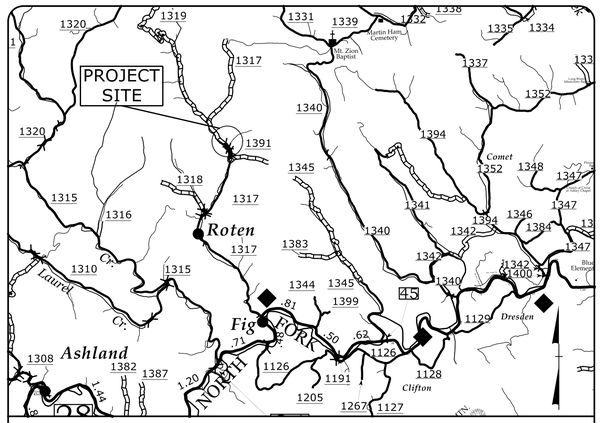
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09/08/99

PROJECT: DF18311.2005102.PR

CONTRACT: DK00441

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



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18311.2005102.PR	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
DF18311.2005102.PR	N/A	PE
DF18311.2005102.PR	N/A	ROW & UTILITY
DF18311.2005102.PR	N/A	CONSTRUCTION

LOCATION: REPLACE BRIDGE NO. 262 ON SR 1317 (RICH HILL RD.)

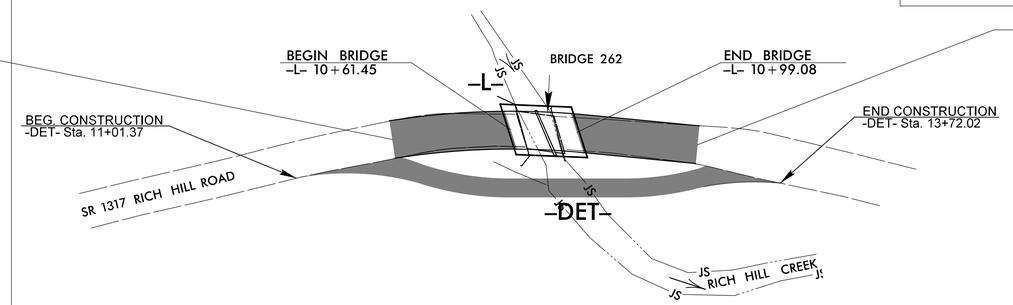
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NAD 83/
NA 2011

4

BEGIN PROJECT
DF18311.2005102.PR
–L– STA. 10+00.00

END PROJECT
DF18311.2005102.PR
–L– STA. 11+61.82



TO SR 1319

TO NC 88

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

AADT 2023 = 250
AADT 2025 = 250
K = N/A %
D = N/A %
T = N/A %
V = 40 MPH
FUNC CLASS = LOCAL

AASHTO
LOW VOLUME ROADS
DESIGN GUIDELINES

PROJECT LENGTH

LENGTH ROADWAY PROJECT DF18311.2005102.PR = 0.024 Mi.
LENGTH STRUCTURE PROJECT DF18311.2005102.PR = 0.007 Mi.
TOTAL LENGTH OF PROJECT DF18311.2005102.PR = 0.031 Mi.

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

vhb
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 5, 2025

LETTING DATE: NOVEMBER 20, 2025

THAD DUNCAN, PE
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

NCDOT CONTACT

ROB WEISZ, PE
DIVISION 11 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER
9/18/2025
Signed by: James R. Hopson, JR.
SIGNATURE 06944D8...
NORTH CAROLINA PROFESSIONAL SEAL 044499 ENGINEER JAMES R. HOPSON JR.
P.E.

ROADWAY DESIGN ENGINEER
9/17/2025
DocuSigned by: Thad Duncan
SIGNATURE FF2435...
NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER Thad F. Duncan
P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

9/8/2025
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
DF1831.2005102.PR	1A

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ROADWAY DESIGN ENGINEER
9/30/2025
NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER Shad F. Duncan
DocuSigned by:
Shad Duncan
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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
2B-1	DETOUR DETAIL SHEET
2C-1	METHOD OF PIPE INSTALLATION FLEXIBLE PIPE DETAIL
3B-1	SUMMARY OF EARTHWORK, REMOVAL OF EXISTING ASPHALT PAVEMENT
3D-1	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARY TABLES
4	PLAN/PROFILE SHEET
RW02C-1	SURVEY CONTROL SHEET
TMP-1 THRU TMP-6	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
X-1 THRU X-3	CROSS-SECTIONS
S-1 THRU S-18	STRUCTURE PLANS
	STRUCTURE STANDARD NOTES

2024 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2024
REV.

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

STD.NO. TITLE

DIVISION 2 - EARTHWORK

200.03 Method of Clearing - Method III
225.02 Guide for Grading Subgrade - Secondary and Local
225.04 Method of Obtaining Superelevation - Two Lane Pavement

DIVISION 3 - PIPE CULVERTS

310.10 Driveway Pipe Construction

DIVISION 4 - MAJOR STRUCTURES

423.02 Bridge Approach Fills - Type IA Alternate Aproach Fill for Integral 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
840.41 Spring Box - Concrete or Brick
876.01 Rip Rap in Channels
876.02 Guide for Rip Rap at Pipe Outlets
876.04 Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2024 SPECIFICATIONS

EFFECTIVE: 01-16-2024
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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

AT&T

9/30/2025
BP11-R037_rdy_psh01A.dgn
mhasel

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
DF1831I.2005102.PR	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)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:

- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

UTILITIES:

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

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

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PROJECT REFERENCE NO.	SHEET NO.
DF1831.2005102.PR	2A-1

ROADWAY DESIGN ENGINEER
9/17/2025
NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER
Docusigned by: Thad Duncan
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PAVEMENT DESIGN ENGINEER
9/19/2025
NORTH CAROLINA PROFESSIONAL SEAL 49851 ENGINEER RAMIE H. SHAW
Docusigned by: Ramie H. Shaw
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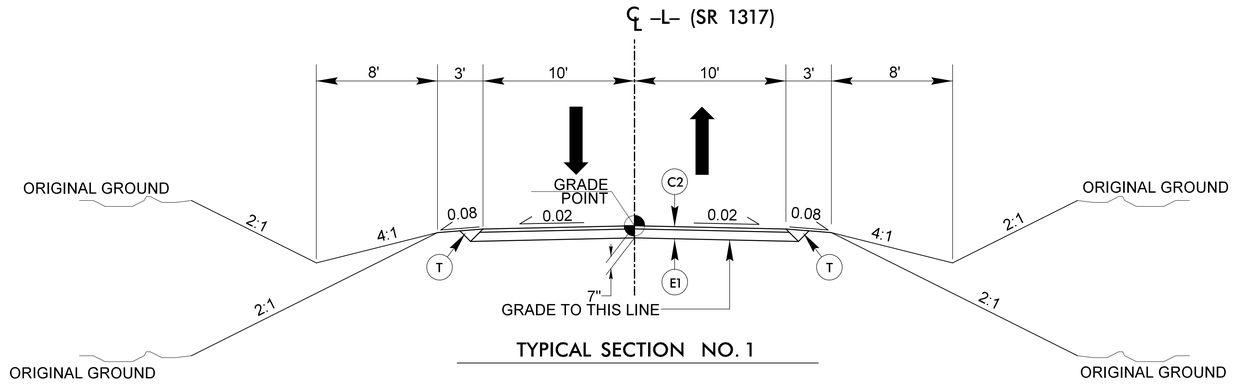
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Prepared by:
vhb
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705

FINAL PAVEMENT SCHEDULE

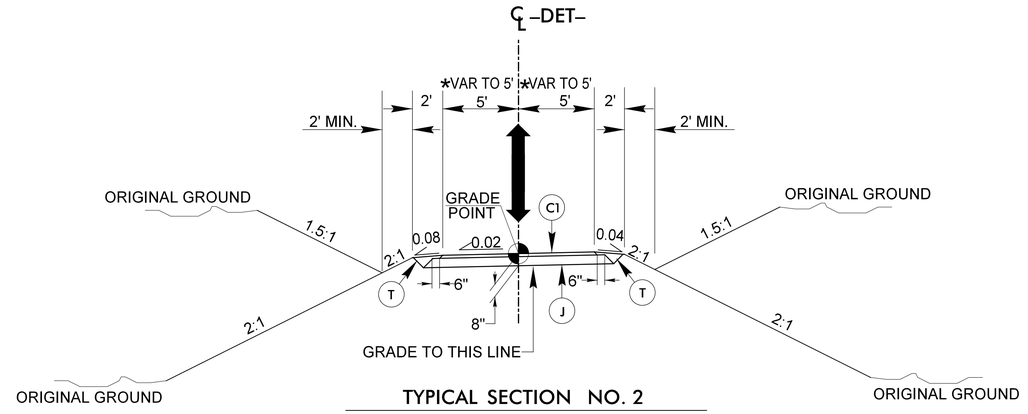
C1	PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
J	PROP. 6″ AGGREGATE BASE COURSE
P	PRIME COAT
T	EARTH MATERIAL
U	EXISTING PAVEMENT

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



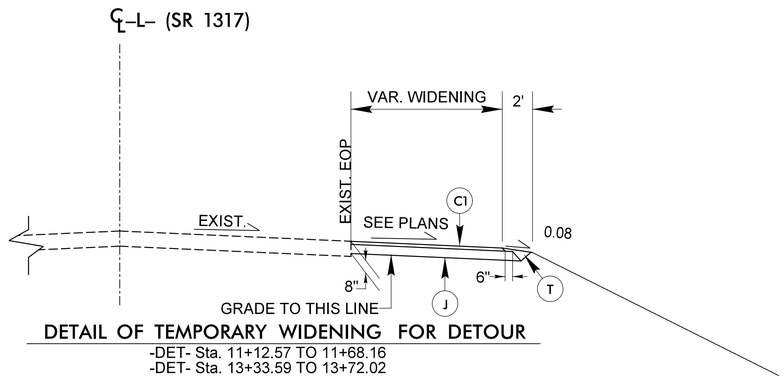
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USE TYPICAL SECTION NO 1 AS FOLLOWS:
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-L- Sta. 10+99.08 (END BRIDGE) TO 11+61.82



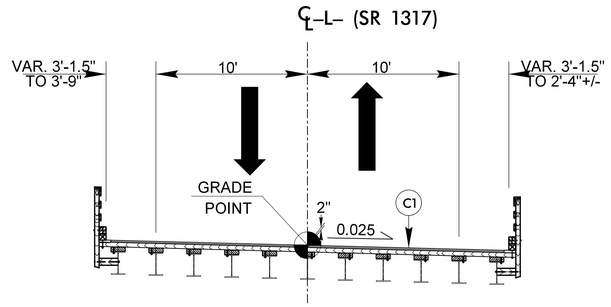
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO 2 AS FOLLOWS:
* -DET- Sta. 11+68.16 TO 11+80.03
* -DET- Sta. 13+29.97 TO 13+33.59
-DET- Sta. 11+80.03 TO 13+29.97



DETAIL OF TEMPORARY WIDENING FOR DETOUR

-DET- Sta. 11+12.57 TO 11+68.16
-DET- Sta. 13+33.59 TO 13+72.02



TYPICAL SECTION ON STRUCTURE (TIMBER BRIDGE)

-L- Sta. 10+61.45 TO 10+99.08
SEE STRUCTURE PLANS FOR STRUCTURE CONSTRUCTION DETAILS

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8/17/99

REVISIONS

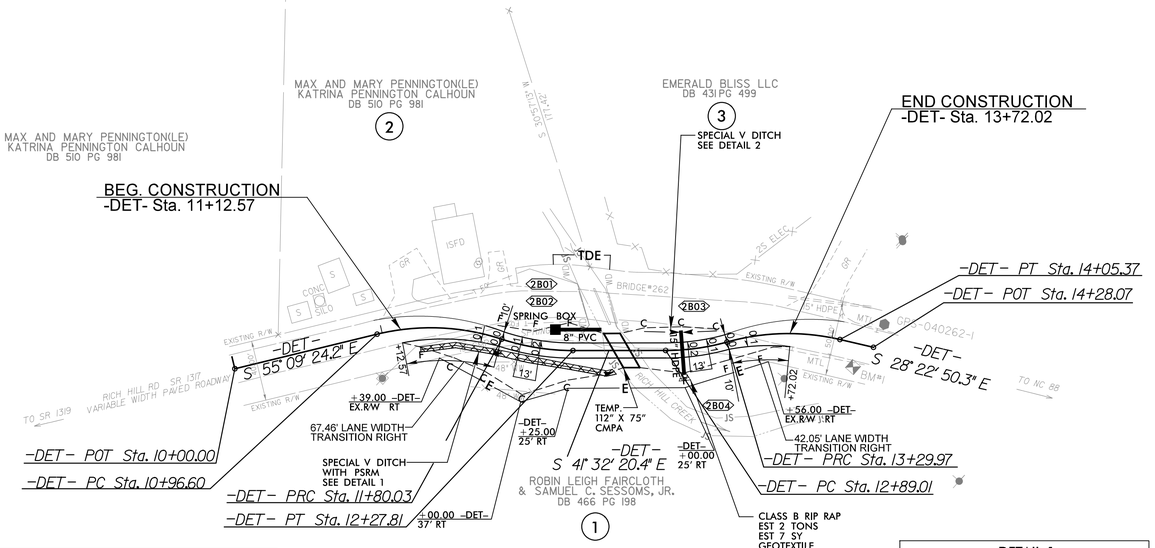
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DF1831I.2005102.PR	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
9/17/2025
NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER Thad S. Duncan
Docusigned by: Thad Duncan
15E4F0E4E0E1...

HYDRAULICS ENGINEER
9/18/2025
NORTH CAROLINA PROFESSIONAL SEAL 044499 ENGINEER JAMES R. HOPSON, JR.
Signed by: James R. Hopson, JR.
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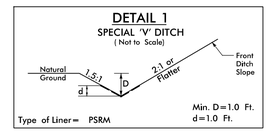
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vhb



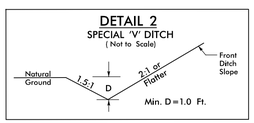
-DET-			
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△ = 31° 52' 08.9" (RT)	△ = 18° 15' 05.1" (LT)	△ = 15° 38' 40.8" (LT)	△ = 28° 48' 10.9" (RT)
D = 38° 11' 49.9"	D = 38° 11' 49.9"	D = 38° 11' 49.9"	D = 38° 11' 49.9"
L = 83.43'	L = 47.78'	L = 40.96'	L = 75.41'
T = 42.83'	T = 24.10'	T = 20.61'	T = 38.52'
R = 150.00'	R = 150.00'	R = 150.00'	R = 150.00'
	SE = 0.02 FT/FT	SE = 0.02 FT/FT	
	R0 = 26'	R0 = 26'	

DETAIL 1
SPECIAL 'V' DITCH
(Not to Scale)



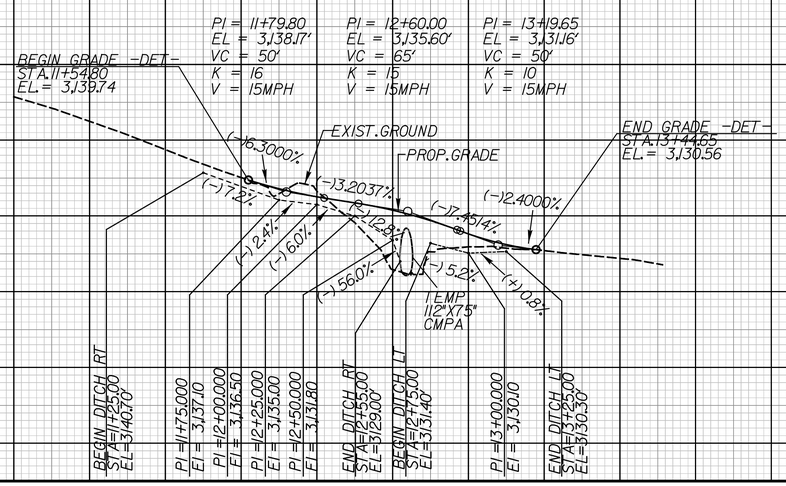
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d=1.0 Ft.
Type of Liner= PSRM
FROM STA. 11+25 TO STA. 12+55 -DET- RT

DETAIL 2
SPECIAL 'V' DITCH
(Not to Scale)



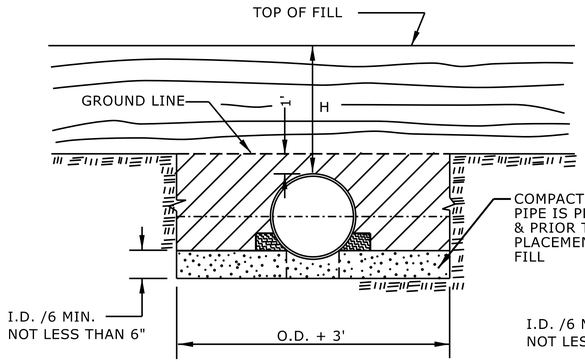
Min. D=1.0 Ft.
FROM STA. 12+75 TO STA. 13+25 -DET- LT

BM# 1 ELEVATION = 3129.17
N 1005296 E 1231775
CHISELED SQUARE IN NW HW OF BRIDGE 139
-L- STATION 14+15.01 15.7327' RT

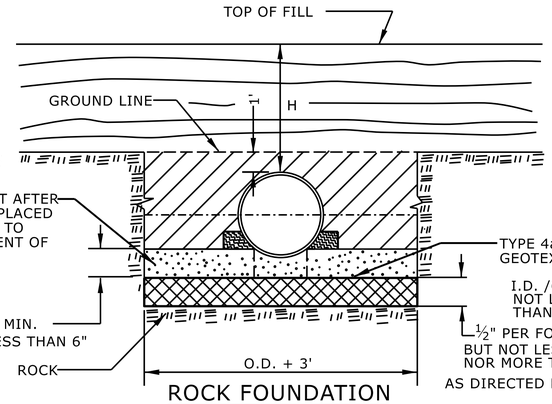


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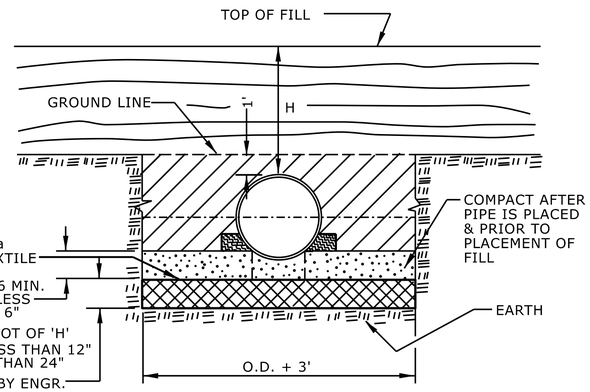
PROJECT REFERENCE NO.	SHEET NO.
DF18311.2095784	2C-1



NORMAL EARTH FOUNDATION

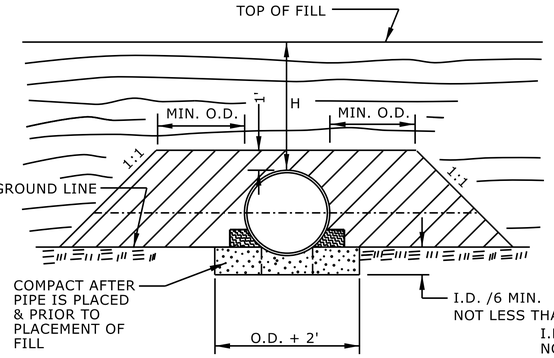


ROCK FOUNDATION

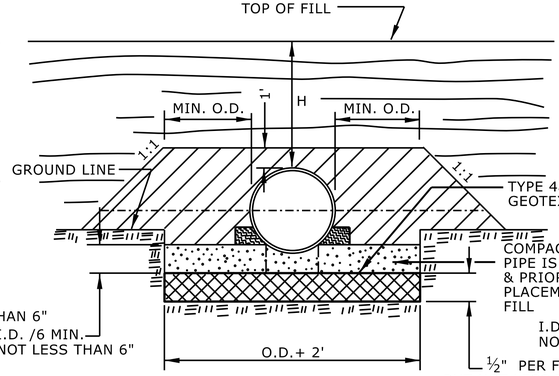


UNSUITABLE MATERIAL FOUNDATION

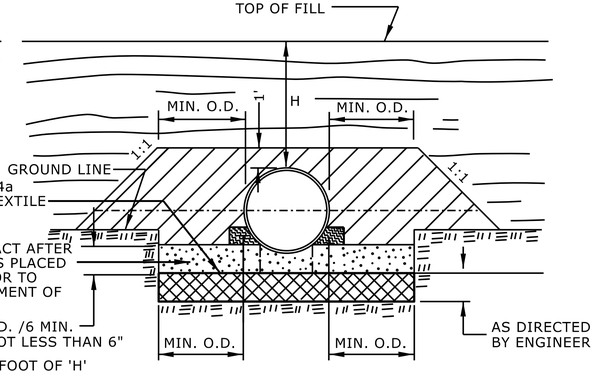
PIPE IN TRENCH



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

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

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

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKER

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.:

12/06/07

COMPUTED BY: MRH DATE: 5/2/2025
CHECKED BY: TDUNCAN DATE: 9/08/2025

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
DF1831I.2005102.PR	3B-1

SUMMARY OF EARTHWORK
(IN CUBIC YARD)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
–DET– 11+12.57	13+72.02	150	443	293	
	SUBTOTALS:	150	443	293	
–L– 10+00.00	10+61.45 (BEG. BRIDGE)	17	6		11
	SUBTOTALS:	17	6		11
–L– 10+99.08 (END BRIDGE)	11+50.00	16	2		14
	SUBTOTALS:	16	2		14
	PROJECT TOTAL	568	623	293	24
WASTE IN LIEU OF BORROW				–24	–24
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				13	
GRAND TOTALS:		568	2206	282	
SAY:		575		300	

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQ. YD.
–L–	10+00.00	10+61.58	CL	136.84
–L–	10+99.29	11+51.82	CL	138.96
–DET–	11+12.57	13+72.02	CL	225.49
		SUBTOTALS:		501.29
		SAY:		505

8/8/2025
8:01:10 AM
mhussey
...\roadway\rdy_sum_3B-1.dgn

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
DF1831I.2005102.PR	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Alternate Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8 | 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PPP | DO NOT USE PVC | R. C. PIPE CLASS III 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) 0' THRU 5' EACH | A 5' THRU 10' LIN. FT. | B 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | 8" PVC SPRING BOX PIPE | ##" SLUICE GATE (##" SIZE SLUICE GATE) | ##" x ##" x ##" PERF. C.S.P. TEE RISER ##" THICK | SPRING BOX STD. 840.41 | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: DM MULLEN, PE DATE: 6/24/2025
CHECKED BY: SC CLARK, PE DATE: 6/24/2025

(9-17-24)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
DF18311.2005102.PR	3G-1

SUMMARY OF SUBSURFACE DRAINAGE

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

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU (1)		100	200	300		
			TOTAL CY/TONS/SY:		100	200**	300**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Compost Blanket for Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
-DET-	1.5:1	11+30	1.5:1	12+35	RT				1675	
					TOTAL SY:	0	0	0	1675*	0**

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.
**Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

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8/17/99

REVISIONS

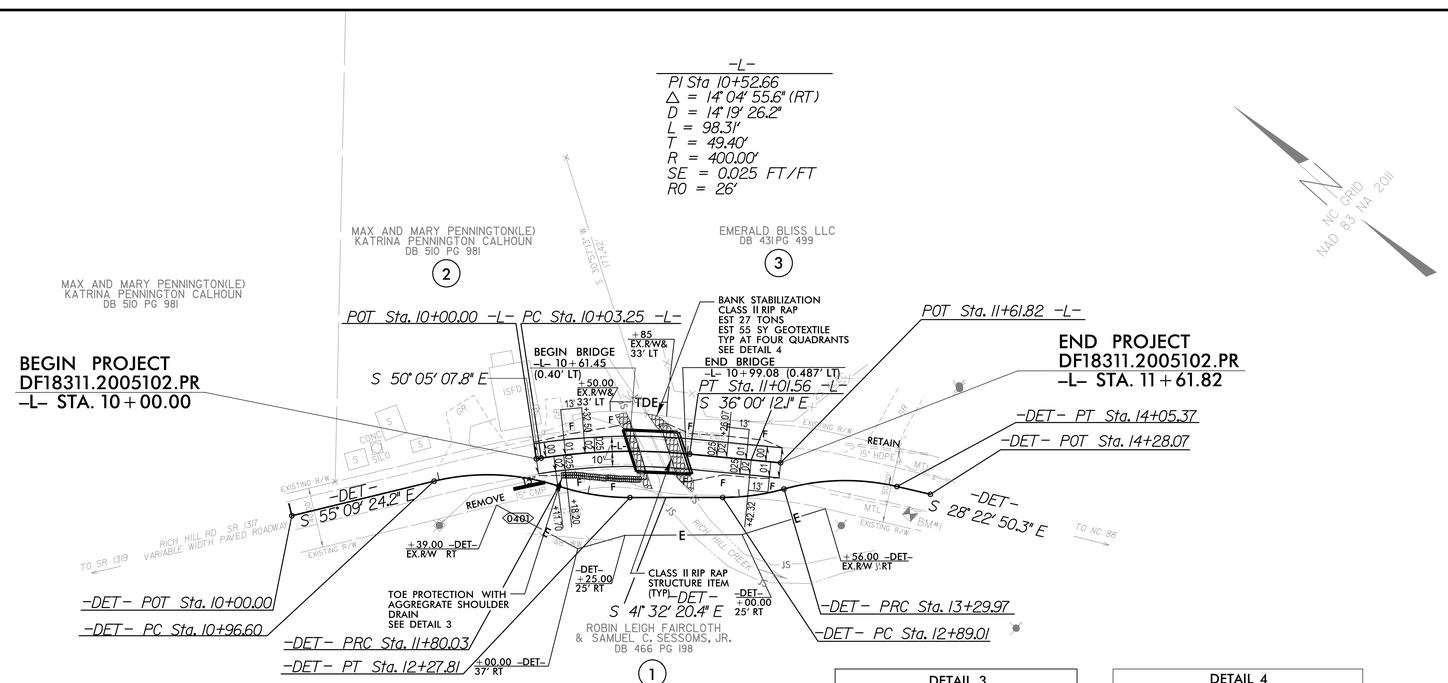
PROJECT REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
9/17/2025
NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER Thad Duncan
Docusigned by: Thad Duncan
1E4B8B2E7A4E4E1...

