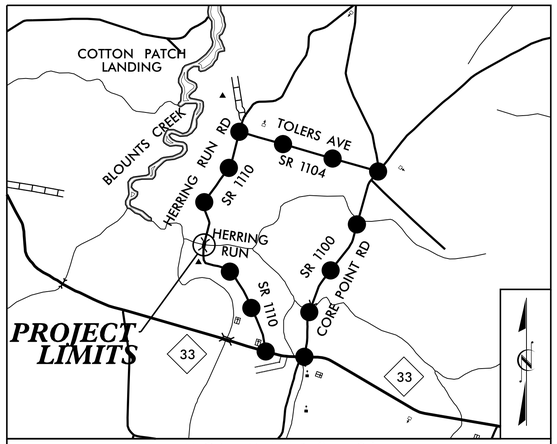
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09/08/99

TIP PROJECT: BP2–R008

CONTRACT: DB00629

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



VICINITY MAP (N.T.S.)

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

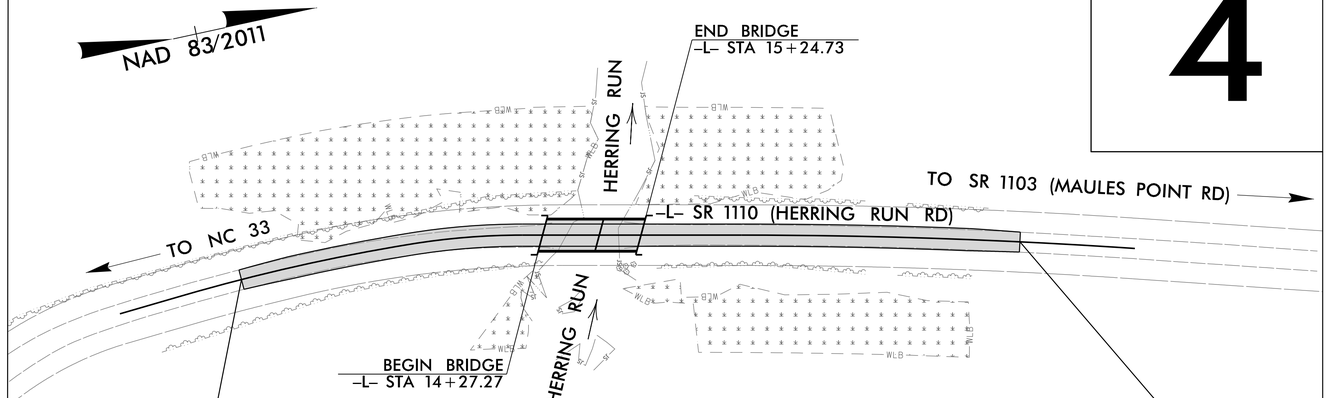
LOCATION: REPLACE BRIDGE NO. 10 OVER HERRING RUN ON SR 1110 (HERRING RUN RD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2–R008	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP2.R008.1		PE
BP2.R008.2		R/W & UTILITIES
BP2.R008.3		CONSTRUCTION

NAD 83/2011



BEGIN PROJECT BP2–R008
–L– POC Sta. 11+25.00

END PROJECT BP2–R008
–L– POC Sta. 19+00.00

4

A DESIGN EXCEPTION WAS APPROVED FOR MINIMUM HORIZONTAL CURVE RADIUS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2026 = 260
ADT 2046 = 320
K = 10 %
D = 60 %
T = 6 % *
V = 60 MPH
* TTST = 2% DUAL = 4%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT BP2–R008	=	0.129 MI
LENGTH OF STRUCTURES PROJECT BP2–R008	=	0.018 MI
TOTAL LENGTH OF PROJECT BP2–R008	=	0.147 MI

Prepared In the Office of:

HNTB NORTH CAROLINA, P.C.
4000 Center at North Hills St.
Suite 500
Raleigh, North Carolina 27609
NC License No: C-1554

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 19, 2023

LETTING DATE:
MAY 27, 2026

BRIAN P. BLACKWELL, PE
PROJECT ENGINEER

ROY H. TELLIER, PE
PROJECT DESIGN ENGINEER

CATHRINE A. HOSSACK, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER BRIAN P. BLACKWELL

Signed by: Paul Cameron
D3TE387AD07E486...
SIGNATURE:

P.E. 4/1/2026

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 043122 ENGINEER BRIAN V. BLACKWELL

DocuSigned by: Brian Blackwell
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SIGNATURE:

P.E. 4/1/2026

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 043122 ENGINEER ROBERT BLACKWELL

DocuSigned by: 8/18/2025

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-3	SPECIAL DETAILS
3B-1	ROADWAY & DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN AND PROFILE SHEET
RW01 THRU RW04	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT AND PROPERTY TIES
TMP-1 THRU TMP-2A	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UC-1 THRU UC-4	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-10	CROSS-SECTIONS
S-1 THRU S-18	STRUCTURE PLANS
SN	STRUCTURAL GENERAL NOTES

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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 TIDELAND EMC, BRIGHTSPEED.

BEAUFORT COUNTY WATER DISTRICT

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

EFF. 08-11-2025
REV. 11-26-2025

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
275.01	Rock Plating
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge 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
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 11, 12, and 14 of 15)
862.02	Guardrail Installation (Use Detail in Lieu of Standard for Sheet 5 of 9)
862.03	Structure Anchor Units (Use Detail in Lieu of Standards for Sheet 6 and 8 of 9)
876.02	Guide for Rip Rap at Pipe Outlets

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9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP) — EIP
- Computed Property Corner
- Existing Concrete Monument (ECM) — 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:

- 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 — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage/Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — 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:

** 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 — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — 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 Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)* — T
- U/G Telephone Cable (SUE – LOS C)* — T
- U/G Telephone Cable (SUE – LOS D)* — T
- U/G Telephone Conduit (SUE – LOS B)* — TC
- U/G Telephone Conduit (SUE – LOS C)* — TC
- U/G Telephone Conduit (SUE – LOS D)* — TC
- U/G Fiber Optics Cable (SUE – LOS B)* — T FO
- U/G Fiber Optics Cable (SUE – LOS C)* — T FO
- U/G Fiber Optics Cable (SUE – LOS D)* — T FO

WATER:

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

TV:

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

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — 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 Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

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

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FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. PLACED IN EACH OF TWO LAYERS.
C3	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. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 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	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 NO.1, THIS SHEET)

HNTB
HNTB NORTH CAROLINA, P.C.
4000 CENTER AT NORTH HILLS ST, SUITE 500
Raleigh, North Carolina 27609
NC License No: C-1554

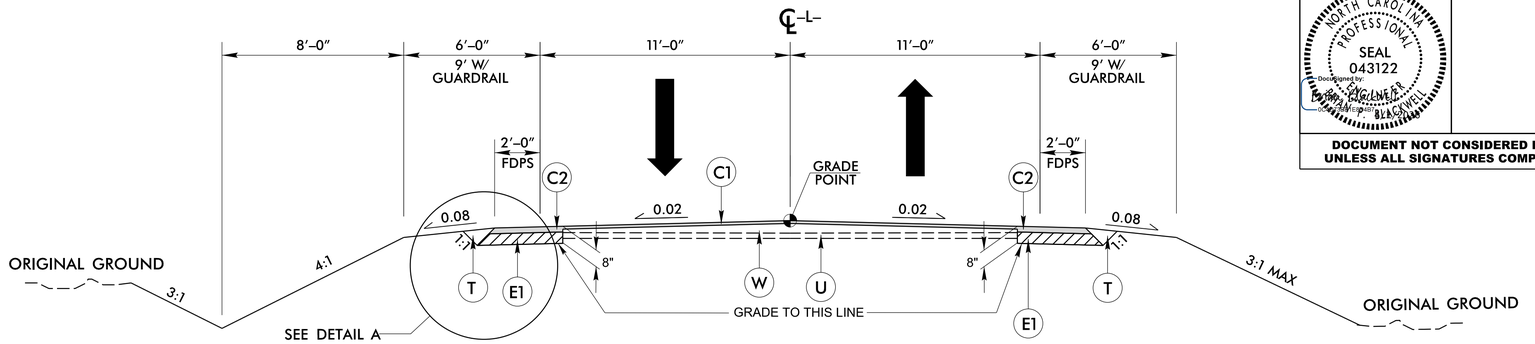
PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 043122 ENGINEER BRIAN BLACKWELL
Docusigned by: Brian Blackwell

PAVEMENT DESIGN ENGINEER

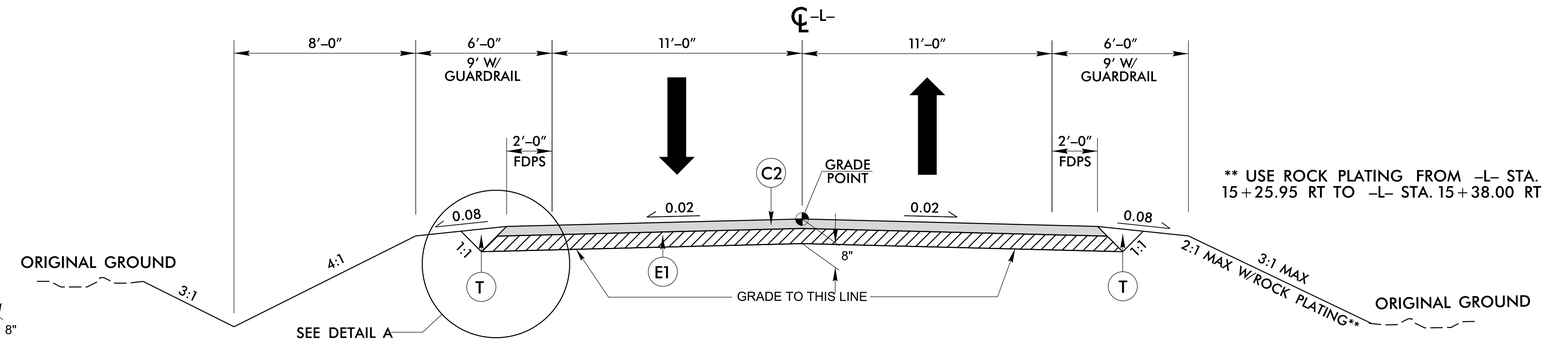
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TYPICAL SECTION NO. 1

–L– SR 1110 (HERRING RUN RD)

USE TYPICAL SECTION NO. 1 FROM:
–L– STA 11+25.00 TO STA 13+33.00
–L– STA 17+50.00 TO STA 19+00.00

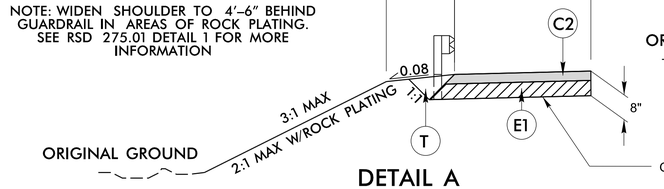


** USE ROCK PLATING FROM –L– STA. 15+25.95 RT TO –L– STA. 15+38.00 RT

TYPICAL SECTION NO. 2

–L– SR 1110 (HERRING RUN RD)

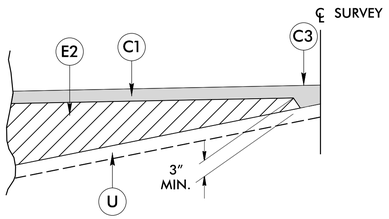
USE TYPICAL SECTION NO. 2 FROM:
–L– STA 13+33.00 TO STA 14+27.27 (BEGIN BRIDGE)
–L– STA 15+24.73 (END BRIDGE) TO STA 17+50.00



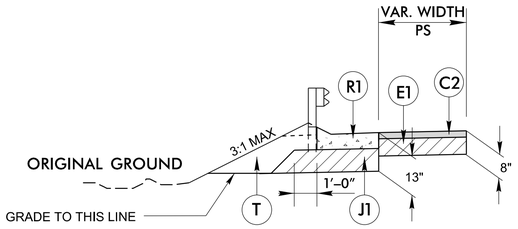
NOTE: WIDEN SHOULDER TO 4′–6″ BEHIND GUARDRAIL IN AREAS OF ROCK PLATING. SEE RSD 275.01 DETAIL 1 FOR MORE INFORMATION

DETAIL A

GUARDRAIL LOCATIONS

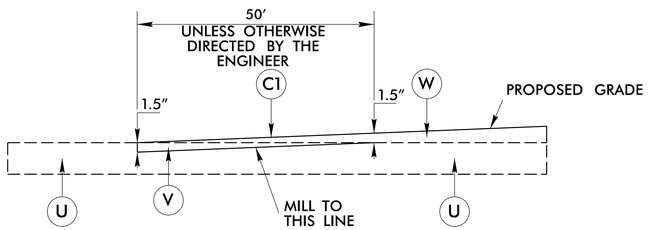


DETAIL SHOWING METHOD OF WEDGING

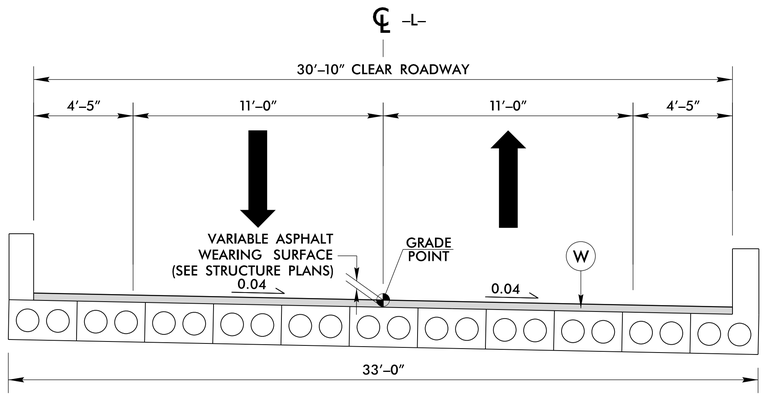


DETAIL FOR SHOULDER BERM GUTTER

–L– STA 12+51.39 RT TO STA 13+16.73 RT
–L– STA 13+32.04 RT TO STA 14+12.95 RT



DETAIL FOR INCIDENTAL MILLING



TYPICAL SECTION NO. 3

–L– SR 1110 (HERRING RUN RD)
CORED SLAB BRIDGE

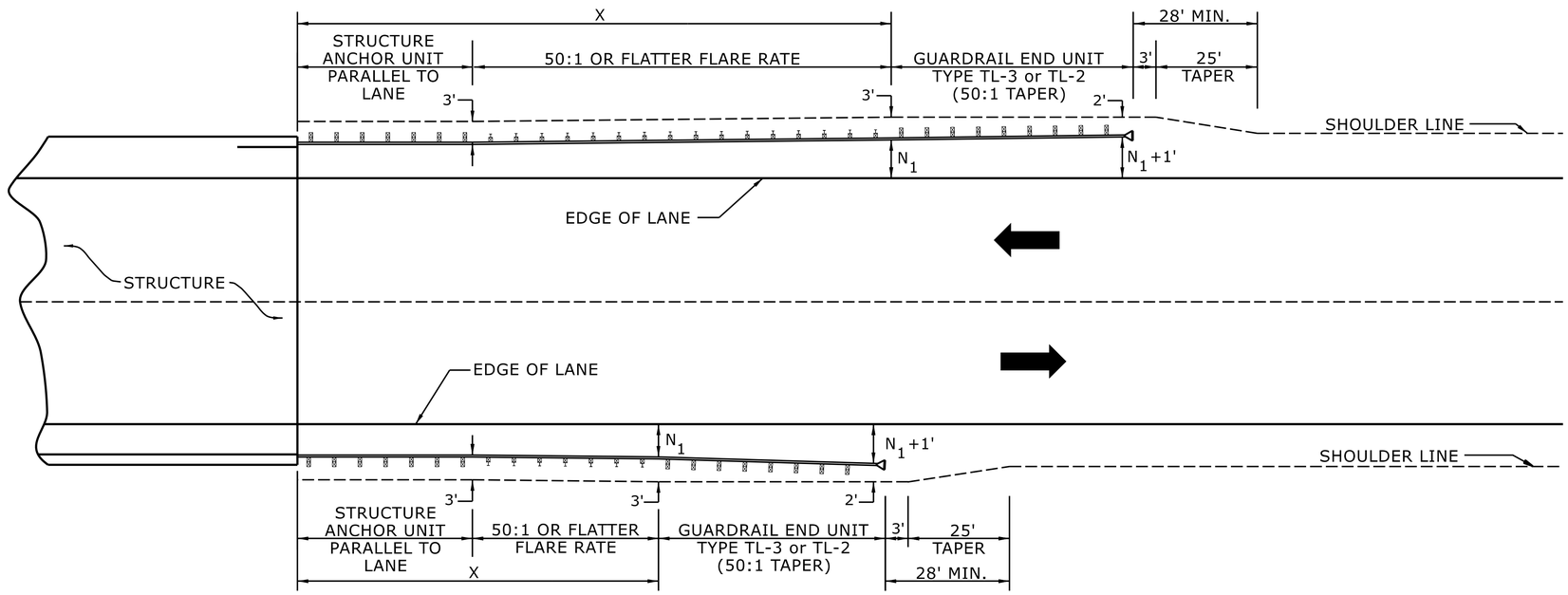
USE TYPICAL SECTION NO. 3 FROM:
–L– STA 14+27.27 (BEGIN BRIDGE) TO STA 15+24.73 (END BRIDGE)

SEE STRUCTURES PLANS FOR STRUCTURE CONSTRUCTION DETAILS

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BP2-R008	2C-1



USE FLARE RATE AS THE CONTROL IF THE "N_1" DISTANCE IS NOT OBTAINED.
("N_1" 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.

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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M HACKLER
Nicole M Hackler
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4/1/2026

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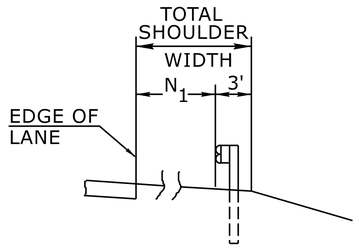
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

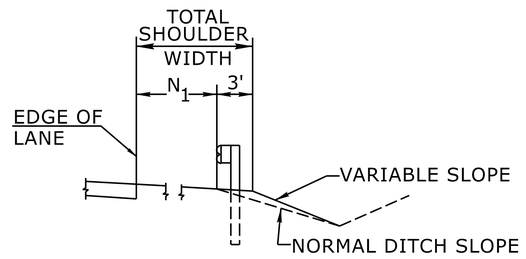
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MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

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PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	2C-2

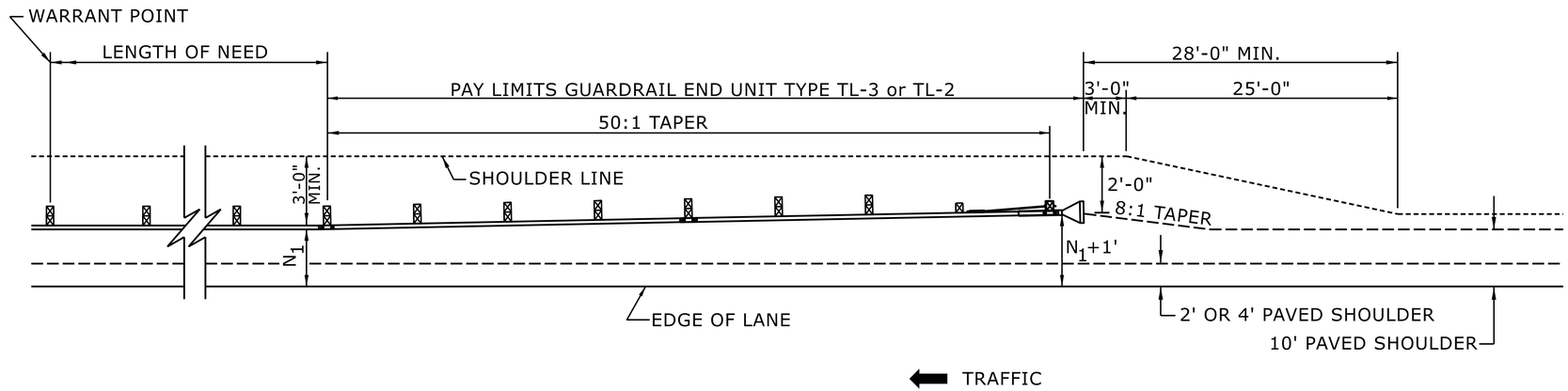


FILL SECTION



CUT SECTION

"N_1"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



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

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15

862D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKLER
Signed by: Nicole M. Hackler
4/1/2026

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.:

Docusign Envelope ID: 0582E782-A678-4677-8456-8A66DC8FCF79

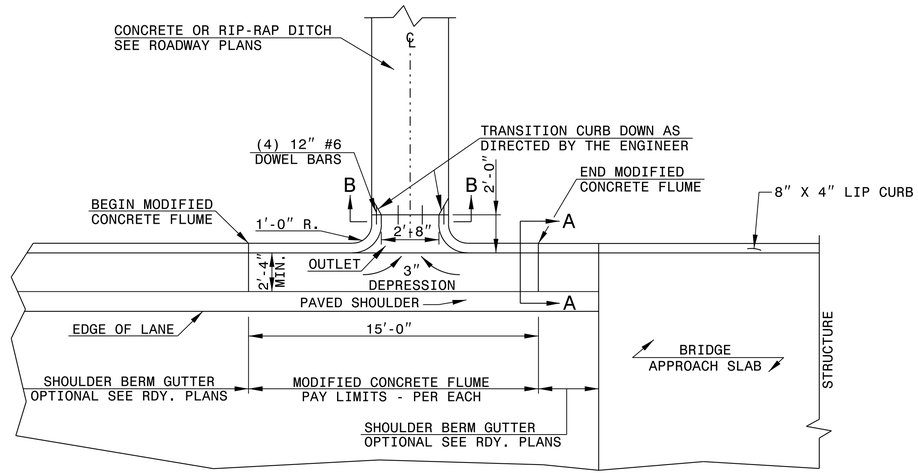
PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	2C-3

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

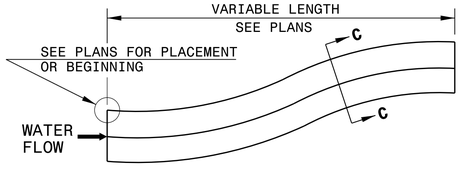
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

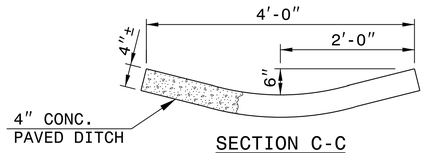
WITH CONCRETE OR RIP-RAP DITCH



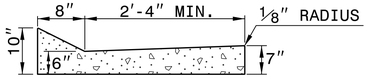
PLAN VIEW



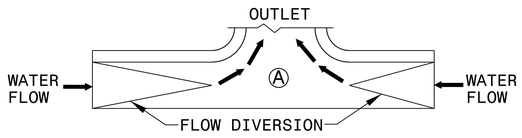
DOWNGRADE OR SAG



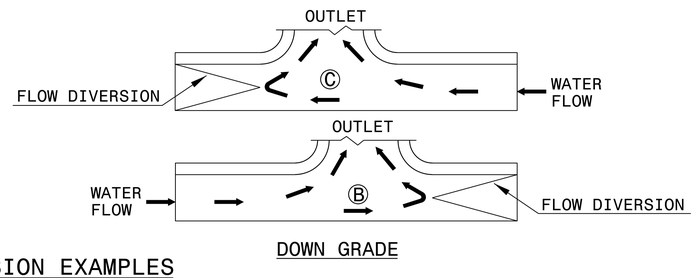
SECTION C-C



SECTION A-A

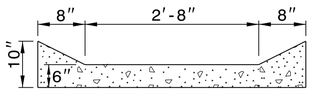


SAG

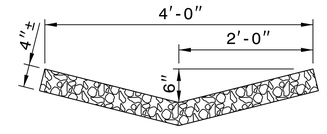


DOWN GRADE

FLOW DIVERSION EXAMPLES



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1
MODFLMDTCH

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

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: DATE:
FILE SPEC.: w:details\stand\modifiedflume.dgn

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLAS M HICKLER
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4/1/2026

18-OCT-2017 14:17
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jhowerton 4I CSD-212595

12/06/07

COMPUTED BY: THORNE KING DATE: 1/12/23
CHECKED BY: DOUGLAS WHEATLEY DATE: 1/12/23

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BP2–R008	3B–1

SUMMARY OF EARTHWORK
IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. + %	BORROW	WASTE
–L– STA 11+25.00	–L– STA 14+27.27 (BRIDGE)	64	497	433	
–L– STA 15+24.73 (BRIDGE)	STA 19+00.00	19	759	740	
SUBTOTALS:		83	1256	1173	
PROJECT TOTALS:		83	1256	1173	
5% TO REPLACE BORROW				59	
GRAND TOTALS:		83	1256	1232	
SAY:		100		1250	

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."

Earthwork quantities are calculated by the roadway designer. These quantities are based in part on subsurface data provided by the geotechnical engineer.

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	13+33.00	14+38.13	CL	237
–L–	15+08.18	17+50.00	CL	550
			TOTAL:	787
			SAY:	800

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
–L–	12+51.39 RT	13+16.73 RT	65.34
–L–	13+32.04 RT	14+12.94 RT	80.91
		TOTAL:	146.25
		SAY:	150

ROW AREA DATA SUMMARY

PARCEL NO.	PROPERTY OWNERS NAMES	PROP. R/W	PERM. UTILTIY EASE.	PERM. DRAIN. EASE.	PERM. DRAINAGE UTILITY EASE.	CONST. EASE.
1	WEYERHAEUSER CO		2331.94 SF	530.11 SF		3088.42 SF
2	DEBORAH WILLIAMS		3360.80 SF		329.00 SF	501.10 SF
3	DAVID HAND			498.80 SF		1819.06 SF

UNDERCUT EXCAVATION PER GEOTECH RECS (CONTINGENCY): 450 CY
SELECT GRANULAR MATERIAL PER GEOTECH RECS (CONTINGENCY): 450 CY
GEOTEXTILE FOR SOIL STABILIZATION PER GEOTECH RECS (CONTINGENCY): 450 SY

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CAAP SIZE	CAAP THICKNESS OR GAUGE	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) SIZE	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) THICKNESS OR GAUGE	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D SIZE	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D THICKNESS OR GAUGE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. FT. A	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. FT. B	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE 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. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32	TB GRATED D.I., TYPE 'B' STD. 840.35	T.B.D.I. (N.S.) FRAME AND TWO GRATES STD. 840.29	MODIFIED CONCRETE FLUME (SEE SHEET 2C–3)	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
–L– 13+24.00	RT	0401																															1					MODIFIED CONCRETE FLUME
TOTAL																																	1					

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	ANCHORS TYPE III	ANCHORS GREU TL–3	ANCHORS M–350	ANCHORS XIII	ANCHORS CAT–1	ANCHORS VI MOD	ANCHORS BIC	ANCHORS AT–1	IMPACT ATTENUATOR TYPE 350 EA	IMPACT ATTENUATOR TYPE 350 G	IMPACT ATTENUATOR TYPE 350 NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	STA 13+38.60	STA 14+31.39 (BRIDGE)	LT	93.75'				STA 15+26.81(BRIDGE)	6.00'	9.00'		50'		1'		1	1													
–L–	STA 12+01.39	STA 14+23.15 (BRIDGE)	RT	218.75'			STA 15+26.81(BRIDGE)		6.00'	9.00'	50'		1'			1	1													
–L–	STA 15+28.85 (BRIDGE)	STA 17+22.48	LT	193.75'			STA 16+04.19(BRIDGE)		6.00'	9.00'	50'		1'			1	1													
–L–	STA 15+20.65 (BRIDGE)	STA 16+14.40	RT	93.75'				STA 16+04.19(BRIDGE)	6.00'	9.00'		50'		1'		1	1													
		SUBTOTAL:		600.00'												4	4													
		ANCHOR DEDUCTIONS:																												
		GREU TL–3: 4@50'		–200'																										
		TYPE III:4@18.75'		–75'																										
		TOTAL:		325.00'																										
		SAY:		350'												4	4													
		5 ADDITIONAL POST																												

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.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

24-FEB-2023 15:52
\\Roadway Proj\BP2R008_rdy_sum.dgn
HNTB

COMPUTED BY: Tyler C. Bottoms___ DATE: 11-16-2022
CHECKED BY: Thein Tun Zan DATE: 01/12/23

(9-17-24)

PROJECT NO.	SHEET NO.
BP2-R008	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

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
Bridge No. 10 on SR 1110 over Herring Creek	EB1	1
	EB2	1

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
-L-	2:1	15+27	2.5:1	15+38	RT	1	*	10
							TOTAL SY:	10

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

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8/17/99

HNTB NORTH CAROLINA, P.C.
4000 CENTER AT NORTH HILLS ST, SUITE 500
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 043122 ENGINEER Paul Gardner BLACKWELL

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER Paul Cameron Gibson

Digitally signed by Paul Gardner Blackwell
Date: 2022.08.24 15:34:47 -04'00'

Digitally signed by Paul Cameron Gibson
Date: 2022.08.24 15:41:14 -04'00'

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NAD 83/2011

BEGIN PROJECT BP2-R008
-L- POC Sta. 11+25.00

-L- POT Sta. 10+00.00

BEGIN BRIDGE
-L- STA 14+27.27

BEGIN APPROACH SLAB
-L- STA 14+16.43

(1) WEYERHAEUSER CO
DB 922 PG 112

END BRIDGE
-L- STA 15+24.73

END APPROACH SLAB
-L- STA 15+35.57

(2) DEBORAH WILLIAMS
DB 1667 PG 362

CL "II" RIPRAP TO SHOULDER (TYP) (STRUCTURES PAY ITEM)

FLOODPLAIN BENCH W/ BANK STABILIZATION SEE DETAIL B1

EX. BRIDGE #060010 TO BE REMOVED

50' TAPER TO EXIST

2' FDPS

GREU TL-3

TYPE-III

RETAIN

SR 1110 (HERRING RUN RD) 20' BST

TO ROBERT COX RD

EXISTING MAG NAIL

N 3°58'11.8" W

N 12°12'26.2" E

-L- PCC Sta. 12+95.48

-L- PC Sta. 10+65.39

-L- PT Sta. 14+07.17

-L- PC Sta. 16+24.38

-L- PT Sta. 20+14.00

BEGIN SBG +51.39

BM #1

DO NOT DISTURB TREES

ROCK PLATING (RSD 275.01, DETAIL 1)

MODIFIED CONCRETE FLUME -L- STA. 13+24

CLASS 'B' RIP-RAP EST. 2 TONS

EST. 7 SYGF

SPECIAL LATERAL 'V' DITCH SEE DETAIL SLV1

WEYERHAEUSER CO DB 922 PG 112 (1)

DAVID HAND
SHARON HAND
DB 2053 PG 560 (3)

WOODS

WLB

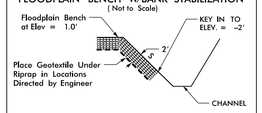
BZ 1

BZ 2

HERRING RUN

END PROJECT BP2-R008
-L- POC Sta. 19+00.00

DETAIL B1
FLOODPLAIN BENCH W/BANK STABILIZATION
(Not to Scale)



S= 1.5:1 OR FLATTER
CL II Rip-Rap, Keyed-In 2'

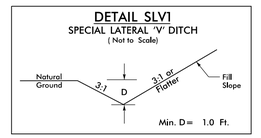
END BENT 1: -L- 14+35 (65 TONS CL II, 115 SY GF)
END BENT 2: -L- 15+15 (40 TONS CL II, 77 SY GF)

NOTE: ALL RIP RAP SHALL BE GRANITE RIP RAP

FOR -L- STRUCTURE, SEE SHEETS S-1 THRU S-18

A DESIGN EXCEPTION WAS APPROVED FOR MINIMUM HORIZONTAL CURVE RADIUS.

