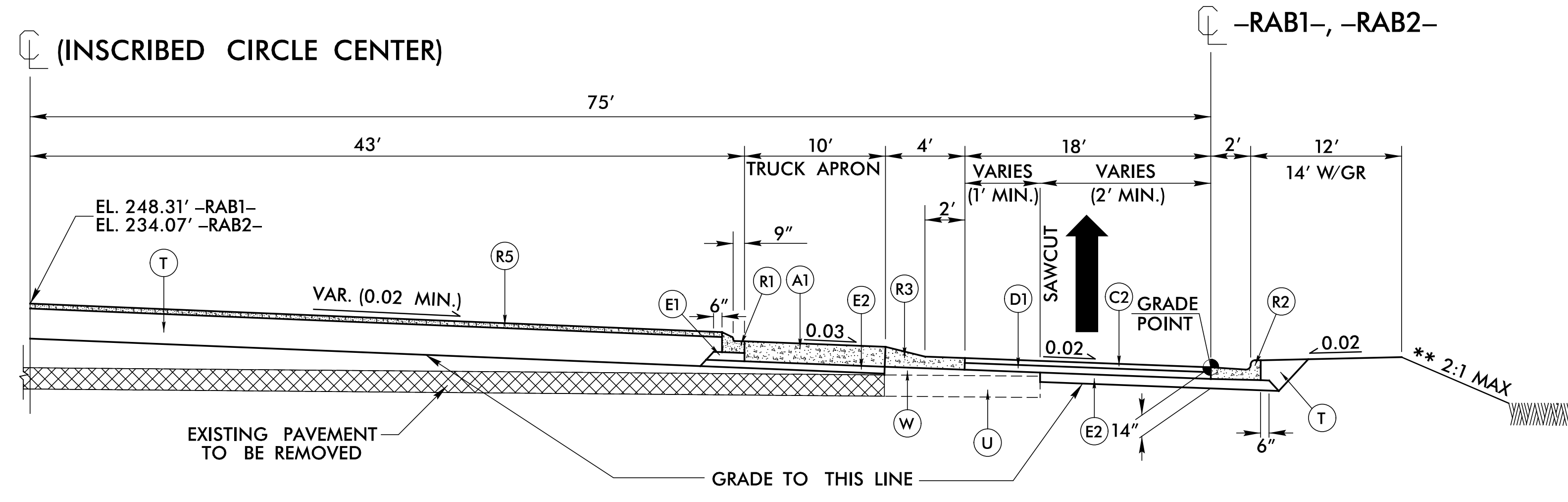
**USE TYPICAL SECTION NO. 11**  
 -SPURC- STA. 10+00.00 TO STA. 12+20.98  
 \*SEE PLANS FOR LIMITS OF CONC. ISLAND

**TYPICAL SECTION NO. 11**



**TYPICAL SECTION NO. 12 (ROUNDBOUT)**

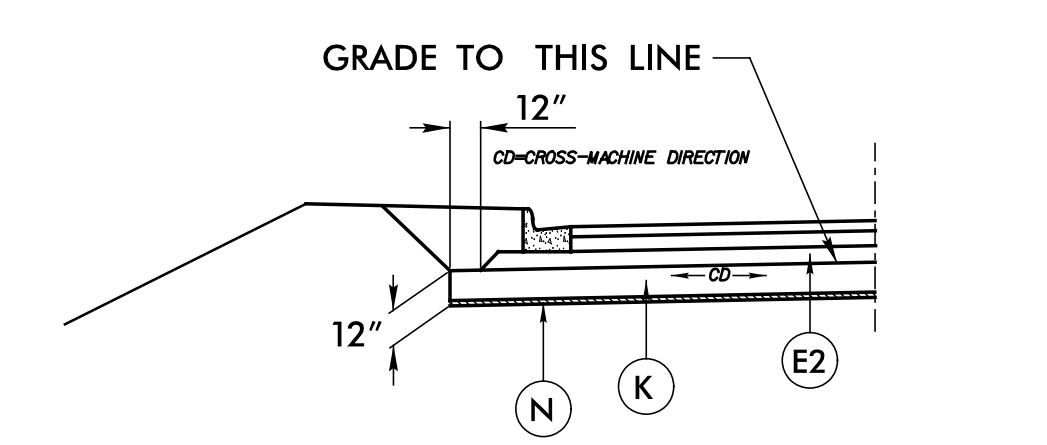
NOTES FOR TYPICAL SECTIONS 12 & 13:  
 SEE PLANS AND DETAIL SHEETS 2-B1 & 2B-2 FOR ACTUAL LOCATION AND OFFSETS OF 2'-6" C&G  
 \*\*3:1 MAX FOR -RAB1-



**TYPICAL SECTION NO. 13 (ROUNDBOUT)**

PROJECT REFERENCE NO. 1-5979	SHEET NO. 2A-6
ROADWAY DESIGN ENGINEER [Signature] SEAL 014493 12/19/2024	PAVEMENT DESIGN ENGINEER [Signature] SEAL 038176 12/19/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27605	

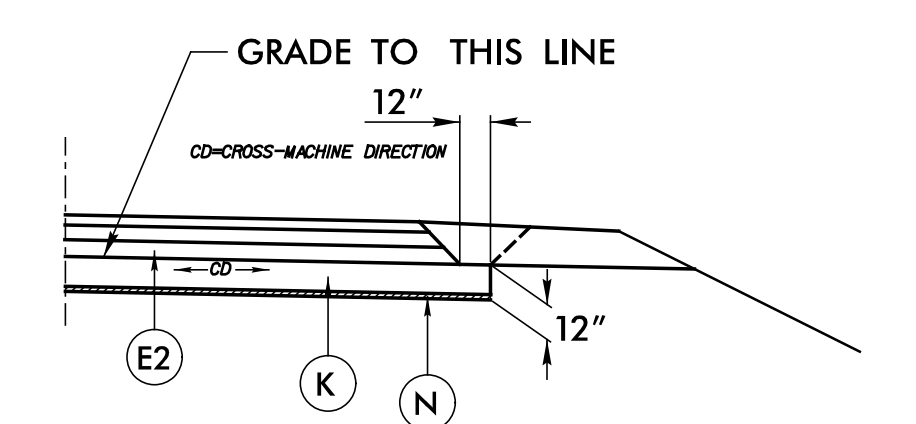
**AGGREGATE SUBGRADE DETAILS**



**AGGREGATE SUBGRADE TYPE 1 FOR CG WITH ASPHALT BASE**

USE IN CONJUNCTION WITH TYPICAL SECTIONS 1, 2, 3, 4, 5, 6, 12 & 13

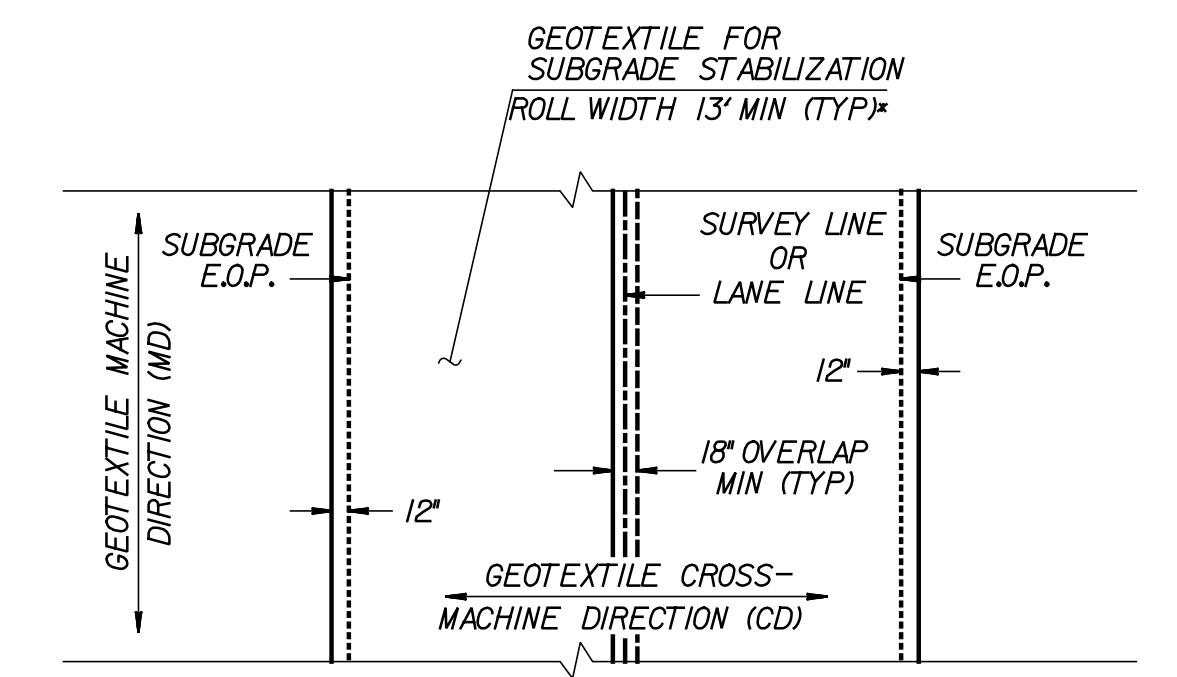
- L- STA. 21+69.00 TO STA. 51+05.67
- RAB1- STA. 10+00.00 TO STA. 14+71.24
- RAB2- STA. 10+00.00 TO STA. 14+71.24



**AGGREGATE SUBGRADE TYPE 1 FOR SHOULDER WITH ASPHALT BASE**

USE IN CONJUNCTION WITH TYPICAL SECTIONS 7A, 7B, 7C, 8, 9, 9A, 10A, 10B & 11

- RPA1- STA. 10+25.00 TO STA. 11+75.00
- RPA2- STA. 10+00.00 TO STA. 12+25.00
- RPB- STA. 11+75.00 TO STA. 14+00.00
- RPC- STA. 10+25.00 TO STA. 13+60.00
- SPURC- STA. 10+00.00 TO STA. 12+20.98



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

(100% COVERAGE REQUIRED)