HYDRAULICS ENGINEER
9/18/2025
NORTH CAROLINA PROFESSIONAL SEAL 044499 ENGINEER JAMES R. HOPSON JR.
Signed by: James R. Hopson, JR.
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

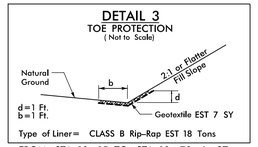
vhb



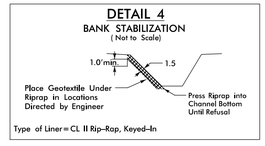
-DET-

PI Sta 11+39.42	PI Sta 12+04.13	PI Sta 13+09.62	PI Sta 13+68.48
Δ = 31° 52' 08.9" (RT)	Δ = 18° 15' 05.1" (LT)	Δ = 15° 38' 40.8" (LT)	Δ = 28° 48' 10.9" (RT)
D = 38° 11' 49.9"	D = 38° 11' 49.9"	D = 38° 11' 49.9"	D = 38° 11' 49.9"
L = 83.43'	L = 47.78'	L = 40.96'	L = 75.41'
T = 42.83'	T = 24.10'	T = 20.61'	T = 38.52'
R = 150.00'	R = 150.00'	R = 150.00'	R = 150.00'
	SE = 0.02 FT/FT	SE = 0.02 FT/FT	
	R0 = 26'	R0 = 26'	

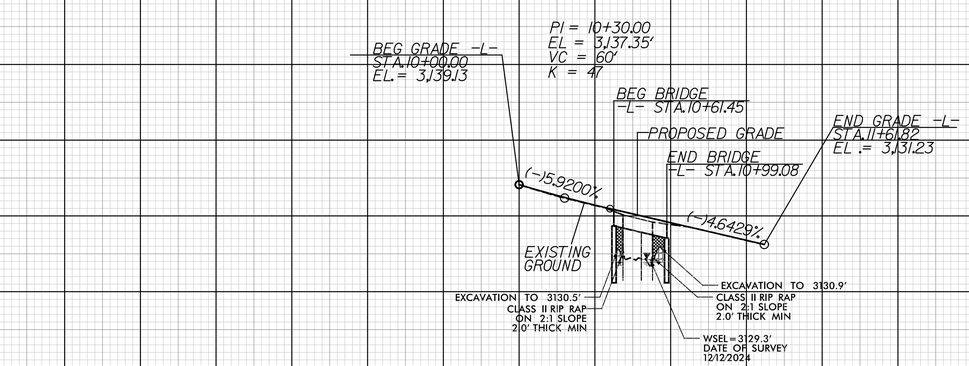
NOTE: ENTIRE EXISTING STRUCTURE TO BE REMOVED



FROM STA. 10+15 TO STA. 10+70 -L- RT



BM# 1 ELEVATION = 3129.17
N 1005296 E 1231775
CHISELED SQUARE IN NW HW OF BRIDGE 139
-L- STATION 14+15.01 15.7327' RT



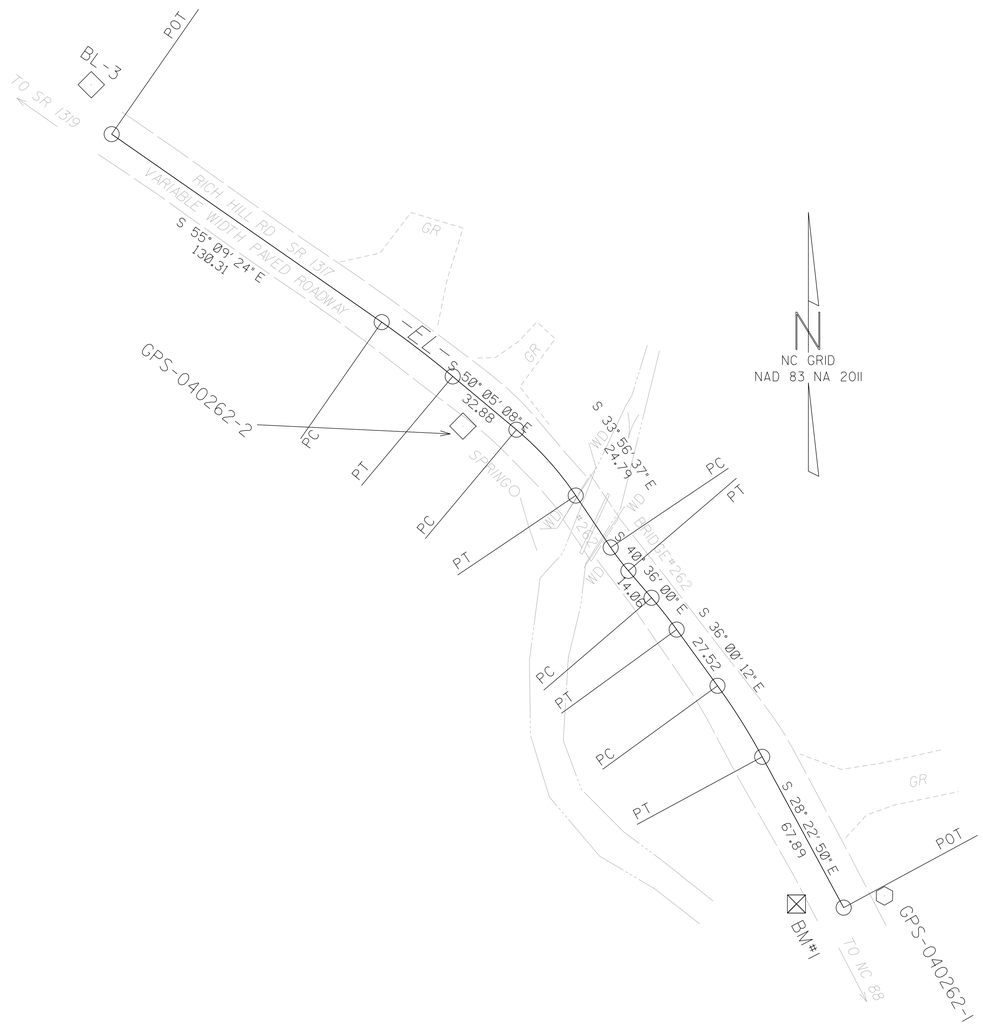
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 570	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 3134.1	FT
BASE DISCHARGE	= 890	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 3136.6	FT
OVERTOPPING DISCHARGE	= 730	CFS
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING ELEVATION	= 3134.8	FT
DATE OF SURVEY	= 12/12/2024	
W.S.ELEVATION AT DATE OF SURVEY	= 3129.3	FT

9/8/2025
DF18311.2005102_rdy_pst04.dgn
mhussey

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	1005600.936	1231503.496							
LINE			S 55°09'24.2" E	130.31					
PC	1005526.489	1231610.440							
CURVE			S 52°37'16.0" E	35.39	05°04'16.4"(RT)	14°19'26.2"	35.40	17.71	400.00
PT	1005505.003	1231638.564							
LINE			S 50°05'07.8" E	32.88					
PC	1005483.907	1231663.782							
CURVE			S 42°00'52.4" E	35.10	16°08'30.7"(RT)	45°50'11.8"	35.22	17.73	125.00
PT	1005457.828	1231687.275							
LINE			S 33°56'37.1" E	24.79					
PC	1005437.266	1231701.115							
CURVE			S 37°16'18.8" E	11.61	06°39'23.4"(LT)	57°17'44.8"	11.62	5.82	100.00
PT	1005428.026	1231708.147							
LINE			S 40°36'00.5" E	14.06					
PC	1005417.350	1231717.297							
CURVE			S 38°18'06.3" E	16.04	04°35'48.3"(RT)	28°38'52.4"	16.05	8.03	200.00
PT	1005404.762	1231727.239							
LINE			S 36°00'12.1" E	27.52					
PC	1005382.499	1231743.416							
CURVE			S 32°11'31.2" E	33.24	07°37'21.8"(RT)	22°55'05.9"	33.26	16.65	250.00
PT	1005354.372	1231761.123							
LINE			S 28°22'50.3" E	67.89					
POT	1005294.646	1231793.391							

PROJECT REFERENCE NO.	SHEET NO.
040262	RW02C-1

Location and Surveys

DIV 11 N. WILKESBORO L&S

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4301 LAND SURVEYOR R. LANDON WAGONER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, R. Landon Wagoner, 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: VRS
Dates of survey: November 2024
Datum/Epoch: NAD83/ 2011
Published/Fixed-control use:
Localized around: GPS 040262-1
Northing:1005299.3070
Easting:1231809.5454
Combined grid factor:0.999959362
Geoid model:GEOID18
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 November 14, 2024 to November 25, 2024 , 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 10th day of December, 2024.

Signed by:
R. Landon Wagoner
9A06613FED3042D...

Professional Land Surveyor L-4301

BL

POINT	DESC.	NORTH	EAST	ELEVATION
BL3	BL-3	1005620.4980	1231495.3890	3151.30
402622	GPS-40262-2	1005485.3310	1231642.5670	3137.96
402621	GPS-40262-1	1005299.3070	1231809.5450	3127.87

```
**********************************************
BM#1       ELEVATION = 3129.17
N 1005296      E 1231775
CHISELED SQUARE IN NW HW OF BRIDGE 139
**********************************************
```

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.

6/2/99

REVISIONS

19-DEC-2024 14:40
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AT LS-32954L

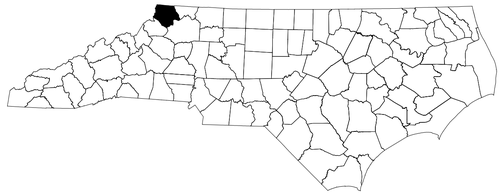
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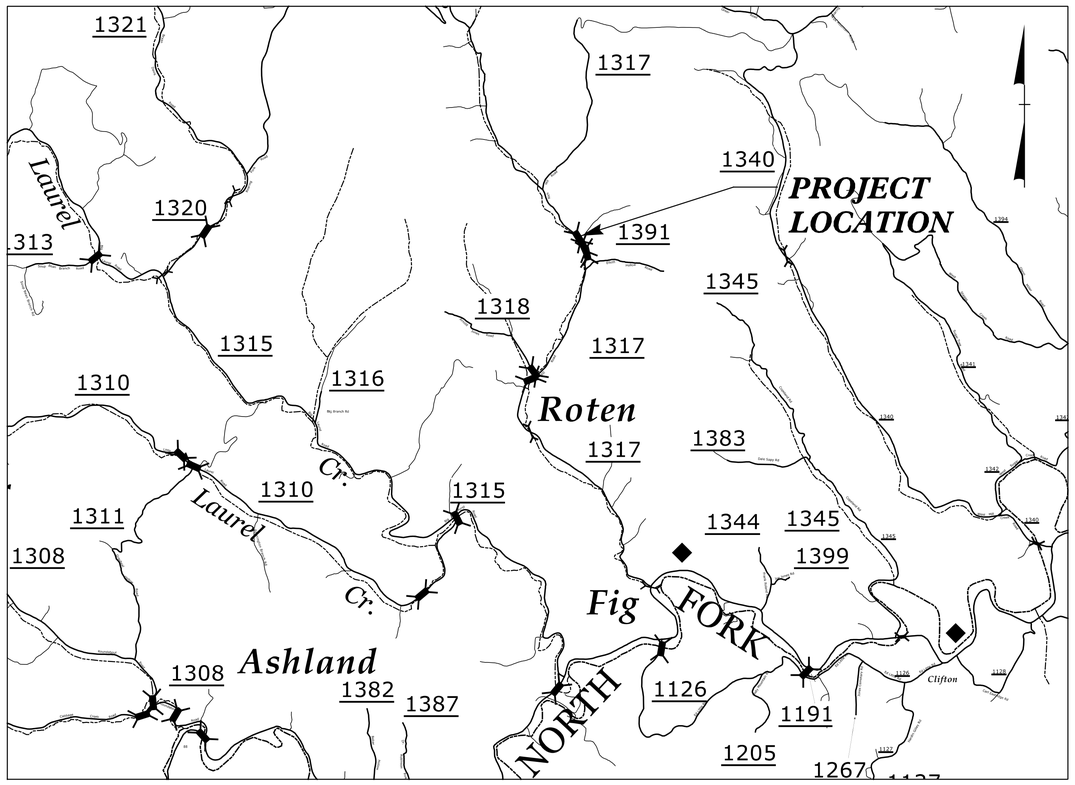
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ASHE COUNTY

LOCATION: REPLACE BRIDGE NO. 262 ON SR 1317 (RICH HILL RD.)





VICINITY MAP



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:

J. TOWNSEND, PE (VHB)

NCDOT CONTACTS:

ROB WEISZ, PE
PROJECT ENGINEER

IVAN DISHMAN, PE
DIVISION CONSTRUCTION ENGINEER

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

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	ROADWAY STANDARD DRAWINGS & LEGEND
TMP-2 THRU TMP-2A	TRANSPORTATION OPERATIONS PLAN: MANAGEMENT STRATEGIES AND GENERAL NOTES
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-6	TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

vhb
940 Main Campus Drive, Suite 500 Raleigh, NC 27606
NC License No. C-3705

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN C. TOWNSEND
Digitally signed by JOHN C. TOWNSEND
DN: c=US, o=VHB, ou=VHB, cn=JOHN C. TOWNSEND, email=JTOWNSEND@VHB.COM, 0.9.2342.19200300.100.1.1=15210
Date: 2021.08.31 08:27:00 -04'00'

SHEET NO.
TMP-1

TIP PROJECT: DF1831 311.200510 2.PR

$$$$SYSTIME$$$$
$$$$SUSERNAME$$$$
$$$$SDGN$$$$

Docusign Envelope ID: 3A8987A6-103D-4EC8-97F3-DC8807BC3246

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES - TYPE III
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION - REFLECTIVE END TREATMENT
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXIT AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1205.14	PAVEMENT MARKINGS - ROUNDABOUTS
1205.15	PAVEMENT MARKINGS - REDUCED CONFLICT INTERSECTIONS
1205.16	BICYCLE FACILITIES
1205.17	PAVEMENT MARKINGS - SIDE-BY-SIDE/ADJACAENT ON/OFF RAMPS PVMT. MARKING LANE TREATMENT
1250.01	RAISED PAVEMENT MARKERS INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS TYPES
1264.02	OBJECT MARKERS - INSTALLATION
1266.01	RAISED PAVEMENT MARKERS - TUBULAR MARKERS
1267.01	FLEXIBLE DELINEATORS - INSTALLATION
1267.02	FLEXIBLE DELINEATORS - SPACING TABLES
1267.03	FLEXIBLE DELINEATORS - INTERCHANGE PLACEMENT

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

PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	TMP-1A

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
	PAINT (4")
P1	WHITE EDGELINE
P13	YELLOW DOUBLE CENTER
	PAINT (24")
P61	WHITE STOP BAR

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND 9/27/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

Docusign Envelope ID: 3A8987A6-103D-4EC8-97F3-DC8807BC3246

PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	TMP-2

TRANSPORTATION MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:

- LANE SHIFTS OR CLOSURES
- ONE-LANE, TWO WAY OPERATION (SIGNALIZED)
- ON-SITE DETOURS

WORK ZONE SAFETY & MOBILITY STRATEGIES:

- AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADS)

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 DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL 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.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 5 FT OF AN OPEN TRAVEL LANE ON AN UNDIVIDED FACILITY, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 10 FT OF AN OPEN TRAVEL LANE ON A DIVIDED FACILITY, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

F) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

K) 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 IN THE TRAFFIC CONTROL PLANS.

L) 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 DETOUR IS NOT IN OPERATION.

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

N) INSTALL BLACK ON ORANGE ''DIP'' SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

O) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY.

REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G TOWNSEND

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TEMPORARY TRAFFIC CONTROL TRANSPORTATION MANAGEMENT STRATEGIES AND GENERAL NOTES

$$$$$$$SYSTIME$$$$$
$$$$$$$

Docusign Envelope ID: 3A8987A6-103D-4EC8-97F3-DC8807BC3246

GENERAL NOTES (CONTINUED)

PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	TMP-2A

PAVEMENT MARKINGS AND MARKERS

R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	NONE

S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031533 JOHN G. TOWNSEND 9/27/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TEMPORARY TRAFFIC CONTROL TRANSPORTATION MANAGEMENT STRATEGIES AND GENERAL NOTES

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

Docusign Envelope ID: 3A8987A6-103D-4EC8-97F3-DC8807BC3246

PHASING

PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	TMP-3

NOTES:

REPLACE MARKINGS AND RETURN TO THE CURRENT TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

MAINTAIN VEHICULAR ACCESS TO ALL RESIDENCES AND BUSINESSES DURING THE LIFE OF THE CONTRACT UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

COMPLETE ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE. THIS MAY REQUIRE A COMBINATION OF INSTALLATION OF PROPOSED PIPES, TEMPORARY PIPES, STEEL PLATES, TEMPORARY MEDIAN, AND OUTSIDE DITCHES. PROVIDE WEDGING AS REQUIRED TO PROMOTE POSITIVE DRAINAGE AND SMOOTH TRANSITIONS.

PAVE PROPOSED CONSTRUCTION UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, IN ALL PHASES UNTIL STATED TO INSTALL FINAL LAYER IN PHASING.

THE TERM RSD REFERS TO ROADWAY STANDARD DRAWINGS.

PHASE I (SEE TMP-4 FOR DETAIL)

STEP 1: USING RSD 1101.01 (SHEET 2 AND 3 OF 3), INSTALL ADVANCE WARNING SIGNS ON RICH HILL ROAD.

STEP 2: USING RSD 1101.02 (SHEET 17 OF 19), CLOSE THE SOUTHBOUND TRAVEL LANE ON RICH HILL ROAD AND CONSTRUCT THE TEMPORARY DETOUR.

PHASE II (SEE TMP-5 FOR DETAIL)

STEP 1: USING RSD 1101.02 (SHEET 17 OF 19), SHIFT TRAFFIC ONTO THE TEMPORARY DETOUR AND CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY.

PHASE III (SEE TMP-6 FOR DETAIL)

STEP 1: USING TEMPORARY LANE CLOSURES AS NEEDED, REMOVE ANY CONFLICTING MARKINGS, INSTALL TEMPORARY PAVEMENT MARKINGS IN ACCORDANCE WITH THE FINAL PAVEMENT MARKING PLANS, AND SHIFT TRAFFIC INTO FINAL PATTERN.

STEP 2: AWAY FROM TRAFFIC AND USING LANE CLOSURES AS NEEDED, REMOVE THE TEMPORARY DETOUR AND COMPLETE FINAL GRADING AND DRAINAGE.

STEP 3: USING TEMPORARY LANE CLOSURES AS NEEDED, INSTALL FINAL PAVEMENT LAYER AND FINAL PAVEMENT MARKINGS IN ACCORDANCE WITH THE FINAL PAVEMENT MARKING PLANS, AND REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND OPEN ALL LANES TO TRAFFIC.

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND
9/22/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TEMPORARY TRAFFIC CONTROL PHASING

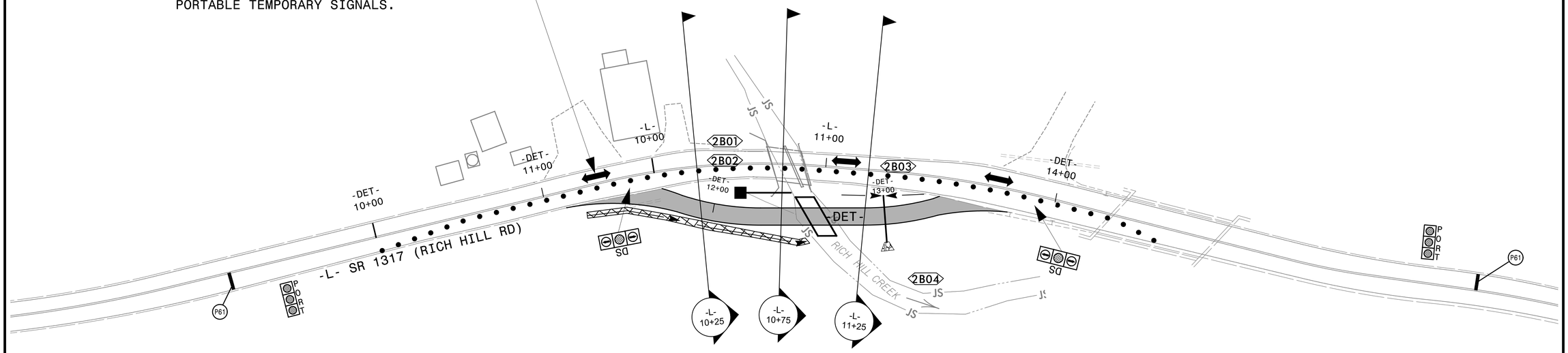
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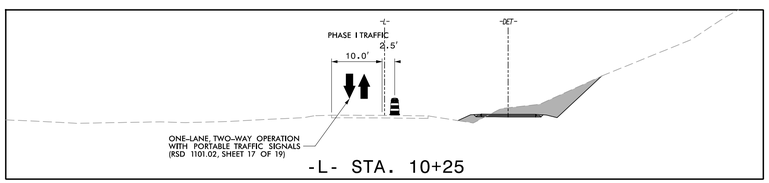
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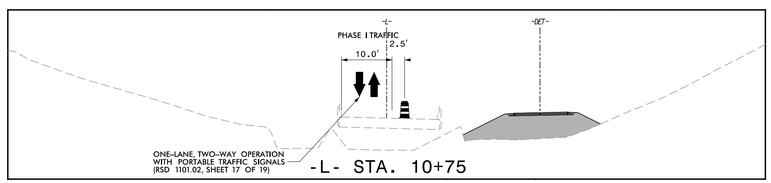
PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	TMP-4

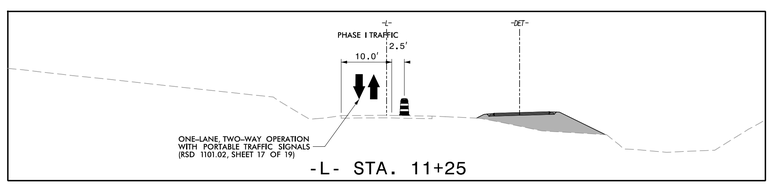
30′ 0′ 30′ 60′
15′

USING RSD 1101.02 (SHEET 17 OF 19), PLACE TRAFFIC INTO 1-LANE, 2-WAY OPERATION WITH PORTABLE TEMPORARY SIGNALS.









APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G TOWNSEND 9/22/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

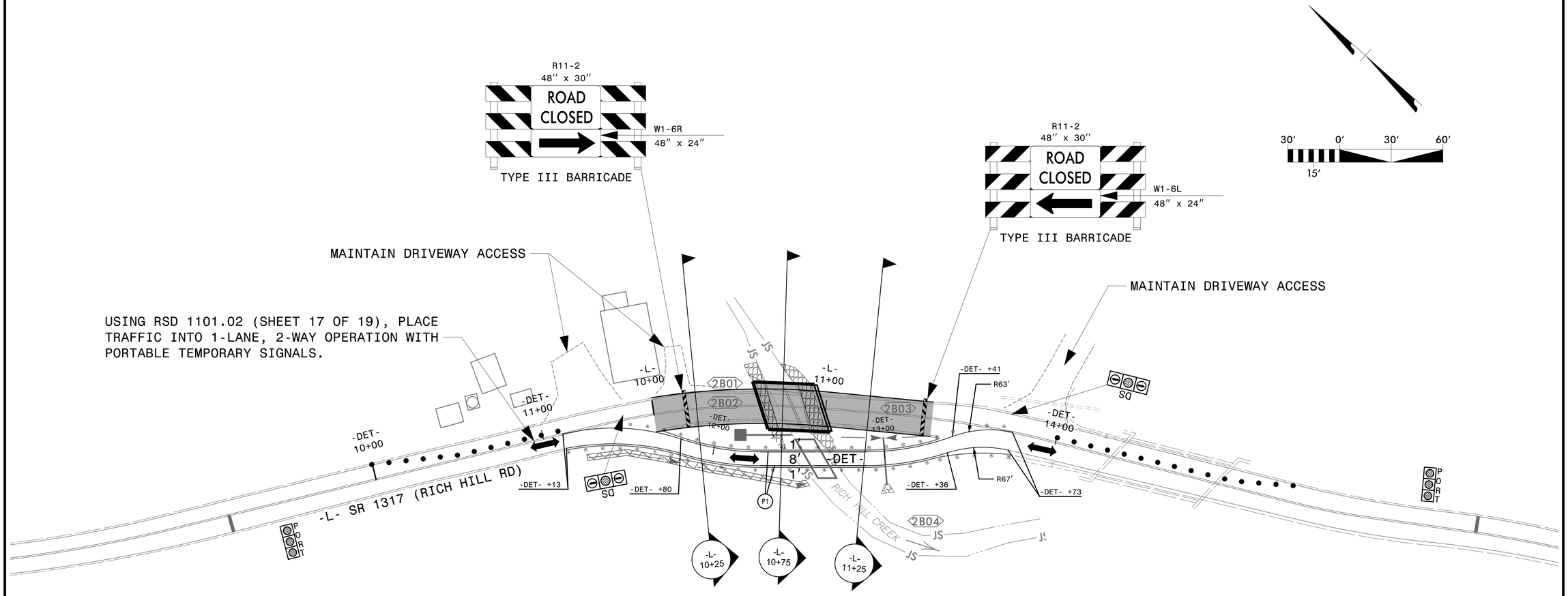
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

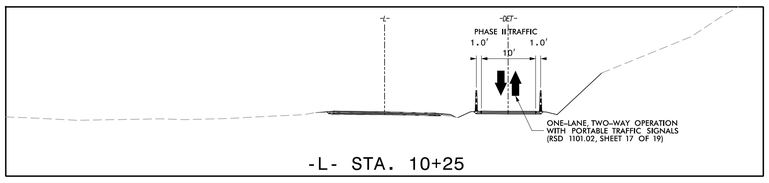
TEMPORARY TRAFFIC CONTROL PHASE I DETAIL

$$$$$$$SYSTIME$$$$$
$$$$$$$

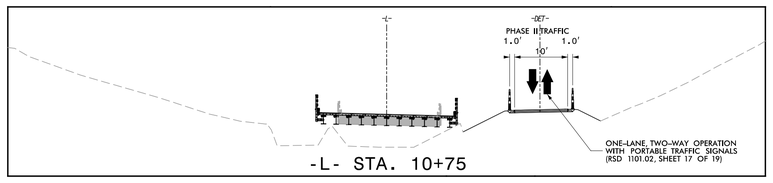
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PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	TMP-5

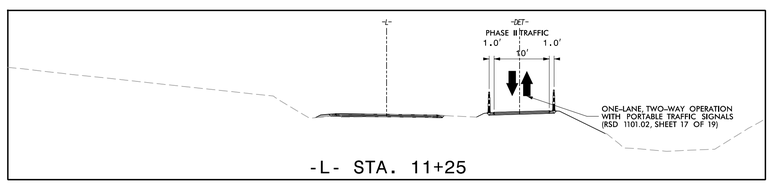




-L- STA. 10+25



-L- STA. 10+75



-L- STA. 11+25

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND
9/22/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

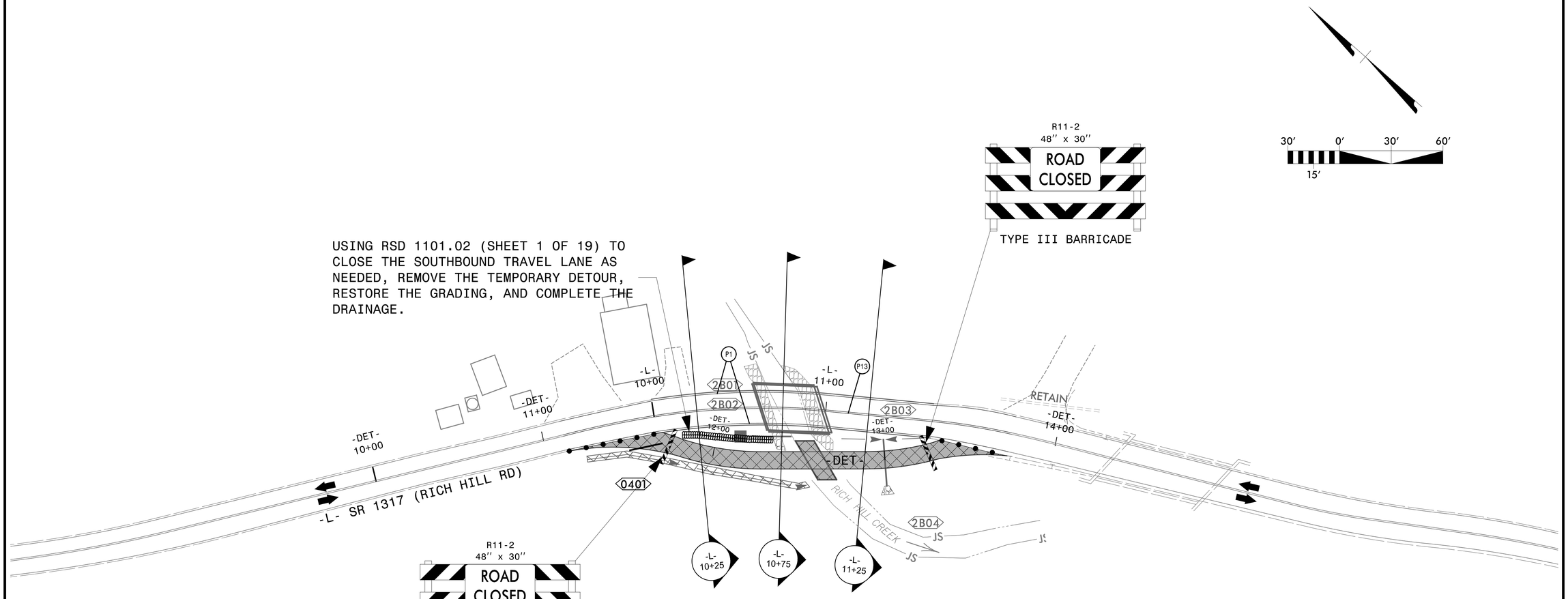
TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

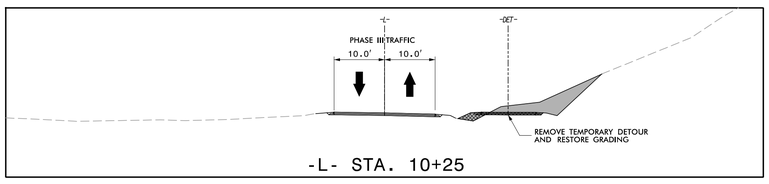
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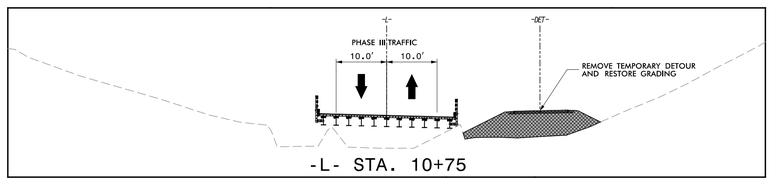
PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	TMP-6

USING RSD 1101.02 (SHEET 1 OF 19) TO CLOSE THE SOUTHBOUND TRAVEL LANE AS NEEDED, REMOVE THE TEMPORARY DETOUR, RESTORE THE GRADING, AND COMPLETE THE DRAINAGE.

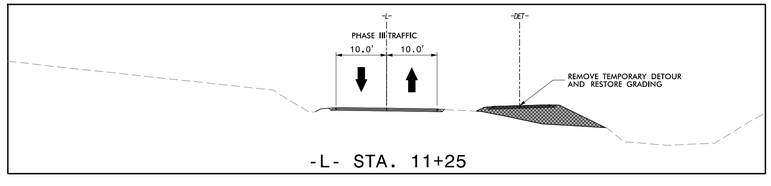




-L- STA. 10+25



-L- STA. 10+75



-L- STA. 11+25

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND 9/22/2021

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

TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

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

Docusign Envelope ID: 3A8987A6-103D-4EC8-97F3-DC8807BC3246

CONTRACT: DK00441 T.I.P.: DF18311.2005102.PR

TIP NO.	SHEET NO.
DF18311.2005102.PR	PMP-1

APPROVED: _____

DATE: _____

SEAL



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
ASHE COUNTY

LOCATION: REPLACE BRIDGE NO. 262 ON SR 1317 (RICH HILL RD.)

