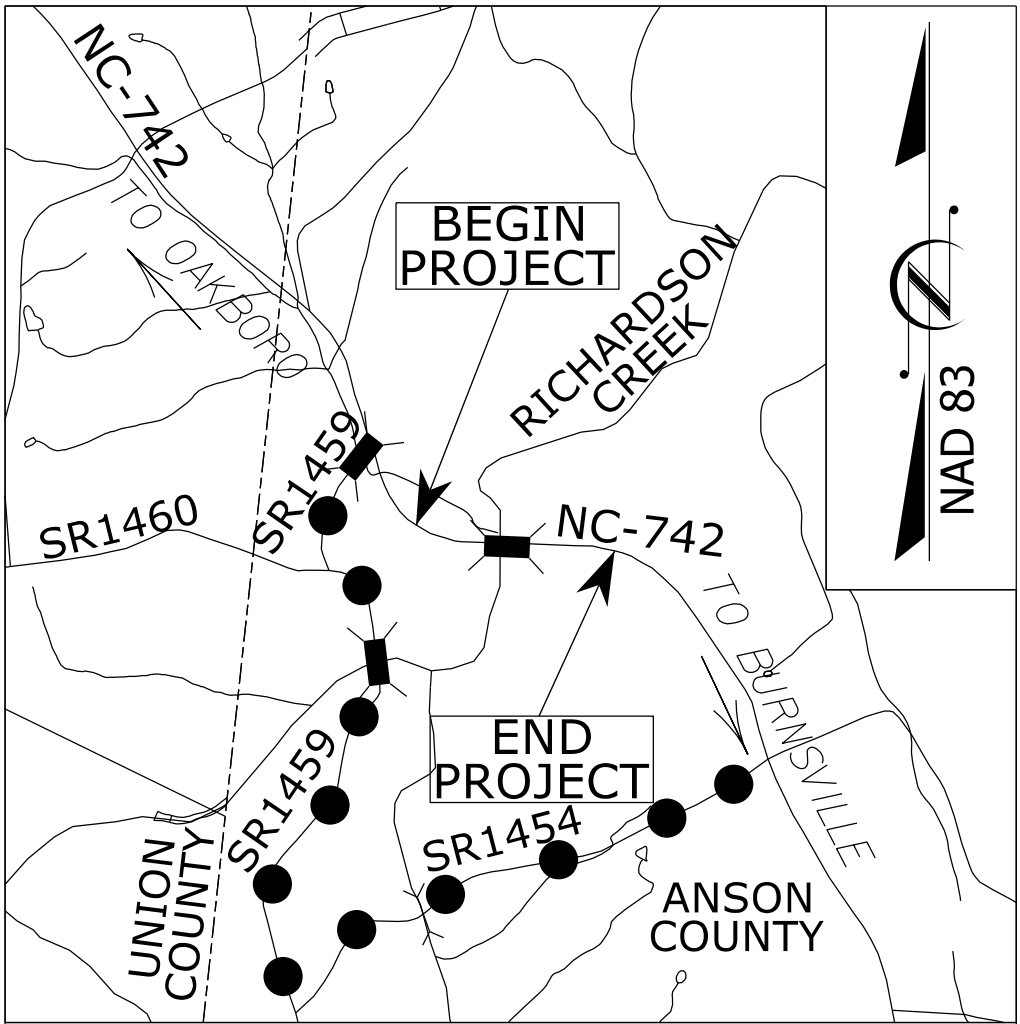


TIP PROJECT: BR-0063

CONTRACT: C204969

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



VICINITY MAP (NTS)

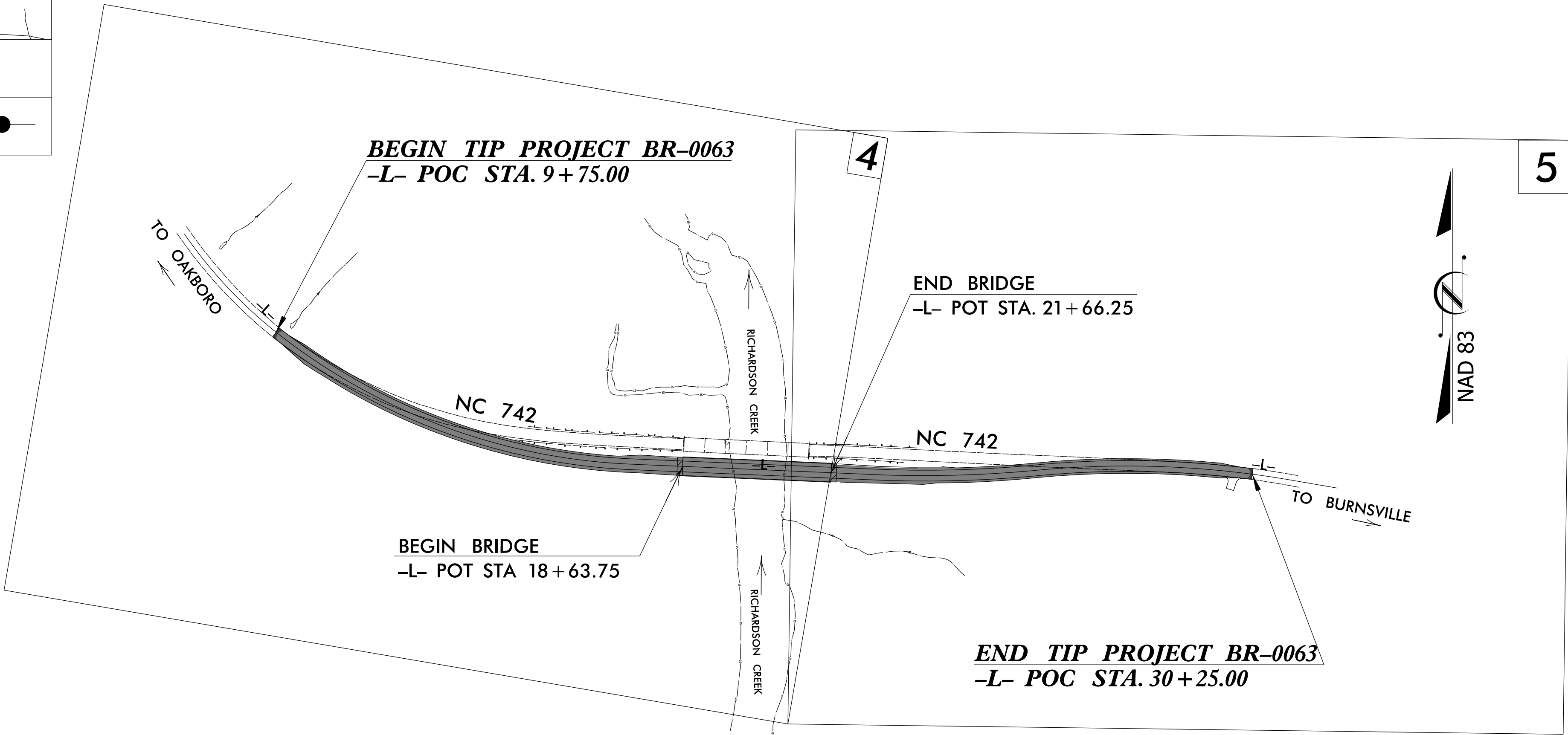
DETOUR : ● — ● — ● — ● — ●

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

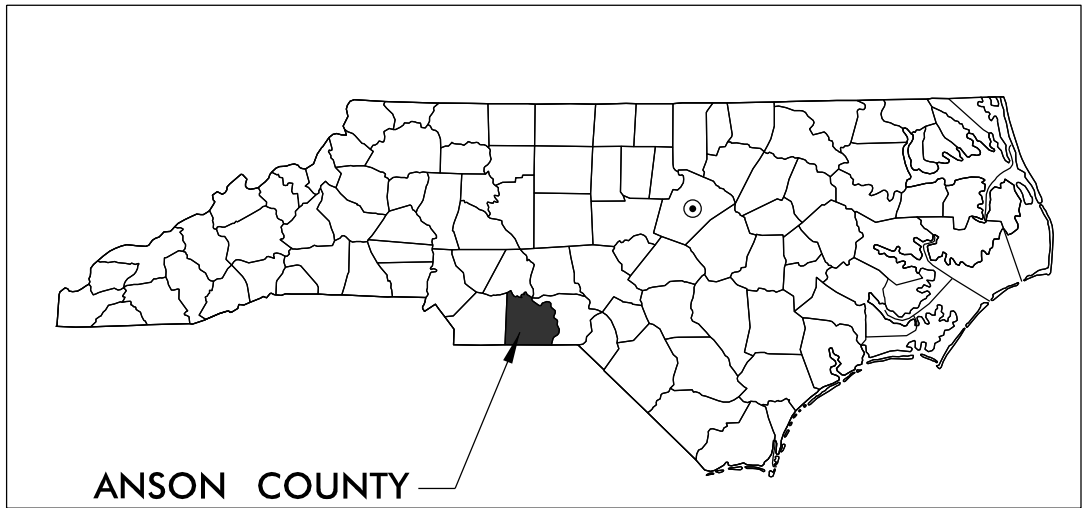
ANSON COUNTY

LOCATION: *REPLACEMENT OF BRIDGE 030087 OVER RICHARDSON CREEK ON NC 742*

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0063	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
67063.1.1	N/A	PE	
67063.2.1	N/A	R /W & Util.	
67063.3.1	N/A	CONST.	



ANSON COUNTY

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = 2,000
ADT 2044 = 3,050
K = 10 %
D = 60 %
T = 15 % *
V = 50 MPH
* (TTST = 7% + DUAL 8%)
FUNC CLASS =
RURAL COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0063 = 0.331 MI
LENGTH STRUCTURE TIP PROJECT BR-0063 = 0.057 MI
TOTAL LENGTH TIP PROJECT BR-0063 = 0.388 MI

Prepared in the Office of:
ARCADIS
Design & Consultancy
for natural and
built assets
175 REGENCY WOODS PLACE, STE 400, CARY, NC 27518
Phone: 919-854-1282, License #: F-0299
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
09-25-2023

LETTING DATE:
12-17-2024

K. ZAK HAMIDI, PE
PROJECT ENGINEER

PRITHIVIRAJ RAJA, PE
PROJECT DESIGN ENGINEER

Yanwei Ma, PE
NCDOT CONTACT

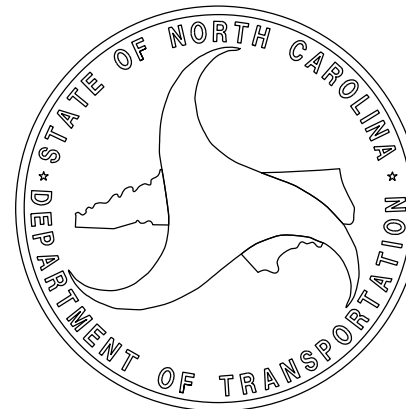
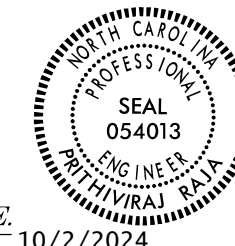
HYDRAULICS ENGINEER

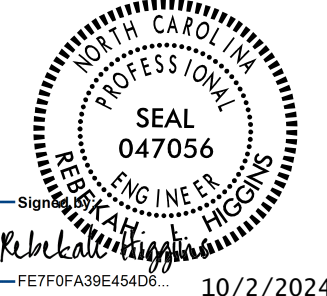
Signed by:
Rebekah Higgins
FE7E0FA39E454D6...
SIGNATURE: P.E. 10/2/2024