DETAIL SLV1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM -L- STA. 16+50 TO STA. 17+70 RT

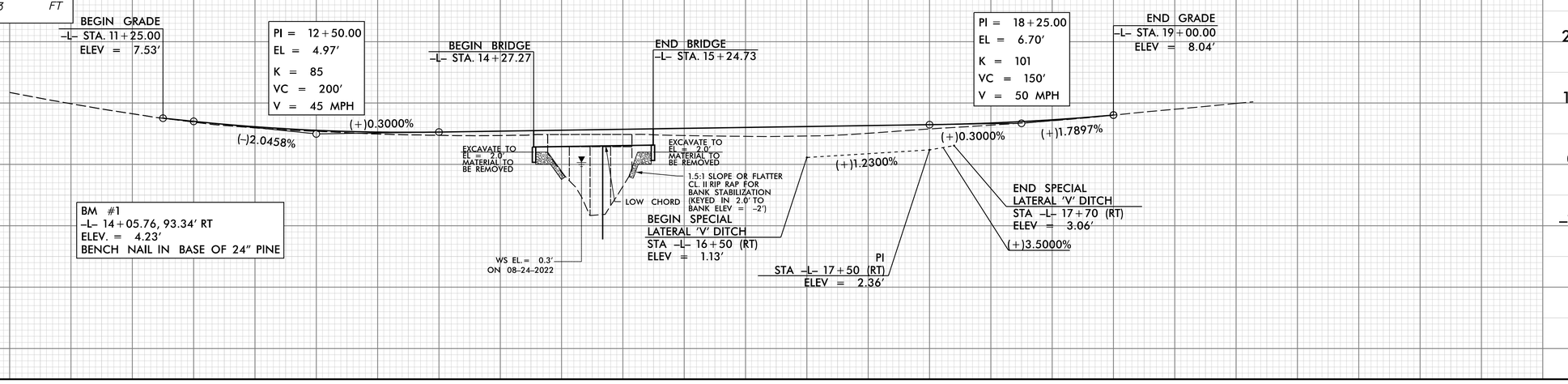
-L-

PI Sta 11+80.57	PI Sta 13+51.45	PI Sta 18+19.26
Δ = 6° 54' 09.7" (RT)	Δ = 9° 16' 28.3" (RT)	Δ = 3° 53' 46.3" (RT)
D = 3° 00' 00.0"	D = 8° 18' 13.5"	D = 1° 00' 00.0"
L = 230.09'	L = 111.69'	L = 389.62'
T = 115.18'	T = 55.97'	T = 194.88'
R = 1,909.86'	R = 690.00'	R = 5,729.58'
SE = 06	SE = 06	SE = NC
RO = 132'	RO = 132'	V = 40 MPH
	V = 45 MPH	

BRIDGE HYDRAULIC DATA
-L- 14+76

DRAINAGE AREA	= 12.1	SQ MI
DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2.6	FT
BASE DISCHARGE	= 1700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 3.8	FT
OVERTOPPING DISCHARGE	= >2790	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 6.00	FT
DATE OF SURVEY	= 8-24-2022	
W.S.ELEVATION AT DATE OF SURVEY	= 0.3	FT

-L-



DITCH LEGEND

RIGHT DITCH ----------

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HNTB

09/08/99

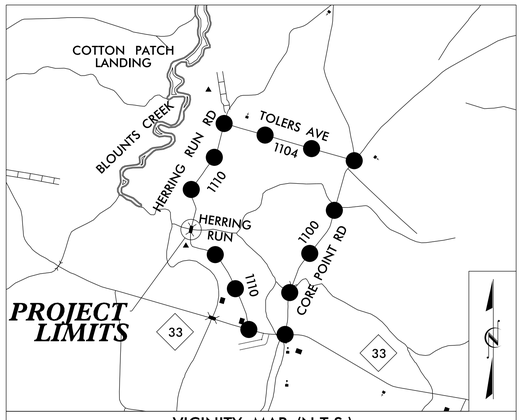
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2.R008	RW01	06

TIP PROJECT: BP2.R008

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

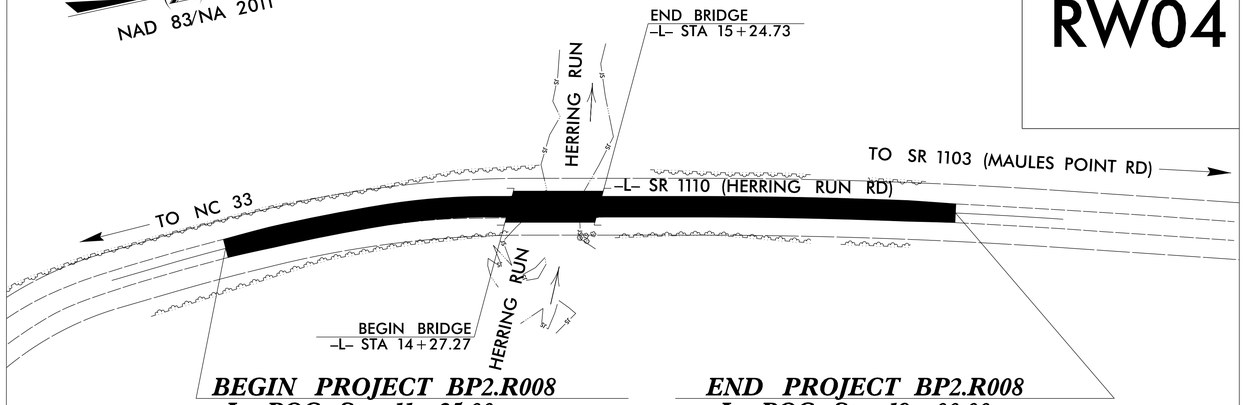
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

BEAUFORT COUNTY



NAD 83/NA 2011

RW04



BEGIN PROJECT BP2.R008
-L- POC Sta. 11+25.00

END PROJECT BP2.R008
-L- POC Sta. 19+00.00

GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BP2R008-2" WITH NAD 83/NSRS NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 599279.507 (ft) EASTING: 2607699.249(ft) ELEVATION: 26.30(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998796027 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

GEL Engineering of NC, Inc. DBA

GEL SOLUTIONS

an Affiliate of THE GEL GROUP, INC.

657 POOLE DRIVE
GARNER,NC 27529
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3996 LAND SURVEYOR PARKS H. ICENHOUR, JR.

NORTH CAROLINA GEL ENGINEERING OF NC, INC. NO. C-1938 CERTIFICATE OF AUTHORIZATION

Digitally signed by Parks H. Icenhour, Jr.
Date: 2026.02.25 09:35:33 -05'00'

SIGNATURE: *Date:*

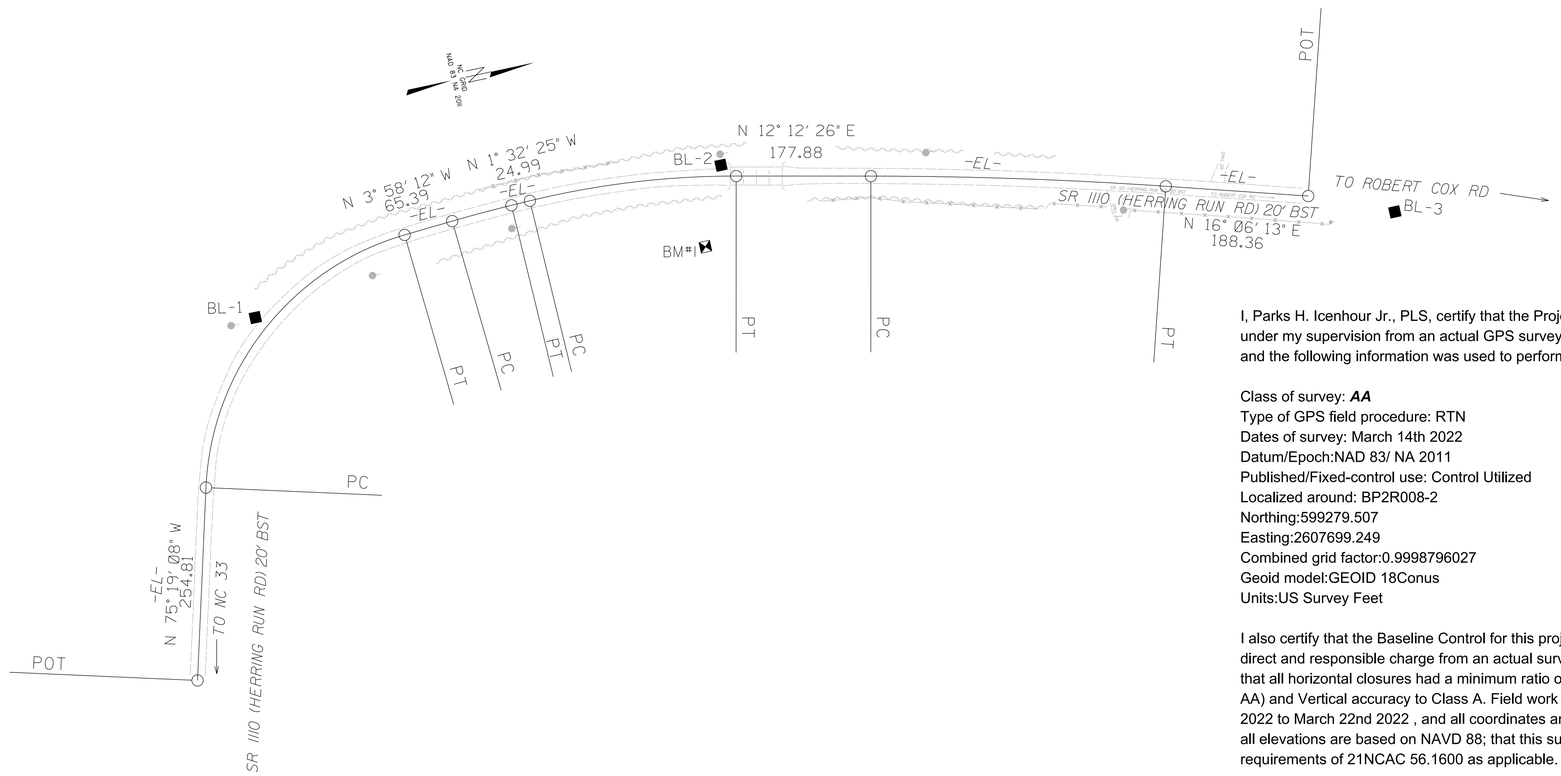
STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

25-FEB-2026 09:05
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Jason.prevatte AT PREVATTEJ

6/2/99

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



BP2R008-2

BP2R008-1

SEE SHEET RW02C–2 FOR FURTHER ALIGNMENT DETAILS

PROJECT REFERENCE NO.	SHEET NO.
BP2R008	RW02C–1

Location and Surveys

GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
2700 SUMNER BLVD.
SUITE 106
RALEIGH,NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

NORTH CAROLINA BOARD OF EXAMINERS FOR ENGINEERING AND SURVEYING — GEL ENGINEERING OF NC, INC. NO. C-1938 — CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL — SEAL L-3996 — LAND SURVEYOR — PARKS H. ICENHOUR

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Parks H. Icenhour Jr., PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: March 14th 2022
Datum/Epoch:NAD 83/ NA 2011
Published/Fixed-control use: Control Utilized
Localized around: BP2R008-2
Northing:599279.507
Easting:2607699.249
Combined grid factor:0.9998796027
Geoid model:GEOID 18Conus
Units:US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from March 14th 2022 to March 22nd 2022 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 31st day of May, 2024.

Digitally signed by Parks H. Icenhour, Jr.
Date: 2024.05.31 14:47:10 -04'00'

Professional Land Surveyor L-3996

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

31-MAY-2024 12:53
J:\Projects\2022\BP2R_BRIDGES\BP2R008\FIELDWORK\control sheets\bp2r008_ls_rw02c-1.dgn
Jason Prevatte AT JASONPREVATTE

6/2/99

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP2R008	RW02C-2

Location and Surveys

GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
2700 SUMNER BLVD.
SUITE 106
RALEIGH,NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

NORTH CAROLINA PROFESSIONAL ENGINEERING GEL ENGINEERING OF NC, INC NO. C-1938 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL L-3996 LAND SURVEYOR PARKS H. ICENHOUR JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	BP2R008-1	598628.7970	2608219.0240	27.42
2	BP2R008-2	599279.5070	2607699.2490	26.30
BL1	BP2R008 BL-1	599662.5130	2606737.9530	19.78
BL2	BP2R008 BL-2	600305.7790	2606671.1320	4.17
BL3	BP2R008 BL-3	601162.3460	2606919.0190	17.32

****

BM1 ELEVATION = 4.23
N 600263 E 2606772
BL STATION 29+61.00 96 RIGHT
BENCH NAIL SET IN BASE OF 24" PINE

****

I, Parks H. Icenhour Jr., PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: March 14th 2022
Datum/Epoch:NAD 83/ NA 2011
Published/Fixed-control use: Control Utilized
Localized around: BP2R008-2
Northing:599279.507
Easting:2607699.249
Combined grid factor:0.9998796027
Geoid model:GEOID 18Conus
Units:US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from March 14th 2022 to March 22nd 2022 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 29th day of May, 2024.

Digitally signed by Parks H. Icenhour, Jr.
Date: 2024.05.29 05:56:43 -04'00'

Professional Land Surveyor L-3996

POT	599486.827	2607190.175							
LINE			N 75°19′07.6" W	254.81					
PC	599551.406	2606943.686							
CURVE			N 39°38′39.7" W	424.30	71°20′55.9"(RT)	15°45′00.0"	453.01	261.16	363.78
PT	599878.126	2606672.974							
LINE			N 03°58′11.8" W	65.39					
PC	599943.357	2606668.447							
CURVE			N 02°45′18.5" W	80.98	02°25′46.6"(RT)	03°00′00.0"	80.99	40.50	1909.86
PT	600024.244	2606664.554							
LINE			N 01°32′25.2" W	24.99					
PC	600049.225	2606663.882							
CURVE			N 05°20′00.5" E	274.29	13°44′51.4"(RT)	05°00′00.0"	274.95	138.14	1145.92
PT	600322.331	2606689.379							
LINE			N 12°12′26.2" E	177.88					
PC	600496.192	2606726.992							
CURVE			N 14°09′19.4" E	389.54	03°53′46.3"(RT)	01°00′00.0"	389.62	194.88	5729.58
PT	600873.908	2606822.256							
LINE			N 16°06′12.5" E	188.36					
POT	601054.879	2606874.502							

28-MAY-2024 15:55
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Jason.Prevatte AT JASONPREVATTE

6/2/99

REVISIONS

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP2.R008	02D–1

Location and Surveys

GEL Engineering of NC, Inc. 2984

GEL SOLUTIONS

an Affiliate of THE GEL GROUP, INC.

657 POOLE DRIVE
GARNER,NC 27529
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

PROJECT SURVEYOR

NORTH CAROLINA — GEL ENGINEERING OF NC, INC. NO. C-1938 — CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA — PROFESSIONAL — SEAL L-3996 — LAND SURVEYOR — PARKS H. ICENHOUR, JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Parks H. Icenhour Jr., PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 24th day of February, 2026.

Digitally signed by Parks H. Icenhour, Jr.
Date: 2026.02.25 11:42:25 -05'00'

_____
Professional Land Surveyor L-3996

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	599878.1258	2606672.9737
PC	10+65.39	599943.3567	2606668.4467
PCC	12+95.48	600173.2980	2606666.3654
PT	14+07.17	600283.8949	2606681.0632
PC	16+24.38	600496.1920	2606726.9918
PT	20+14.00	600873.9080	2606822.2558

NOTES:

1. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

24-FEB-2026 09:3
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jason.prevatte
AT PREVATTEJ

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP2.R008	03E-1

Location and Surveys

GEL Engineering of NC, Inc. DBA

GEL SOLUTIONS

an Affiliate of THE GEL GROUP, INC.

657 POOLE DRIVE
GARNER,NC 27529
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

NORTH CAROLINA GEL ENGINEERING OF NC, INC. NO. C-1938 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL L-3996 LAND SURVEYOR PARKS H. ICENHOUR JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I , Parks H. Icenhour Jr , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 2/16/2026 to 2/17/2026, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 26th day of February, 2026.

Digitally signed by Parks H. Icenhour, Jr.
Date: 2026.02.26 09:27:40 -05'00'

Professional Land Surveyor L-3996

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L

STATION	OFFSET	NORTH	EAST	
13+15.00	31.39	600190.2860	2606698.9286	
13+15.00	38.00	600189.7610	2606705.5199	
13+33.00	31.63	600207.3676	2606700.7576	
13+33.00	38.00	600206.6965	2606707.0913	
13+45.00	-28.31	600226.0943	2606642.5753	
13+88.00	-51.00	600274.5008	2606627.1436	
13+88.00	-44.00	600273.2112	2606634.0238	NOT SET IN WATER
14+09.00	-48.00	600295.8342	2606634.5358	NOT SET IN WATER
14+09.00	-55.00	600297.3144	2606627.6941	
14+77.43	30.00	600346.2192	2606725.2406	NOT SET IN WATER
14+90.00	46.00	600355.1265	2606743.5377	NOT SET IN WATER
14+96.00	-37.00	600378.5411	2606663.6831	NOT SET IN WATER
14+96.00	-30.00	600377.0610	2606670.5249	NOT SET IN WATER
15+33.00	52.00	600395.8856	2606758.4944	NOT SET IN WATER
15+33.00	30.00	600400.5374	2606736.9918	
15+43.00	-37.00	600424.4784	2606673.6213	
15+43.00	-30.00	600422.9983	2606680.4630	
17+07.00	-30.00	600583.5835	2606715.8168	
17+07.00	-47.00	600587.4173	2606699.2548	

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

6/2/99

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6/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BP2.R008	RW04

Location and Surveys

GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
657 POOLE DRIVE
RALEIGH,NC 27529
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

GEL ENGINEERING OF NC, INC NO. C-1938 CERTIFICATE OF AUTHORIZATION

SEAL L-3996 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR PARKS H. ICENHOUR JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

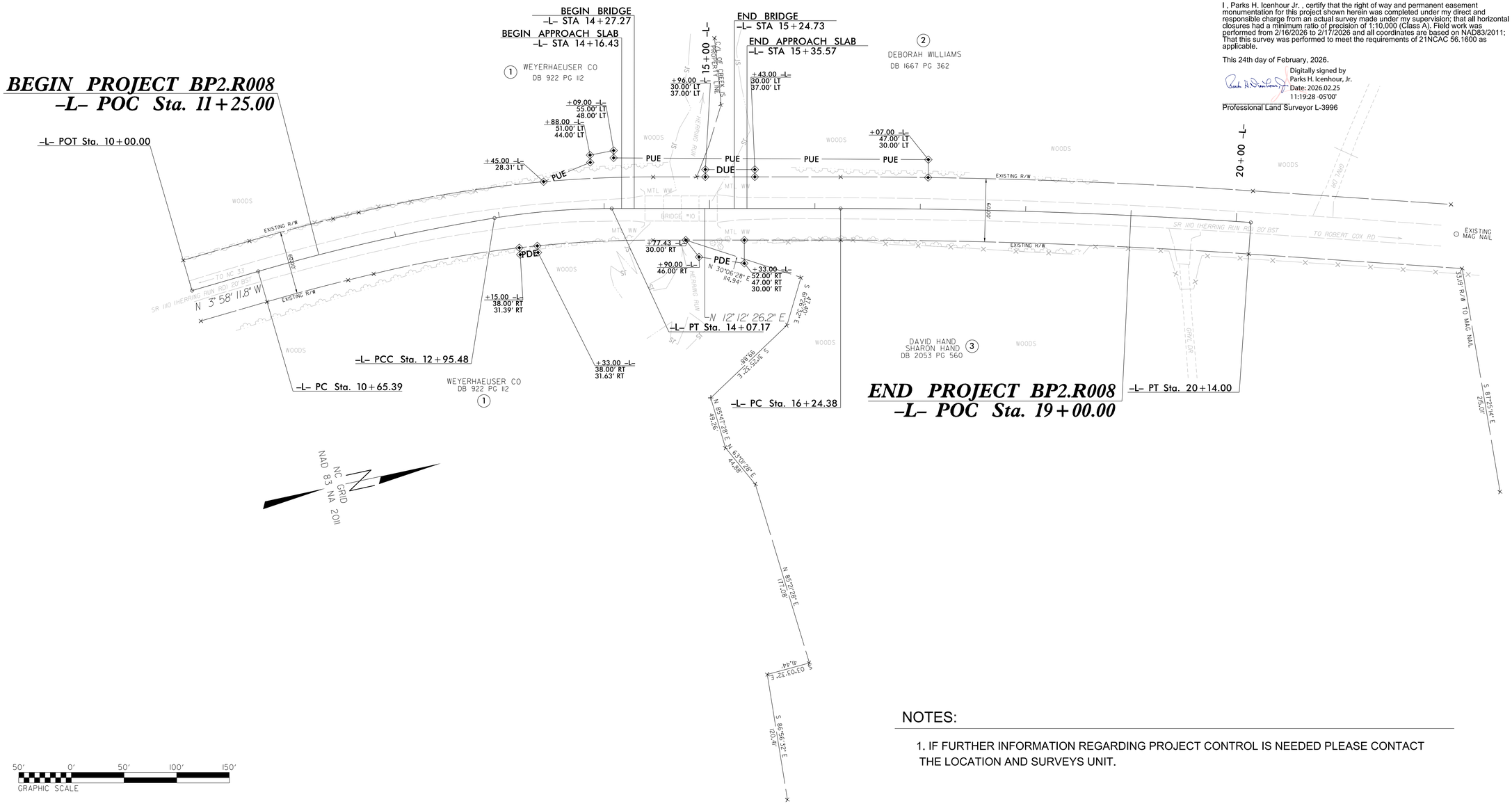
I , Parks H. Icenhour Jr. , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 2/16/2026 to 2/17/2026 and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 24th day of February, 2026.

Digitally signed by Parks H. Icenhour, Jr.
Date: 2026.02.25 11:19:28 -05'00'

Professional Land Surveyor L-3996

-L-		
PI Sta 11+80.57	PI Sta 13+51.45	PI Sta 18+19.26
△ = 6° 54' 09.7" (RT)	△ = 9° 16' 28.3" (RT)	△ = 3° 53' 46.3" (RT)
D = 3° 00' 00.0"	D = 8° 18' 13.5"	D = 1° 00' 00.0"
L = 230.09'	L = 111.69'	L = 389.62'
T = 115.18'	T = 55.97'	T = 194.88'
R = 1,909.86'	R = 690.00'	R = 5,729.58'
SE = 06	SE = 06	SE = NC
RO = 132'	RO = 132'	V = 40 MPH
	V = 45 MPH	



NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

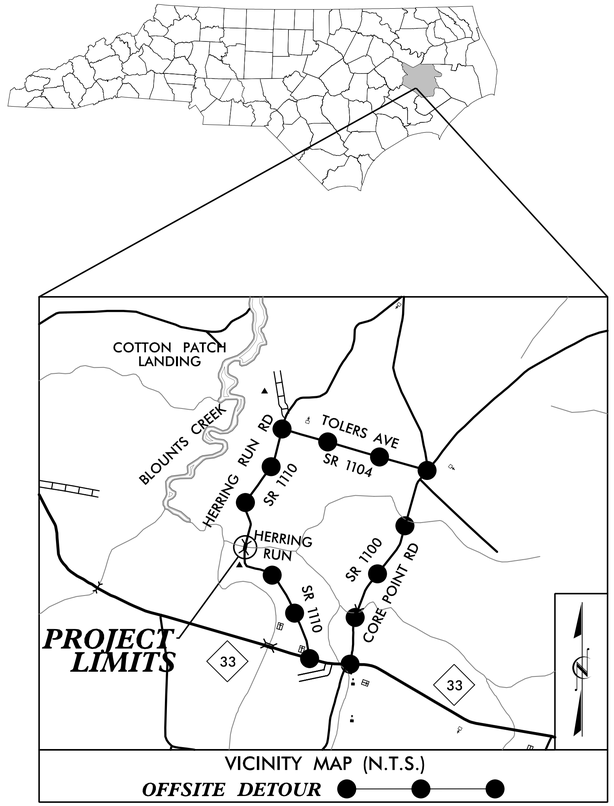
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ALL PREVIOUS

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BEAUFORT COUNTY



VICINITY MAP (N.T.S.)

OFFSITE DETOUR

LOCATION: REPLACE BRIDGE NO. 10 OVER HERRING RUN ON SR 1110 (HERRING RUN RD)

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

PLANS PREPARED BY: HNTB	*NCDOT CONTACTS:*	
H. SHYU, P.E. *PROJECT ENGINEER*	C. A. HOSSACK, P.E. *PROJECT ENGINEER*	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL
G. RODRIGUEZ, E.I.T. *PROJECT DESIGN ENGINEER*		

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	GENERAL NOTES, PHASING AND DETOUR
TMP-2A	TEMPORARY SIGN DESIGN

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" CONTRACT STANDARDS AND DEVELOPMENT UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C. DATED JAN 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

LEGEND

GENERAL

NORTH ARROW

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

TEMPORARY SIGNING

STATIONARY SIGN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
4000 Center at North Hills St.
Suite 500
Raleigh, North Carolina 27609
NC License No: C-1554

APPROVED: Helen Shyu

DATE: 4/1/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042517 ENGINEER HELEN SHYU

SHEET NO.
TMP-1

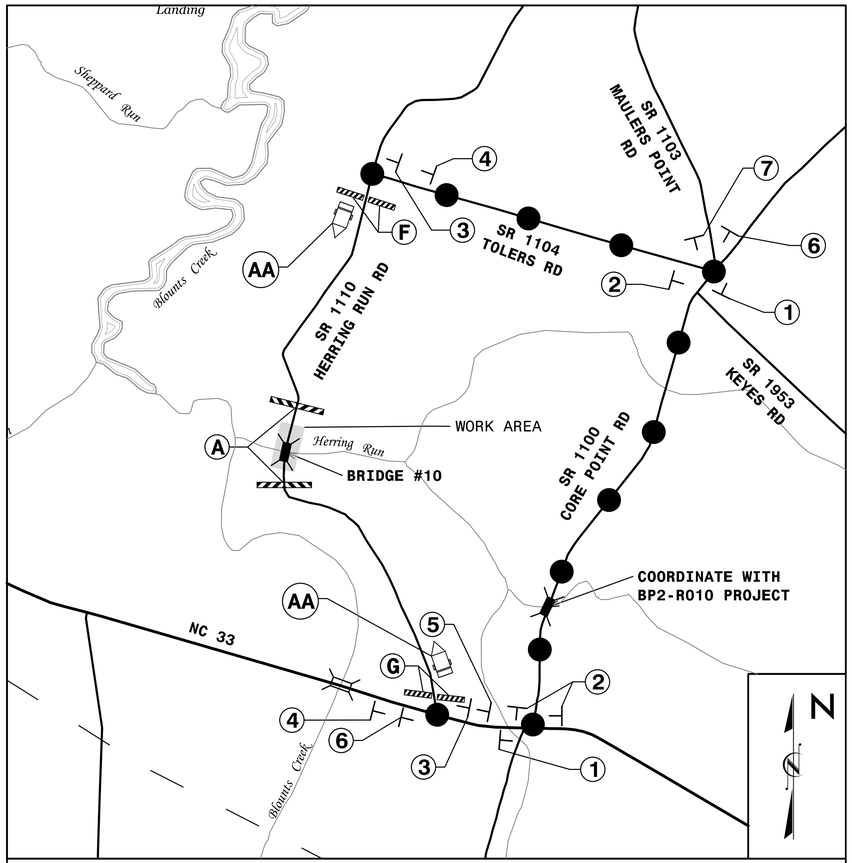
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PROJ. REFERENCE NO.	SHEET NO.
BP2-R008	TMP-2



VICINITY MAP

OFFSITE DETOUR

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN THE DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL THE TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

B) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN ON THIS SHEET.

D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETUR IS NOT IN OPERATION.

E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKING AND MARKERS

G) STATE FORCES WILL INSTALL MARKINGS AND MARKERS ON THE FINISHED PROJECT

MISCELLANEOUS

H) COORDINATE CONSTRUCTION WITH BP2-R010. THESE PROJECTS MAY NOT OCCUR AT THE SAME TIME.

I) COORDINATION WITH BEAUFORT COUNTY EMERGENCY SERVICES AND LOCAL SCHOOLS IS RECOMMENDED BEFORE CONSTRUCTION BEGINS TO ENSURE IMPACTS TO EMERGENCY SERVICES ROUTES AND SCHOOLS BUS ROUTES ARE MINIMIZED TO THE EXTENT PRACTICABLE.

PHASING

PHASE I

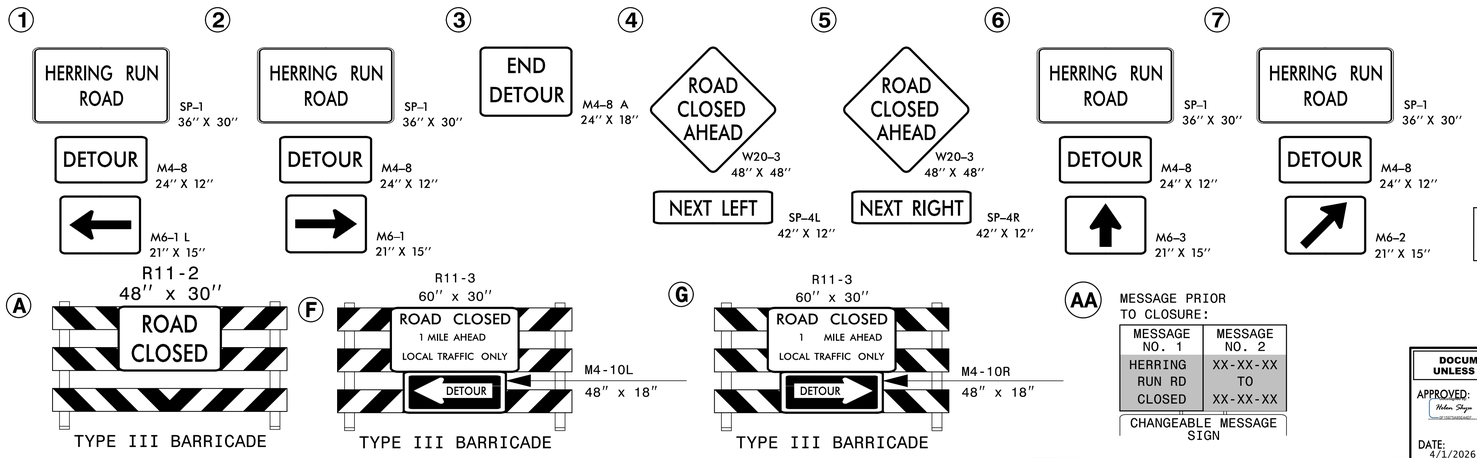
PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE AND COVER OFF-SITE DETOUR SIGNS AS SHOWN ON TMP-2 AND IN ACCORDANCE WITH RSD 1101.03 (SHEETS 1 OF 9).

PHASE II

UNCOVER DETOUR SIGNS, CLOSE -L- (SR 1110 / HERRING RUN RD) TO TRAFFIC AND CONSTRUCT PROPOSED BRIDGE AND ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.

PHASE III

UPON COMPLETION OF BRIDGE AND ROADWAY, PLACE FINAL PAVEMENT MARKINGS AND MARKERS IN ACCORDANCE WITH RSD 1205.01, 1205.02, 1205.12, 1250.01 AND 1251.01. REMOVE BARRICADES AND DETOUR SIGNS AND OPEN -L- (SR 1110 / HERRING RUN RD) TO TRAFFIC.



SEE RSD 1101.03 (SHEET 1 OF 9) FOR ADDITIONAL TRAFFIC CONTROL DEVICES

AA MESSAGE PRIOR TO CLOSURE:

MESSAGE NO. 1	MESSAGE NO. 2
HERRING RUN RD CLOSED	XX-XX-XX TO XX-XX-XX

CHANGEABLE MESSAGE SIGN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED:

DATE: 4/1/2026

NORTH CAROLINA PROFESSIONAL SEAL 042517 ENGINEER HELEN SHYU

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

HNTB NORTH CAROLINA, P.C.
4000 Center at North Hills St.
Suite 500
Raleigh, North Carolina 27609
NC License No: C-1554

TRANSPORTATION MANAGEMENT PLAN
GENERAL NOTES, PHASING AND DETOUR

2:08:09 PM
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HNTB

Docusign Envelope ID: FB62045B-187D-46C0-A693-0F56AB047259

PROJ. REFERENCE NO.	SHEET NO.
BP2-R008	TMP-2A

SIGN NUMBER: SP-1
TYPE: D
QUANTITY: 8

SIGN WIDTH: 3'-0"
HEIGHT: 2'-6"
TOTAL AREA: 7.5 Sq.Ft.

BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.38"
RADII: 1.5"

NO. Z BARS: N/A
LENGTH: N/A

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.08" ALUMINUM

DESIGN BY: TRT
PROJECT ID: BR2-R008

CHECKED BY: ADK
DIV: 02

DATE: January 2023

NOTES:

1. Legend and border shall be direct applied non-reflective sheeting.
2. Background shall be Grade B, fluorescent orange, reflective sheeting.
3. To be mounted with Detour signing.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																									Series/Size Text Length
	H	E	R	R	I	N	G																		C 2000
4.2	4.7	4.1	4.4	4.4	2.2	4.6	3.4	4.2																	27.6
	R	U	N		R	D																			C 2000
4.9	4.4	4.7	3.4	6	4.4	3.4	4.9																		26.2

HNTB NORTH CAROLINA, P.C.
4000 Center at North Hills St.
Suite 500
Raleigh, North Carolina 27609
NC License No: C-1554

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED:

DATE: 4/1/2026

NORTH CAROLINA PROFESSIONAL SEAL 042517 ENGINEER HELEN SHYU

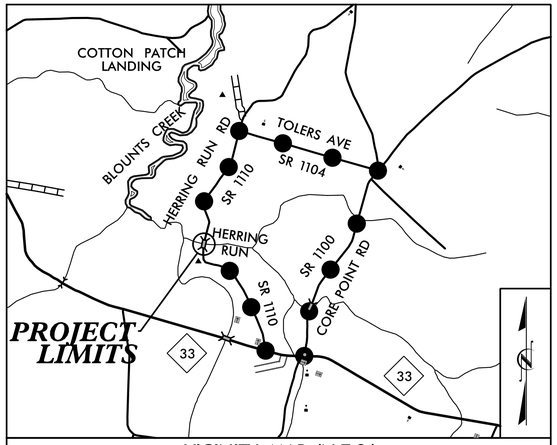
DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL *

TRANSPORTATION MANAGEMENT PLAN

TEMPORARY SIGN DESIGN

12:34:54 PM
...\BP2_R008_tc_TCP_temp-sign-dsn.dgn
HNTB

TIP PROJECT: BP2–R008



VICINITY MAP (N.T.S.)

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

BEAUFORT COUNTY

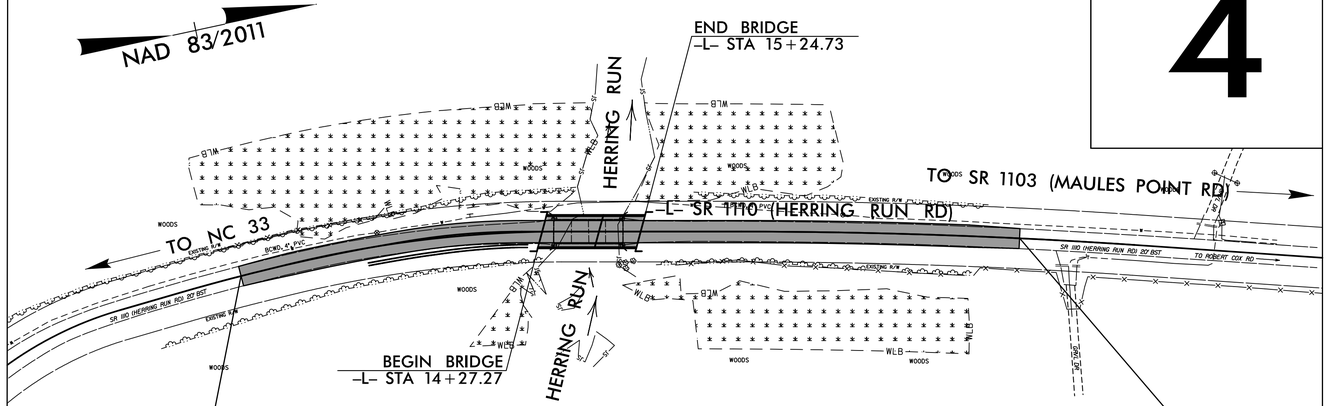
LOCATION: REPLACE BRIDGE NO. 10 OVER HERRING RUN ON SR 1110 (HERRING RUN RD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2-R008	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

NAD 83/2011



BEGIN PROJECT BP2–R008
–L– POC Sta. 11+25.00

END PROJECT BP2–R008
–L– POC Sta. 19+00.00

4

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

50 25 0 50 100

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.

HNTB

Prepared In the Office of:

HNTB HNTB NORTH CAROLINA, P.C.
4000 CENTER AT NORTH HILLS ST, SUITE 500
Raleigh, North Carolina 27609
NC License No: C-1554

Designed by:

NATALIE CHAN, P.E. *3444*

NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

SYSTIMEDATE
SYSNAME
USERNAME

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

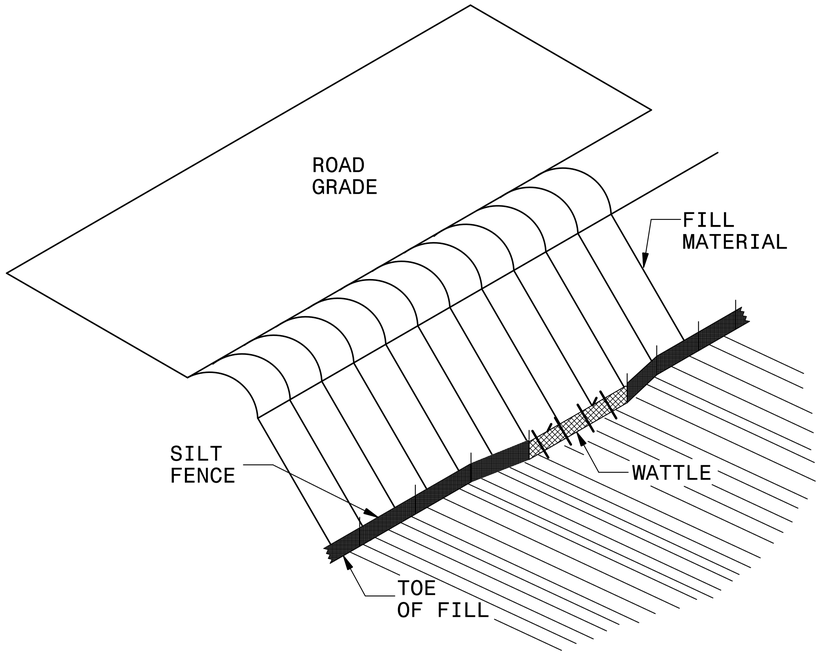
EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet Sediment Trap Type A	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

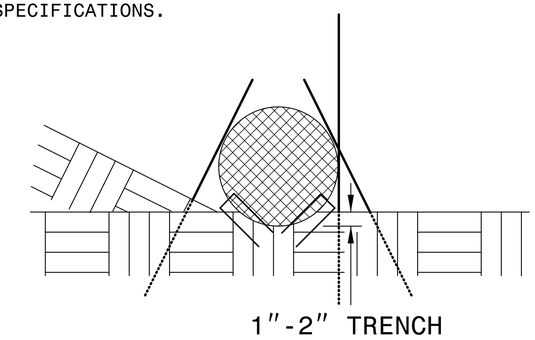
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

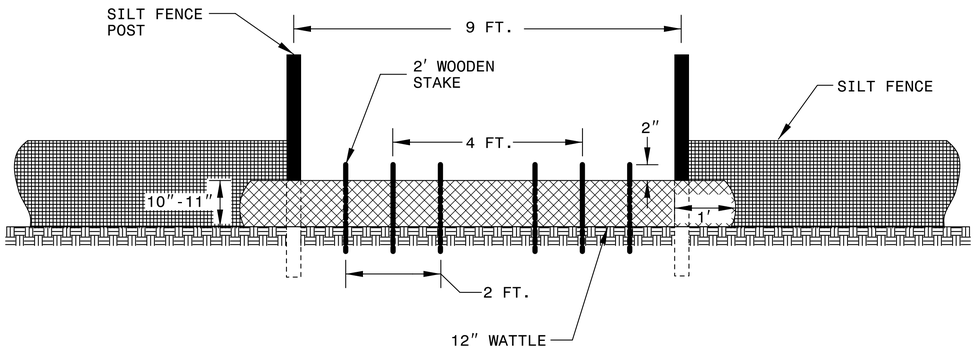
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

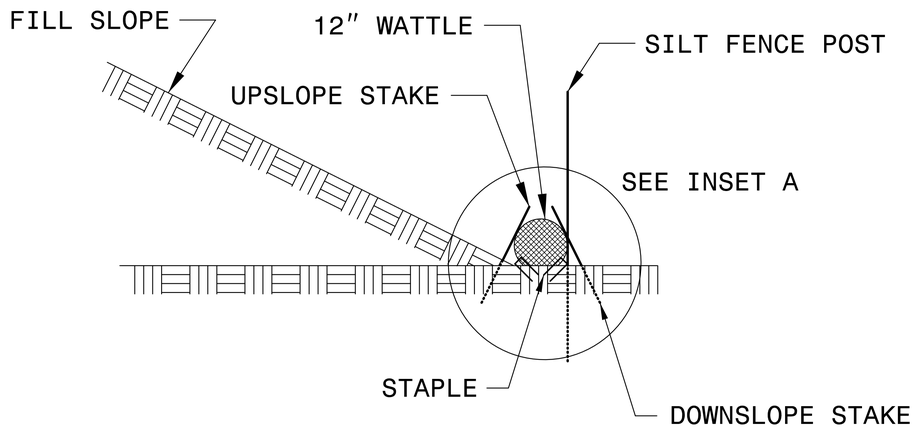
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





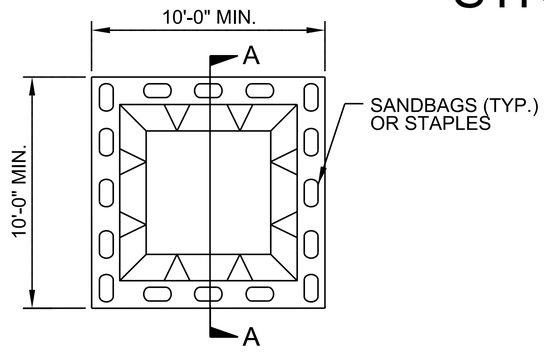
VIEW FROM SLOPE



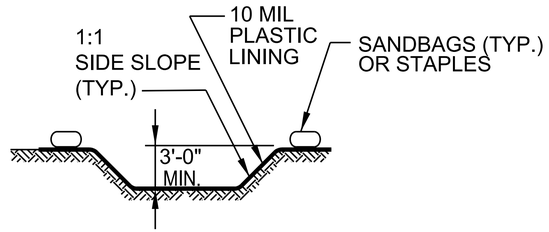
SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

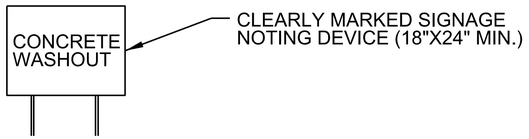
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A



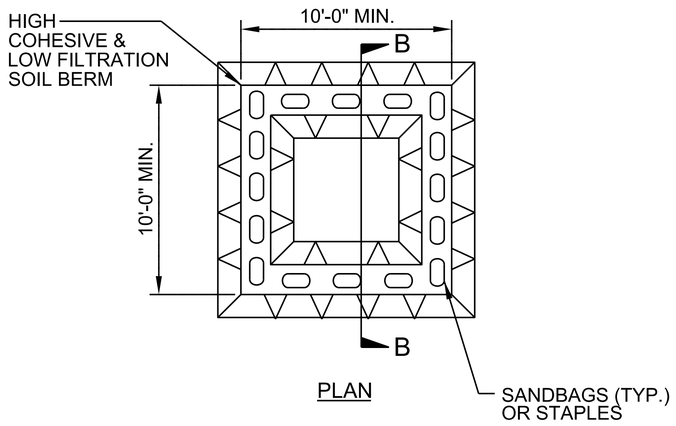
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

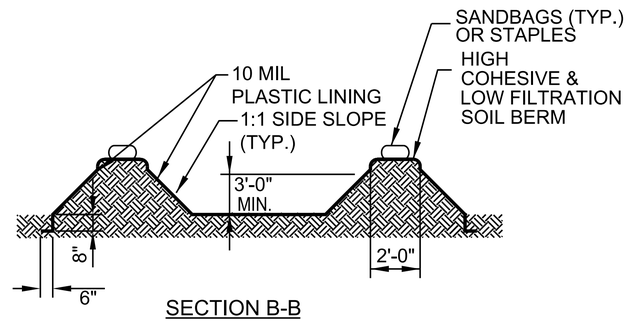
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE





SECTION B-B



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	13+00	14+09	RT	115
4	L	16+50	17+70	LT	100
				SUBTOTAL	215
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					2755
				TOTAL	2970
				SAY	3000

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

8/17/99

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE: NYLON MESH MATTING SHOULD NOT BE USED WITHIN 25 FT OF TOP OF STREAM BANK.

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

HNTB HNTB NORTH CAROLINA, P.C.
4000 CENTER AT NORTH HILLS ST, SUITE 500
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
BP2–R008	EC–4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

BEGIN PROJECT BP2–R008
–L– POC Sta. 11+25.00

–L– POT Sta. 10+00.00

BEGIN BRIDGE
–L– STA 14+27.27

BEGIN APPROACH SLAB
–L– STA 14+16.43

END BRIDGE
–L– STA 15+24.73

END APPROACH SLAB
–L– STA 15+35.57

IMPERVIOUS DIKE

CL "II" RIPRAP TO SHOULDER (TYP) (STRUCTURES PAY ITEM)

FLOODPLAIN BENCH W/ BANK STABILIZATION SEE DETAIL B1

Ex. BRIDGE #060010 TO BE REMOVED

50' TAPER TO EXIST

N 3°58'11.8" W

SR 1110 (HERRING RUN RD) 20' BST

WEYERHAEUSER CO ①

DEBORAH WILLIAMS ②

DAVID HAND
SHARON HAND ③

–L– PCC Sta. 12+95.48

–L– PC Sta. 10+65.39

–L– PT Sta. 14+07.17

–L– PC Sta. 16+24.38

–L– PT Sta. 20+14.00

END PROJECT BP2–R008
–L– POC Sta. 19+00.00

DO NOT DISTURB TREES

ROCK PLATING (RSD 275.01, DETAIL 1)

MODIFIED CONCRETE FLUME –L– STA. 13+24

CLASS 'B' RIP–RAP EST. 2 TONS

EST. 7 SYGF

SPECIAL LATERAL 'V' DITCH SEE DETAIL SLV1

HERRING RUN

BM #1

RETAIN

EXISTING MAG NAIL

TO ROBERT COX RD

NOTES: 1. THE CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AND UNDER THE BRIDGE, AS NEEDED OR DIRECTED BY THE ENGINEER.
2. THE OUTSIDE BUFFER, WETLAND OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).

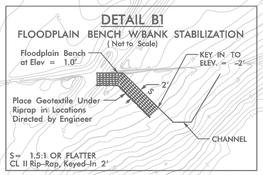
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NOTE: ALL RIP RAP SHALL BE GRANITE RIP RAP

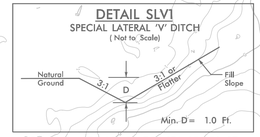
FOR –L– STRUCTURE, SEE SHEETS S–1 THRU S–18

END BENT 1: –L– 14+35 (65 TONS CL II, 115 SY GF)
END BENT 2: –L– 15+15 (40 TONS CL II, 77 SY GF)

DETAIL B1
FLOODPLAIN BENCH W/BANK STABILIZATION
(Not to Scale)



DETAIL SLV1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –L– STA. 16+50 TO STA. 17+70 RT

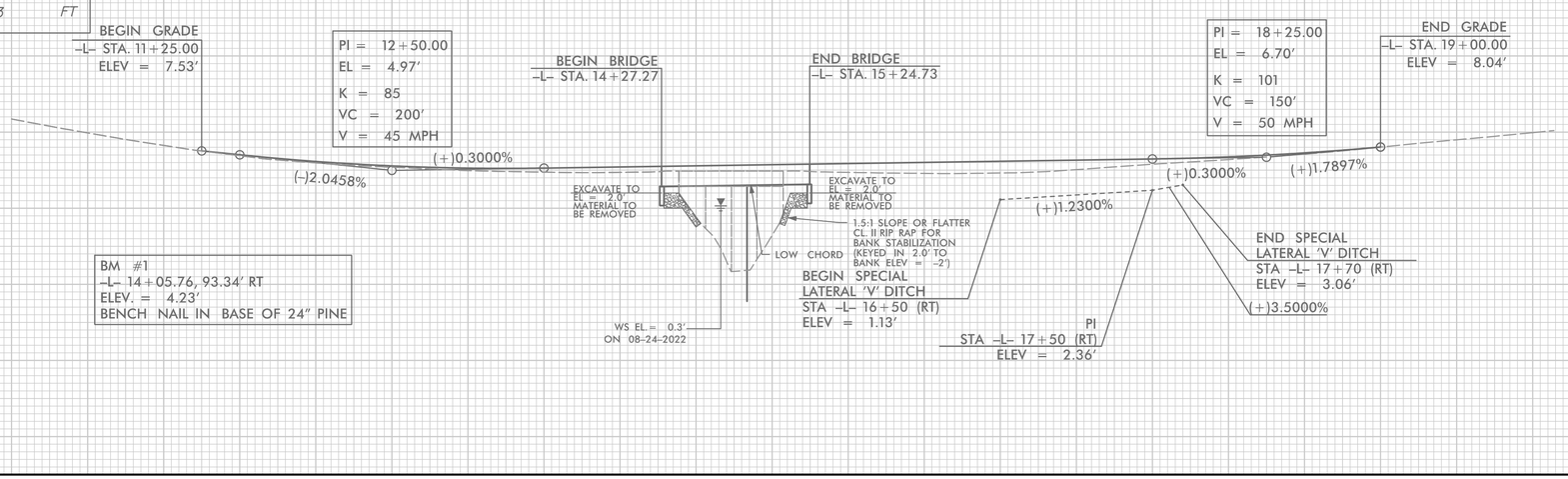
BRIDGE HYDRAULIC DATA
–L– 14+76

DRAINAGE AREA	= 12.1	SQ MI
DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2.6	FT
BASE DISCHARGE	= 1700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 3.8	FT
OVERTOPPING DISCHARGE	= >2790	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 6.00	FT
DATE OF SURVEY	= 8-24-2022	
W.S.ELEVATION AT DATE OF SURVEY	= 0.3	FT

-L-

DITCH LEGEND

RIGHT DITCH ----------



$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

8/17/99

NOTE: NYLON MESH MATTING SHOULD NOT BE USED WITHIN 25 FT OF TOP OF STREAM BANK.

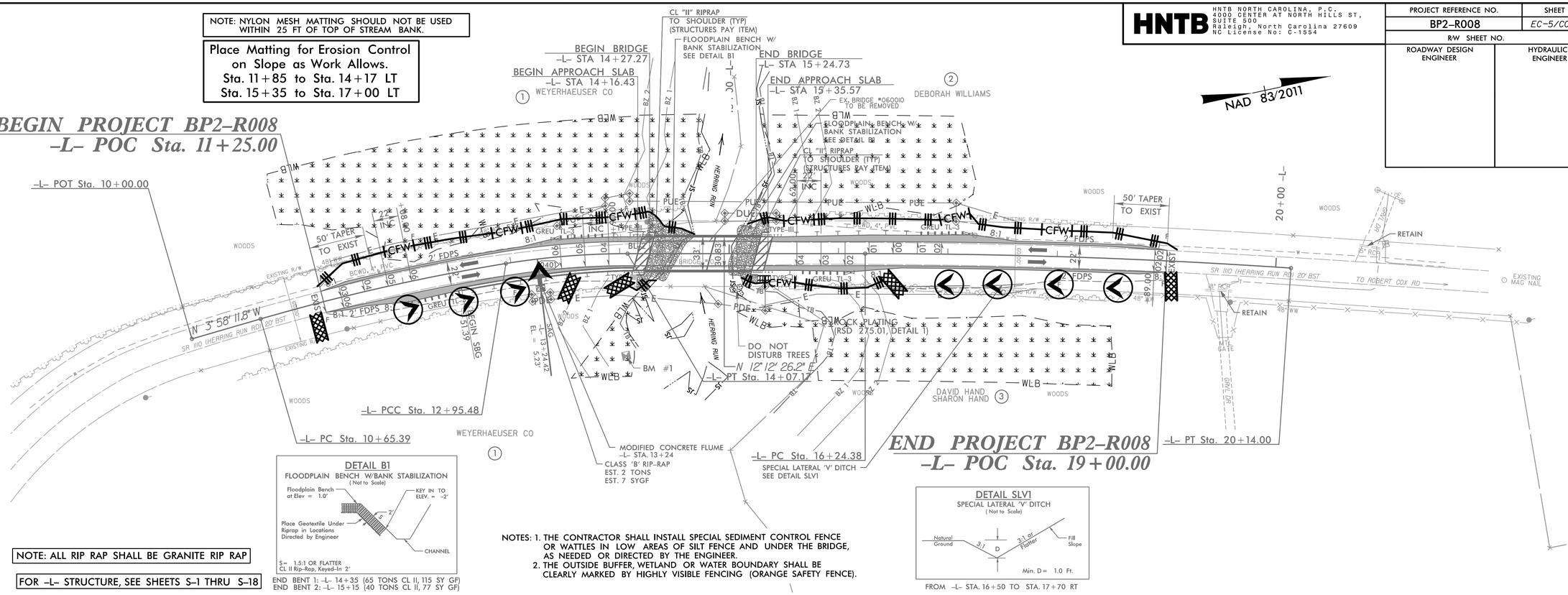
Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+85 to Sta. 14+17 LT
Sta. 15+35 to Sta. 17+00 LT

HNTB NORTH CAROLINA, P.C.
4000 CENTER AT NORTH HILLS ST, SUITE 500
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
BP2–R008	EC–5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

BEGIN PROJECT BP2–R008
–L– POC Sta. 11+25.00



END PROJECT BP2–R008
–L– POC Sta. 19+00.00

DETAIL B1
FLOODPLAIN BENCH W/BANK STABILIZATION
(Not to Scale)

END BENT 1: –L– 14+35 (65 TONS CL II, 115 SY GF)
END BENT 2: –L– 15+15 (40 TONS CL II, 77 SY GF)

NOTE: ALL RIP RAP SHALL BE GRANITE RIP RAP

FOR –L– STRUCTURE, SEE SHEETS S–1 THRU S–18

NOTES: 1. THE CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AND UNDER THE BRIDGE, AS NEEDED OR DIRECTED BY THE ENGINEER.
2. THE OUTSIDE BUFFER, WETLAND OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).

DETAIL SLV1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

FROM –L– STA. 16+50 TO STA. 17+70 RT

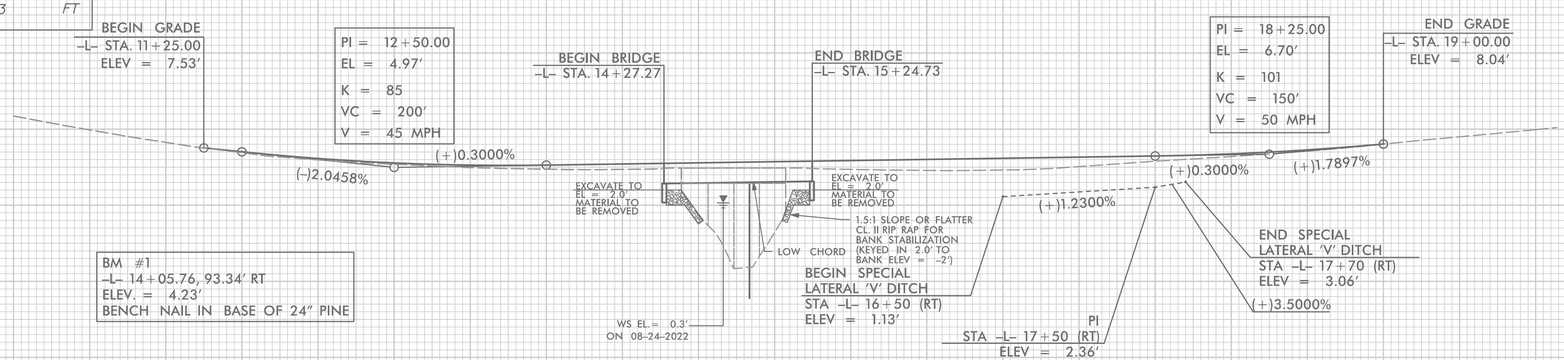
BRIDGE HYDRAULIC DATA
–L– 14+76

DRAINAGE AREA	= 12.1	SQ MI
DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2.6	FT
BASE DISCHARGE	= 1700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 3.8	FT
OVERTOPPING DISCHARGE	= >2790	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 6.00	FT
DATE OF SURVEY	= 8-24-2022	
W.S. ELEVATION AT DATE OF SURVEY	= 0.3	FT

-L-

DITCH LEGEND

RIGHT DITCH	----------



$$$$$$SYSTIME$$$$$$
$$$$$$USERNAME$$$$$$DGN$$$$$$

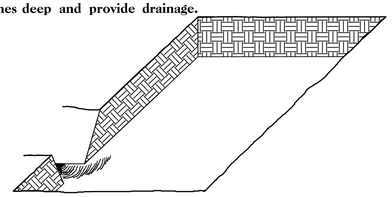
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2-R008	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

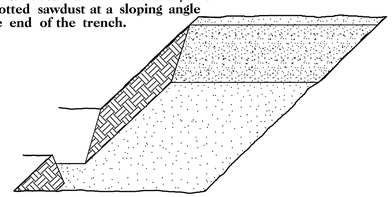
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

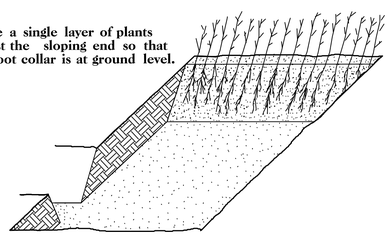
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



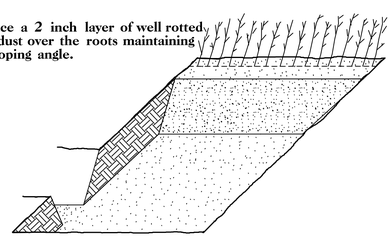
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

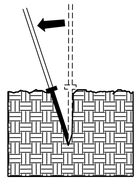


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

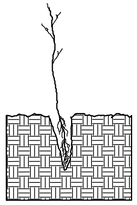


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

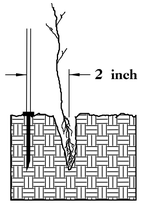
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



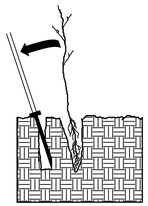
1. Insert planting bar as shown and pull handle toward planter.



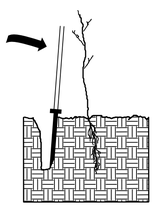
2. Remove planting bar and place seedling at correct depth.



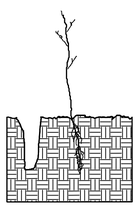
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

30% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
30% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
40% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR
		12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

Docusign Envelope ID: F38D0971-8A67-4008-AC4C-5C4B0AFF6025

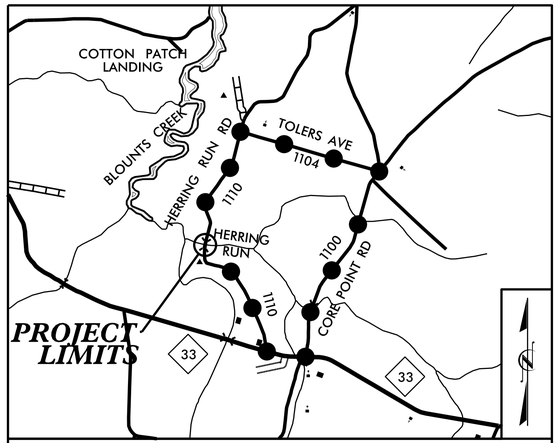
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3/16/2026
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CONTRACT: DB00629

TIP PROJECT: BP2–R008

T.I.P. NO.	SHEET NO.
BP2–R008	UC–01

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VICINITY MAP (N.T.S.)

OFFSITE DETOUR

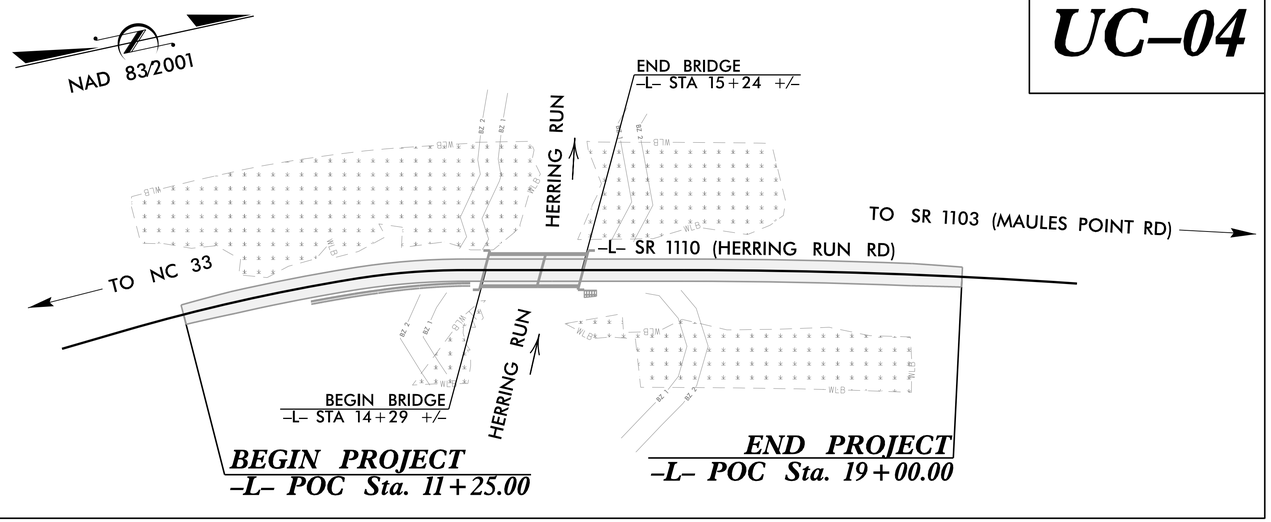
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

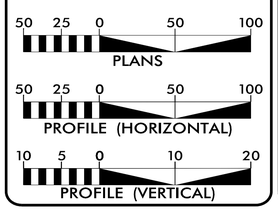
LOCATION: REPLACE BRIDGE NO. 10 OVER HERRING RUN ON SR 1110 (HERRING RUN RD)

TYPE OF WORK: WATER LINE RELOCATION

UC–04



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UC–01	*TITLE SHEET*
UC–02	*UTILITY SYMBOLOGY*
UC–03	*NOTES*
UC–03A THRU UC–03B	*DETAILS*
UC–04	*UTILITY PLAN / PROFILE SHEET*

WATER AND SEWER OWNERS ON PROJECT

(A) WATER LINE – BEAUFORT COUNTY WATER DEPARTMENT

PREPARED IN THE OFFICE OF
Weston & Sampson℠
WSE of North Carolina, PC
2052 Energy Drive
Apex, NC 27502
Phone: 919.297.0220
NC License: C-4847
FOR
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

KEVIN S. HUTCHENS, PE	*PROJECT ENGINEER*
M. HOOD /K. DOMINGUEZ	*PROJECT DESIGN ENGINEER*
JAMES A. FORBES	*PROJECT UTILITY MANAGER*

SEAL



DIVISION OF HIGHWAYS
HIGHWAY DIVISION 2
2815 ROUSE ROAD EXTENSION
KINSTON, NC 28504
PHONE (252) 775–6100
FAX (252) 208–7862

CATHRINE HOSSACK MEYER, PE	*DIVISION PROJECT ENGINEER*
MICHAEL AMAN, PE	*DIVISION PROJECT MANAGER*
DAVID KRAMER	*DIVISION UTILITY ENGINEER*
CHAD MILLS	*DIVISION UTILITY COORDINATOR*

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PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	UC-02

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — REH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PRFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RRFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

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5/14/99

UTILITY CONSTRUCTION

Weston & Sampson
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220
NC License: C-4647
Apex, NC 27502
westonandsampson.com

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	UC-03
DESIGNED BY: MTH	
DRAWN BY: MTH/KD	
CHECKED BY: JAF/KD	
APPROVED BY: KSH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 39283 ENGINEER KEVIN S. HUTCHENS 3/16/2026

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

2. THE EXISTING WATER LINE UTILITIES BELONG TO BEAUFORT COUNTY.

   CONTACT: ERICK JENNINGS
   PHONE: 252-402-6547

   EMAIL:ERICK.JENNINGS@CO.BEAUFORT.NC.US

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPROTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT NOTES:

1. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, STREAM, CREEK, WETLANDS, OR BUFFER ZONES.

2. PROPOSED WATER LINE FOR OPEN TRENCH CONSTRUCTION SHALL BE 4" DUCTILE IRON PIPE CLASS 350, OR SDR-21 PVC PIPE. PIPE JOINTS REQUIRING JOINT RESTRAINT SHALL BE DONE SO USING RESTRAINED JOINT CONSTRUCTION OR GRIP RINGS THAT PROVIDE FULL CIRCUMFERENTIAL PIPE RESTRAINT.

