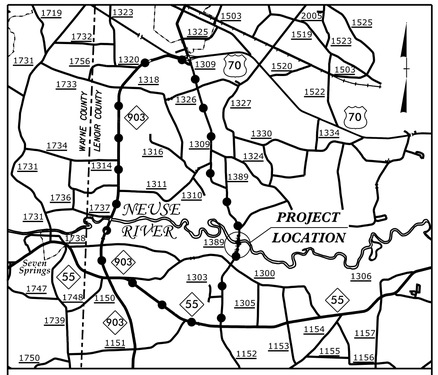
09/08/49

TIP PROJECT: B-5619

CONTRACT: C204475

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



VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LENOIR COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5619	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45574.1.1	N/A	PE
45574.2.1	BRZ-1389(003)	R/W & UTILITY
45574.3.1	BRZ-1389(003)	CONST
45574.3.1	BRZ-1389(003)	CONST (DETOUR)

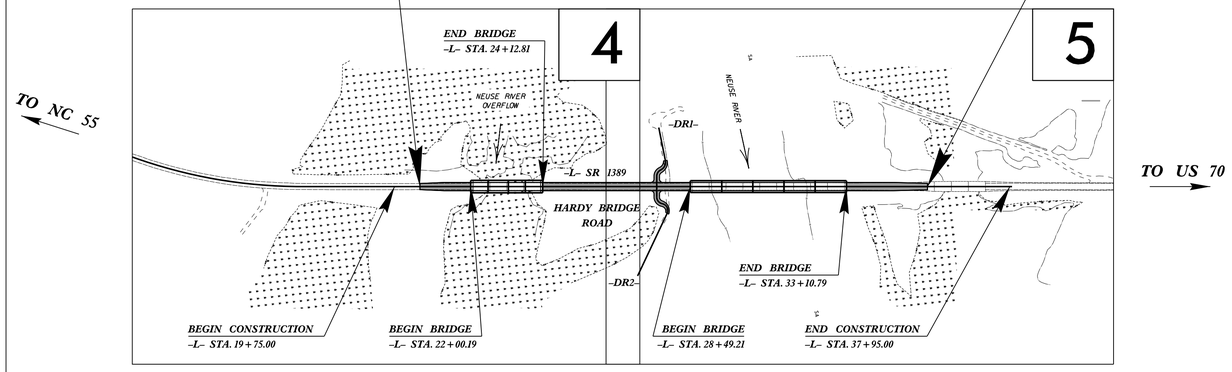
LOCATION: BRIDGE NO. 52 OVER NEUSE RIVER AND BRIDGE NO. 152 OVER NEUSE RIVER OVERFLOW ON SR 1389 (HARDY BRIDGE ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

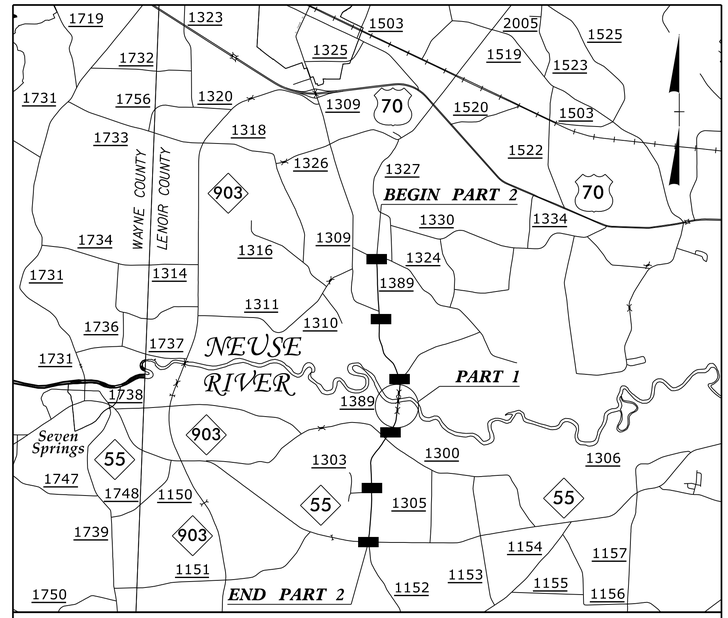
NAD 83/
NA 2011

BEGIN TIP PROJECT B-5619
-L- STA. 20+50.00

END TIP PROJECT B-5619
-L- STA. 35+50.00



PART 1



RESURFACING

PART 2

PROJECT LENGTH

PART 1:			
	LENGTH ROADWAY TIP PROJECT B-5619	=	0.156 MILES
	LENGTH STRUCTURE TIP PROJECT B-5619	=	0.128 MILES
PART 2:			
	LENGTH ROADWAY TIP PROJECT RESURFACING	=	4.260 MILES
	TOTAL LENGTH TIP PROJECT B-5619	=	4.544 MILES

Prepared in the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 15, 2020

LETTING DATE:
MAY 18, 2021

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

23-FEB-2021 08:54
X:\4306200\80804.01\TECH\Roadway\Proj\B5619_Rdy_tsh_combined.dgn
jzarsrs

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5619	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034381 ENGINEER RICHARD J. DECOLA

DocuSigned by: R J DeCola 03/18/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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111 E. Hargett Street, Suite 300
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NC License No. F-1235

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	COMBINED TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
PART 1	
1	TITLE SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	GUARDRAIL INSTALLATION DETAIL
2C-2	STRUCTURE ANCHOR UNITS DETAIL
2C-3	PAVEMENT MARKINGS ON BRIDGES DETAIL
3B-1	EARTHWORK, PAVEMENT REMOVAL, SHOULDER BERM GUTTER, AND GUARDRAIL SUMMARIES
3D-1	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 5	PLAN SHEETS
6	PROFILE SHEET
RW-1 THRU RW-?	RIGHT OF WAY / SURVEY PLANS
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-10	CROSS-SECTIONS
S1-1 THRU S2-23	STRUCTURE PLANS
PART 2	
1	MAP
2	TYPICAL SECTION AND PAVEMENT SCHEDULE
3	MILLING AND SHOULDER RECONSTRUCTION TYPICAL SECTIONS
4	SHOULDER WEDGE DETAILS
5	SUMMARY OF QUANTITIES
6	TRAFFIC CONTROL QUANTITIES
EC-1 THRU EC-2	EROSION CONTROL DETAIL
TCP-1	RESURFACING ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2 LANE ROADWAYS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

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.

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 TRI-COUNTY EMC AND CENTURY LINK.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
422.02	Bridge Approach Fills - Type II Modified Approach Fill
422.03	Reinforced Bridge Approach Fills - Type A Alternate Approach Fill for Integral Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation (Special Detail for Sheet 6 of 8)
862.03	Structure Anchor Units (Special Detail for Type III Anchor Units Sheets 1 of 7 and 2 of 7)
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5619	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- 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 (Vineyard)

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

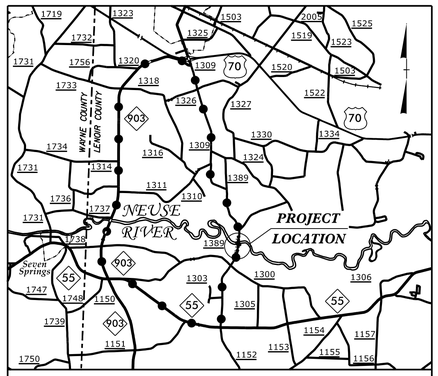
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

09/08/99

TIP PROJECT: B-5619

CONTRACT: C204475

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



VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LENOIR COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5619	1	

