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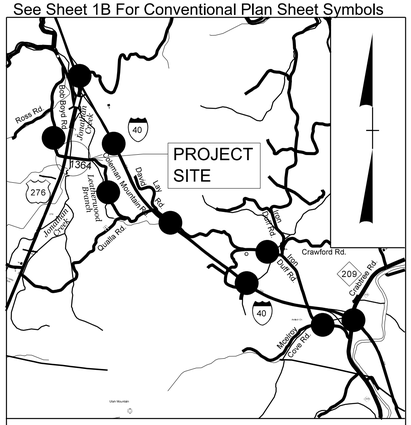
09/08/99

CONTRACT: DN01098 BRIDGE PROJECT: DF18314.2044188

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



VICINITY MAP (NTS)

DETOUR ROUTE

100% PLANS SUBMITTAL SET

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

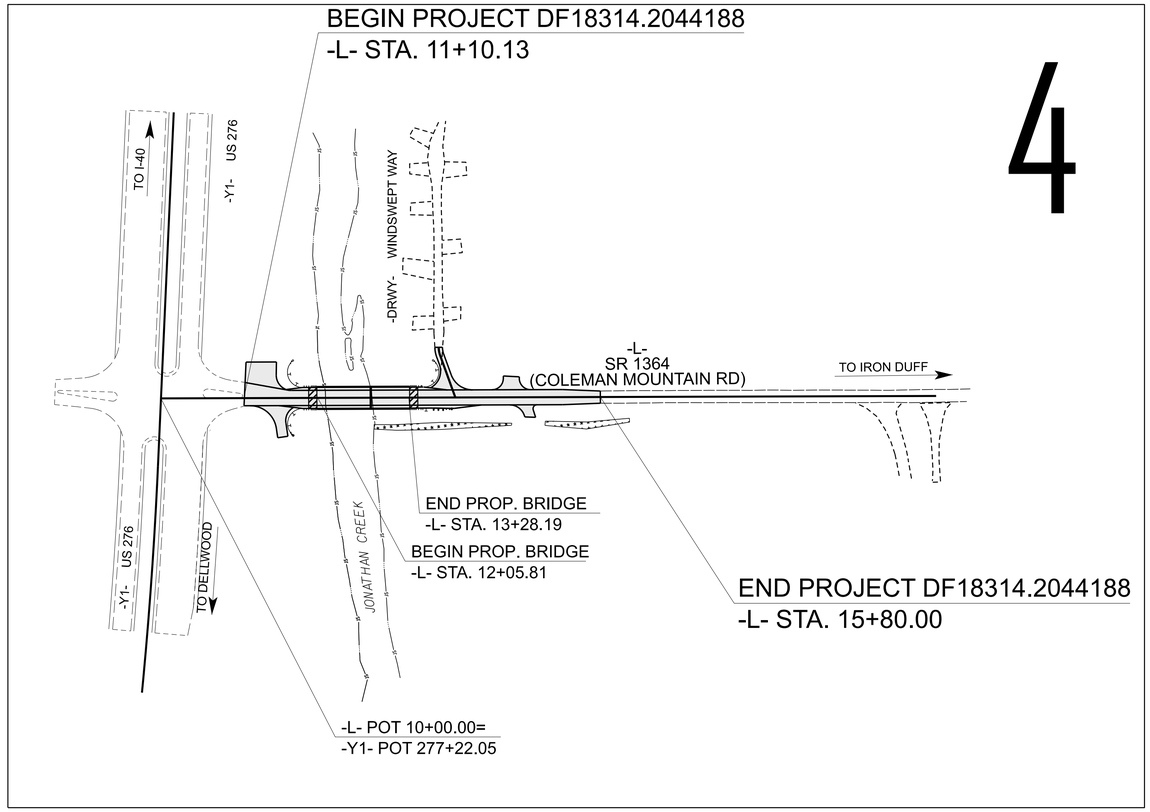
HAYWOOD COUNTY

LOCATION: *REPLACE BRIDGE #430046 ON SR 1364 (COLEMAN MOUNTAIN ROAD) OVER JONATHAN CREEK*

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18314.2044188	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
DF18314.2044188	N/A	PE
DF18314.2044188	N/A	ROW & UTILITY
DF18314.2044188	N/A	CONSTRUCTION



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GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2019 = 650
ADT 2025 = 650

V = 35 MPH
* TTST = DUAL
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

PROJECT LENGTHS FOR BRIDGE PROJECT DF18314.2044188:

LENGTH ROADWAY PROJECT DF18314.2044188 = 0.066 MILES

LENGTH STRUCTURES PROJECT DF18314.2044188 = 0.023 MILES

TOTAL LENGTH PROJECT DF18314.2044188 = 0.089 MILES

NCDOT Contact: ZACH SHULER, P.E.

Prepared in the Office of: VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 13, 2025

LETTING DATE: AUGUST 12, 2025

THAD F. DUNCAN, PE
PROJECT ENGINEER

LANG PHOMMACHANH, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
7/8/2025
NORTH CAROLINA PROFESSIONAL SEAL 44499 ENGINEER JAMES R. HOPSON, JR.
Signed by: James R. Hopson, JR. P.E.
SIGNATURE: CBEC4E406944D8...