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE SHEET
PMP-2	PAVEMENT MARKING DETAIL

GENERAL NOTES

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

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKERS
-L-	PAINT	NONE

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT	
P1	WHITE EDGELINE (4")
P13	YELLOW DOUBLE CENTER (4")

PLAN SUBMITTED TO:

Rob Weisz, PE; Project Engineer



PLAN PREPARED BY: VHB Engineering NC, P.C.

John Townsend, PE Project Design Engineer

_____ Project Engineer

vhb

940 Main Campus Drive, Suite 500 Raleigh, NC 27606
NC License No. C-3705

$$$$ SYS TIME = $$$$
$$$$ DGN = $$$$
$$$$ USERNAME = $$$$

Docusign Envelope ID: 3A8987A6-103D-4EC8-97F3-DC8807BC3246

TIP NO.	SHEET NO.
DF18311.2005102.PR	PMP-2

APPROVED: _____

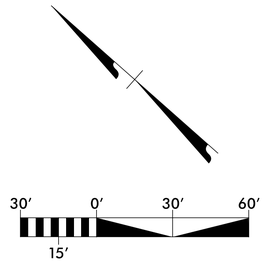
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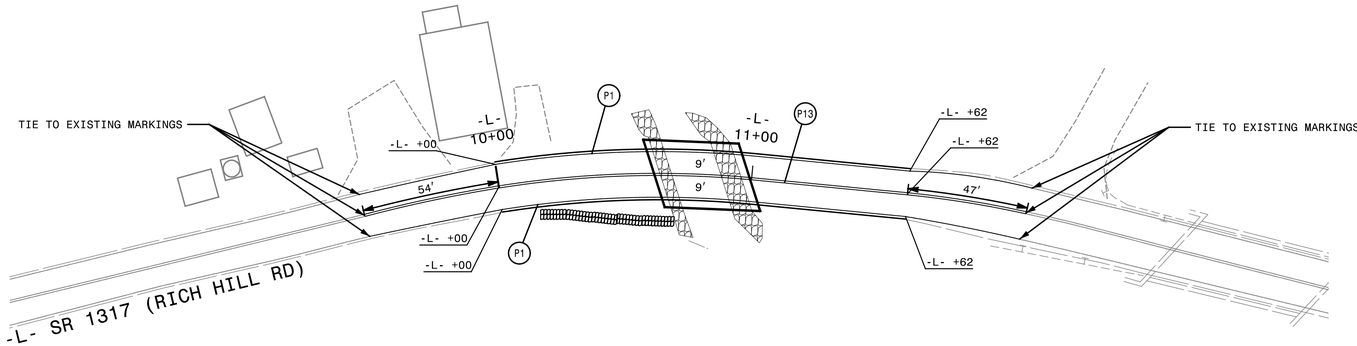
SEAL



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vhb
940 Main Campus Drive, Suite 500 Raleigh, NC 27606
NC License No. C-3705





PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT	
P1	WHITE EDGELINE (4″)
P13	YELLOW DOUBLE CENTER (4″)

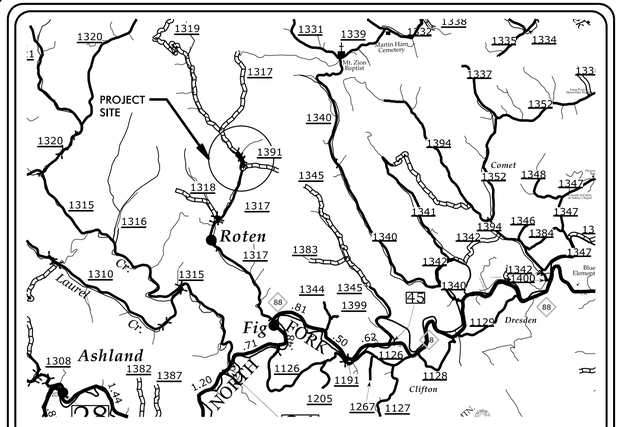
PAVEMENT MARKING DETAIL

$$$$$$$$$$SYSTIME$$$$$$$$$$
$$$$$$$$$$USERNAME$$$$$$$$$$

TIP PROJECT: DF18311.2005102.PR

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18311.2005102.PR	EC-1	

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



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

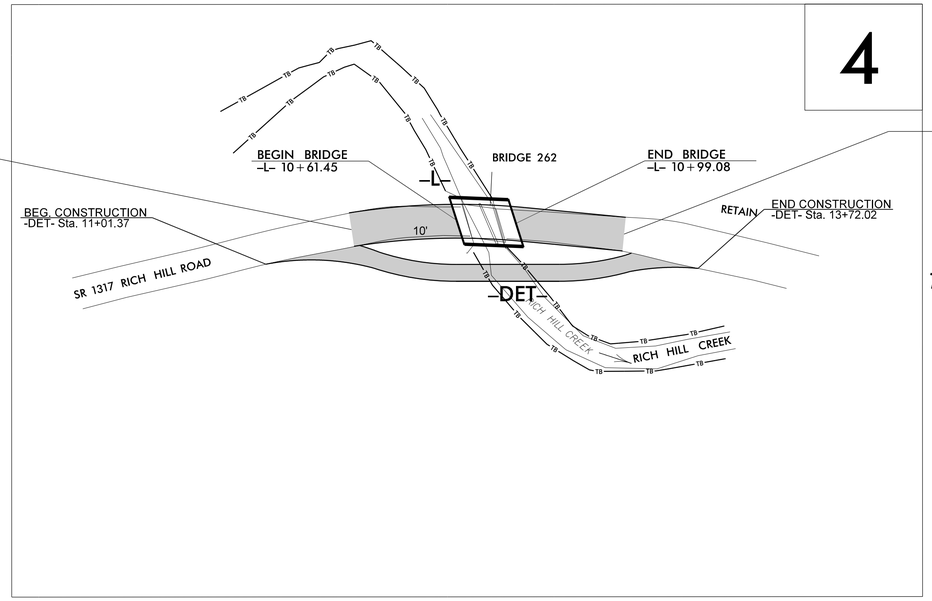
ASHE COUNTY

NAD 83/
NA 2011

LOCATION: REPLACE BRIDGE NO. 262 ON SR 1317 (RICH HILL RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

4



THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. Begin Project
to Sta. End Project
Refer To E. C. Special Provisions for Special Considerations.

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 CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:

VHB

121 W Trade St Ste 1030
Charlotte, NC 28202

2024 STANDARD SPECIFICATIONS

Designed by:

Lucy Grindstaff — *NAME*

4757 — *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.

9/8/2025
C:\Projects\DF18311.2005102.PR\Roadway\Plans\EC_TSH.dgn
Lucy Grindstaff

PROJECT REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

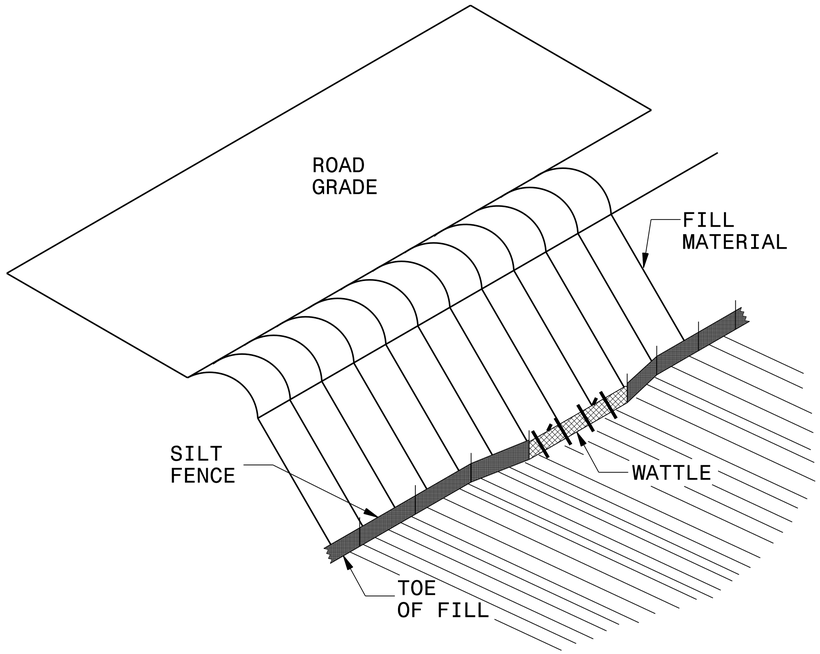
EROSION & SEDIMENT CONTROL LEGEND

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.
DF1831I.2005102.PR	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.

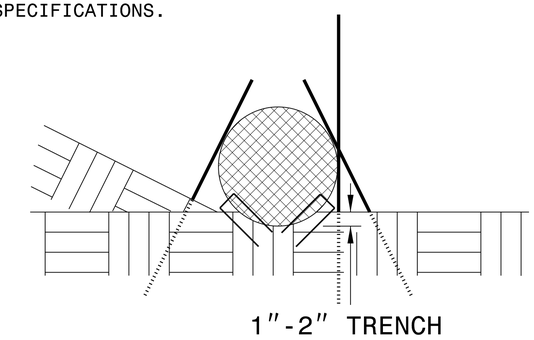
PROVIDE STAPLES MADE OF 11 GUAGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6″ IN LENGTH.

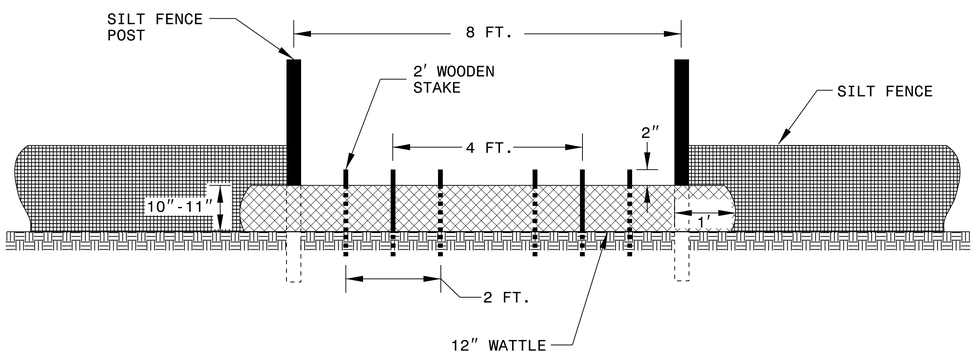
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

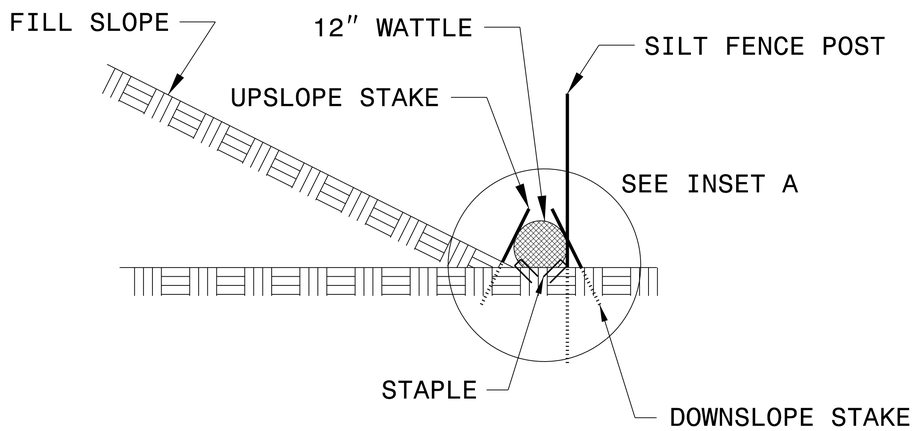
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





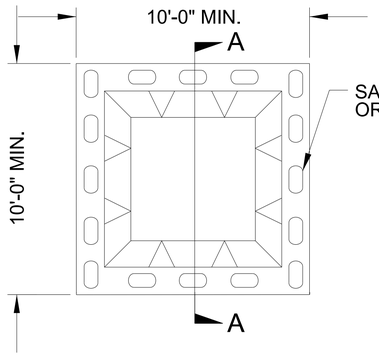
VIEW FROM SLOPE



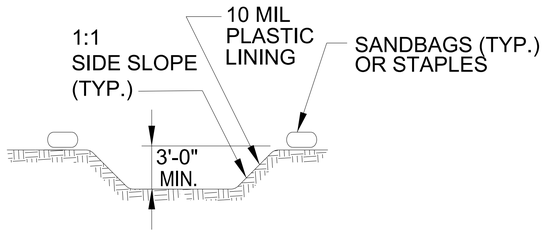
SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
DF1831I.2005102.PR	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A



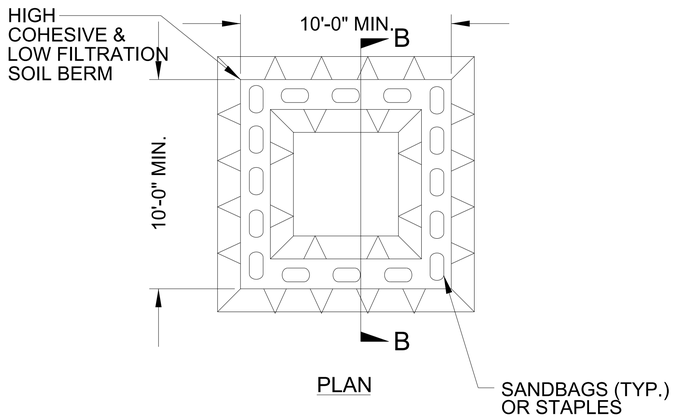
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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.

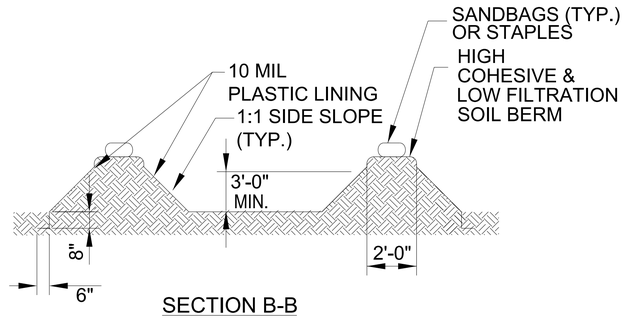
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



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 CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	EC-3
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

PROJECT REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

EXCELSIOR MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
20-1	-DET-	12+75	13+00	LT	15
				SUBTOTAL	15
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1000
				TOTAL	1015
				SAY	1100

STRAW MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
20-1	-DET-	13+00	13+25	LT	15
				SUBTOTAL	15
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					0
				TOTAL	15
				SAY	20

PROJECT REFERENCE NO.	SHEET NO.
DF1831I.2005102.PR	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

PERMANENT SOIL REINFORCEMNT MAT TYPE 3

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
20-1	-DET-	11+25	12+55	RT	65
				SUBTOTAL	65
	ADDITIONAL PSRM TO BE INSTALLED				0
				TOTAL	65
				SAY	75

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	EC-04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MAX AND MARY PENNINGTON(LE)
KATRINA PENNINGTON CALHOUN
DB 510 PG 981

MAX AND MARY PENNINGTON(LE)
KATRINA PENNINGTON CALHOUN
DB 510 PG 981

EMERALD BLISS LLC
DB 431PG 499

(2)

(3)

POT Sta. 10+00.00 -L- PC Sta. 10+03.25 -L-

BEGIN PROJECT
DF18311.2005102.PR
-L- STA. 10+00.00

BEGIN BRIDGE
-L- 10+61.45
(0.40' LT)

S 50° 05' 07.8" E

BANK STABILIZATION
CLASS II RIP RAP
EST 27 TONS
EST 55 SY GEOTEXTILE
TYP AT FOUR QUADRANTS
SEE DETAIL 4

END BRIDGE
-L- 10+99.08 (0.487' LT)

PT Sta. 11+01.56 -L-

S 36° 00' 12.1" E

POT Sta. 11+61.82 -L-

END PROJECT
DF18311.2005102.PR
-L- STA. 11+61.82

-DET- PT Sta. 14+05.37

-DET- POT Sta. 14+28.07

-DET-
S 28° 22' 50.3" E

-DET-
S 55° 09' 24.2" E

-DET- POT Sta. 10+00.00

-DET- PC Sta. 10+96.60

-DET- PRC Sta. 11+80.03

-DET- PT Sta. 12+27.81

TOE PROTECTION WITH
AGGREGRATE SHOULDER
DRAIN
SEE DETAIL 3

CLASS II RIP RAP
STRUCTURE ITEM
(TYP)

-DET-
S 41° 32' 20.4" E

-DET- PRC Sta. 13+29.97

-DET- PC Sta. 12+89.01

ROBIN LEIGH FAIRCLOTH
& SAMUEL G. SESSOMS, JR.
DB 466 PG 198

(1)

RICK HILL RD SR 1317
VARIABLE WIDTH PAVED ROADWAY

TO SR 1319

TO NC 98

B

C

RETAIN

REMOVE

CRW

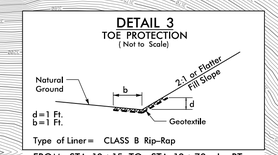
CRW

TREE

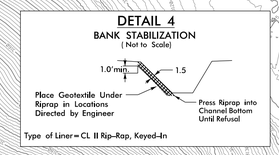
15" HDPE

18" CMP

NAD 83 N 3,784,250



FROM STA. 10+15 TO STA. 10+70 -L- RT



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

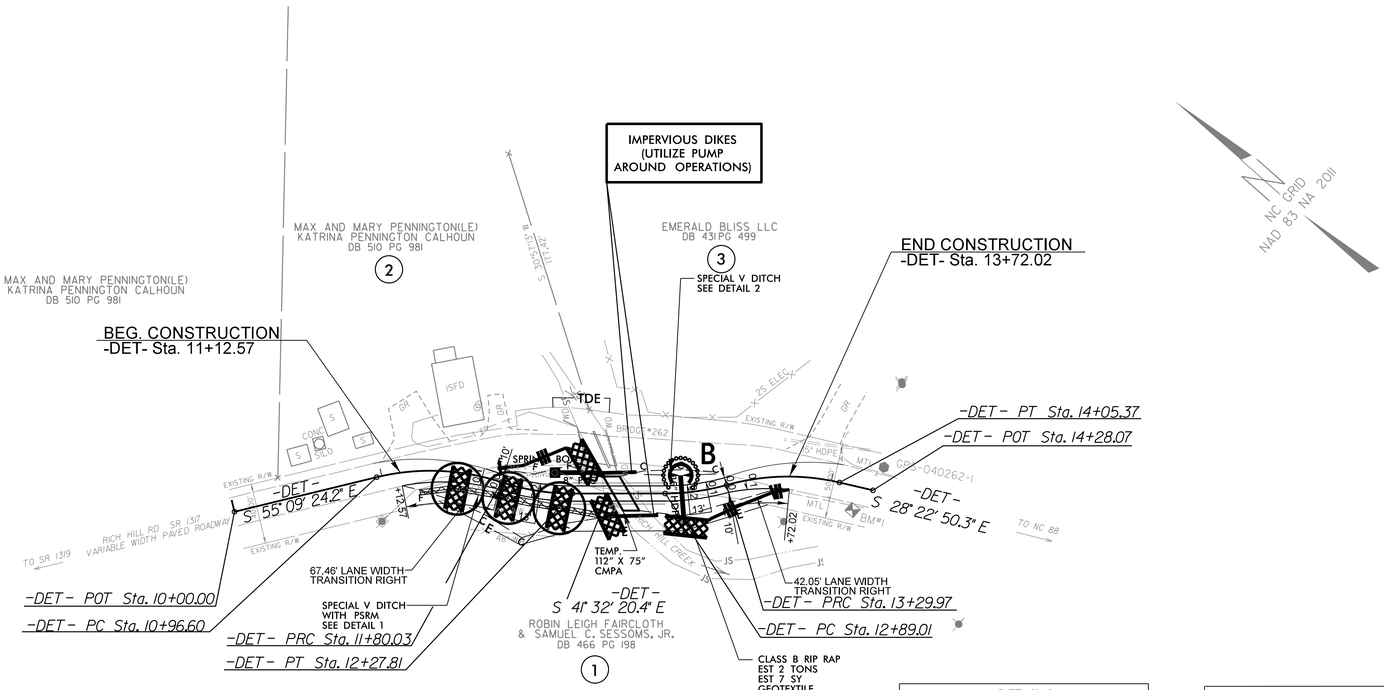
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

NOTE:
PLACE TEMPORARY ROCK SILT CHECKS TYPE A AT DRAINAGE OUTLETS.

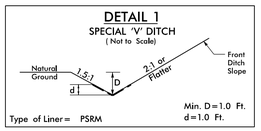
PROJECT REFERENCE NO.	SHEET NO.
DF1831I.2005102.PR	EC-05/CONST.2B-
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONSTRUCTION SEQUENCE FOR TEMPORARY 112''x75'' CMPA:

1. INSTALL IMPERVIOUS DIKES AND UTILIZE PUMP AROUND OPERATION FOR BYPASS STREAM FLOW AROUND WORK LOCATION.
2. DEWATER SITE UTILIZING SPECIAL STILLING BASIN.
3. INSTALL TEMP CMPA.
4. REMOVE IMPERVIOUS DIKES TO ALLOW FLOW THROUGH TEMP CMPA.

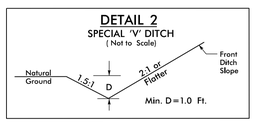


DETAIL 1
SPECIAL 'V' DITCH
(Not to Scale)



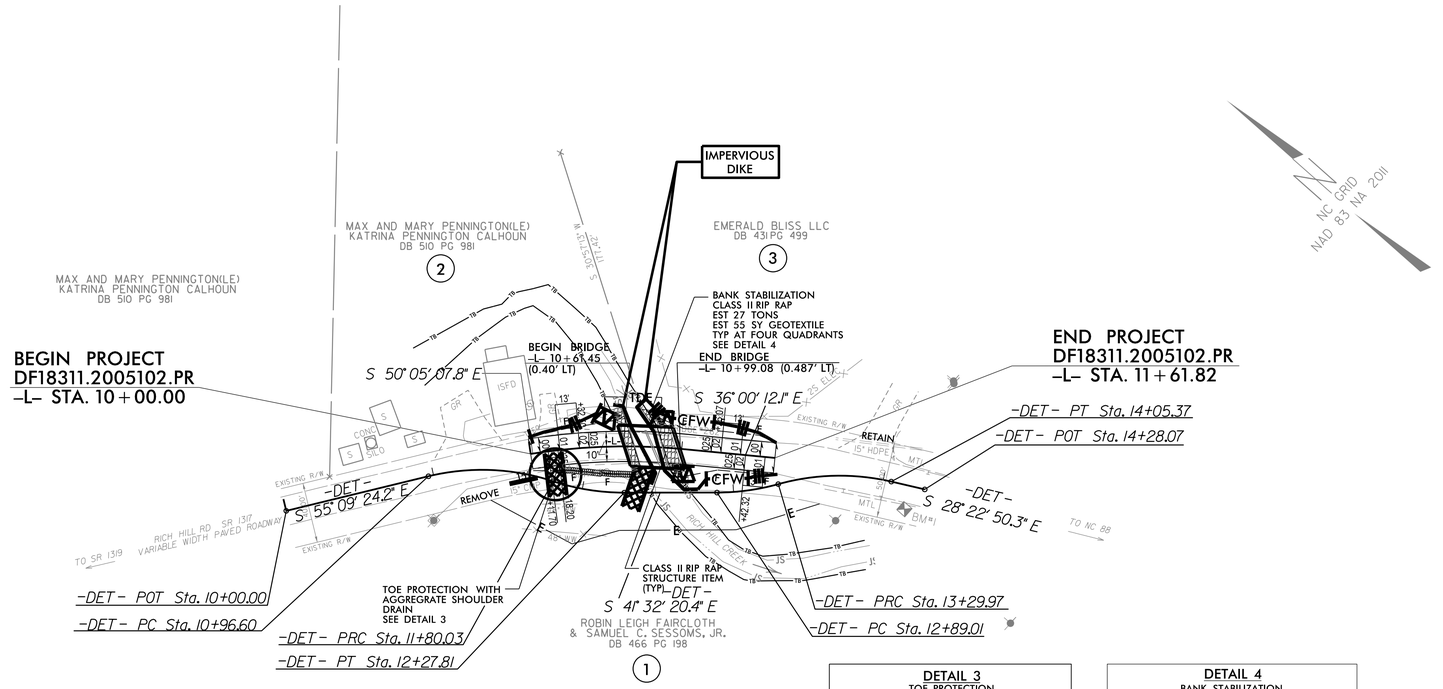
FROM STA. 11+25 TO STA. 12+55 -DET- RT

DETAIL 2
SPECIAL 'V' DITCH
(Not to Scale)



FROM STA. 12+75 TO STA. 13+25 -DET- LT

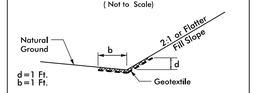
PROJECT REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	EC-06/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NOTE: ENTIRE EXISTING STRUCTURE TO BE REMOVED

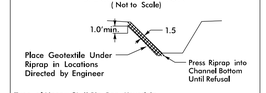
UTILIZE COIR FIBER MATTING TO REINFORCE STREAM BANKS AND RETURN CHANNEL TO EXISTING CONDITION AS MUCH AS PRACTICABLE AFTER REMOVING TEMPORARY DETOUR PIPE.

DETAIL 3
TOE PROTECTION
(Not to Scale)



Type of Liner = CLASS B Rip-Rap
FROM STA. 10+15 TO STA. 10+70 -L- RT

DETAIL 4
BANK STABILIZATION
(Not to Scale)



Type of Liner = CL II Rip-Rap, Keyed-In

BM# 1 ELEVATION = 3129.17'
N 1005296 E 1231775
CHISELED SQUARE IN NW HW OF BRIDGE 139
-L- STATION 14+15.01 15.7327' RT

PROJECT REFERENCE NO.	SHEET NO.
DF1831I.2005102.PR	X-1

CROSS SECTIONS INDEX

SECTIONS	SHEET NO.'s
CROSS SECTION INDEX SHEET	X–1
EARTHWORK VOLUME SUMMARY	X–1B
–L– STA. 10+00.00 TO STA. 11+50.00	X–2 THRU X–4
–DET– STA. 11+00.00 TO STA. 13+75.00	X–5 THRU X–8

5/14/99

9/9/2025
BP1831I.2005102.PR-dy_xxpl_index_X-1.dgn
mbisel

12/06/07

COMPUTED BY: MRH DATE: 5/2/2025
CHECKED BY: TDUNCAN DATE: 9/08/2025

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	X-1B

CROSS-SECTION SUMMARY

STATION DET	UNCL. EXC. (cu. yd.)	EMBT.. (cu. yd.)	STATION L	UNCL. EXC. (cu. yd.)	EMBT.. (cu. yd.)	STATION DET (REMOVAL)	UNCL. EXC. (cu. yd.)	EMBT.. (cu. yd.)
11+25.00	0	2	10+00.00	0	0	11+25.00	2	0
11+50.00	3	4	10+25.00	9	0	11+50.00	4	3
11+75.00	21	4	10+50.00	8	5	11+75.00	4	21
12+00.00	60	4	11+00.00	0	0	12+00.00	4	60
12+25.00	46	30	11+25.00	7	1	12+25.00	30	46
12+50.00	5	110	11+50.00	9	1	12+50.00	110	5
12+75.00	2	140				12+75.00	140	2
13+00.00	6	74				13+00.00	74	6
13+25.00	5	18				13+25.00	18	5
13+50.00	2	3				13+50.00	3	2

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

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".