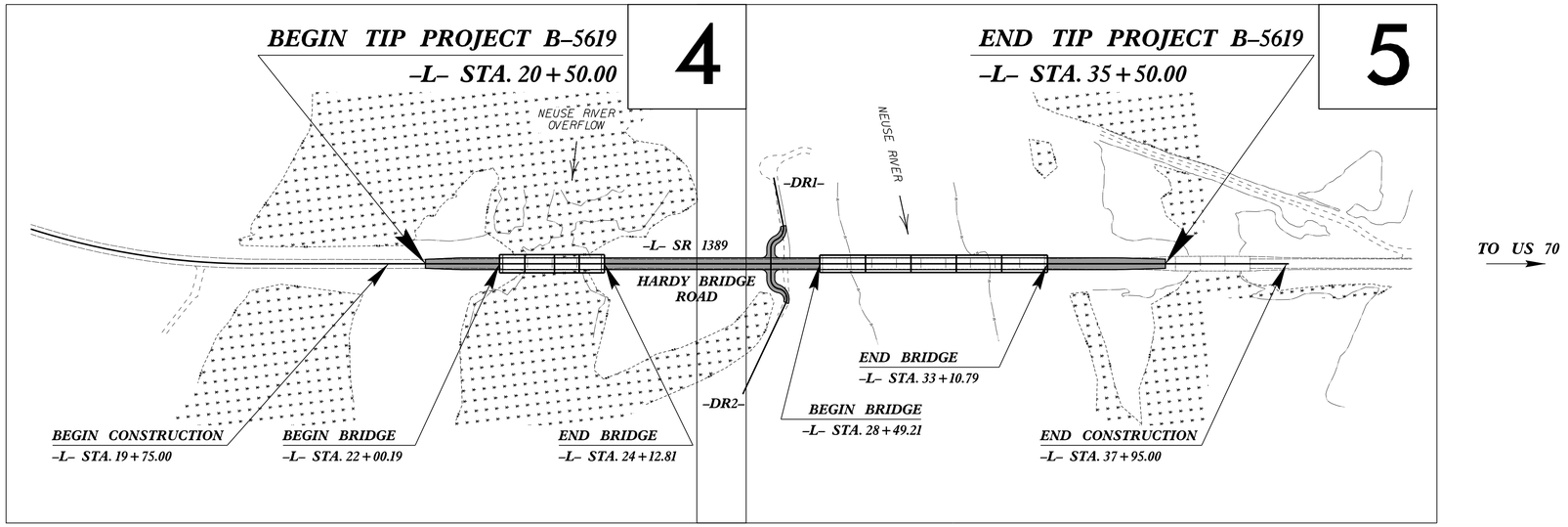
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45574.1.1	N/A	PE
45574.2.1	BRZ-1389(003)	R/W & UTILITY
45574.3.1	BRZ-1389(003)	CONST

LOCATION: BRIDGE NO. 52 OVER NEUSE RIVER AND BRIDGE NO. 152 OVER NEUSE RIVER OVERFLOW ON SR 1389 (HARDY BRIDGE ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

PART 1

NAD 83/
NA 2011



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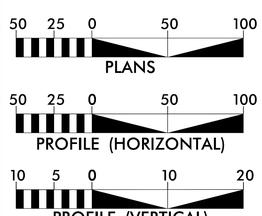

DESIGN DATA

ADT 2021 = 1900
ADT 2041 = 3100
K = 10 %
D = 70 %
T = 6 % *
V = 60 MPH
* TTST = 2% DUAL = 4%
FUNC CLASS =
MINOR COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5619	=	0.156 MILES
LENGTH STRUCTURE TIP PROJECT B-5619	=	0.128 MILES
TOTAL LENGTH TIP PROJECT B-5619	=	0.284 MILES

Prepared for NCDOT in the Office of:

Mead&Hunt

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Raleigh, North Carolina 27601
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NC License No. F-1235

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 15, 2020

LETTING DATE:
MAY 18, 2021

RICK DECOLA, PE
PROJECT ENGINEER

SURAJ SANGHANI, EI
PROJECT DESIGN ENGINEER

DAVID STUTTS, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WRADEN

03/19/2021 DocuSigned by: Roger Wraden P.E.
SIGNATURE: 82604FC9F536430...

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034381 ENGINEER RICHARD J. DECOLA

03/18/2021 DocuSigned by: R J DeCola P.E.
SIGNATURE: EF1546DF704F4A4...

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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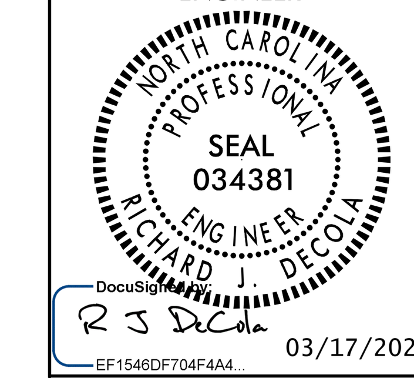
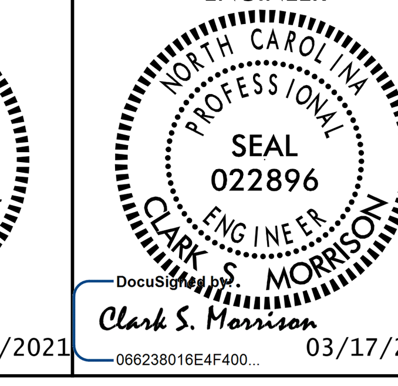
21/srs

ROADWAY DESIGN ENGINEER


PAVEMENT DESIGN ENGINEER


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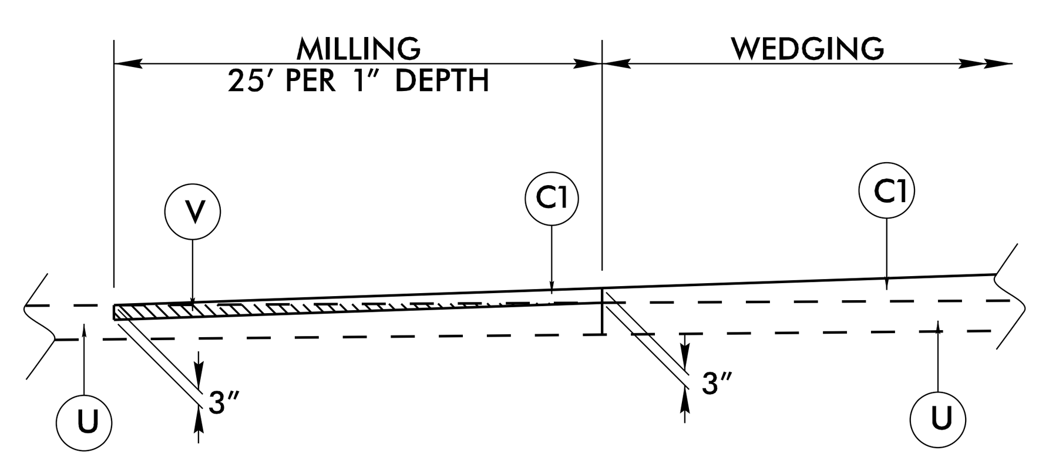
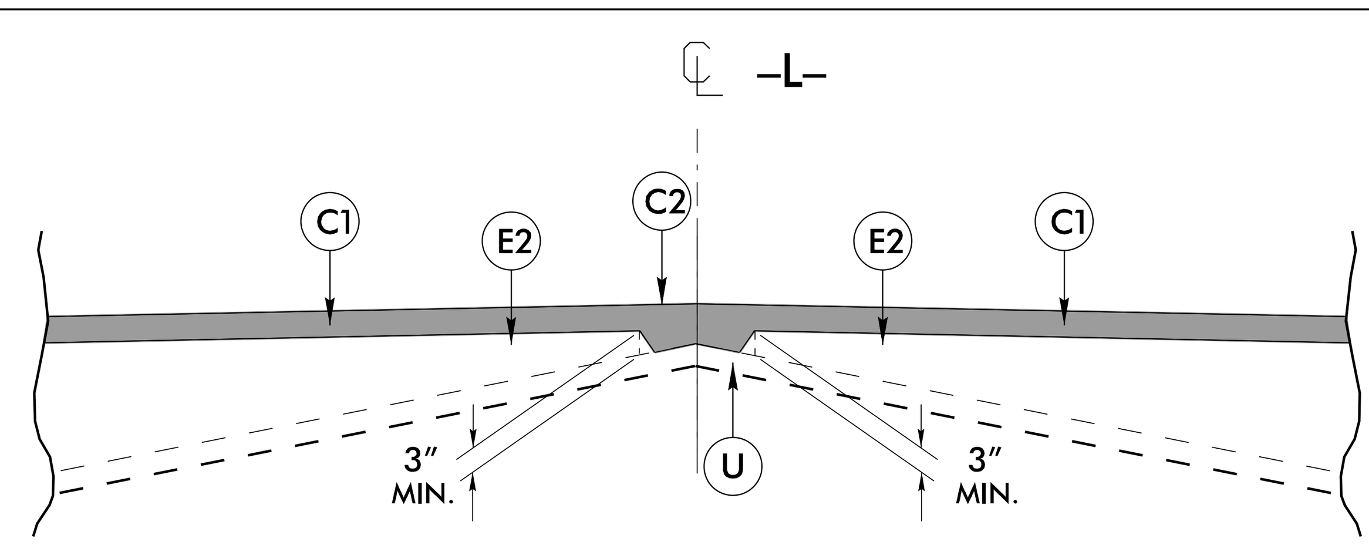
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1½" IN DEPTH.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	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 5½" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