ROADWAY DESIGN ENGINEER

Signed by:
Prithviraj Raja
1DD6ED5B8291446...
SIGNATURE: P.E. 10/2/2024

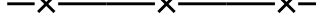
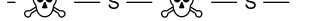
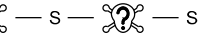


5/26/20	INDEX OF SHEETS		EFF. 01-16-2024	GENERAL NOTES:	2024 SPECIFICATIONS	BR-0063 RDY IA NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ANSON COUNTY ROADWAY DESIGN UNIT ROADWAY DESIGN ENGINEER  10/06/2005054013144610/2/2024  10/2/2024 PREPARED BY  115 REGENCY WOODS PLACE, STE. 400, CARY, NC 27518 Phone: 919-845-8100, Fax: 919-845-8197 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
	SHEET NUMBER	SHEET	REV.		EFFECTIVE: 01-16-2024	
					REVISED:	
	1	TITLE SHEET	2024 ROADWAY ENGLISH STANDARD DRAWINGS			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. SURFACING: THE ROUGH GRADING AND STRUCTURES ON THIS PROJECT HAVE BEEN DONE OR ARE NOW BEING DONE UNDER A PREVIOUS CONTRACT. THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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. 560.01 SUBSURFACE DRAINS: SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER. DRIVEWAYS: DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. STREET TURNOUT: STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS. GUARDRAIL: THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL. TEMPORARY SHORING: SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING". END BENTS: THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE. UTILITIES: UTILITY OWNERS ON THIS PROJECT ARE WINDSTREAM-TELEPHONE DUKE ENERGY FIBER-FIBER OPTIC ANSON COUNTY WATER-WATER/SEWER ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS. RIGHT-OF-WAY MARKERS: ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.
	1A	INDEX OF SHEETS, GENERAL NOTES, AND 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:			
	1B	CONVENTIONAL SYMBOLS				
	2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS				
	2B-1 THRU 2B-2	ROADWAY DETAILS				
	2D-1 THRU 2D-3	DRAINAGE DETAILS	STD.NO. TITLE			
	2G-1	GEOTECHNICAL DETAILS	DIVISION 2 - EARTHWORK			
	3B-1 THRU 3B-2	ROADWAY SUMMARIES	200.03 Method of Clearing - Method III			
	3D-1	DRAINAGE SUMMARIES	225.02 Guide for Grading Subgrade - Secondary and Local			
	3G-1	GEOTECHNICAL SUMMARIES	225.04 Method of Obtaining Superelevation - Two Lane Pavement			
	3P-1	PARCEL INDEX SHEET	STD.NO. TITLE			
	4 THRU 7	PLAN AND PROFILE SHEET	DIVISION 3 - PIPE CULVERTS			
	RW-1 THRU RW-5	RIGHT-OF-WAY PLANS	300.01 Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)			
	TMP-1 THRU TMP-7	TRAFFIC MANAGEMENT PLANS	DIVISION 4 - MAJOR STRUCTURES			
	PMP-1 THRU PMP-6	PAVEMENT MARKING PLANS	423.01 Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment			
	EC-1 THRU EC-7	EROSION CONTROL PLANS	DIVISION 5 - SUBGRADE, BASES AND SHOULDERS			
	SIGN-1 THRU SIGN-5	SIGNING PLANS	560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I			
	UO-1 THRU UO-4	UTILITIES BY OTHERS PLANS	DIVISION 6 - ASPHALT BASES AND PAVEMENTS			
	X-01	CROSS-SECTIONS INDEX SHEET	654.01 Pavement Repairs			
	X-02 THRU X-024	CROSS-SECTIONS	DIVISION 8 - INCIDENTALS			
	S-1 THRU S-18	STRUCTURE PLANS	806.01 Concrete Right-of-Way Marker			
	SN	STRUCTURE NOTES	806.02 Granite Right-of-Way Marker			
			815.02 Subsurface Drain			
			840.00 Concrete Base Pad for Drainage Structures			
			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			
			840.25 Anchorage for Frames - Brick or Concrete or Precast			
			840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates			
			840.37 Steel Grate and Frame			
			840.45 Precast Drainage Structure			
			840.46 Traffic Bearing Precast Drainage Structure			
			840.66 Drainage Structure Steps			
			846.01 Concrete Curb, Gutter and Curb & Gutter			
			848.04 Street Turnout			
			862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)			
			862.02 Guardrail Installation			
			862.03 Structure Anchor Units (Use Detail in Lieu of Standard for Sheet 8 of 9)			
			876.01 Rip Rap in Channels and Ditches			
			876.02 Guide for Rip Rap at Pipe Outlets			

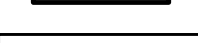
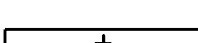
REVISIONS

Note: Not to Scale

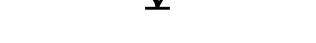
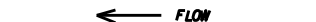
BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel / Sequence Number	
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:

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

HYDROLOGY:

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

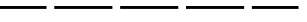
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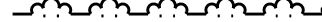
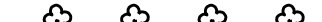
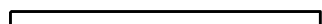
Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

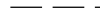
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
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:

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	

Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

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

UTILITIES:

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

POWER:

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

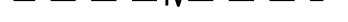
TELEPHONE:

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

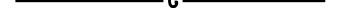
WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE - LOS A)*	
U/G Water Line (SUE - LOS B)*	
U/G Water Line (SUE - LOS C)*	
U/G Water Line (SUE - LOS D)*	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE - LOS A)*	
U/G TV Cable (SUE - LOS B)*	
U/G TV Cable (SUE - LOS C)*	
U/G TV Cable (SUE - LOS D)*	
U/G Fiber Optic Cable (SUE - LOS B)*	
U/G Fiber Optic Cable (SUE - LOS C)*	
U/G Fiber Optic Cable (SUE - LOS D)*	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