3. PROPOSED WATER LINE FOR DIRECTIONAL DRILLING SHALL BE FUSIBLE PVC C-900 DR-18 PRESSURE CLASS 235 PIPE THAT CONFORMS TO NSF-61.

4. ALL WATER LINE FITTINGS, 4-INCHES THROUGH 12-INCHES IN DIAMETER, SHALL BE DUCTILE IRON. WATER LINE FITTINGS SHALL BE OF THE SAME MANUFACTURER AS THE DUCTILE IRON PIPE. DUCTILE IRON FITTINGS SHALL BE PRESSURE CLASS 350.

5. ALL PROPOSED FITTINGS (BENDS, TEES, CROSSES, REDUCERS, PLUGS, ETC.) SHALL BE ADEQUATELY RESTRAINED BY THE USE OF RESTRAINED JOINT CONSTRUCTION, GRIP RINGS THAT PROVIDE FULL CIRCUMFERENTIAL PIPE RESTRAINT. CAST IN PLACE CONCRETE THRUST RESTRAINTS AS DETAILED ON THESE DRAWINGS SHALL ONLY BE USED WITH PRIOR APPROVAL BY THE RESIDENT ENGINEER.

6. ALL VALVES ON THE WATER LINE SHALL BE GATE VALVES WITH MECHANICAL JOINT ENDS.

7. IN THE EVENT THAT EXCESSIVE GROUND WATER OR SPRINGS ARE ENCOUNTERED DURING PIPE CONSTRUCTION, THE CONTRACTOR SHALL EMPLEY ALL METHODS NECESSARY TO KEEP THE TRENCHLESS DRY AS DIRECTED BY ENGINEER.

8. DOCUMENTS THAT MUST BE RECEIVED PRIOR TO BCWD SIGNING THE NCDEQ-PWSS APPLICANT CERTIFICATION INCLUDE THE FOLLOWING: BACTERIOLOGICAL TEST, PRESSURE TESTS, WARRANTY, AND AS-BUILT PLANS PROVIDED AS PDF FILES AND AN AUTOCAD (.DGN) FILES, LATEST VERSION OF AUTOCAD.

9. CONTRACTOR SHALL NOT OPERATE ANY VALVES ON THE EXISTING UTILITY SYSTEMS. CONTRACTOR SHALL CONTACT THE UTILITY OWNER TO CONDUCT STRATEGIC OPERATION OF VALVES FOR SERVICE INTERRUPTION IN ORDER TO PERFORM SPECIFIC WORK.

10. WORK SHALL BE PERFORMED BY THE HORIZONTAL DIRECTIONAL DRILL (HDD) TECHNIQUE. INSTALLATION TECHNIQUES AND DETAILS ARE CONTRACTOR'S RESPONSIBILITY AND MUST FULLY COMPLY WITH THE PIPE MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

11. THE CONTRACTOR IS RESPONSIBLE FOR HORIZONTAL AND VERTICAL ALIGNMENT OF THE PILOT DRILL AND FINAL INSTALLED PIPE. THE UTILITY CONTRACTOR SHALL SUBMIT ALL PROPOSED CHANGES TO THE VERTICAL ALIGNMENT SHOWN ON DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK.

12. CONTRACTOR SHALL DELIVER THE DRILLING LOG TO THE ENGINEER AS A PART OF FINAL AS-BUILT DRAWINGS.

13. THE UTILITY OWNER WILL COLLECT ALL BACTERIOLOGICAL SAMPLES FOR RELOCATION PROJECTS. THE UTILITY OWNER REPRESENTATIVE SHALL BE PRESENT FOR ALL PRESSURE TESTS, CHLORINATION, AND FLUSHING OF ALL NEW WATER LINES.

14. A 2" OR GREATER TEMPORARY BLOW-OFF SHALL BE INSTALLED FOR THE PURPOSE OF DISCHARGING SUPER-CHLORINATED WATER. ALL DISCHARCHED WATER SHALL BE DECHLORINATED. SEE DETAIL ON SHEET UC-03A.

14. THE UTILITY OWNER SHALL BE PROVIDED WITH TWO (2) COPIES OF SURVEYED AS-BUILTS OF THE INSTALLED UTILITY - (1) PAPER COPY AND (1) ELECTRONIC. THE AS-BUILTS SHALL INCLUDE NOTATIONS OF THE SIZE AND TYPE OF MATERIAL INSTALLED; GPS COORDINATES FOR ALL-FITTINGS, UTILITY CONTROLS, AND THE HORIZONTAL AND VERTCAL LOCATIONS OF THE PIPING. PROVIDE BORING LOGS FROM TRENCHLESS INSTALLATIONS.

15. CONTRACTOR SHALL ADHERE TO SECTION 1530 "ABANDON OR REMOVE UTILITIES" FOR ABANDOMENT OF PIPE, UNLESS OTHERWISE SPECIFIED.

14. THE UTILITY OWNER SHALL OPEN AND CLOSE ALL VALVES.

15. TWO (2) TRACER WIRES MUST BE ATTACHED TO FUSIBLE HDD PVC AS REQUIRED BY NC GENERAL STATUTES CHAPTER 87-121G. USE #12 AWG SOLID-COPPER WIRE WITH BLUE INSTALLATION FOR TRACER WIRE. THE UTILITY OWNER WILL CONDUCT A CONTINUITY TEST ON ALL TRACER WIRE AFTER INSTALLATION.

3/16/2026
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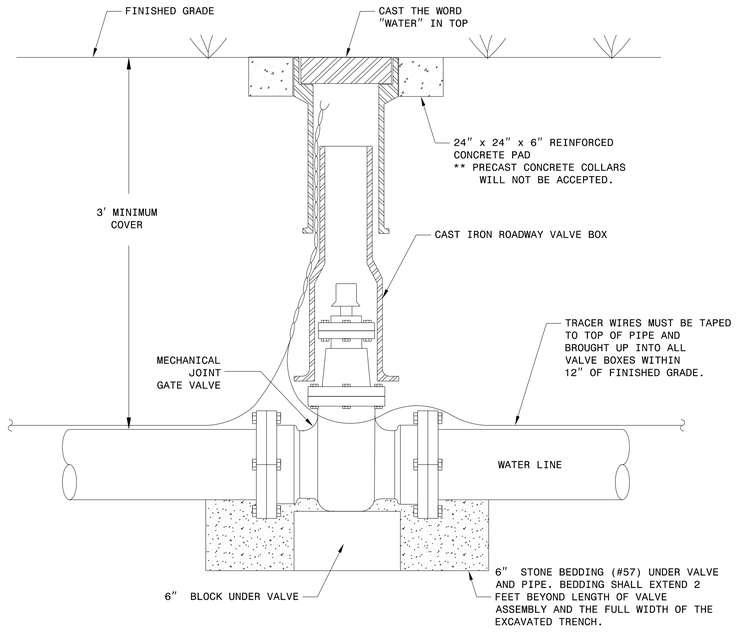
Weston & Sampson
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220
NC License: C-4647
Apex, NC 27502
westonandsampson.com

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	UC-03A
DESIGNED BY: MTH	
DRAWN BY: MTH/KD	
CHECKED BY: JAF/KD	
APPROVED BY: KSH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

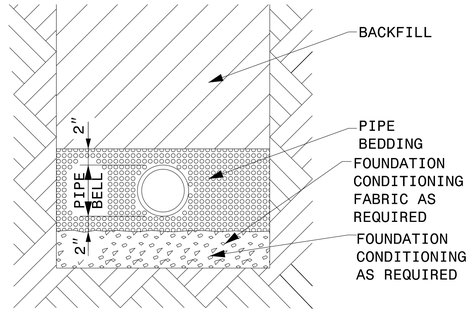
NORTH CAROLINA PROFESSIONAL SEAL 39203 ENGINEER KEVIN S. HUTCHENS 3/16/2026

UTILITY CONSTRUCTION

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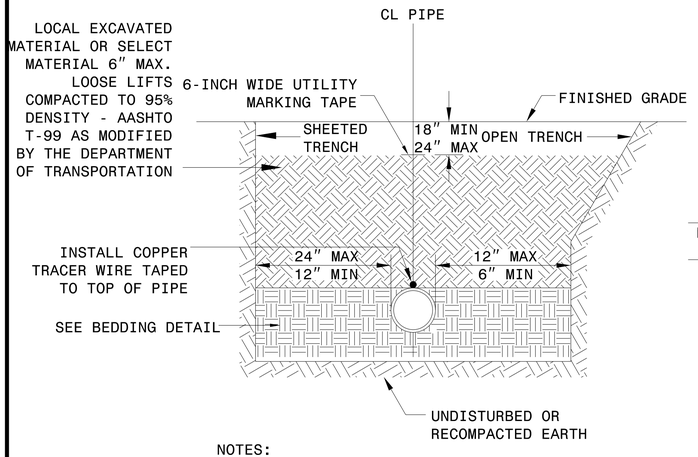


GATE VALVE DETAIL
NOT TO SCALE



NOTES:
1. PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER.
2. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III.
3. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
4. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

PIPE BEDDING DETAIL
NOT TO SCALE

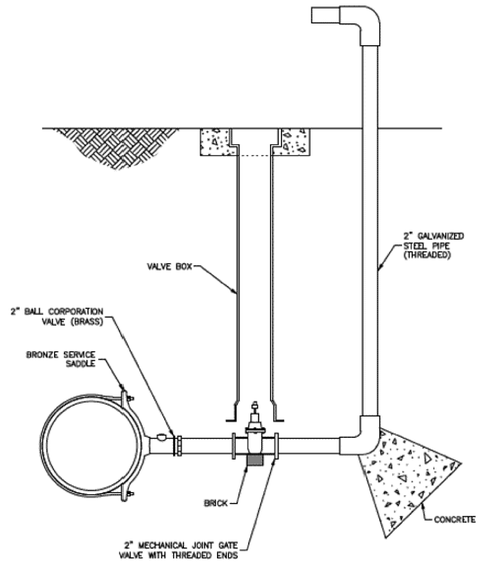


NOTES:
1. ALL SHORING & TRENCHING SHALL COMPLY WITH OSHA SAFETY STANDARDS FOR THE CONSTRUCTION INDUSTRY.
2. BELL HOLES NOT SHOWN.
3. ALL BACKFILL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.

GENERAL TRENCH DETAIL
NOT TO SCALE

MAXIMUM OPEN TRENCH WIDTH AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	NOMINAL PIPE SIZE (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		



NOTES:
1. CONTRACTOR SHALL REMOVE TEMPORARY BLOW-OFF FOLLOWING FLUSHING AND CHLORINATION OF NEW WATER LINE.
2. BALL CORPORATION VALVE IS TO BE PLUGGED OR CAPPED FOLLOWING REMOVAL OF TEMPORARY BLOW-OFF.

2" TEMPORARY BLOW OFF DETAIL
NOT TO SCALE

NOT TO SCALE

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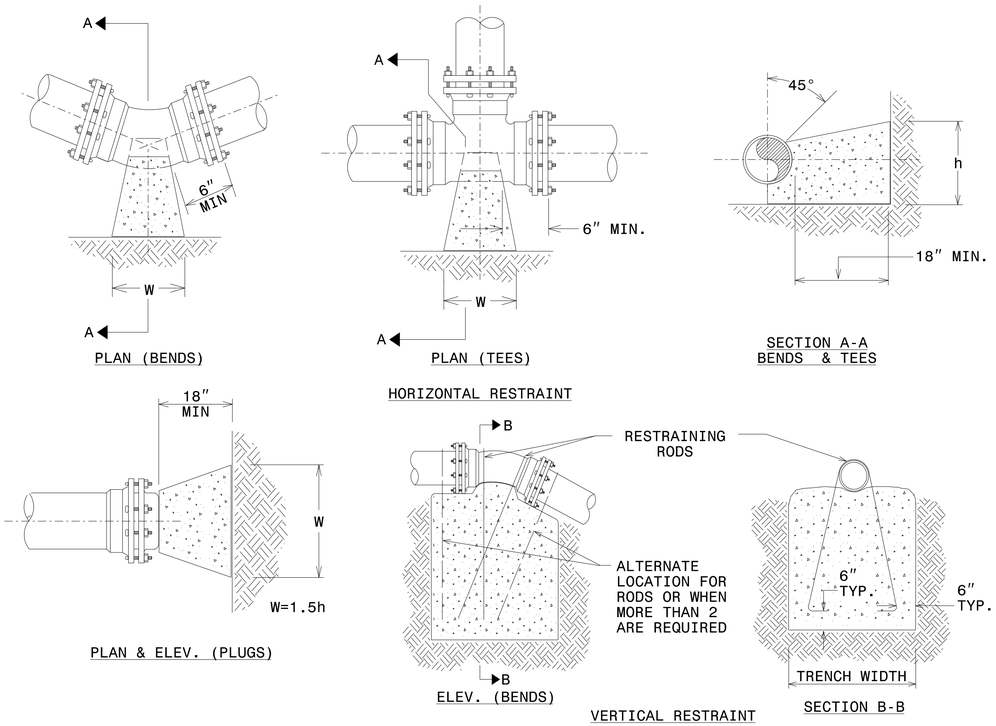
Weston & Sampson
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220
NC License: C-4647
Apex, NC 27502
westonandsampson.com

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	UC-03B
DESIGNED BY: MTH	
DRAWN BY: MTH/KD	
CHECKED BY: KSH	
APPROVED BY: JAF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 39243 ENGINEER KEVIN S. HUTCHENS 8/4/2026

UTILITY CONSTRUCTION

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THRUST RESTRAINT FOR PIPE LINES

NOT TO SCALE

BASED ON TEST PRESSURE OF 200 P.S.I.

HORIZONTAL RESTRAINT

(ALL AREAS GIVEN ARE IN SQUARE FEET)

PIPE SIZE	DEGREE OF BEND	LBS. STATIC THRUST *	ALLOWABLE SOIL BEARING (PSF)							
			1000	2000	3000	4000	5000	6000	7000	8000
4"	11.25°	616	1	1	1	1	1	1	1	1
	22.5°	1226	1	1	1	1	1	1	1	1
	45°	2405	2	1	1	1	1	1	1	1
	90°	4444	4	2	1	1	1	1	1	1
	TEE/PLUG	3143	3	2	1	1	1	1	1	1
6"	11.25°	1385	2	1	1	1	1	1	1	1
	22.5°	2758	3	2	1	1	1	1	1	1
	45°	5409	5	3	2	2	1	1	1	1
	90°	9999	10	5	3	3	2	2	2	1
	TEE/PLUG	7068	7	4	3	2	2	1	1	1
8"	11.25°	2424	3	1	1	1	1	1	1	1
	22.5°	4904	5	3	2	1	1	1	1	1
	45°	9619	10	5	3	2	2	2	2	1
	90°	17773	18	9	6	4	4	3	3	2
	TEE/PLUG	12568	13	6	4	3	3	2	2	2
10"	11.25°	3846	4	2	2	1	1	1	1	1
	22.5°	7661	8	4	3	2	2	2	1	1
	45°	15028	15	8	5	4	3	3	2	2
	90°	27768	28	14	9	7	6	5	4	3
	TEE/PLUG	19635	20	10	7	5	4	3	3	2
12"	11.25°	5543	6	3	2	2	1	1	1	1
	22.5°	11032	11	6	4	3	2	2	2	2
	45°	21641	22	11	7	5	4	4	3	3
	90°	39987	40	20	13	10	8	7	6	5
	TEE/PLUG	28274	28	14	9	7	6	5	4	4
14"	11.25°	7544	8	4	3	2	2	2	1	1
	22.5°	15016	15	8	5	4	3	3	2	2
	45°	29455	29	15	10	7	6	5	4	4
	90°	54426	54	27	18	14	11	9	8	7
	TEE/PLUG	38485	38	19	13	10	8	6	5	5
16"	11.25°	9854	10	5	3	3	2	2	2	2
	22.5°	19612	20	10	7	5	4	3	3	3
	45°	38471	38	17	13	10	8	6	5	5
	90°	71085	71	36	24	18	14	12	10	9
	TEE/PLUG	50265	50	25	17	13	10	8	7	6

*INCLUDES 1.50 SAFETY FACTOR

VERTICAL RESTRAINT

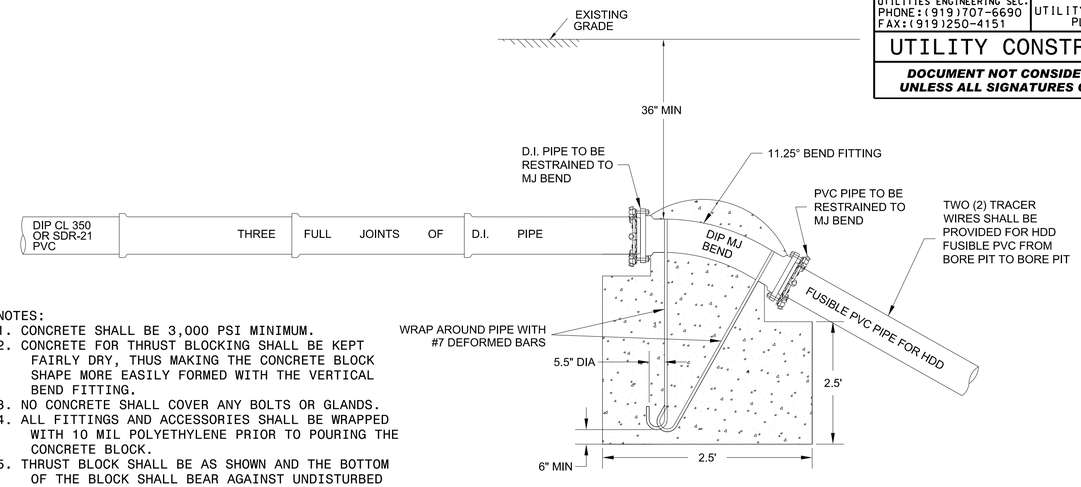
(ALL VOLUMES GIVEN ARE IN CUBIC YARDS)**

PIPE SIZE	RESTRAINING RODS		DEGREE OF BEND		
	NO. REQ'D	DIA.	11.25°	22.5°	45°
4"	2	½"	0.25	0.50	0.75
6"	2	½"	0.50	1.00	1.75
8"	2	⅝"	0.75	1.50	3.00
10"	2	¾"	1.25	2.25	4.50
12"	2	⅞"	1.75	3.25	6.50
14"	4	⅝"	2.25	4.50	8.75
16"	4	¾"	3.00	6.00	11.5

**INCLUDES 1.50 SAFETY FACTOR

NOTES:
1. CONCRETE SHALL BE CLASS "B".
2. CONCRETE SHALL NOT CONTACT BOLTS ENDS OF MECHANICAL JOINT FITTINGS.
3. CONSULT WITH ENGINEER FOR CONCRETE REQUIREMENTS ON MAINS LARGER THAN 16 INCHES.(FOR VERTICAL & HORIZONTAL BENDS)
4. ALLOWABLE SOIL BEARING SHALL BE DETERMINED BY THE ENGINEER.

THRUST RESTRAINT FOR WATER MAINS



NOTES:
1. CONCRETE SHALL BE 3,000 PSI MINIMUM.
2. CONCRETE FOR THRUST BLOCKING SHALL BE KEPT FAIRLY DRY, THUS MAKING THE CONCRETE BLOCK SHAPE MORE EASILY FORMED WITH THE VERTICAL BEND FITTING.
3. NO CONCRETE SHALL COVER ANY BOLTS OR GLANDS.
4. ALL FITTINGS AND ACCESSORIES SHALL BE WRAPPED WITH 10 MIL POLYETHYLENE PRIOR TO POURING THE CONCRETE BLOCK.
5. THRUST BLOCK SHALL BE AS SHOWN AND THE BOTTOM OF THE BLOCK SHALL BEAR AGAINST UNDISTURBED SOIL.

OPEN-CUT PIPE TO HDD FUSIBLE PVC PIPE TRANSITION ASSEMBLY

NOT TO SCALE

RESTRAINED JOINT LENGTH TABLE FOR 4" D.I. PIPE (BARE)

FITTING TYPE	REQUIRED LENGTH (IN FEET) OF RESTRAINT PER DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
11.25° HOR.	2	2	1	1	1	1	1	1
22.5° HOR.	3	3	2	2	2	2	2	2
45° HOR.	6	5	4	4	4	3	3	3
11.25° DOWN	4	3	3	2	2	2	2	2
22.5° DOWN	7	6	5	4	4	3	3	3
45° DOWN	13	11	9	8	7	7	6	6
11.25° UP	X	2	1	1	1	1	1	1
22.5° UP	X	3	2	2	2	2	2	2
45° UP	X	5	4	4	4	3	3	3

DESIGN ASSUMPTIONS:

PIPE LAYING CONDITION = TYPE 4
SOIL DESIGNATION = GC = COHESIVE GRANULAR
DESIGN PRESSURE = 200 PSI
SAFETY FACTOR = 1.5

NOTES:
1. RESTRAINED LENGTH IS MEASURED FROM THE CENTER OF THE BEND AS FOLLOWS:
   A. HORIZONTAL AND VERTICAL BENDS: ALONG EACH SIDE OF BEND.
   B. HORIZONTAL AND VERTICAL BENDS - OFFSET OR COMBINED: ALONG THE OUTER SIDE OF EACH BEND. ALL PIPE BETWEEN THE TWO BENDS SHALL BE RESTRAINED JOINT WHEN THE DISTANCE BETWEEN THEM IS EQUAL TO OR LESS THAN THE REQUIRED RESTRAINED LENGTH SHALL BE ADDED ON TO THE LENGTH ALONG THE OUTSIDE OF EACH BEND RESPECTIVELY TO MAKE UP FOR THE DEFICIENCY IN THAT DIRECTION.
2. WHEN IT IS NOT POSSIBLE TO INSTALL THE RESTRAINED LENGTHS AS NOTED BY THIS TABLE, THE CONTRACTOR SHALL INSTALL THE APPROPRIATE CONCRETE THRUST RESTRAINT AS PER THE DETAILS HEREIN.

RESTRAINED JOINT LENGTH TABLE FOR 4" PVC PIPE

FITTING TYPE	REQUIRED LENGTH (IN FEET) OF RESTRAINT PER DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
11.25° HOR.	2	2	2	1	1	1	1	1
22.5° HOR.	4	3	3	3	2	2	2	2
45° HOR.	7	5	5	5	4	4	4	3
11.25° DOWN	6	5	4	4	3	3	3	3
22.5° DOWN	12	10	8	7	6	6	5	5
45° DOWN	24	20	17	15	13	12	11	10
11.25° UP	X	3	2	1	1	1	1	1
22.5° UP	X	3	3	3	2	2	2	2
45° UP	X	6	5	5	4	4	4	3

DESIGN ASSUMPTIONS:

PIPE LAYING CONDITION = TYPE 4
SOIL DESIGNATION = GC = COHESIVE GRANULAR
DESIGN PRESSURE = 200 PSI
SAFETY FACTOR = 1.5

NOTES:
1. RESTRAINED LENGTH IS MEASURED FROM THE CENTER OF THE BEND AS FOLLOWS:
   A. HORIZONTAL AND VERTICAL BENDS: ALONG EACH SIDE OF BEND.
   B. HORIZONTAL AND VERTICAL BENDS - OFFSET OR COMBINED: ALONG THE OUTER SIDE OF EACH BEND. ALL PIPE BETWEEN THE TWO BENDS SHALL BE RESTRAINED JOINT WHEN THE DISTANCE BETWEEN THEM IS EQUAL TO OR LESS THAN THE REQUIRED RESTRAINED LENGTH SHALL BE ADDED ON TO THE LENGTH ALONG THE OUTSIDE OF EACH BEND RESPECTIVELY TO MAKE UP FOR THE DEFICIENCY IN THAT DIRECTION.
2. WHEN IT IS NOT POSSIBLE TO INSTALL THE RESTRAINED LENGTHS AS NOTED BY THIS TABLE, THE CONTRACTOR SHALL INSTALL THE APPROPRIATE CONCRETE THRUST RESTRAINT AS PER THE DETAILS HEREIN.

8/17/99
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THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 300 LBS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

CURVATURE ABBREVIATIONS:
PC-W1B VERT. = SECOND VERTICAL POINT-OF-CURVATURE ALONG WL-01

PT-W1B VERT. = SECOND VERTICAL POINT-OF-TANGENCY ALONG WL-01

WL-01
4" WATER LINE - 218 LF
4" VALVE - 2 EACH
4" WATER LINE - 372 LF [TL INSTALL]
DIRECTIONAL DRILLING OF 4" - 372 LF

PC-W1A VERT.
R=1050'
PC-W1A HORZ.
PC-W1B VERT.
PT-W1A HORZ.
PT-W1A VERT.
PT-W1B VERT.

STA. 11+00.00
-L- 12+84.61 LT 22.28
4" 11.25° VERT. BEND
4" DIP - THREE FULL JOINTS. SEE DETAIL SHEET UC-3B

STA. 14+71.38
-L- 16+52.13 LT 24.07
4" 11.25° VERT. BEND
4" DIP - THREE FULL JOINTS. SEE DETAIL SHEET UC-3B

STA. 15+54.94
-L- STA. 17+35.33 LT 25.08
4" 22.5° HORZ. BEND

STA. 15+84.10
-L- STA. 17+62.41 LT 14.51
4" 22.5° HORZ. BEND

STA. 15+89.10
-L- STA. 17+67.40
LT 14.59
TIE-IN TO EX.
4" WL W/ VALVE

STA. 10+00.00
-L- STA. 11+87.73
LT 14.58
TIE-IN TO EX.
4" WL W/ VALVE

STA. 10+35.64
-L- 12+21.10 LT 25.25
4" 22.5° HORZ. BEND

STA. 10+05.00
-L- STA. 11+92.70 LT 14.53
4" 22.5° HORZ. BEND

ABANDON 4" UTILITY PIPE - 585 LF

WEYERHAEUSER CO
DB 922 PG 112

DEBORAH WILLIAMS
DB 667 PG 362

DAVID HAND
SHARON HAND
DB 2053 PG 560

NAD 83/2011

WATER / SANITARY SEWER UTILITY OWNERS ON THIS SHEET:
BEAUFORT COUNTY WATER DEPT
EXISTING UTILITIES:
WATER LINE: 4"
CONTACT:
ERICK JENNINGS
PHONE: 252-402-6547

Weston & Sampson
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220
NC License: C-4847
Apex, NC 27502
westonandsampson.com

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	UC-04
DESIGNED BY: MTH	
DRAWN BY: MTH	
CHECKED BY: KSH	
APPROVED BY: JAF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 39283 ENGINEER KEVIN S. HUTCHENS 3/16/2026

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROPOSED RIP RAP CL II
PROPOSED RIP RAP CL II
EXISTING GROUND
PROPOSED GROUND
BUFFER ZONE 2 STA. 12+22.60
BUFFER ZONE 2 STA. 13+91.63
EX. 4" WL PER TEST HOLES
BORE PIT SIZE DETERMINE BY CONTRACTOR
BORE PIT SIZE DETERMINE BY CONTRACTOR
THEORETICAL 100 YR SCOUR
WS EL = 0.3' ON 08-24-2022
R=250'
R=250'
4" FUSIBLE PVC
4" FUSIBLE PVC

STA. 10+00.00
-L- 11+87.73 LT 14.58
TIE-IN TO EX.
4" WL W/ VALVE
ELEV. 2.47

STA. 10+05.00
-L- 11+92.70 LT 14.53
22.5° HORZ. BEND
ELEV. 2.37

STA. 10+35.64
-L- 12+21.10 LT 25.25
22.5° HORZ. BEND
ELEV. 0.52
4" DIP - THREE FULL JOINTS. SEE DETAIL SHEET UC-3B

STA. 11+00.00
-L- 12+84.61 LT 22.28
11.25° VERT. BEND
ELEV. 0.92

STA. 11+20.64
-L- 13+04.82 LT 21.82
PC-W1A HORZ.
ELEV. -3.09

STA. 12+10.64
-L- 13+92.03 LT 22.73
PC-W1A VERT.
ELEV. -20.58

STA. 12+58.35
-L- 14+39.23 LT 23.98
PT-W1A VERT.
ELEV. -25.18

STA. 12+65.63
-L- 14+46.49 LT 24.00
PT-W1A HORZ.
ELEV. -25.18

STA. 13+15.35
-L- 14+96.22 LT 24.00
PC-W1B VERT.
ELEV. -25.18

STA. 13+63.05
-L- 15+43.92 LT 24.00
PT-W1B VERT.
ELEV. -20.58

STA. 14+71.38
-L- 16+52.13 LT 24.07
11.25° VERT. BEND
ELEV. 0.47

STA. 15+54.94
-L- 17+35.33 LT 25.08
22.5° HORZ. BEND
ELEV. 0.02

STA. 15+84.10
-L- 17+62.41 LT 14.51
22.5° HORZ. BEND
ELEV. 2.12

STA. 15+89.10
-L- 17+67.40 LT 14.59
TIE-IN TO EX.
4" WL W/ VALVE
ELEV. 2.22

40 30 20 10 0 −10 −20 −30 −40 −50
10+00 11+00 12+00 13+00 14+00 15+00 16+00

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

NOTES:
1. PIPE TO BE INSTALLED WITH 3 FEET MINIMUM COVER TO TOP OF PIPE.
2. TRENCHLESS INSTALLATION SHALL PROVIDE 5 FEET MINIMUM COVER FROM 100 YEAR SCOUR BED ELEVATION TO TOP OF PIPE OR 15 FEET MINIMUM COVER FROM BOTTOM OF STREAM TO TOP OF PIPE, WHICHEVER IS GREATER.
3. ALL PROPOSED PIPE ELEVATIONS IN PROFILE REFER TO CENTER OF PIPE.
4. WATER LINE SHALL BE INSTALLED A MINIMUM OF 5 FEET INSIDE EXISTING RIGHT OF WAY UNLESS OTHERWISE INDICATED.
5. EXISTING PIPE ELEVATION AT TIE-IN LOCATIONS ARE ESTIMATED BASED ON TEST HOLE REPORT PROVIDED BY OTHERS. CONTRACTOR SHALL VERIFY PIPE LOCATION BEFORE STARTING WORK.
6. PRIOR TO COMMENCING ANY WORK ON ANY TRENCHLESS INSTALLATION ON THIS PROJECT, THE CONTRACTOR SHALL PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION THAT IS CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2024.