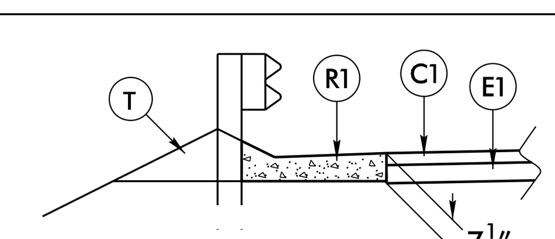
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL OF MILLING AT PAVEMENT TIE-INS

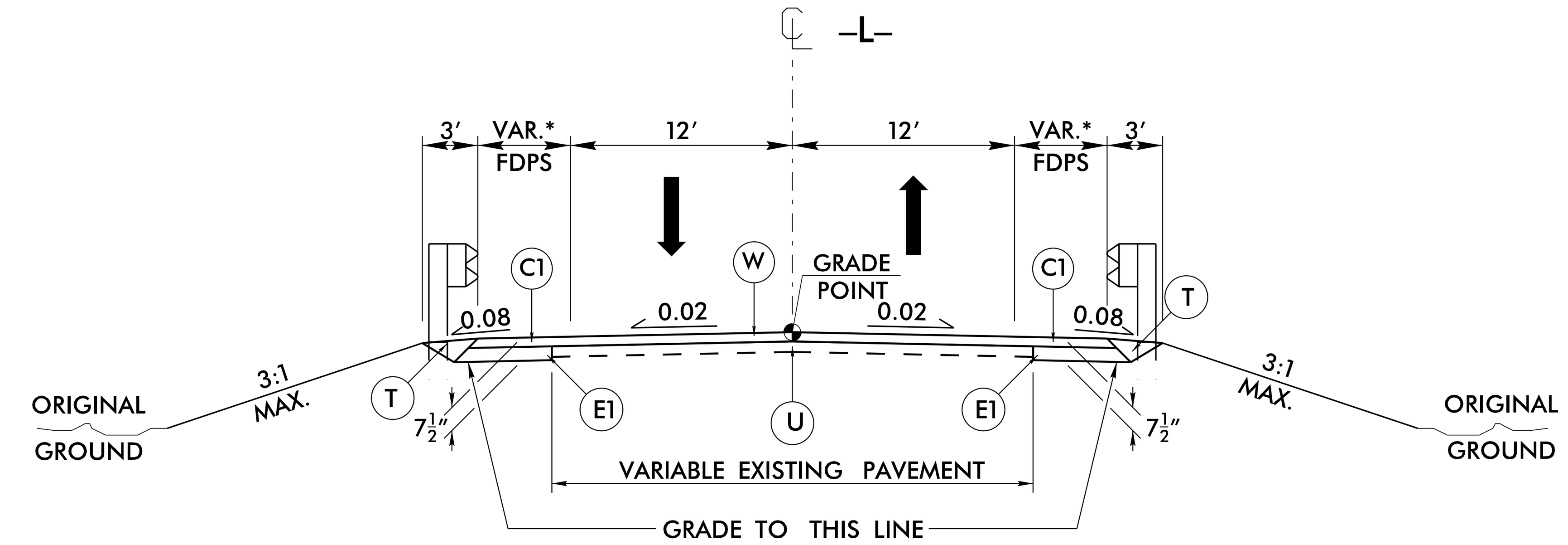


STANDARD WEDGING DETAIL



SHOULDER BERM GUTTER ON TOP OF SUBGRADE DETAIL

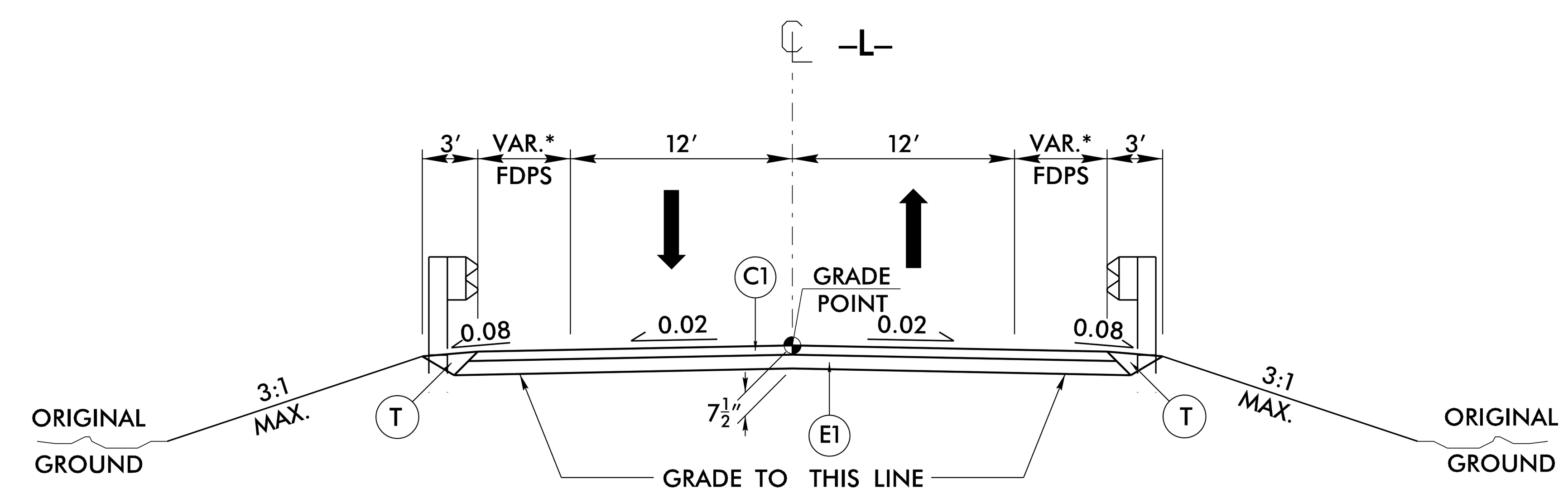
USE DETAIL
-L- STA. 21+74.31 TO -L- STA. 21+89.31 LT & RT
-L- STA. 28+20.04 TO -L- STA. 28+35.04 LT & RT
-L- STA. 33+24.96 TO -L- STA. 33+39.96 LT & RT



TYPICAL SECTION NO. 1

* PAVE TO FACE OF GUARDRAIL-SEE PLANS
GUARDRAIL OFFSET IS BASED ON
BRIDGE RAIL OFFSET-SEE BRIDGE TYPICALS
(SR 1389 IS ON NC BICYCLE ROUTE NO. 7)

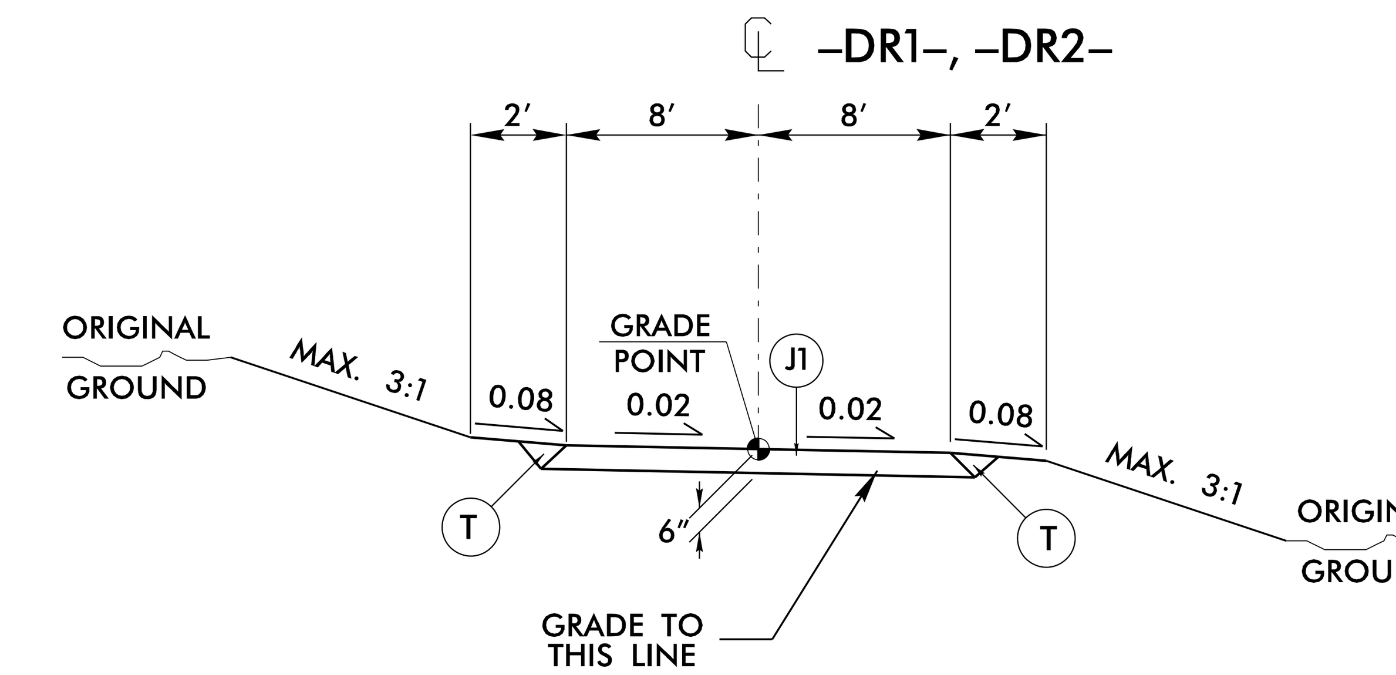
USE TYPICAL SECTION NO. 1
-L- STA. 20+50.00 TO -L- STA. 21+60.00
-L- STA. 24+53.00 TO -L- STA. 28+10.00
-L- STA. 33+50.00 TO -L- STA. 35+50.00