ROADWAY DESIGN ENGINEER
7/8/2025
NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN
DocuSigned by: Thad Duncan P.E.
SIGNATURE: 4C1D9E8117F2435...

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

5/26/20

INDEX OF SHEETS

EFF. 01-16-2024

REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment
423.03	Bridge Approach Fills - Type 2 Approach Fill for Bridge Abutment with MSE Wall
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation
862.03	Structure Anchor Units (Use Detail in Lieu of Standard for Sheet 8 of 9)
876.02	Guide for Rip Rap at Pipe Outlets

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

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

AT&T DISTRIBUTION

ZITO MEDIA

HAYWOOD EMC

MAGGIE VALLEY SANITARY DISTRICT (WATER),
CONTACT PERSON: JASON HERBERT, DISTRICT MANAGER (828) 734-6988 OR (828) 926-0145.

CHARTER COMMUNICATIONS

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

RIGHT-OF-WAY MARKERS:

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

DF18314.2044188
4RD1 | 1A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
4/16/2025

NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN

DocuSigned by:
Thad Duncan
1E10BE811FF2435...

PREPARED BY

vhb
VHB Engineering NC, P.C. (C-2705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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9/21/21

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

DF18314.2044188 | 4RD1 | 1B

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:

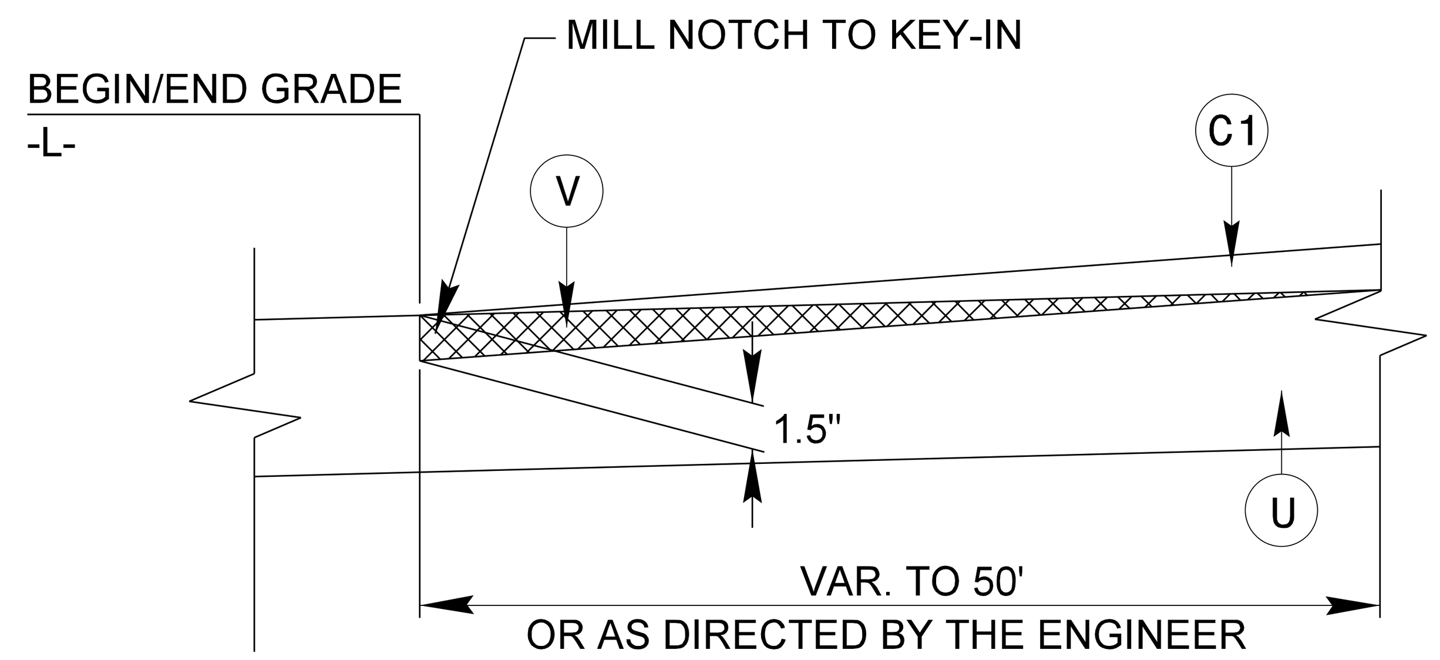
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box
- Utility Unknown U/G Line (SUE - LOS B)*
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records —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