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

12/18/2024 12:00:00 PM Project: N15979\_rdy\_tjip.dgn

8/17/99

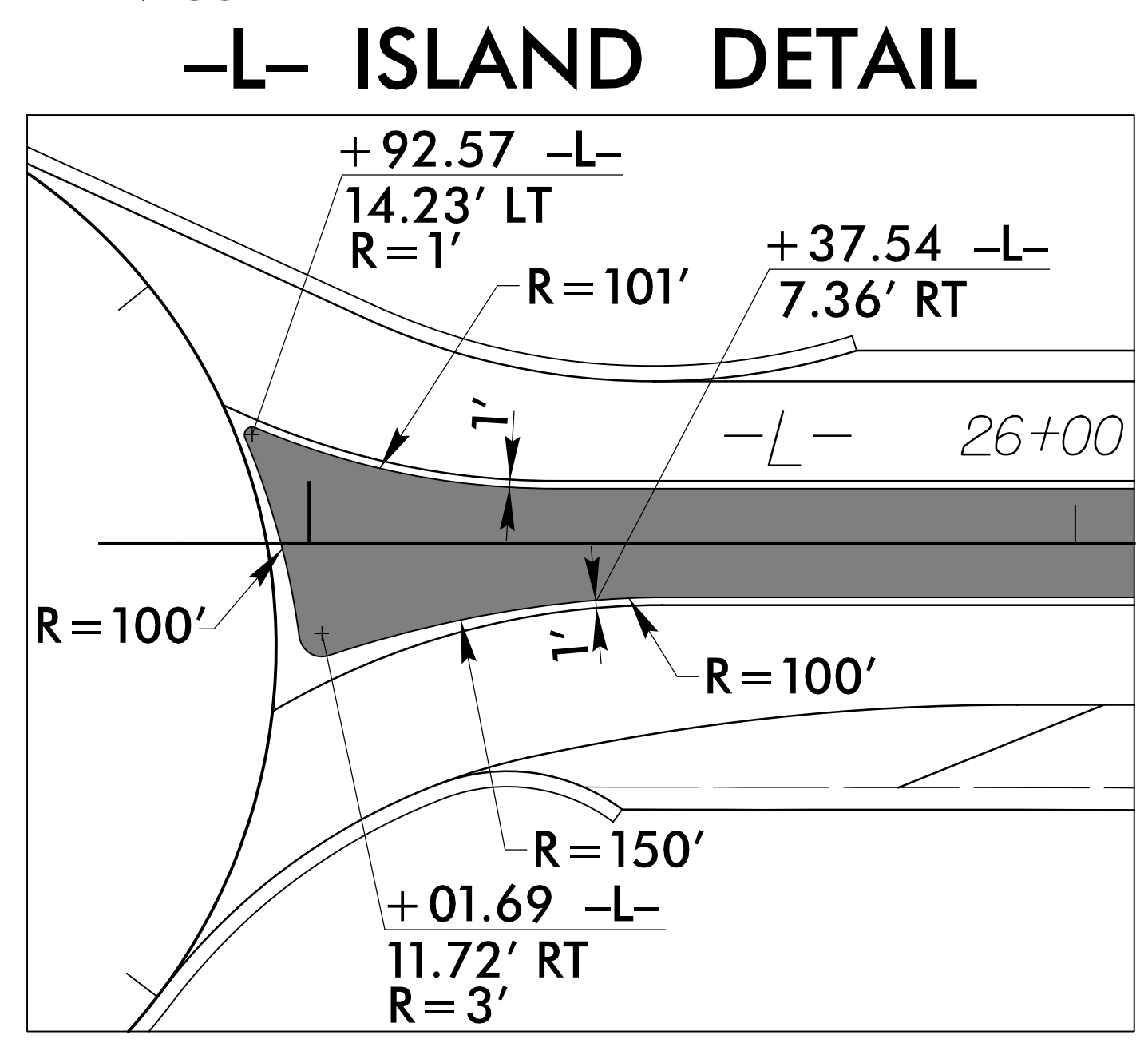
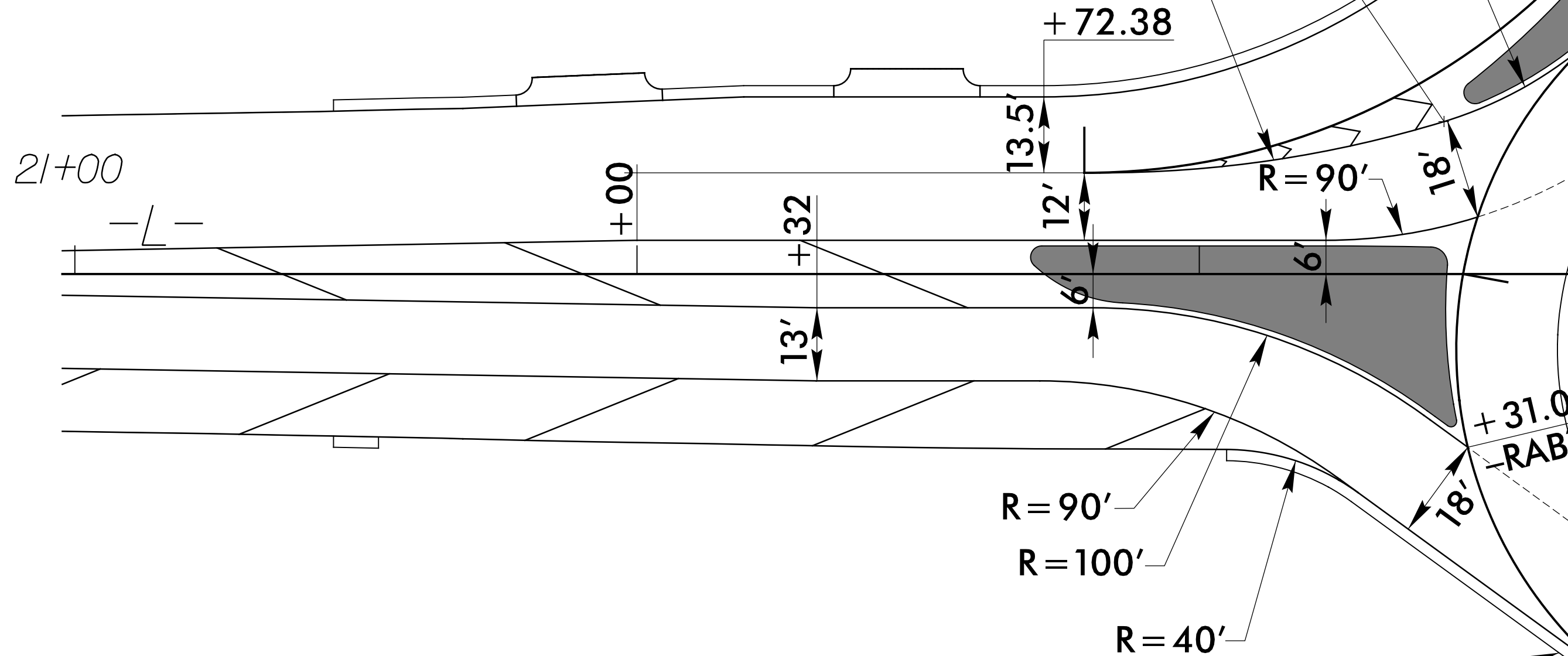
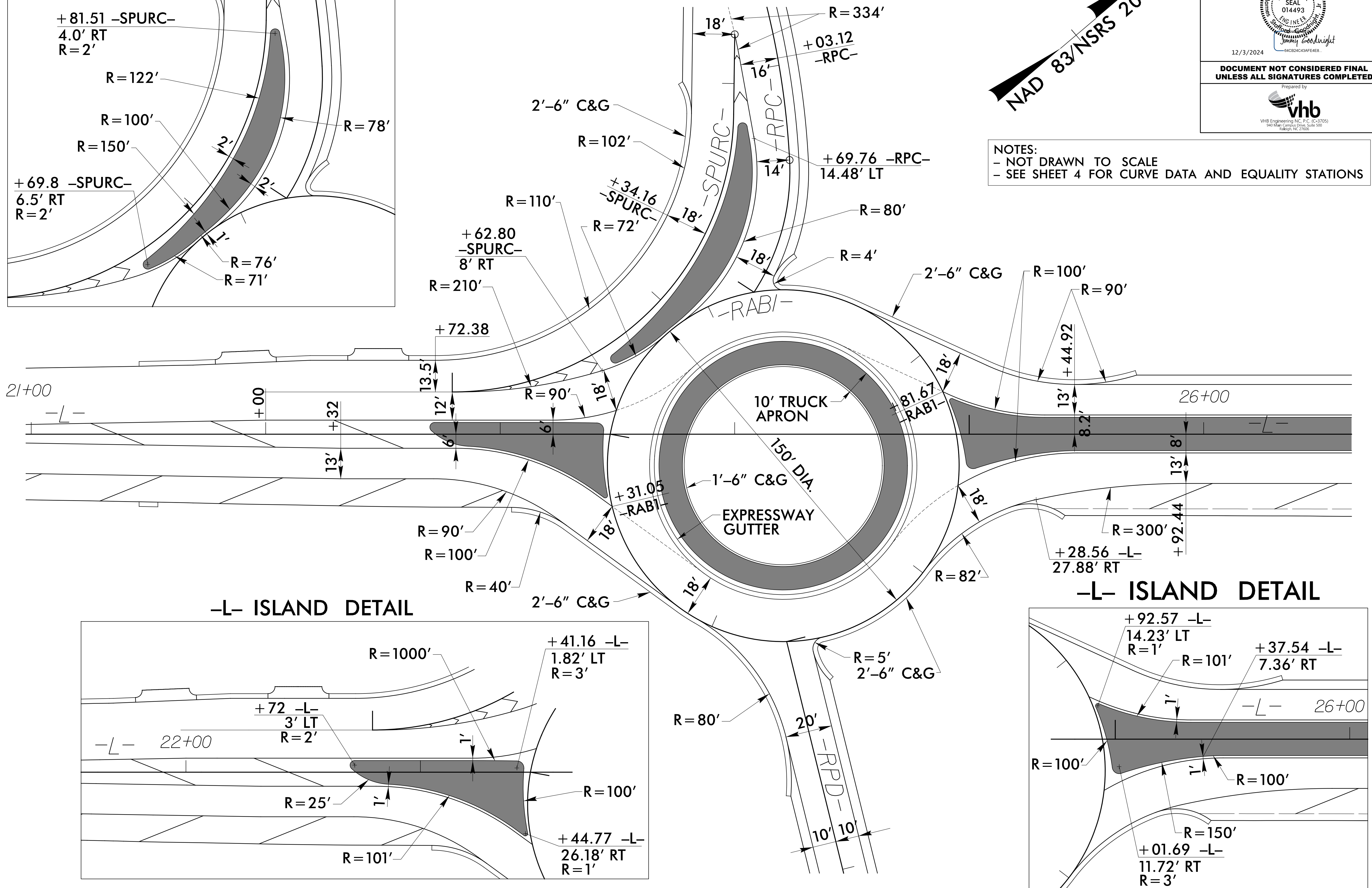
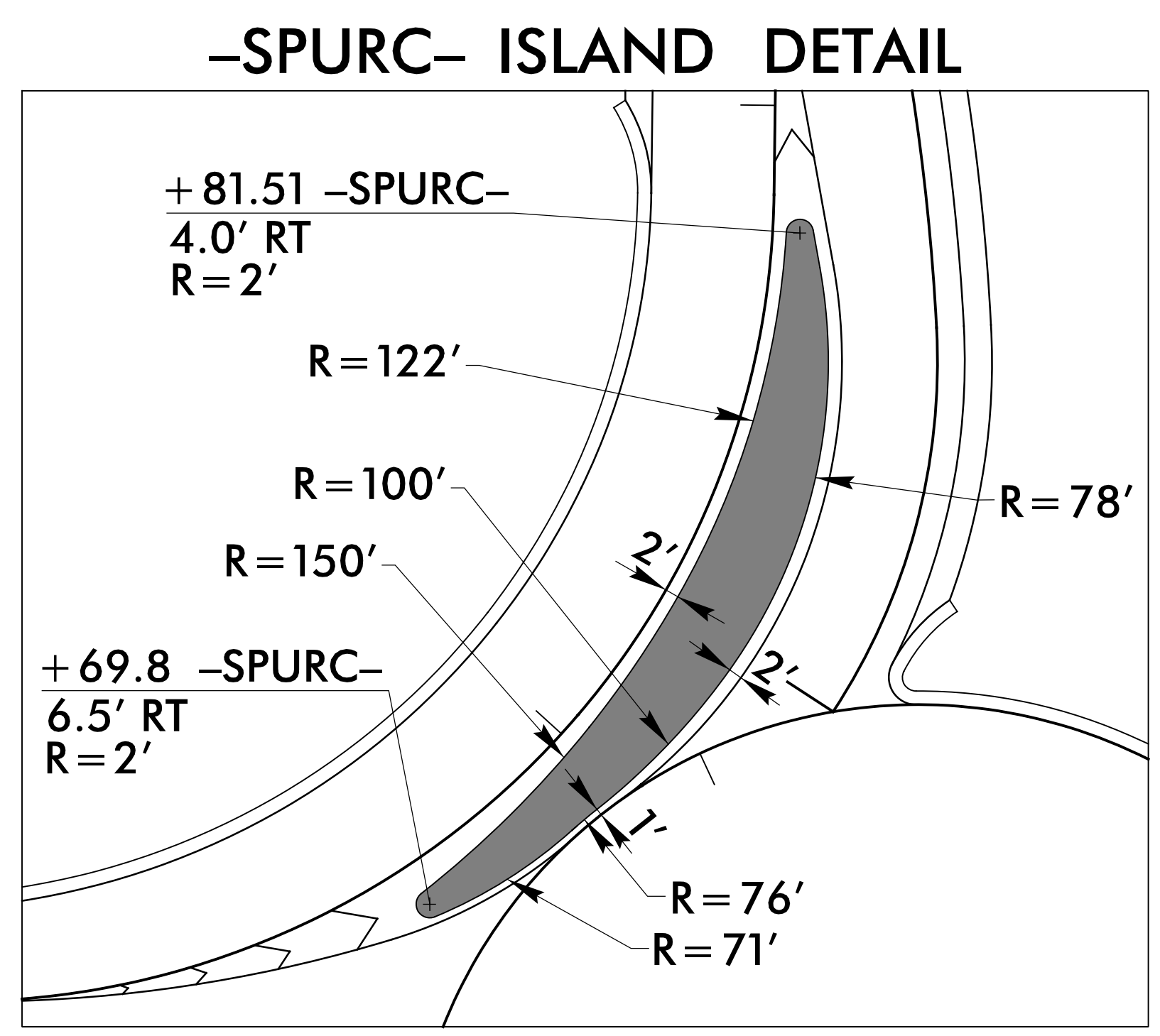
# ROUNDABOUT DETAIL (-RAB1-)

SEE SHEET 4 FOR PLAN

PROJECT REFERENCE NO. 1-5979	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER	
12/3/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NAD 83/NSRS 2011

NOTES:  
 - NOT DRAWN TO SCALE  
 - SEE SHEET 4 FOR CURVE DATA AND EQUALITY STATIONS



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10:47:59  
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J.Love

# ROUNDBOUT DETAIL (-RAB2-)

SEE SHEET 5 FOR PLAN

NOTES:  
- NOT DRAWN TO SCALE  
- SEE SHEET 4 FOR CURVE DATA AND EQUALITY STATIONS

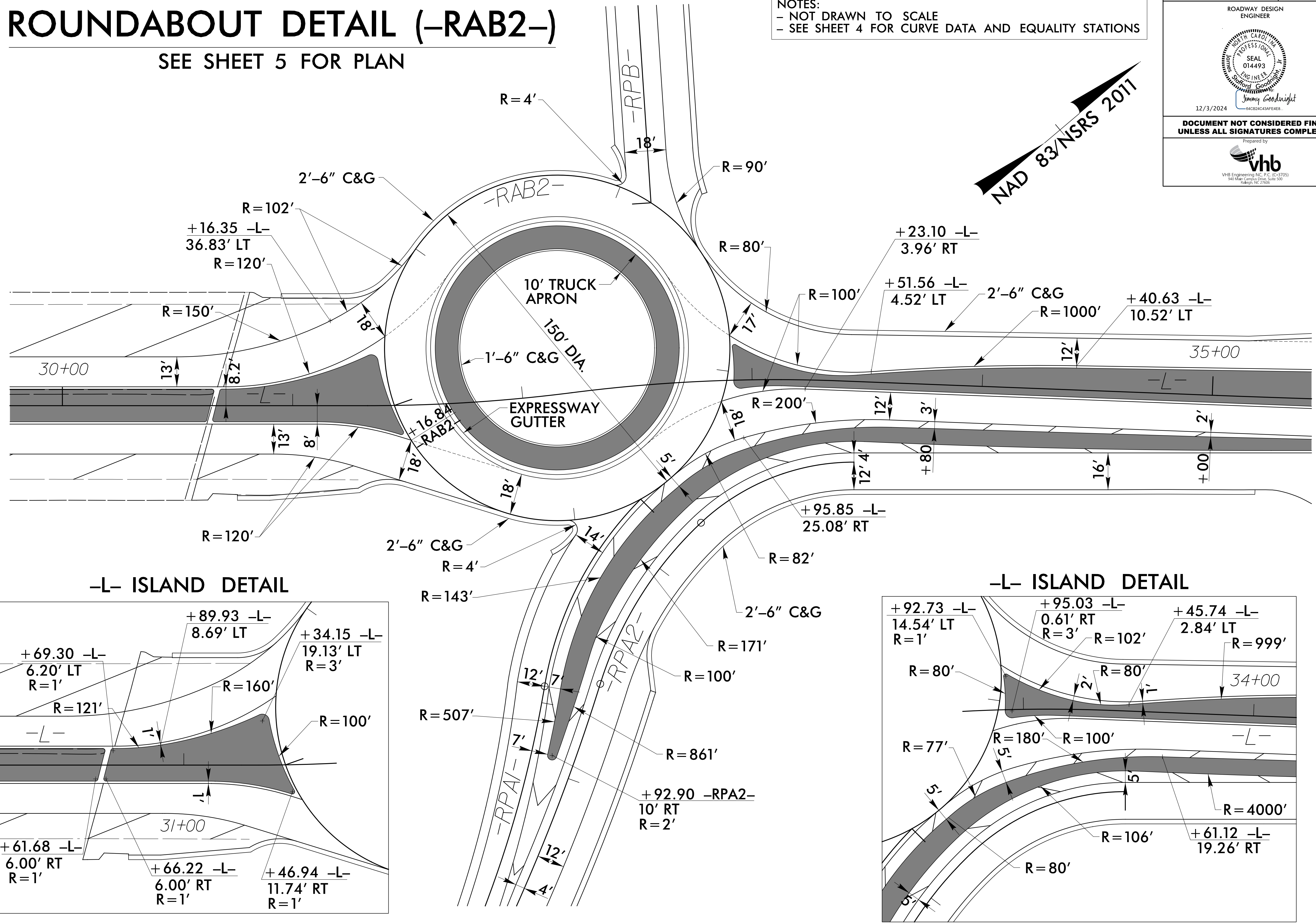
PROJECT REFERENCE NO. 1-5979 SHEET NO. 2B-2

ROADWAY DESIGN ENGINEER  
Seal: JIMMY GOODWRIGHT, SEAL 014493, ENGINEER  
12/3/2024

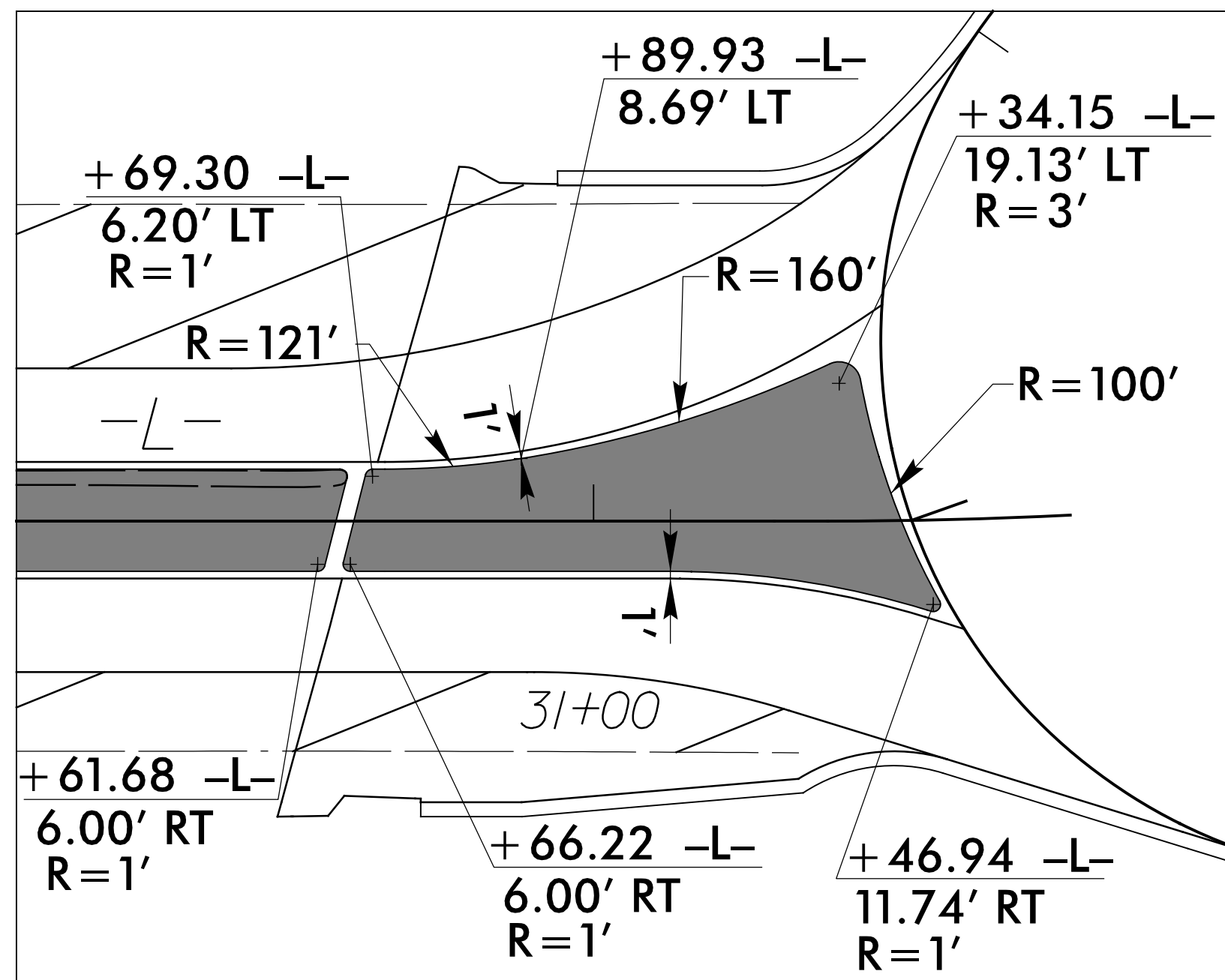
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