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

9/9/2025
8:11:10 AM
mhiser
...rdy_EW_VOL_SUM_X1B.dgn

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	DF18311.2005102.PR	X-2

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

3165
3160
3155
3150
3145
3140
3135

GRADE SHOULDER TO EXIST. GROUND

1.4231 %

2.5000 %

2:1

3137.62

10+25.00

MATCH EXISTING CONDITIONS

3139.13

10+00.00

9/8/2025
BP11-R037_rdy_L_xpl.dgn
mhussey

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	DF18311.2005102.PR	X-3

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

3150 3145 3140 3135 3130 3125

2:1 2.3425 % 2.0243 % 2:1

3134.02

11+00.00

3150 3145 3140 3135 3130

0.025

3128.74

10+75.00

3185 3155 3150 3145 3140 3135 3130

2:1 2.5000 % 2.5000 % 2:1

3136.38

10+50.00

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

9/8/2025
BP11-R037_rdy_L_xpl.dgn
mhussey

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	DF18311.2005102.PR	X-4

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

3140
3135
3130
3125
3120

2:1 0.2861 % 0.7915 % GRADE SHOULDER TO EXIST. GROUND

3131.77

11+50.00

2:1 1.3143 % 1.4079 % GRADE SHOULDER TO EXIST. GROUND

3132.95

11+25.00

9/8/2025
BP11-R037_rdy_L_xpl.dgn
mhussey

6/23/16

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
DF18311.2005102.PR	X-5

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

3160
3155
3150
3145
3140
3135

0.3869 %
4:1
3140.07
11+50.00

3160
3155
3150
3145
3140
3135

0.3869 %
4:1
3141.83
11+25.00

3160
3155
3150
3145
3140

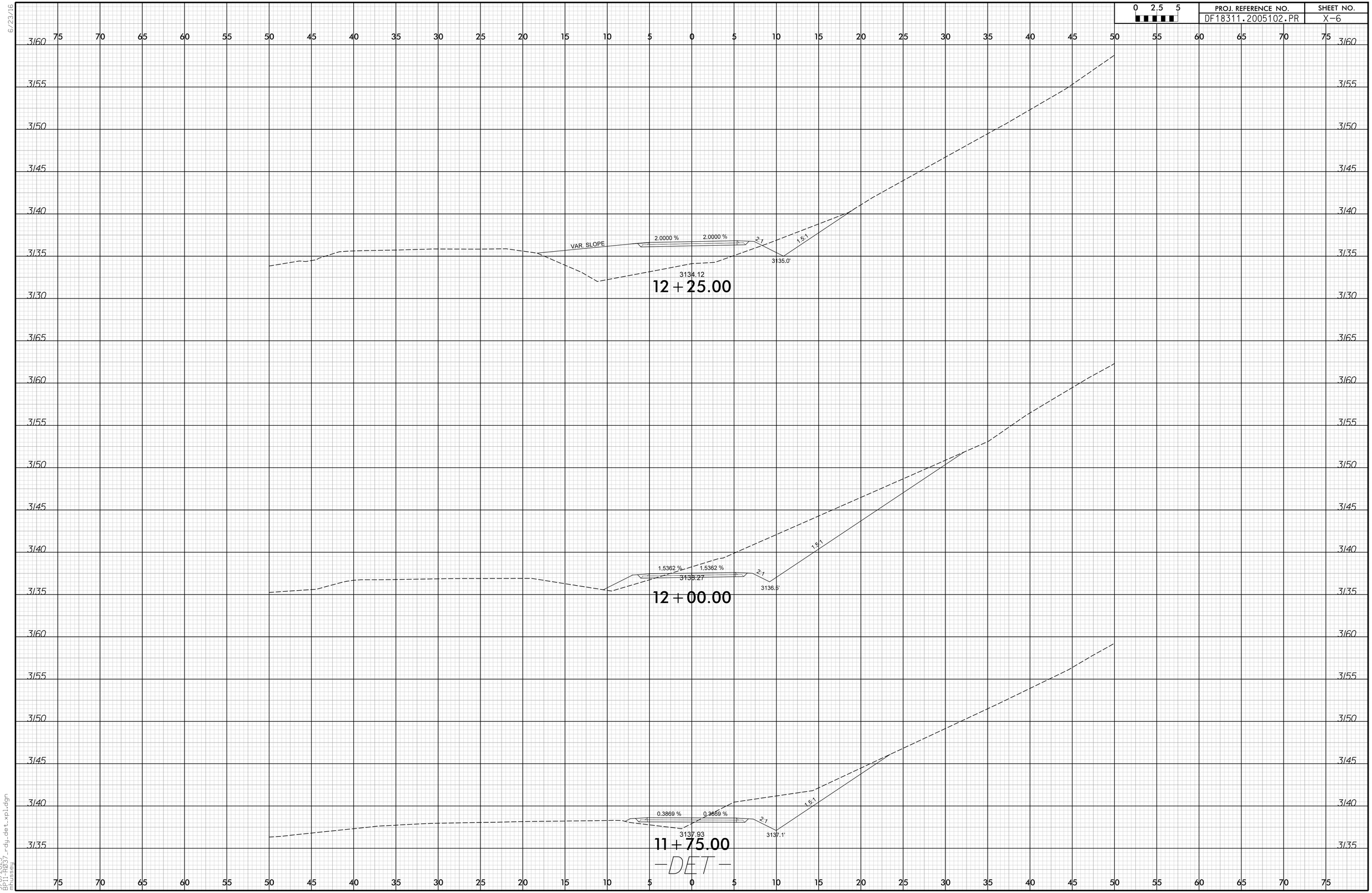
3143.75
11+00.00
-DET-

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

9/8/2025
BP11-R037_rdy_det_xpl.dgn
mhussey

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	DF18311.2005102.PR	X-6



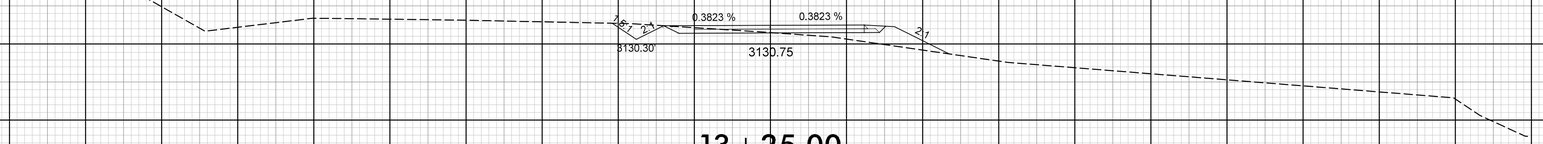
9/8/2025
BP11-R037_rdy_det_xpl.dgn
mhussey

0 2.5 5

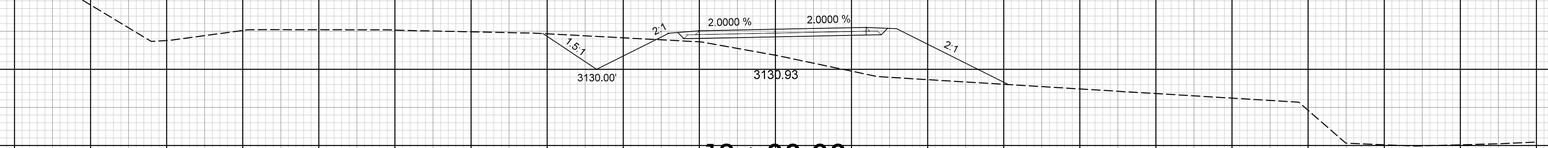
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DF18311.2005102.PR	X-7

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

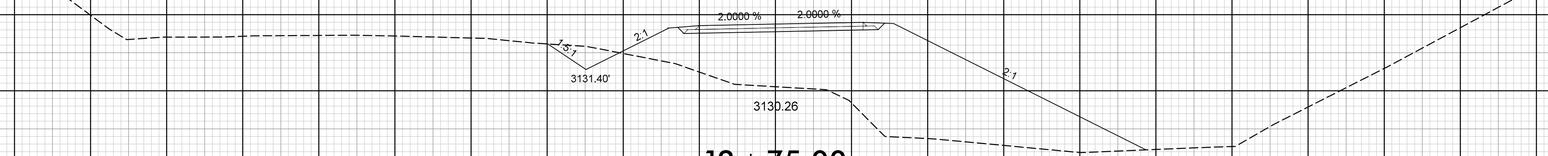
3140 3135 3130 3125 3120



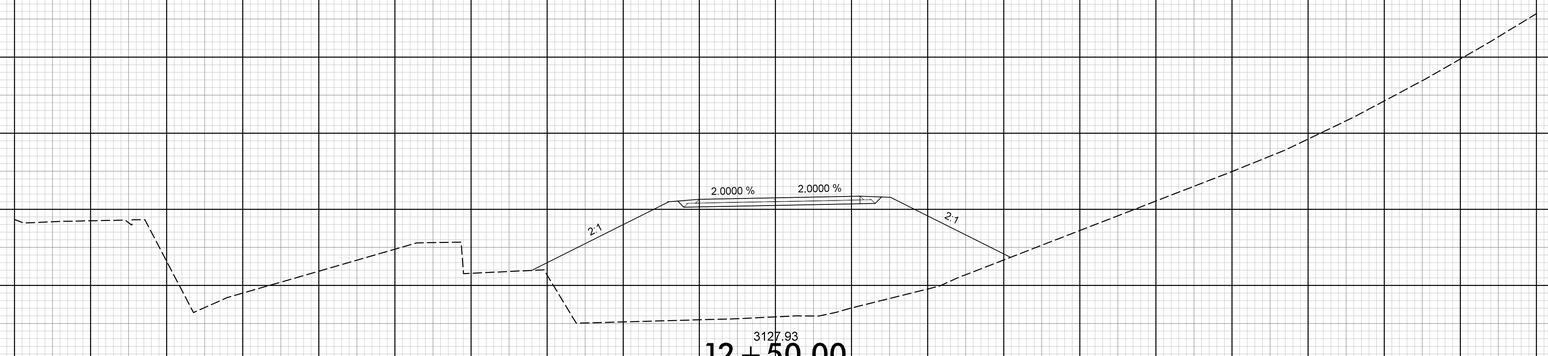
13+25.00



13+00.00



12+75.00



12+50.00

-DET-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	DF18311.2005102.PR	X-8

3129.88

13+75.00

1.0000 %

4:1

3130.43

13+50.00

-DET-

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mhussey

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PROJECT: DF18311.2005102.PR

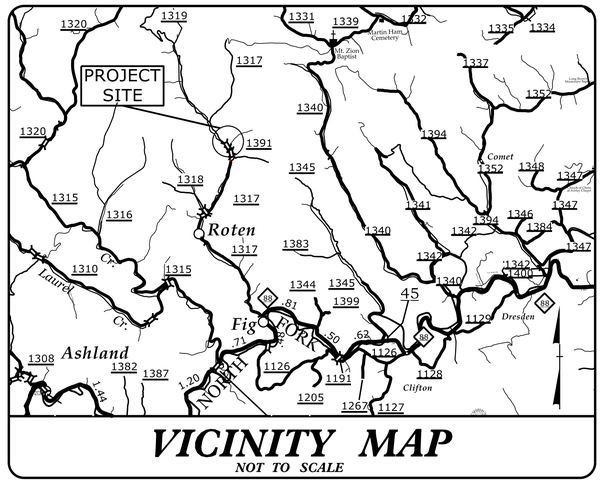
CONTRACT: DK00441

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18311.2005102.PR		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
DF18311.2005102.PR	N/A	PE
DF18311.2005102.PR	N/A	ROW & UTILITY
DF18311.2005102.PR	N/A	CONSTRUCTION



VICINITY MAP
NOT TO SCALE

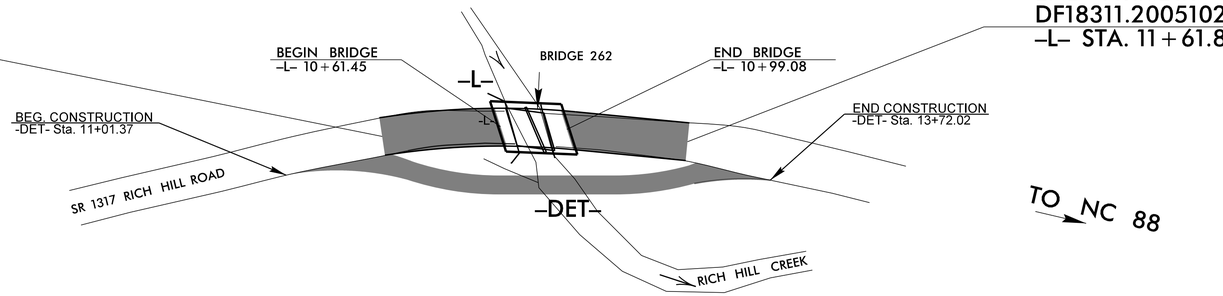
LOCATION: REPLACE BRIDGE NO. 262 ON SR 1317 (RICH HILL RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NAD 83/
NA 2011

BEGIN PROJECT
DF18311.2005102.PR
–L– STA. 10+00.00

END PROJECT
DF18311.2005102.PR
–L– STA. 11+61.82



STRUCTURE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

AADT 2023 = 250
AADT 2025 = 250
K = N/A %
D = N/A %
T = N/A %
V = 40 MPH
FUNC CLASS = LOCAL

AASHTO
LOW VOLUME ROADS
DESIGN GUIDELINES

PROJECT LENGTH

LENGTH ROADWAY PROJECT DF18311.2005102.PR = 0.024 Mi.
LENGTH STRUCTURE PROJECT DF18311.2005102.PR = 0.007 Mi.
TOTAL LENGTH OF PROJECT DF18311.2005102.PR = 0.031 Mi.

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

vhb
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 5, 2025

LETTING DATE:
NOVEMBER 20, 2025

JEFFREY C. WILSON, PE
PROJECT ENGINEER

ELIZABETH C. PHELPS, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT
ROB WEISZ, PE
DIVISION 11 BRIDGE PROGRAM MANAGER

STRUCTURES ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson
5CA734DE9D5848B...
9/26/2025

JEFFREY C. WILSON, PE
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

9/19/2025
pw://vhb-pw.bentley.com:vhb-pw-01/Documents/proj/Charlotte/39778.10/Ashe 262/Structures/Drawings/DF1831.2005102.PR_SMU_TSH_040262
VHB/cmalagon

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8/26/21

10+50 11+00 11+50

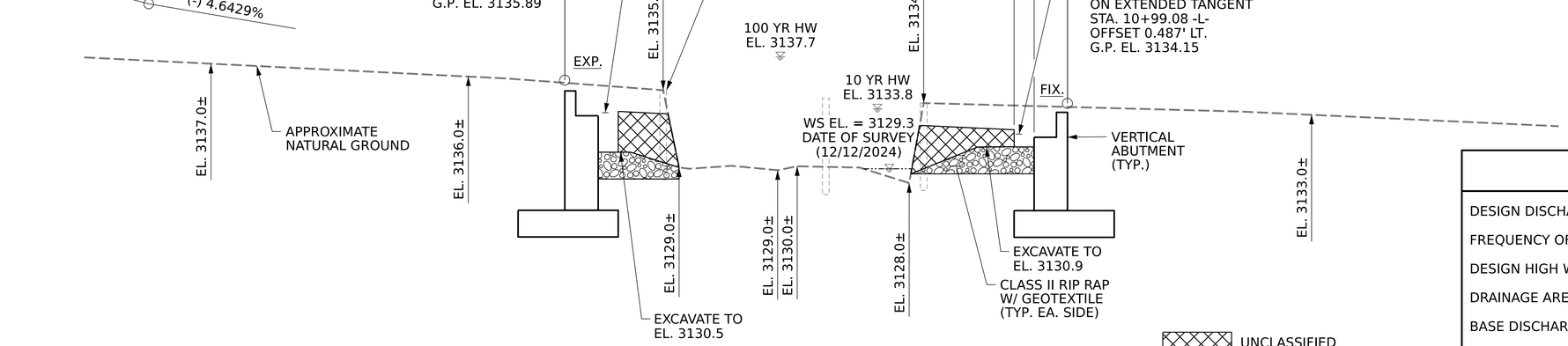
SPAN A

GRADE DATA -L-

PI = 10+30.00
EL = 3,137.35
VC = 60'

(-) 5.9200%
(-) 4.6429%

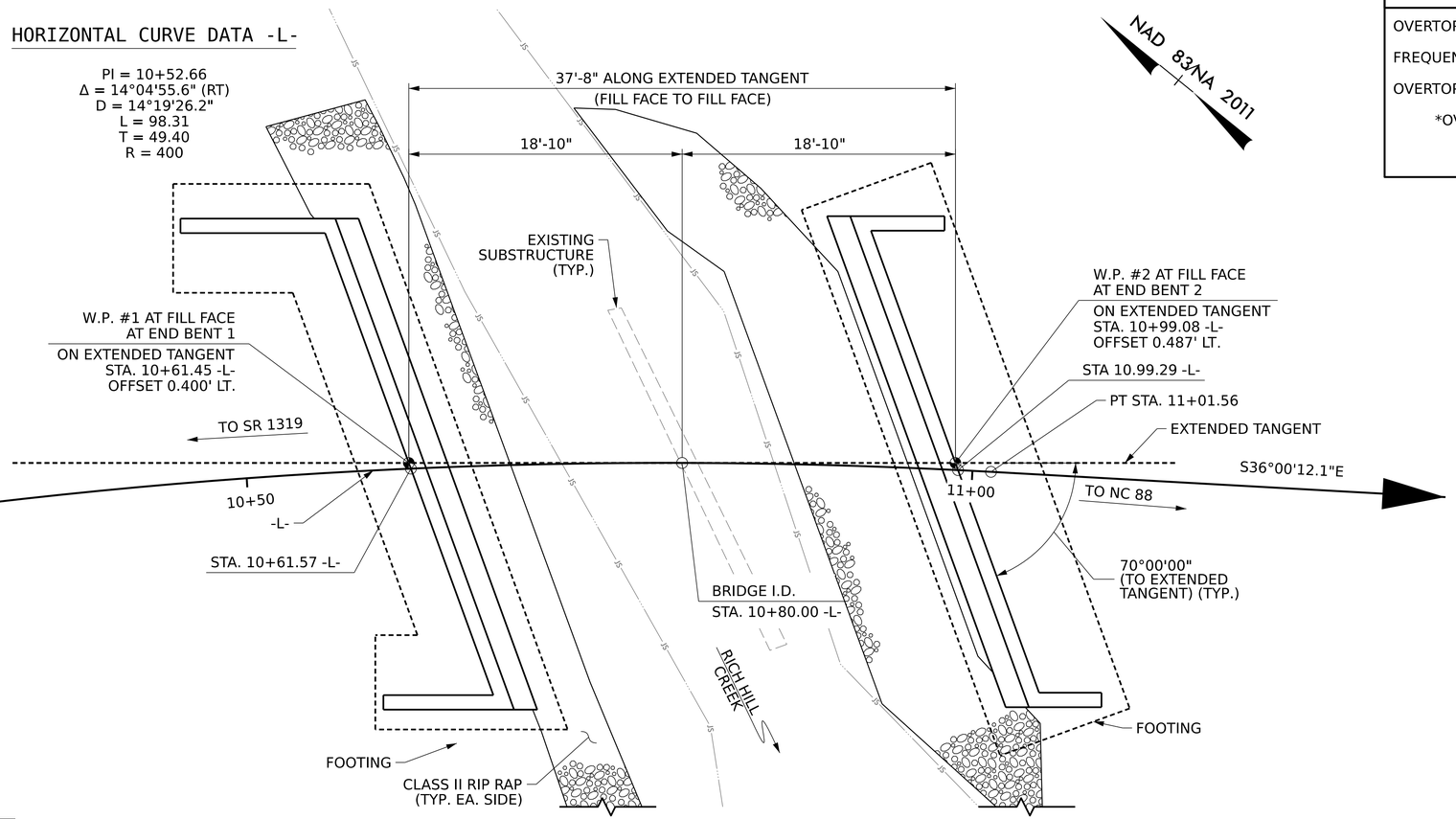
3140
3130
3120



SECTION ALONG -L-

HORIZONTAL CURVE DATA -L-

PI = 10+52.66
Δ = 14°04'55.6" (RT)
D = 14°19'26.2"
L = 98.31
T = 49.40
R = 400



PLAN VIEW

NAD 83/NA 2011

HYDRAULIC DATA

DESIGN DISCHARGE	=	570 C.F.S.
FREQUENCY OF DESIGN FLOOD	=	25 YR.
DESIGN HIGH WATER ELEVATION	=	3134.1 FT
DRAINAGE AREA	=	2.5 SQ. MI.
BASE DISCHARGE (Q100)	=	890 C.F.S.
BASE HIGH WATER ELEVATION	=	3136.6 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	730 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	=	50 YR.
OVERTOPPING FLOOD ELEVATION	=	3134.8 FT

*OVERTOPPING AT BEGIN OF BRIDGE CL

WS EL. Taken @ River Station 1207

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 1 OF 5 REPLACES BRIDGE NO. 040262

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 8CA734DE0D5848B...
9/26/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER RICH HILL CREEK ON SR 1317 (RICH HILL RD) BETWEEN SR 1391 (ELLIOT HOLLOW RD) AND SR 1319 (WILLIE WALKER RD)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			22

DRAWN BY : C.P. MALAGON DATE : 06/2025
CHECKED BY : J.C. WILSON DATE : 08/2025
DESIGN ENGINEER OF RECORD: J.C. WILSON DATE : 09/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

9/19/2025
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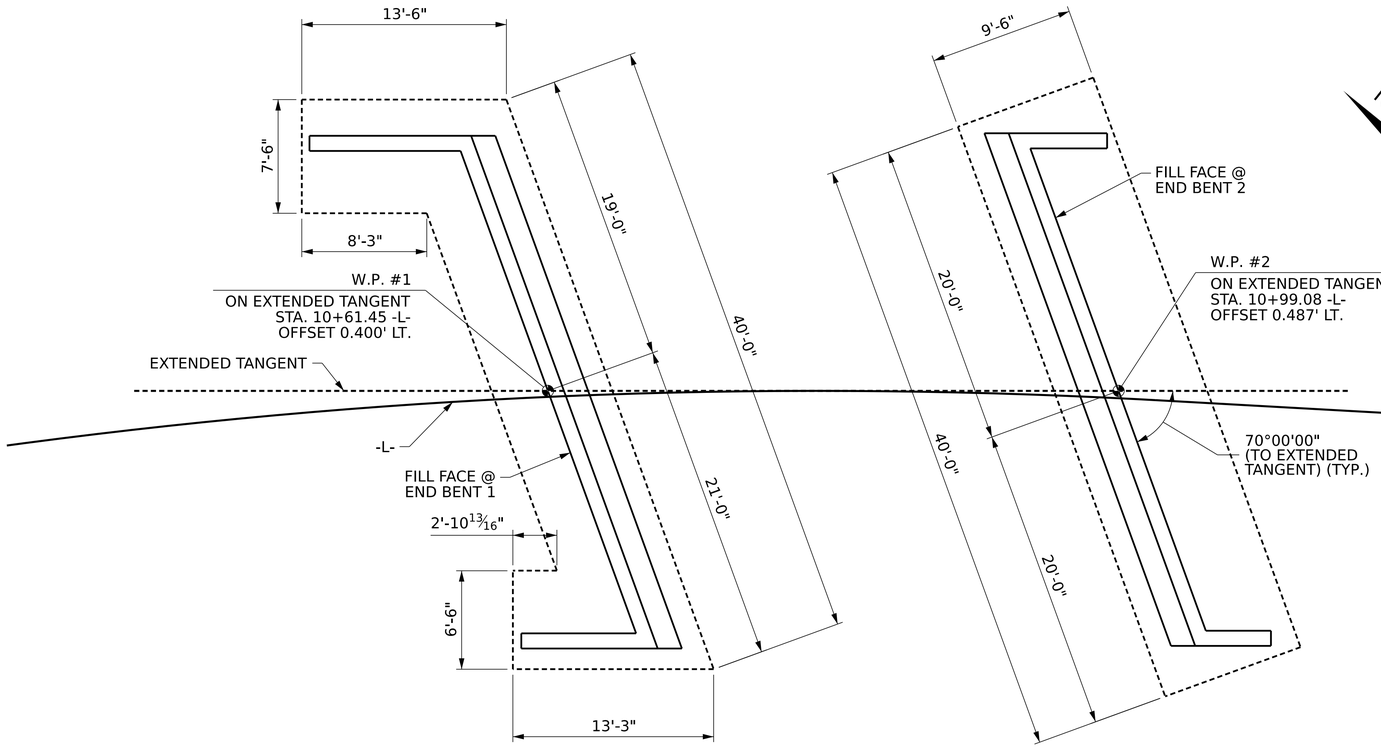
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8/26/21

NOTES

CRYSTALLINE ROCK IS NOT ANTICIPATED TO BE WITHIN 3 FEET OF THE STREAM BE ELEVATION. DEPENDING ON THE CONDITIONS ENCOUNTERED DURING CONSTRUCTION, IF NEEDED, UNDERCUT VERY SOFT/LOOSE SOILS A MINIMUM OF 1 FOOT AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL TO RE-ESTABLISH THE BOTTOM OF FOOTING ELEVATION.

TEMPORARY DEWATERING MAY BE REQUIRED DURING CONSTRUCTION.



END BENT 1 END BENT 2

FOUNDATION LAYOUT

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER RICH HILL CREEK ON SR 1317 (RICH HILL RD) BETWEEN SR 1391 (ELLIOT HOLLOW RD) AND SR 1319 (WILLIE WALKER RD)

VHB Engineering NC, P.C. (C-3705)
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Raleigh, NC 27606

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

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9/26/2025

DRAWN BY : C.P. MALAGON DATE : 06/2025
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			22

9/19/2025
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8/26/21

SUMMARY OF SPREAD FOOTING INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Footing(s) #(-#) (e.g., "Bent 1, Footing 1-2")	Factored Bearing Resistance KSF	Footing Dimensions (Length x Width) FT x FT	Required Bearing Resistance KSF	Scour Critical Elevation FT	Minimum Bottom of Footing (Footing No Higher Than) Elevation FT
End Bent No. 1	5	36.0 x 7.5	11.1	3124.00	3124.00
End Bent No. 2	5	36.0 x 7.5	11.1	3124.00	3124.00

NOTES:

1. The Micropile and Spread Footing Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Michael J. Walko, #026917) on 06-30-2025.

VHB Engineering NC, P.C. (C-3705)
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Raleigh, NC 27606

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

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cmalagon

PROJECT NO. DF18311.2005102.PR
ASHE COUNTY
STATION: 10+80.00 -L-
SHEET 3 OF 5

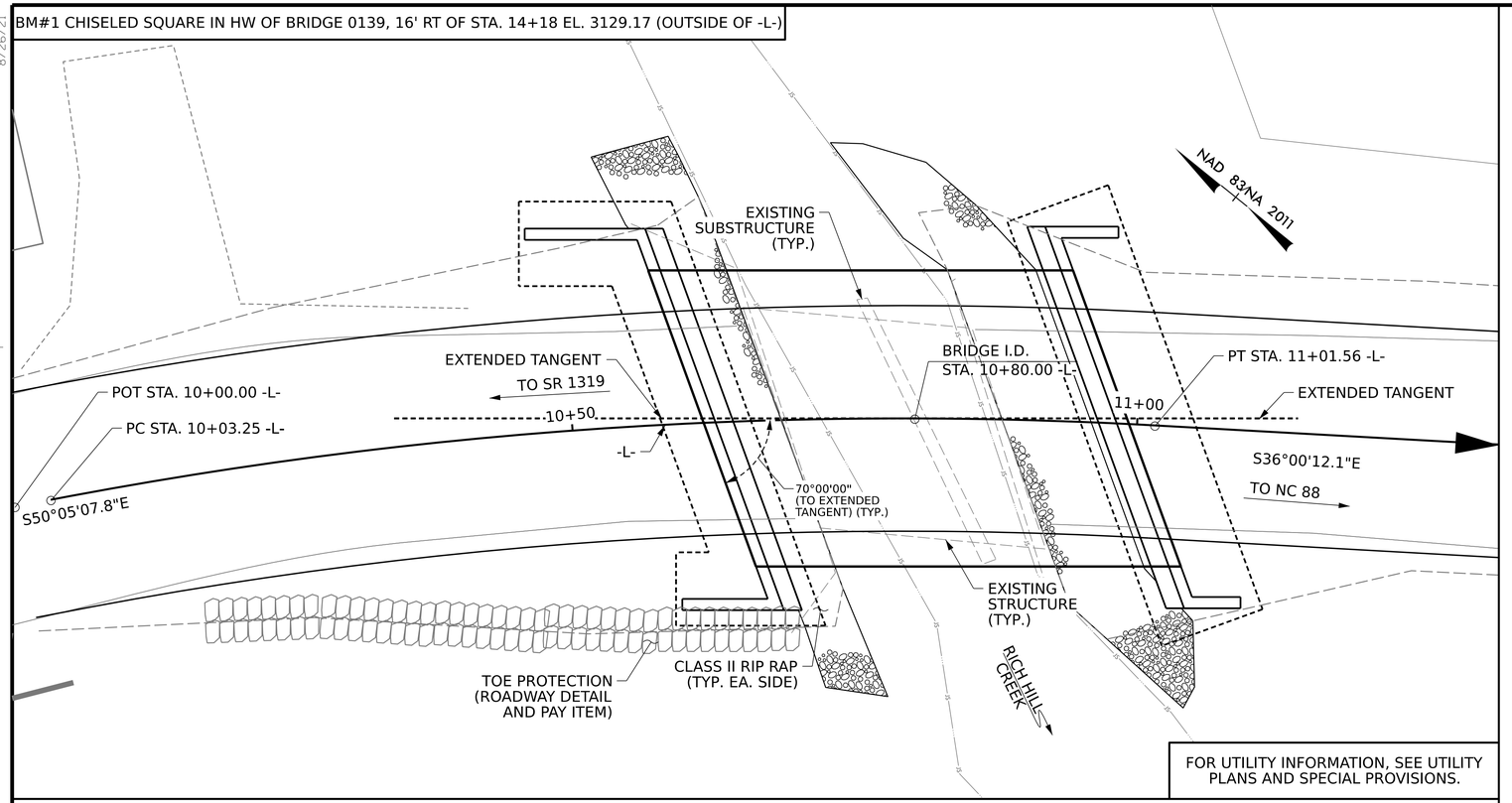
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPREAD FOOTING FOUNDATION TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			22

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8/26/21



-LOCATION SKETCH-

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

THE EXISTING STRUCTURE CONSISTING OF 1 STEEL GIRDER SPAN (20'-9" TOTAL LENGTH), WITH A CLEAR ROADWAY OF 19'-0", WITH A TIMBER DECK AND ASPHALT WEARING SURFACE, WITH SUBSTRUCTURES CONSISTING OF VERTICAL TIMBER ABUTMENTS AND LOCATED AT THE PROPOSED BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 17 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.

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.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50 AND PAINTED IN ACCORDANCE WITH SYSTEM 1 OR GALVANIZED OF THE STRUCTURAL STEEL SHOP COATING PROGRAM AND ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

COATING APPLICATION FOR ALL STRUCTURAL STEEL SHALL NOT BE PERFORMED UNTIL SHOP FABRICATION INCLUDING CUTTING, DRILLING AND WELDING HAS BEEN COMPLETED.

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.

ALL TIMBER AND LUMBER MEMBERS SHALL BE TREATED SOUTHERN PINE AND CONFORM TO SECTION 1082 OF THE STANDARD SPECIFICATIONS.