5/26/20

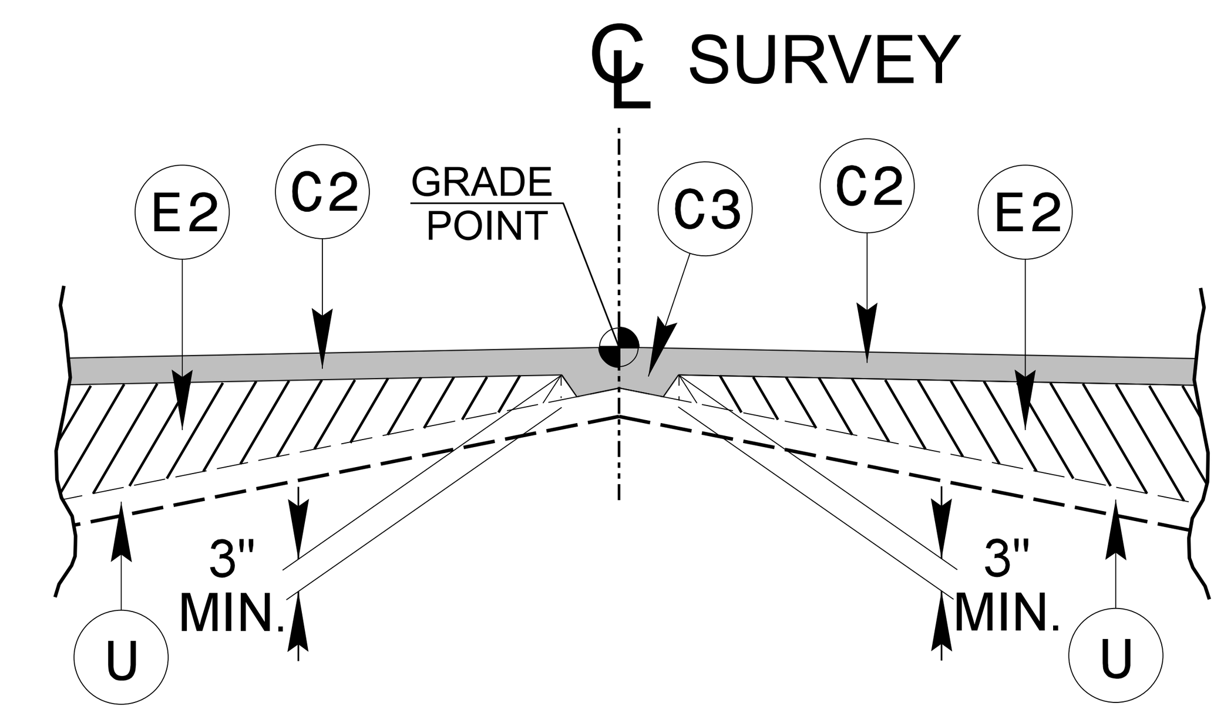
PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

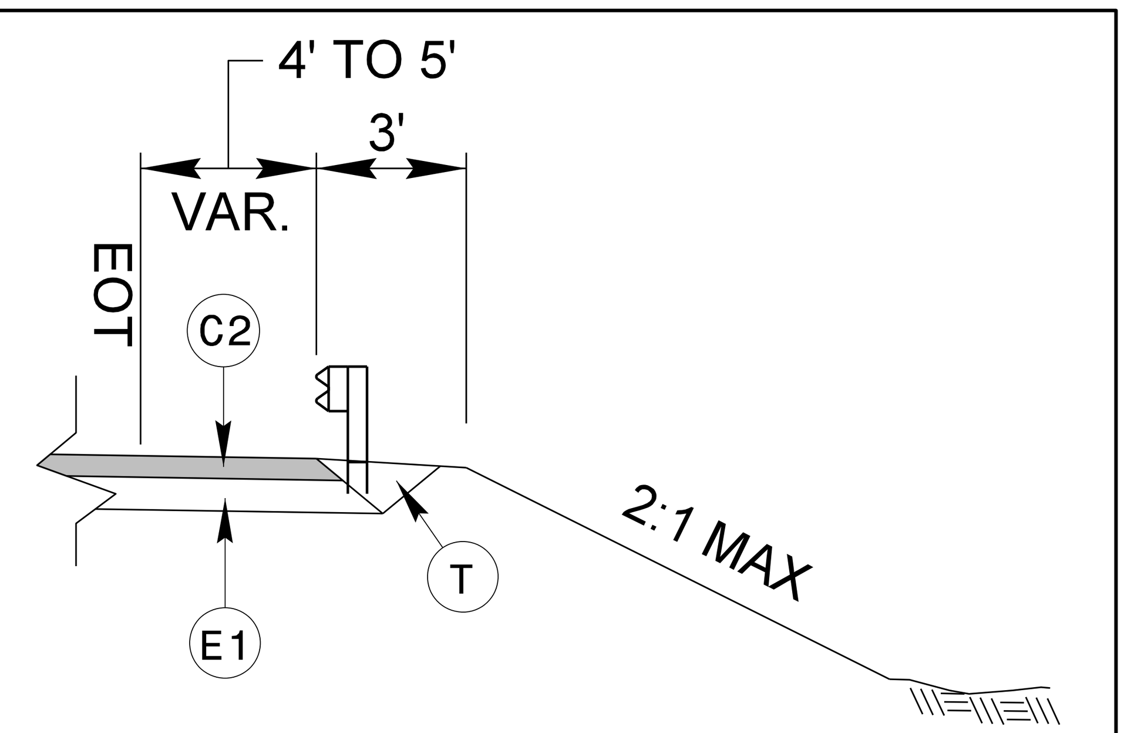
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