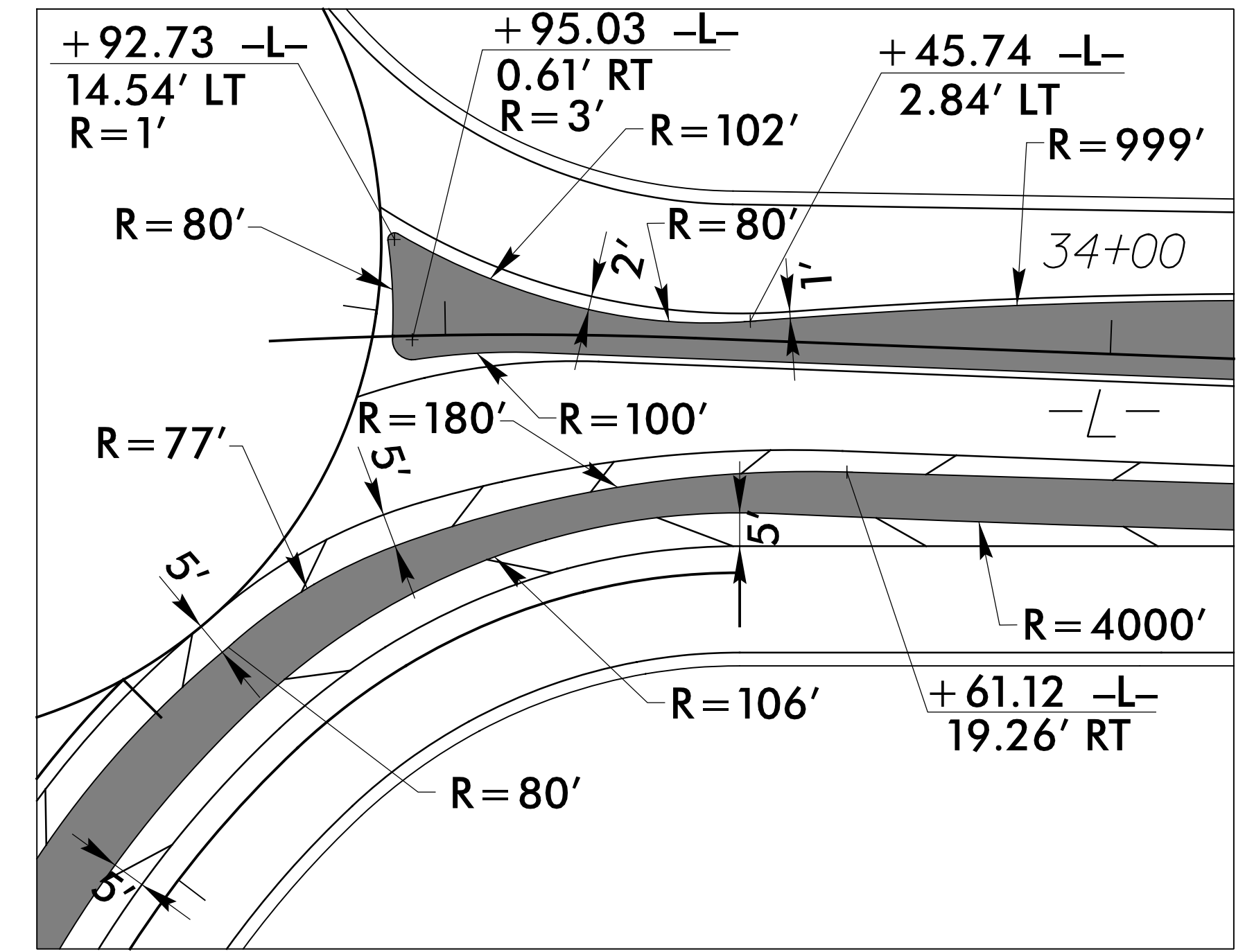
NAD 83/NSRS 2011



## -L- ISLAND DETAIL



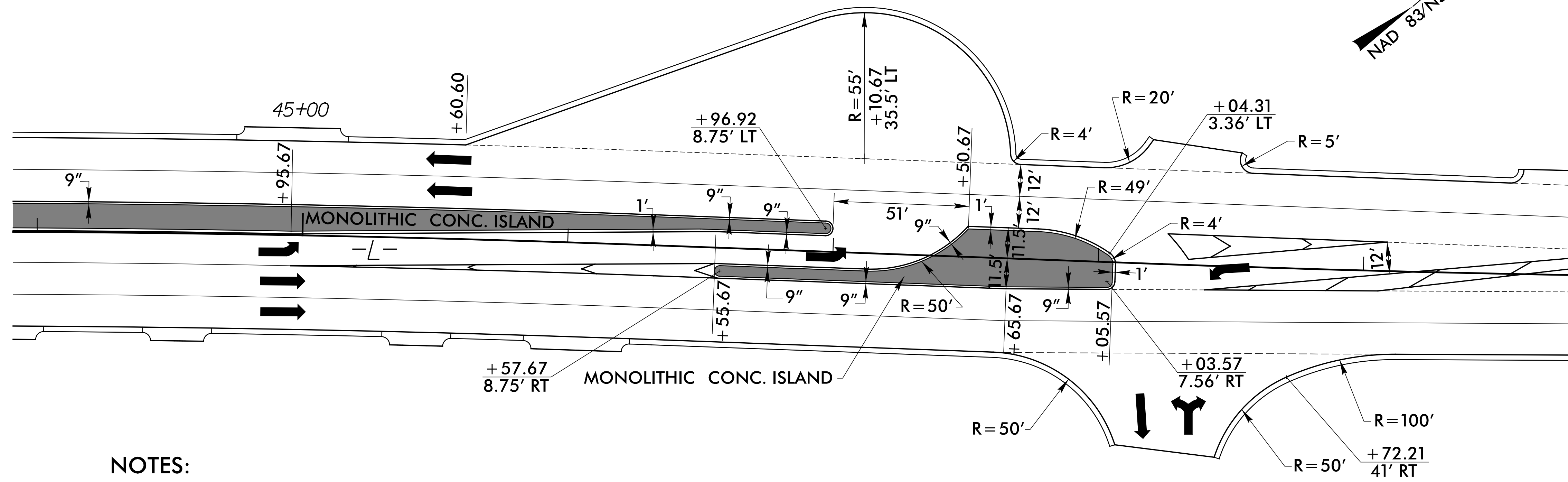
## -L- ISLAND DETAIL



8.17/19

# MEDIAN U-TURN DETAIL

SEE SHEET 6 FOR PLAN



### NOTES:

- DIMENSIONS BASED ON TURNING RADII FOR WB-67
- UNLESS OTHERWISE SHOWN ALL CONCRETE ISLAND RADII ARE 2'
- NOT DRAWN TO SCALE
- SEE SHEET 6 FOR -L- CURVE DATA

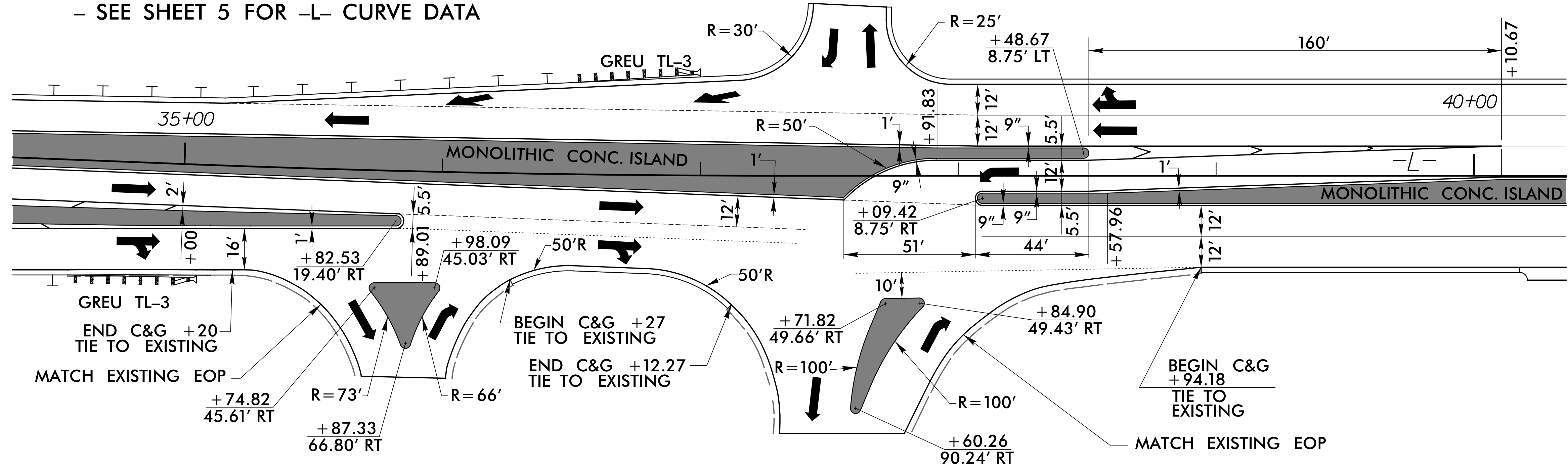
PROJECT REFERENCE NO. 1-5979	SHEET NO. 2B-3
ROADWAY DESIGN ENGINEER	
12/3/2024	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared by 	
<small>VHB Engineering NC, P.C. (C-3705) 940 Wake Forest Drive, Suite 200 Raleigh, NC 27608</small>	

# MEDIAN LEFT TURN DETAIL

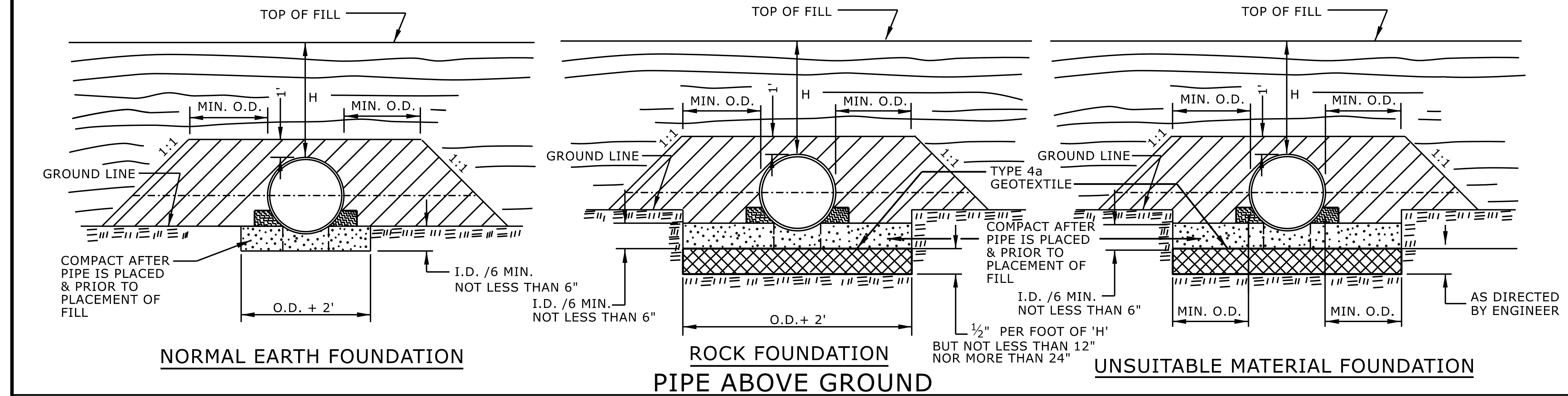
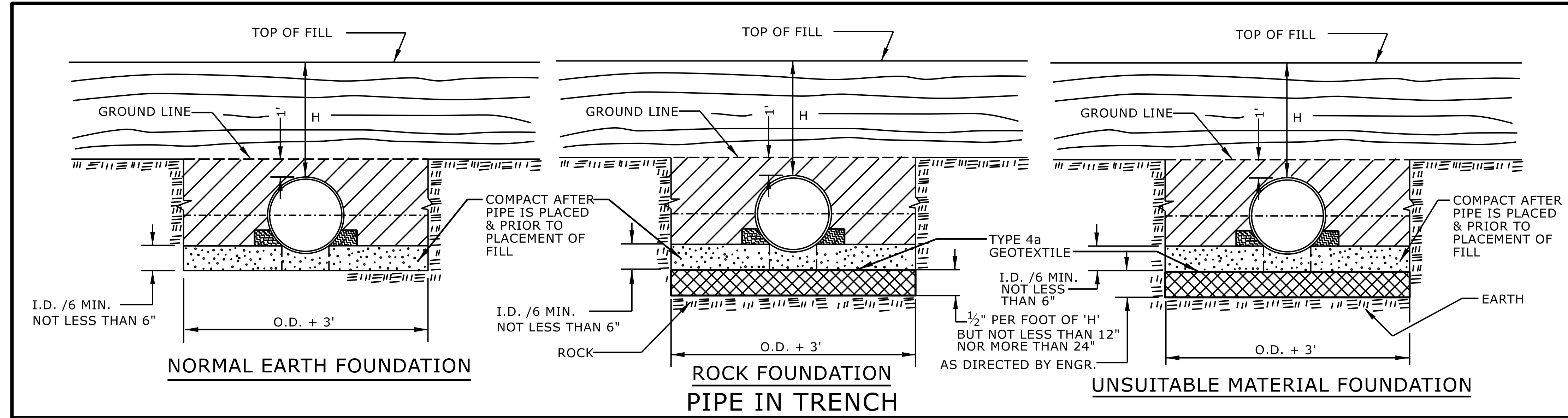
SEE SHEET 5 FOR PLAN

### NOTES:



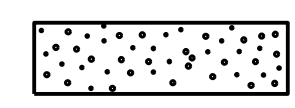
- UNLESS OTHERWISE SHOWN ALL CONCRETE ISLAND RADII ARE 2'
- NOT DRAWN TO SCALE
- SEE SHEET 5 FOR -L- CURVE DATA



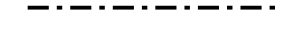
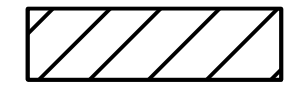
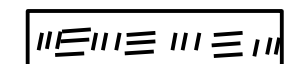
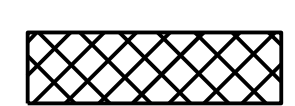
10/17/2024 10:47:59 detail\_2B-3.dgn



**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.

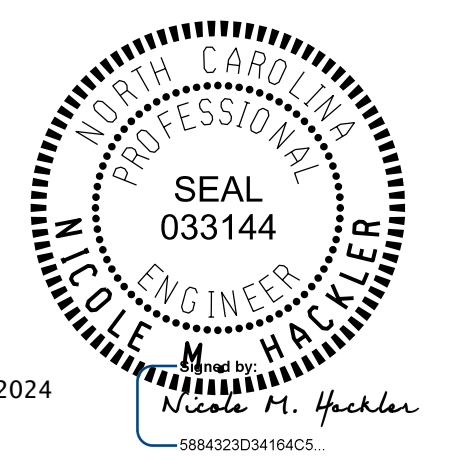
 APPROVED SUITABLE LOCAL MATERIAL.  
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.  
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

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.

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 RALEIGH, N.C.

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



12/6/2024

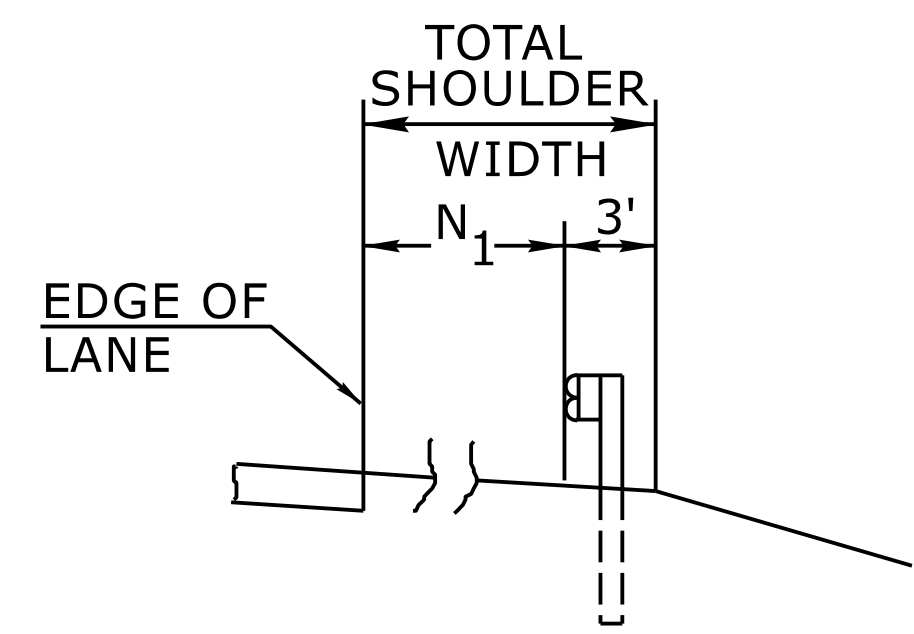
SHEET 1 OF 2  
**300.01**

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

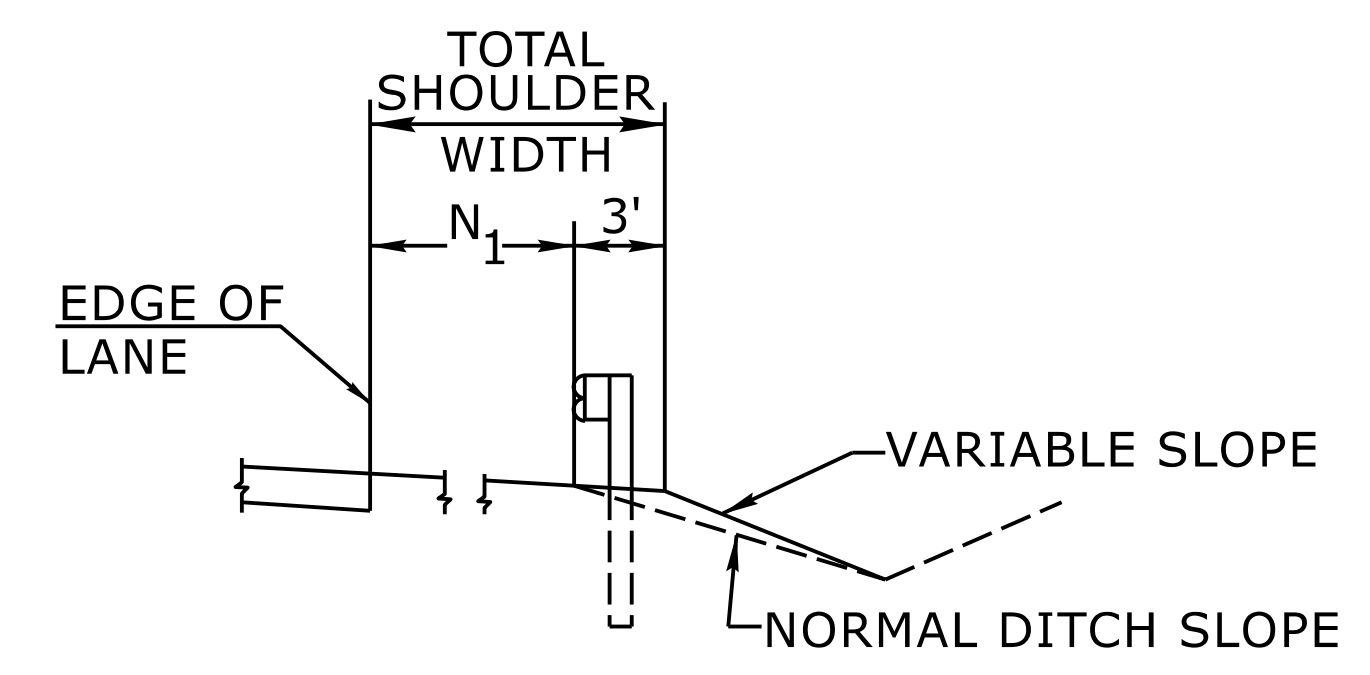
**CONTRACTS STANDARDS  
 AND DEVELOPMENT UNIT**  
 Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