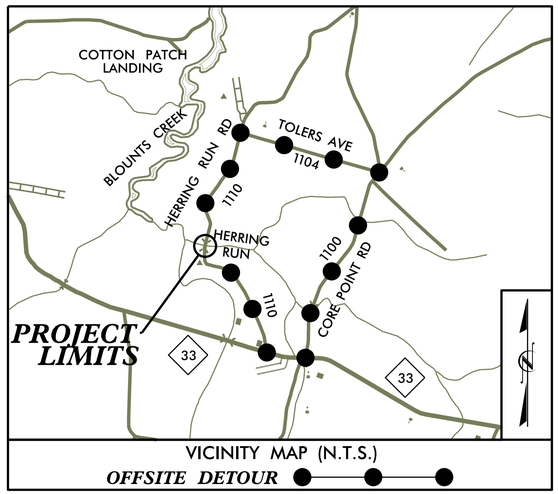
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09/08/99

TIP PROJECT: BP2–R008

CONTRACT:

See Sheet 1A For Index of Sheets



DESIGN RECOMMENDATION PLAN SET

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

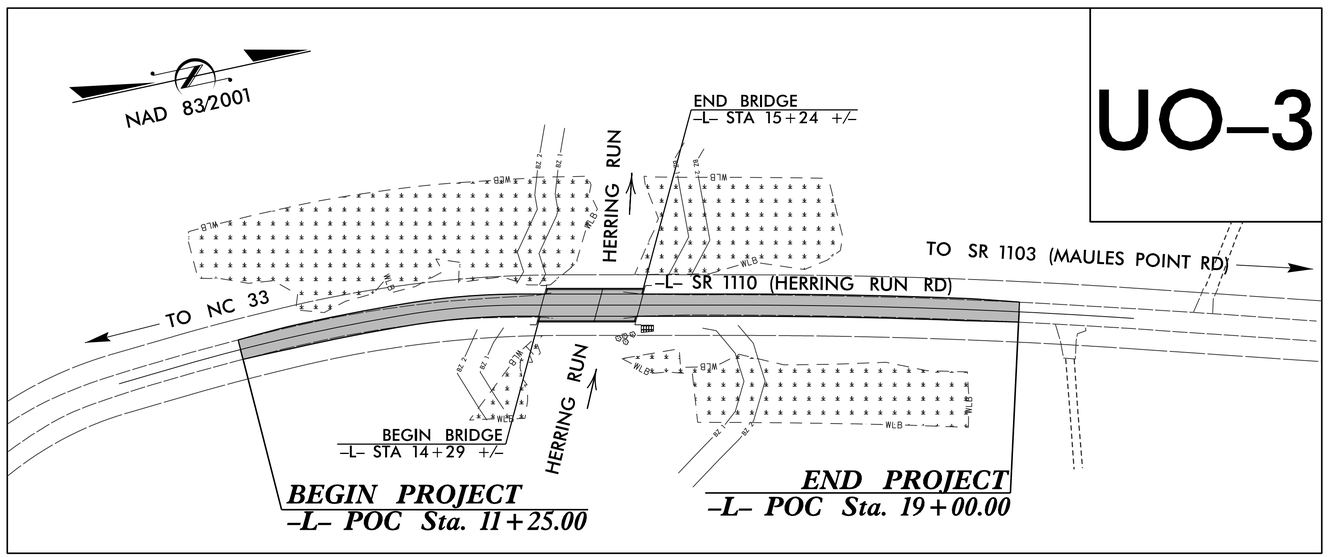
T.I.P. NO.	SHEET NO.
BP2–R008	UO–1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

UTILITIES BY OTHERS PLANS
BEAUFORT COUNTY

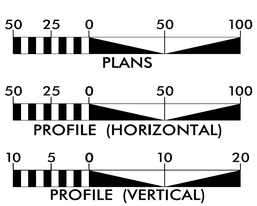
LOCATION: REPLACE BRIDGE NO. 10 OVER HERRING RUN CREEK ON SR 1110 (HERRING RUN RD)

TYPE OF WORK: UTILITY RELOCATION



UO–3

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UO–1	*TITLE SHEET*
UO–02	*SYMBOLOGY*
UO–03	*UTILITIES BY OTHERS SHEETS*

UTILITY OWNERS WITH CONFLICTS

(A) POWER – TIDELAND EMC

PREPARED IN THE OFFICE OF:

Weston & Sampson™
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220
NC License: C-4647
Apex, NC 27502
westonandsampson.com

JIM FORBES	*PROJECT UTILITY COORD. MANAGER*
D. VONDENHUEVEL	*PROJECT UTILITY COORDINATOR*
	PROJECT UTILITY ENGINEER

DIVISION OF HIGHWAYS
UTILITIES UNIT
HIGWAY DIVISION 2
2815 ROUSE ROAD EXTENSION
KINGSTON NC 28504
PHONE (252) 775–6100
FAX (252) 208–7862

CATHRINE HOSSACK MEYER, PE	*DIVISION PROJECT ENGINEER*
MICHAEL AMAN, PE	*DIVISION PROJECT MANAGER*
DAVID KRAMER	*DIVISION UTILITY ENGINEER*
CHAD MILLS	*DIVISION UTILITY COORDINATOR*

3/16/2026
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	UO-2

Weston & Sampson
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220
NC License: C-4647
Apex, NC 27502
westonandsampson.com

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT

- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

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Weston & Sampson
WSE of North Carolina, PC
2052 Energy Drive
Phone: 919.297.0220
NC License: C-4647
Apex, NC 27502
westonandsampson.com

PROJECT REFERENCE NO.	SHEET NO.
BP2-R008	UO-3
THIS SHEET CORRESPONDS TO RDY- 4	

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

NAD 83/2011

TIDELAND EMC - EXIST OH POWER LINE & POLE TO BE REMOVED

TIDELAND EMC - PROP OH POWER LINE & POLE

TIDELAND EMC - PROP OH POWER LINE TO REPLACEMENT POLE

TIDELAND EMC - EXIST OH POWER LINE & POLE

TIDELAND EMC - PROP OH POWER LINE TO EXIST POLE

TIDELAND EMC - EXIST OH POWER LINE & POLE

TIDELAND EMC - EXIST OH POWER LINE & POLE

BEGIN PROJECT BP2-R008
-L- POC Sta. 11+25.00

END PROJECT BP2-R008
-L- POC Sta. 19+00.00

-L- POT Sta. 10+00.00

-L- PT Sta. 20+14.00

BEGIN BRIDGE
-L- STA 14+27.27

BEGIN APPROACH SLAB
-L- STA 14+16.43

END BRIDGE
-L- STA 15+24.73

END APPROACH SLAB
-L- STA 15+35.57

BEGIN SBG 51+39

DO NOT DISTURB TREES

ROCK PLATING (RSD 275.01, DETAIL 1)

WEYERHAEUSER CO (1)

DEBORAH WILLIAMS (2)

DAVID HAND
SHARON HAND (3)

SR 1110 (HERRING RUN RD) 20' BST

TO ROBERT COX RD

EXISTING MAG NAIL

WOODS

RETAIN

2' FDPS

BCWD, 4" PVC

PROP OH POWER LINE

EXISTING R/W

48" WW

8" RCP

15" RCP

24" RCP

HERRING RUN

WLB

PDE

PUE

TYPE-III

GREU TL-3

-L-

	10+00	11+00	12+00	13+00	14+00	15+00	16+00	17+00	18+00	19+00	20+00
30′											
20′	BEGIN GRADE -L- STA. 11+25.00 ELEV = 7.53′										END GRADE -L- STA. 19+00.00 ELEV = 8.04′
10′											
0′											
–10′											

EXIST POWER POLE

PROP OH POWER POLE

PROP OH POWER LINE

EXIST OH POWER LINE

EXIST SAG ELEV.= 27.41′

PROP. OH POWER APPROX. ELEV.= 34.5′

EXIST SAG ELEV.= 26.33′

REMOVE & REPLACE POWER POLE

LOW CHORD

WS EL.= 0.3′ ON 08-24-2022

3/16/2026
\\Mac\Local\WSE\Projects\NC\HNTB\Division 2\ENG22-0435.BP2.R008.1.BR-010.Beaufort\Utilities\Coordination\Ub0\BP2R008_utl_pf1.dgn
8/17/99

PROJ. REFERENCE NO.	SHEET NO.
BP2-R008	X-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

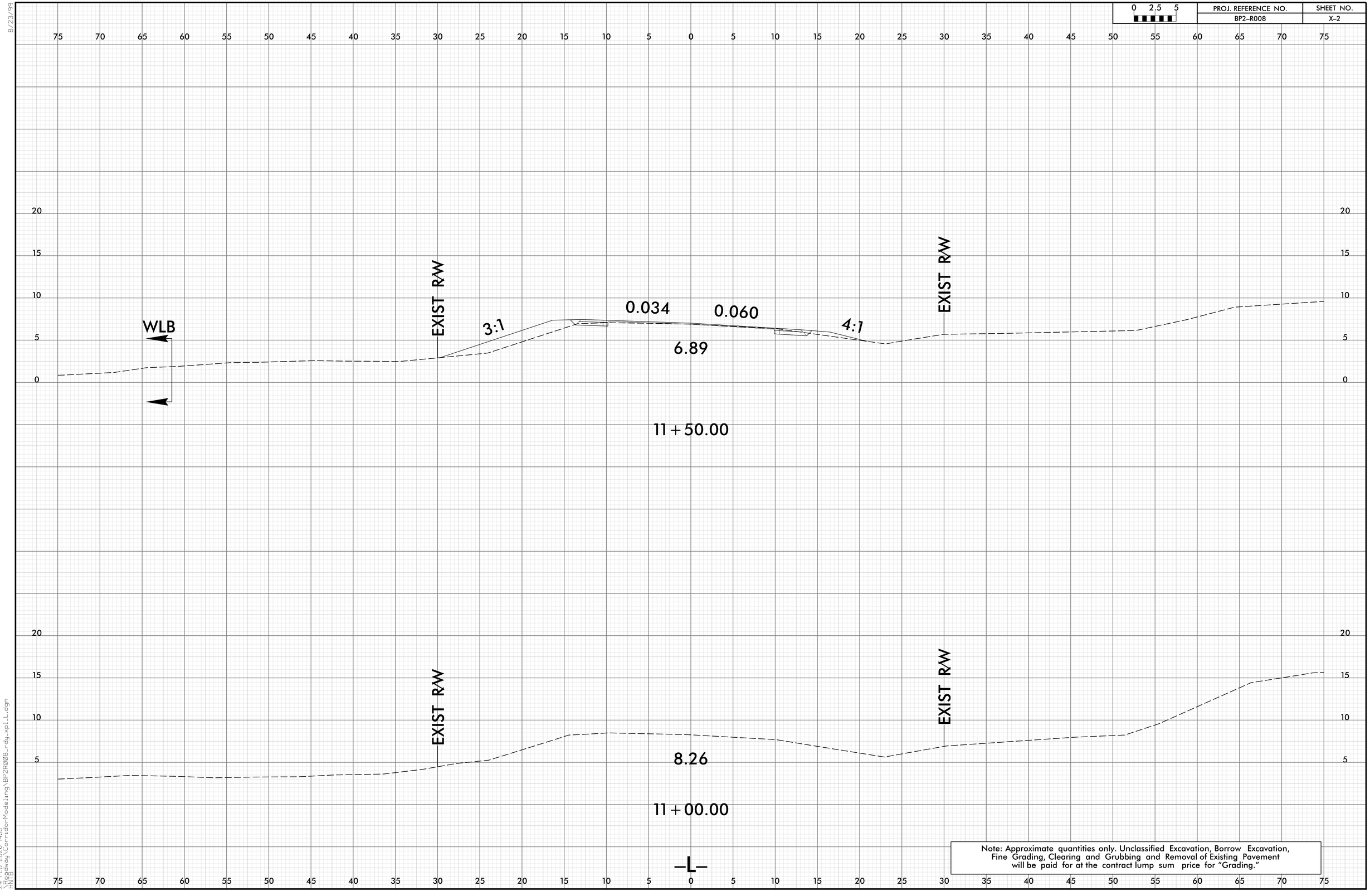
CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+25.00	0	0
11+50.00	2	9
12+00.00	5	48
12+50.00	5	57
13+00.00	5	53
13+50.00	15	73
14+00.00	19	92
14+27.27	13	50

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+24.73	0	0
15+50.00	3	46
16+00.00	0	133
16+50.00	1	163
17+00.00	2	136
17+50.00	2	70
18+00.00	3	21
18+50.00	4	10
19+00.00	4	5

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP2-R008	X-2

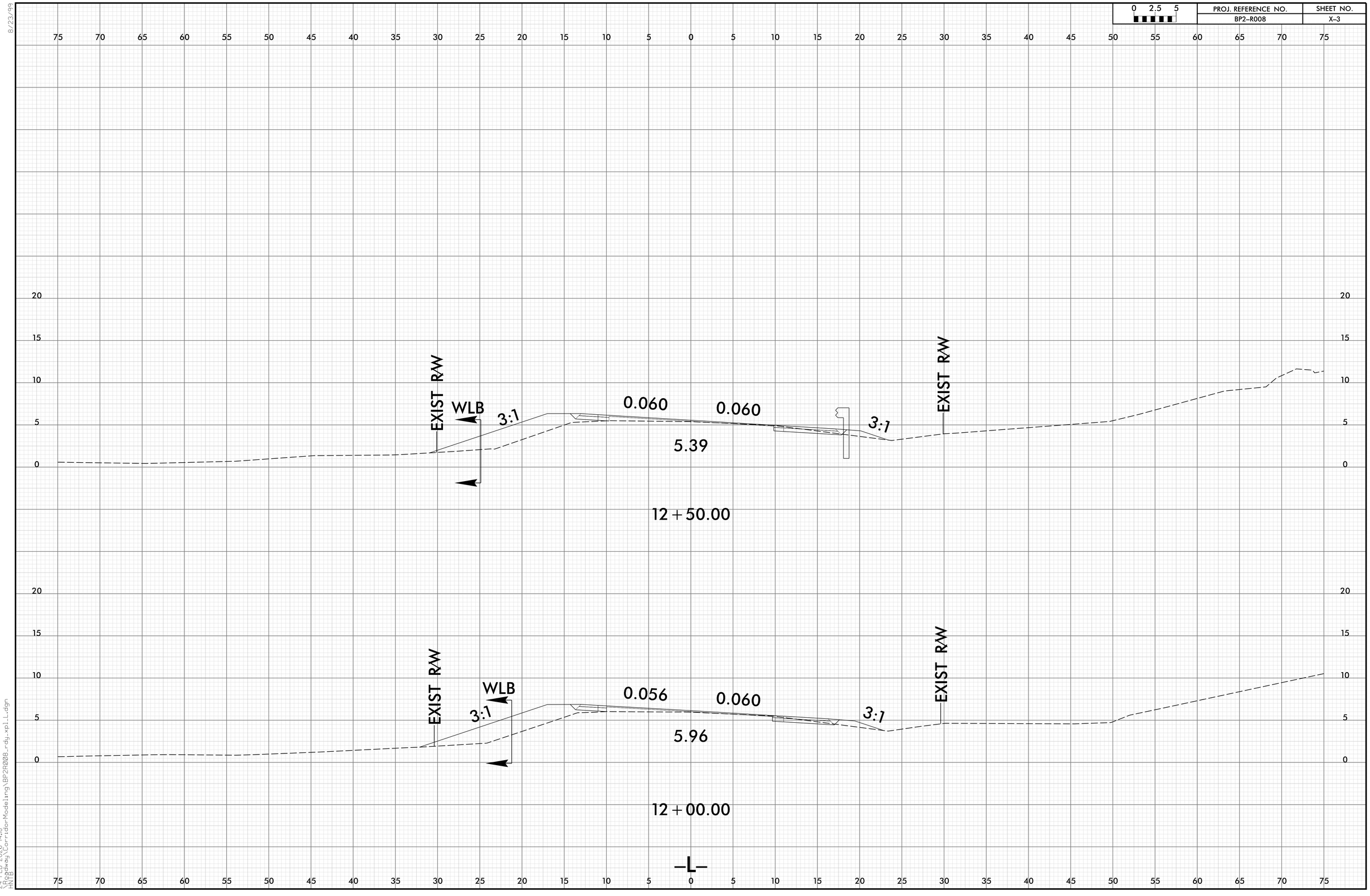


Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP2-R008	X-3



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USER

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP2-R008	X-4

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20 15 10 5 0

EXIST R/W

WLB

3:1

0.058

0.058

4.22

3:1

EXIST R/W

13+50.00

20 15 10 5 0

EXIST R/W

WLB

3:1

0.060

0.060

4.16

3:1

EXIST R/W

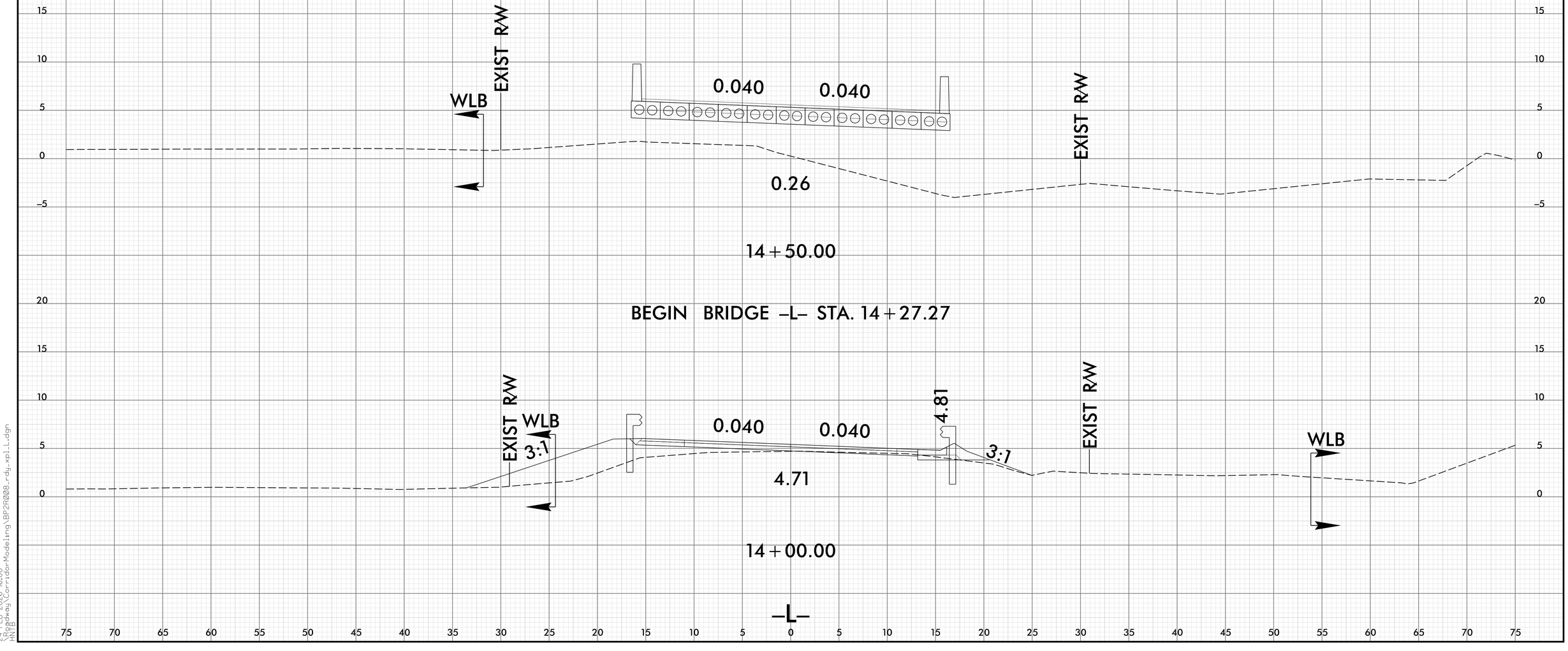
4.95

13+00.00

—L—

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LNIB



8/23/99
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MNB

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP2-R008	X-6

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

15
10
5
0
–5

WLB

EXIST R/W

3:1

0.040

0.040

3:1

EXIST R/W

JS

4.71

15+50.00

END BRIDGE –L– STA. 15+24.73

0.040

0.040

EXIST R/W

EXIST R/W

–3.39

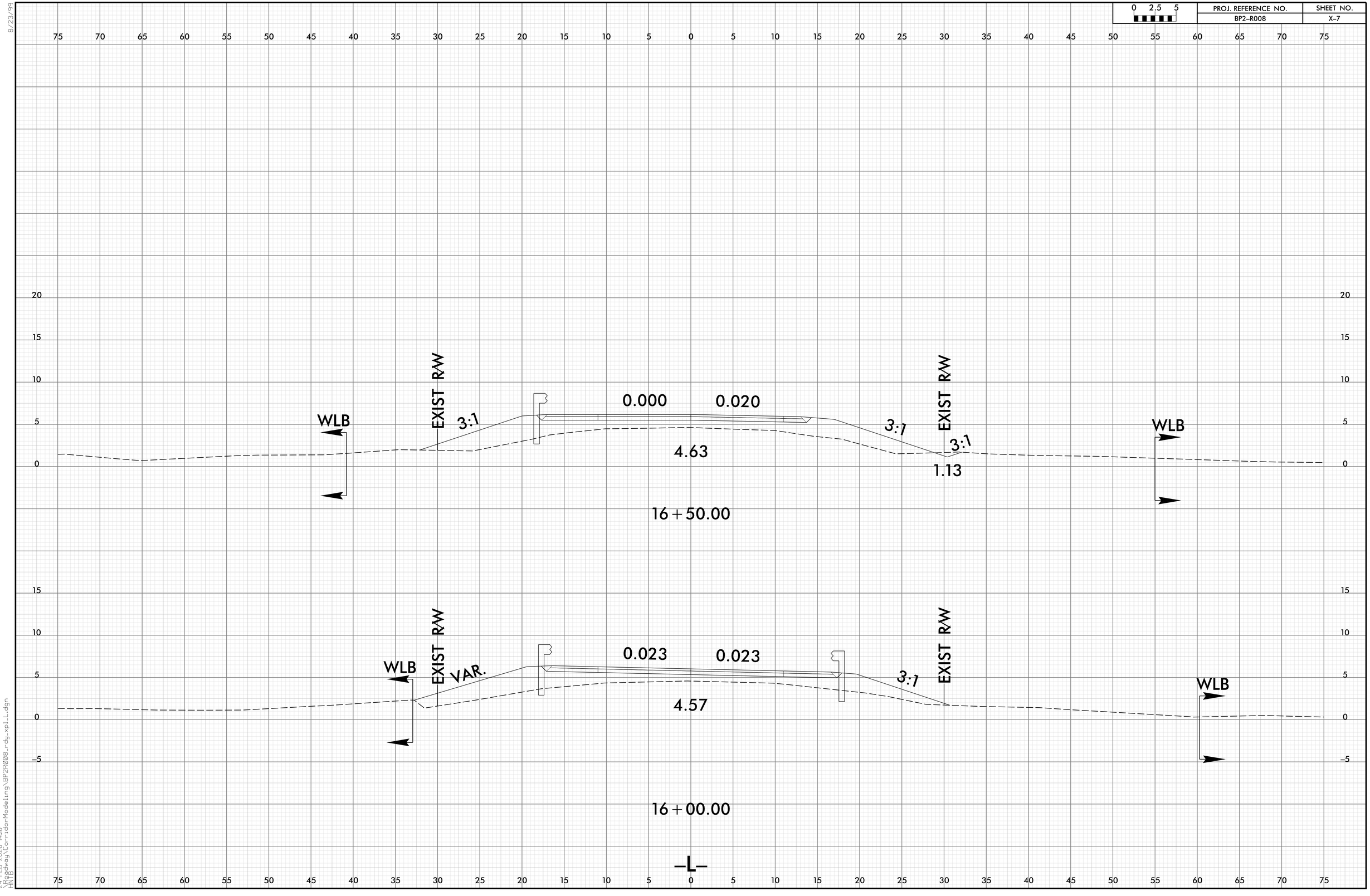
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	BP2-R008	X-7



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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP2-R008	X-8

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

20 15 10 5 0

EXIST R/W

3:1

0.020 0.020

5.78

3:1

EXIST R/W

3:1

2.36

WLB

17+50.00

20 15 10 5 0

WLB

EXIST R/W

3:1

0.020 0.020

5.07

3:1

EXIST R/W

3:1

1.75

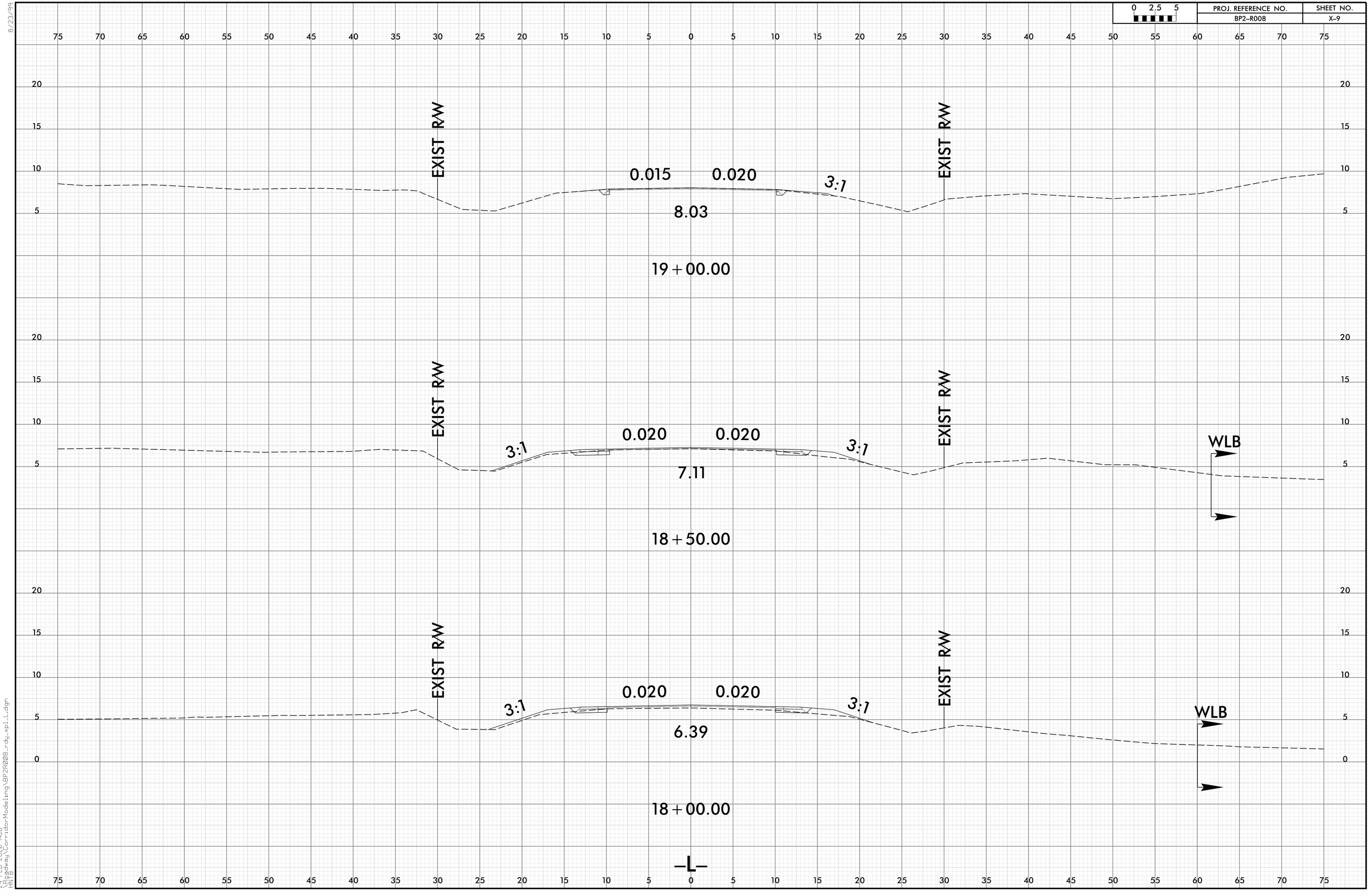
WLB

17+00.00

–L–

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NHTB

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BP2–R008	X–10

EXIST R/W

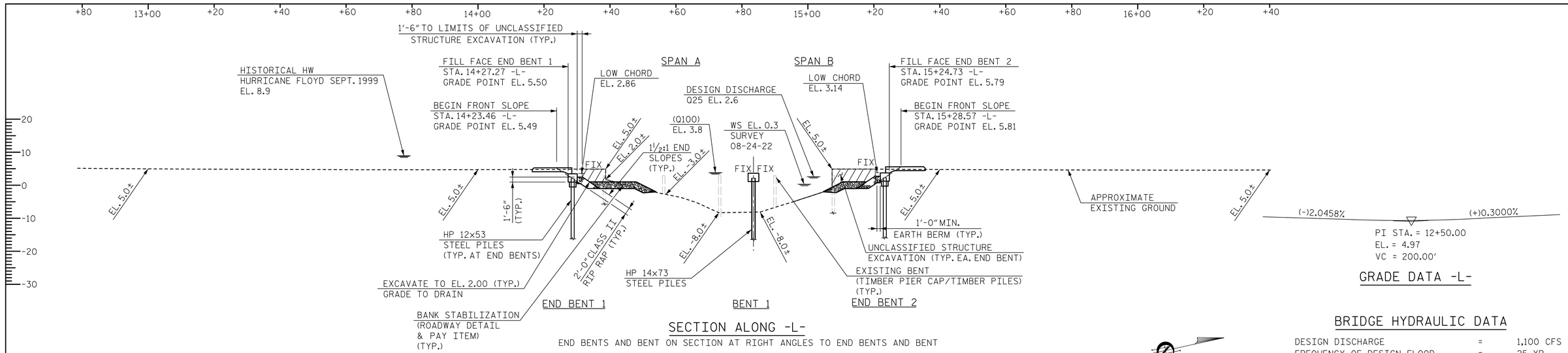
EXIST R/W

8.99

19+50.00

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SECTION ALONG -L-

END BENTS AND BENT ON SECTION AT RIGHT ANGLES TO END BENTS AND BENT

GRADE DATA -L-

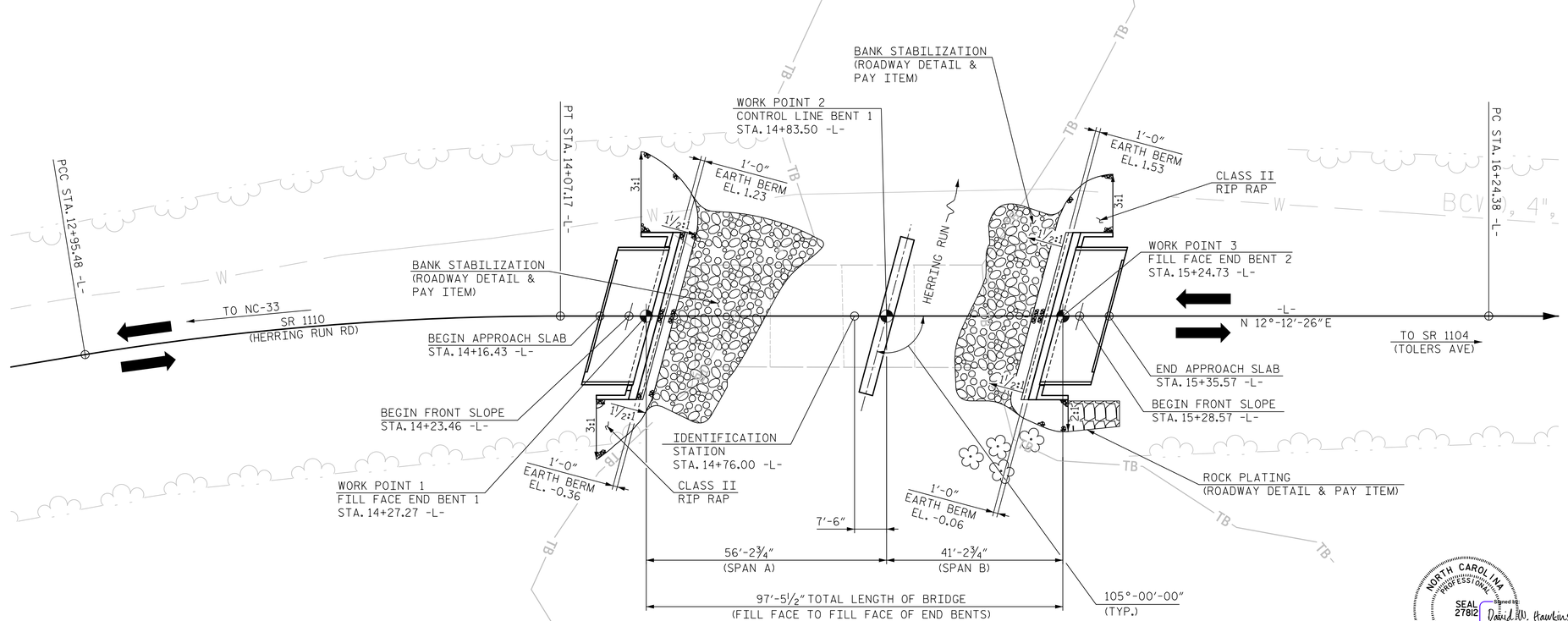
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1,100 CFS
FREQUENCY OF DESIGN FLOOD	=	25 YR
DESIGN HIGH WATER ELEVATION	=	2.6 FT.
DRAINAGE AREA	=	12.1 SQ. MI.
BASE DISCHARGE (Q100)	=	1,700 CFS
BASE HIGH WATER ELEVATION	=	3.8 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	>2,790 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	>500 YRS
OVERTOPPING FLOOD ELEVATION	=	6.0 FT.

NOTE: OVERTOPS AT STA. 13+90.00 -L-,
LT. SHOULDER PT.



PLAN

NOTE: PILES NOT SHOWN FOR CLARITY.