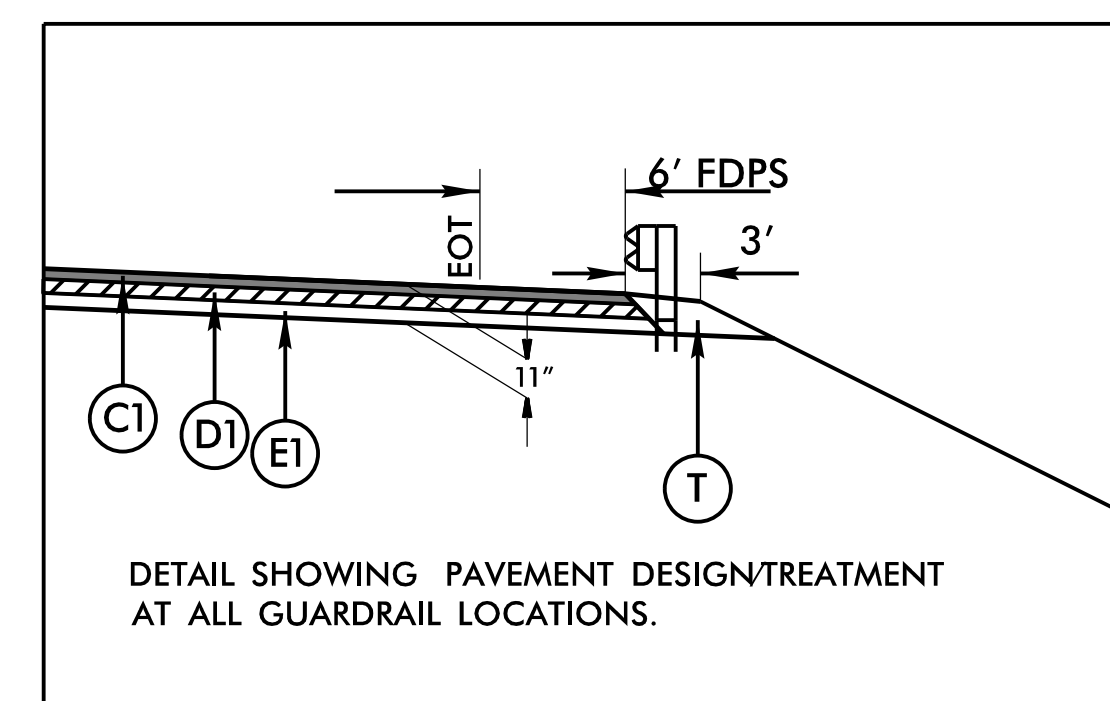
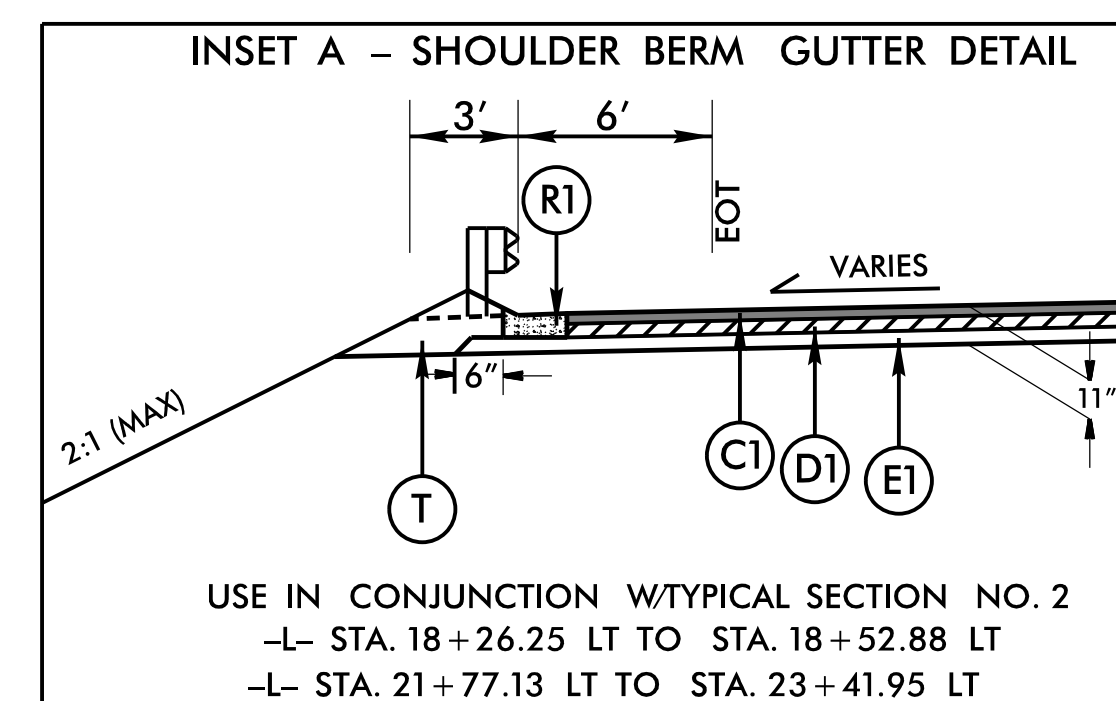
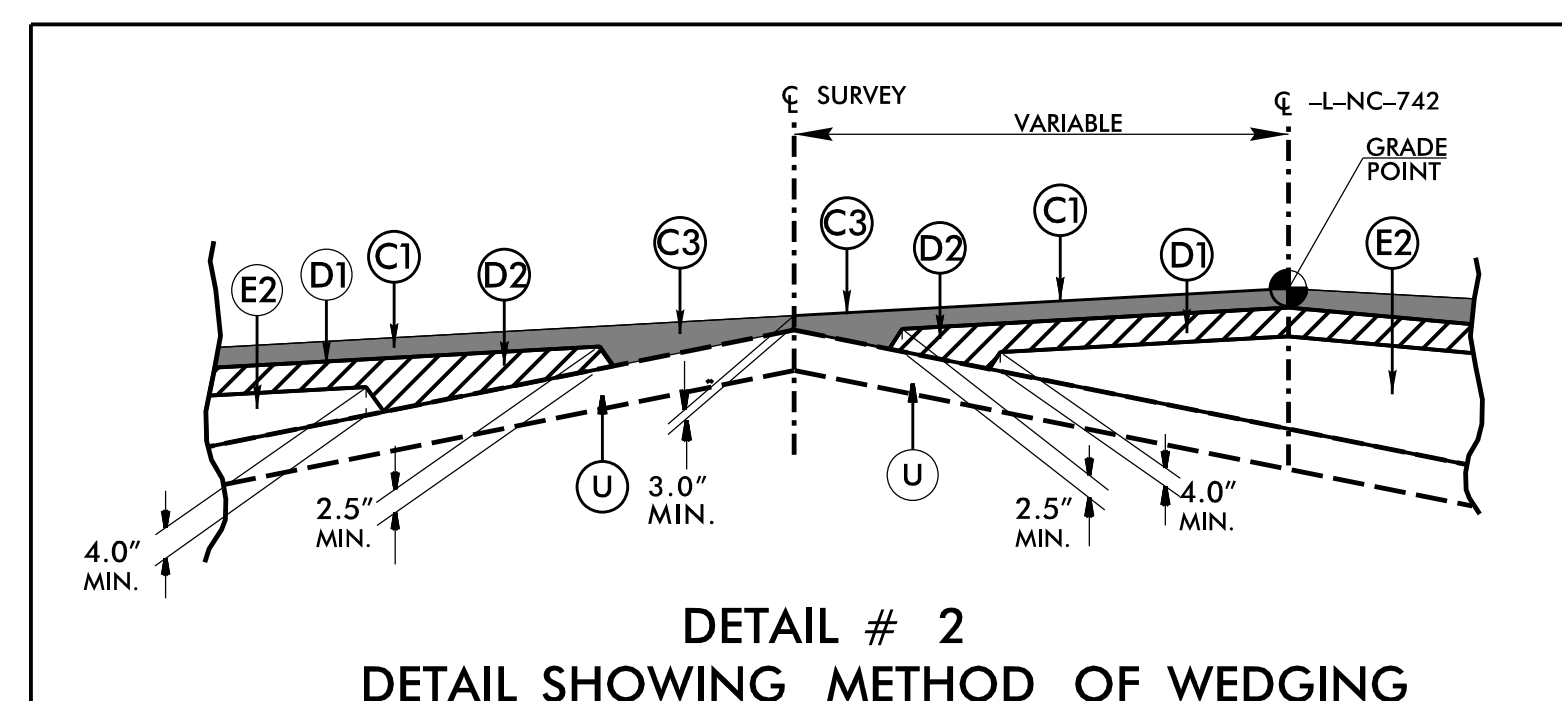
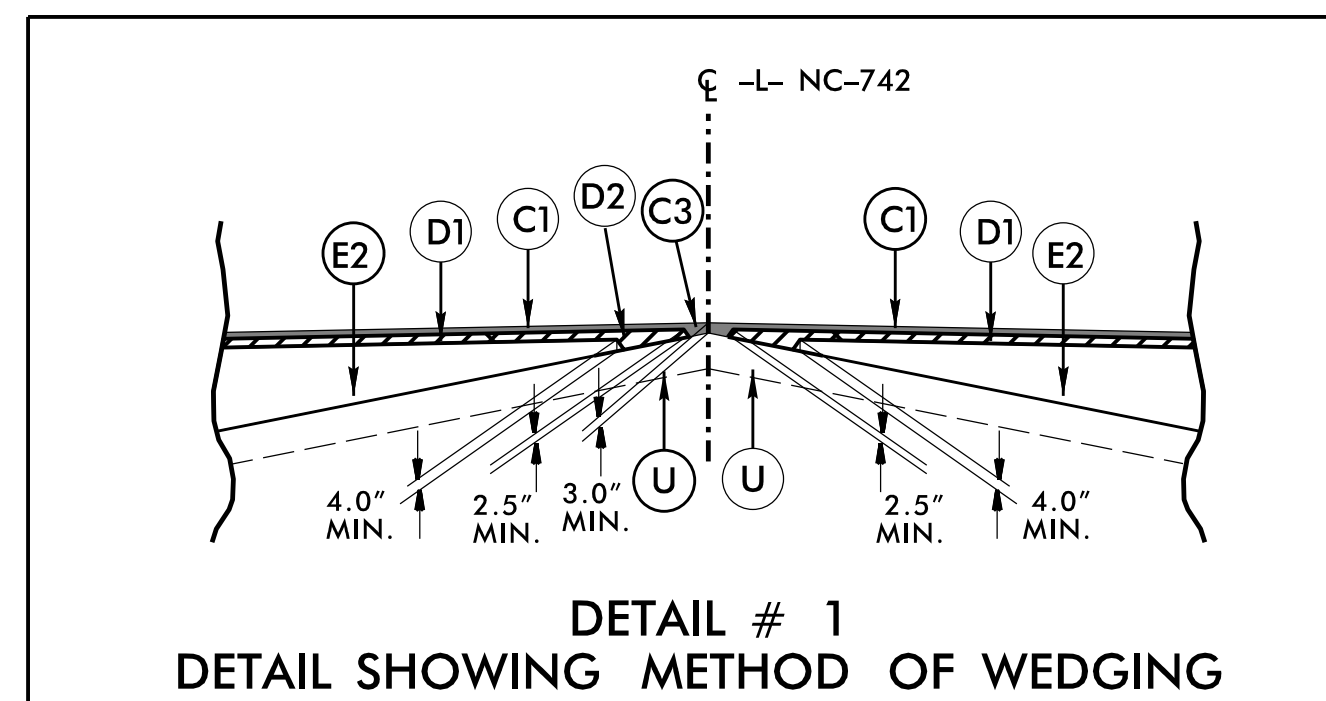
SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	

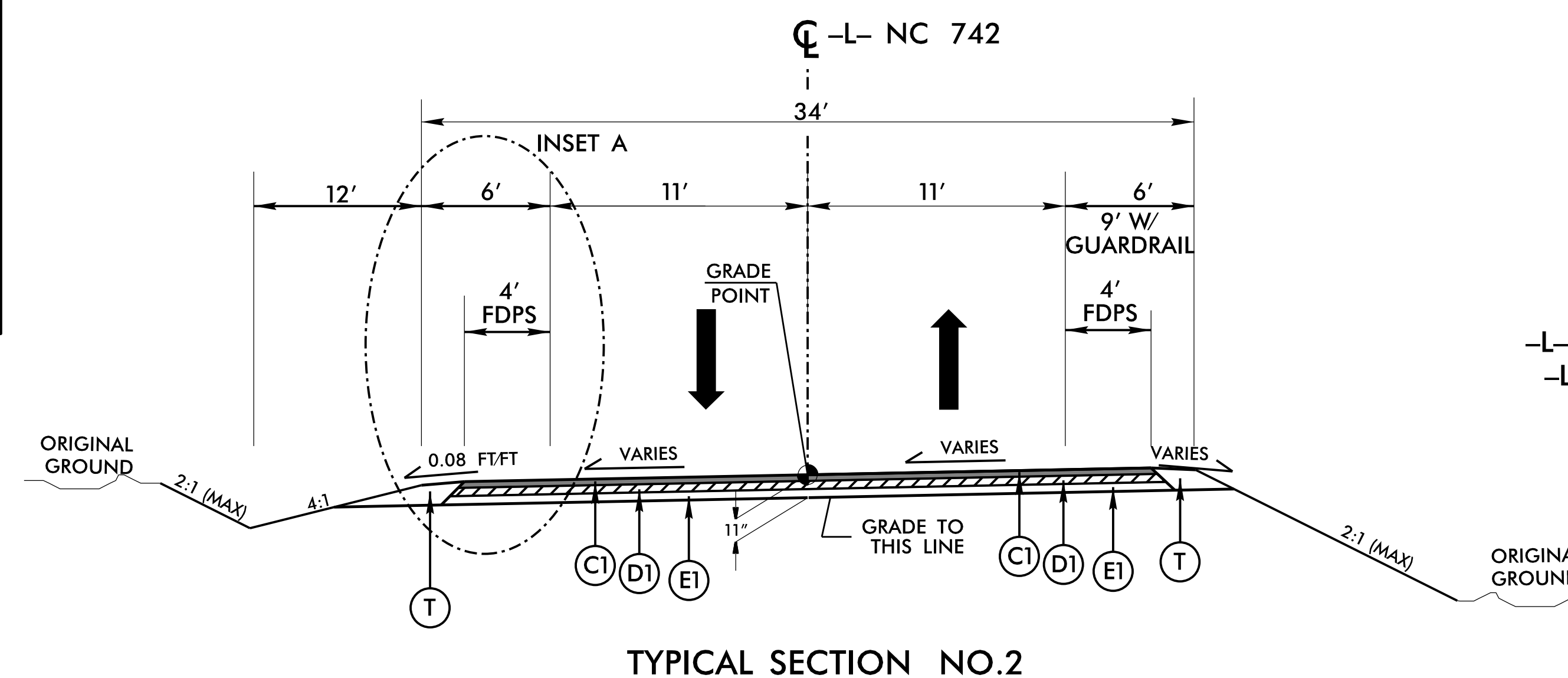
MISCELLANEOUS:

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

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



-L- STA. 10+12.50 TO STA. 14+60.00
 -L- STA. 25+30.00 TO STA. 29+87.50

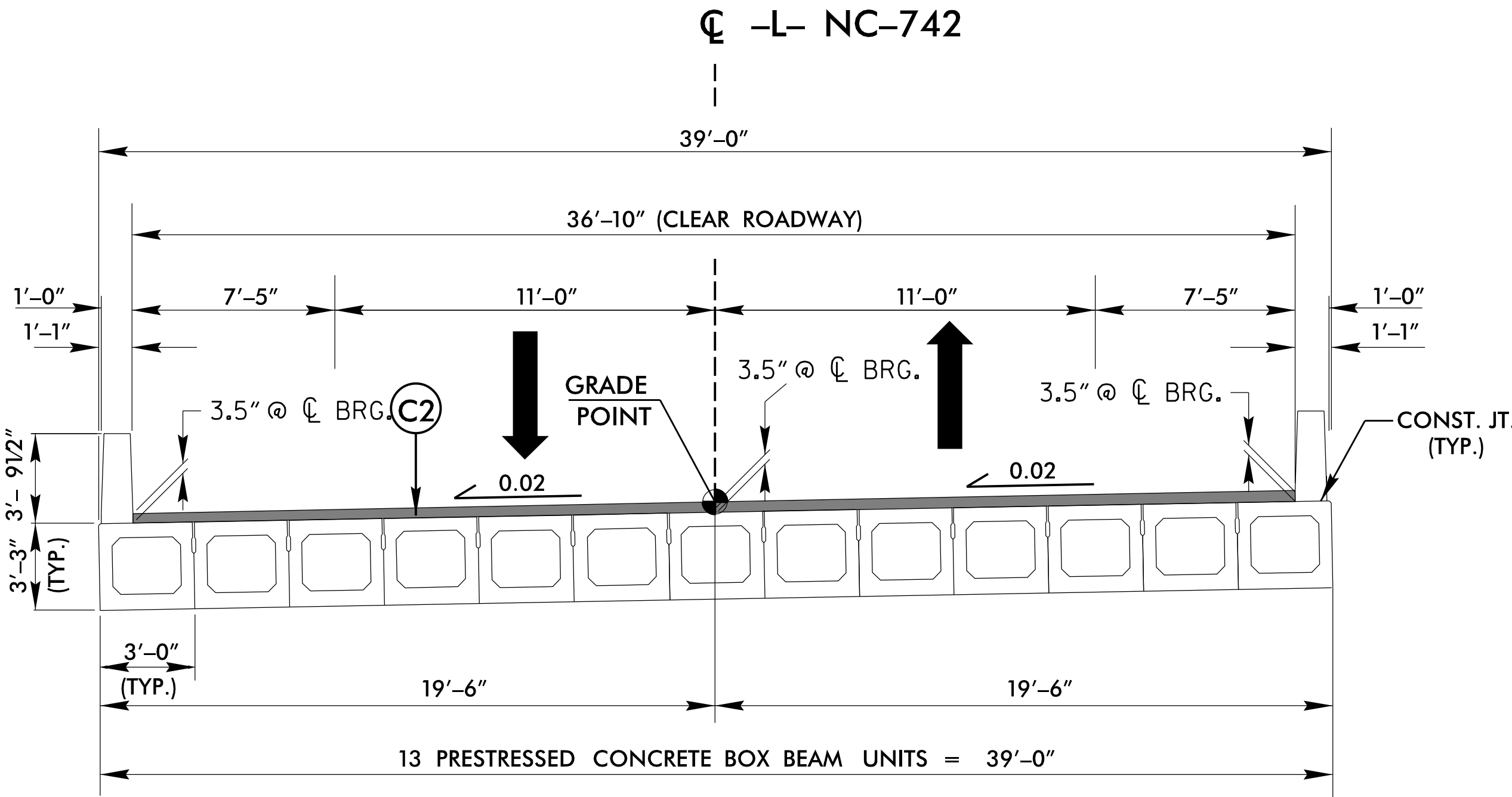


USE TYPICAL SECTION NO. 2 AS FOLLOWS

-L- STA. 14+60.00 TO STA. 18+63.75 (BEGIN BRIDGE)
-L- STA. 21+66.25 (END BRIDGE) TO STA. 25+30.00

PAVEMENT
SCHEDULE

C2	3.5" TYPE S9.5C
----	-----------------



TYPICAL SECTION NO.3
BRIDGE TYPICAL SECTION

USE TYPICAL SECTION NO. 3 AS FOLLOWS
-L- STA. 18 + 63.75 TO STA. 21 + 66.25

BR-0063

RDY 1 2A-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ANSON COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

SEAL
054013
10/7/2024

PREPARED BY

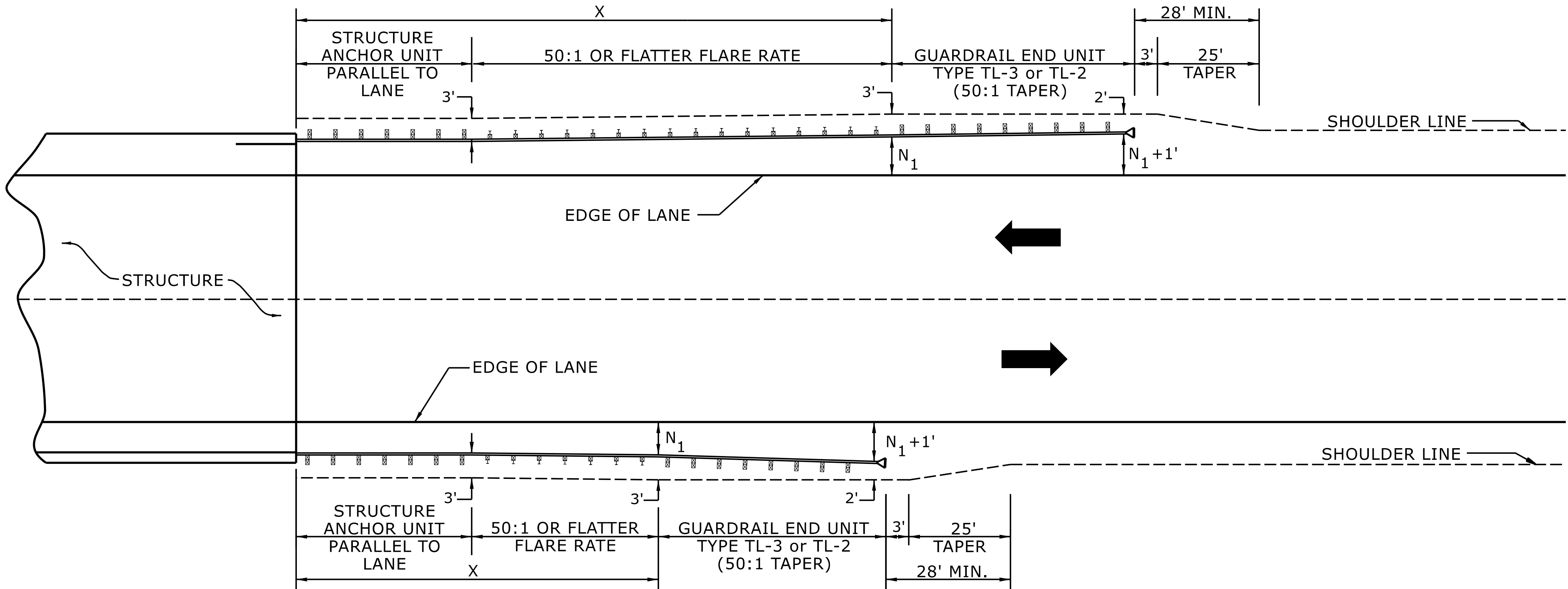
ARCADIS

115 REGENCY WOODS PLACE, STE 400, CARY, NC 27518
Phone: 919-241-0000 Fax: 919-241-0001

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UNLESS ALL SIGNATURES COMPLETED

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BR-0063	2B-1



USE FLARE RATE AS THE CONTROL IF THE "N₁" DISTANCE IS NOT OBTAINED.
("N₁" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

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

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



10/2/2024

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

SHEET 4 OF 15

862D01

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

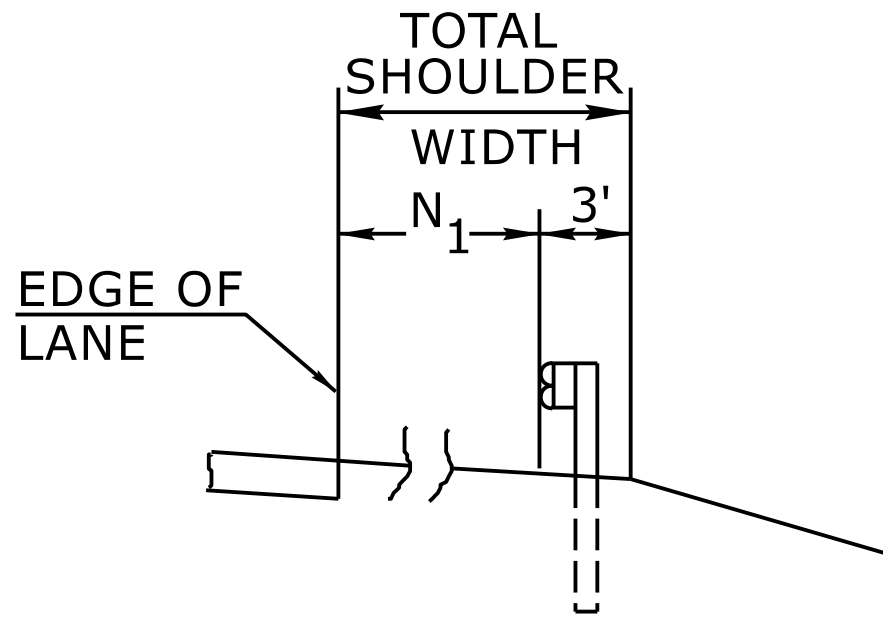
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

Office 919-707-6950

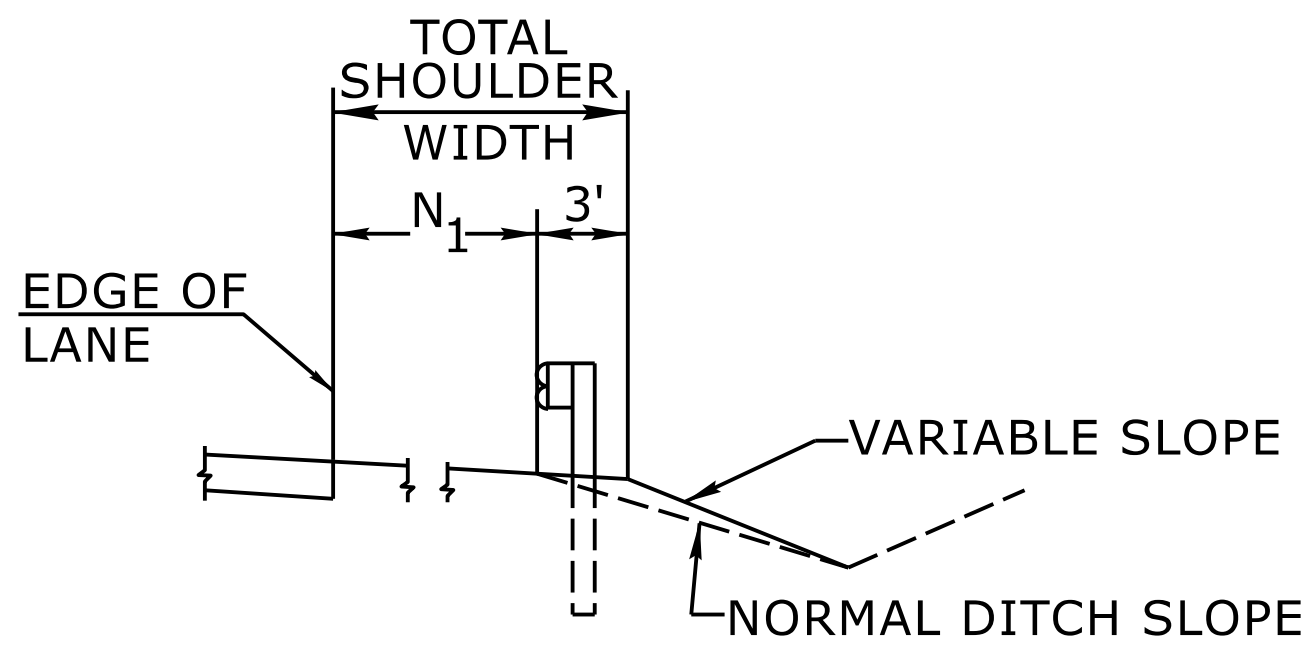
FAX 919-250-4119

SEE TITLE BLOCK

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MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