TYPICAL SECTION NO. 2

* PAVE TO FACE OF GUARDRAIL-SEE PLANS
GUARDRAIL OFFSET IS BASED ON
BRIDGE RAIL OFFSET-SEE BRIDGE TYPICALS
(SR 1389 IS ON NC BICYCLE ROUTE NO. 7)

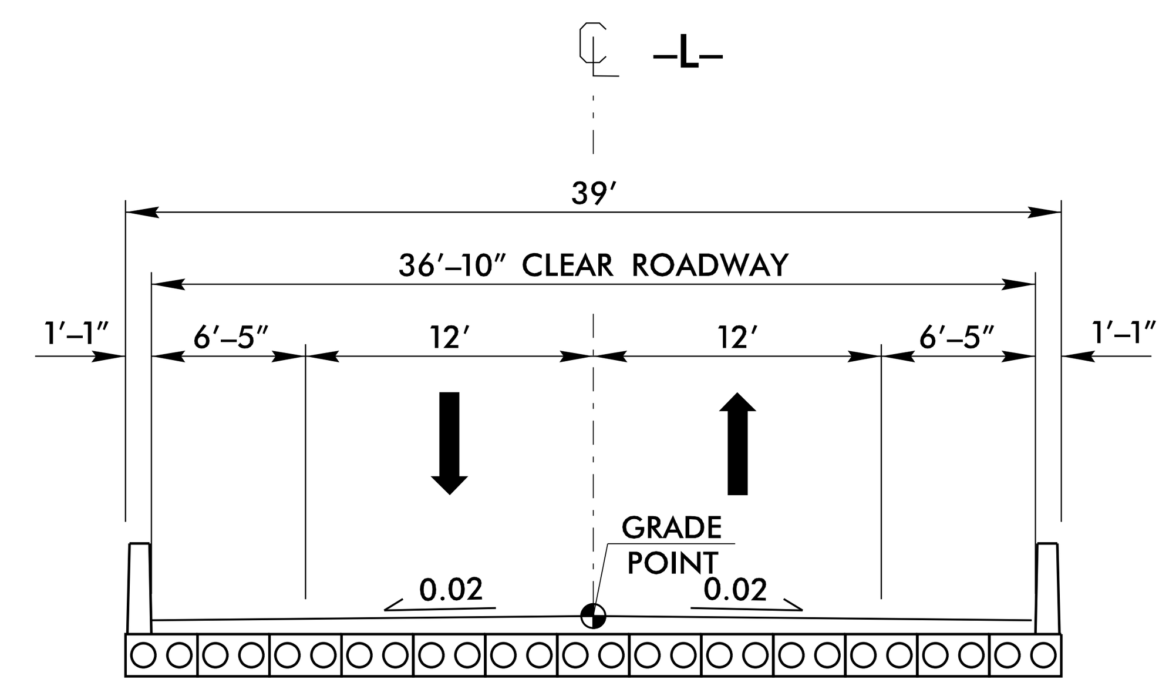
USE TYPICAL SECTION NO. 2
-L- STA. 21+60.00 TO -L- STA. 22+00.19 (BEGIN BRIDGE)
-L- STA. 24+12.81 (END BRIDGE) TO -L- STA. 24+53.00
-L- STA. 28+10.00 TO -L- STA. 28+49.21 (BEGIN BRIDGE)
-L- STA. 33+10.79 (END BRIDGE) TO -L- STA. 33+50.00



TYPICAL SECTION NO. 5

NOTE: GRADE DRIVEWAY TO DRAIN

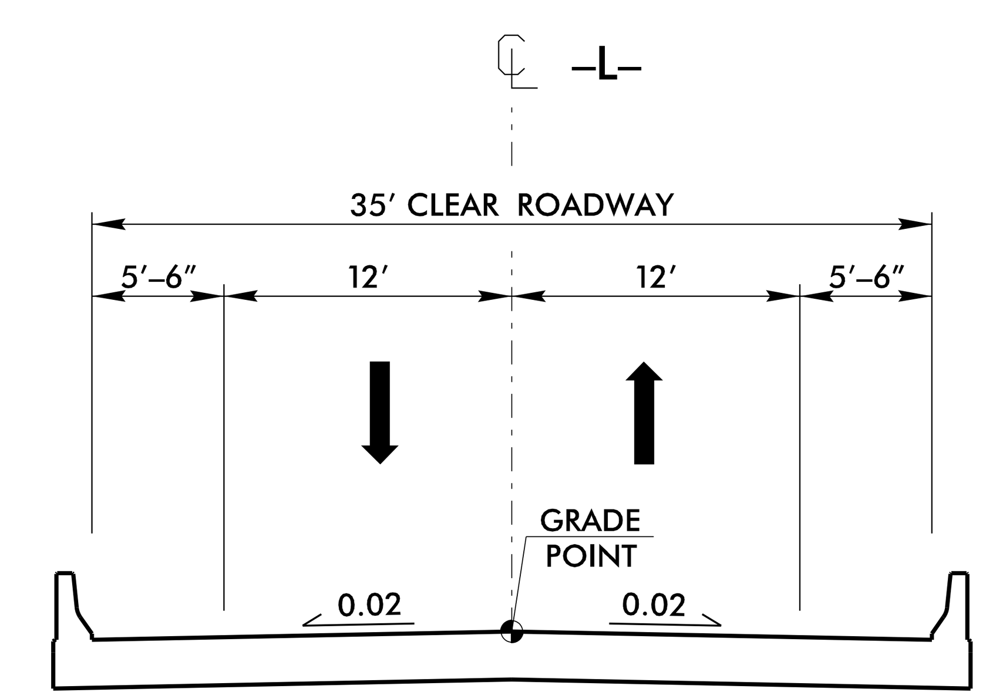
USE TYPICAL SECTION NO. 5
-DR1- STA. 11+00.00 TO -DR1- STA. 11+74.70
-DR2- STA. 10+12.00 TO -DR2- STA. 10+95.00



TYPICAL SECTION NO. 3

NOTE: SEE STRUCTURE PLANS FOR PAVEMENT DEPTH

USE TYPICAL SECTION NO. 3
-L- STA. 22+00.19 (BEGIN BRIDGE) TO STA. 24+12.81 (END BRIDGE)



TYPICAL SECTION NO. 4

NOTE: CONCRETE WEARING SURFACE (SEE STRUCTURE PLANS)

USE TYPICAL SECTION NO. 4
-L- STA. 28+49.21 (BEGIN BRIDGE) TO STA. 33+10.79 (END BRIDGE)

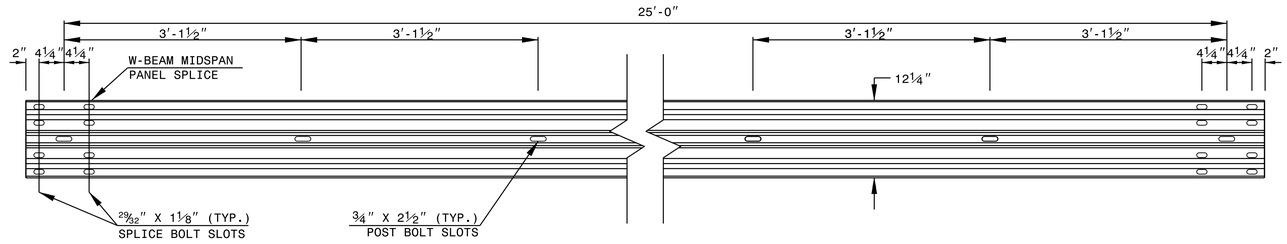
6/2/99
29-JAN-2021 11:32
R:\Roadway\Proj\B5619_Rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5619	2C-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