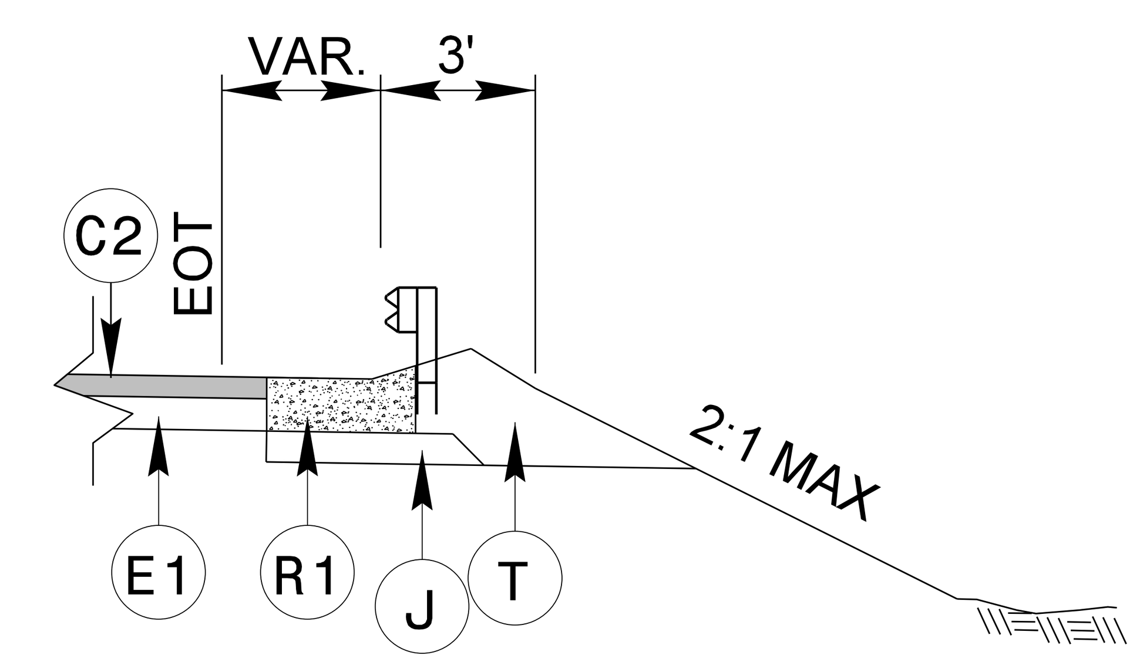
TIE-IN MILLING DETAIL (-L-)
-L- STA. 11+10.13 TO 11+55.81
-L- STA. 15+30.00 TO 15+80.00