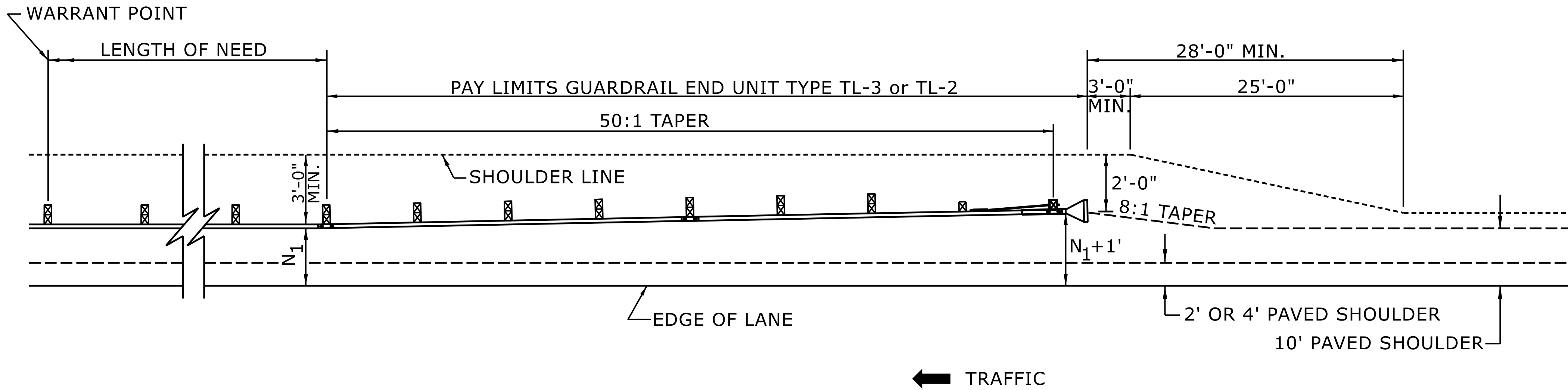


FILL SECTION



CUT SECTION

"N₁"= 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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01



10/2/2024

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

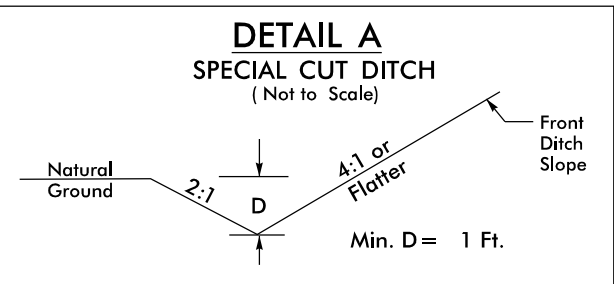
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

Office 919-707-6950 FAX 919-250-4119

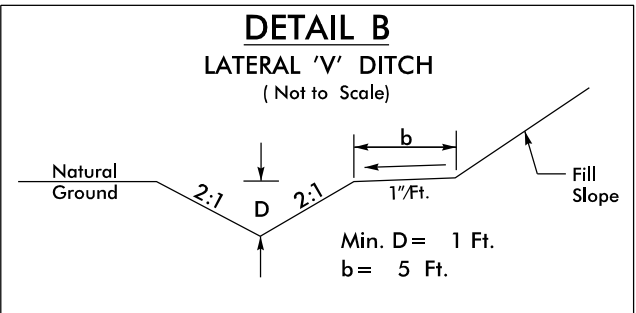
SEE TITLE BLOCK

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

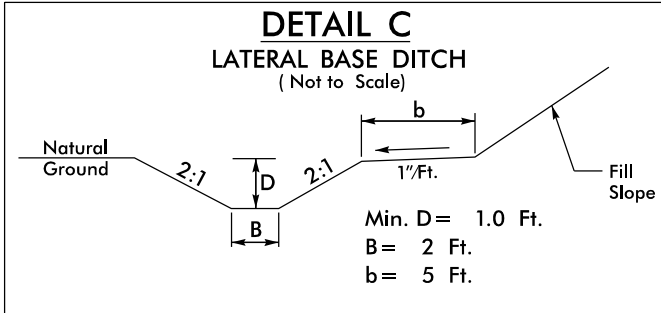
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



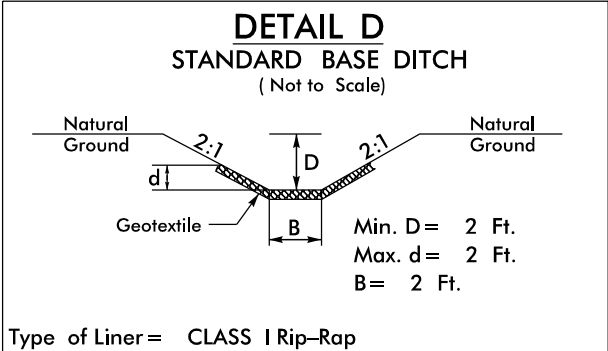
FROM STA. 15+00 TO STA. 17+25 LT



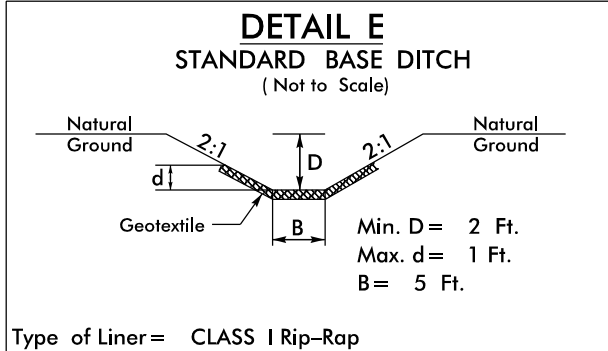
FROM STA. 17+25 TO STA. 18+29 LT
FROM STA. 21+85 TO STA. 25+50 LT



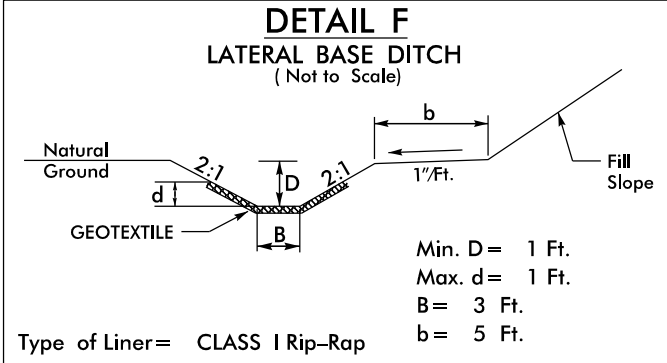
FROM STA. 12+50 TO STA. 18+00 RT



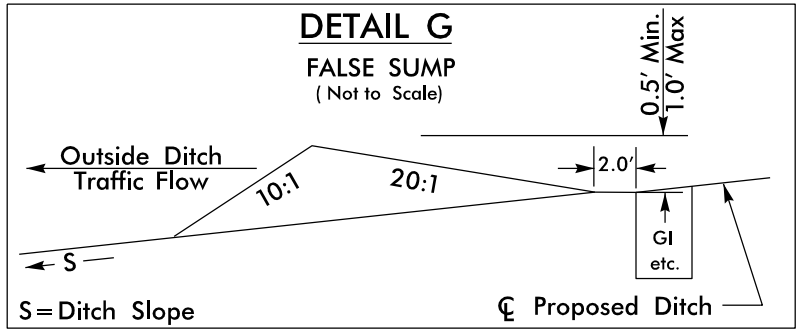
Type of Liner = CLASS I Rip-Rap
FROM STA. 18+00 TO STA. 19+47 RT



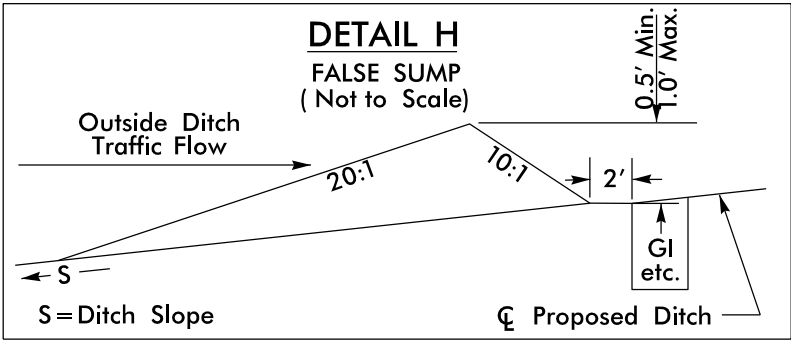
Type of Liner = CLASS I Rip-Rap
FROM STA. 20+88 TO STA. 22+00 RT



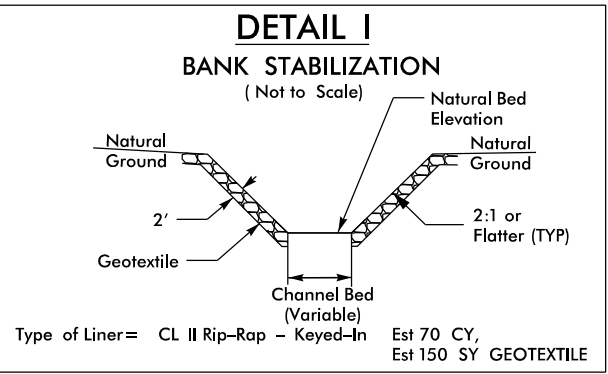
Type of Liner = CLASS I Rip-Rap
FROM STA. 22+00 TO STA. 23+20 RT



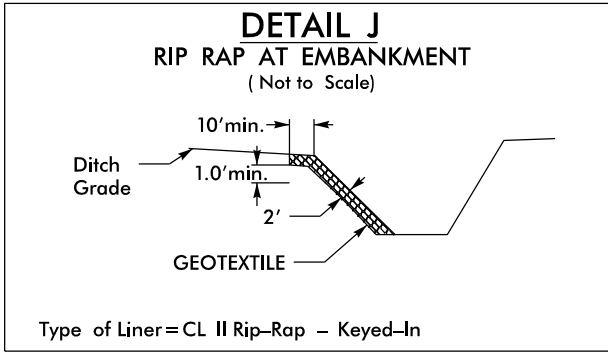
STA. 21+81 LT



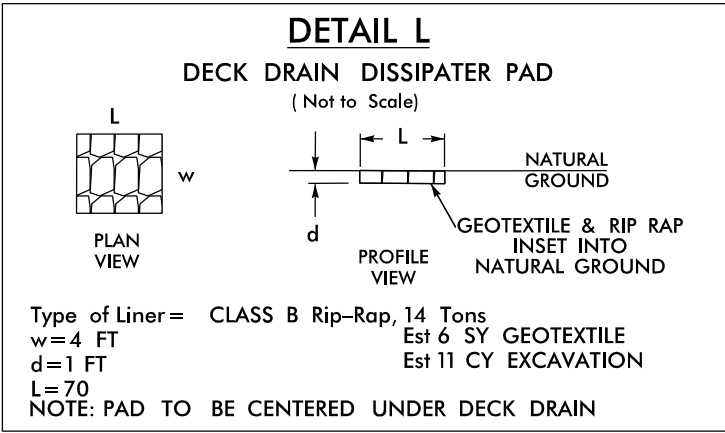
STA. 18+33 LT



Type of Liner = CL II Rip-Rap - Keyed-In
Est 70 CY
Est 150 SY GEOTEXTILE
STA. 18+52 TO 21+78



Type of Liner = CL II Rip-Rap - Keyed-In
FROM STA. 19+47 TO STA. 19+74 RT
FROM STA. 20+73 TO STA. 20+88 RT



Type of Liner = CLASS B Rip-Rap, 14 Tons
w = 4 FT
d = 1 FT
L = 70
NOTE: PAD TO BE CENTERED UNDER DECK DRAIN
STA. 18+75 TO STA. 19+45, LT
STA. 20+90 TO STA. 21+60, LT

BR-0063
HYD 20-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ANSON COUNTY

ROADWAY DESIGN UNIT
HYDRAULIC DESIGN
ENGINEER

SEAL
047056
10/2/2024

PREPARED BY

ARCADIS

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REVISIONS

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 3'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

ROCK

O.D. + 3'

**ROCK FOUNDATION
PIPE IN TRENCH**

TOP OF FILL

GROUND LINE

H

TYPE 4a
GEOTEXTILE

I.D. /6 MIN.
NOT LESS
THAN 6"

1½" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGR.