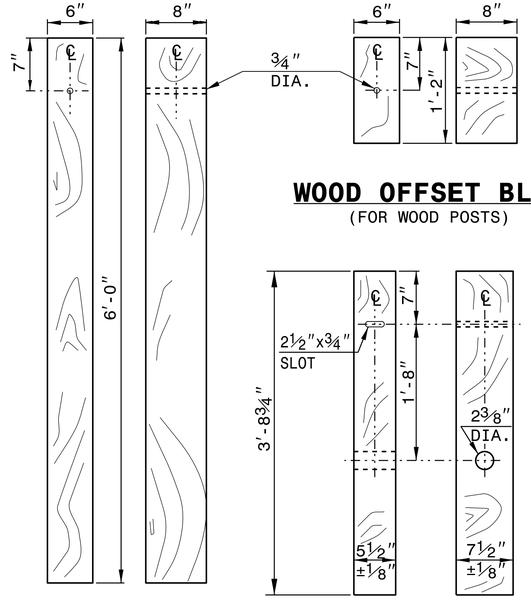
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



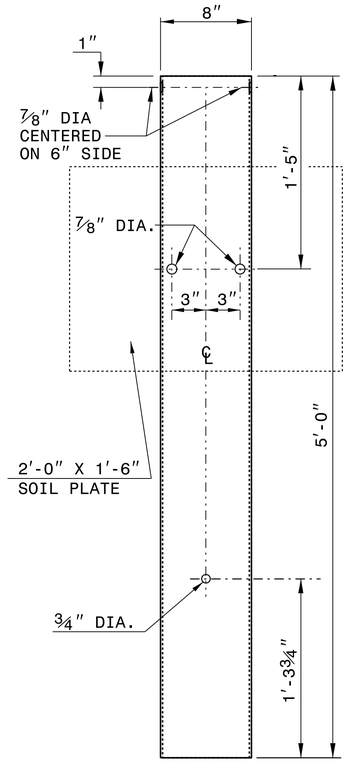
STANDARD W-BEAM GUARDRAIL



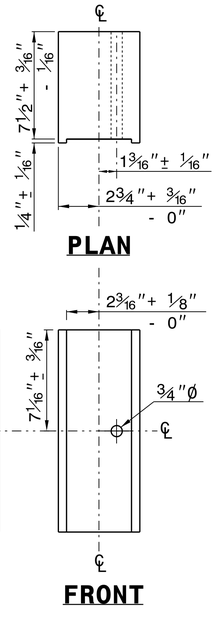
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

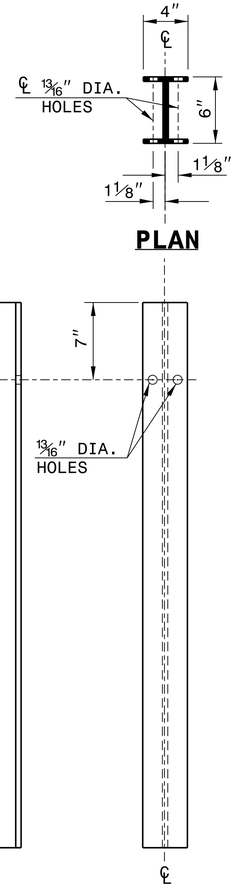
SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



ROUTED OFFSET BLOCK



"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOWERTON

DocuSigned by: 873F3D17DDDC45F...
03/17/2021

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

SEE TITLE BLOCK

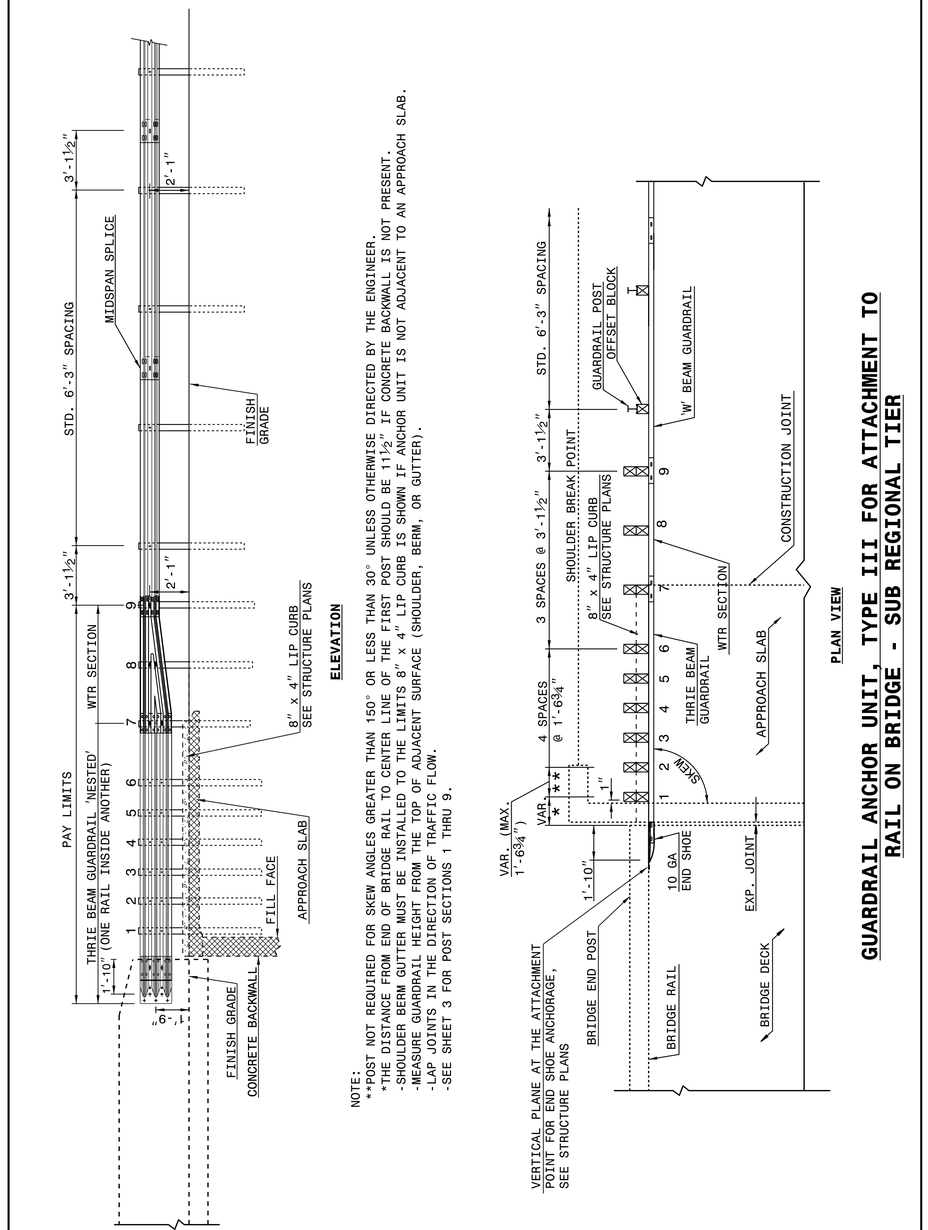
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
B-5619	2C-2

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

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

SHEET 2 OF 7
862D03



ELEVATION

PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

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

SHEET 1 OF 7
862D03

ELEVATION

PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
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-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

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

SHEET 1 OF 7
862D03

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

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

SHEET 2 OF 7
862D03

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by:
873F3D17DCDC45F...
03/17/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

14-DEC-2017 10:36
S:\Contracts\Contracts\Special Details\jhowerton\Standard Drawings\2018 Standard Drawings\Details in Lieu of Standards\Division 8\0862d0301.dgn
jhowerton AT CSD-2425965

TIP NO.	SHEET NO.
B-5619	2C-3

APPROVED: Matthew V. Springer
DATE: 8/30/2019
DocuSigned by: DC60F9E8B584403...