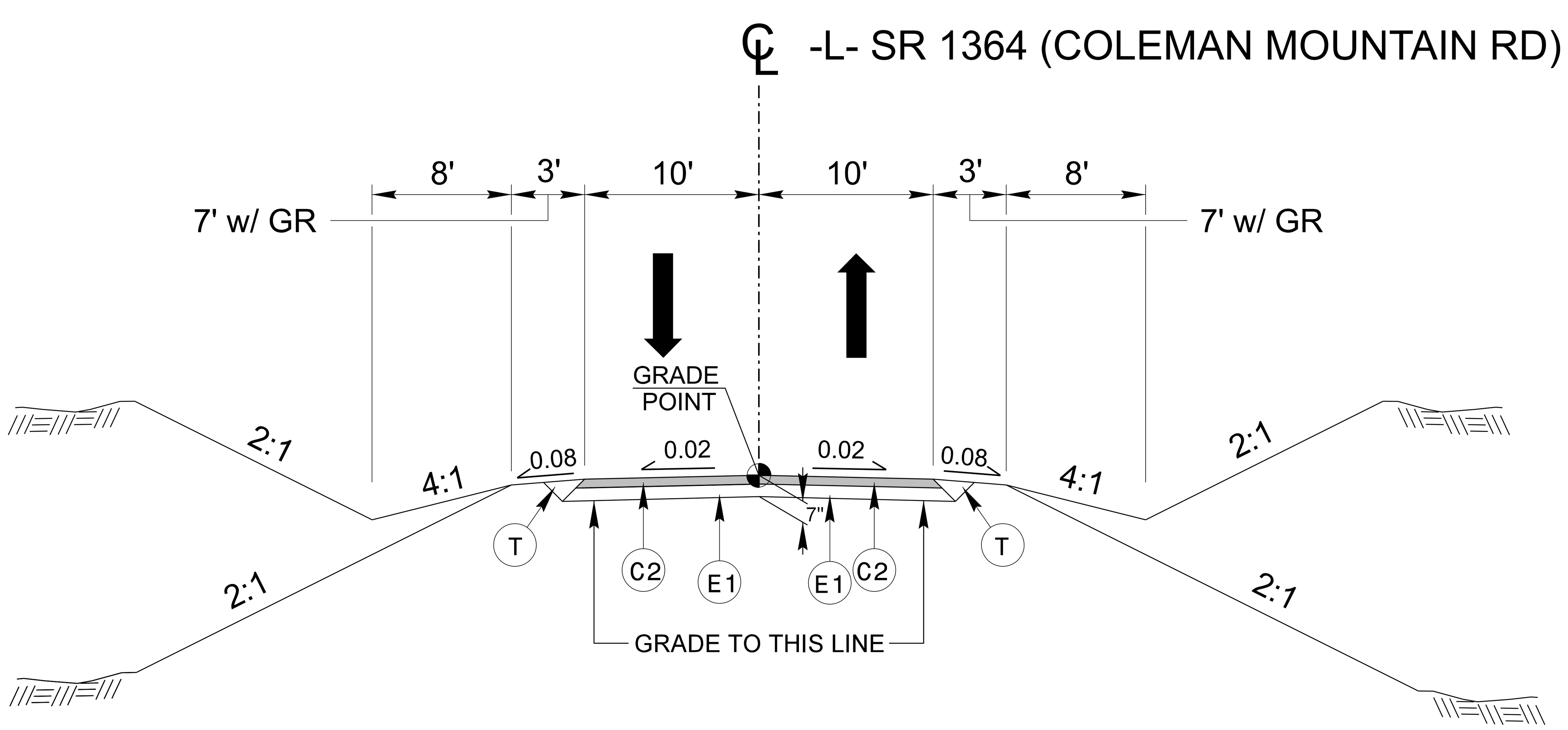
DETAIL SHOWING METHOD OF WEDGING



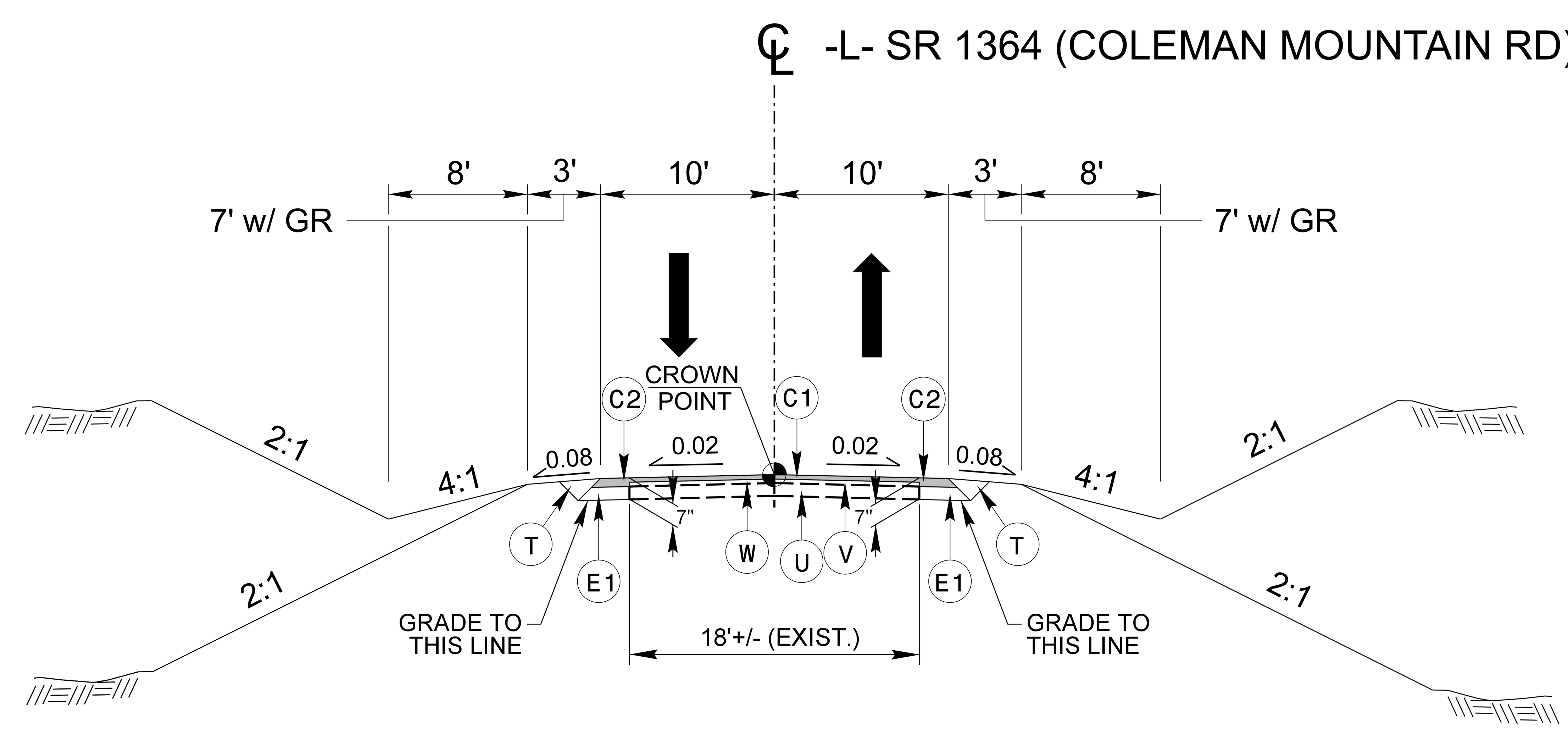
DETAIL OF GUARDRAIL PLACEMENT
(SEE PLAN FOR GUARDRAIL LOCATIONS)



SHOULDER BERM GUTTER PLACEMENT
(-L- STA. 13+39.06 TO 13+57.00 LT)



TYPICAL SECTION NO. 1
-L- STA. 11+55.81 TO 12+05.81 (BRIDGE)
-L- STA. 13+28.19 (BRIDGE) TO 14+50.00

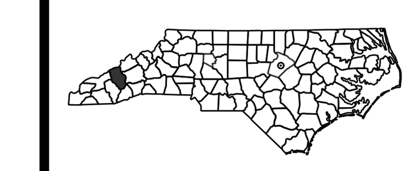


TYPICAL SECTION NO. 2
-L- STA. 11+10.13 TO 11+55.81
-L- STA. 14+50.00 TO 15+80.00

DF18314.2044188

4RD1	2A-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
DocuSigned by: Thad F. Duncan
1E10BE8117F2435...
NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN
4/9/2025