BM#1

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 060010

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1110 OVER HERRING RUN BETWEEN NC-33 AND SR 1104

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

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NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

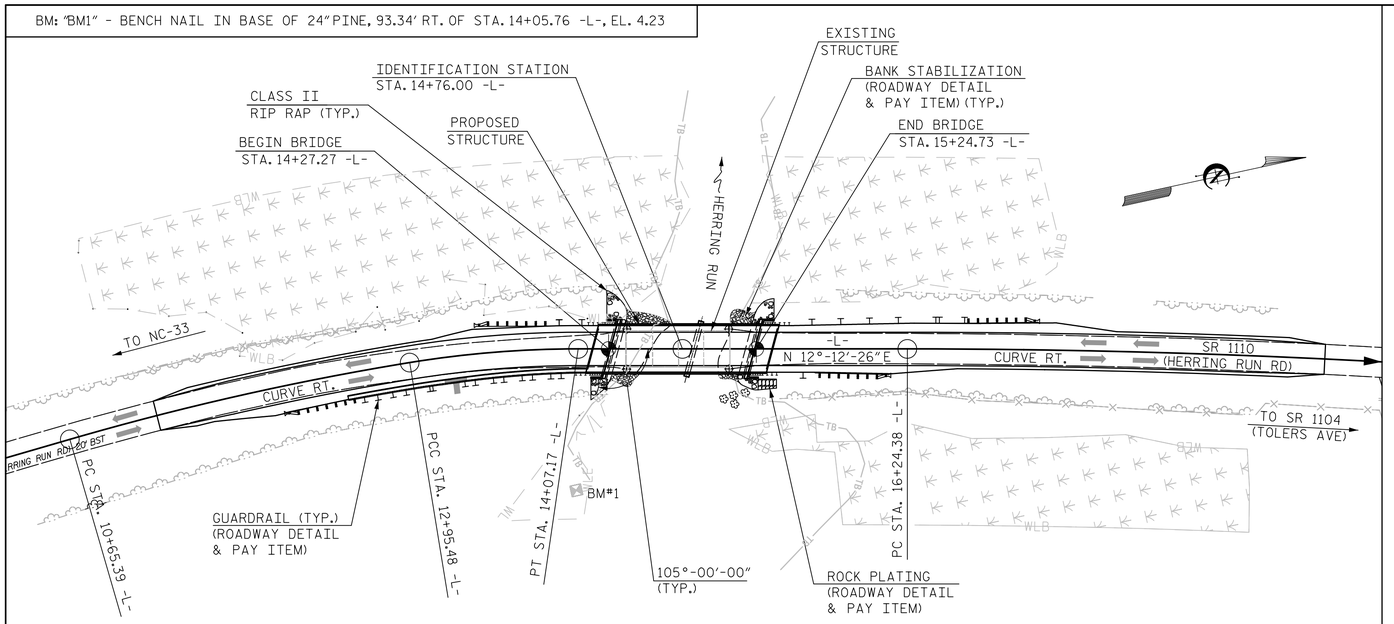
DRAWN BY M. WRIGHT DATE 11/22
CHECKED BY P. BARBER DATE 2/23
DESIGN ENGINEER OF RECORD D. HAWKINS DATE 3/26

DWG. NO. 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-1
1			3			TOTAL SHEETS
2			4			18

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\\Raleigh\projects\69063 2019 East Region LSC - Division 2\BP2-R008_1_Beaufort BR01\Structures\DGN\rk01_001_BP2R008_SMU_G001_001_060010.dgn

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LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

OBSERVE A ONE MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT AND THE MODIFIED BRIDGE APPROACH FILL, IF APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT NO. 1 AND END BENT NO. 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
4/1/2026

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STATION 14+76.00 -L-	ASBESTOS ASSESSMENT	DYNAMIC PILE TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 14+76.00 -L-	CLASS AA CONCRETE	BRIDGE APPROACH SLABS AT STATION 14+76.00 -L-	EPOXY COATED REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 STEEL PILES	HP 12x53 STEEL PILES		HP 14x73 STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	EACH	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	———	———	———	———	LUMP SUM	———	———	———	—	———	—	———	———	190.50	———	———	LUMP SUM	22	1,045
END BENT 1	———	———	———	LUMP SUM	14.5	———	2,140	7	———	7	455	—	———	———	———	70	75	———	—	———
BENT 1	———	———	———	———	11.3	———	2,194	———	8	—	———	8	640	———	———	———	———	———	—	———
END BENT 2	———	———	———	LUMP SUM	14.5	———	2,140	7	———	7	420	—	———	———	———	70	75	———	—	———
TOTAL	LUMP SUM	LUMP SUM	2	LUMP SUM	40.3	LUMP SUM	6,474	14	8	14	875	8	640	11	190.50	140	150	LUMP SUM	22	1,045

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED. CONTRACTOR SHALL NOT PLACE A CRANE ON SPAN A.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 14+76.00 -L-."

ALL METALIZED SURFACES SHALL RECEIVE A SEAL COATING AS SPECIFIED IN TABLE 2 OF THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

THE CONCRETE IN THE END BENT CAPS OF END BENT NO. 1, END BENT NO. 2, AND BENT CAPS OF BENT NO. 1 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

ALL BAR SUPPORTS USED IN THE VERTICAL CONCRETE BARRIER RAIL, BENT CAPS, END BENT CAPS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 19.5 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION -14.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

APPLY AN 8 MIL THICK 1350 ALUMINUM (W-AL-1350) THERMAL SPRAY COATING WITH A 0.5 MIL THICK SEAL COAT TO THE BENT 1 PILES, IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

AFTER DRIVING THE PILES, APPLY 1 COAT EACH OF 1080-12 BROWN AND 1080-12 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS AND END BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

PAVEMENT ALONG THE TRANSVERSE CENTERLINE OF ALL CAPS SHALL BE SAW CUT TO A DEPTH OF 3/4"±, CLEANED, AND FILLED WITH AN APPROVED ASPHALT SEALANT IN ACCORDANCE WITH SECTION 1028 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT UNIT PRICE FOR VARIOUS PAY ITEMS.

APPLY AN APPROVED EPOXY PROTECTIVE COATING TO THE TOPS OF ALL CAPS. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO OTHER PAY ITEMS IN THE CONTRACT AND NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

THE TOP SURFACE AREAS OF THE BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

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NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

DRAWN BY	M. WRIGHT	DATE 1/23
CHECKED BY	P. BARBER	DATE 2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE 8/24

DWG. NO. 2

PROJECT NO. BP2-R008
BEAUFORT COUNTY
STATION: 14+76.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
LOCATION SKETCH,
GENERAL NOTES,
FOUNDATION NOTES, &
TOTAL BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-2
1			3			TOTAL SHEETS
2			4			18

4/1/2026
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SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent (Piles 1-7)	75	See Substructure Plans	65			125	11						
Bent 1 (Piles 1-8)	120		80	-14	-35.0	205							
End Bent 2 (Piles 1-7)	60		60			100							

*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$^{**}RDR = \frac{Factored\ Resistance + Factored\ Downdrag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Downdrag\ Resistance + \frac{Nominal\ Scour\ Resistance}{Scour\ Resistance\ Factor}$$

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)				Pile Order Lengths	
End Bent/ Bent No	DPT Testing Required? YES or MAYBE	DPT Test Pile Length FT	Total DPT Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or DPT
End Bent (Piles 1-7)	MAYBE	70	2		
Bent 1 (Piles 1-8)	YES	85			
End Bent 2 (Piles 1-7)	MAYBE	65			

*EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on DPT testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent (Piles 1-7)	71			0.60			
Bent 1 (Piles 1-8)	118			0.60		3	1.00
End Bent 2 (Piles 1-7)	59			0.60			

*Factored Dead Load is factored weight of pile above the ground line.

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Thein Tun Zan, PE Seal #030943) on 03-27-2024.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer will determine the need for DPT when DPTs may be required.

PROJECT NO. BP2-R008 (SF-060010)

BEAUFORT COUNTY

STATION: 14+76.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS 3/12/2026

Signed by: David W. Hawkins A9ED7524B855487...

SIGNATURE DATE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			18

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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT					
							LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD		HL-93 (INVENTORY)	N/A	1	1.065	--	1.75	0.270	1.25	55'	EL	26.982	0.616	1.12	55'	EL	5.396	0.80	0.270	1.07	55'	EL	26.982	
		HL-93 (OPERATING)	N/A	--	1.452	--	1.35	0.270	1.61	55'	EL	26.982	0.616	1.45	55'	EL	5.396	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.335	48.043	1.75	0.270	1.56	55'	EL	26.982	0.616	1.34	55'	EL	5.396	0.80	0.270	1.33	55'	EL	26.982	
		HS-20 (OPERATING)	36.000	--	1.734	62.425	1.35	0.270	2.02	55'	EL	26.982	0.616	1.73	55'	EL	5.396	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500	--	2.802	37.830	1.4	0.270	4.09	55'	EL	26.982	0.616	3.81	55'	EL	5.396	0.80	0.270	2.80	55'	EL	26.982	
		SNGARBS2	20.000	--	2.175	43.506	1.4	0.270	3.18	55'	EL	26.982	0.616	2.76	55'	EL	5.396	0.80	0.270	2.18	55'	EL	26.982	
		SNAGRIS2	22.000	--	2.099	46.173	1.4	0.270	3.07	55'	EL	26.982	0.616	2.58	55'	EL	5.396	0.80	0.270	2.10	55'	EL	26.982	
		SNCOTTS3	27.250	--	1.397	38.065	1.4	0.270	2.04	55'	EL	26.982	0.616	1.91	55'	EL	5.396	0.80	0.270	1.40	55'	EL	26.982	
		SNAGGRS4	34.925	--	1.200	41.922	1.4	0.270	1.75	55'	EL	26.982	0.616	1.62	55'	EL	5.396	0.80	0.270	1.20	55'	EL	26.982	
		SNS5A	35.550	--	1.172	41.648	1.4	0.270	1.71	55'	EL	26.982	0.616	1.66	55'	EL	5.396	0.80	0.270	1.17	55'	EL	26.982	
		SNS6A	39.950	--	1.089	43.514	1.4	0.270	1.59	55'	EL	26.982	0.616	1.53	55'	EL	5.396	0.80	0.270	1.09	55'	EL	26.982	
		SNS7B	42.000	--	1.038	43.587	1.4	0.270	1.52	55'	EL	26.982	0.616	1.53	55'	EL	5.396	0.80	0.270	1.04	55'	EL	26.982	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.333	43.973	1.4	0.270	1.95	55'	EL	26.982	0.616	1.81	55'	EL	5.396	0.80	0.270	1.33	55'	EL	26.982	
		TNT4A	33.075	--	1.342	44.400	1.4	0.270	1.96	55'	EL	26.982	0.616	1.75	55'	EL	5.396	0.80	0.270	1.34	55'	EL	26.982	
		TNT6A	41.600	--	1.112	46.252	1.4	0.270	1.62	55'	EL	26.982	0.616	1.67	55'	EL	5.396	0.80	0.270	1.11	55'	EL	26.982	
		TNT7A	42.000	--	1.125	47.255	1.4	0.270	1.64	55'	EL	26.982	0.616	1.56	55'	EL	5.396	0.80	0.270	1.13	55'	EL	26.982	
		TNT7B	42.000	--	1.174	49.318	1.4	0.270	1.72	55'	EL	26.982	0.616	1.47	55'	EL	5.396	0.80	0.270	1.17	55'	EL	26.982	
		TNAGRIT4	43.000	--	1.111	47.786	1.4	0.270	1.62	55'	EL	26.982	0.616	1.42	55'	EL	5.396	0.80	0.270	1.11	55'	EL	26.982	
		TNAGT5A	45.000	--	1.041	46.851	1.4	0.270	1.52	55'	EL	26.982	0.616	1.44	55'	EL	5.396	0.80	0.270	1.04	55'	EL	26.982	
		TNAGT5B	45.000	3	1.023	46.020	1.4	0.270	1.49	55'	EL	26.982	0.616	1.35	55'	EL	5.396	0.80	0.270	1.02	55'	EL	26.982	
EMERGENCY VEHICLE (EV)		EV2	28.750	--	1.631	46.889	1.3	0.270	2.40	55'	EL	26.982	0.616	2.07	55'	EL	5.396	0.80	0.270	1.63	55'	EL	26.982	
		EV3	43.000	4	1.058	45.500	1.3	0.270	1.56	55'	EL	26.982	0.616	1.40	55'	EL	5.396	0.80	0.270	1.06	55'	EL	26.982	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.

2.

3.

4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING * *

(4) EMERGENCY VEHICLE LOAD RATING **

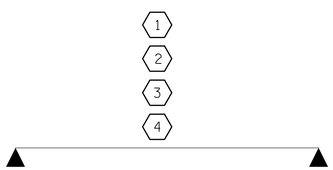
* * SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER

EL - EXTERIOR LEFT GIRDER

ER- EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN " A "

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS

Signed by: David W. Hawkins

3/17/2026

STD. NO. 21LRFR1_75&105S_55L

ASSEMBLED BY: M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : MAA 1/08	REV. 11/12/08RR	MAA/GM	
CHECKED BY : GM/DI 2/08	REV. 10/1/11	MAA/GM	
	REV. 04/23	BNB/AAI	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

DRAWN BY	M. WRIGHT	DATE 1/23
CHECKED BY	P. BARBER	DATE 2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE 3/24

DWG. NO. 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 55' CORED SLAB UNIT 105° SKEW

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-4
1			3			TOTAL SHEETS
2			4			18

2/25/2026
_TIME
_W:\07_DOT_BP2\R008_SMU_LRFR01_004_060110.dgn

Docusign Envelope ID: ED75B369-C162-4210-8C6C-275C56F96EC2

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD		HL-93 (INVENTORY)	N/A	1	1.573	--	1.75	0.274	1.78	40'	EL	19.482	0.62	1.60	40'	EL	1.948	0.80	0.274	1.57	40'	EL	19.482	
		HL-93 (OPERATING)	N/A	--	2.078	--	1.35	0.274	2.31	40'	EL	19.482	0.62	2.08	40'	EL	1.948	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.873	67.422	1.75	0.274	2.23	40'	EL	19.482	0.62	1.87	40'	EL	1.948	0.80	0.274	1.96	40'	EL	19.482	
		HS-20 (OPERATING)	36.000	--	2.428	87.4	1.35	0.274	2.90	40'	EL	19.482	0.62	2.43	40'	EL	1.948	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500	--	3.642	49.163	1.4	0.274	5.16	40'	EL	19.482	0.62	4.80	40'	EL	7.793	0.80	0.274	3.64	40'	EL	19.482	
		SNGARBS2	20.000	--	2.995	59.897	1.4	0.274	4.24	40'	EL	15.586	0.62	3.65	40'	EL	7.793	0.80	0.274	2.99	40'	EL	19.482	
		SNAGRIS2	22.000	--	2.951	64.924	1.4	0.274	4.14	40'	EL	15.586	0.62	3.49	40'	EL	7.793	0.80	0.274	2.95	40'	EL	15.586	
		SNCOTTS3	27.250	--	1.820	49.605	1.4	0.274	2.58	40'	EL	19.482	0.62	2.42	40'	EL	7.793	0.80	0.274	1.82	40'	EL	19.482	
		SNAGGRS4	34.925	--	1.639	57.231	1.4	0.274	2.32	40'	EL	19.482	0.62	2.18	40'	EL	7.793	0.80	0.274	1.64	40'	EL	19.482	
		SNS5A	35.550	--	1.594	56.664	1.4	0.274	2.26	40'	EL	19.482	0.62	2.30	40'	EL	7.793	0.80	0.274	1.59	40'	EL	19.482	
		SNS6A	39.950	--	1.517	60.592	1.4	0.274	2.15	40'	EL	19.482	0.62	2.16	40'	EL	1.948	0.80	0.274	1.52	40'	EL	19.482	
		SNS7B	42.000	3	1.446	60.751	1.4	0.274	2.05	40'	EL	19.482	0.62	2.20	40'	EL	1.948	0.80	0.274	1.45	40'	EL	19.482	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.866	61.588	1.4	0.274	2.65	40'	EL	19.482	0.62	2.52	40'	EL	1.948	0.80	0.274	1.87	40'	EL	19.482	
		TNT4A	33.075	--	1.89	62.524	1.4	0.274	2.68	40'	EL	19.482	0.62	2.38	40'	EL	7.793	0.80	0.274	1.89	40'	EL	19.482	
		TNT6A	41.600	--	1.603	66.702	1.4	0.274	2.27	40'	EL	19.482	0.62	2.34	40'	EL	7.793	0.80	0.274	1.60	40'	EL	19.482	
		TNT7A	42.000	--	1.644	69.051	1.4	0.274	2.33	40'	EL	19.482	0.62	2.17	40'	EL	1.948	0.80	0.274	1.64	40'	EL	19.482	
		TNT7B	42.000	--	1.681	70.584	1.4	0.274	2.38	40'	EL	19.482	0.62	2.09	40'	EL	1.948	0.80	0.274	1.68	40'	EL	19.482	
		TNAGRIT4	43.000	--	1.635	70.321	1.4	0.274	2.31	40'	EL	15.586	0.62	2.00	40'	EL	1.948	0.80	0.274	1.64	40'	EL	19.482	
		TNAGT5A	45.000	--	1.513	68.098	1.4	0.274	2.14	40'	EL	19.482	0.62	2.08	40'	EL	1.948	0.80	0.274	1.51	40'	EL	19.482	
		TNAGT5B	45.000	--	1.470	66.159	1.4	0.274	2.08	40'	EL	19.482	0.62	1.90	40'	EL	1.948	0.80	0.274	1.47	40'	EL	19.482	
EMERGENCY VEHICLE (EV)		EV2	28.750	--	2.122	61.019	1.3	0.274	3.26	40'	EL	15.586	0.62	2.77	40'	EL	7.793	0.80	0.274	2.12	40'	EL	15.586	
		EV3	43.000	4	1.365	58.684	1.3	0.274	2.12	40'	EL	19.482	0.62	1.89	40'	EL	7.793	0.80	0.274	1.36	40'	EL	19.482	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.

2.

3.

4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING * *

(4) EMERGENCY VEHICLE LOAD RATING **

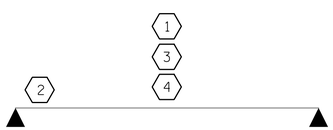
* * SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER

EL - EXTERIOR LEFT GIRDER

ER- EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN " B "

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS

Signed by: David W. Hawkins

3/17/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 40' CORED SLAB UNIT 105° SKEW

(NON-INTERSTATE TRAFFIC)

STD. NO. 21LRFR1_75&105S_40L

ASSEMBLED BY: M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : MAA 1/08	REV. 11/12/08RR	MAA/GM	
CHECKED BY : GM/DI 2/08	REV. 10/1/11	MAA/GM	
	REV. 04/23	BNB/AAI	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

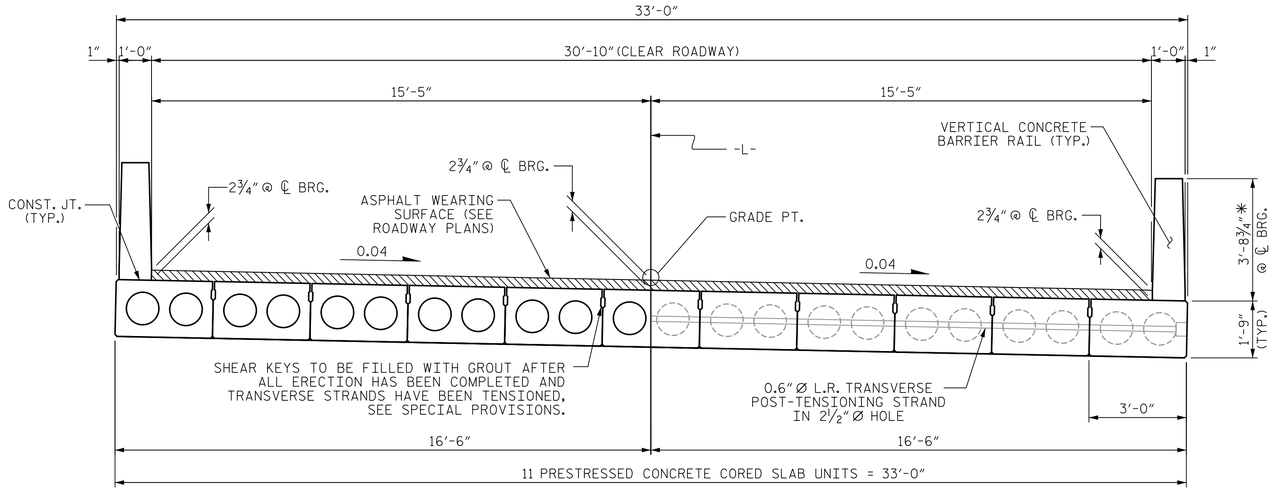
DRAWN BY	M. WRIGHT	DATE 1/23
CHECKED BY	P. BARBER	DATE 2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE 3/24

DWG. NO. 5

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-5
1			3			TOTAL SHEETS
2			4			18

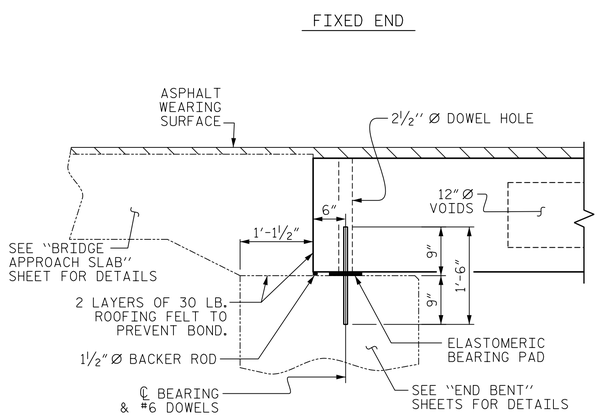
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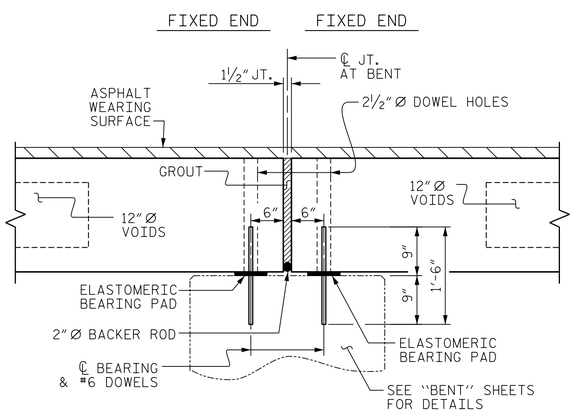


TYPICAL SECTION

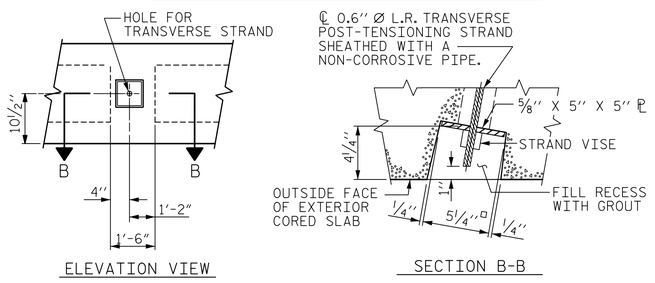
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE ''VERTICAL CONCRETE BARRIER RAIL SECTION'' DETAIL.



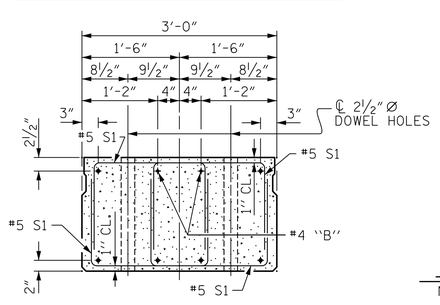
SECTION AT END BENT



SECTION AT BENT

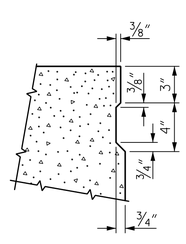


GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



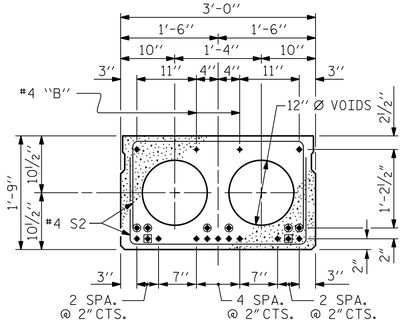
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



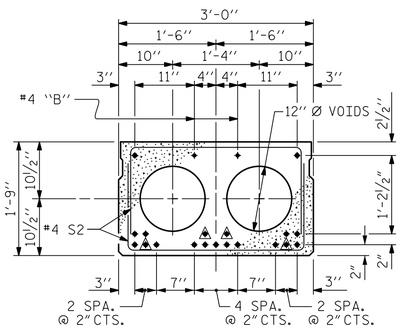
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



INTERIOR SLAB SECTION SPAN B (40′ UNIT)

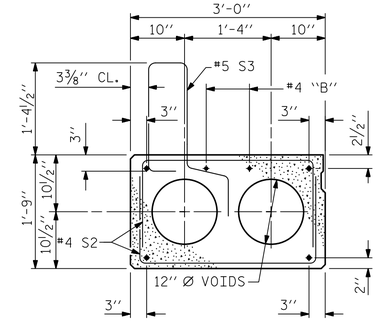
(13 STRANDS REQUIRED)



INTERIOR SLAB SECTION SPAN A (55′ UNIT)

(19 STRANDS REQUIRED)

0.6″ Ø LOW RELAXATION STRAND LAYOUT



EXT. SLAB SECTION

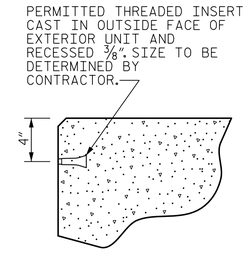
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6′-0″FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

▣ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2′-0″FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



THREADED INSERT DETAIL

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3′-0″ X 1′-9″
PRESTRESSED CONCRETE CORED SLAB UNIT
105° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-6
1			3			TOTAL SHEETS
2			4			18

STD. NO. 21"PCS2_33_105S

ASSEMBLED BY : M. WRIGHT	DATE : 1/23
CHECKED BY : P. BARBER	DATE : 2/23
DRAWN BY : DGE 5/09	REV. 9/14 MAA/TMG
CHECKED BY : BCH 6/09	

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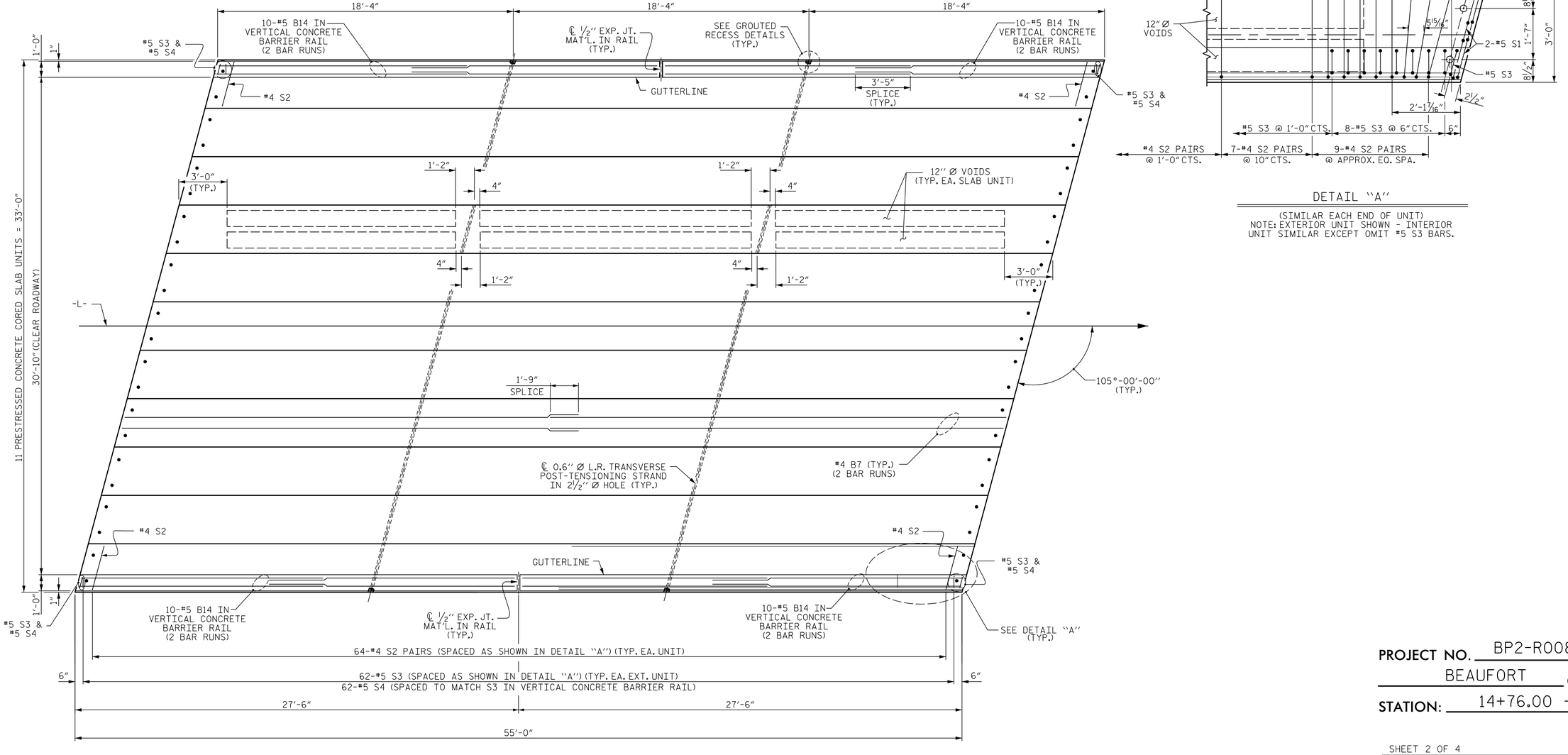
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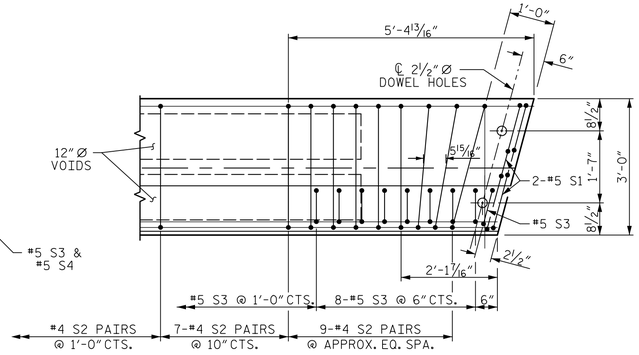
DRAWN BY	M. WRIGHT	DATE	1/23
CHECKED BY	P. BARBER	DATE	2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	8/24

DWG. NO. 6

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DETAIL ″A″

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT - SPAN A

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55′ UNIT
30′-10″ CLEAR ROADWAY
105° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27812 DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

STD. NO. 21″PCS_33_105S_55L

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : DGE 3/09	REV. 12/5/11	MAA/AAC	
CHECKED BY : BCH 3/09	REV. 8/14	MAA/TMG	

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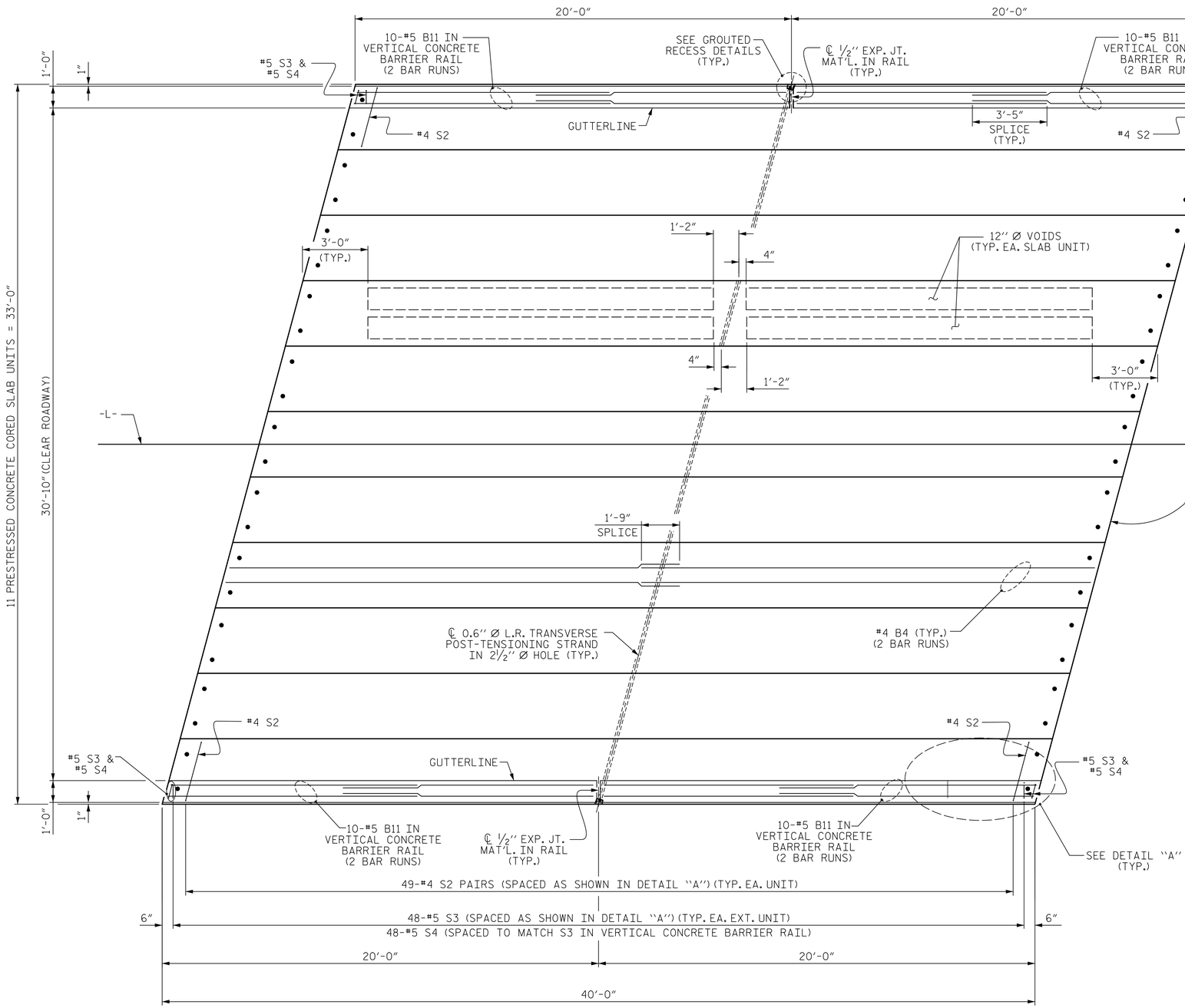
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CHECKED BY	P. BARBER	DATE	2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	8/24