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

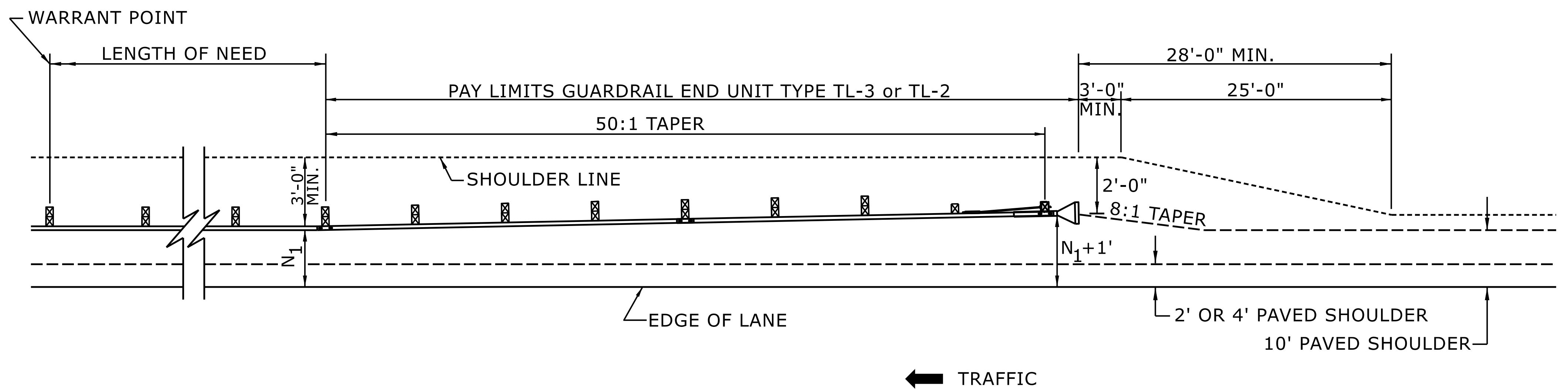


**FILL SECTION**



**CUT SECTION**

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

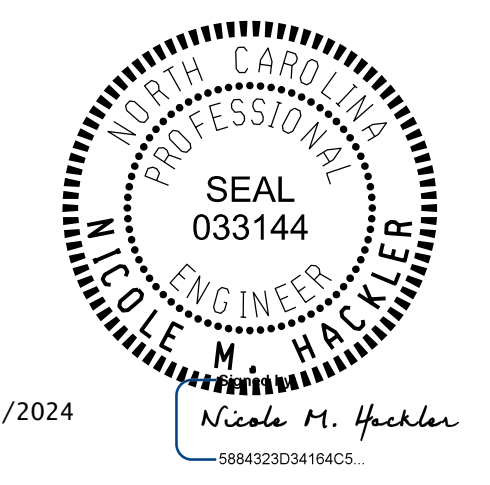


FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3  
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

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

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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**



12/6/2024

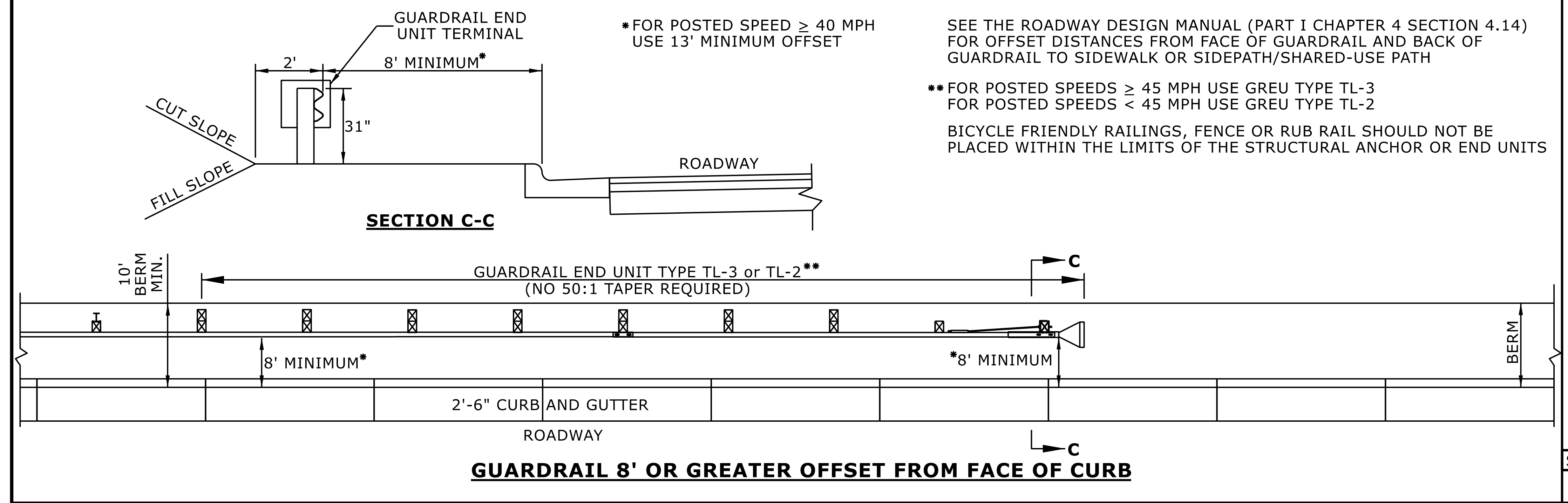
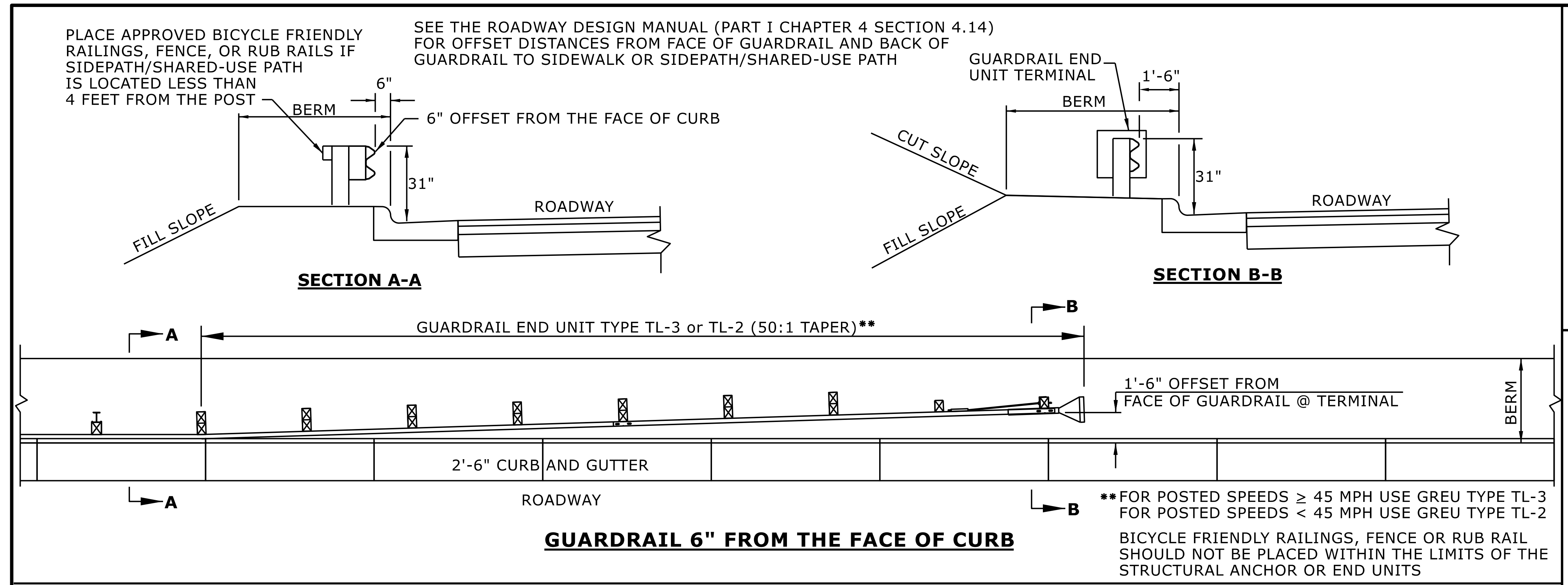
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**862D01**

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**CONTRACTS STANDARDS  
AND DEVELOPMENT UNIT**  
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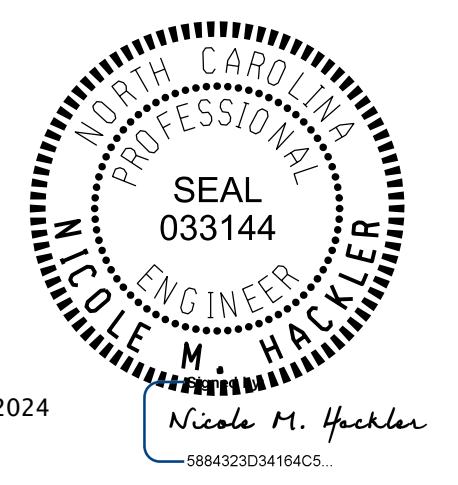
**SEE TITLE BLOCK**

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



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.: DATE:

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**  
 IN CUBIC YARDS

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT +%	BORROW	WASTE
-L- 21+00.00	23+46.92	20		18		2
-L- 24+94.50	28+00.00	100	210	948	848	210
-RAB1- 10+00.00	14+71.24	40		2,501	2,461	
-RPC- 10+00.00	13+60.00	500		815	371	56
-SPURC- 10+00.00	12+20.98	65		52		13
-RPD- 10+00.00	12+40.00	37		347	310	
	<b>SUBTOTAL</b>	<b>762</b>	<b>210</b>	<b>4,681</b>	<b>3,990</b>	<b>281</b>
-L- 30+86	31+44.17	22		80	73	15
-L- 32+89.02	52+21.00	2,358	40	736		1,662
-RPA1- 10+00.00	13+63.80	116		146	30	
-RPA2- 10+00.00	12+56.82	84		49		35
-RPB- 10+00.00	14+00.00	530		2,537	2,007	
-RAB2- 10+00.00	14+71.24	80		3,128	3,108	60
	<b>SUBTOTAL</b>	<b>3,190</b>	<b>40</b>	<b>6,676</b>	<b>5,218</b>	<b>1,772</b>
	<b>TOTAL</b>	<b>3,952</b>	<b>250</b>	<b>11,357</b>	<b>9,208</b>	<b>2,053</b>
MATERIAL FOR SHOULDER CONSTRUCTION				480	480	
MATERIAL FOR CENTRAL ISLAND CONSTRUCTION (RAB)					840	
LOSS DUE TO CLEARING & GRUBBING		-1,225			1,225	
ADDITIONAL UNDERCUT EXCAVATION			675	810	810	675
SELECT GRANULAR MATERIAL IN LIEU OF BORROW				-300	-300	
WASTE IN LIEU OF BORROW					-1,253	-1,253
<b>PROJECT TOTAL</b>		<b>2,727</b>	<b>925</b>	<b>12,347</b>	<b>11,010</b>	<b>1,475</b>
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					550	
<b>GRAND TOTAL</b>		<b>2,727</b>			<b>11,560</b>	
<b>SAY</b>		<b>2,800</b>			<b>11,600</b>	

EST. DDE = 1000 CY  
 ESTIMATED 2305 CY AND ADDITIONAL OF 500 CY AS CONTINGENCY OF SHALLOW UNDERCUT PER GEOTECH RECOMMENDATION  
 ESTIMATED 300 CY AS CONTINGENCY OF SELECT GRANULAR MATERIAL PER GEOTECH RECOMMENDATION  
 ESTIMATED 5510 TONS AND ADDITIONAL OF 1000 TONS AS CONTINGENCY OF CLASS IV SUBGRADE STABILIZATION PER GEOTECH RECOMMENDATION  
 UNCLASSIFIED EXCAVATION NOT SUITABLE FOR THE TOP 3FT OF EMBANKMENT OR BACKFILL PER GEOTECH RECOMMENDATION:  
 -L- 24+75 to 26+25 (35CY), -L- 32+89 to 36+25 (60CY), -L- 43+75 to 44+75 (170CY), -RPA1- 11+25 to 11+75 (5CY), -RPA2- 10+00 to 12+25 (40CY)  
 -RPB- 12+75 to 14+00 (10CY), -RPC- 11+75 to 13+25 (100CY), -SPURC- 10+00 to 12+21 (45CY), -RAB1- 10+00 to 10+25 (5CY), -RAB1- 12+25 to 13+25 (25CY)

NOTE: TOTAL EMBANKMENT INCLUDES EARTH BERM CONSTRUCTION FROM -L- STA. 25+71.45 TO 28+00.00 LT.

NOTE: Earthwork quantities are calculated by the Roadway Designer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading".

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DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

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"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.

**GUARDRAIL SUMMARY**

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (FT)			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	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE B-77	TYPE III	GREU TL-3	AT-1	CAT-1	G	NG					
-L-	19+00.00	23+72.59	RT	475.00	16.00		EXIST.				50'		1'					1						504	REPLACE EXIST. WITH NEW STANDARD	
-L-	25+45.00	28+28.00	RT	283.00			EX BRIDGE				50'		1'				1							293	REPLACE EXIST. WITH NEW STANDARD	
-L-	28+11.90	28+53.52	LT	42.00				EX BRIDGE									1							454		
-L-	30+79.19	31+09.86	LT	31.00			EX BRIDGE										1							170		
-RAB2-	13+13.09	14+28.81	RT		145.50		13+13.09		14'	C&G																
-L-	33+46.15	35+06.37	RT	161.00			EXIST.																	729	REPLACE EXIST. WITH NEW STANDARD	
-RPB-	10+22.55	12+50.00	RT	228.00				12+50.00	14'	SBG																
-L-	32+80.85	36+99.94	LT	371.00	92.00		EXIST.				50'		1'												455	REPLACE EXIST. WITH NEW STANDARD
-RPA2-	10+00.00	13+53.18	LT	218.00	124.00		EXIST.																			REPLACE EXIST. WITH NEW STANDARD
		EXIST. RAMP A	RT	464.00			EXIST.				50'		1'												464	REPLACE EXIST. WITH NEW STANDARD
<b>TOTAL</b>				<b>2273.00</b>	<b>377.50</b>										<b>3</b>		<b>4</b>	<b>1</b>	<b>4</b>					<b>3069</b>		
<b>DEDUCTION FOR ANCHORS:</b>																										
	<b>TYPE</b>	<b>QTY</b>	<b>LT/EA</b>																							
	GREU TL-3	4	50.00	-200.00																						
	CAT-1	4	6.25	-25.00																						
	AT-1	1	6.25	-6.25																						
	B-77	3	22.875	-68.63																						
<b>PROJECT TOTAL</b>				<b>1979.38</b>	<b>371.25</b>																			<b>3069</b>		
<b>SAY</b>				<b>2,000</b>	<b>375</b>										<b>3</b>		<b>4</b>	<b>1</b>	<b>4</b>					<b>3070</b>		
<b>ADDITIONAL GUARDRAIL POSTS</b>					10 EA																					

**REMOVAL OF EXISTING ASPHALT PAVEMENT**

**BREAKING OF EXISTING ASPHALT PAVEMENT**

**SHOULDER BERM GUTTER SUMMARY**

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	SQUARE YARDS
L	23+67.71	24+73.71	LT/RT	8,211.18	912.35
L	31+62.91	32+69.32	LT/RT	6,949.93	772.21
L	25+25.24	25+71.44	LT	261.29	29.03
L	24+70.00	29+74.55	LT(Ex. Loop)	29,712.62	3301.40
US74			Accel lane	3,687.35	409.71
L	24+92.74	25+71.44	LT	164.45	18.27
<b>TOTAL</b>					<b>5,442.97</b>
<b>SAY</b>					<b>5,450</b>

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	SQUARE YARDS
L	24+92.74	25+71.44	LT	731.93	81.33
L	25+71.44	27+65.18	LT	4,157.04	461.89
RPB	10+00.00	12+50.00	LT/RT	5,999.08	666.56
<b>TOTAL</b>					<b>1,209.78</b>
<b>SAY</b>					<b>1,210</b>

LINE	STATION	STATION	SIDE	LENGTH
RPA2	11+52.35	13+53.15	LT	204.85
RPB	10+02.28	12+47.56	RT	245.52
<b>TOTAL (FT)</b>				<b>450.37</b>
<b>SAY</b>				<b>460</b>

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COMPUTED BY: VHB DATE: 12/03/2024  
CHECKED BY: VHB DATE: 12/03/2024

PROJECT NO. SHEET NO.  
I-5979 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.  
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE), R. C. PIPE CLASS IV, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes a SHEET TOTALS row at the bottom.