PAVEMENT DESIGN ENGINEER
Signed by: Joseph T. Holland
719653B195ED44E...
NORTH CAROLINA PROFESSIONAL SEAL 24964 ENGINEER JOSEPH T. HOLLAND
4/9/2025

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

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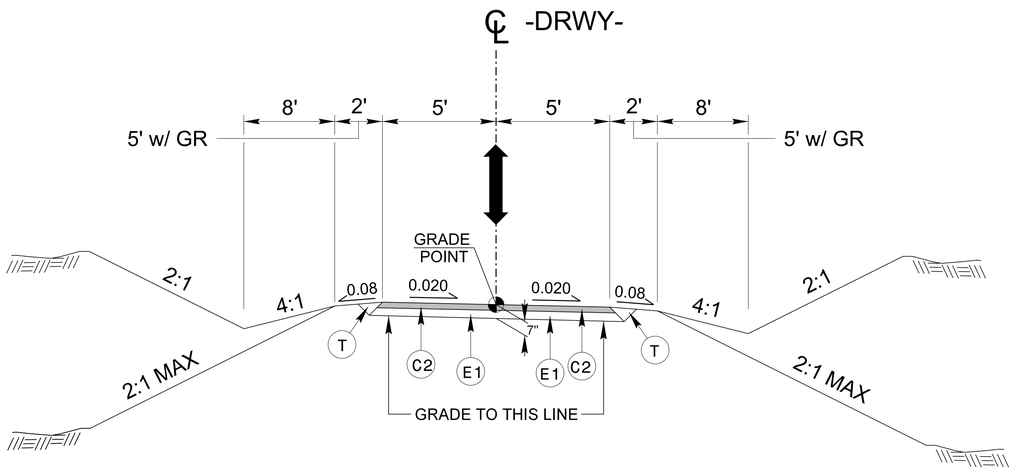
5/26/20

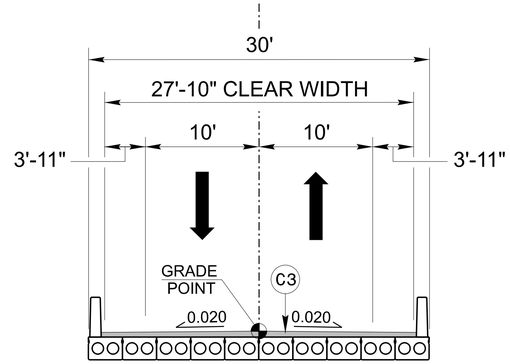
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C2	3.0" S9.5B
C3	PROP. VAR. DEPTH S9.5B,
E1	4.0" B25.0C,
T	EARTH MATERIAL

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



TYPICAL SECTION NO. 3

-DRWY- STA. 10+00.00 TO 10+59.45



CORED SLAB
10 UNITS @ 3' EACH

PROPOSED TYPICAL SECTION ON STRUCTURE

-L- STA. 12+05.81 TO 13+28.19

(SEE STRUCTURE PLANS FOR STRUCTURE CONSTRUCTION DETAILS)

DF18314.2044188

4RD1 | 2A-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

Signed by: [redacted]
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25477 ENGINEER THAD F. DUNCAN

4/9/2025

PAVEMENT DESIGN ENGINEER

Signed by: [redacted]
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24964 ENGINEER JOSEPH T. HOLLAND

4/9/2025

PREPARED BY

vhb
VHB Engineering NC, P.C. (C-2705)
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Raleigh, NC 27606

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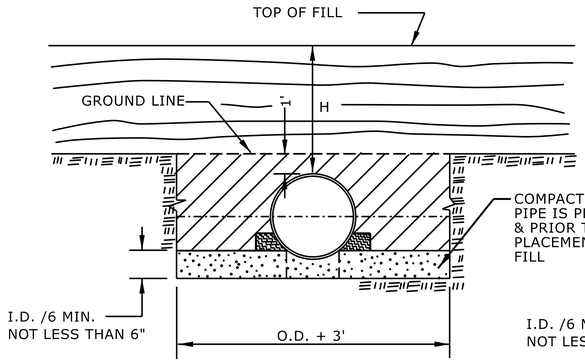
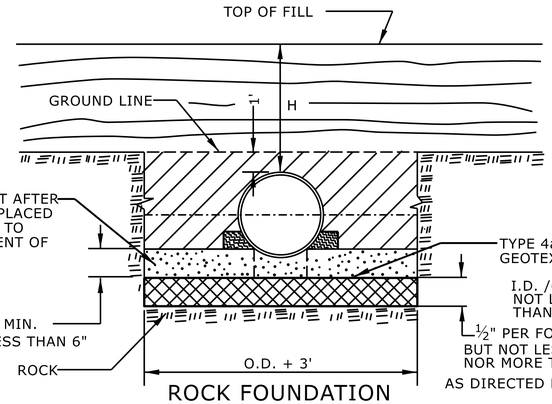
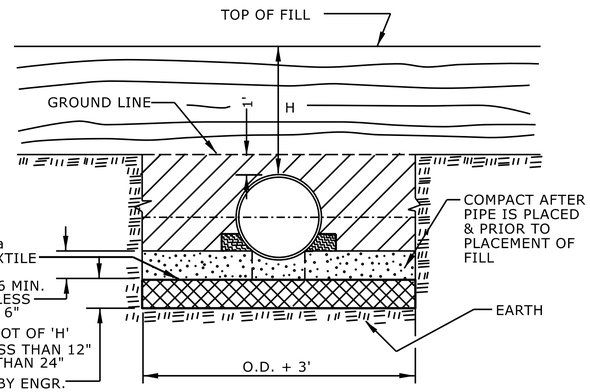
PROJECT REFERENCE NO.	SHEET NO.
DF18314.2044188	2C-1