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042546 ENGINEER MATTHEW V. SPRINGER

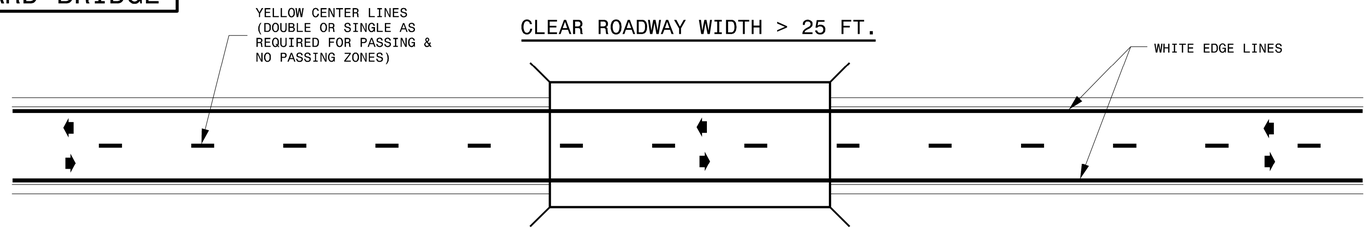
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

8-19

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
BRIDGES

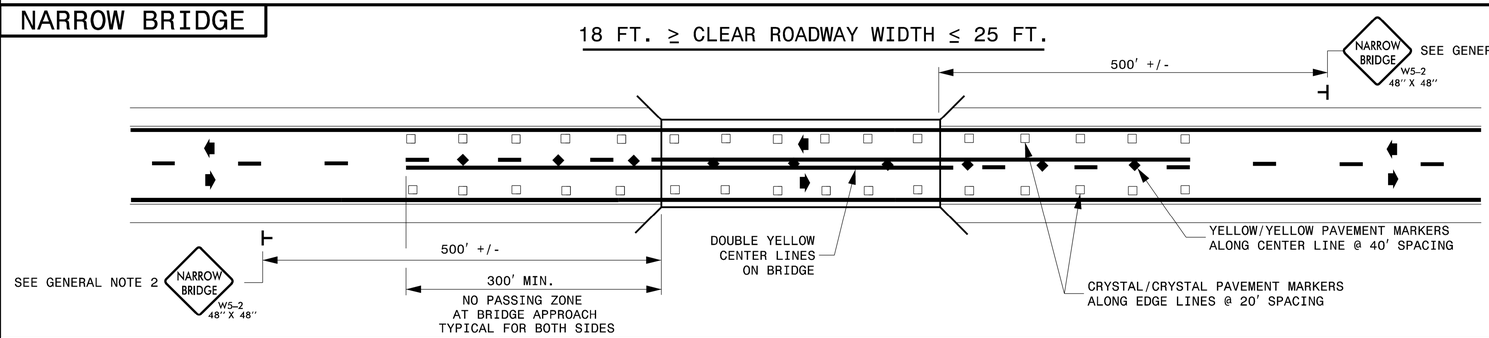
STANDARD BRIDGE

CLEAR ROADWAY WIDTH > 25 FT.



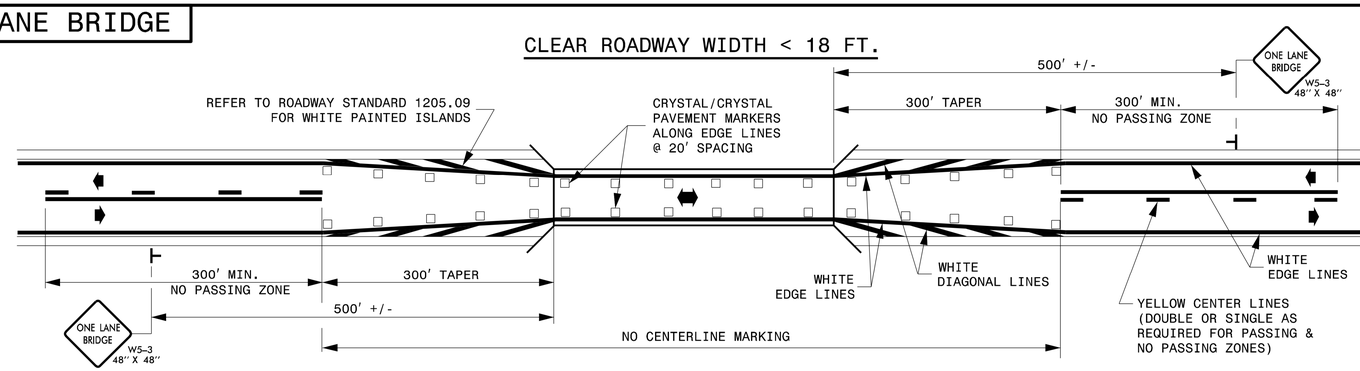
NARROW BRIDGE

18 FT. ≥ CLEAR ROADWAY WIDTH ≤ 25 FT.



ONE-LANE BRIDGE

CLEAR ROADWAY WIDTH < 18 FT.



GENERAL NOTES:

1- NO PASSING ZONES SHOWN ARE MINIMUMS. APPLY MINIMUM PASSING AND STOPPING SIGHT DISTANCES AS DETERMINED BY THE ENGINEER.

2- FOR BRIDGES WITH 18 TO 25 FEET CLEAR ROADWAY WIDTH, SIGNS MUST BE USED WHEN THE APPROACH PAVEMENT WIDTH IS 2 FOOT OR GREATER THAN THE CLEAR ROADWAY WIDTH.

LEGEND

DIRECTION OF TRAFFIC FLOW	YELLOW/YELLOW PAVEMENT MARKER
STATIONARY SIGN	CRYSTAL/CRYSTAL PAVEMENT MARKER

SHEET 1 OF 1
1205D12

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

8-19

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
BRIDGES

SHEET 1 OF 1
1205D12

REVISED PAVEMENT MARKING ROADWAY STANDARD DRAWING

8-29-19

COMPUTED BY: S. R. Sanghani	DATE: 1/28/2021
CHECKED BY: R. J. DeCola	DATE: 1/28/2021

PROJECT NO.	SHEET NO.
B-5619	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	21+60.00	22+06.55	CL	98.67			
-L-	24+06.85	24+53.00	CL	100.07			
-L-	28+10.00	28+54.63	CL	96.49			
-L-	33+04.72	33+50.00	CL	106.31			
		TOTAL:		401.54			
		SAY:		410			

SHOULDER BERM GUTTER SUMMARY

(IN LINEAR FEET)

LINE	Station	Station	LENGTH
-L- LT	21+74.31	21+89.31	15
-L- RT	21+74.31	21+89.31	15
-L- LT	28+20.04	28+35.04	15
-L- RT	28+20.04	28+35.04	15
-L- LT	33+24.96	33+39.96	15
-L- RT	33+24.96	33+39.96	15
		TOTAL:	90
		SAY:	100

SUMMARY OF EARTHWORK

(IN CUBIC YARDS)

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT EXCAVATION	EMBANK. +%	BORROW	WASTE
SUMMARY NO. 1						
-L- STA. 20+50.00	-L- STA. 22+00.19	52		208	156	
SUMMARY NO. 1 TOTAL		52		208	156	
SUMMARY NO. 2						
-L- STA. 24+12.81	-L- STA. 28+49.21	61		528	467	
-DR1- STA. 11+00.00	-DR1- STA. 11+67.86	19		305	286	
-DR2- STA. 10+18.84	-DR2- STA. 10+95.00	2		636	634	
SUMMARY 2 TOTAL		82		1469	1387	
SUMMARY NO. 3						
-L- STA. 33+10.79	-L- STA. 35+50.00	18		303	285	
SUMMARY 3 TOTAL		18		303	285	
PROJECT TOTALS:		152			1828	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					91	
GRAND TOTALS:		152			1919	
SAY:		**200**			**2100**	
EST. UNDERCUT = 300 CY (CONTINGENCY)						
EST. SELECT GRANULAR MATERIAL = 300 CY (CONTINGENCY)						

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

Note: These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

"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			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS			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 III	B-77	GREU, TL-3				
-L-	21+18.94	22+00.19	LT	81.25				22+00.19	6.42	9.42					1		1				
-L-	21+18.94	22+00.19	RT	81.25			22+00.19		6.42	9.42					1		1				
-L-	24+12.81	27+31.56	LT	318.75			24+12.81		6.42	9.42					1		1				
-L-	24+12.81	27+31.56	RT	318.75				24+12.81	6.42	9.42					1		1				
-L-	27+63.84	28+49.22	LT	85.38				28+49.21	5.5	8.5						1	1				
-L-	27+63.84	28+49.22	RT	85.38			28+49.21		5.5	8.5						1	1				
-L-	33+10.79	35+69.04	LT	258.25			33+10.79	35+69.04	5.5	8.5		100		2.6		2			167.2		
-L-	33+10.79	35+69.04	RT	258.25			35+69.04	33+10.79	5.5	8.5	100		3.1			2			167.7		
			SUBTOTAL	1487.25																	
LESS DEDUCTIONS FOR ANCHOR UNITS		GREU TL-3: 6 @ 50'		-300																	
		TYPE III: 4 @ 18.75'		-75																	
		TYPE B-77: 6 @ 22.875'		-137.25																	
			PROJECT TOTAL	**975.00**															334.9		
			SAY	1000											4	6	6		340		
ADDITIONAL GUARDRAIL POSTS = 5 EA.																					