Z11295

COMPUTED BY: VHB DATE: 12/03/2024  
CHECKED BY: VHB DATE: 12/03/2024

PROJECT NO. I-5979 SHEET NO. 3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

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See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE), R. C. PIPE CLASS IV, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS table listing codes like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S., O.E.P. and their corresponding material descriptions.

Z11295

COMPUTED BY: VHB DATE: 12/03/2024  
CHECKED BY: VHB DATE: 12/03/2024

PROJECT NO. SHEET NO.  
I-5979 3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

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See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE), R. C. PIPE CLASS IV, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes SHEET TOTALS and PROJECT TOTALS at the bottom.

COMPUTED BY: S. Hercules DATE: 07/12/2024  
 CHECKED BY: M. Mulla DATE: 07/12/2024

(2-3-23)

PROJECT NO.  
I-5979

SHEET NO.  
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
-RPD-	11+75	12+40	LT	SD	250
	CONTINGENCY			SD	100
				<b>TOTAL LF:</b>	<b>350</b>

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

**SUMMARY OF ROCK PLATING**

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-RPA1-	2:1	11+33.07	1.93:1	12+78.69	LT	1		150
-RPA2-	2:1	10+00.00	2:1	12+56.82	LT	1		350
							<b>TOTAL SY:</b>	<b>500</b>

\*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

**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
-RPA1-	10+25	11+75	ASU(1)	12	80	160	240		
-RPA2-	10+00	12+25	ASU(1)	12	70	140	210		
-RPB-	11+75	14+00	ASU(1)	12	40	80	120		
-RPC-	10+25	13+60	ASU(1)	12	155	310	320		
-SPURC-	10+00	12+21	ASU(1)	12	60	120	180		
-L-	21+50	51+05	ASU(1)	12	1300	2600	4000		
-RAB1-	10+00	14+71	ASU(1)	12	250	1000	1600		
-RAB2-	10+00	14+71	ASU(1)	12	350	1100	1600		
	CONTINGENCY		ASU(1)	12	500	1000	1500		50
			<b>TOTAL CY/TONS/SY:</b>		<b>2805</b>	<b>6510**</b>	<b>9770**</b>	<b>0</b>	<b>50</b>

\*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.

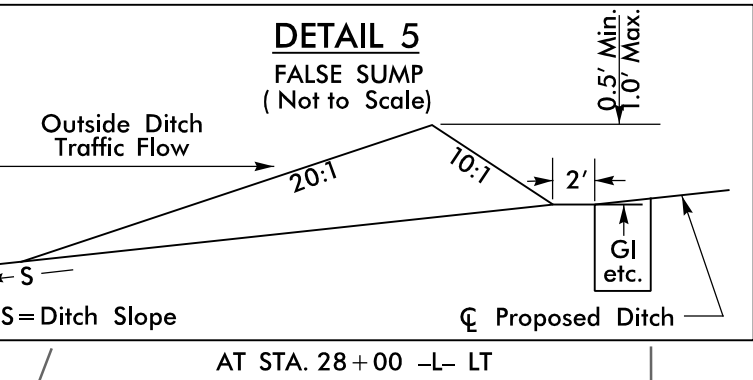
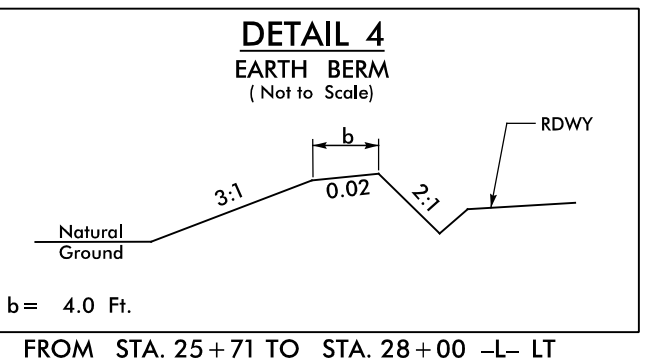
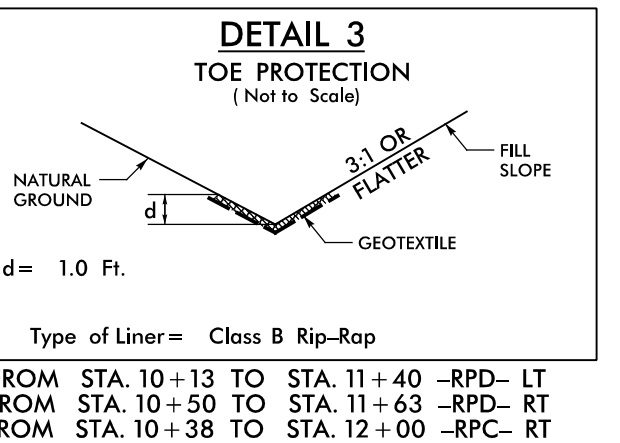
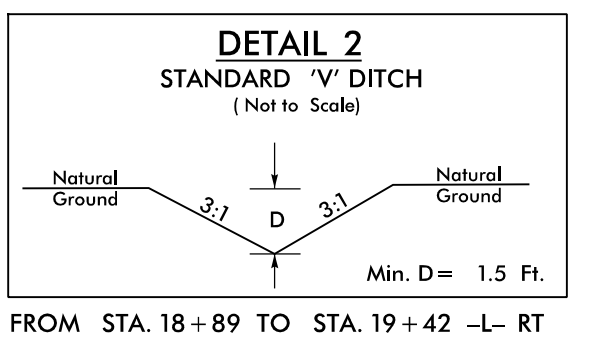
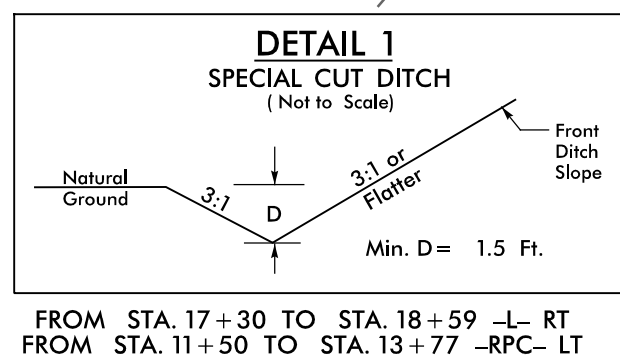
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

## PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	ESTATE OF BETTY LOUISE SHOE
2	4	JONATHAN HOWLETT & WIFE, KIMBERLY D. HOWLETT
3	4	JOHN TIMOTHY RAINWATER ETAL
4	4	SARA R. STEWART
5	4	GERRY VICTOR MOONEYHAN JR
6	5	MARVIN JERRY DAVIS
7	5	WAFFLE HOUSE INC
8	5	SOUTHWOOD PENTECOSTAL HOLINESS CHURCH
9	5	MOUNTAIN PORTFOLIO OWNER NC LLC
10	5	CARL THOMAS, ET AL
11		NOT USED
12	5, 6	CRESTVIEW CONVENIENCE STORE
13	6	POLLY S. LYNCH LIFE ESTATE
14	6	JOEL DEAN KELLY
15	6	BARBARA T. DEBERRY, ET AL
16	6	NORMA JEAN LOCKLEAR
17	6	SAMMY L WHITLEY
18	6	JOHN T CHAVIS JR
19	6	BLAND INC & MIRAGE ENTERPRISES
20	6	QUALITY OIL COMPANY
21	6	TRAVIS D. WILKERSON & WIFE, PAMELA T. WILKERSON
22	6	CAROLINA LODGING INC

8.17/799

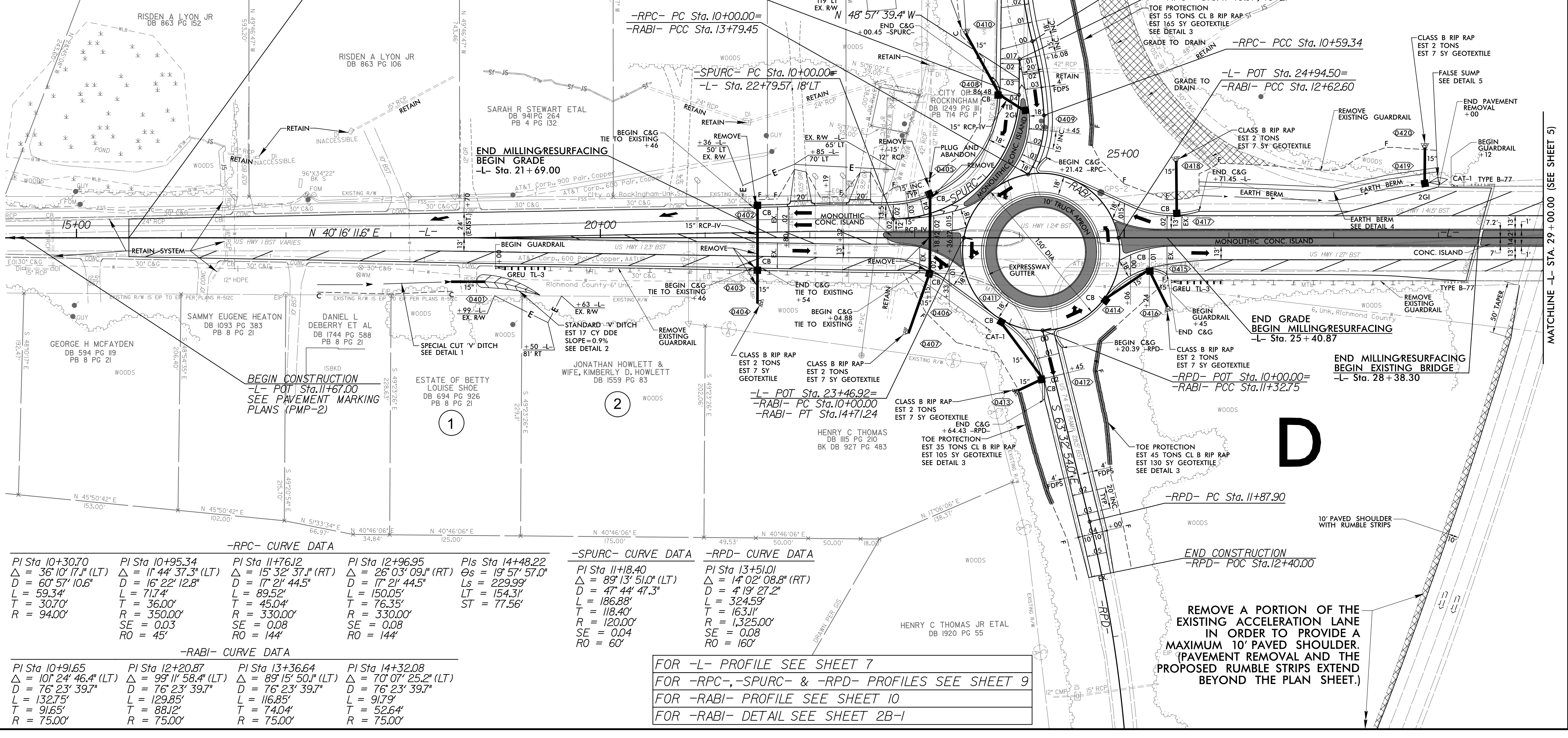
PROJECT REFERENCE NO. <b>1-5979</b>		SHEET NO. <b>4</b>	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
12/3/2024		12/4/2024	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			
Prepared by vhb VHB Engineering, Inc., P.C. (C-3705) 9400 Wilkes Center Drive, Suite 200 Raleigh, NC 27608			



**US 1 AT US 74 (FUTURE I-74) EB**

	820 900	2020 2040	ADT
US 74 EB OFF RAMP	200 200	620 700	
US 1	6460 6800	220 300	3200 3200
US 74 EB ON RAMP	3420 3500		9860 10200

**BEGIN TIP PROJECT 1-5979**  
**-L- POT STA. 15+50.00**  
**BEGIN MILLING/RESURFACING**



**-RPC- CURVE DATA**

PI Sta 10+30.70 Δ = 36° 10' 17.1" (LT) D = 60° 57' 10.6" L = 59.34' T = 30.70' R = 94.00'	PI Sta 10+95.34 Δ = 1° 44' 37.3" (LT) D = 16° 22' 12.8" L = 71.74' T = 36.00' R = 350.00' SE = 0.03 RO = 45'	PI Sta 11+76.12 Δ = 15° 32' 37.1" (RT) D = 17° 21' 44.5" L = 89.52' T = 45.04' R = 330.00' SE = 0.08 RO = 144'	PI Sta 12+96.95 Δ = 26° 03' 09.1" (RT) D = 17° 21' 44.5" L = 150.05' T = 76.35' R = 330.00' SE = 0.08 RO = 144'	PIs Sta 14+48.22 Os = 19° 57' 57.0" Ls = 229.99' LT = 154.31' ST = 77.56'
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**-SPURC- CURVE DATA**

PI Sta 11+8.40 Δ = 89° 13' 51.0" (LT) D = 47° 44' 47.3" L = 186.88' T = 118.40' R = 120.00' SE = 0.04 RO = 60'	PI Sta 13+51.01 Δ = 14° 02' 08.8" (RT) D = 4° 19' 27.2" L = 324.59' T = 163.11' R = 1,325.00' SE = 0.08 RO = 160'
---	--

**-RPD- CURVE DATA**

PI Sta 10+91.65 Δ = 10° 24' 46.4" (LT) D = 76° 23' 39.7" L = 132.75' T = 91.65' R = 75.00'	PI Sta 12+20.87 Δ = 99° 11' 58.4" (LT) D = 76° 23' 39.7" L = 129.85' T = 88.12' R = 75.00'	PI Sta 13+36.64 Δ = 89° 15' 50.1" (LT) D = 76° 23' 39.7" L = 116.85' T = 74.04' R = 75.00'	PI Sta 14+32.08 Δ = 70° 07' 25.2" (LT) D = 76° 23' 39.7" L = 91.79' T = 52.64' R = 75.00'
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**-RABI- CURVE DATA**

PI Sta 10+30.70 Δ = 36° 10' 17.1" (LT) D = 60° 57' 10.6" L = 59.34' T = 30.70' R = 94.00'	PI Sta 10+95.34 Δ = 1° 44' 37.3" (LT) D = 16° 22' 12.8" L = 71.74' T = 36.00' R = 350.00' SE = 0.03 RO = 45'	PI Sta 11+76.12 Δ = 15° 32' 37.1" (RT) D = 17° 21' 44.5" L = 89.52' T = 45.04' R = 330.00' SE = 0.08 RO = 144'	PI Sta 12+96.95 Δ = 26° 03' 09.1" (RT) D = 17° 21' 44.5" L = 150.05' T = 76.35' R = 330.00' SE = 0.08 RO = 144'	PIs Sta 14+48.22 Os = 19° 57' 57.0" Ls = 229.99' LT = 154.31' ST = 77.56'
--	---	---	--	---

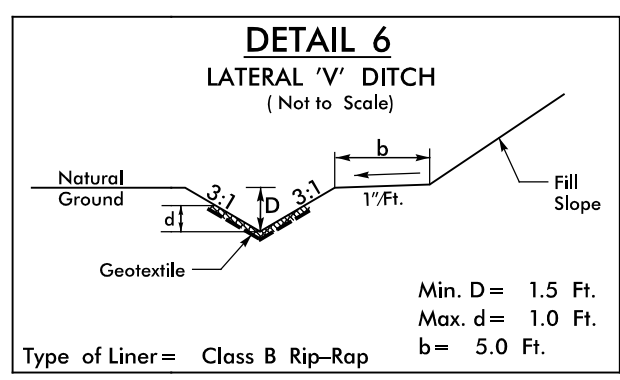
FOR -L- PROFILE SEE SHEET 7  
FOR -RPC-, -SPURC- & -RPD- PROFILES SEE SHEET 9  
FOR -RABI- PROFILE SEE SHEET 10  
FOR -RABI- DETAIL SEE SHEET 2B-1

REMOVE A PORTION OF THE EXISTING ACCELERATION LANE IN ORDER TO PROVIDE A MAXIMUM 10' PAVED SHOULDER. (PAVEMENT REMOVAL AND THE PROPOSED RUMBLE STRIPS EXTEND BEYOND THE PLAN SHEET.)