ALL TIMBER DIMENSIONS SHOWN ON THE PLANS ARE NOMINAL DIMENSIONS.

WHEN FIELD CUTTING TIMBER MEMBERS, TREAT NEWLY EXPOSED SURFACES WITH EITHER A BITUMINOUS ASPHALT-BASED ROOFING CEMENT, COPPER NAPHTHENATE PASTE, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING.

TREAT ALL DRILLED OR NEWLY EXPOSED HOLES IN TIMBER MEMBERS BY PUMPING WITH BITUMINOUS ASPHALT-BASED ROOFING CEMENT, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING HARDWARE.

PRE-DRILL HOLES IN TIMBER AND LUMBER MEMBERS ACCEPTING BOLTS TO ELIMINATE SPLITTING.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATION, UNLESS OTHERWISE NOTED ON THE PLANS.

DO NOT DRIVE LAG/STRUCTURAL SCREWS WITH A HAMMER, SCREW OR TORQUE LAG/STRUCTURAL SCREWS.

SCREWS SHALL PROVIDE SUFFICIENT LENGTH SO THAT SCREW SHANK WILL PENETRATE RECEIVING MEMBERS.

FOR TIMBER BRIDGE RAIL SYSTEM INCLUDING LUMBER, DELINEATORS, HARDWARE FOR BOLT CONNECTIONS, HARDWARE FOR SCREW CONNECTIONS AND ALUMINUM DRIP EDGE, SEE TIMBER BRIDGE SUPERSTRUCTURE ON STEEL BEAMS SPECIAL PROVISION.

FOR ASBESTOS ASSESSMENT,SEE SPECIAL PROVISIONS.

FOR TIMBER BRIDGE DECK SYSTEM INCLUDING HARDWARE FOR BOLT CONNECTIONS AND HARDWARE FOR SCREW CONNECTIONS,SEE TIMBER BRIDGE SUPERSTRUCTURE ON STEEL BEAMS SPECIAL PROVISION.

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 10+80.00

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 10+80.00 -L-	ASBESTOS ASSESSMENTS	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	REINFORCING STEEL	APPROX. 42,090 LBS. STRUCTURAL STEEL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	TIMBER DECK SYSTEM	TIMBER BRIDGE RAIL SYSTEM
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LBS.	LUMP SUM	TONS	CU. YDS.	LUMP SUM	LUMP SUM	LIN. FT.
SUPERSTRUCTURE						LUMP SUM			LUMP SUM	LUMP SUM	71.0
END BENT 1				63.0	6,351		25	28			
END BENT 2				54.7	5,168		38	43			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	117.7	11,519	LUMP SUM	63	71	LUMP SUM	LUMP SUM	71.0

vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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DESIGN ENGINEER OF RECORD: J.C. WILSON DATE : 09/2025

9/26/2025
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NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON
Signed by: Jeffrey C. Wilson 5CA734DE9D5B486B...
9/26/2025

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PROJECT NO. DF18311.2005102.PR
ASHE COUNTY
STATION: 10+80.00 -L-
SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER RICH HILL CREEK ON SR 1317 (RICH HILL RD) BETWEEN SR 1391 (ELLIOT HOLLOW RD) AND SR 1319 (WILLIE WALKER RD)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			22

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8/26/21

LOAD AND RESISTANCE FACTOR RATING (LRFR) STEEL GIRDERS (W 12 X 96)

LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE											SERVICE II LIMIT STATE					
								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)	1.39	--	1.75	0.336	1.39	A	I	17.50	0.336	3.46	A	I	34.46	0.8	0.336	1.84	A	I	17.50
		HL-93 (OPERATING)	N/A		1.80	--	1.35	0.336	1.80	A	I	17.50	0.336	4.67	A	I	34.46	N/A	0.336	2.39	A	I	17.50
		HS-20 (INVENTORY)	36.000	(2)	2.36	84.78	1.75	0.336	2.36	A	EL	20.89	0.336	5.90	A	I	34.46	0.8	0.336	2.93	A	I	14.11
		HS-20 (OPERATING)	36.000		2.88	130.79	1.35	0.336	2.88	A	I	14.11	0.336	7.64	A	I	34.46	N/A	0.336	3.80	A	I	14.11
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		4.02	54.30	1.40	0.336	4.07	A	I	14.11	0.336	10.84	A	I	34.46	0.8	0.336	4.02	A	I	17.50
		SNGARBS2	20.000		3.20	64.06	1.40	0.336	3.20	A	I	14.11	0.336	8.17	A	I	34.46	0.8	0.336	3.51	A	I	14.11
		SNAGRIS2	22.000		3.08	67.83	1.40	0.336	3.08	A	I	14.11	0.336	7.77	A	I	34.46	0.8	0.336	3.48	A	I	14.11
		SNCOTTS3	27.250		2.00	54.55	1.40	0.336	2.00	A	I	17.50	0.336	5.59	A	I	34.46	0.8	0.336	2.13	A	I	17.50
		SNAGGRS4	34.925		1.86	65.03	1.40	0.336	1.86	A	I	17.50	0.336	4.99	A	I	34.46	0.8	0.336	1.98	A	I	14.11
		SNS5A	35.550		1.80	64.13	1.40	0.336	1.80	A	I	17.50	0.336	5.28	A	I	34.46	0.8	0.336	1.92	A	I	17.50
		SNS6A	39.950		1.74	69.51	1.40	0.336	1.74	A	I	17.50	0.336	4.91	A	EL	34.46	0.8	0.336	1.85	A	I	17.50
		SNS7B	42.000	(3)	1.64	68.96	1.40	0.336	1.64	A	I	17.50	0.336	5.01	A	I	0.64	0.8	0.336	1.74	A	I	17.50
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.17	71.68	1.40	0.336	2.17	A	I	17.50	0.336	5.60	A	I	34.46	0.8	0.336	2.31	A	I	17.50
		TNT4A	33.075		2.16	71.51	1.40	0.336	2.16	A	I	17.50	0.336	5.55	A	I	0.64	0.8	0.336	2.29	A	I	17.50
		TNT6A	41.600		1.87	77.79	1.40	0.336	1.87	A	I	17.50	0.336	5.25	A	I	0.64	0.8	0.336	1.98	A	I	17.50
		TNT7A	42.000		1.94	81.44	1.40	0.336	1.94	A	I	20.98	0.336	4.83	A	I	34.46	0.8	0.336	2.05	A	EL	17.50
		TNT7B	42.000		1.92	80.72	1.40	0.336	1.92	A	I	17.50	0.336	4.67	A	I	34.46	0.8	0.336	2.04	A	I	17.50
		TNAGRIT4	43.000		1.84	79.03	1.40	0.336	1.84	A	I	14.11	0.336	4.70	A	I	0.64	0.8	0.336	2.00	A	I	14.11
		TNAGT5A	45.000		1.78	79.97	1.40	0.336	1.78	A	I	17.50	0.336	4.69	A	I	34.46	0.8	0.336	1.87	A	I	17.50
		TNAGT5B	45.000		1.72	77.49	1.40	0.336	1.72	A	I	17.50	0.336	4.22	A	I	34.46	0.8	0.336	1.82	A	I	20.89
EMERGENCY VEHICLE (EV)		EV2	28.750		2.28	65.44	1.40	0.336	2.28	A	I	14.11	0.336	5.95	A	I	34.46	0.8	0.336	2.52	A	I	20.89
		EV3	43.000	(4)	1.59	68.28	1.40	0.336	1.59	A	I	17.50	0.336	4.05	A	I	34.46	0.8	0.336	1.70	A	I	17.50

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ DC	γ DW
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

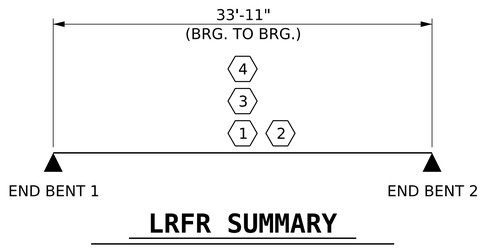
NOTES:

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

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

(#) 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

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

DRAWN BY : C.P. MALAGON DATE : 06/2025
CHECKED BY : J.C. WILSON DATE : 08/2025
DESIGN ENGINEER OF RECORD: J.C. WILSON DATE : 09/2025

9/19/2025
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cmalagon

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON
Signed by: Jeffrey C. Wilson 5CA734DE9D5848B...
9/26/2025

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ASHE COUNTY
STATION: 10+80.00 -L-
SHEET 5 OF 5

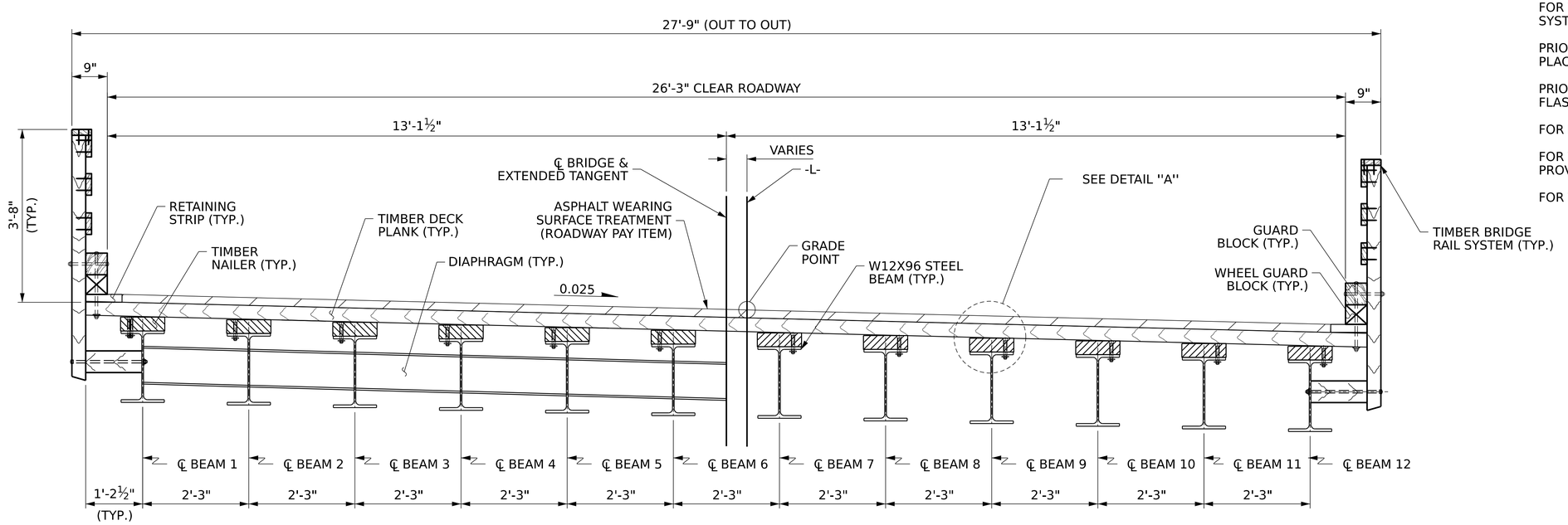
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 35FT STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)

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1			3			TOTAL SHEETS
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8/26/21



NOTES

FOR TIMBER BRIDGE DECK SYSTEM DETAILS, SEE PLAN OF SPAN.

FOR TIMBER BRIDGE RAIL SYSTEM DETAILS, SEE TIMBER BRIDGE RAIL SYSTEM PLAN SHEET.

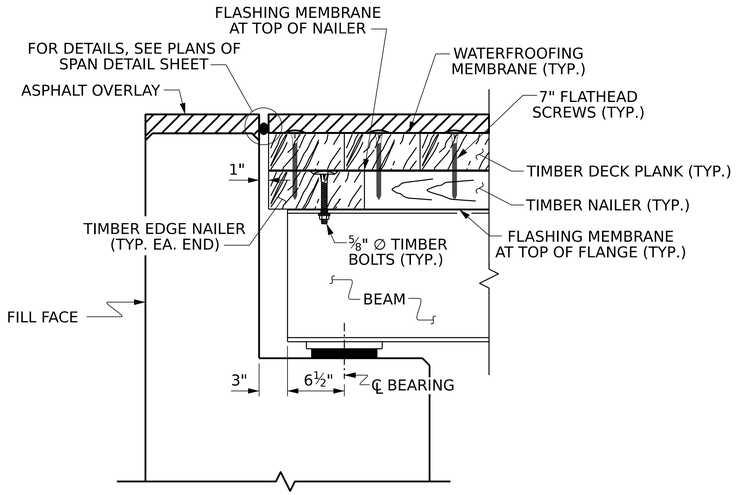
PRIOR TO PLACING TIMBER BEAM NAILER AND EDGE NAILER MEMBERS, PLACE A FLASHING MEMBRANE ON THE TOP SIDE OF THE STEEL BEAMS.

PRIOR TO PLACING TIMBER PLANK MEMBERS, PLACE A SELF-ADHERING FLASHING MEMBRANE ON THE TOP SIDE OF THE TIMBER NAILERS.

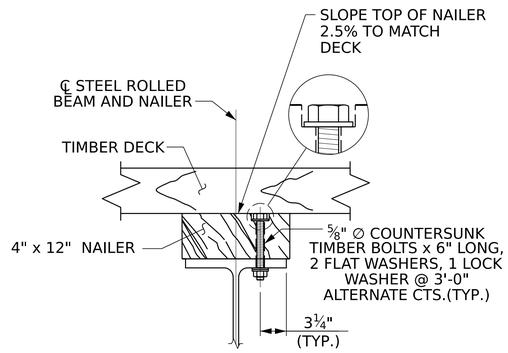
FOR BEAM AND DIAPHRAGM DETAILS, SEE FRAMING PLAN SHEET.

FOR TIMBER BRIDGE DECK WATERPROOFING MEMBRANE, SEE SPECIAL PROVISIONS.

FOR TIMBER BRIDGE FLASHING MEMBRANE, SEE SPECIAL PROVISIONS.



SECTION AT ABUTMENT



DETAIL 'A'

GUTTERLINE ASPHALT THICKNESS			
	℄ BRG. EB1	MIDSPAN	℄ BRG. EB2
LEFT GUTTERLINE	2"	2½"	3"
RIGHT GUTTERLINE	2"	2"	2"

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

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SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD SUPERSTRUCTURE

TYPICAL SECTION

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D5848B...

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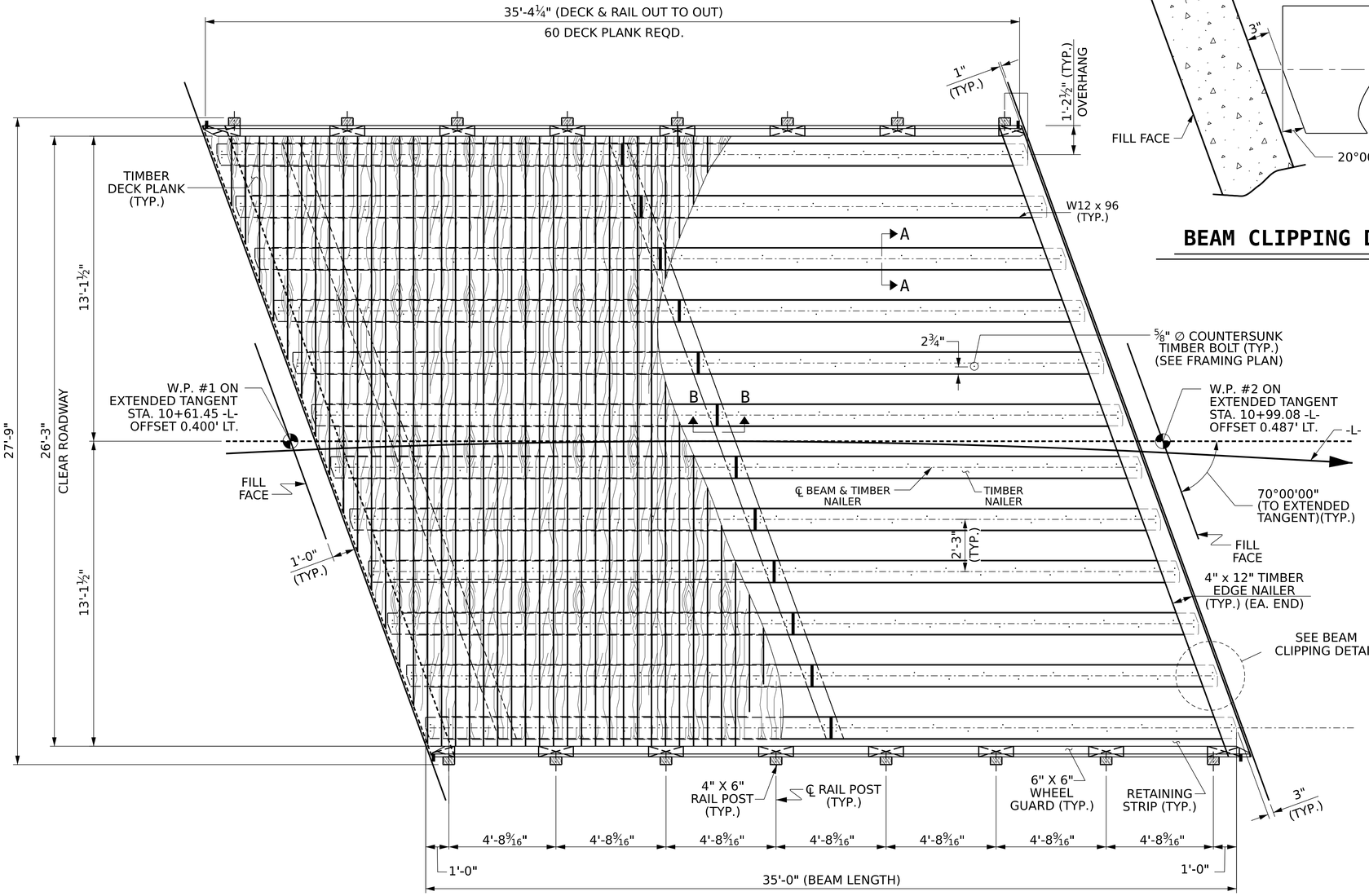
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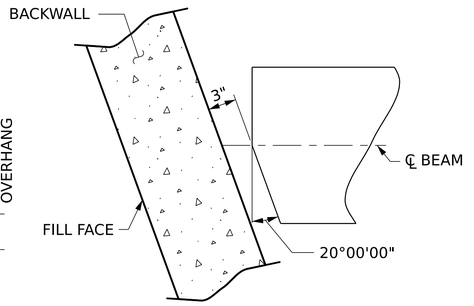
8/26/21



ABUTMENT 1

ABUTMENT 2

DECK LAYOUT



BEAM CLIPPING DETAIL

NOTES

FOR ADDITIONAL NOTES, SEE TYPICAL SECTION AND GENERAL DRAWING SHEETS.

STAGGER TIMBER DECK PLANKS BUTT JOINTS AT 4FT MINIMUMS FROM ADJACENT RUNS.

ATTACH TIMBER DECK PLANKS TO NAILERS WITH TWO STRUCTURAL SCREWS PER TIMBER DECK PLANK.

AVOID HITTING NAILER BOLT WHEN DRIVING TIMBER DECK SCREWS.

SEE BEAM DETAILS FOR SPACING OF TIMBER BOLTS IN TOP FLANGE OF ROLLED BEAM.

COUNTERSINK TIMBER BOLT AND STRUCTURAL SCREW HEADS TO BE FLUSH WITH TIMBER SURFACE.

TRIM THE EDGE NAILER FLUSH WITH THE EDGE OF DECK.

DECK PLANK WIDTH MAY BE CUT TO 6" (MIN.) TO FIT WITHIN LIMITS OF TIMBER DECK. ALL DECK PLANKS ATTACHED TO THE EDGE NAILER SHALL BE FULL WIDTH. CUT BOARDS WILL NOT BE PERMITTED TO BE PLACED ADJACENT TO ONE ANOTHER.

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE BACKER ROD FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

POURABLE SILICONE JOINT SEALANT SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

FOR POURABLE SILICONE JOINT SEALANT, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. DF18311.2005102.PR

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SHEET 2 OF 5

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NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE6D5846B...
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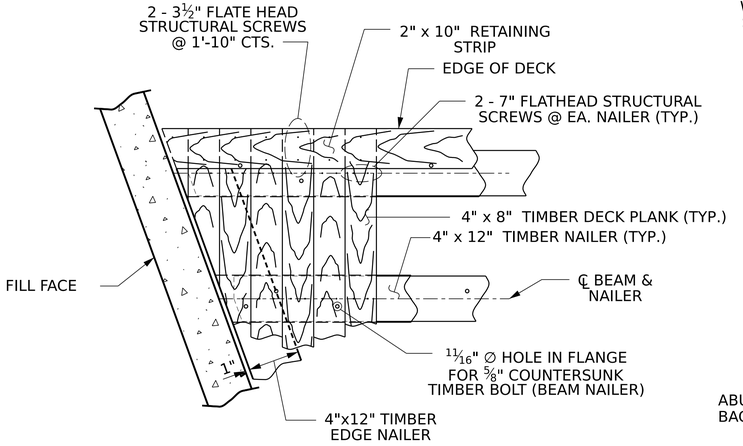
SUPERSTRUCTURE

PLAN OF 35' BEAM 26'-3" CLEAR ROADWAY 70° SKEW

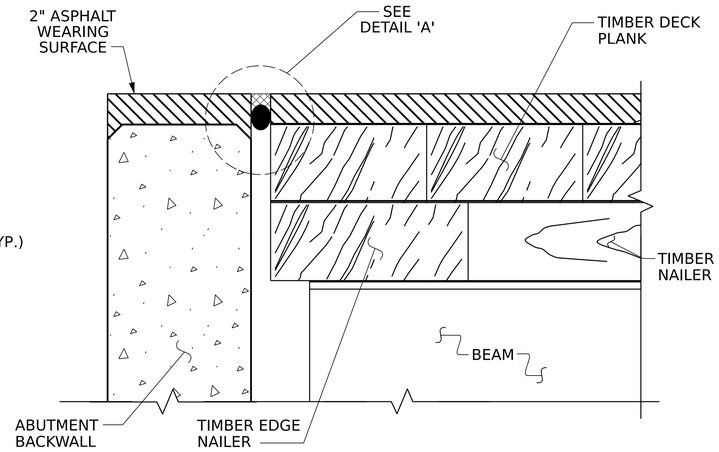
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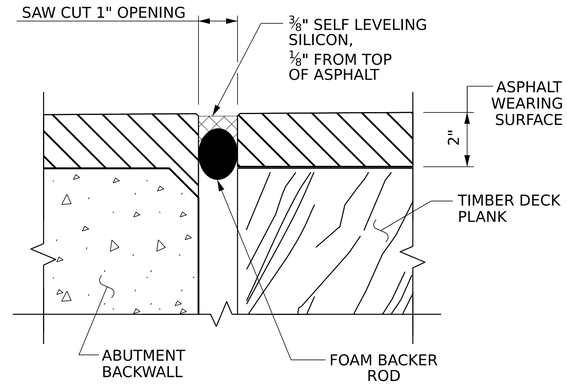
8/26/21



TYPICAL DECK DETAIL AT ABUTMENT



PROPOSED POURABLE SILICONE JOINT DETAIL



DETAIL 'A'

BILL OF MATERIAL FOR 35 FT. SPAN

TREATED LUMBER

ITEM	SIZE	LIN. FT.
TIMBER DECK PLANKS	4"x8"	1665.0
TIMBER NAILERS	4"x12"	405.6
TIMBER EDGE NAILERS	4"x12"	55.5
TOTAL TREATED LUMBER		2126.1 LIN. FT.

FLASHING MEMBRANE

ITEM	SIZE	LIN. FT.
TOP OF BEAM	25 MILS	420.0
TOP OF TIMBER NAILERS	25 MILS	405.6
TOP OF TIMBER EDGE NAILERS	25 MILS	55.5
FLASHING MEMBRANE		881.1 LIN. FT.

HARDWARE

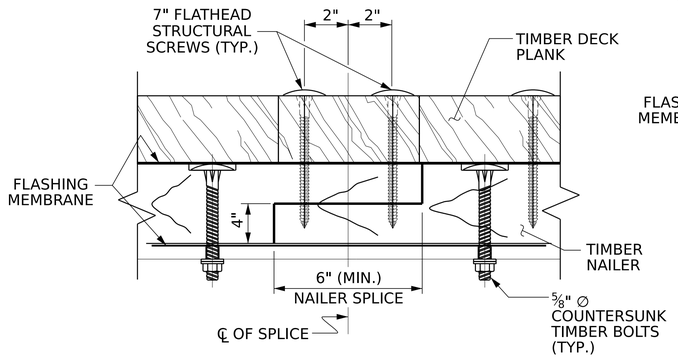
ITEM	No.	SIZE	LBS.
5/8" ∅ TIMBER BOLTS	336	5/8"	470.40
HEAVY HEX NUTS	336	5/8"	40.32
STANDARD WASHER	336	5/8"	26.26
LOCK WASHER	336	5/8"	26.26
FLAT HEAD STR. SCREWS	1440	7"	14.40
HARDWARE FOR CONNECTIONS			577.63 LBS.

DECK WATERPROOFING MEMBRANE

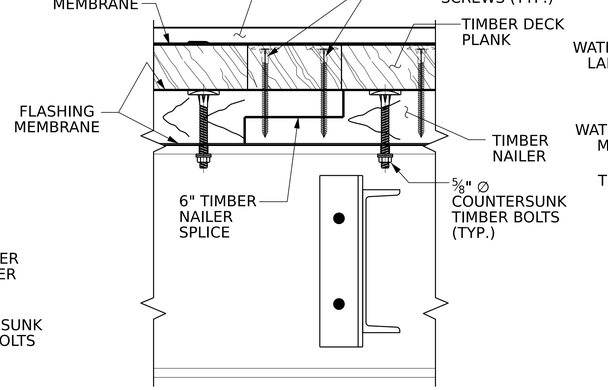
ITEM	SIZE	SQ. YDS
DECK WATERPROOFING MEMBRANE	65 MILS.	110.0

DRIP EDGE

	SIZE	LIN. FT.
22 GA. ALUMINUM DRIP EDGE	1'-0"	35.7

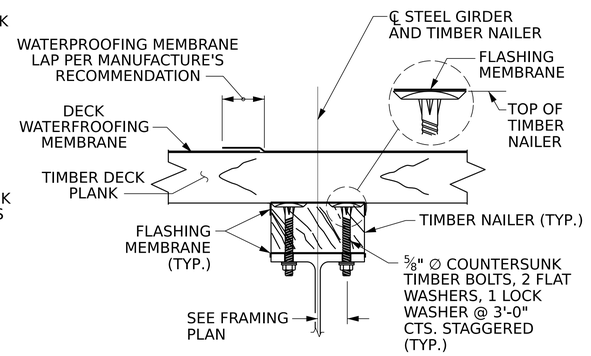


NAILER SPLICE DETAILS



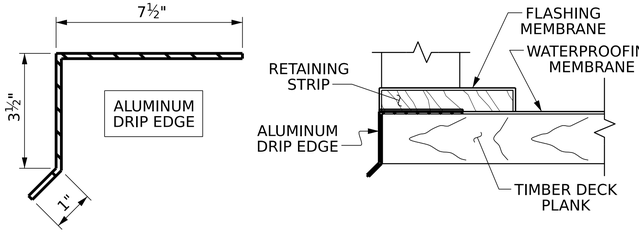
SECTION B-B

NAILER SPLICE & TIMBER PLANK ATTACHMENT DETAILS



SECTION A-A

TIMBER NAILER ATTACHMENT DETAILS



DRIP EDGDE DETAILS

POST AND BOLTS NOT SHOWN FOR CLARITY

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D5848B...