DWG. NO. 7

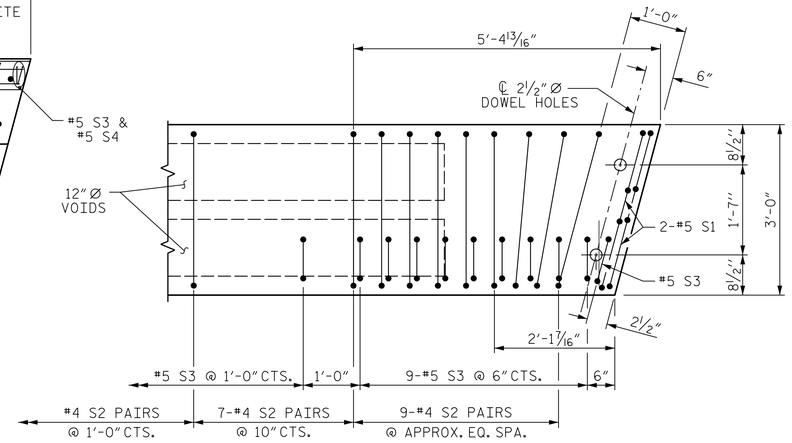
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NO.	BY	DATE	NO.	BY	DATE	S-7
1			3			TOTAL SHEETS
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TIME
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PLAN OF UNIT - SPAN B



DETAIL ″A″

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 40′ UNIT 30′-10″ CLEAR ROADWAY 105° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

STD. NO. 21″PCS_33_105S_40L

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : DGE 3/09	REV. 12/5/11	MAA/AAC	
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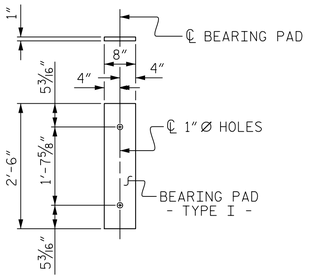
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CHECKED BY	P. BARBER	DATE 2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE 8/24

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FIXED END
(TYPE I - 44 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	9	55'-0"	495'-0"
TOTAL	11		605'-0"

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
40' UNIT			
EXTERIOR C.S.	2	40'-0"	80'-0"
INTERIOR C.S.	9	40'-0"	360'-0"
TOTAL	11		440'-0"

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	128	#4	3	5'-4"	456	5'-4"	456
✳ S3	64	#5	1	5'-7"	373		
REINFORCING STEEL LBS.					566		566
✳EPOXY COATED REINFORCING STEEL LBS.					373		
6500 P.S.I. CONCRETE CU. YDS.					7.9		7.9
0.6"Ø L.R. STRANDS No.					19		19

BILL OF MATERIAL FOR ONE 40' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B4	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	98	#4	3	5'-4"	349	5'-4"	349
✳ S3	50	#5	1	5'-7"	291		
REINFORCING STEEL LBS.					439		439
✳EPOXY COATED REINFORCING STEEL LBS.					291		
5000 P.S.I. CONCRETE CU. YDS.					5.8		5.8
0.6"Ø L.R. STRANDS No.					13		13

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
55' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✳✳	⅜" ↓
FINAL CAMBER	1⅛" ↑

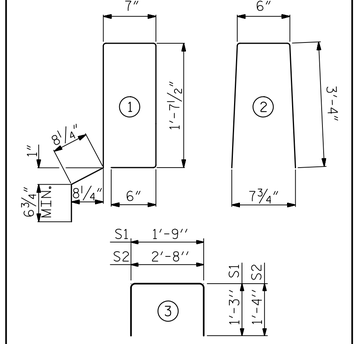
✳✳ INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
40' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	⅞" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✳✳	⅛" ↓
FINAL CAMBER	¾" ↑

✳✳ INCLUDES FUTURE WEARING SURFACE

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	55' UNIT					
✳B14	80	80	#5	STR	15'-5"	1286
✳ S4	128	128	#5	2	7'-2"	957
✳EPOXY COATED REINFORCING STEEL				LBS.		2243
CLASS AA CONCRETE				CU.YDS.		14.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		110.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	40' UNIT					
✳B11	80	80	#5	STR	11'-8"	973
✳ S4	100	100	#5	2	7'-2"	747
✳EPOXY COATED REINFORCING STEEL				LBS.		1720
CLASS AA CONCRETE				CU.YDS.		10.2
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		80.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
40' UNITS	2"	3'-8"
55' UNITS	1⅝"	3'-7⅝"

GRADE 270 STRANDS

	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CONCRETE RELEASE STRENGTH

UNIT	PSI
40' UNITS	4000
55' UNITS	4900

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

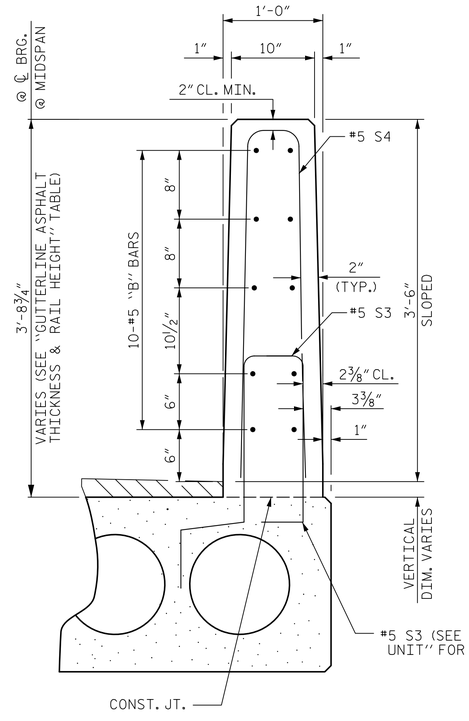
THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

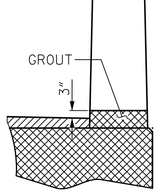
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

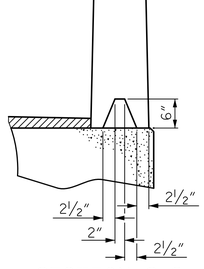
PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



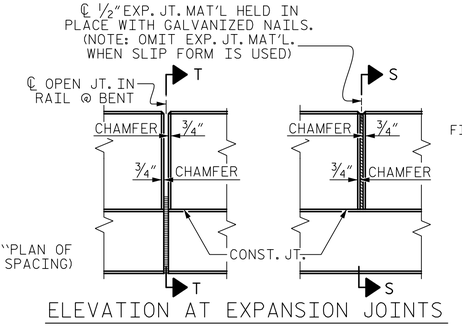
VERTICAL CONCRETE BARRIER RAIL SECTION



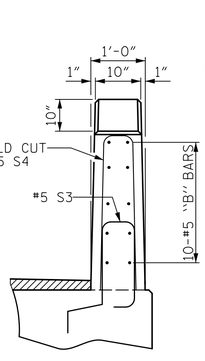
SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)



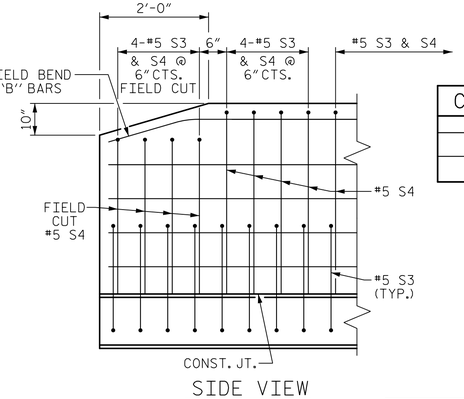
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE CORED SLAB UNIT
105° SKEW

PROJECT NO. BP2-R008
BEAUFORT COUNTY
STATION: 14+76.00 -L-

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

STD. NO. 21"PCS3.33.105S

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : DGE 5/09	REV. 5/18	MAA/THC	
CHECKED BY : BCH 6/09			

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DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	8/24

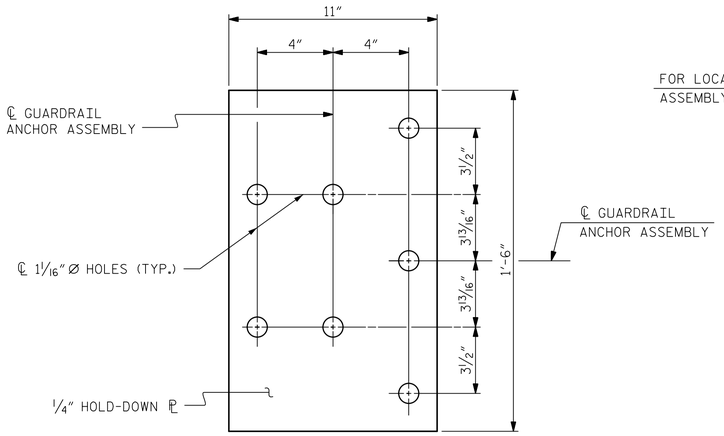
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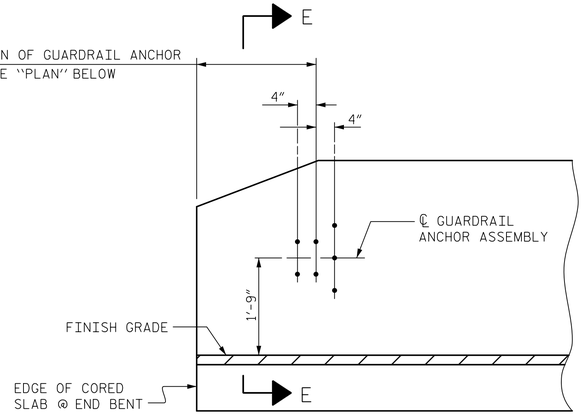
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PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4'' HOLD DOWN PLATE AND 7 - 7/8'' Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8'' Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

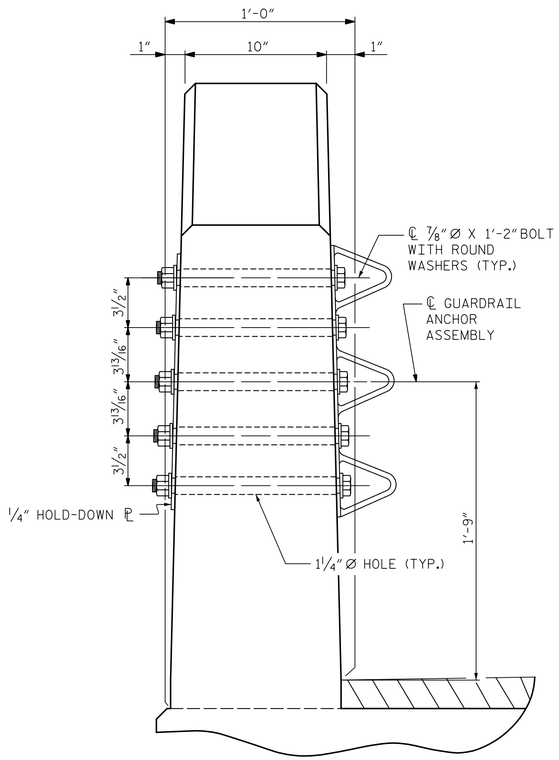
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

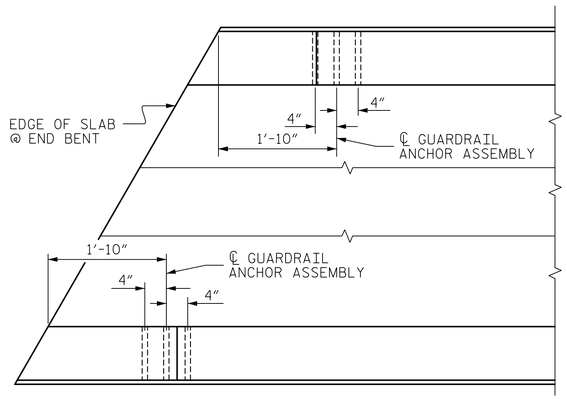
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4'' Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BP2-R008

BEAUFORT **COUNTY**

STATION: 14+76.00 -L-

STD. NO. GRA3 (SHT 1a)

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : MAA 5/10	REV. 1/15	MAA/TMG	
CHECKED BY : GM 5/10	REV. 12/17	MAA/THC	
	REV. 5/18	MAA/THC	

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS — Signed by: David W. Hawkins 3/17/2026

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DWG. NO. 10

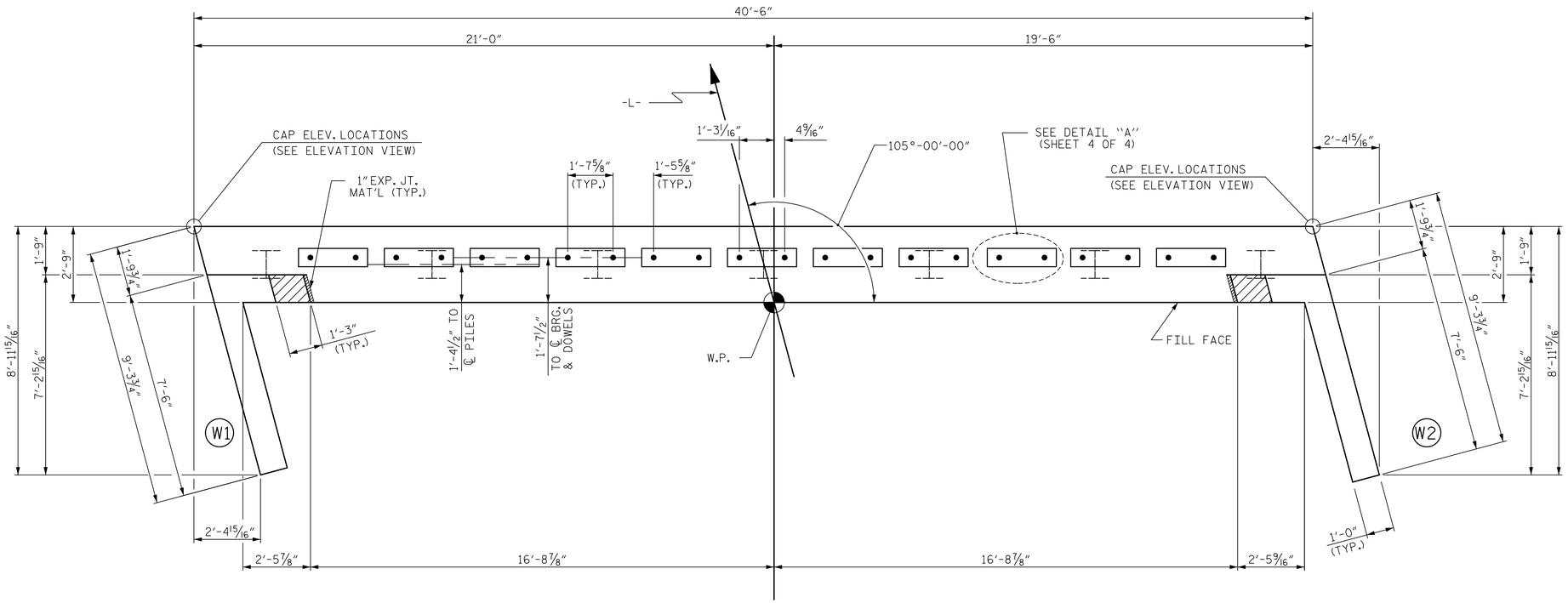
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-10
1			3			TOTAL SHEETS
2			4			18

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NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	2.63
②	2.39
③	2.16
④	1.92
⑤	1.69
⑥	1.45
⑦	1.21

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

STD. NO. EB_33_105S

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : DGE 01/10		REV. 4/15	MAA/TMG
CHECKED BY : MKT 01/10			

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

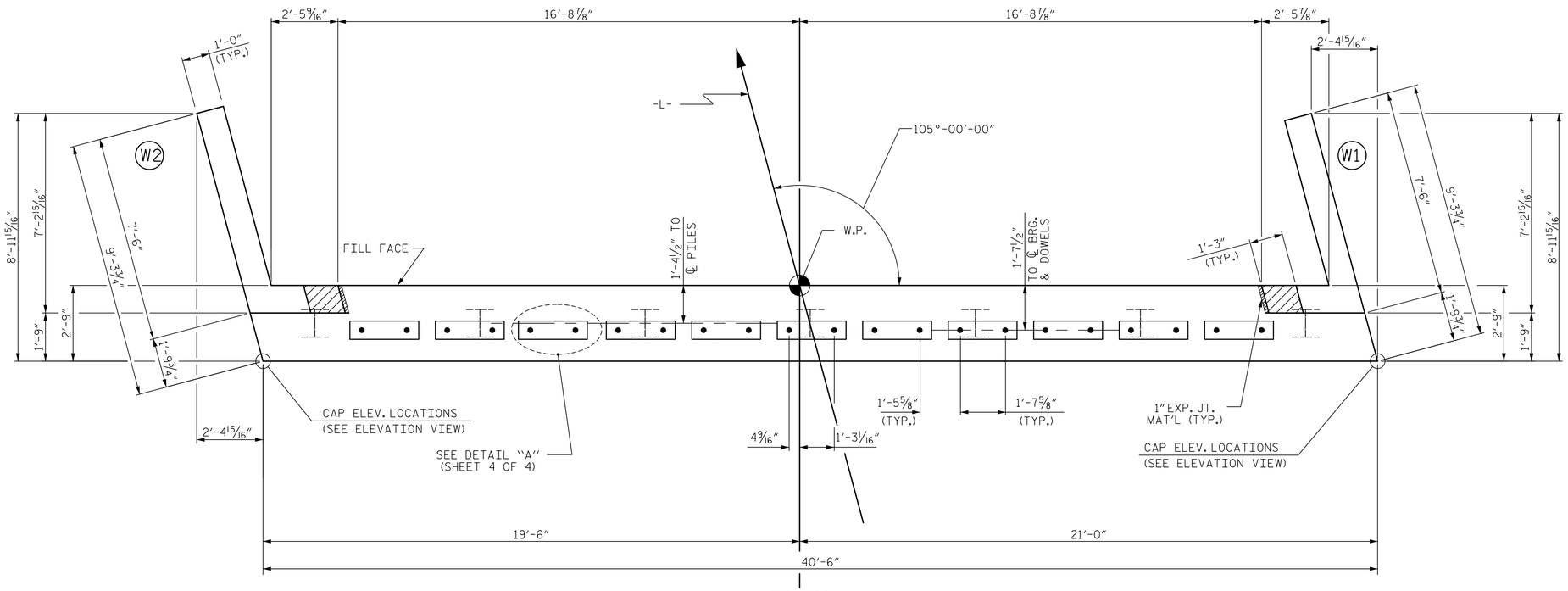
DRAWN BY	M. WRIGHT	DATE	1/23
CHECKED BY	P. BARBER	DATE	2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	8/24

DWG. NO. 11

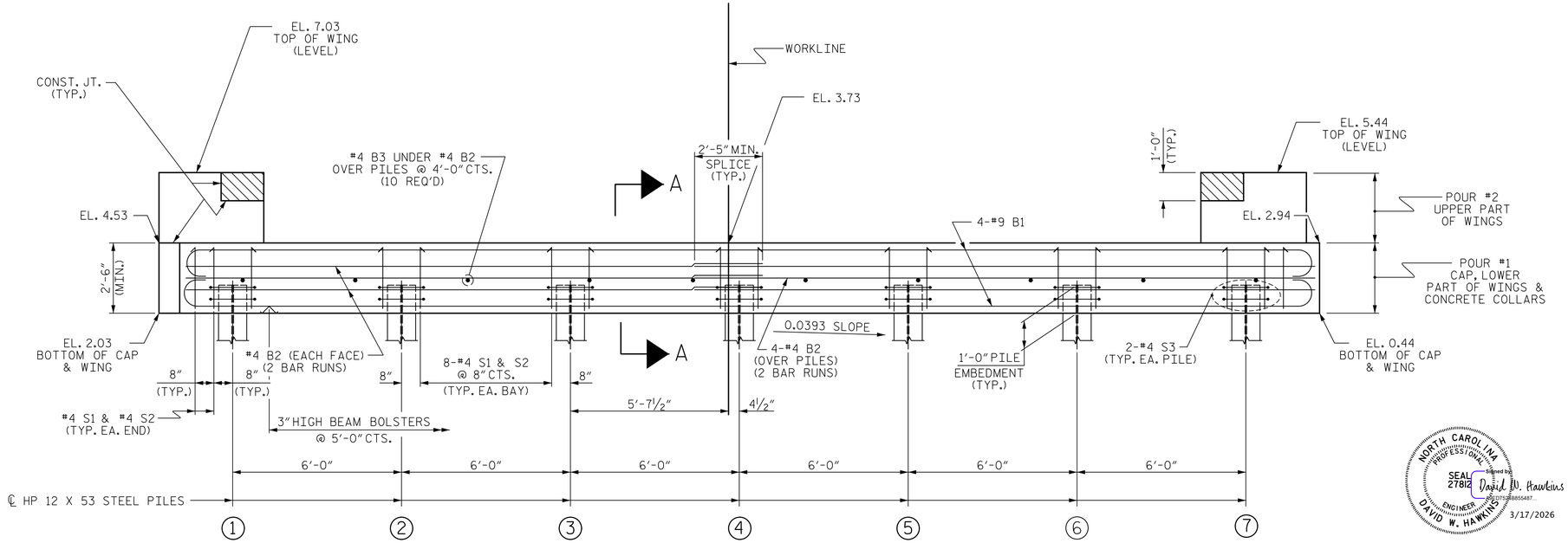
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-11
1			3			TOTAL SHEETS
2			4			18

2/25/2026
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Docusign Envelope ID: ED75B369-C162-4210-8C6C-275C56F96EC2



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	2.96
②	2.72
③	2.49
④	2.25
⑤	2.01
⑥	1.78
⑦	1.54

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

STD. NO. EB_33_105S

ASSEMBLED BY : M. WRIGHT		DATE : 1/23	
CHECKED BY : P. BARBER		DATE : 2/23	
DRAWN BY : DGE	01/10	REV. 4/15	MAA/TMG
CHECKED BY : MKT	01/10		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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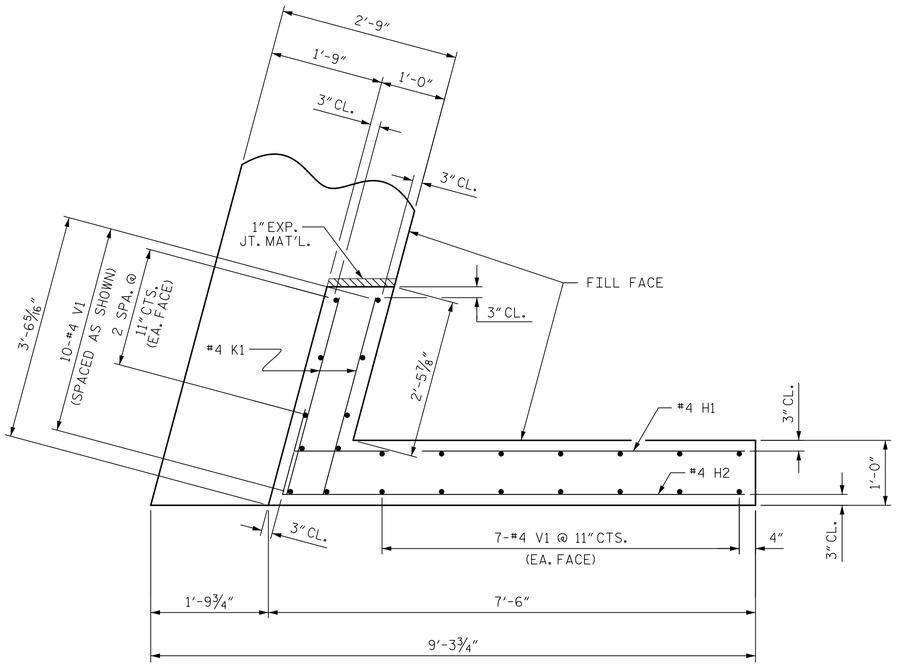
DRAWN BY	M. WRIGHT	DATE	1/23
CHECKED BY	P. BARBER	DATE	2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	8/24

DWG. NO. 12

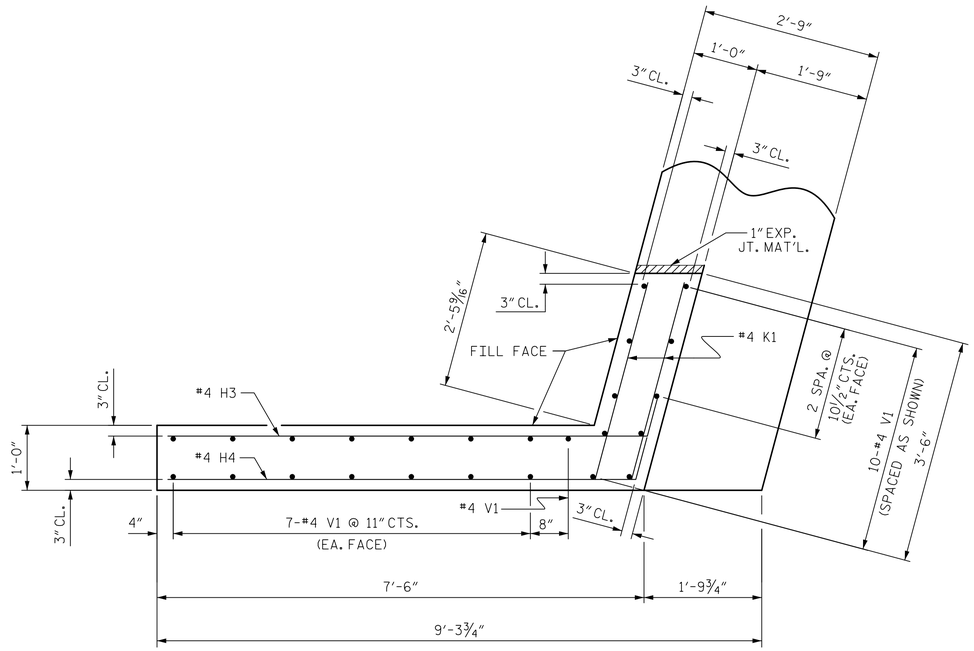
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-12
1			3			TOTAL SHEETS
2			4			18

2/25/2026
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TIME

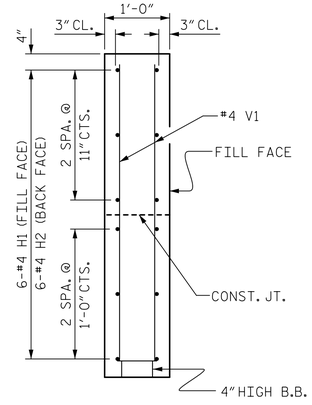
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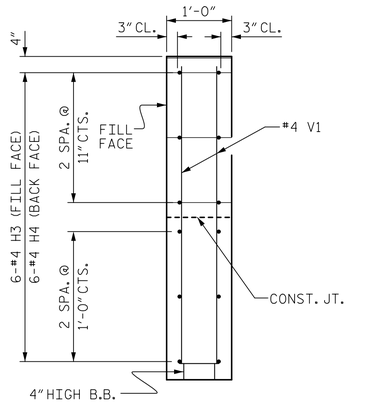
PLAN OF WING (W1)



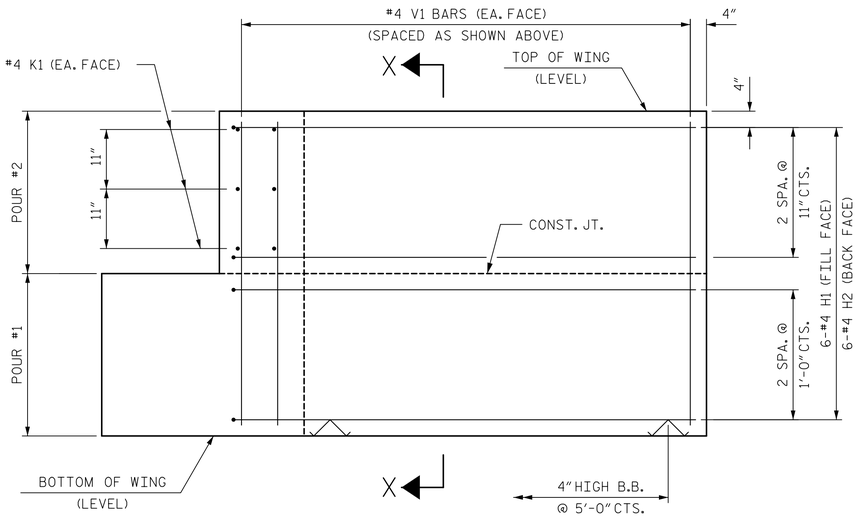
PLAN OF WING (W2)



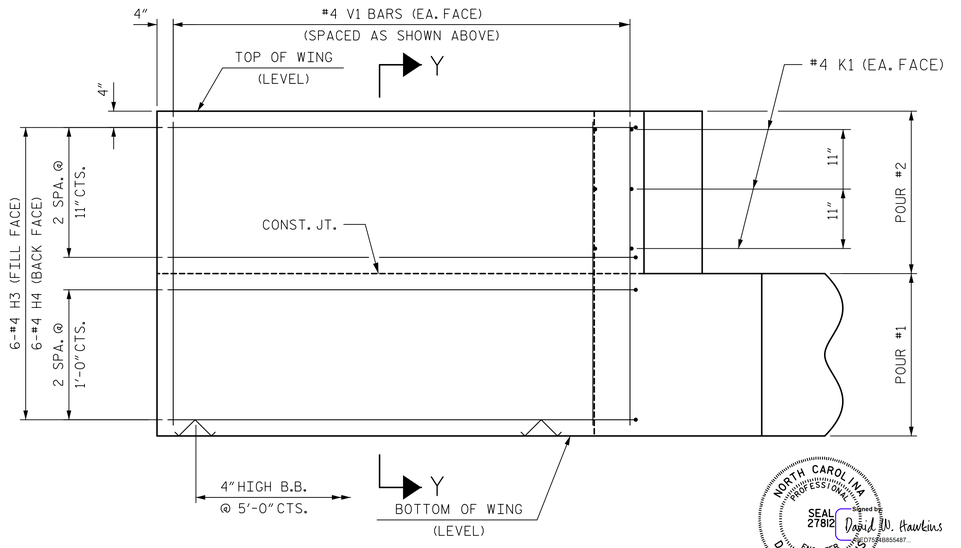
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

STD. NO. EB_33_105S

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : DGE 03/10	REV. 4/15	MAA/TMG	
CHECKED BY : MKT 03/10			

WING DETAILS

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DRAWN BY	M. WRIGHT	DATE 1/23
CHECKED BY	P. BARBER	DATE 2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE 8/24

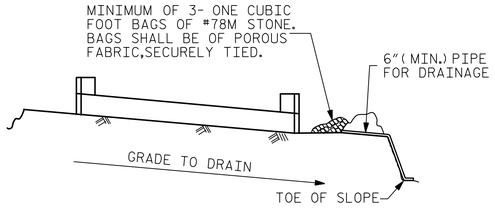
DWG. NO. 13

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-13
1			3			TOTAL SHEETS
2			4			18

2/25/2026
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Docusign Envelope ID: ED75B369-C162-4210-8C6C-275C56F96EC2

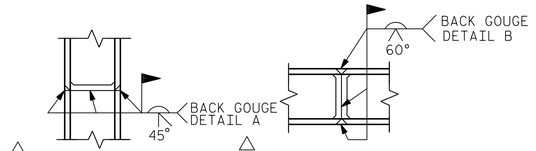


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

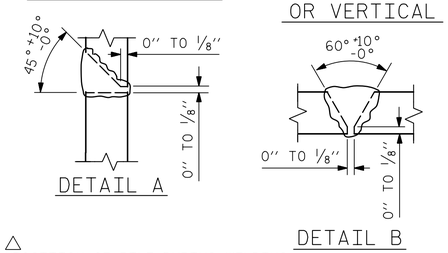
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



△ PILE VERTICAL

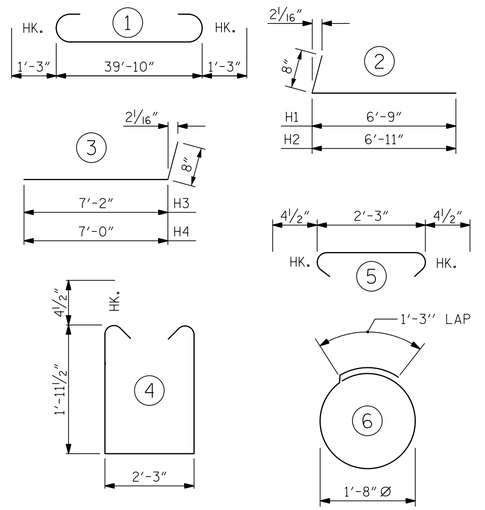
△ PILE HORIZONTAL OR VERTICAL



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	42'-4"	1,151
B2	16	#4	STR	21'-3"	227
B3	10	#4	STR	2'-3"	15
D1	22	#6	STR	1'-6"	50
H1	6	#4	2	7'-5"	30
H2	6	#4	2	7'-7"	30
H3	6	#4	3	7'-10"	31
H4	6	#4	3	7'-8"	31
K1	12	#4	STR	2'-11"	23
S1	52	#4	4	6'-11"	240
S2	52	#4	5	3'-0"	104
S3	14	#4	6	6'-6"	61
V1	49	#4	STR	4'-6"	147

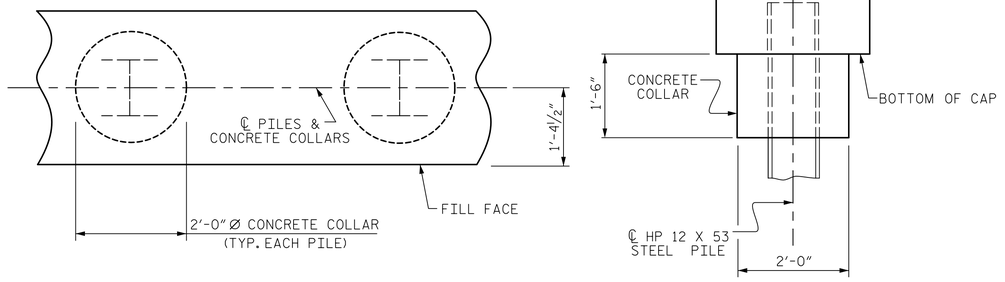
EPOXY COATED REINFORCING STEEL (FOR ONE END BENT) 2,140 LBS.