O.D. + 3'

UNSUITABLE MATERIAL FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 2'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 2'

**ROCK FOUNDATION
PIPE ABOVE GROUND**

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

1½" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGINEER

MIN. O.D.

MIN. O.D.

UNSUITABLE MATERIAL FOUNDATION

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.

10/2/2024

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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.:			

GEOTECHNICAL
ENGINEER



DocuSigned by:
Scott A. Hadden 08/28/2024
F750CA5955C4D3
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

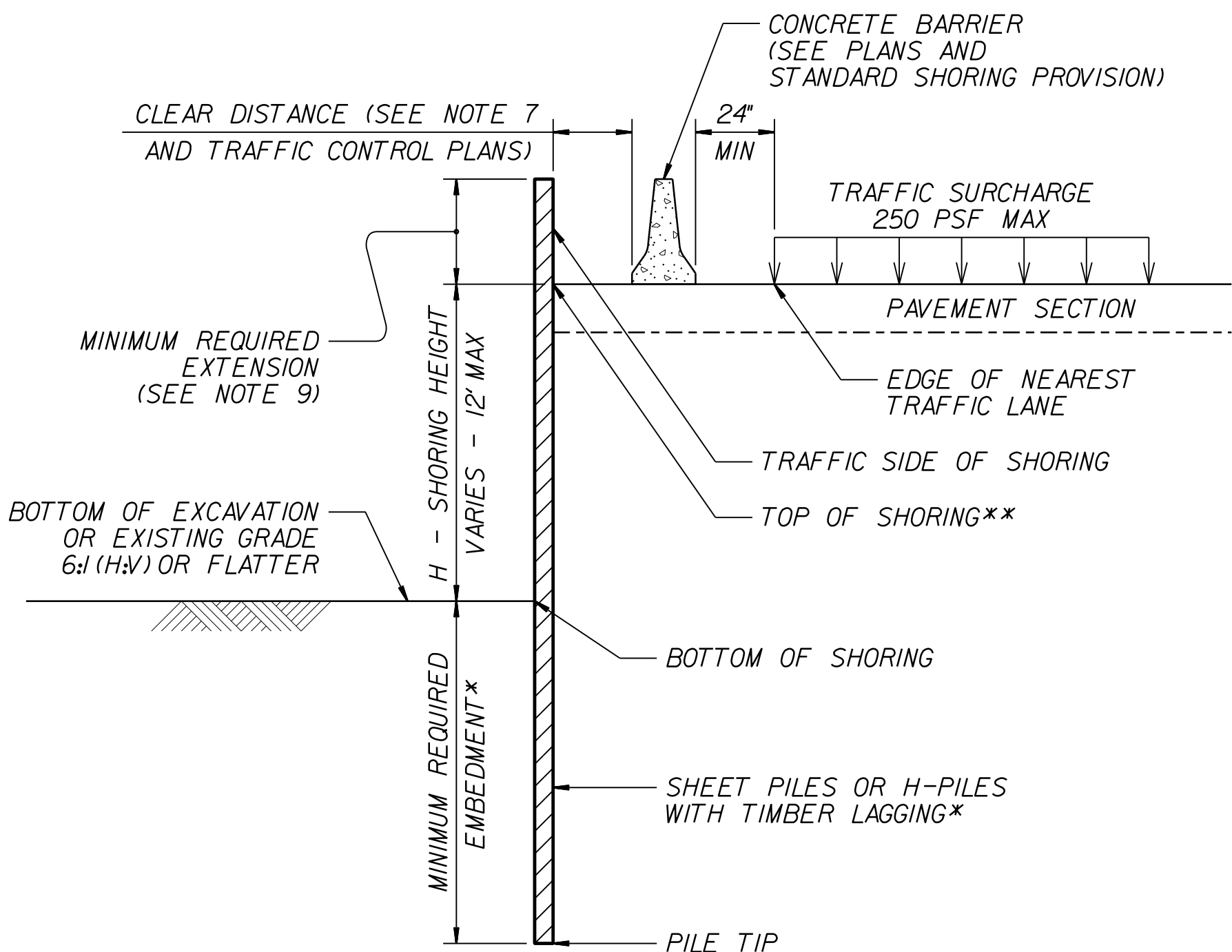
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NOTES:

1. AT THE CONTRACTOR'S OPTION,USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING,SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. 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.
7. 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".
8. 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".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. 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.
11. 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
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

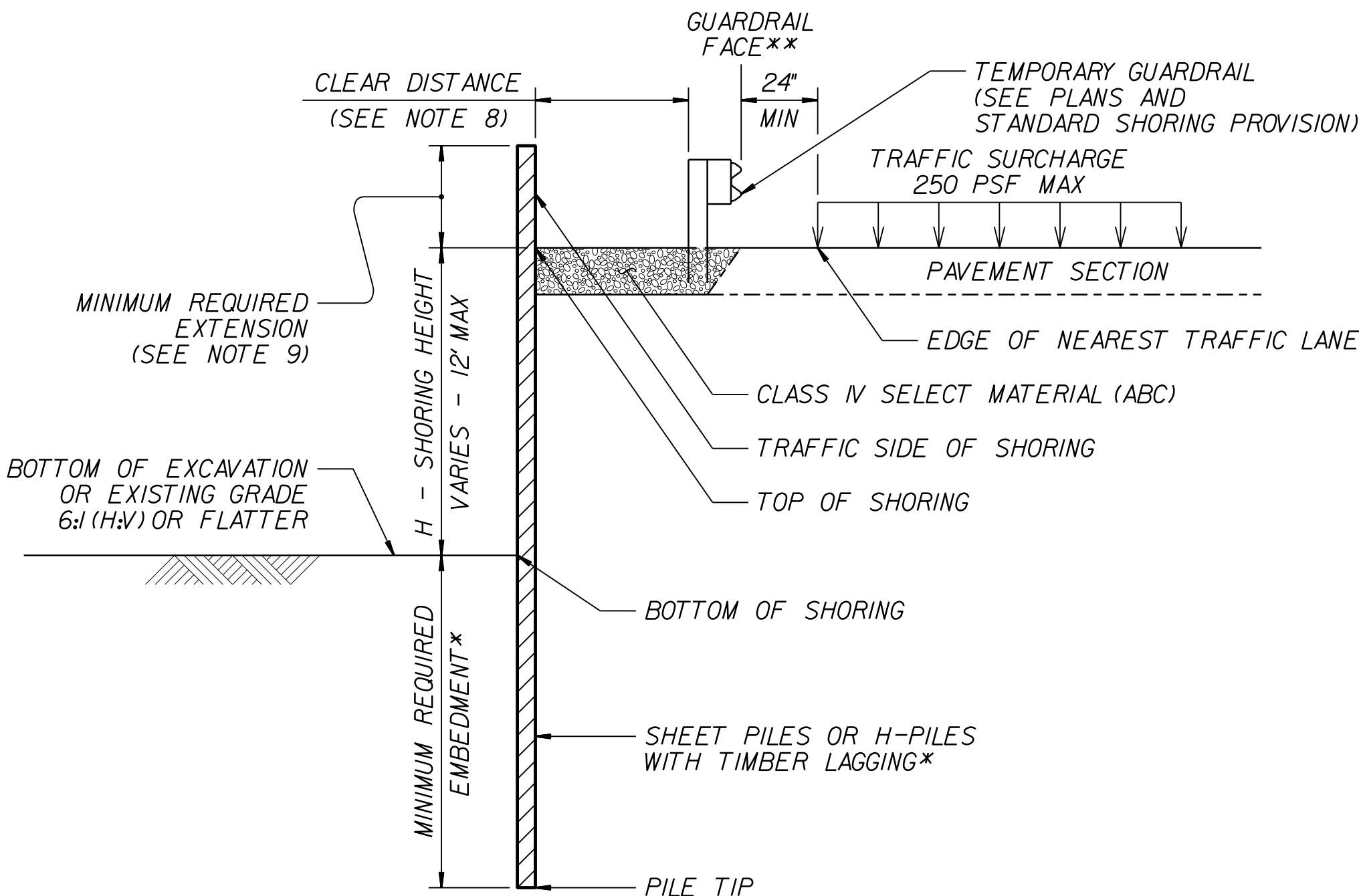
MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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



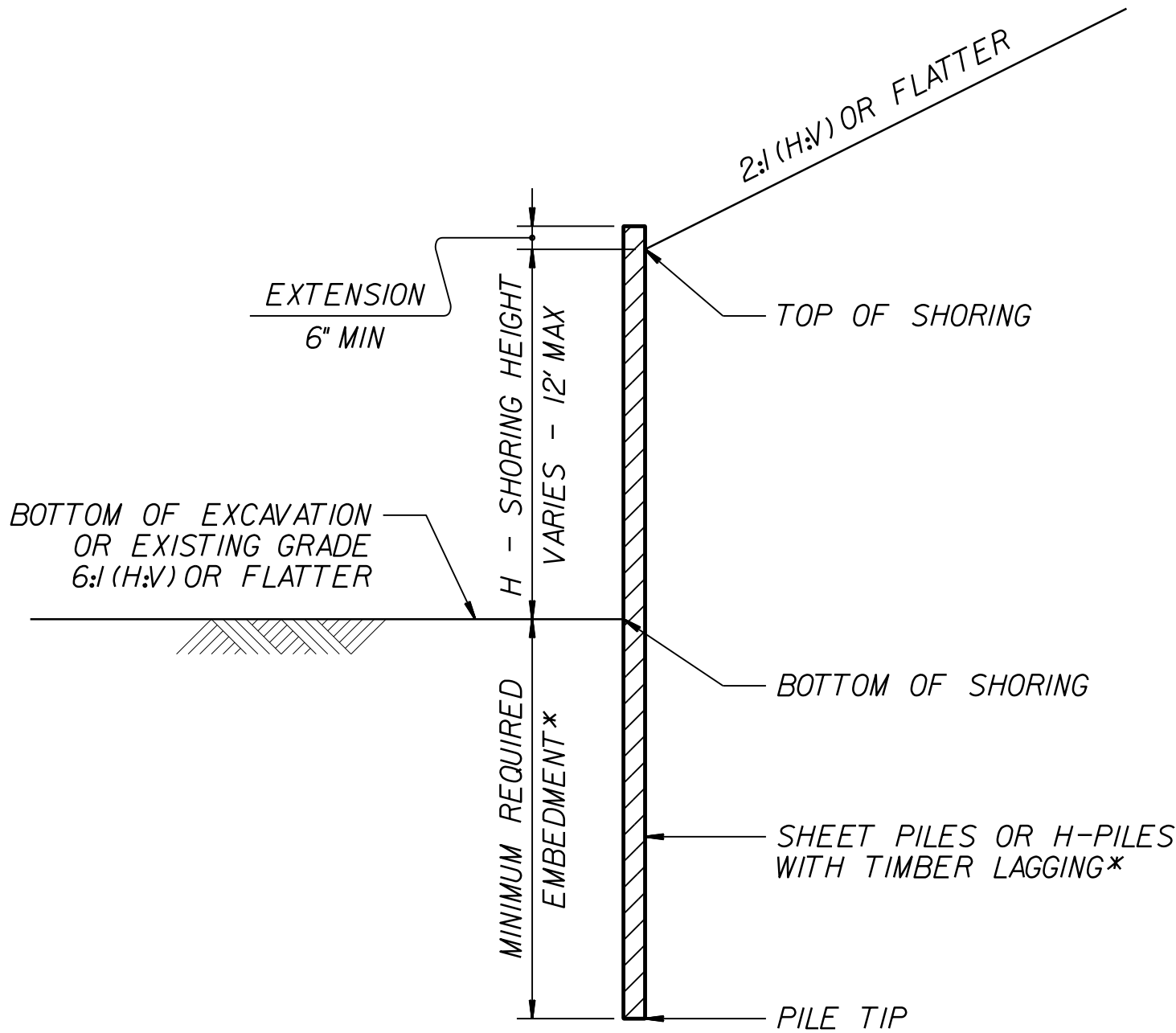
CONCRETE BARRIER

**TOP OF SHORING =
EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE =
EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)