9/26/2025

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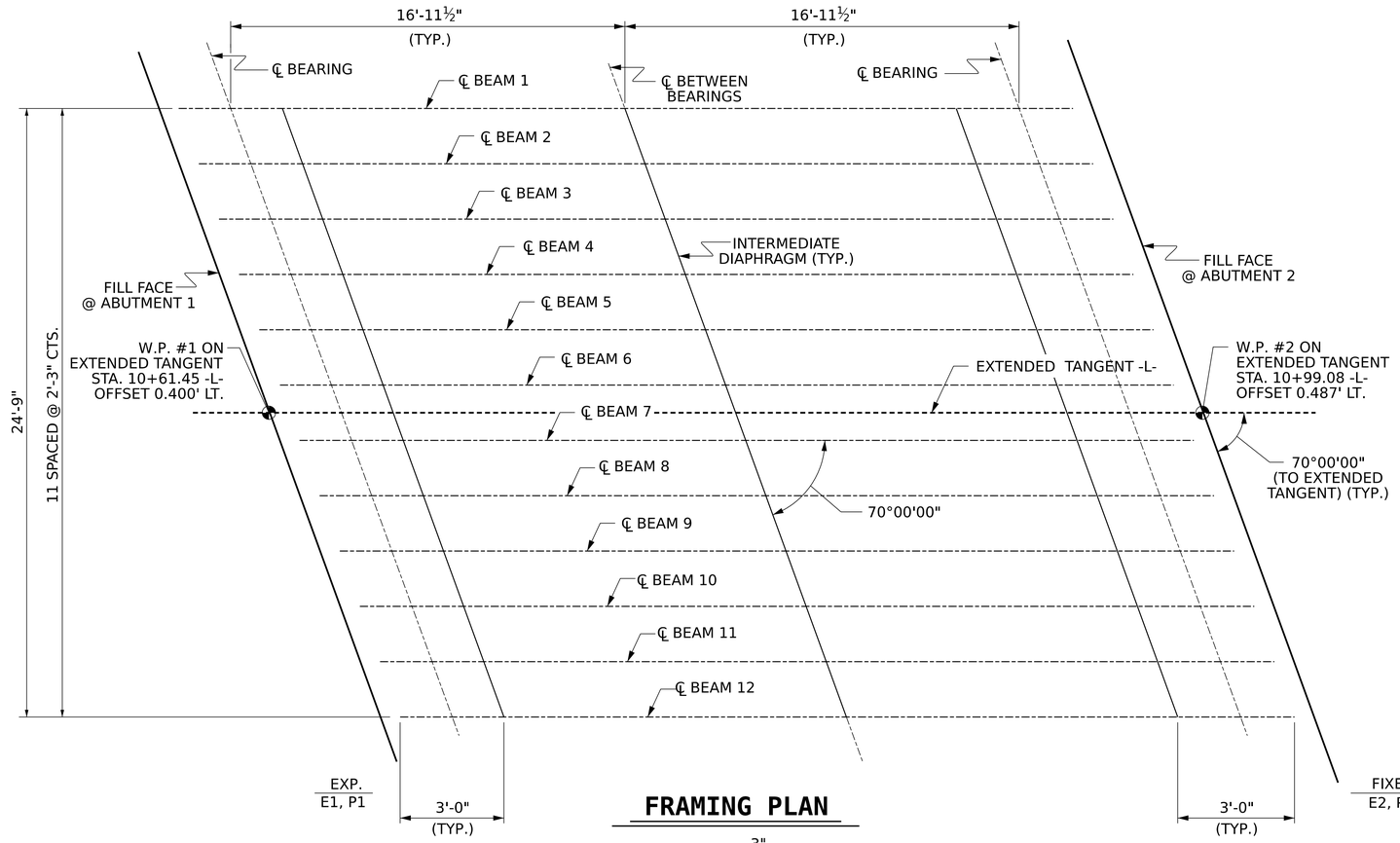
vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

DRAWN BY : C.P. MALAGON DATE : 06/2025
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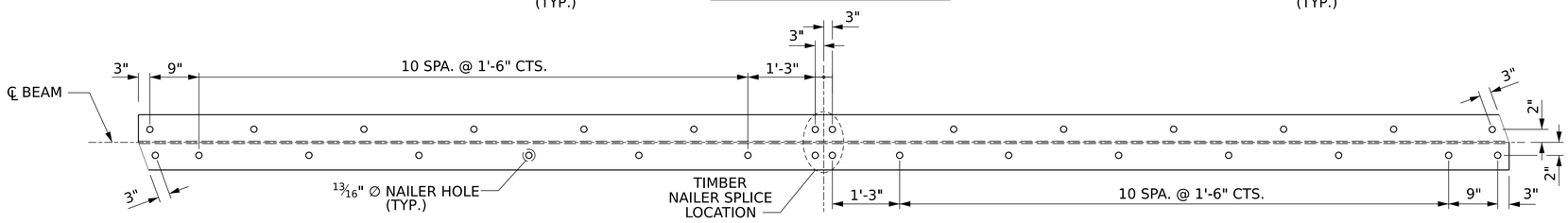
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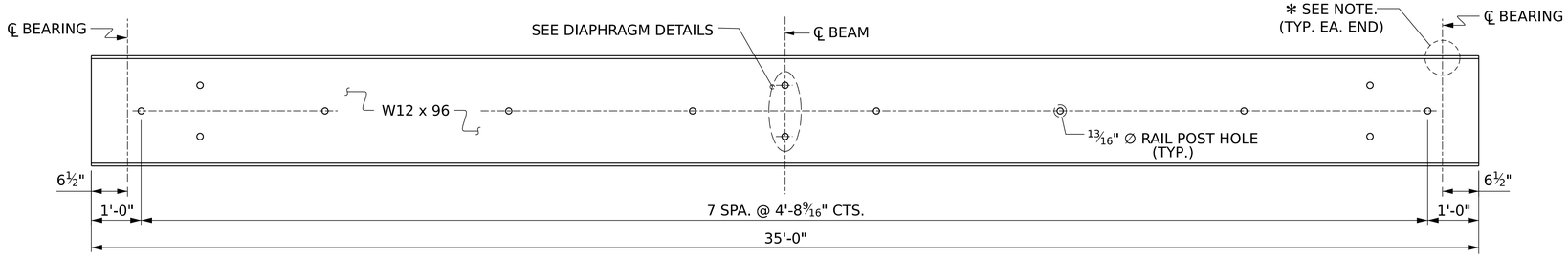
8/26/21



FRAMING PLAN



TOP FLANGE



ELEVATION

(SHOWING RAIL POST HOLES FOR EXTERIOR BEAMS
INTERIOR BEAMS ARE SIMILAR BUT WITHOUT RAIL POST HOLES)

BEAM DETAILS

NOTES

NO SALVAGED BEAMS SHALL BE USED, UNLESS OTHERWISE NOTED ON THE PLANS.

NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.

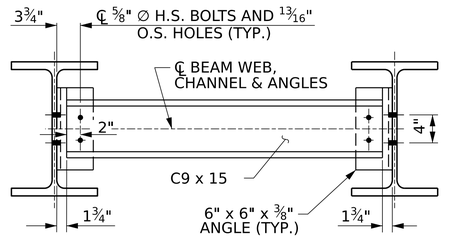
ALL STRUCTURAL STEEL FIELD CONNECTIONS SHALL BE ⅝" DIA. GALVANIZED HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEAMS SHALL BE PLACED PARALLEL TO THE CHORD.

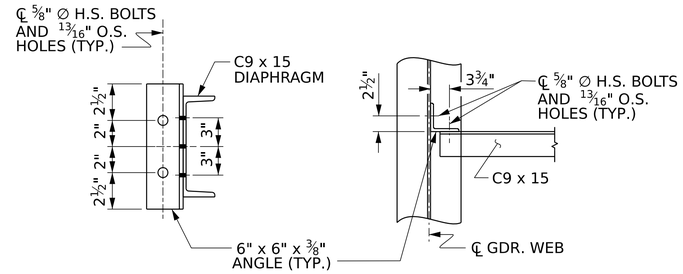
CONTRACTORS OPTION TO WELD CONNECTOR TO BEAM PRIOR TO SHOP COATING.

SEE GENERAL DRAWING NOTES FOR COATING.

✻ FOR SIZE AND LOCATION OF OPTIONAL BOLTED SOLE PLATE, SEE BEARING DETAILS SHEET.



INTERIOR DIAPHRAGM DETAIL



ANGLE DETAIL

VHB Engineering NC, P.C. (C-3705)
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SHEET 4 OF 5

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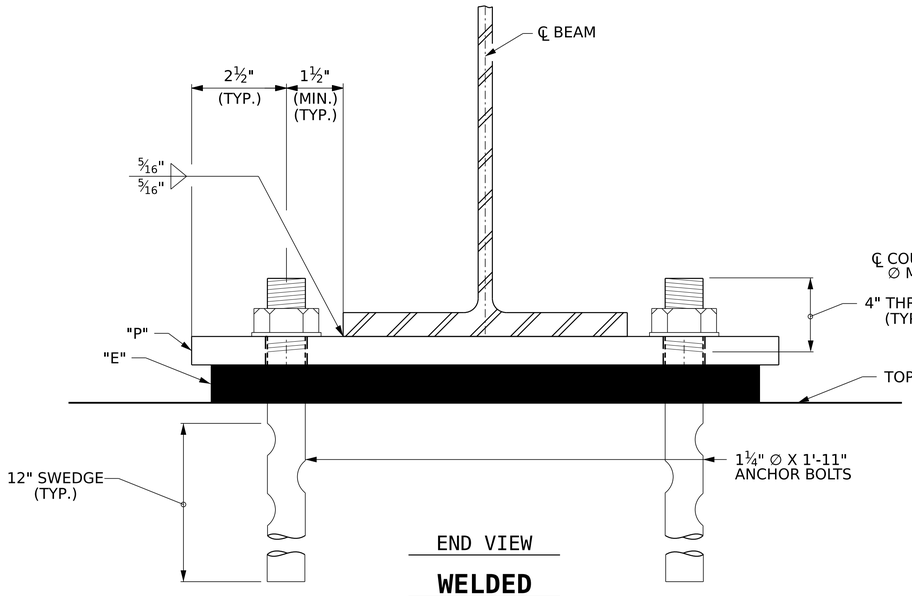
SUPERSTRUCTURE

FRAMING PLAN FOR 35' BEAM LENGTH 70° SKEW

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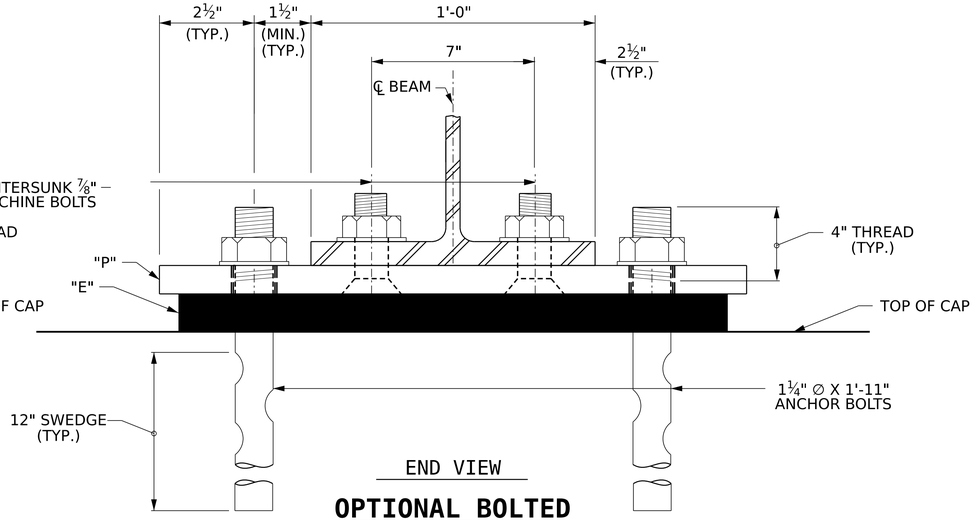
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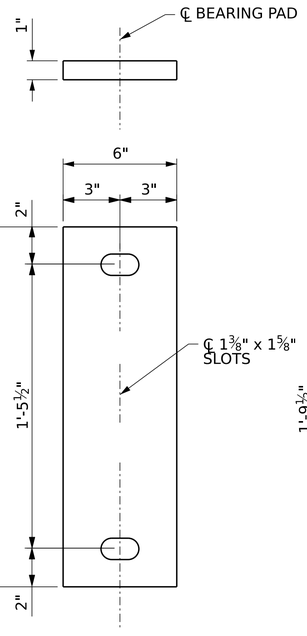
END VIEW

WELDED

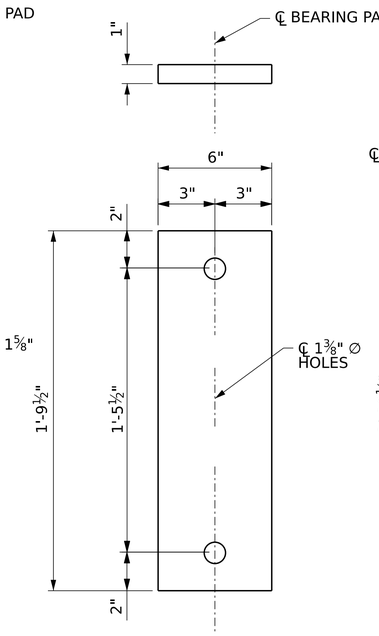


END VIEW

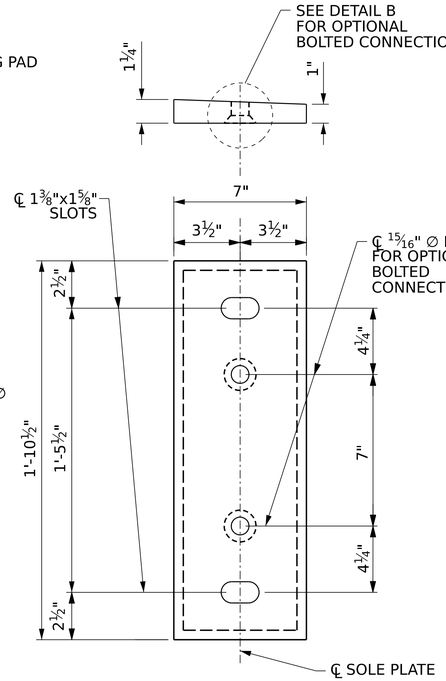
OPTIONAL BOLTED



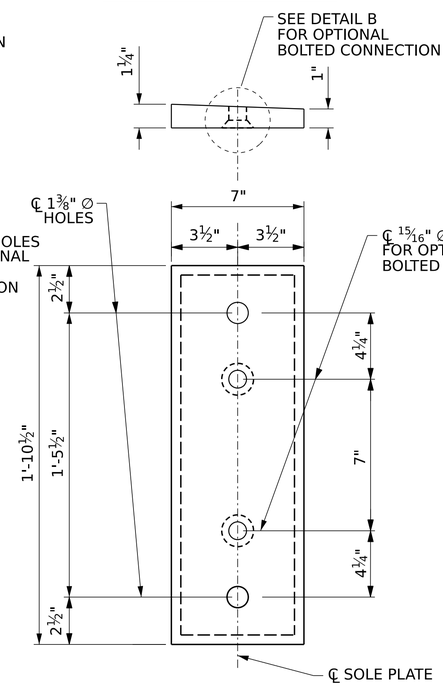
E1 ELASTOMERIC BEARING DETAILS
(14 REQ'D)
EXPANSION



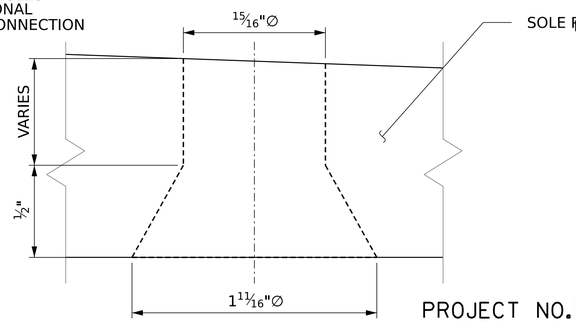
E2 ELASTOMERIC BEARING DETAILS
(14 REQ'D)
FIXED



P1 SOLE PLATE DETAILS
(14 REQ'D)
EXPANSION



P2 SOLE PLATE DETAILS
(14 REQ'D)
FIXED



DETAIL B

NOTES

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT ALL SUPPORTS, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BEARING PLATES SHALL BE AASHTO M270 GRADE 36.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS, AND WASHERS. SHOP INSPECTION IS REQUIRED.

AT THE APPROVAL OF THE ENGINEER, SOLE PLATES AT THE EXPANSION END MAY BE FIELD WELDED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300° F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

AT NO ADDITIONAL COST TO THE DEPARTMENT, THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CAST-IN-PLACE ANCHORS. LEVEL 1 FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE ANCHOR BOLT IS 30 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

ADHESIVELY ANCHORED ANCHOR BOLTS SHALL BE THREADED FULL LENGTH.

AT THE APPROVAL OF THE ENGINEER, THE OPTIONAL BOLTED SOLE PLATE MAY BE USED AT NO ADDITIONAL COST TO THE DEPARTMENT.

AT THE APPROVAL OF THE ENGINEER, THE OPTIONAL BOLTED SOLE PLATE MAY BE USED AT NO ADDITIONAL COST TO THE DEPARTMENT.

PROJECT NO. DF18311.2005102.PR

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SHEET 5 OF 5

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
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DRAWN BY : C.P. MALAGON DATE : 06/2025
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NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE0D5846B...
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STANDARD

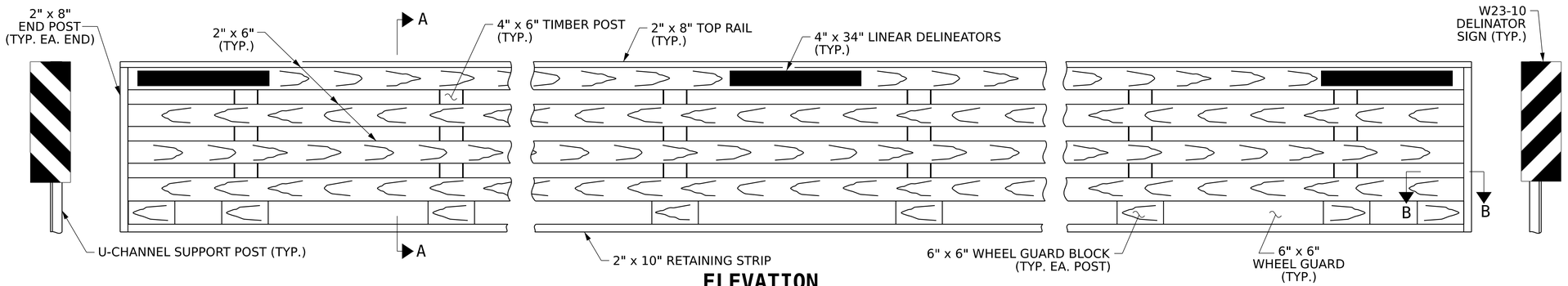
BEARING DETAILS TYPE IV

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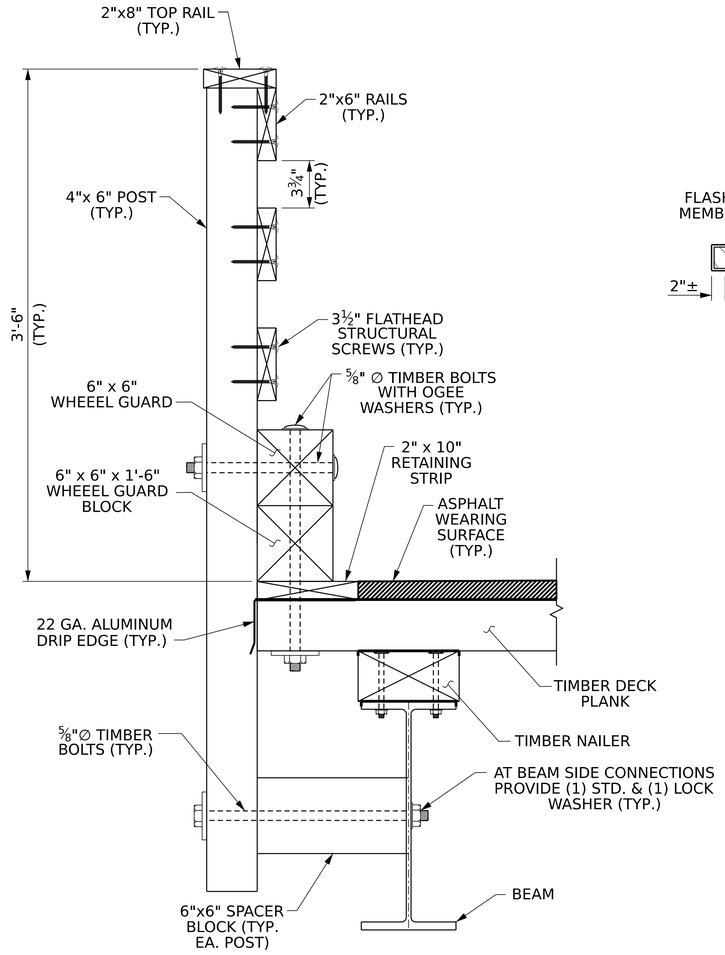
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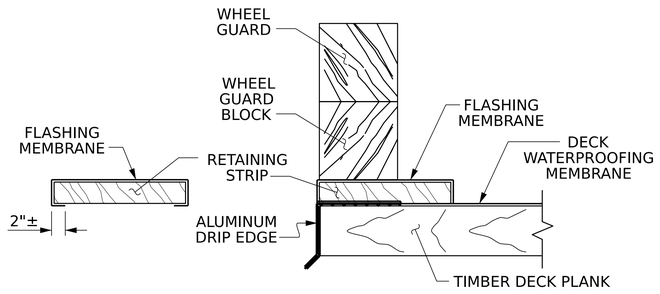
8/26/21



ELEVATION

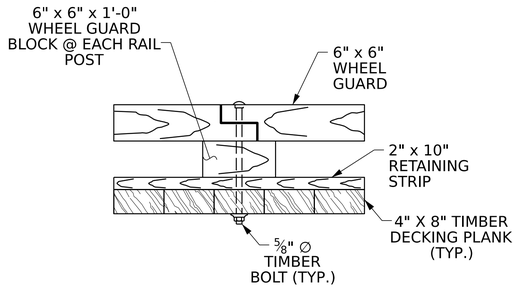


SECTION A-A

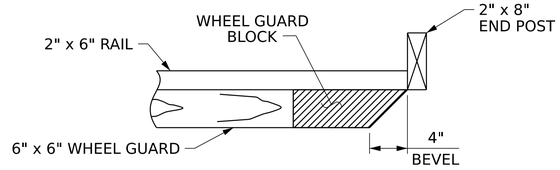


RETAINING STRIP DETAILS

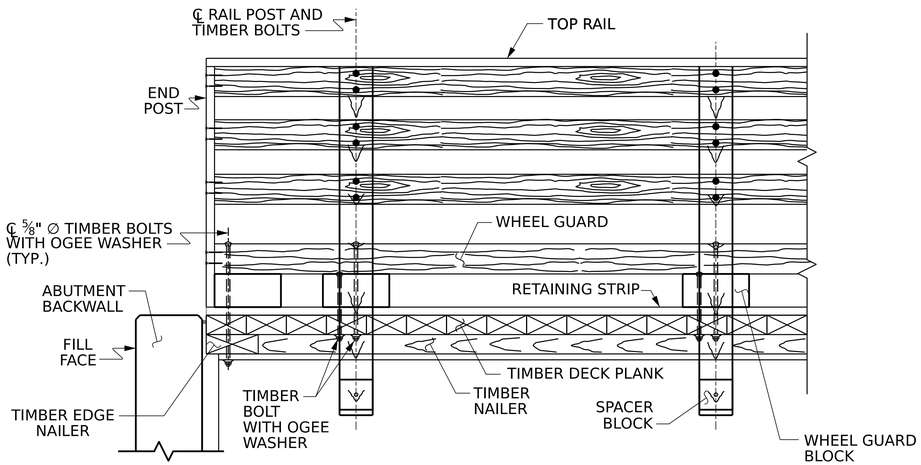
POST AND BOLTS NOT SHOWN FOR CLARITY



WHEEL GUARD SPLICE DETAIL



VIEW B-B



RAIL DETAIL AT ABUTMENTS

BILL OF MATERIAL FOR ONE RAIL 35 FT (2 REQ.D)

TREATED LUMBER

ITEM	SIZE	LIN. FT.
RAILS	2"x 6"	105.0
RAIL POSTS	4"x6"	48.0
TOP RAIL	2"x8"	35.8
WHEEL GUARD	6"x6"	35.8
WHEEL GUARD BLOCK	6"x6"	12.0
RETAINER STRIP	2"x10"	35.8
END POSTS	2"x8"	12.0
SPACER BLOCK	6"x6"	9.5

FLASHING MEMBRANE

ITEM	SIZE	LIN. FT.
MEMBRANE FOR RETAINER STRIP	1'-6"	35.8

HARDWARE

ITEM	Nos.	SIZE	LBS.
TIMBER BOLTS (WHEEL GUARD)	8	⅝" ∅	11.20
TIMBER BOLTS (SPACE BLOCK)	8	⅝" ∅	11.20
TIMBER BOLTS (RAIL)	8	⅝" ∅	18.40
HEAVY HEX NUTS	24	⅝" ∅	2.88
FLATHEAD STR. SCREWS	200	3½"	2.21
STANDARD WASHER	8	⅝" ∅	0.73
LOCK WASHER	8	⅝" ∅	0.73
OGEE WASHERS	16	⅝" ∅	9.92

HARDWARE FOR CONNECTIONS_____ APPROX. 57.26 LBS.

ACCESSORIES

ITEM	Nos.
4 X 34 LINEAR DELINEATOR	5
W23-10 12x36 DELINEATOR	2
U-CHANNEL SUPPORT POST	2

PAY LENGTH = 35.5 LIN. FT.

NOTES

THE TIMBER BRIDGE RAIL SYSTEM SHALL NOT BE ATTACHED TO THE TIMBER BRIDGE DECK SYSTEM PRIOR TO THE TIMBER DECK WATERPROOFING MEMBRANE BEING INSTALLED.

BRIDGE RAILS SHALL BE CONTINUOUS FROM END POST TO END POST WITH NO GAPS. RAIL LUMBER LENGTHS SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

TREAT ALL DRILLED OR NEWLY EXPOSED HOLES IN TIMBER MEMBERS BY PUMPING WITH BITUMINOUS ASPHALT-BASED ROOFING CEMENT, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING HARDWARE.

SEE PLAN OF SPAN SHEET FOR NUMBER OF POSTS AND POST SPACING.

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

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VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
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NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 8CA734DE9D5848B...

9/26/2025

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DEPARTMENT OF TRANSPORTATION
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TIMBER BRIDGE RAIL SYSTEM

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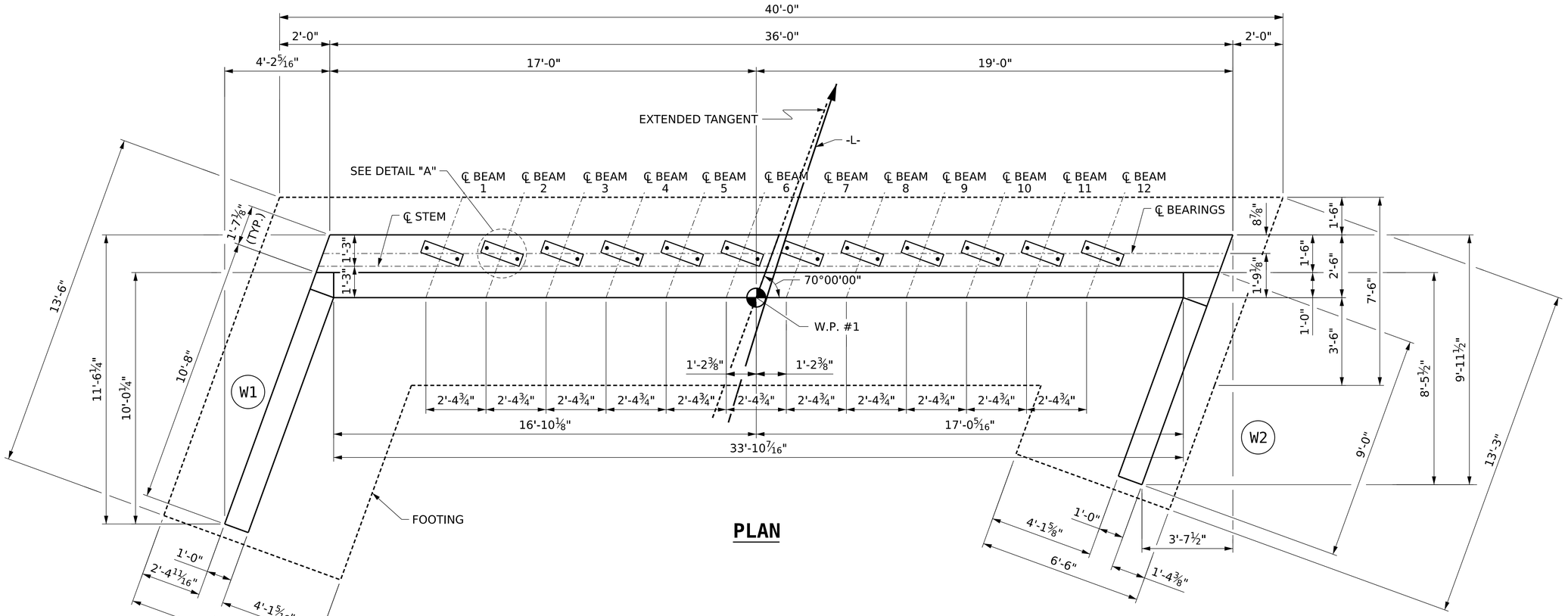
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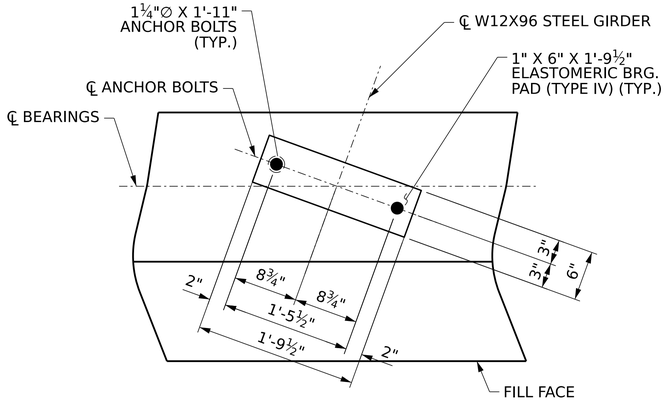
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NOTES

FOR ELEVATION VIEW, SEE SHEET 2 OF 6.