CLASS AA CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 12.7 C.Y.

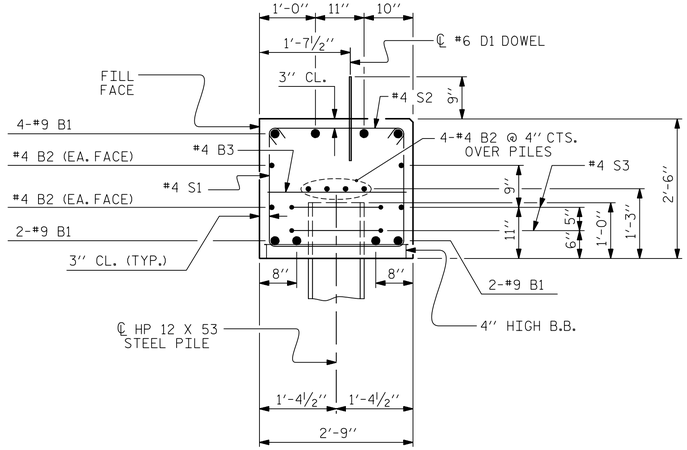
POUR #2 UPPER PART OF WINGS 1.8 C.Y.

TOTAL CLASS AA CONCRETE 14.5 C.Y.



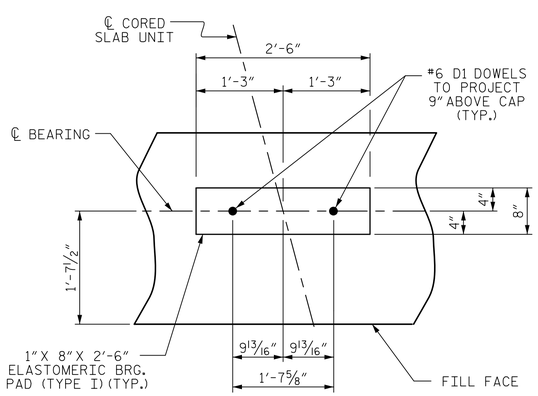
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

STD. NO. EB_33_105S

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : DGE 12/09	REV. 4/17	MAA/THC	
CHECKED BY : MKT 01/10			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

DRAWN BY	M. WRIGHT	DATE	1/23
CHECKED BY	P. BARBER	DATE	2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	8/24

DWG. NO. 14

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-14
1			3			TOTAL SHEETS
2			4			18

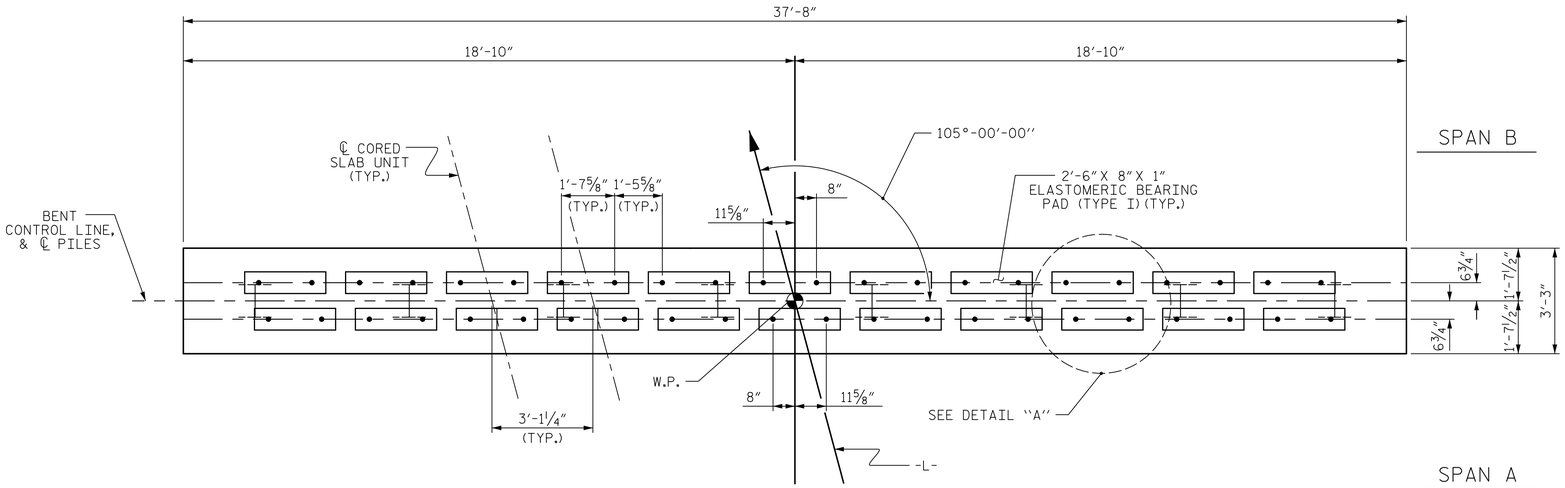
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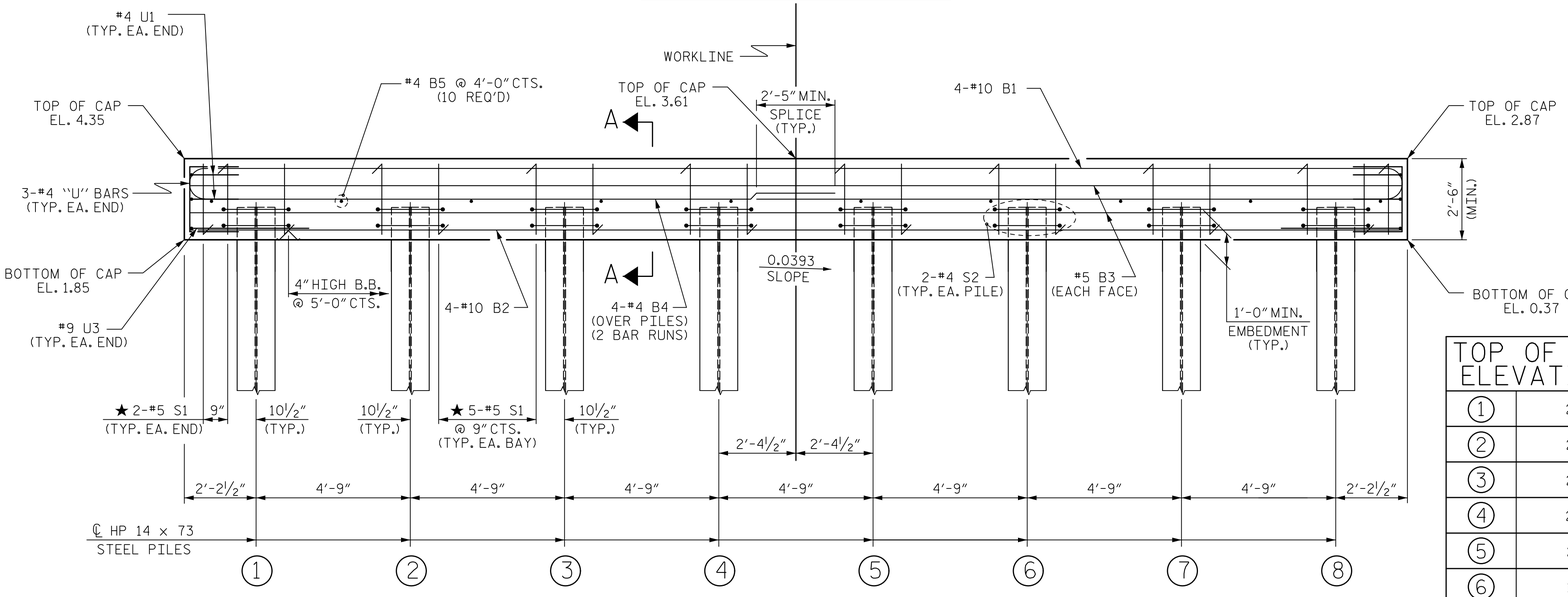
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

★ INVERT ALTERNATE STIRRUPS.



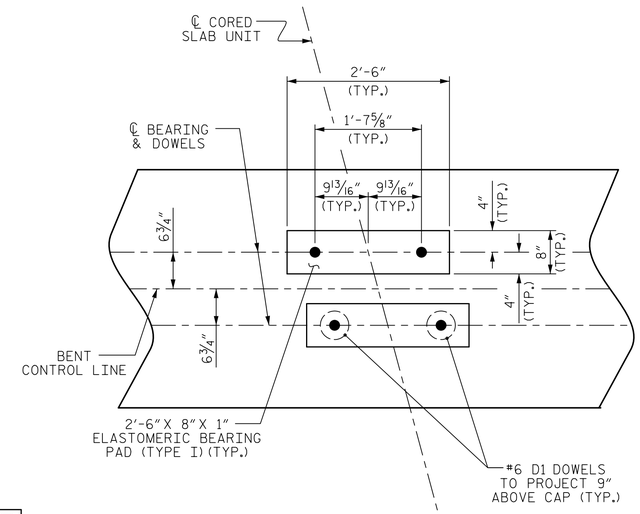
PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2

TOP OF PILE ELEVATIONS	
1	2.76
2	2.57
3	2.39
4	2.20
5	2.01
6	1.83
7	1.64
8	1.46



DETAIL ''A''

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS

Signed by: David W. Hawkins 3/17/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

STD. NO. 14″HP_BT_33_105S_<60′

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : DGE 05/10	REV. 6/17	MAA/THC	
CHECKED BY : MKT 05/10			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC License No. C-1554
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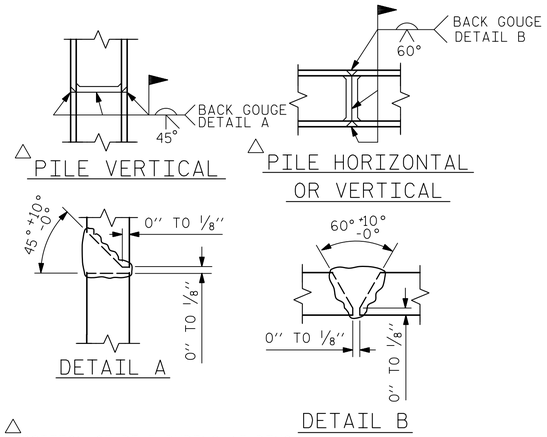
DRAWN BY	M. WRIGHT	DATE	1/23
CHECKED BY	P. BARBER	DATE	2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	8/24

DWG. NO. 15

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-15
1			3			TOTAL SHEETS
2			4			18

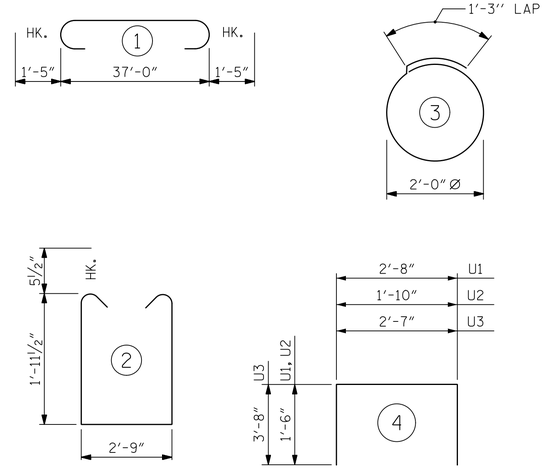
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PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

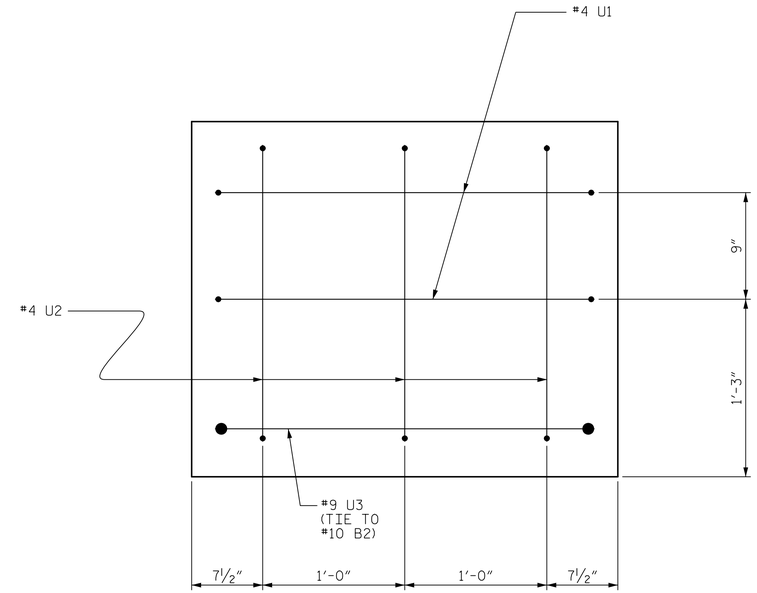
BILL OF MATERIAL
FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	39'-10"	686
B2	4	#10	STR	37'-2"	640
B3	4	#5	STR	37'-2"	155
B4	8	#4	STR	19'-10"	106
B5	10	#4	STR	2'-9"	18
D1	44	#6	STR	1'-6"	99
S1	39	#5	2	7'-7"	308
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-8"	15
U2	6	#4	4	4'-10"	19
U3	2	#9	4	9'-11"	67

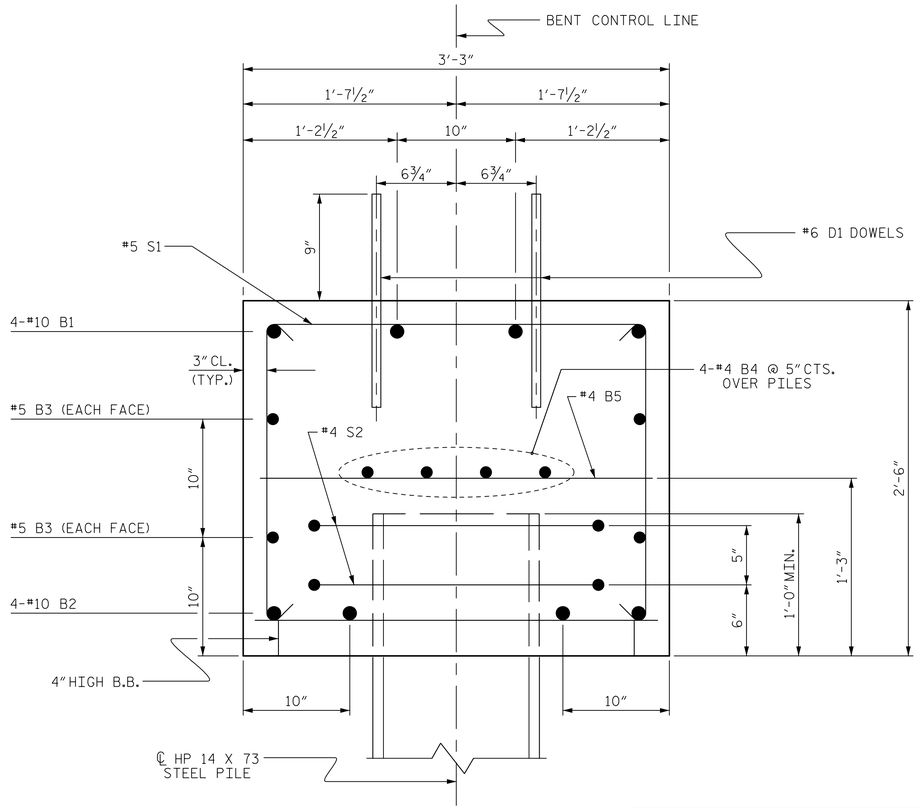
EPOXY COATED REINFORCING STEEL (FOR ONE BENT) 2,194 LBS

CLASS AA CONCRETE BREAKDOWN (FOR ONE BENT)

TOTAL CLASS AA CONCRETE 11.3 C.Y.



END OF CAP VIEW
(TYPICAL BOTH ENDS)



SECTION A-A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27812 DAVID W. HAWKINS — Signed by: David W. Hawkins — 3/17/2026

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-16
1			3			TOTAL SHEETS
2			4			18

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

DRAWN BY M. WRIGHT DATE 1/23
CHECKED BY P. BARBER DATE 2/23
DESIGN ENGINEER OF RECORD D. HAWKINS DATE 8/24

DWG. NO. 16

STD. NO. 14"HP_BT_33_75&105S_<60'

ASSEMBLED BY : M. WRIGHT DATE : 1/23
CHECKED BY : P. BARBER DATE : 2/23

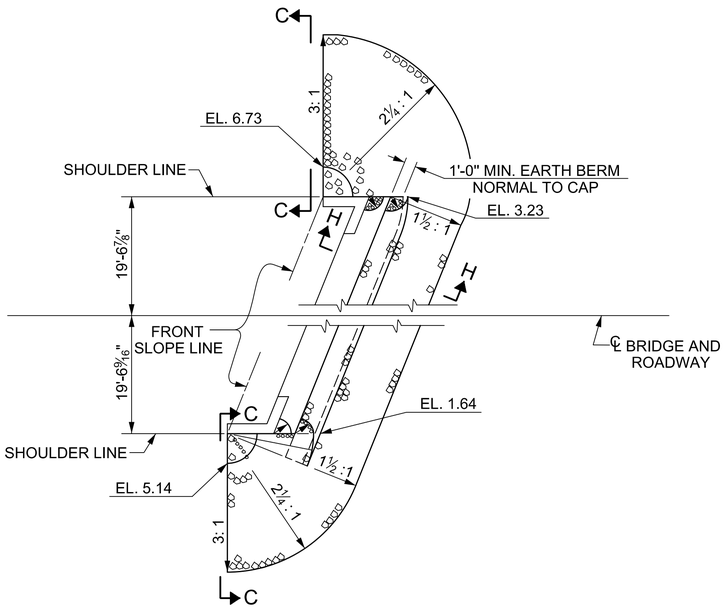
DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10
REV. 6/17 MAA/THC

2/25/2026
_TIME
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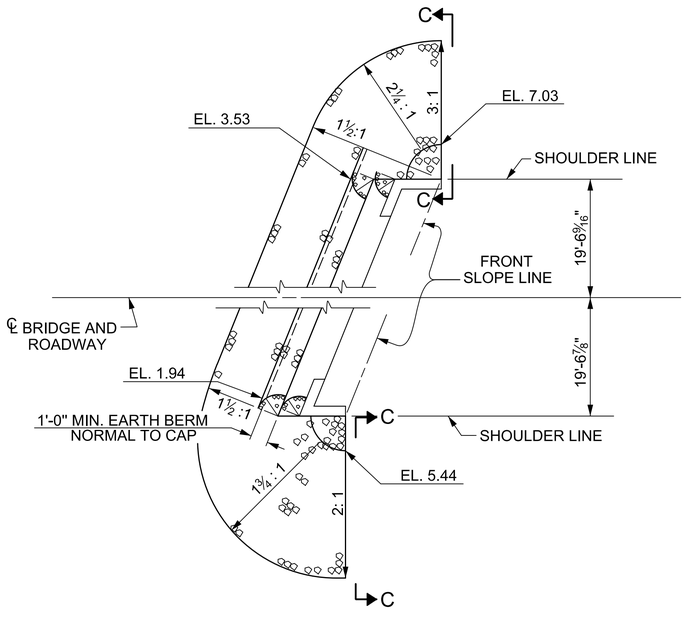
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NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

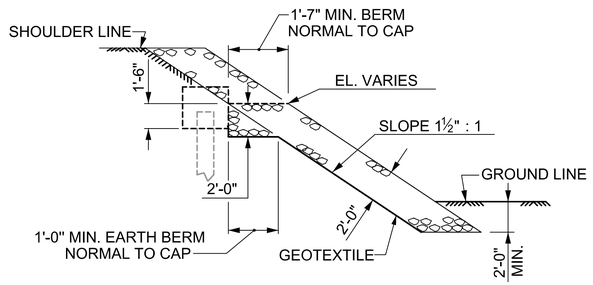


END BENT 1

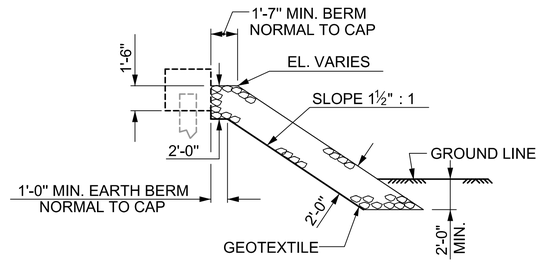


END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+76.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	70	75
END BENT 2	70	75

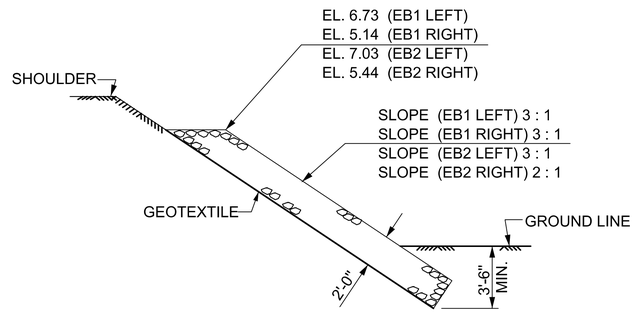


SECTION H-H



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS
Signed by: David W. Hawkins
3/17/2026

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-17
1			3			TOTAL SHEETS
2			4			18

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

DRAWN BY M. WRIGHT DATE 8/24
CHECKED BY Z. REINEKE DATE 9/24
DESIGN ENGINEER OF RECORD D. HAWKINS DATE 8/24

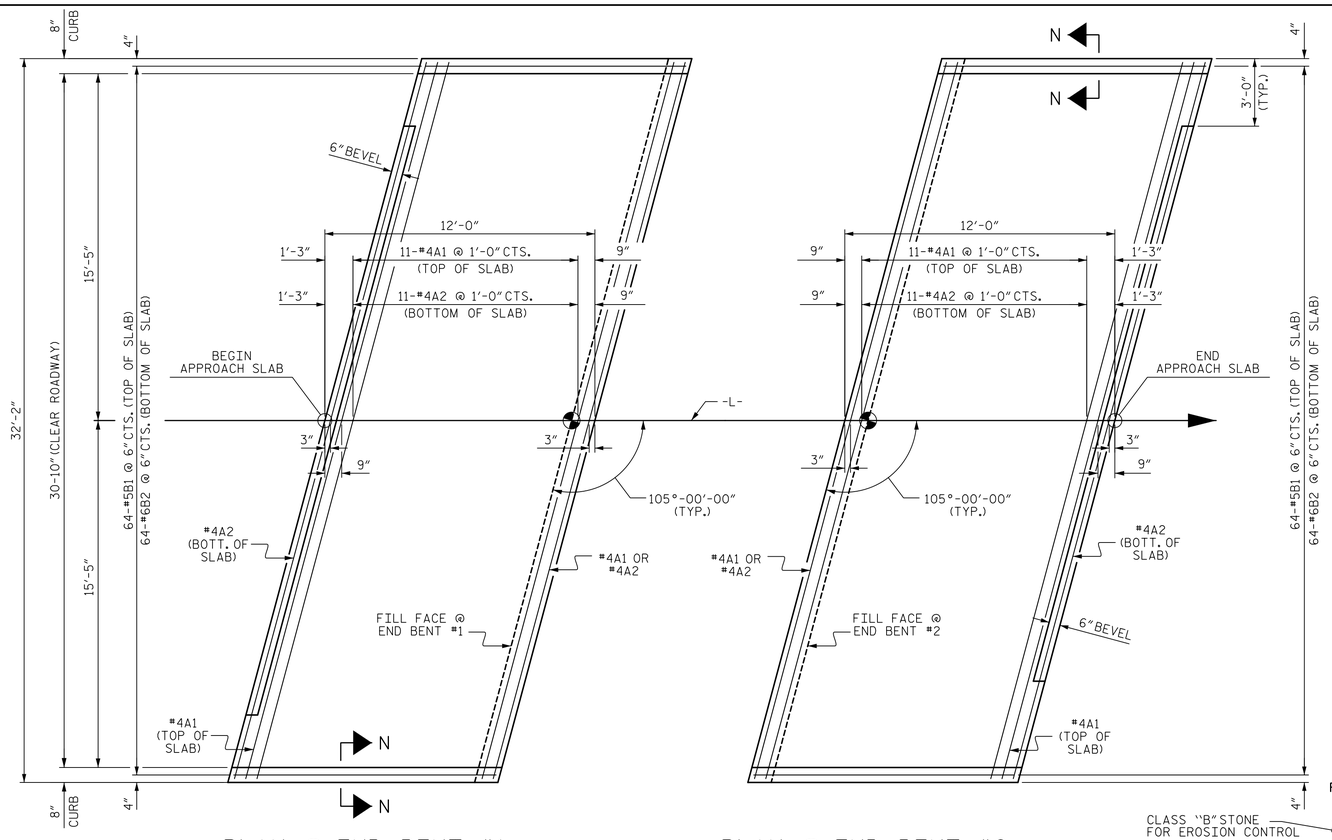
DWG. NO. 17

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : M. WRIGHT	DATE : 8/24	
CHECKED BY : Z. REINEKE	DATE : 9/24	
DRAWN BY : REK 1/84	REV. 10/1/11	MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11	MAA/GM
	REV. 12/17	MAA/THC

2/25/2026
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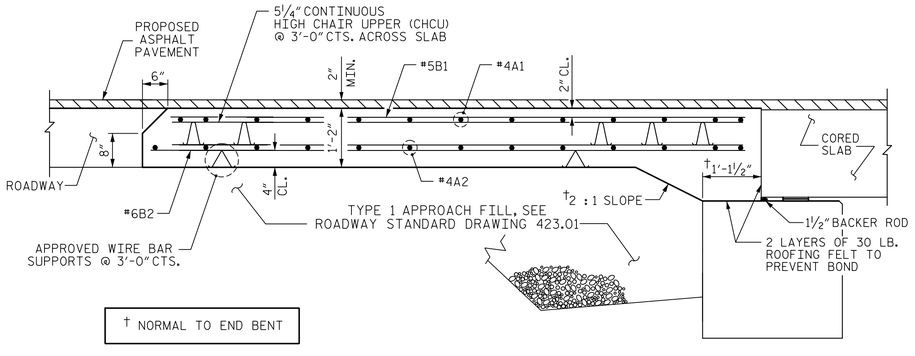
Docusign Envelope ID: ED75B369-C162-4210-8C6C-275C56F96EC2



PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

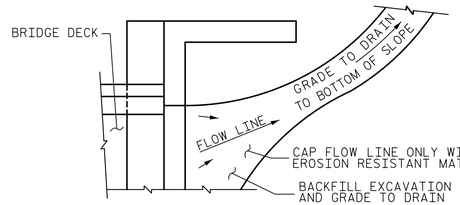
SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

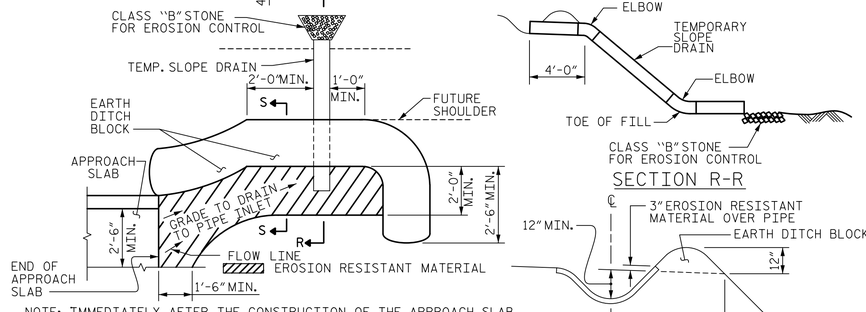
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



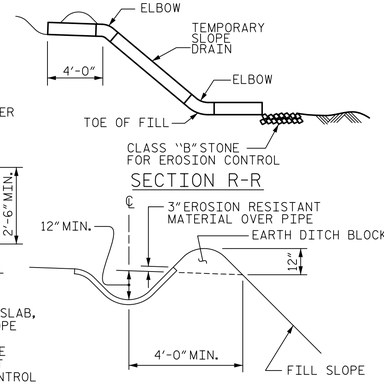
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

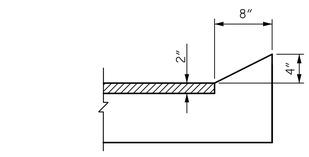


SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	13	#4	STR	32'-11"	286
A2	13	#4	STR	32'-11"	286
✳B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1399
✳EPOXY COATED REINFORCING STEEL				LBS.	1026
CLASS AA CONCRETE				C.Y.	18.4

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	13	#4	STR	32'-11"	286
A2	13	#4	STR	32'-11"	286
✳B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1399
✳EPOXY COATED REINFORCING STEEL				LBS.	1026
CLASS AA CONCRETE				C.Y.	18.4

SPLICE LENGTHS

BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

PROJECT NO. BP2-R008

BEAUFORT COUNTY

STATION: 14+76.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 27812 ENGINEER DAVID W. HAWKINS

Signed by: David W. Hawkins 3/17/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 105° SKEW

STD. NO. BAS_33_105S

ASSEMBLED BY : M. WRIGHT	DATE : 1/23		
CHECKED BY : P. BARBER	DATE : 2/23		
DRAWN BY : FCJ 6/87	REV. 6/13	MAA/GM	
CHECKED BY : EGA 6/87	REV. 12/17	MAA/THC	
	REV. 07/23	BNB/SNM	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
4000 Center at North Hills Street, Suite 500, Raleigh, NC 27609

DRAWN BY	M. WRIGHT	DATE	1/23
CHECKED BY	P. BARBER	DATE	2/23
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	3/24

DWG. NO. 18

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-18
1			3			TOTAL SHEETS
2			4			18

2/25/2026
"_TIME"
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Docusign Envelope ID: ED75B369-C162-4210-8C6C-275C56F96EC2

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.