1/13/2024 10:41:04 AM

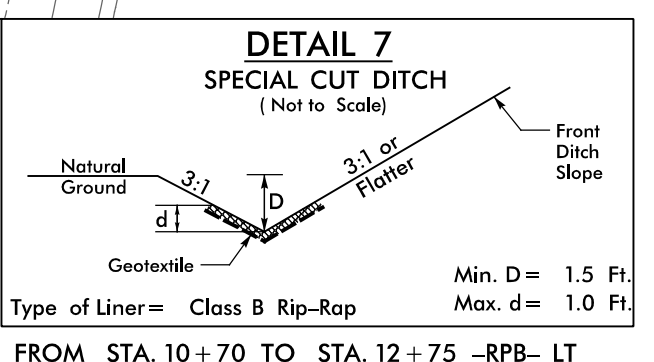
MATCHLINE -L- STA. 29+00.00 (SEE SHEET 5)

8.17.17.99



-RPB- POT Sta. 14+09.05

END CONSTRUCTION -RPB- POT Sta. 14+00.00



SPECIAL CUT 'V' DITCH W/CLASS B RIP RAP EST 60 TONS EST 175 SY GEOTEXTILE SEE DETAIL 7

CLASS B RIP RAP EST 3 TONS EST 7 SY GEOTEXTILE

LATERAL 'V' DITCH W/CLASS B RIP RAP EST 30 TONS EST 80 SY GEOTEXTILE EST 93 CY DDE SEE DETAIL 6

-L- PRC Sta. 32+21.55

-L- PC Sta. 31+32.53

BEGIN C&G TRANSITION AND TIE TO EXISTING EXPRESSWAY CURB +95

END MILLING/RESURFACING BEGIN GRADE -L- Sta. 30+86.00

END EXISTING BRIDGE BEGIN MILLING/RESURFACING -L- Sta. 30+66.70

-L- POC Sta. 31+44.17 = -RAB2- PC Sta. 10+00.00 -RAB2- PT Sta. 14+71.24

CLASS B RIP RAP EST 2 TONS END C&G EST 7 SY +40.23 -RPA1- GEOTEXTILE

STANDARD BASE DITCH EST 10 CY DDE SLOPE=0.7% SEE DETAIL 8

-RPA1- PRC Sta. 10+92.78

-RPA1- PT Sta. 12+65.84

-RPA1- PC Sta. 12+74.89

END CONSTRUCTION -RPA1- POC Sta. 13+63.80 -RPA2- POC Sta. 14+38.95

-RPA1- PT Sta. 14+18.27

END GRADE -RPA2- POC Sta. 12+56.82

CLASS B RIP RAP EST 2 TONS EST 7 SY GEOTEXTILE

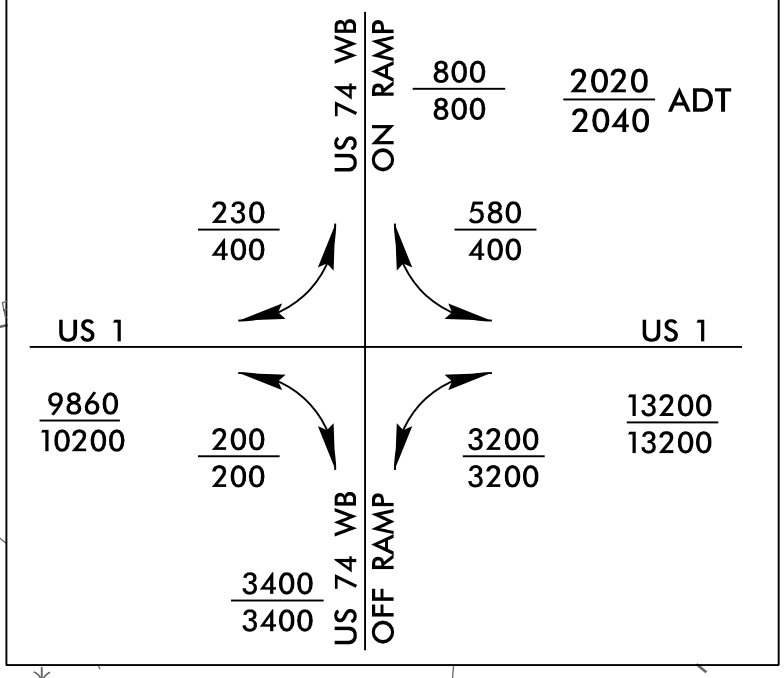
-RPA2- PT Sta. 13+38.95

-RPA2- PC Sta. 13+49.35

REMOVE & REPLACE EXISTING GUARDRAIL AT THE SAME LOCATION (EXTENDING BEYOND THE PLAN SHEET) WITH CURRENT STANDARD

-RPA2- PT Sta. 14+93.84

US 1 AT US 74 (FUTURE I-74) WB



-L- CURVE DATA

PI Sta 31+77.10 Δ = 7° 17' 09.9" (LT) D = 8' 11' 06.4" L = 89.02' T = 44.57' R = 700.00'	PI Sta 32+79.67 Δ = 9° 29' 34.0" (RT) D = 8' 11' 06.4" L = 115.98' T = 58.12' R = 700.00'	PI Sta 36+17.63 Δ = 2° 12' 24.1" (LT) D = 0' 57' 17.7" L = 231.08' T = 115.56' R = 6,000.00'
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-RPA1- CURVE DATA

PI Sta 10+47.93 Δ = 35° 26' 22.4" (LT) D = 38' 11' 49.9" L = 92.78' T = 47.93' R = 150.00' SE = 0.04 RO = 60'	PI Sta 11+80.18 Δ = 6° 35' 35.9" D = 11' 27' 33.0" L = 173.06' T = 87.40' R = 500.00' SE = 0.02 RO = 30'	PI Sta 13+46.65 Δ = 6° 19' 10.5" (RT) D = 4' 24' 26.5" L = 143.39' T = 71.77' R = 1,300.00'
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-RPA2- CURVE DATA

PI Sta 10+38.43 Δ = 43° 13' 39.2" (LT) D = 59° 04' 04.1" L = 73.18' T = 38.43' R = 97.00' SE = 0.03 RO = 45'	PI Sta 11+5.84 Δ = 29° 30' 18.3" (LT) D = 35° 22' 04.0" L = 83.42' T = 42.66' R = 162.00' SE = 0.02 RO = 30'	PI Sta 12+48.11 Δ = 12° 01' 20.3" (RT) D = 19° 49' 50.7" (RT) L = 182.34' T = 91.51' R = 869.00' SE = 0.05 RO = 75'	PI Sta 14+21.67 Δ = 6° 19' 10.5" (RT) D = 4' 22' 25.4" L = 144.49' T = 72.32' R = 1,310.00'
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-RAB2- CURVE DATA

PI Sta 10+88.46 Δ = 99° 24' 45.8" (LT) D = 76° 23' 39.7" L = 130.13' T = 88.46' R = 75.00'	PI Sta 11+65.32 Δ = 50° 16' 25.1" (LT) D = 76° 23' 39.7" L = 65.81' T = 35.19' R = 75.00'	PI Sta 12+46.50 Δ = 67° 58' 10.7" (LT) D = 76° 23' 39.7" L = 186.33' T = 50.56' R = 75.00'	PI Sta 15+04.87 Δ = 142° 20' 38.4" (LT) D = 76° 23' 39.7" L = 186.33' T = 219.96' R = 75.00'
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PROJECT REFERENCE NO. 1-5979 SHEET NO. 5

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

Seal 014493

Seal 043870

12/3/2024

12/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared by

**vhb**

VHB Engineering NC, P.C. (C-3705)  
9401 Centex Drive, Suite 200  
Raleigh, NC 27608

12/3/2024 10:51:05 AM

NOTE:  
USE STD. DWG. 275.01, DETAIL NO. 1 FOR ROCK PLATING (500 SY) AT -RPA1- STA. 11+84.00 TO STA. 12+79.00 LEFT AND -RPA2- STA. 10+00.00 TO STA. 12+57.00 LEFT.

FOR -RAB2- DETAIL SEE SHEET 2B-2  
FOR ISLAND DETAIL SEE SHEET 2B-3

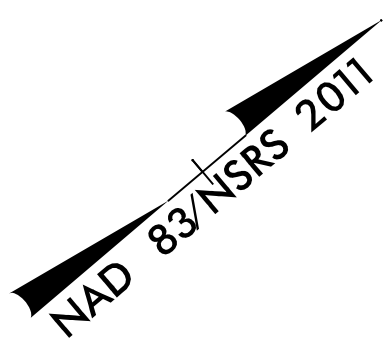
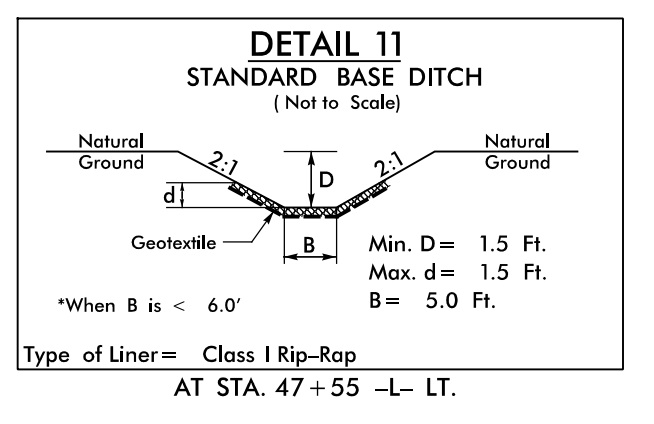
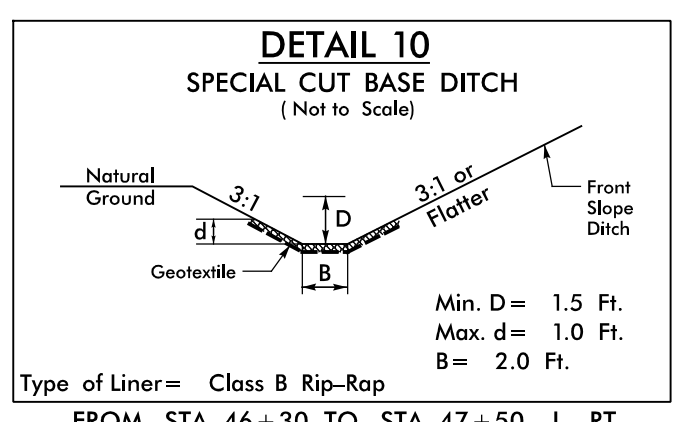
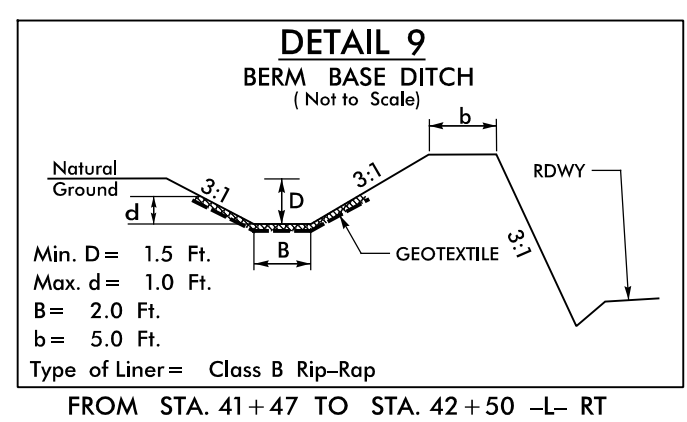
FOR -L- PROFILE SEE SHEET 7  
FOR -RPA1- & -RPA2- PROFILES SEE SHEET 8  
FOR -RPB- PROFILE SEE SHEET 9  
FOR -RAB2- PROFILE SEE SHEET 10



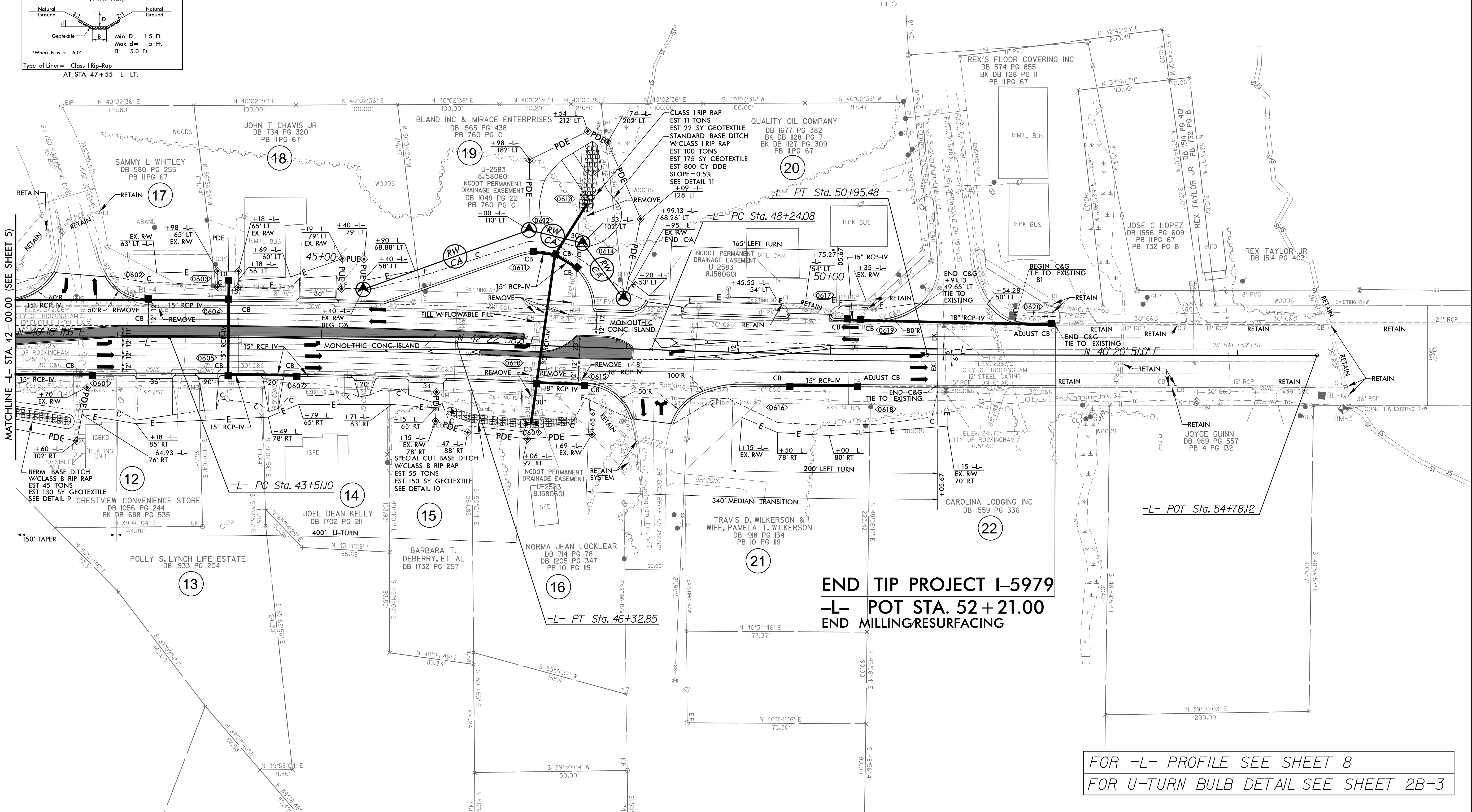
8.17.17.99

-L- CURVE DATA

PI Sta. 44+91.99	PI Sta. 49+59.79
$\Delta = 2^{\circ}06'47.1''$ (RT)	$\Delta = 2^{\circ}02'07.7''$ (LT)
D = 0'45'00.0"	D = 0'45'00.0"
L = 281.75'	L = 271.40'
T = 140.89'	T = 135.71'
R = 7,639.44'	R = 7,639.44'



PROJECT REFERENCE NO. I-5979		SHEET NO. 6	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
12/5/2024		12/4/2024	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			
Prepared by vhb VH8 Engineering NC, P.C. (C-3705) 940 W. Cannon Drive, Suite 200 Raleigh, NC 27608			