*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

*SEE TABLE ABOVE.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD
TEMPORARY SHORING

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK (In Cubic Yards)						
Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
-L- 9+75.00	-L- 18+63.75 (BEGIN BRIDGE)	825	0	17,196	16,371	0
-L- 21+66.25 (END BRIDGE)	-L- 30+25.00	2,230	700	3,822	1,592	700
SUBTOTALS:		3055	700	21018	17963	700
MATERIAL USED FOR SHOULDER CONSTRUCTION				353	353	
ADDITIONAL UNDERCUT EXCAVATION			400			400
PROJECT TOTALS:		3055	1100	21371	18316	1100
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					916	
GRAND TOTALS:		3055	1100	21371	19232	
SAY:		3100			19250	

NOTE:
1. EARTHWORK QUANTITIES ARE CALCULATED BY THE ENGINEER. THESE EARTHWORK QUANTITIES ARE BASED IN PART OF SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.
2. APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR GRADING.
3. A PORTION OF THESE UNCLASSIFIED MATERIAL THAT IS ACCEPTABLE, BUT NOT TO BE USED IN THE TOP OF 3' EMBANKMENT OR BACKFILL. THESE SOILS MAY BE UTILIZED IN AREAS OUTSIDE THE PAVEMENT SECTION OR IN LOWER PORTION OF HIGH FILLS AT THE DISCRETION OF THE ENGINEER. PLEASE REFER GEOTECH RECOMMENDATIONS FOR MORE DETAILS.

EST.DDE = 860 CY
TOTAL SHALLOW UNDERCUT (CONTINGENCY) = 100 CY
CLASS IV SUBGRADE STABILIZATION = 190 TONS

REMOVAL OF EXISTING ASPHALT PAVEMENT				
IN SQUARE YARDS				
SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL
L	11+13	18+64	LT	1218
L	21+20	27+50	LT	1150
		TOTAL:		2368
		SAY:		2400

SHOULDER BERM GUTTER SUMMARY			
LINE	Station	Station	LENGTH (ft)
L (LT)	18+26.25	18+52.88	26.63
L (LT)	21+77.13	23+41.95	164.82
		TOTAL:	191.45
		SAY:	200

REVISIONS

COMPUTED BY: HDG DATE: 08/29/2024

CHECKED BY: ENR DATE: 09/03/2024

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

[illegible]

REVISIONS

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

SUMMARY OF SUBSURFACE DRAINAGE

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

*UD = Underdrain

*BD = Blind Drain

*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY					100	190	300		
			TOTAL CY/TONS/SY:		100	190**	300**	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.

REVISIONS

PREPARED BY



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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4	ROBERT ROSS
2	4&5	DENNIS PARKER
3	4&5	DENNIS PARKER
4	5	ROCKEY RIVER ORGANIZATION FOR PRESERVATION AND PROTECTION INC

BR-0063

RDY3P-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ANSON COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

Seal of the State of North Carolina
Professional Engineer
SEAL
054013
P. J. [Signature]

10/06/2024 10/2/2024

PREPARED BY

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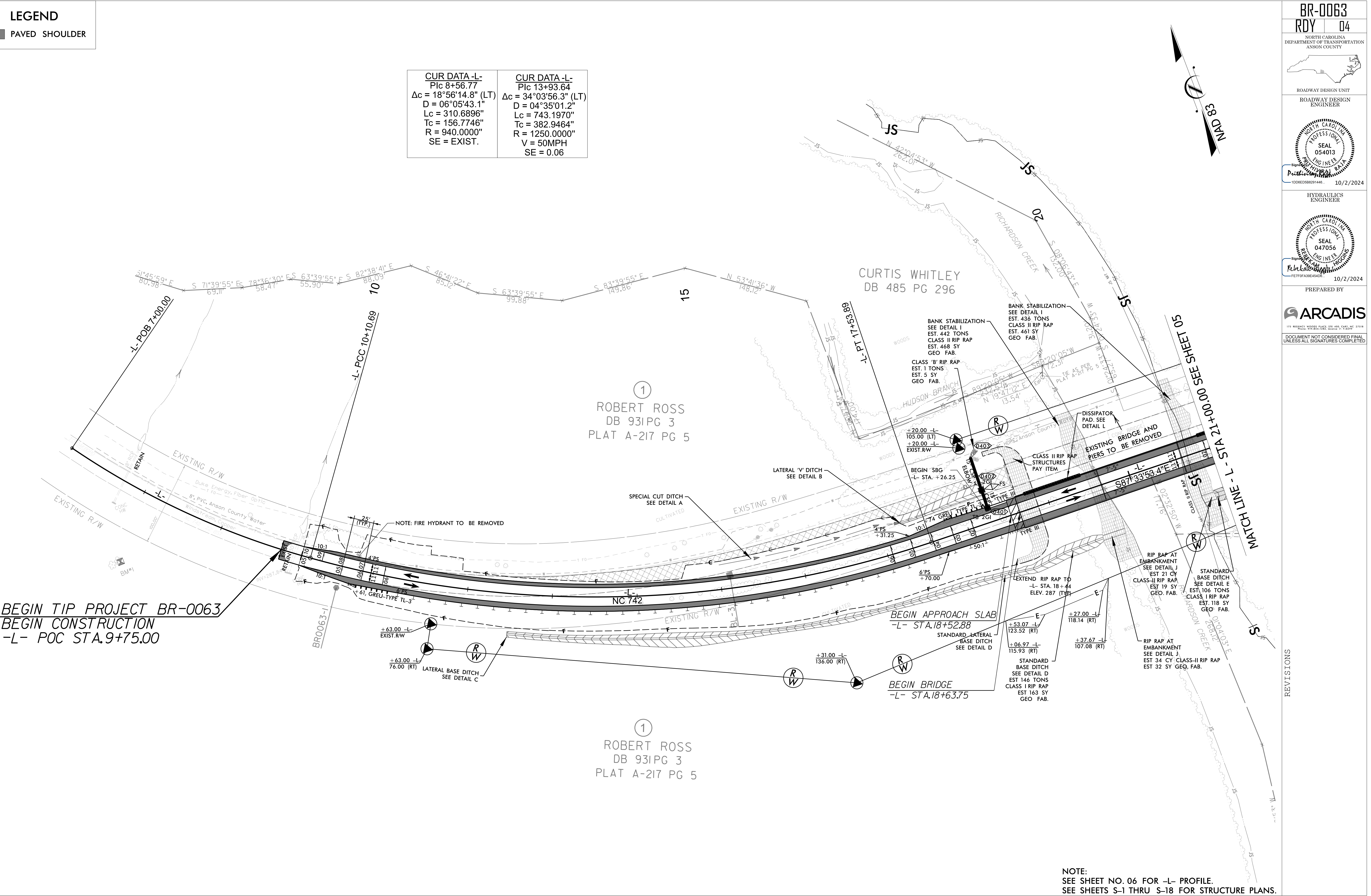
LEGEND

PAVED

SHOULDER

<u>CUR DATA -L-</u> Plc 8+56.77 $\Delta c = 18^{\circ}56'14.8''$ (LT) D = $06^{\circ}05'43.1''$ Lc = 310.6896" Tc = 156.7746" R = 940.0000" SE = EXIST.	<u>CUR DATA -L-</u> Plc 13+93.64 $\Delta c = 34^{\circ}03'56.3''$ (LT) D = $04^{\circ}35'01.2''$ Lc = 743.1970" Tc = 382.9464" R = 1250.0000" V = 50MPH SE = 0.06
--	---

BEGIN TIP PROJECT BR-0063
BEGIN CONSTRUCTION
-L- POC STA.9+75.00



NOTE:
SEE SHEET NO. 06 FOR -L- PROFILE.
SEE SHEETS S-1 THRU S-18 FOR STRUCTURE PLANS.

BR-0063

RDY 04

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ANSON COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

PROFESSIONAL
ENGINEER
SEAL
054013

Signature: [Signature]

10060588091440 10/2/2024

HYDRAULICS
ENGINEER

PROFESSIONAL
ENGINEER
SEAL
047056

Signature: [Signature]

FE770FA39E45420 10/2/2024

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LEGEND

PAVED SHOULDER

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDDOT FOR MONUMENT "BR-0063-1"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 511274.2261(ft) EASTING: 1618286.1809(ft)
ELEVATION: 298.225(ft)