NORMAL EARTH FOUNDATION

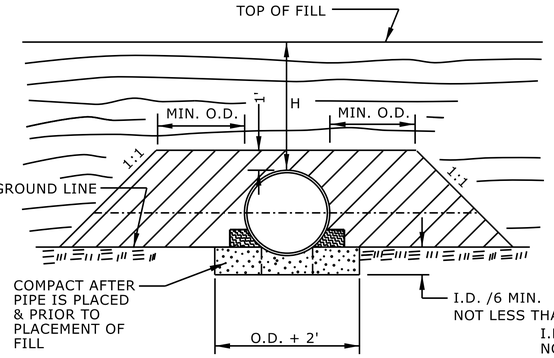


ROCK FOUNDATION

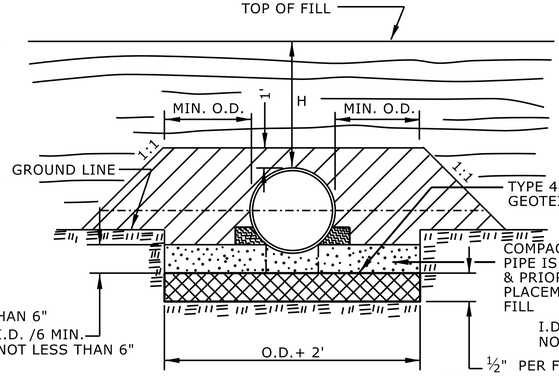


UNSUITABLE MATERIAL FOUNDATION

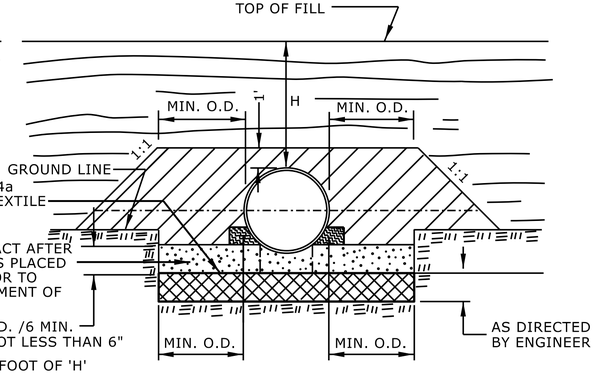
PIPE IN TRENCH



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. HACKLER

Signed by: Nicole M. Hackler
5884323D34164C5...
4/8/2025

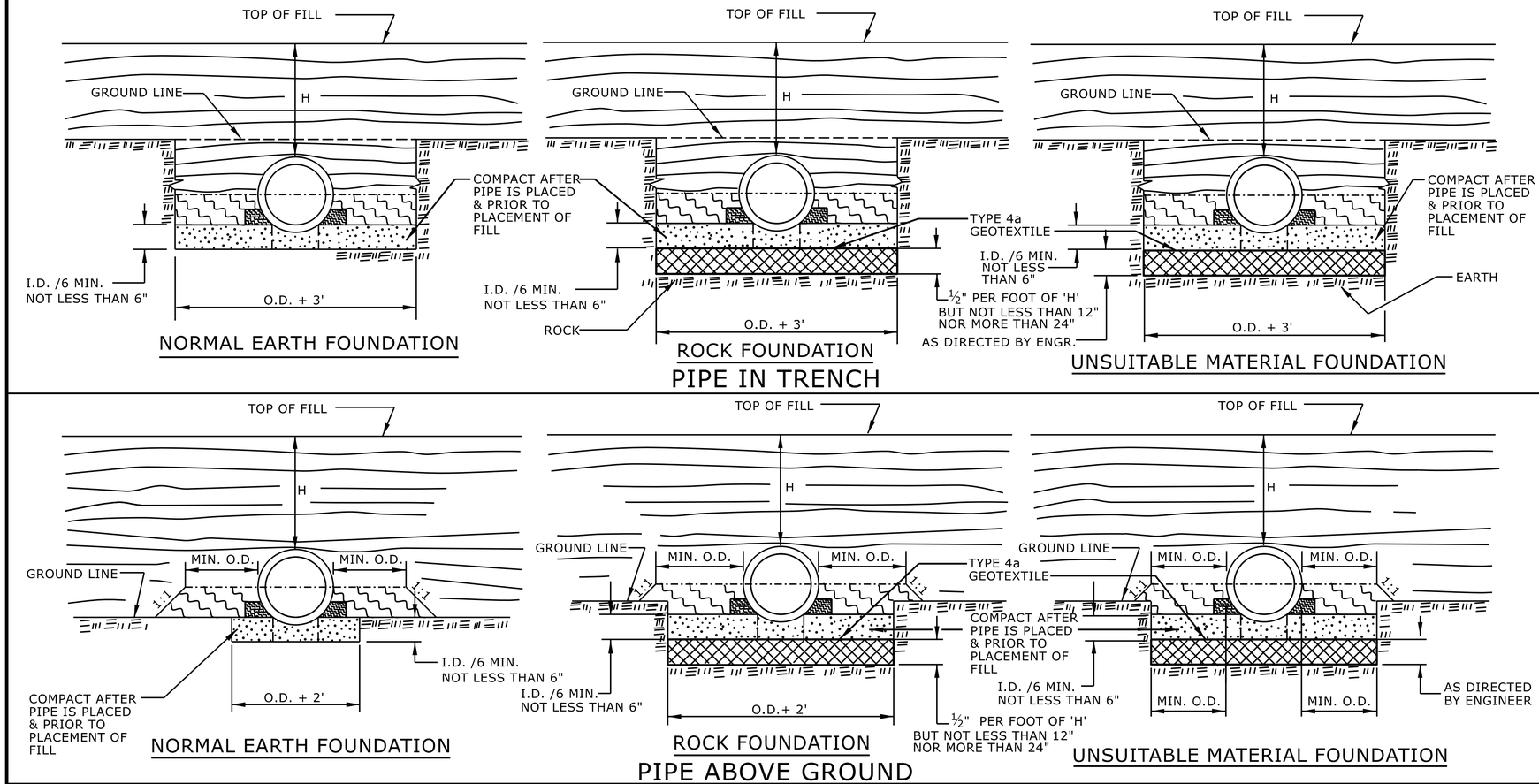
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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.: _____