COMPUTED BY:	S. R. Sanghani	DATE:	11/20/2020
CHECKED BY:	R. J. DeCola	DATE:	11/25/2020

PROJECT NO.	SHEET NO.
B-5619	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)

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)												C.S. PIPE								R.C. PIPE CLASS III					R.C. PIPE CLASS IV						** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS		QUANTITIES FOR DRAINAGE STRUCTURES	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN.		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE			CONCRETE TRANSITIONAL SECTION		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.35	15" DRAINAGE PIPE ELBOW		SIDE DRAIN PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	ABBREVIATIONS
THICKNESS OR GAUGE		FROM	TO					12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	12"	15"	18"	24"	30"	12"	15"	18"	24"	30"	48"						R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE		E	F	G	DROP INLET	CATCH BASIN																				REMARKS
-L- STA. 21+79	LT	401		49.98																																											1																			1		1								
		401	402		47.23	46.98																													36																																								
-L- STA. 21+79	RT	402		49.98																																											1																			1		1								
		402	403		46.98	37.82			28							X																																																								2						
-L- STA. 21+79	RT	403																																																																																	CLASS B RIP RAP AT OUTLET
-L- STA. 28+25	LT	501		53.32																																											1																			1		1								
		501	502		50.57	50.32																													36																																								
-L- STA. 28+25	RT	502		53.32																																											1																			1		1								
		502	503		50.32	38.43			40							X																																																								2						
-L- STA. 28+37	RT	503																																																																																	PREFORMED SCOUR HOLE AT OUTLET
-L- STA. 33+35	LT	504		53.32																																											1																			1		1								
		504	505		50.57	50.32																													36																																								
-L- STA. 33+35	RT	505		53.32																																											1																			1		1								
		505	506		50.32	38			32							X																																																								2						
-L- STA. 33+35	RT	506																																																																																	PREFORMED SCOUR HOLE AT OUTLET
PROJECT TOTALS									100																									108												6																			6		6	6						

ABBREVIATIONS	
C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING

COMPUTED BY: S.R.SANGHANI DATE: 11/20/2020
CHECKED BY: R.J.DECOLA DATE: 11/25/2020

PROJECT NO.	SHEET NO.
B-5619	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
CONTINGENCY				SD	200
				TOTAL LF:	200

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

PROJECT REFERENCE NO.	SHEET NO.
B-5619	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034381 ENGINEER RICHARD J. DECOLA
DocuSigned by: R J DCola 03/18/2021

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEADON
DocuSigned by: Roger Weadon 03/19/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mead&Hunt
111 E. Hargett Street, Suite 300
Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
NC License No. F-1235

NAD 83/NA 2011

-L- CURVE DATA
PI Sta 13+65.31
△ = 26° 29' 00.0" (LT)
D = 3° 53' 04.1"
L = 681.78'
T = 347.09'
R = 1,475.00'

BEGIN TIP PROJECT B-5619
-L- STA. 20+50.00

1 REGINA HARDY ZANE
WB 17-E 268
MB 13 PG 9

BEGIN CONSTRUCTION
-L- STA.19+75.00

-L- PT Sta. 17+00.00

BEGIN BRIDGE
-L- STA.22+00.19

BEGIN APPROACH SLAB
-L- STA.21+89.31

3 JIMMY P. LYNCH & DIANE H. LYNCH
DB 1777 PG 198

JOYCE HARDY AVERY LIFE TRUST
DB 1021PG 37
MB 13 PG 9

RESTORATION SYSTEMS LLC
DB 1228 PG 638
MB 13 PG 9

BEGIN SBG LT & RT
-L- STA.21+74.31

END APPROACH SLAB
-L- STA.24+23.69

END BRIDGE
-L- STA.24+12.81

*NOTE: DIVISION OF MITIGATION SERVICES CONSERVATION EASEMENT, NO DISTURBANCE OR ENCROACHMENT ALLOWED.

MATCHLINE -L- STA. 26+50 SEE SHEET 5

FOR -L- PROFILE, SEE SHEET 6

BRIDGE APPROACH SLAB

FOR STRUCTURE PLANS, SEE SHEET S2-1 THRU S2-23

REVISIONS

8/17/99

18-MAR-2021 07:36
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21p7srs

PROJECT REFERENCE NO.	SHEET NO.
B-5619	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034381 RICHARD J. DECOLA	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21656 ROGER S. WEADON
R J DeCola 03/18/2021	Roger Weadon 03/19/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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Raleigh, North Carolina 27601
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NC License No. F-1235