**END TIP PROJECT I-5979**  
**-L- POT STA. 52+21.00**  
**END MILLING/RESURFACING**

FOR -L- PROFILE SEE SHEET 8  
 FOR U-TURN BULB DETAIL SEE SHEET 2B-3

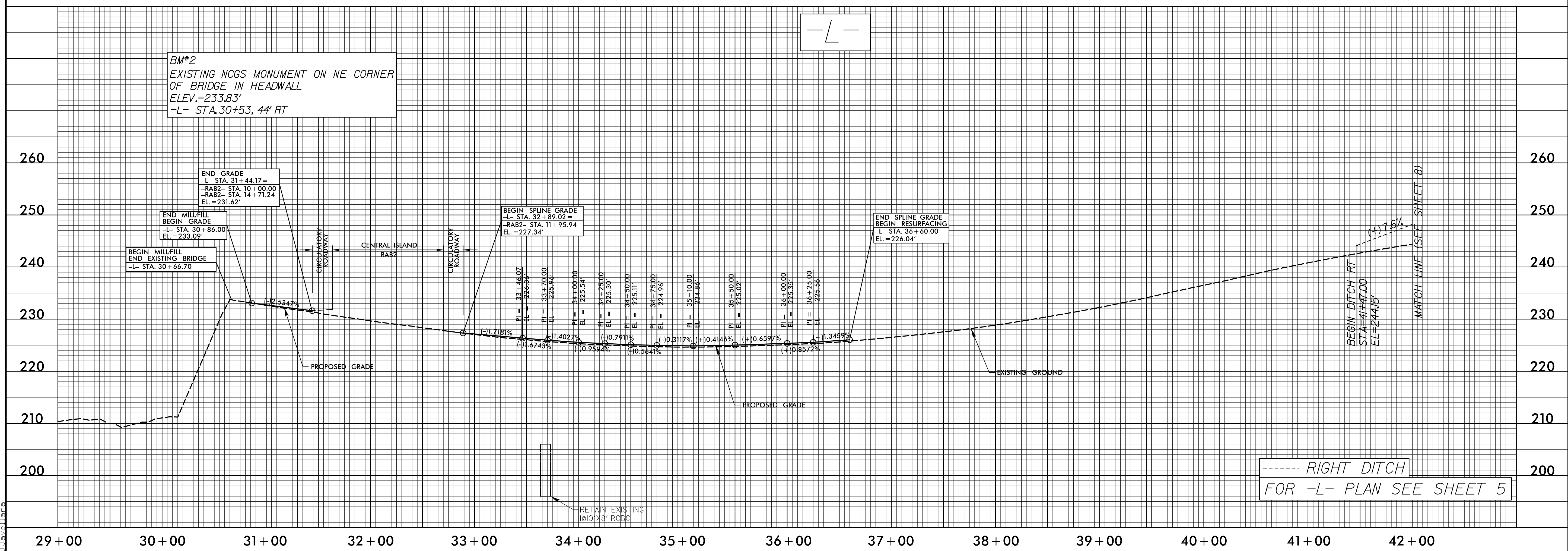
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5/28/24



PROJECT REFERENCE NO. 1-5979	SHEET NO. 7
ROADWAY DESIGN ENGINEER JIMMY GOODNIGHT SEAL 014493	HYDRAULICS ENGINEER KEID B. ROHR SEAL 043870
12/3/2024	12/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

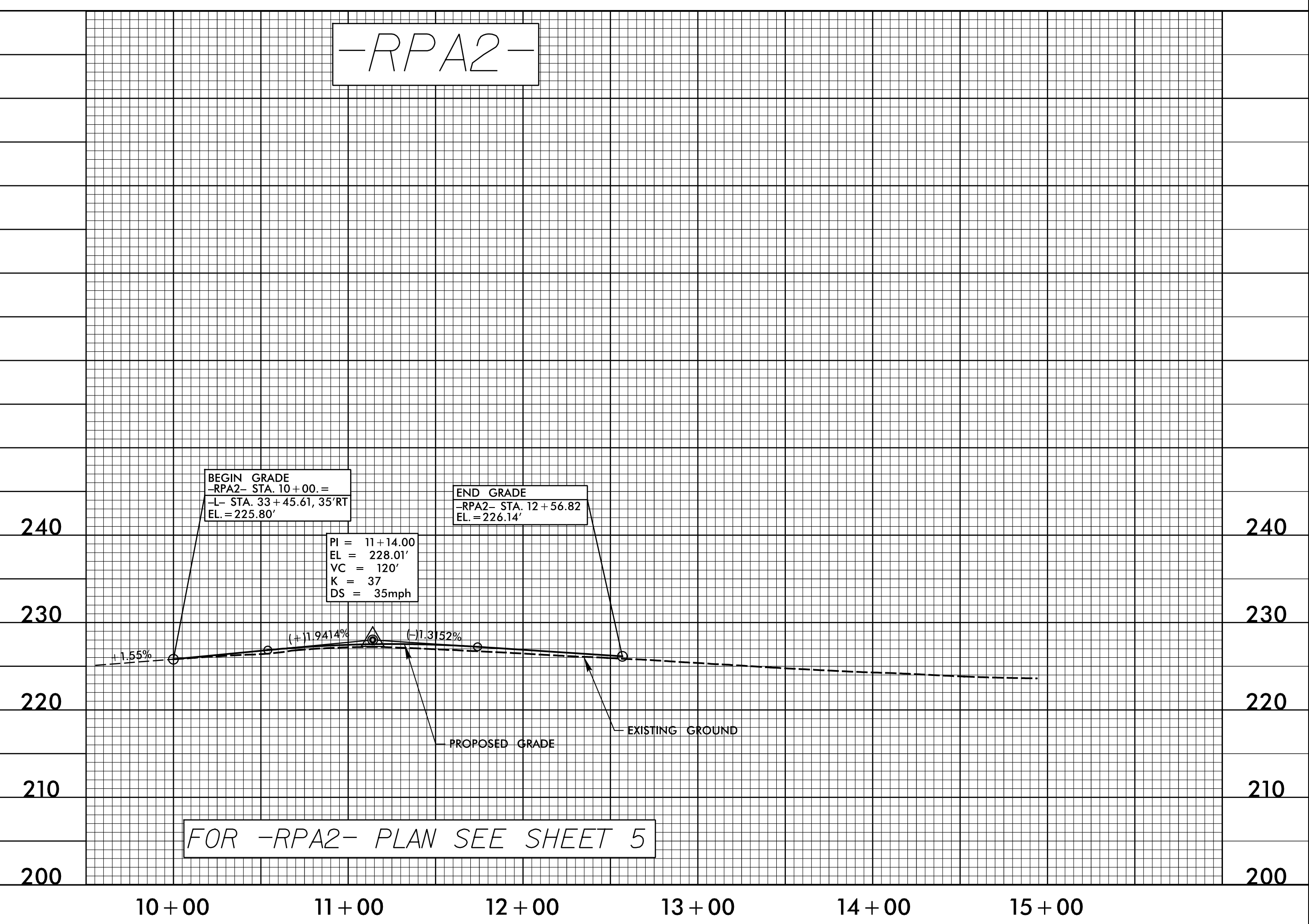
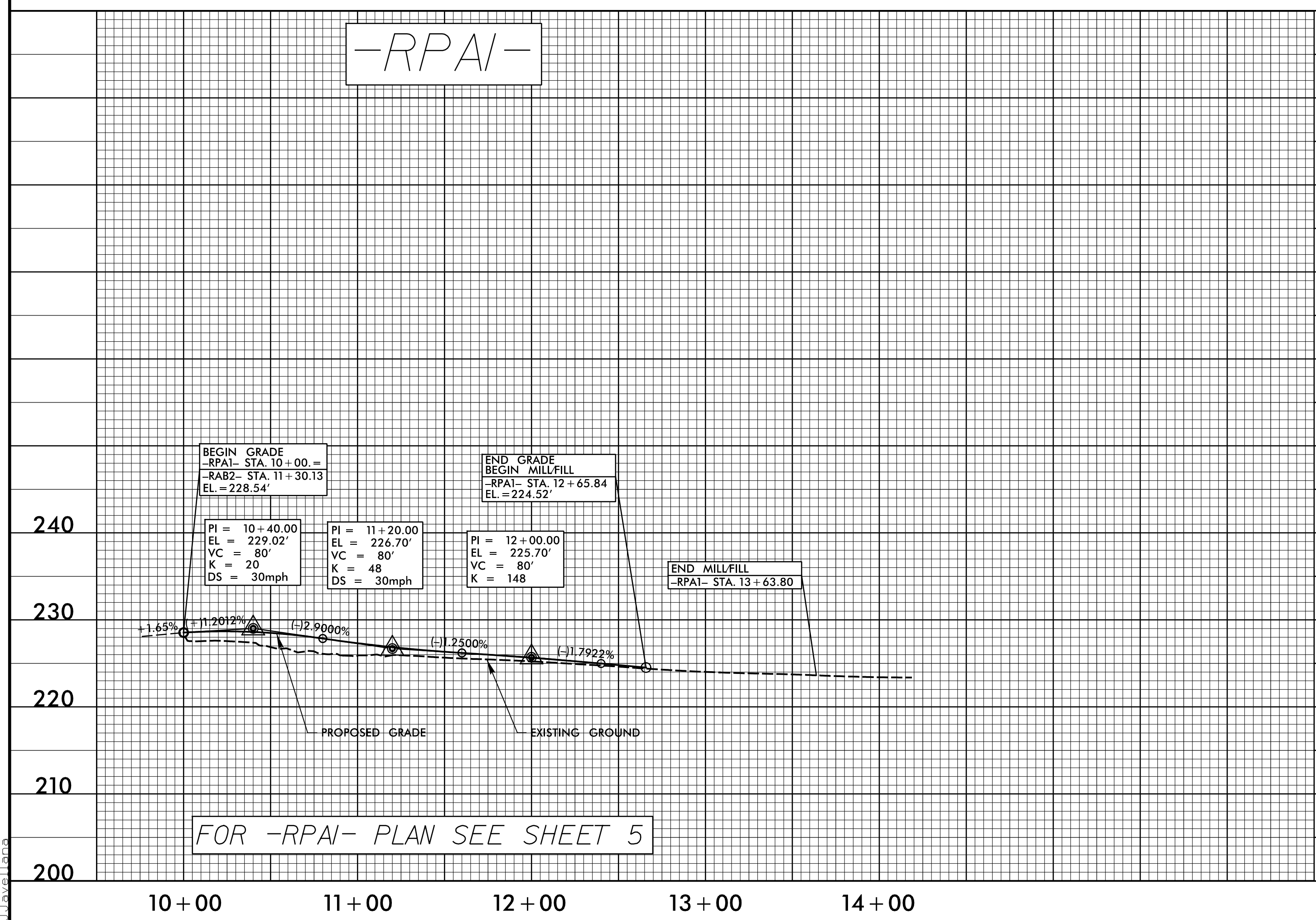


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5/28/99



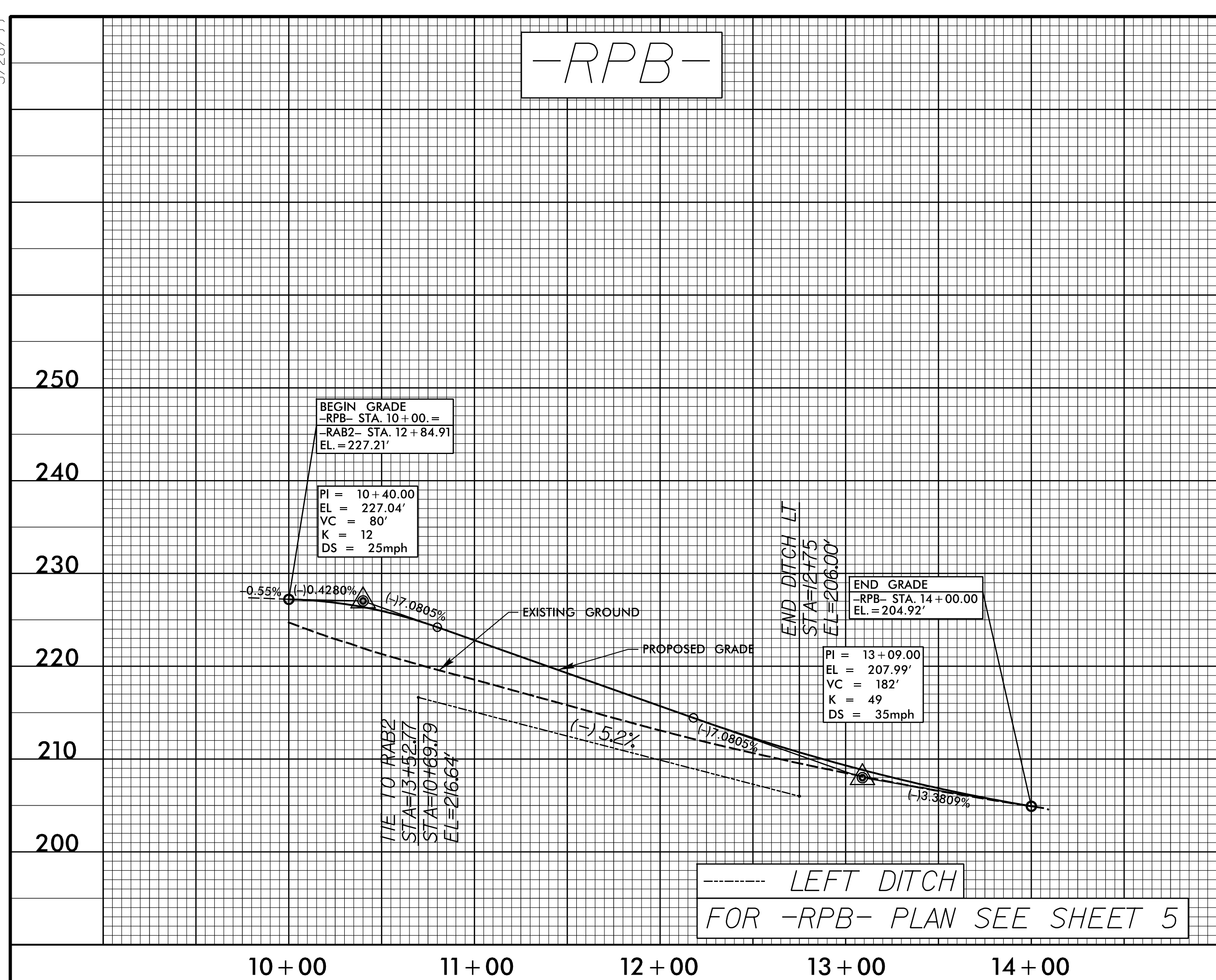
PROJECT REFERENCE NO. 1-5979	SHEET NO. 8
ROADWAY DESIGN ENGINEER SEAL 014493 12/3/2024	HYDRAULICS ENGINEER SEAL 043870 12/4/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



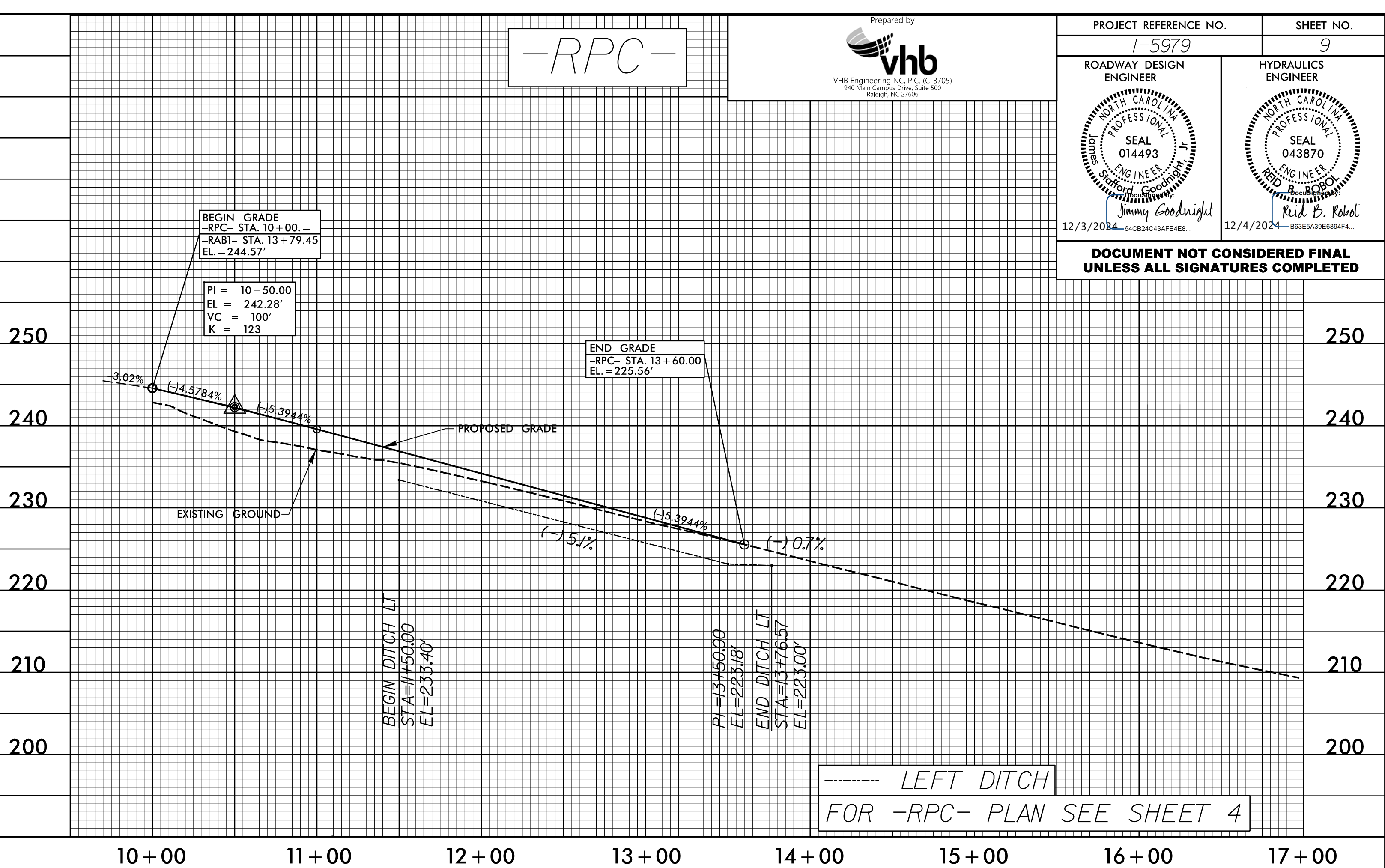
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5/28/99