PLAN



DETAIL "A"

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

DRAWN BY :	C.P. MALAGON	DATE :	06/2025
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PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

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SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 PLAN

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D5848B... 9/26/2025

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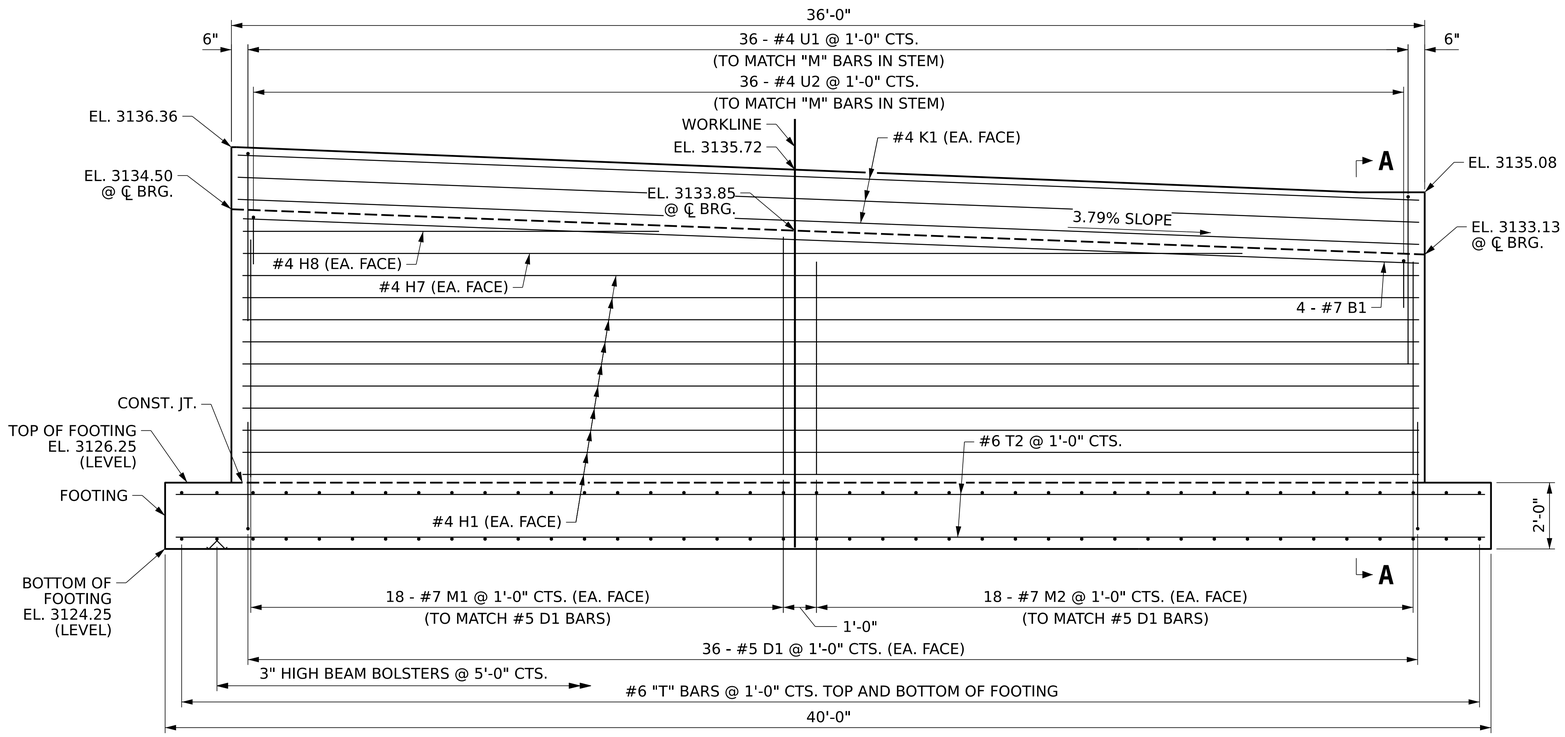
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NOTES

FOR SECTION A-A, SEE SHEET 4 OF 6.

"U" BARS IN STEM MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.



ELEVATION

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 ELEVATION

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D58468...

9/26/2025

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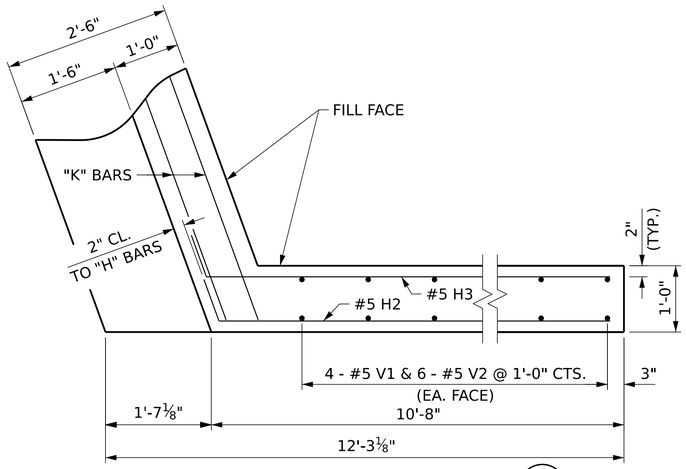
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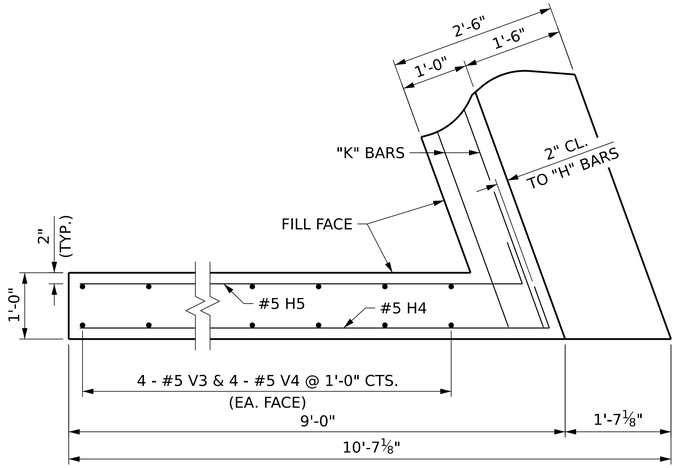
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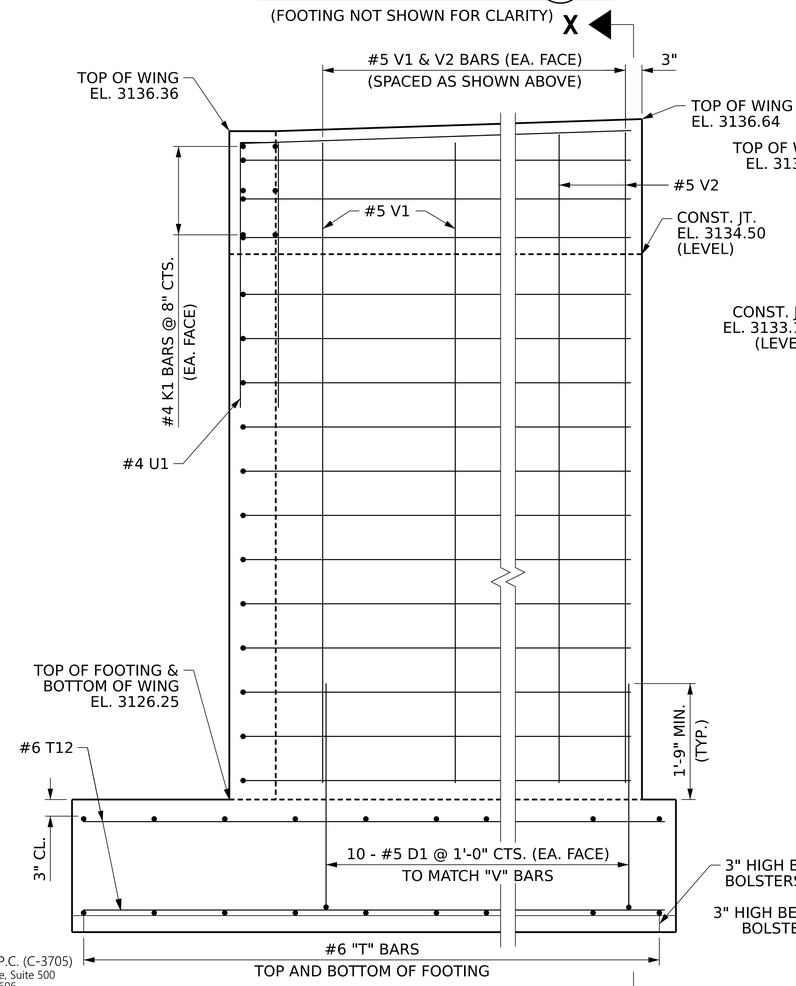
PLAN OF WING W1

(FOOTING NOT SHOWN FOR CLARITY)

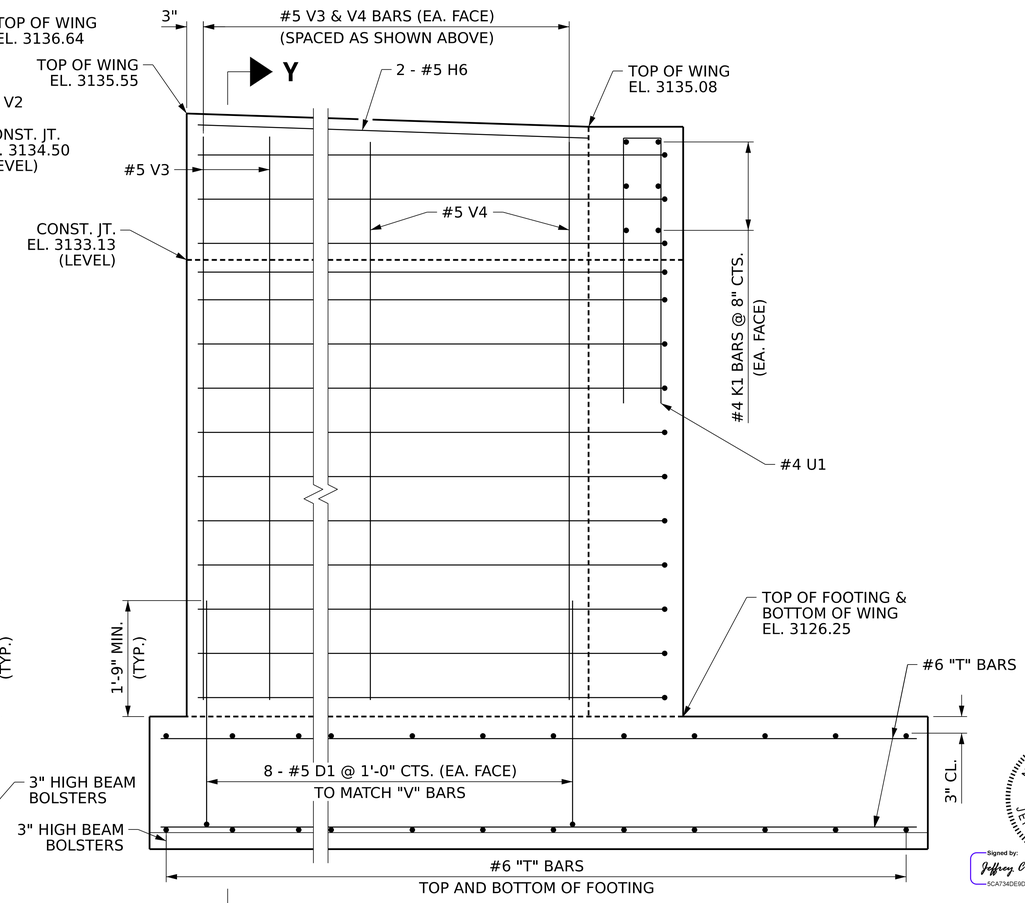


PLAN OF WING W2

(FOOTING NOT SHOWN FOR CLARITY)



ELEVATION OF WING W1



ELEVATION OF WING W2

NOTES

#4 U1 BARS NOT SHOWN IN PLAN VIEW FOR CLARITY.

FOR SECTION X-X & Y-Y, SEE SHEET 4 OF 6.

SEE FOOTING PLAN ON SHEET 6 OF 6 FOR FOOTING BARS.

VHB Engineering NC, P.C. (C-3705)
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Raleigh, NC 27606

DRAWN BY : C.P. MALAGON DATE : 06/2025
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NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE6D5846B...
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PROJECT NO. DF18311.2005102.PR
ASHE COUNTY
STATION: 10+80.00 -L-
SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

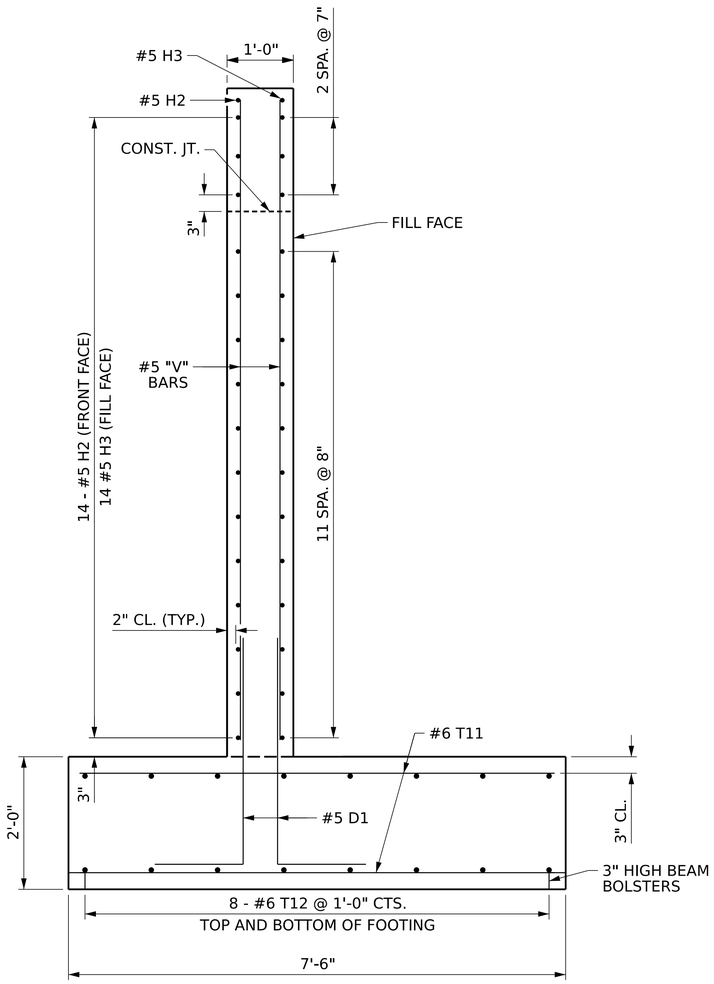
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END BENT 1
WING WALL DETAILS

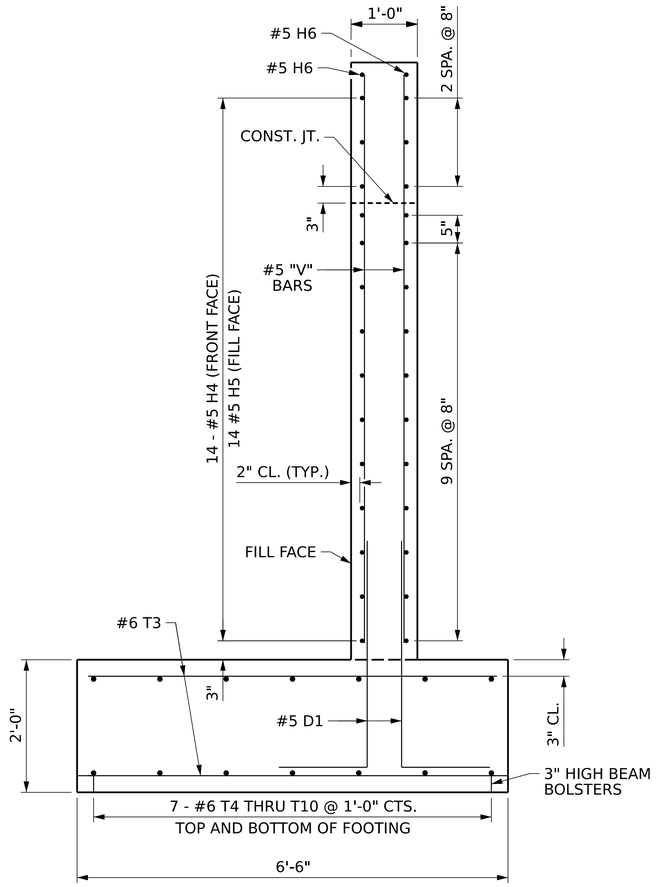
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SECTION X-X



SECTION Y-Y

PROJECT NO. DF18311.2005102.PR

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SHEET 4 OF 6

STATE OF NORTH CAROLINA
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SUBSTRUCTURE

END BENT 1 WING WALL DETAILS

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Signed by: Jeffrey C. Wilson 8CA734DE0D5848B... 9/26/2025

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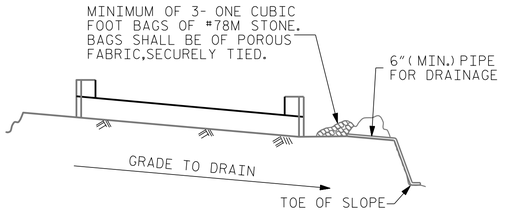
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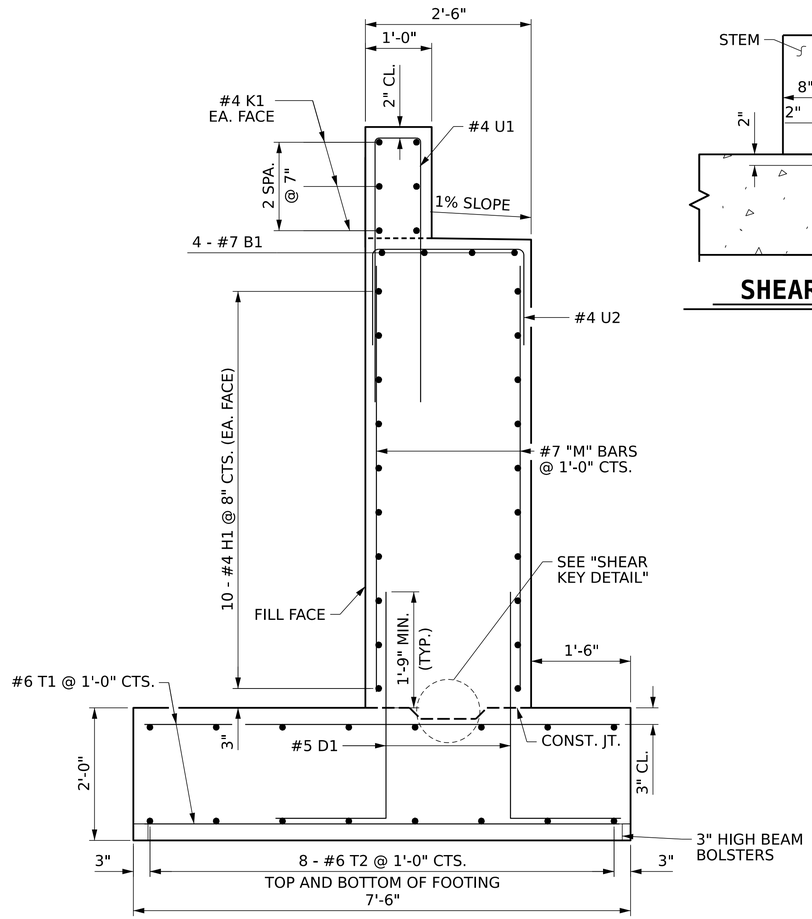


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

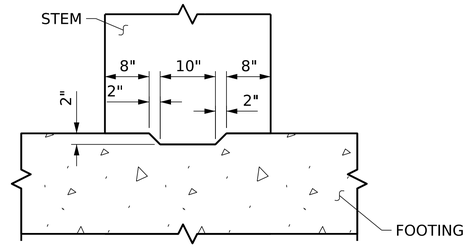
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



SECTION A-A



SHEAR KEY DETAIL

NOTES

ALL WORK SHALL BE IN ACCORDANCE WITH THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, JANUARY 2024.

THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 5.0 KSF. CHECK FILLED CONDITIONS FOR THE REQUIRED RESISTANCE OF 5.0 KSF JUST BEFORE PLACING CONCRETE.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

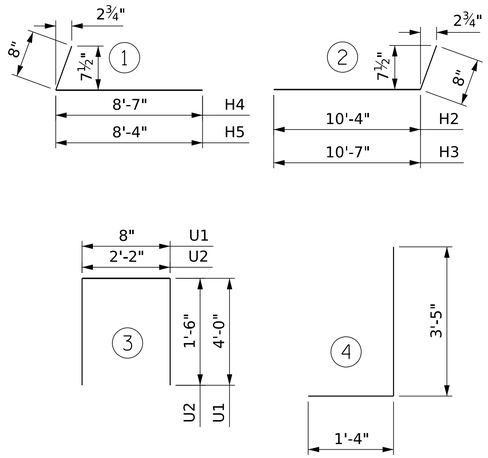
KEY SPREAD FOOTINGS AT THE ABUTMENTS AT LEAST 12" INTO ROCK OR WEATHERED ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.

WITH APPROVAL FROM THE ENGINEER, THE CONTRACTOR MAY OPT TO USE #6 BARS DOWELED INTO ROCK AND THE FOOTING AT LEAST 18 INCHES AT 3'-0" CTS. STAGGERED IN ANY DIRECTION IN LIEU OF KEYING THE SPREAD FOOTING.

SEE SHEET 6 OF 6 FOR FOOTING PLAN.

BAR TYPES



BAR SIZE	SPLICE LENGTH	
	EPOXY COATED	UNCOATED
#4	2'-2"	1'-10"
#5	2'-9"	2'-4"
#7	5'-5"	4'-2"

IF STAGE CONSTRUCTION IS REQUIRED, USE THIS SPLICE TABLE.

BILL OF MATERIAL

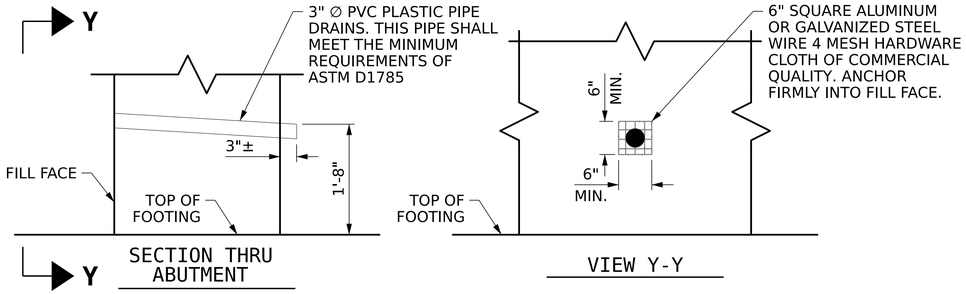
FOR END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#7	STR	35'-8"	292
D1	108	#5	4	4'-9"	535
H1	20	#4	STR	35'-8"	477
H2	15	#5	2	11'-0"	172
H3	15	#5	2	11'-2"	175
H4	14	#5	1	9'-3"	135
H5	14	#5	1	9'-0"	131
H6	2	#5	STR	7'-5"	15
H7	2	#4	STR	30'-1"	40
H8	2	#4	STR	12'-6"	17
K1	6	#4	STR	35'-8"	143
T1	74	#6	STR	7'-0"	778
T2	16	#6	STR	39'-5"	947
T3	10	#6	STR	6'-0"	90
T4	2	#6	STR	10'-5"	31
T5	2	#6	STR	10'-9"	32
T6	2	#6	STR	11'-2"	34
T7	2	#6	STR	11'-6"	35
T8	2	#6	STR	11'-10"	36
T9	2	#6	STR	12'-3"	37
T10	2	#6	STR	12'-7"	38
T11	16	#6	STR	7'-0"	168
T12	16	#6	STR	13'-2"	316
U1	36	#4	3	8'-8"	208
U2	36	#4	3	5'-2"	124
M1	36	#7	STR	7'-2"	527
M2	36	#7	STR	6'-5"	472
V1	8	#5	STR	9'-8"	81
V2	12	#5	STR	9'-10"	123
V3	8	#5	STR	8'-8"	72
V4	8	#5	STR	8'-5"	70
V4	8	#5	STR	8'-5"	70

REINFORCING STEEL 6,351 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	FOOTING	28.1 C.Y.
POUR #2	STEM & LOWER PART OF WINGS	31.1 C.Y.
POUR #3	BACKWALL & UPPER PART OF WINGS	3.8 C.Y.
TOTAL CLASS A CONCRETE		63.0 C.Y.



PIPE DRAIN DETAILS

NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 SECTION AND DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D58486...

9/26/2025

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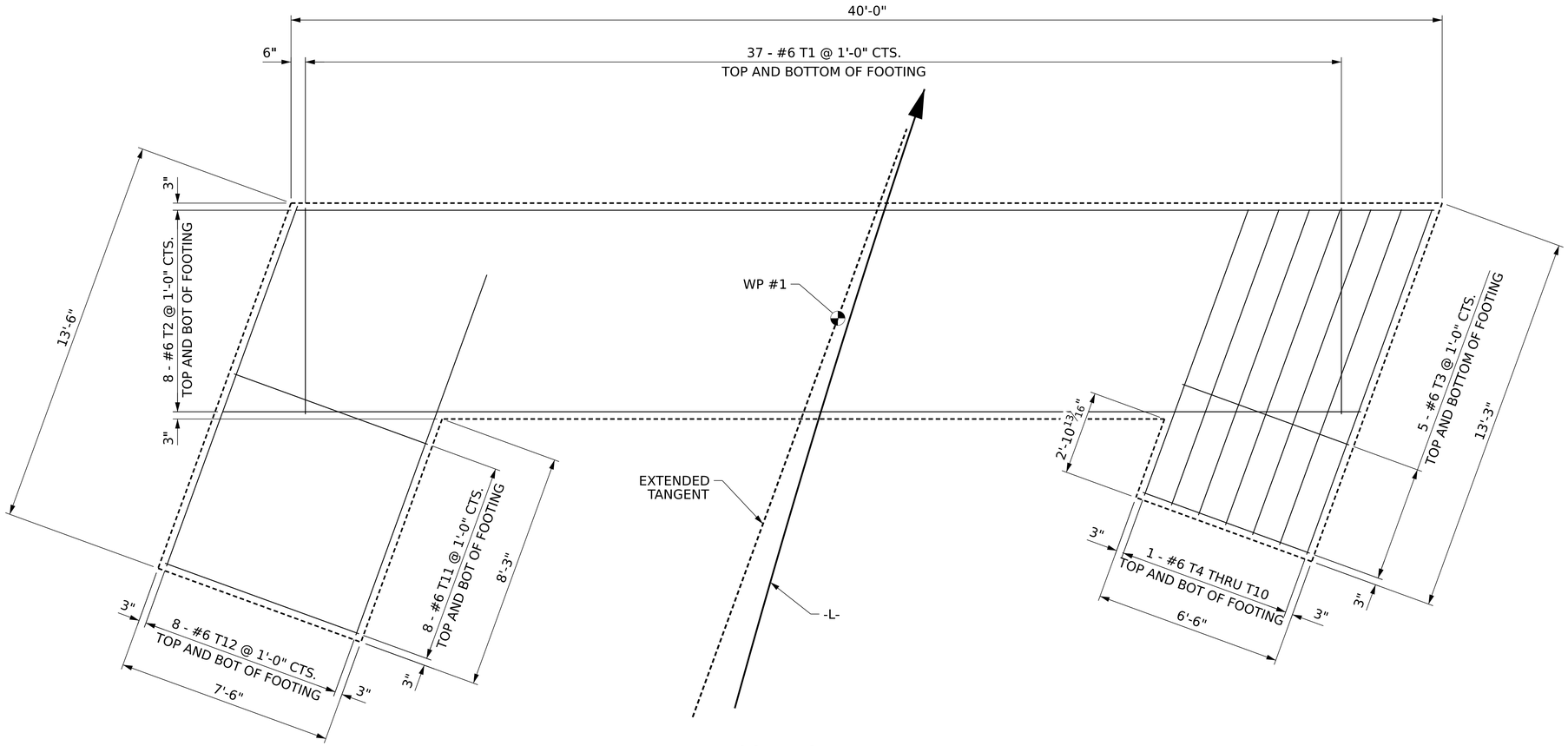
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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FOOTING PLAN

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 FOOTING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D5848B...
9/26/2025