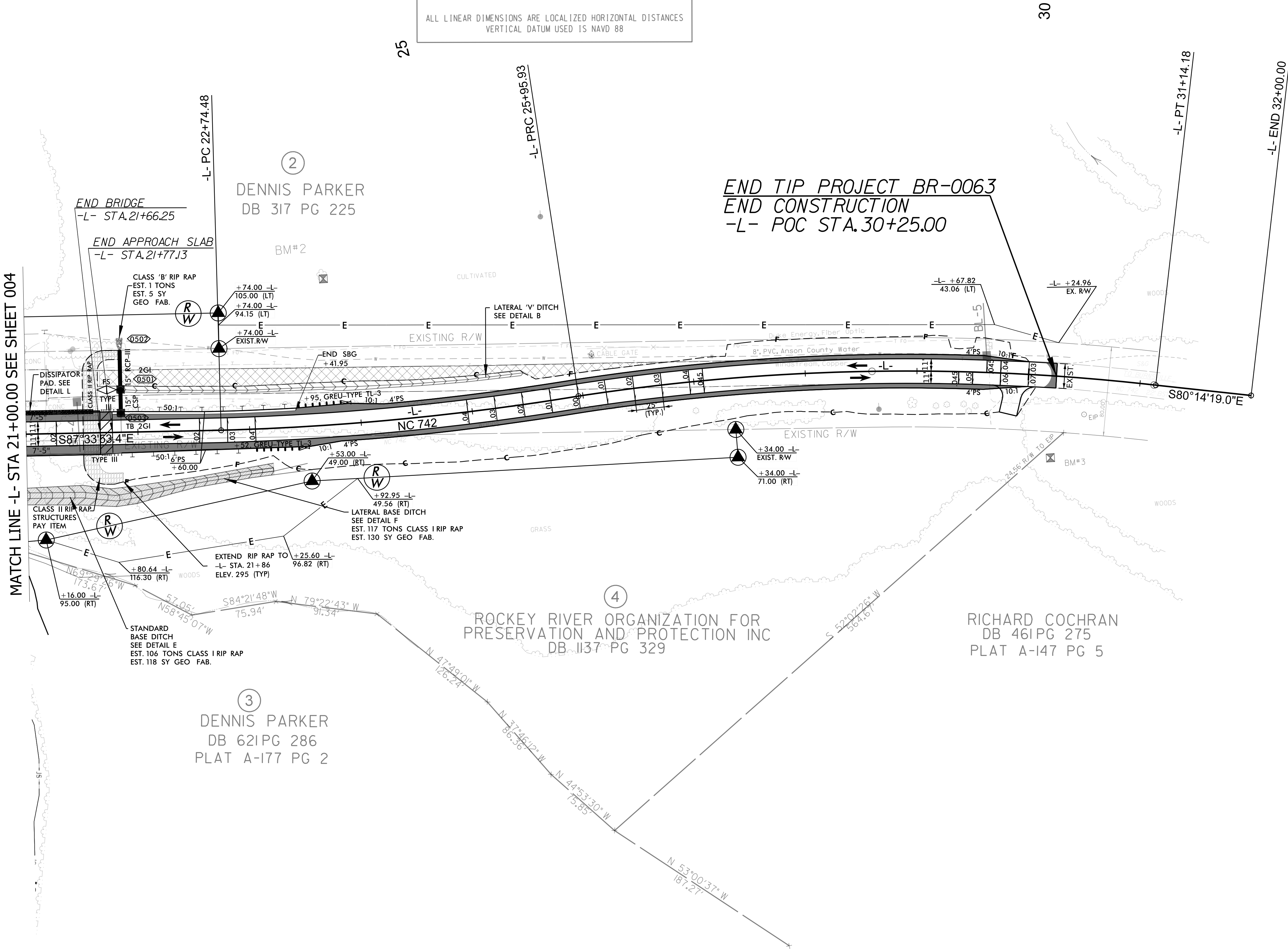
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986472

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BR-0063-1" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

CUR DATA -L-
Plc 24+35.44
 $\Delta c = 07^{\circ}40'26.8"$ (LT)
D = 02°23'14.4"
Lc = 321.4529"
Tc = 160.9672"
R = 2400.0000"
V = 50MPH
SE = 0.04

CUR DATA -L-
Plc 28+56.59
 $\Delta c = 15^{\circ}13'39.3"$ (RT)
D = 02°56'17.7"
Lc = 518.2542"
Tc = 260.6632"
R = 1950.0000"
V = 50MPH
SE = 0.045



BR-0063
RDY 05

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ANSON COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

SEAL
054013

10/2/2024

HYDRAULICS
ENGINEER

SEAL
047056

10/2/2024

PREPARED BY

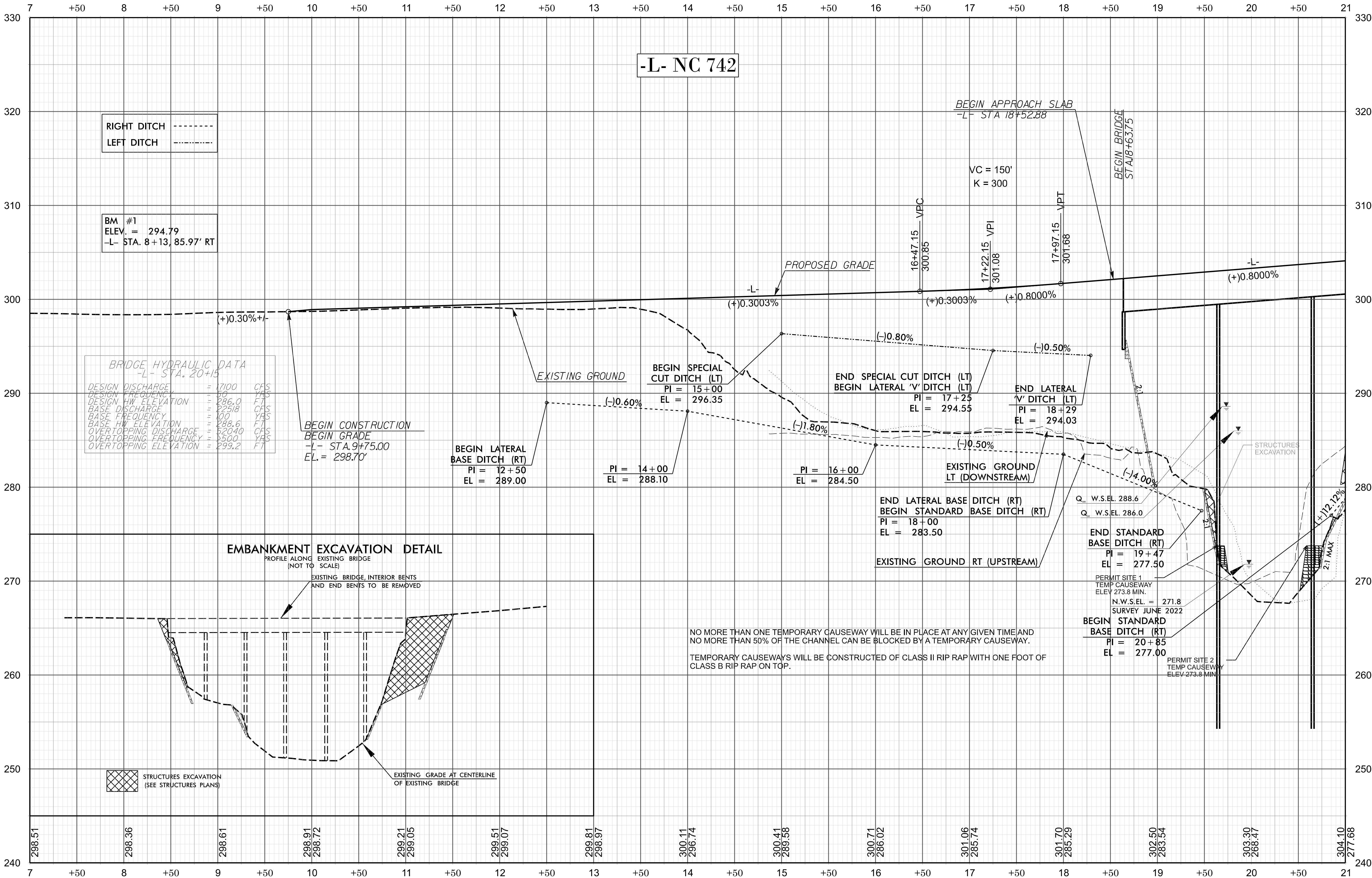
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REVISIONS

NOTE:
SEE SHEET NO. 07 FOR -L- PROFILE.
SEE SHEETS S-1 THRU S-18 FOR STRUCTURE PLANS.



NOTE: SEE SHEET NO.04 FOR -L- PLAN

BR-0063

RDY | 06

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ANSON COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

SEAL
054013

PROFESSIONAL
ENGINEER

Signature: [Signature]

100RED68B291448 10/2/2024

HYDRAULICS
ENGINEER

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047056

PROFESSIONAL
ENGINEER

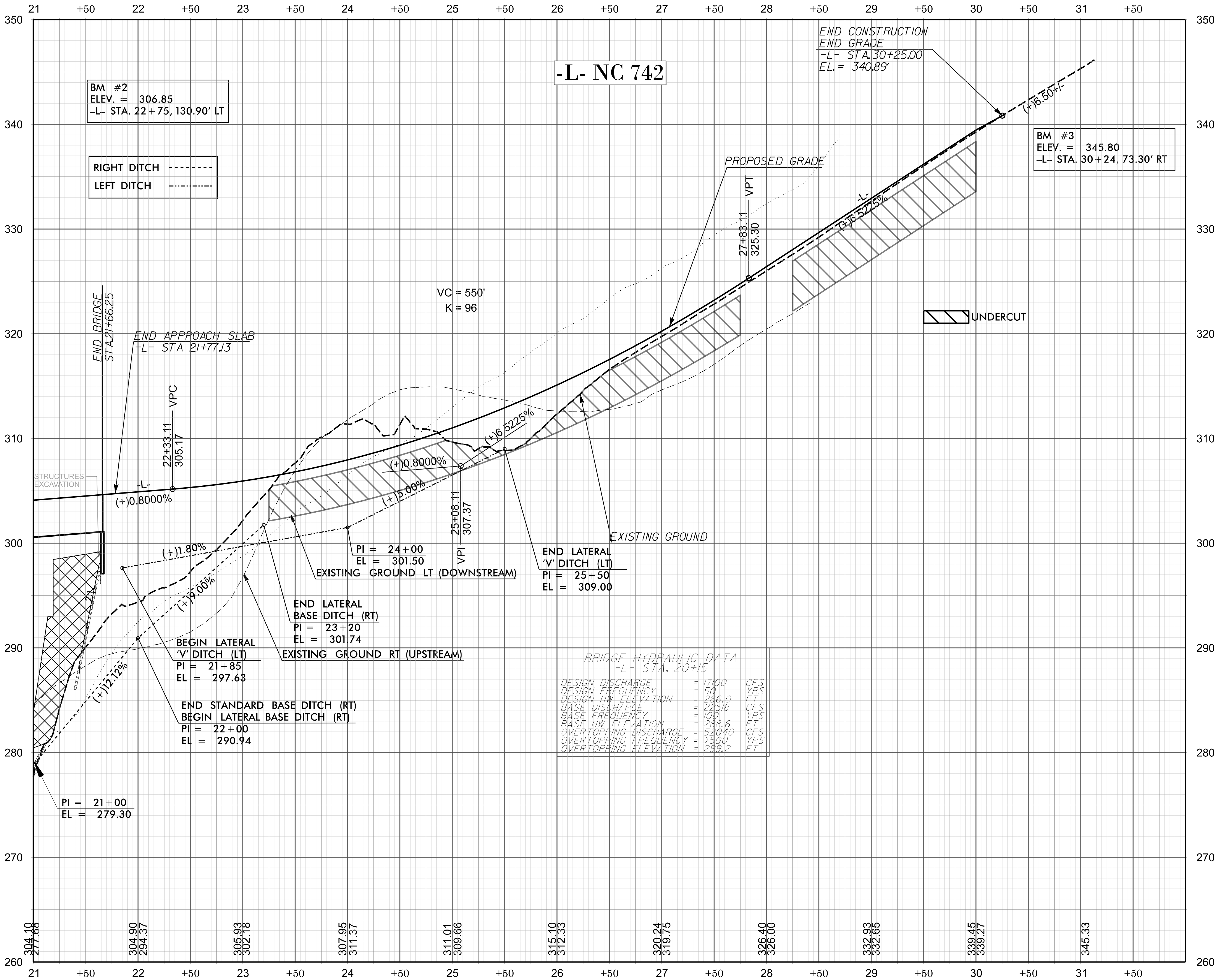
Signature: [Signature]

FETFD9A39E45409 10/2/2024

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REVISIONS



NOTE: SEE SHEET NO.05 FOR -L- PLAN

BR-0063

RDY | 07

NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

ANSON COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA

PROFESSIONAL ENGINEER

SEAL 054013

Signature: [Signature]

1006ED586291486

10/2/2024

HYDRAULICS ENGINEER

NORTH CAROLINA

PROFESSIONAL ENGINEER

SEAL 047056

Signature: [Signature]

1006ED586291486

10/2/2024

PREPARED BY

ARCADIS

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REVISIONS