# -RPB-



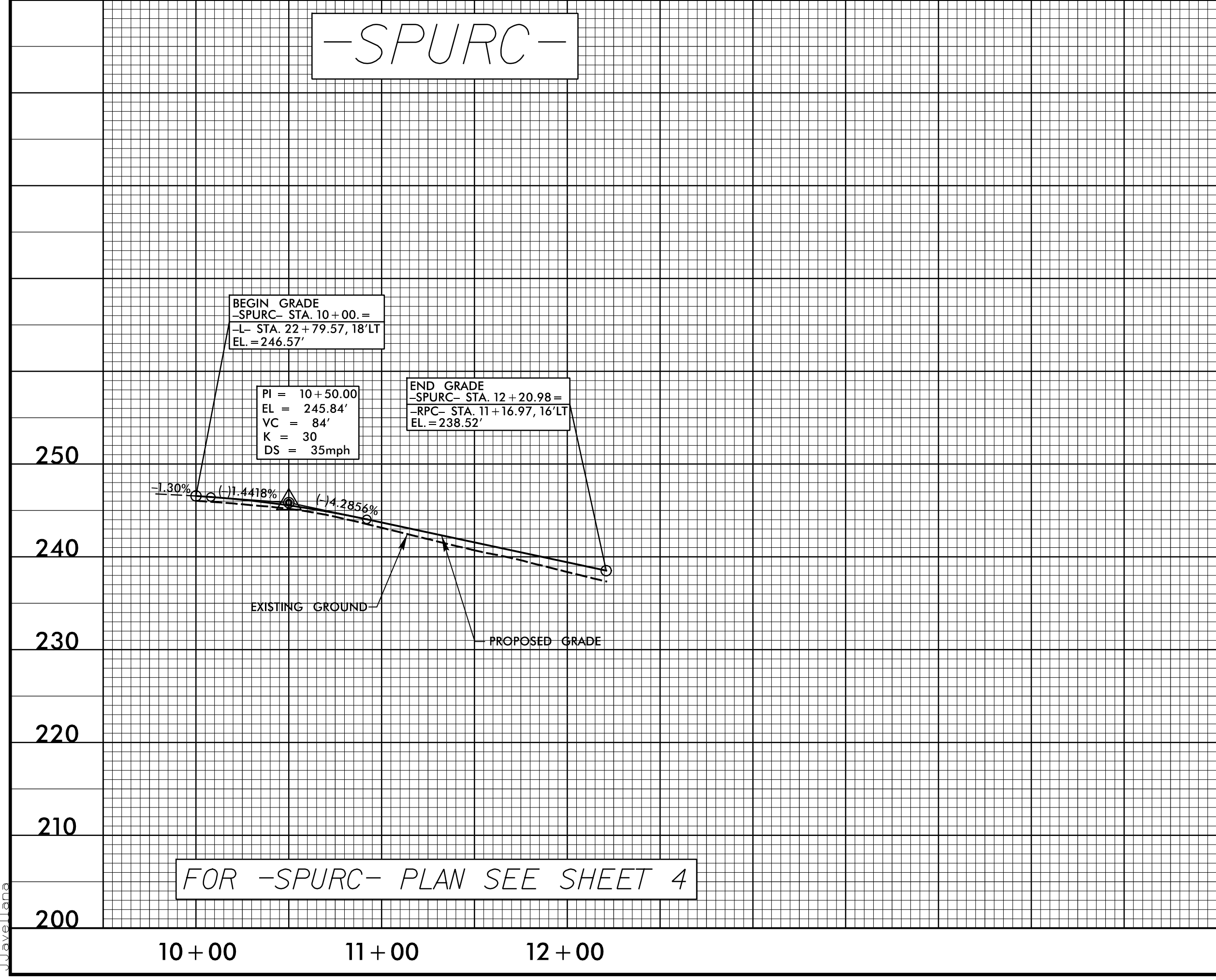
# -RPC-



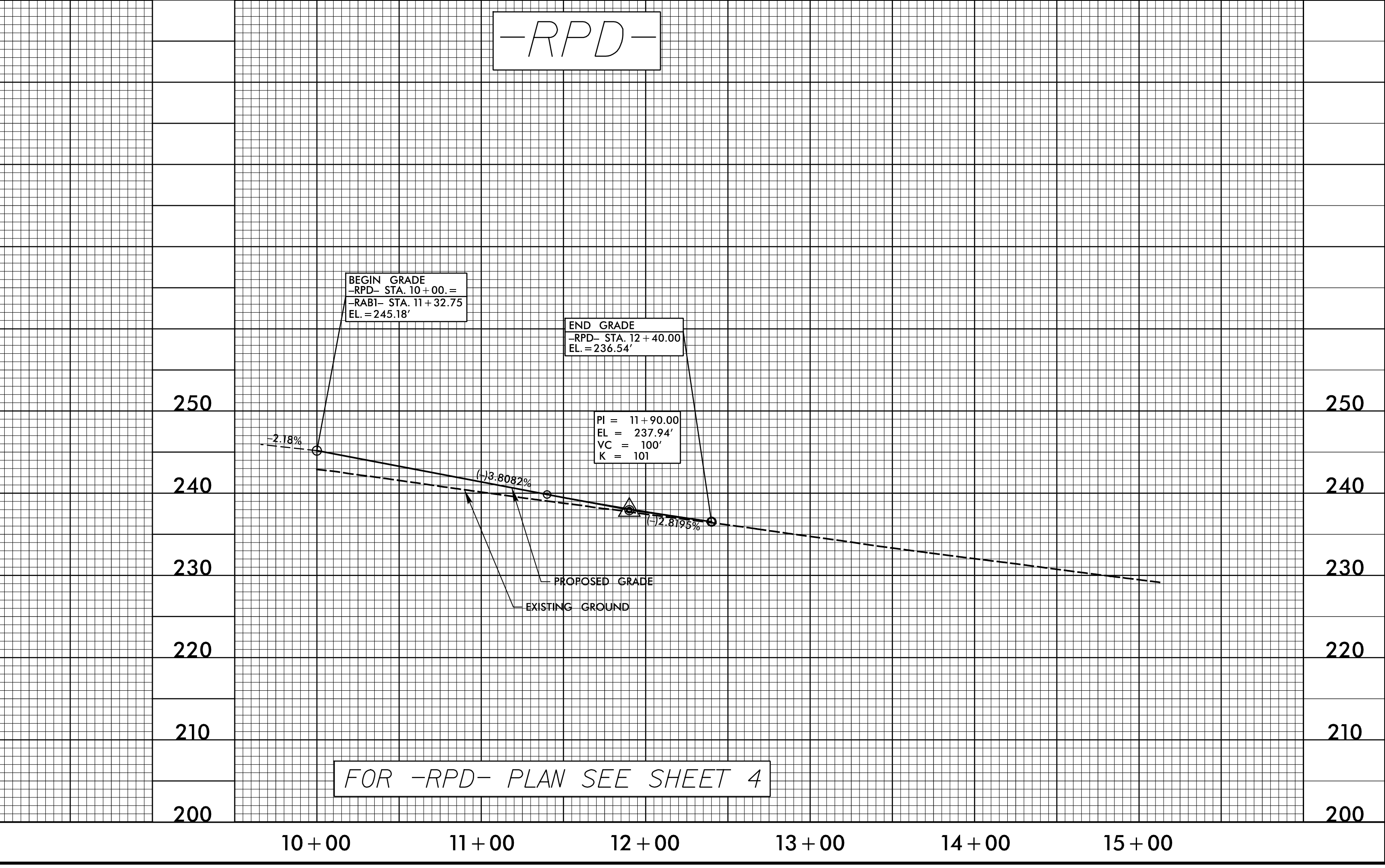
PROJECT REFERENCE NO. <b>I-5979</b>	SHEET NO. <b>9</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
12/3/2024 64C824C43AF4E8	12/4/2024 B03E5A39E894F4

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

# -SPURC-



# -RPD-



10/28/2024  
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5/28/99

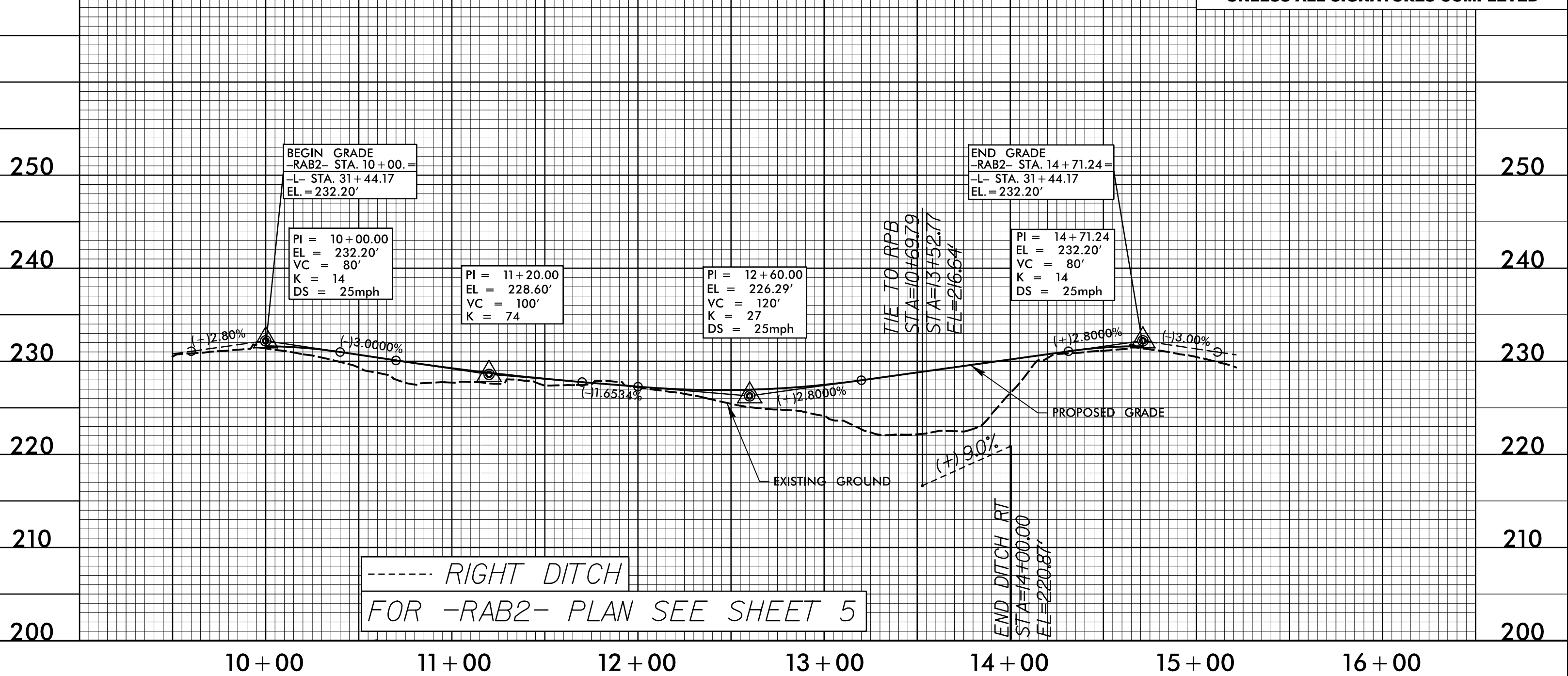
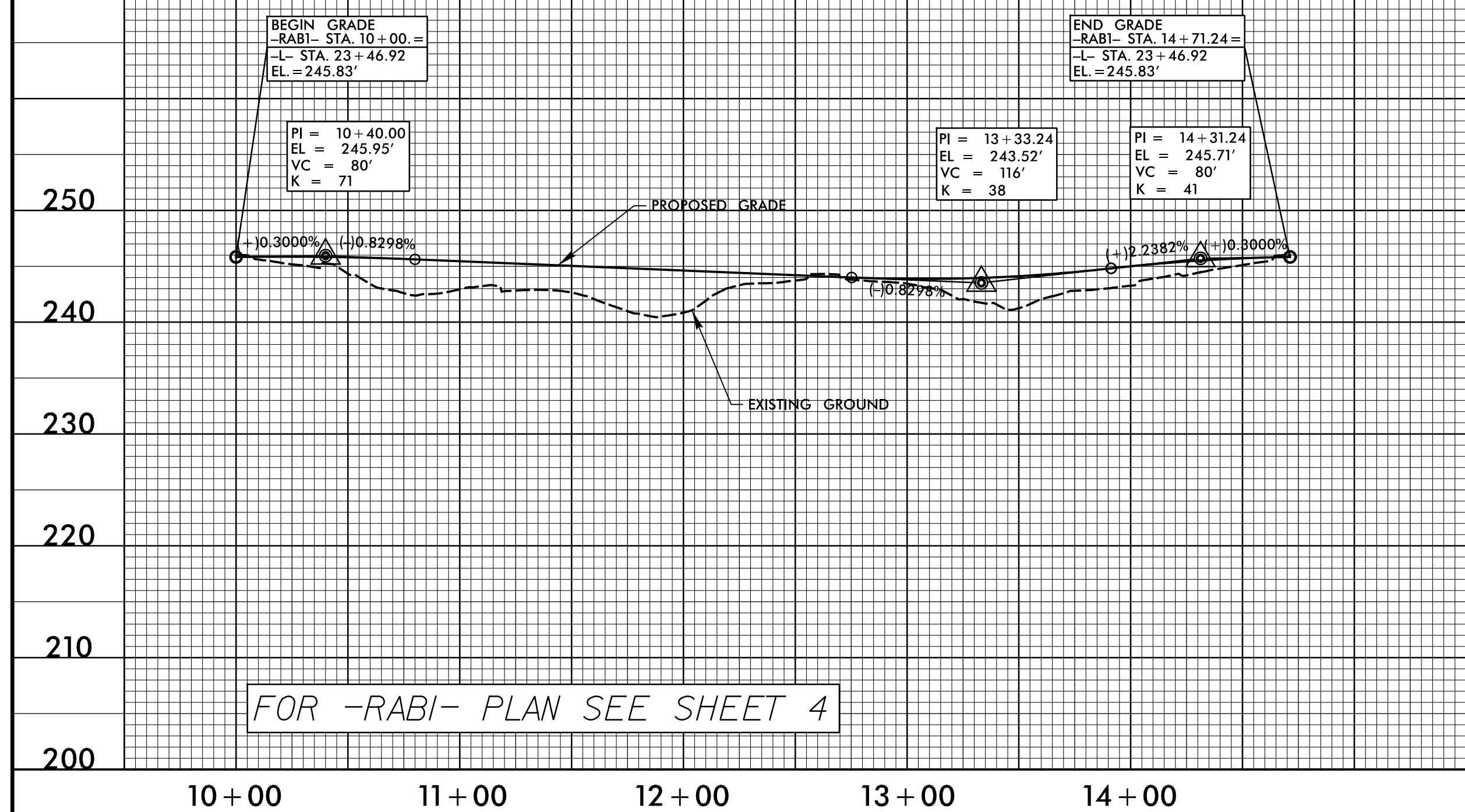
# -RABI-

# -RAB2-



PROJECT REFERENCE NO. 1-5979	SHEET NO. 10
ROADWAY DESIGN ENGINEER SEAL 014493 12/3/2024	HYDRAULICS ENGINEER SEAL 043870 12/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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