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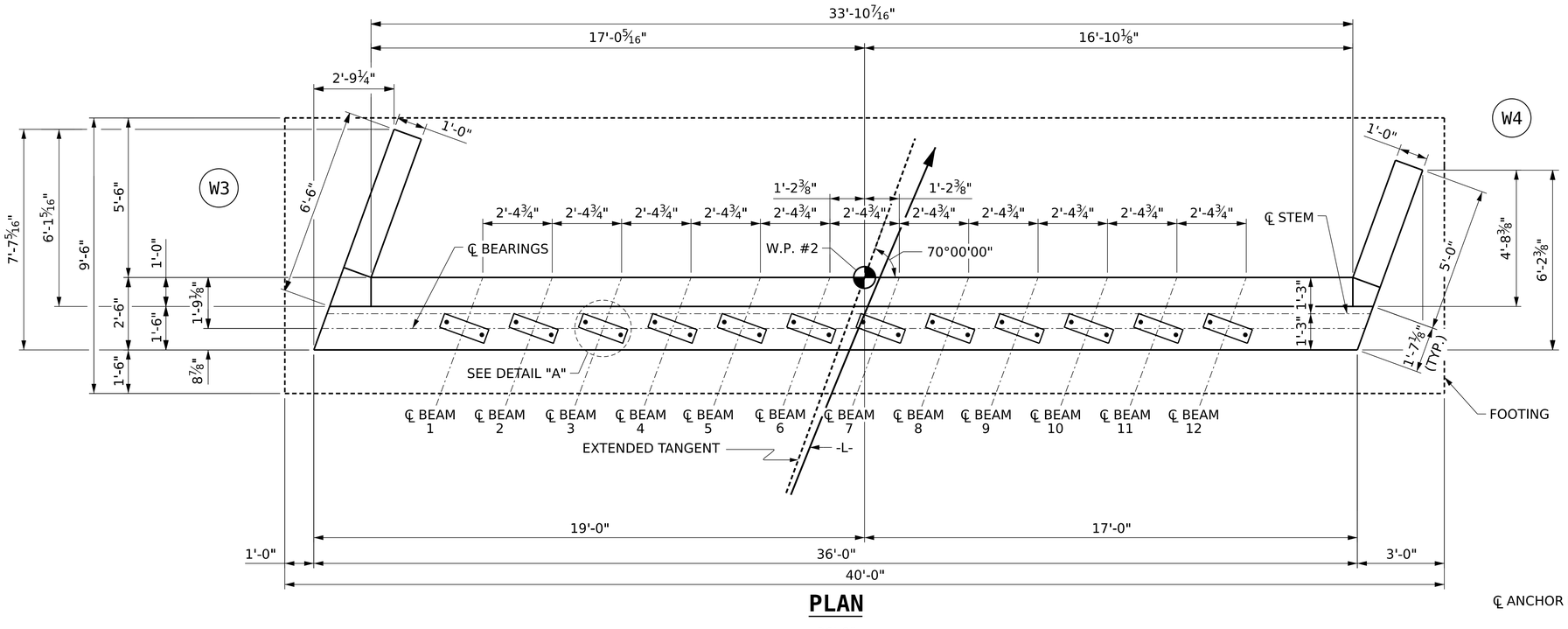
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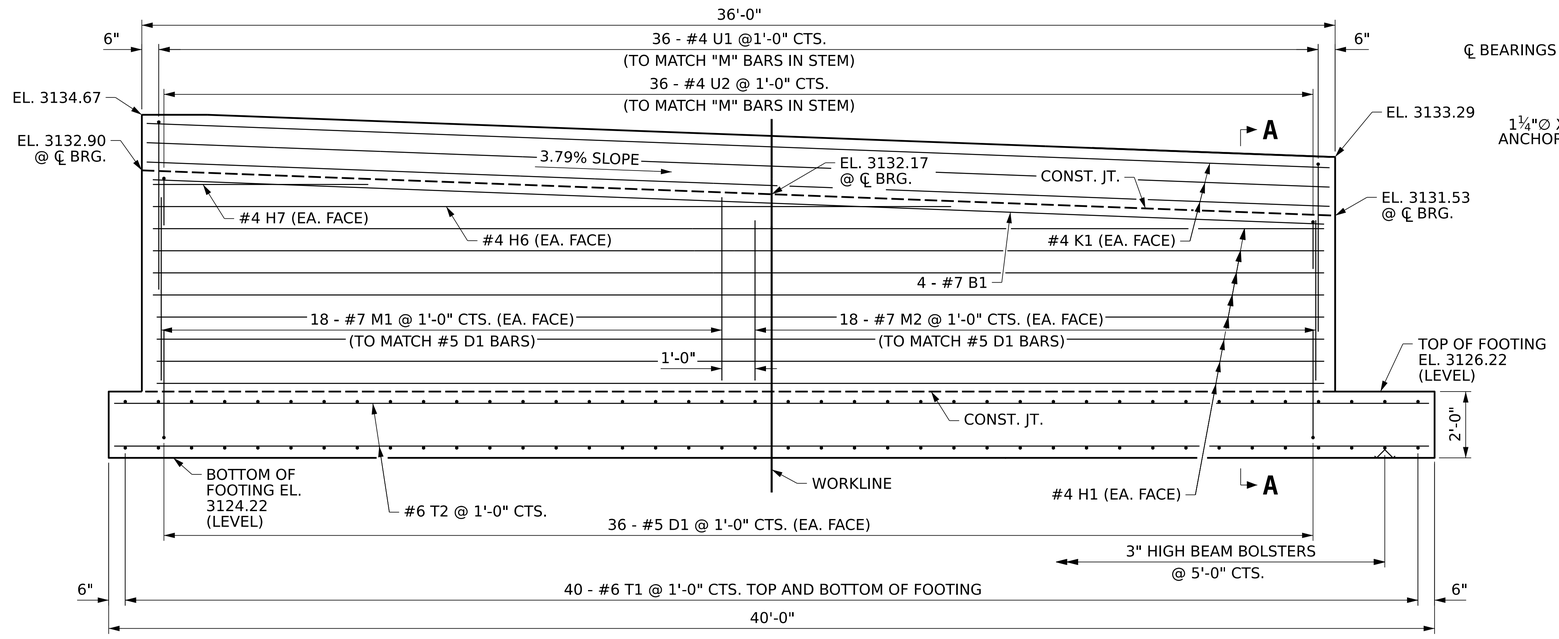
NOTES

FOR SECTION A-A, SEE SHEET 3 OF 3.

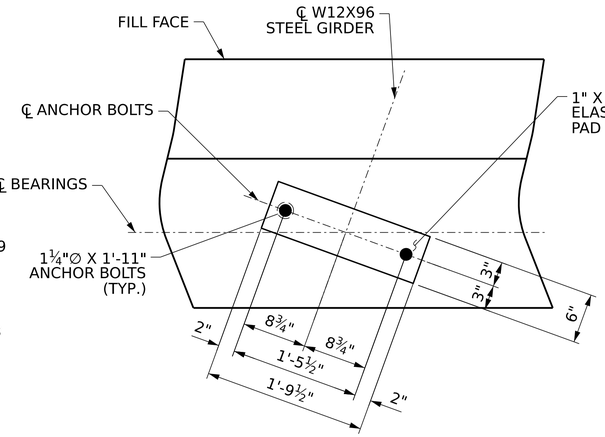
"U" BARS IN STEM MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.



PLAN



ELEVATION



DETAIL "A"

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 1 OF 3

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NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D5848B...

9/26/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
PLAN AND ELEVATION

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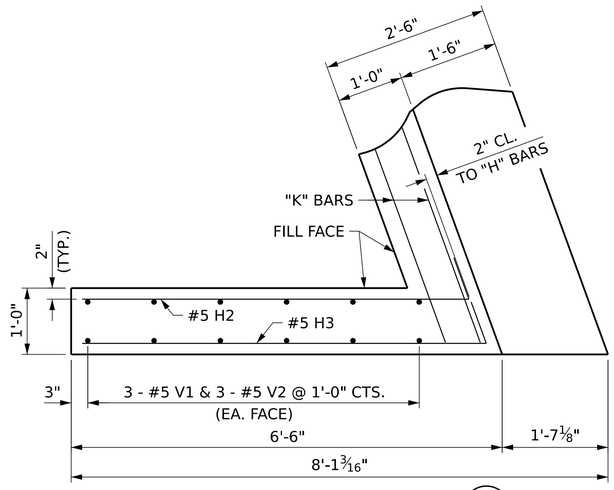
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NOTES

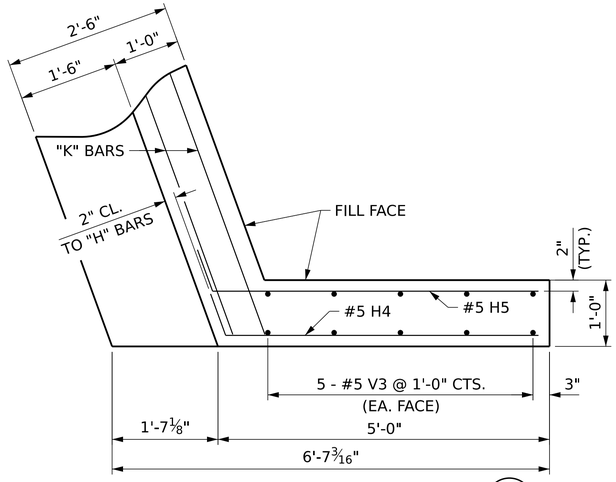
#4 U1 BARS NOT SHOWN IN PLAN VIEW FOR CLARITY.

SEE FOOTING PLAN ON SHEET 3 OF 3 FOR FOOTING BARS.



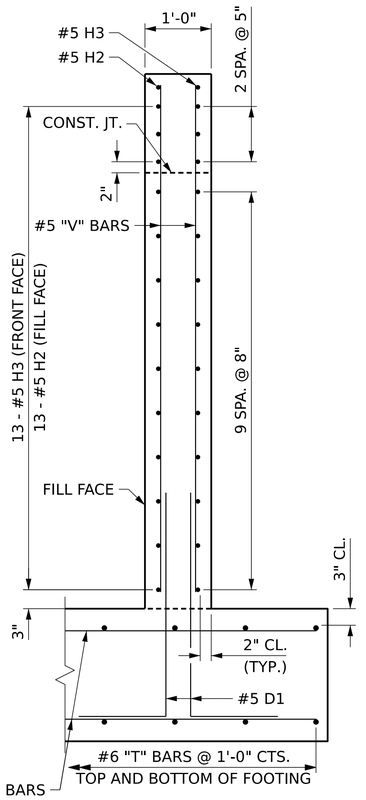
PLAN OF WING W3

(FOOTING NOT SHOWN FOR CLARITY)

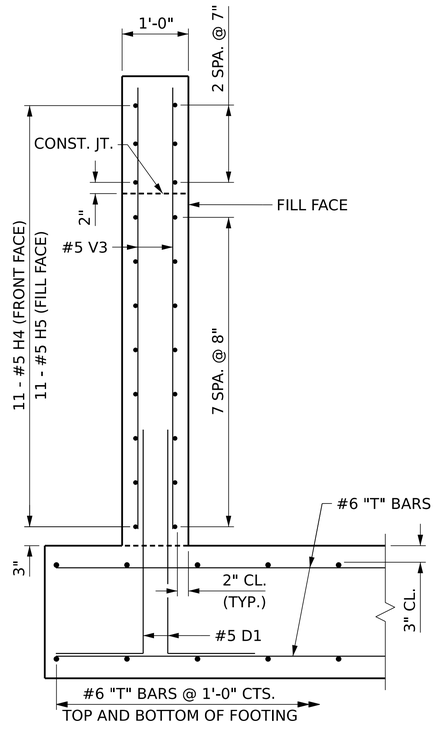


PLAN OF WING W4

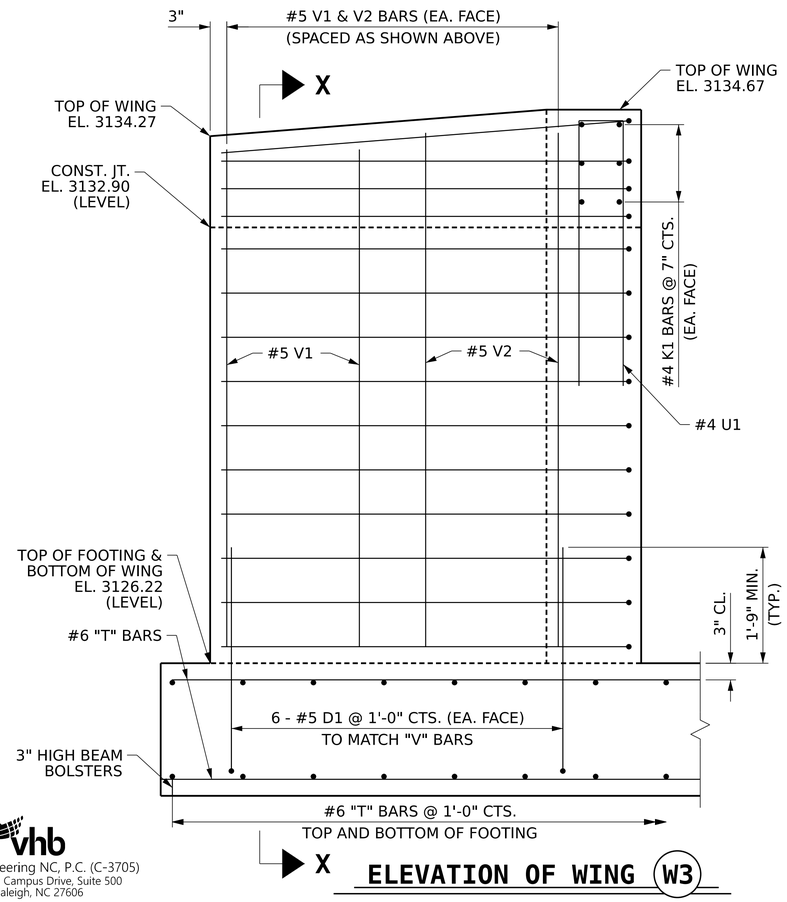
(FOOTING NOT SHOWN FOR CLARITY)



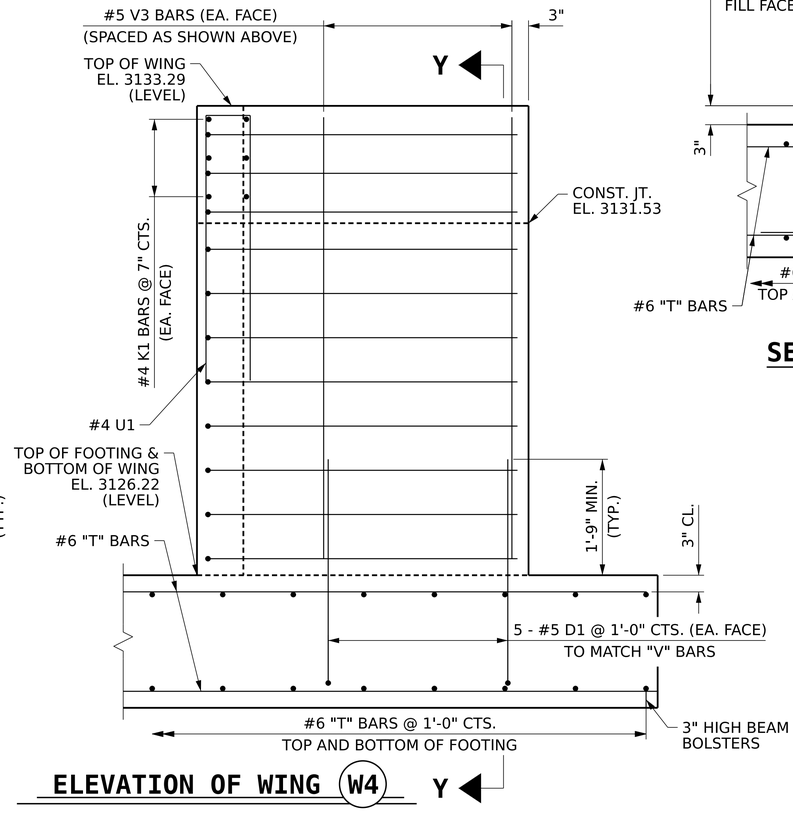
SECTION X-X



SECTION Y-Y



ELEVATION OF WING W3



ELEVATION OF WING W4

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Raleigh, NC 27606

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D5848B... 9/26/2025

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
WING WALL DETAILS

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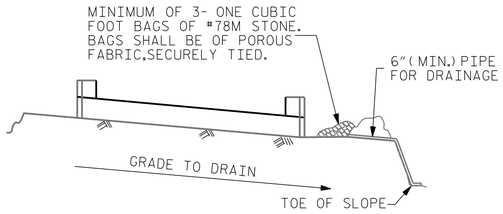
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BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

NOTES

ALL WORK SHALL BE IN ACCORDANCE WITH THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, JANUARY 2024.

THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 5.0 KSF. CHECK FILLED CONDITIONS FOR THE REQUIRED RESISTANCE OF 5.0 KSF JUST BEFORE PLACING CONCRETE.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

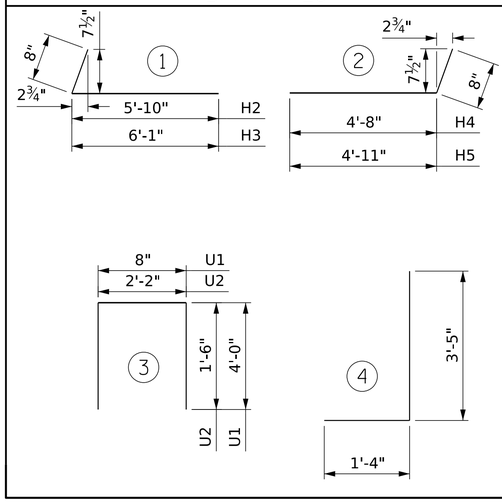
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

KEY SPREAD FOOTINGS AT THE ABUTMENTS AT LEAST 12" INTO ROCK OR WEATHERED ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.

WITH APPROVAL FROM THE ENGINEER, THE CONTRACTOR MAY OPT TO USE #6 BARS DOWELED INTO ROCK AND THE FOOTING AT LEAST 18 INCHES AT 3'-0" CTS. STAGGERED IN ANY DIRECTION IN LIEU OF KEYING THE SPREAD FOOTING.

BAR TYPES



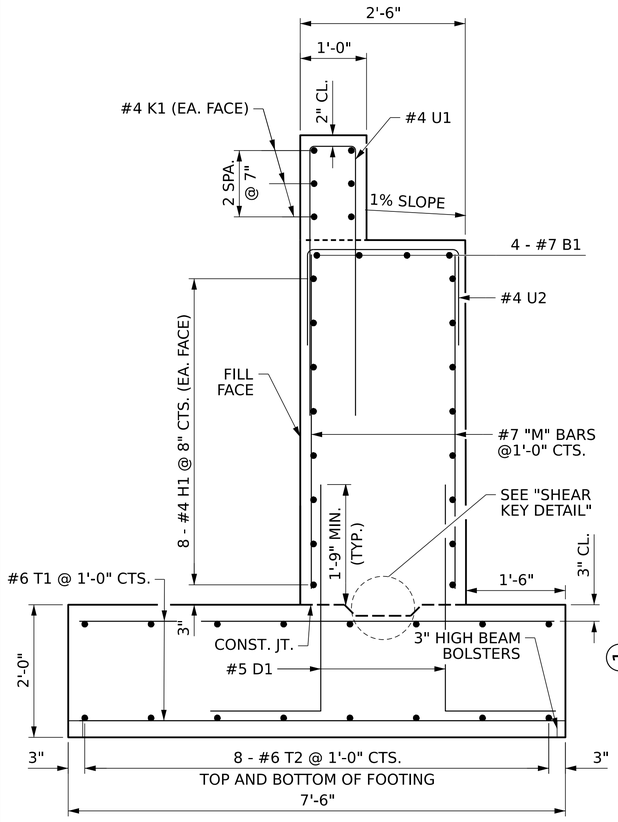
BILL OF MATERIAL FOR END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#7	STR	35'-8''	292
D1	94	#5	4	4'-9''	466
H1	16	#4	STR	35'-8''	381
H2	14	#5	1	6'-6''	95
H3	14	#5	1	6'-9''	99
H4	11	#5	2	5'-4''	61
H5	11	#5	2	5'-7''	64
H6	2	#4	2	24'-1''	32
H7	2	#4	2	6'-6''	9
K1	6	#4	STR	35'-8''	143
T1	80	#6	STR	9'-0''	1081
T2	20	#6	STR	39'-6''	1187
U1	36	#4	3	8'-8''	208
U2	36	#4	3	5'-2''	124
M1	36	#7	STR	5'-6''	405
M2	36	#7	STR	4'-10''	356
V1	6	#5	STR	7'-6''	47
V2	6	#5	STR	7'-9''	48
V3	10	#5	STR	6'-8''	70

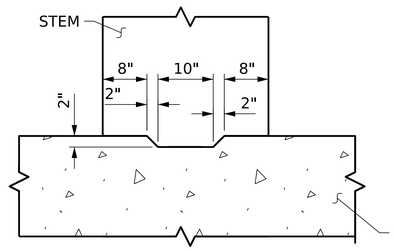
REINFORCING STEEL 5,168 LBS.

CLASS A CONCRETE BREAKDOWN

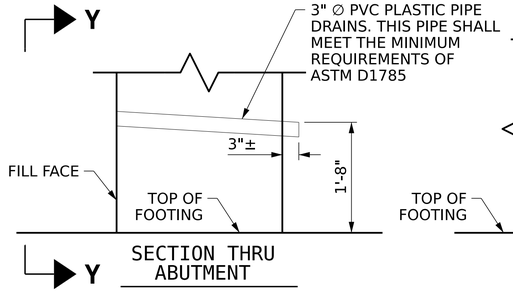
POUR #1	FOOTING	28.2 C.Y.
POUR #2	STEM & LOWER PART OF WINGS	23.3 C.Y.
POUR #3	BACKWALL & UPPER PART OF WINGS	3.2 C.Y.
TOTAL CLASS A CONCRETE		54.7 C.Y.

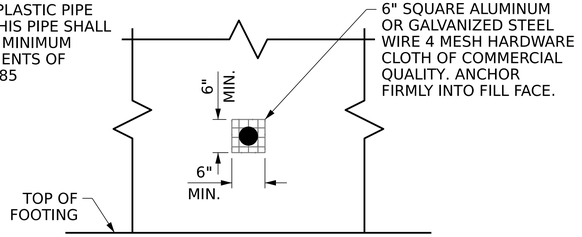


SECTION A-A



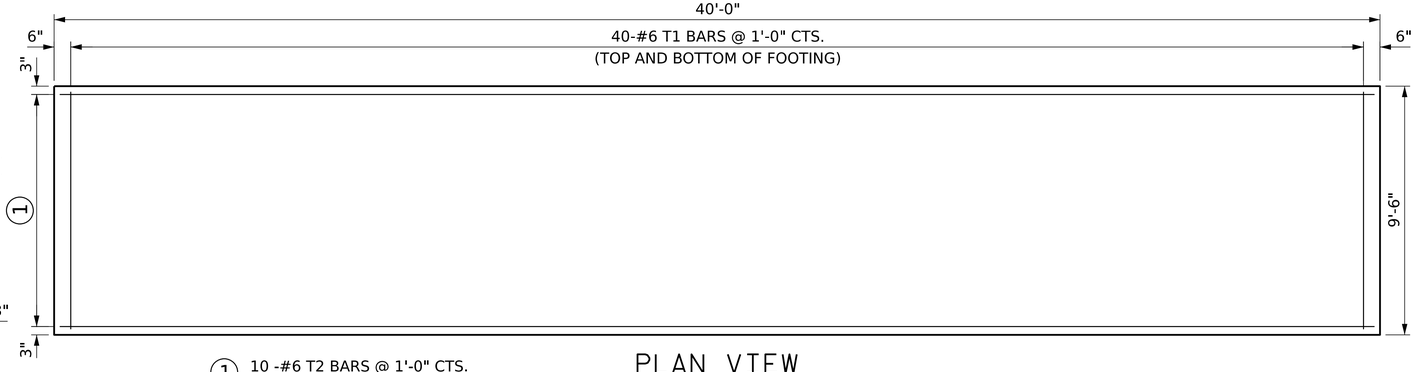
SHEAR KEY DETAIL





PIPE DRAIN DETAILS

NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.



PLAN VIEW

BAR SIZE	SPLICE LENGTH	
	EPOXY COATED	UNCOATED
#4	2'-2"	1'-10"
#5	2'-9"	2'-4"
#7	5'-5"	4'-2"

IF STAGE CONSTRUCTION IS REQUIRED, USE THIS SPLICE TABLE.

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2 SECTION AND DETAILS

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE0D5846B...
9/26/2025

DRAWN BY : C.P. MALAGON DATE : 06/2025
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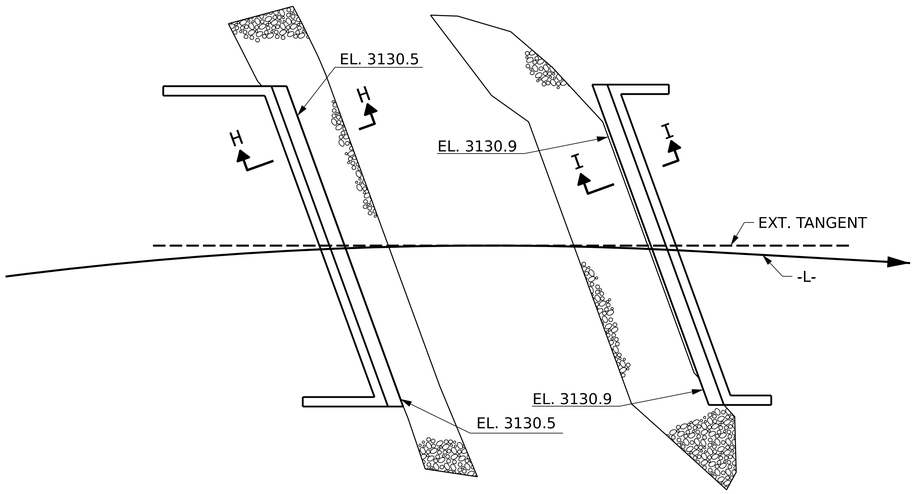
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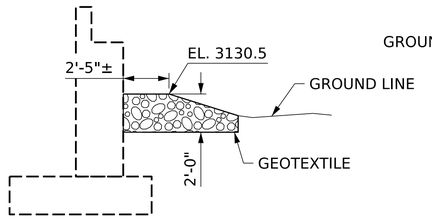
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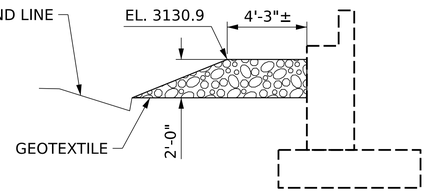
END BENT 1

END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 10+80.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	25	28
END BENT 2	38	43



SECTION H-H



SECTION I-I

PROJECT NO. DF18311.2005102.PR

ASHE COUNTY

STATION: 10+80.00 -L-

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940 Main Campus Drive, Suite 500
Raleigh, NC 27606

NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE0D5846B...

9/26/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

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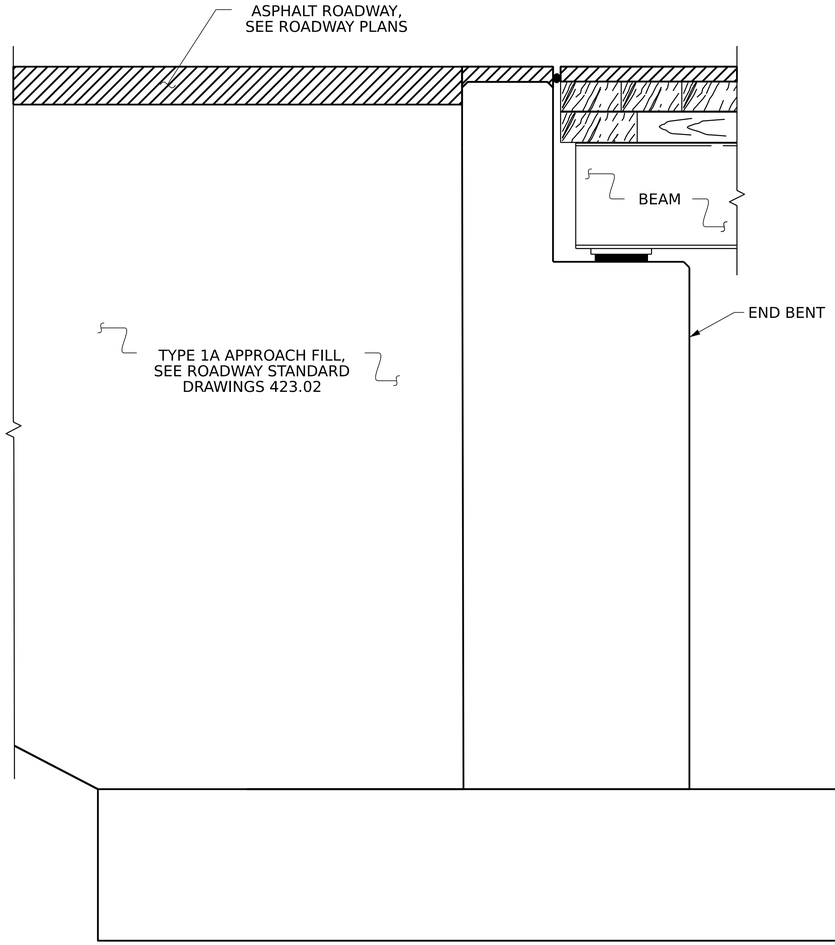
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SECTION THRU SLAB

(END BENT 1 SHOWN, END BENT 2 SIMILAR)

NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

TYPE 1A REINFORCED BRIDGE APPROACH FILL IS REQUIRED BEHIND EACH END BENT DUE TO OVERTOPPING. THE WIRE BASKETS SHOULD EXTEND A MINIMUM OF 5 FEET BEYOND THE WIND WALLS. THE TOP OF THE BACKFILL SHOULD BE WRAPPED WITH TYPE 2 GEOTEXTILE.

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ASHE COUNTY

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VHB Engineering NC, P.C. (C-3705)
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NORTH CAROLINA PROFESSIONAL SEAL 040384 ENGINEER JEFFREY C. WILSON

Signed by: Jeffrey C. Wilson 5CA734DE9D5848B... 9/26/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH FILL DETAILS

DRAWN BY :	C.P. MALAGON	DATE :	06/2025
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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 $\frac{3}{4}$" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$" 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 $\frac{1}{4}$" 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 $\frac{7}{8}$" ∅ SHEAR STUDS FOR THE $\frac{3}{4}$" ∅ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$" ∅ STUDS FOR 4 - $\frac{3}{4}$" ∅ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$" ∅ STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$" ∅ STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$"∅ STUDS FOR 4 - $\frac{3}{4}$" ∅ 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.