8/17/99

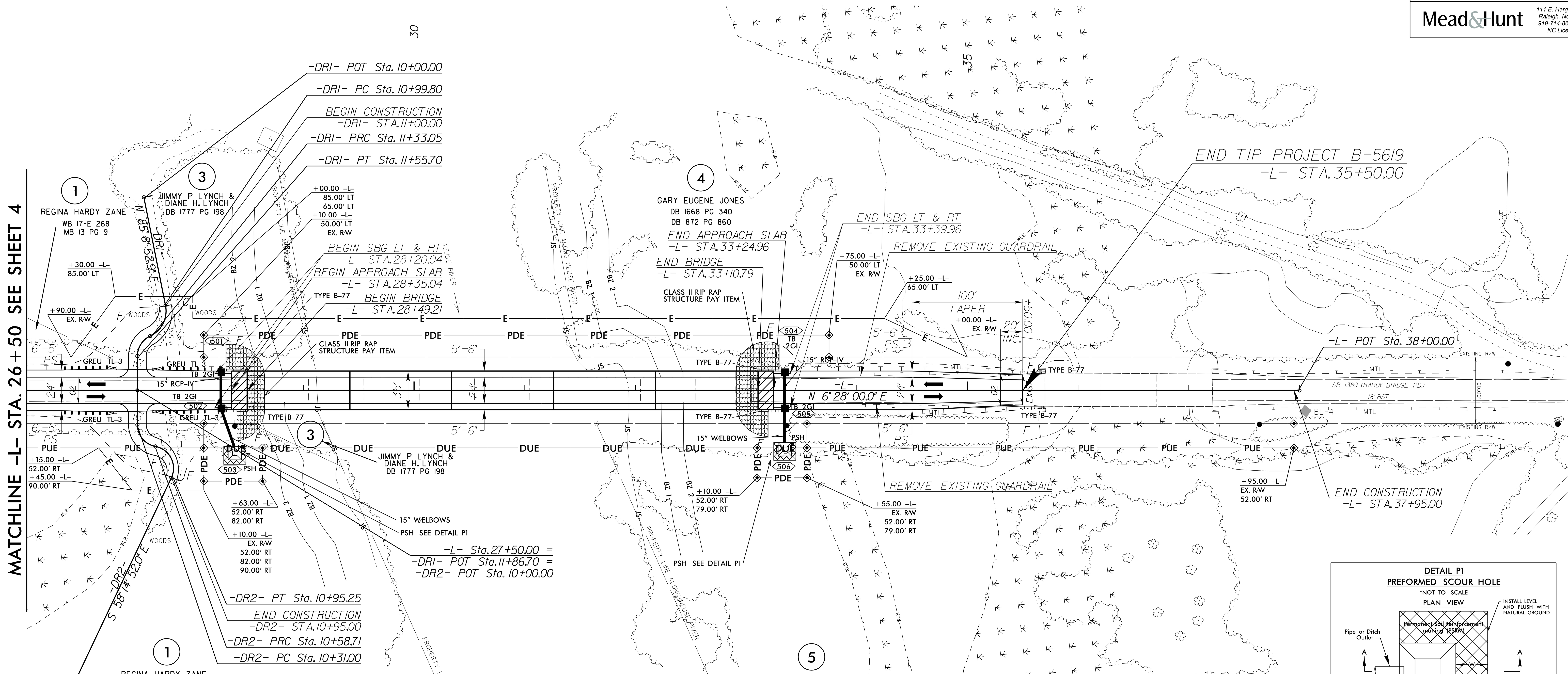
REVISIONS

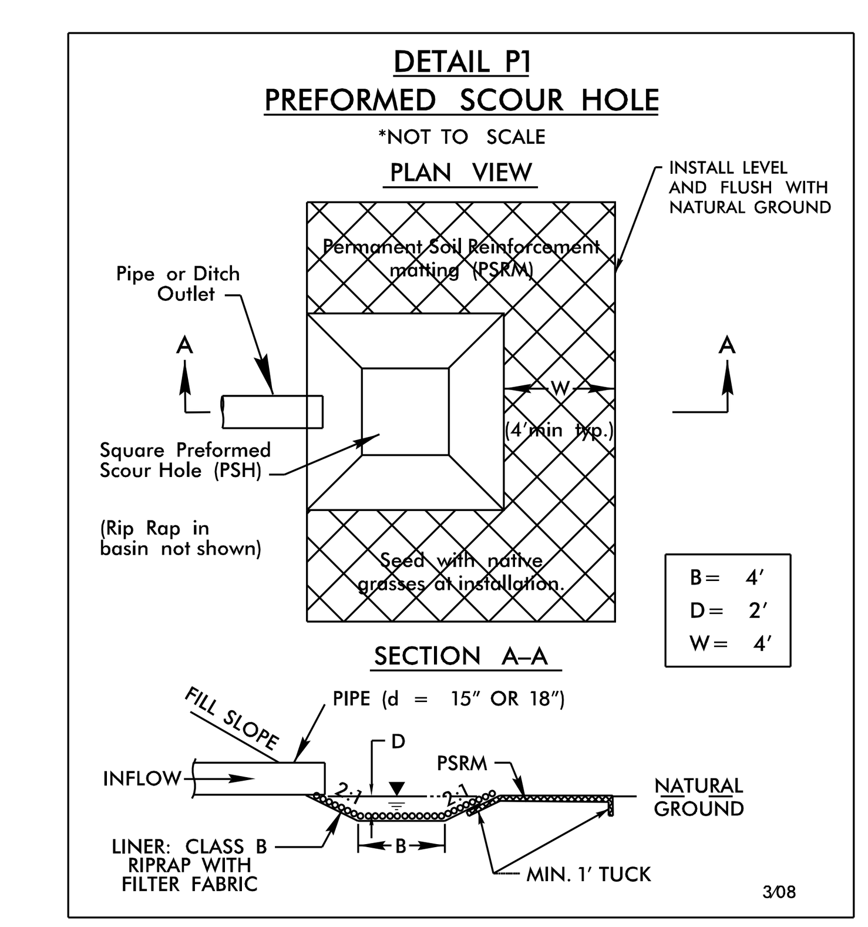
-DR1- CURVE DATA

PI Sta 11+19.40	PI Sta 11+45.76
Δ = 76° 12' 18.8" (RT)	Δ = 64° 53' 11.7" (LT)
D = 229° 10' 59.2"	D = 286° 28' 44.0"
L = 33.25'	L = 22.65'
T = 19.60'	T = 12.71'
R = 25.00'	R = 20.00'

-DR2- CURVE DATA

PI Sta 10+47.60	PI Sta 10+84.62
Δ = 79° 22' 55.9" (LT)	Δ = 104° 40' 03.9" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 27.71'	L = 36.54'
T = 16.60'	T = 25.91'
R = 20.00'	R = 20.00'


NAD 83/NA 2011
MATCHLINE -L- STA. 26+50 SEE SHEET 4
-DR1- POT Sta. 10+00.00
-DR1- PC Sta. 10+99.80
BEGIN CONSTRUCTION -DR1- STA. 11+00.00
-DR1- PRC Sta. 11+33.05
-DR1- PT Sta. 11+55.70
REGINA HARDY ZANE WB 17-E 268 MB 13 PG 9
JIMMY P LYNCH & DIANE H. LYNCH DB 1777 PG 198
BEGIN SBG LT & RT -L- STA. 28+20.04
BEGIN APPROACH SLAB -L- STA. 28+35.04
BEGIN BRIDGE -L- STA. 28+49.21
CLASS II RIP RAP STRUCTURE PAY ITEM
GARY EUGENE JONES DB 1668 PG 340 DB 872 PG 860
END APPROACH SLAB -L- STA. 33+24.96
END BRIDGE -L- STA. 33+10.79
END SBG LT & RT -L- STA. 33+39.96
REMOVE EXISTING GUARDRAIL
END TIP PROJECT B-5619 -L- STA. 35+50.00
-L- POT Sta. 38+00.00
N 6° 28' 00.0" E
SR 1389 (HARDY BRIDGE RD)
END CONSTRUCTION -L- STA. 37+95.00
15" WELBOWS
PSH SEE DETAIL P1
-L- Sta. 27+50.00 = -DR1- POT Sta. 11+86.70 = -DR2- POT Sta. 10+00.00
-DR2- PT Sta. 10+95.25
END CONSTRUCTION -DR2- STA. 10+95.00
-DR2- PRC Sta. 10+58.71
-DR2- PC Sta. 10+31.00
-DR2- POT Sta. 12+99.95
CHESTER B. HOOTEN DB 1768 PG 863 DB 800 PG 670
PROPERTY LINE ALONG NEUSE RIVER
100' TAPER



-L- STA 28+38 (RT)
-L- STA 33+35 (RT)

NOTE: ALL DRIVEWAY RADII ARE 10'

BRIDGE APPROACH SLAB

FOR -L-, -DR1- & -DR2- PROFILES, SEE SHEET 6

FOR STRUCTURE PLANS, SEE SHEET SI-1 THRU SI-40

5/28/99

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=32,400	CFS
DESIGN FREQUENCY	=25	YRS
DESIGN HW ELEVATION	=48.8	FT
BASE DISCHARGE	=44,000	CFS
BASE FREQUENCY	=100	YRS
BASE HW ELEVATION	=51.2	FT
OVERTOPPING DISCHARGE	=24,500	CFS
OVERTOPPING FREQUENCY	=10-	YRS
OVERTOPPING ELEVATION	=46.8	FT
DATE OF SURVEY	=7/11/2018	
W.S. ELEVATION AT DATE OF SURVEY	=31.0	FT

BM#1
N: 538,246 E: 2,368,265
EL = 38.64'
RR SPIKE SET IN 18" GUM TREE
-L- STA. 23+90 (59' RT)

—L—

BEGIN GRADE
-L- STA. 20+50.00
EL = 49.63

PI = 21+10.00
EL = 50.06'
VC = 120'
K = 356
V = >70 MPH

(+)0.7167%

(+)0.3796%

BEGIN BRIDGE
-L- STA. 22+00.19

-L- STA. 23+06.50
1 @ 50', 1 @ 60', 2 @ 50'
24" CORED SLAB BRIDGE
W/4' CAPS, 90° SKEW
G.P. EL = 50.81'

END BRIDGE
-L- STA. 24+12.81

PI = 26+50.00
EL = 52.11'
VC = 240'
K = 461
V > 70 MPH

(+)0.3796%

(+)0.9000%

-L- STA. 27+50.00=
-DR1- STA. 11+86.70=
-DR2- STA. 10+00.00

BEGIN BRIDGE
-L- STA. 28+49.21

-L- STA. 30+80.00
5 @ 92'
36" FLORIDA I-BEAM PRESTRESSED
CONCRETE GIRDER BRIDGE
W/4' CAPS, 90° SKEW
G.P. EL = 54.59'

PI = 30+80.00
EL = 55.98'
VC = 620'
K = 344
V > 65 MPH

(+)0.9000%

(-)0.9000%

END BRIDGE
-L- STA. 33+10.79

100 YR. WS
ELEV. 51.2

EXCAVATE TO EL = 37.1'
AND GRADE TO DRAIN
(STRUCTURE PAY ITEM)

EXCAVATE TO EL = 37.5'
AND GRADE TO DRAIN
(STRUCTURE PAY ITEM)

EXCAVATE TO EL = 39.1'
AND GRADE TO DRAIN
(STRUCTURE PAY ITEM)

NORMAL WS
ELEV 31.0'
FROM FS FILE

EXCAVATE TO ELEV. = 37.6'
AND GRADE TO DRAIN
(STRUCTURE PAY ITEM)

FOR -L- PLAN, SEE SHEETS 4 & 5

—L—

PI = 34+90.00
EL = 52.29'
VC = 120'
K = 1440
V > 70 MPH

(-)0.9000%

(-)0.8167%

END GRADE
-L- STA. 35+50.00
EL = 51.80

FOR -L- PLAN, SEE SHEET 5

—DR1—

BEGIN GRADE
-DR1- STA. 11+00.00
EL = 45.93

PI = 11+50.00
EL = 52.28'
VC = 35'
K = 3

(-)2.6900%

(+)2.0000%

END GRADE
-DR1- STA. 11+74.70
EL = 52.77

FOR -DR1- PLAN, SEE SHEET 5

—DR2—

BEGIN GRADE
-DR2- STA. 10+12.00
EL = 52.78

PI = 10+35.00
EL = 51.63'
VC = 35'
K = 3

(-)5.0000%

(+)7.6900%

END GRADE
-DR2- STA. 10+95.00
EL = 41.02

FOR -DR2- PLAN, SEE SHEET 5

PROJECT REFERENCE NO.	SHEET NO.
B-5619	6

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034381 ENGINEER RICHARD J. DECOSTA
DocuSigned by: R J DeCosta EE154DE27AE444... 03/18/2021

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER W. WEAVER
DocuSigned by: Roger Weaver 63B43C9E53643D... 03/19/2021

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