PROJECT REFERENCE NO.	SHEET NO.
DF18314.2D44188	2C-2



GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 2

300.01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by: Nicole M. Hackler
5884323D34164C5...
4/8/2025

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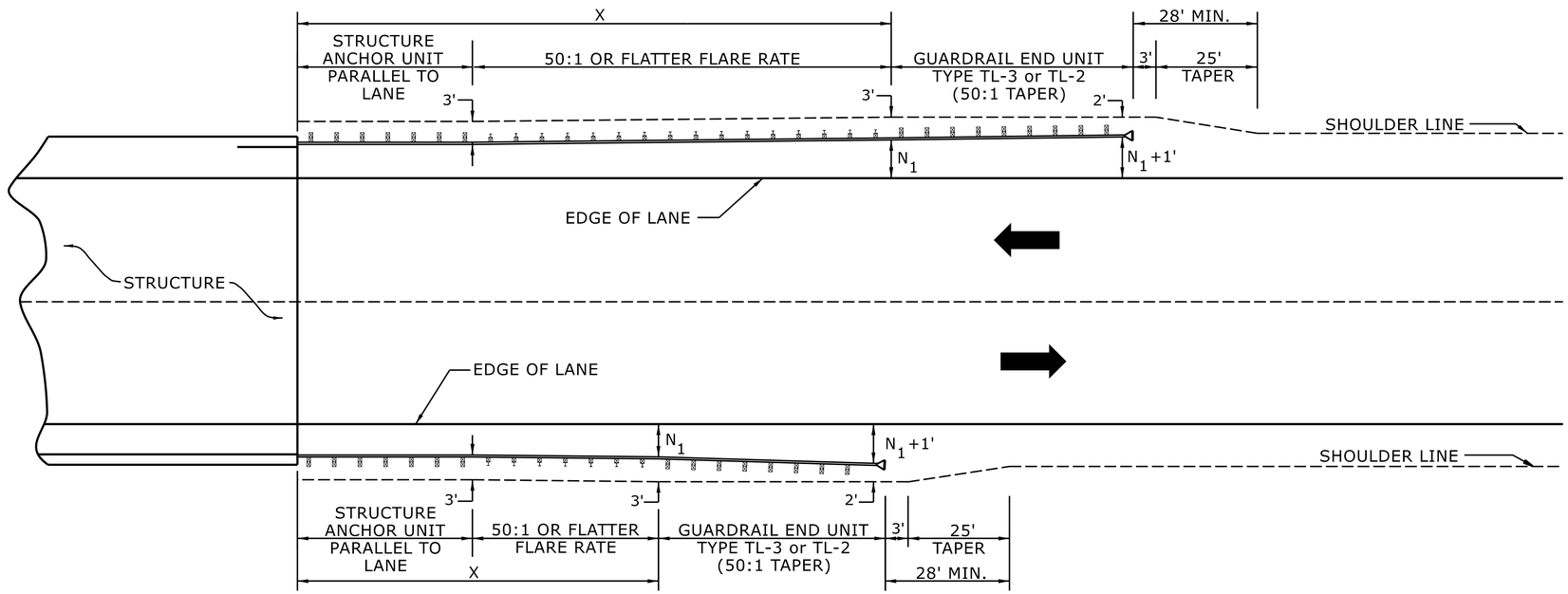
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
DF1B314.2044188	2C-3



USE FLARE RATE AS THE CONTROL IF THE "N_1" DISTANCE IS NOT OBTAINED.
("N_1" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

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

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

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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by:
Nicole M. Hackler
5884323D34164C5...
4/8/2025

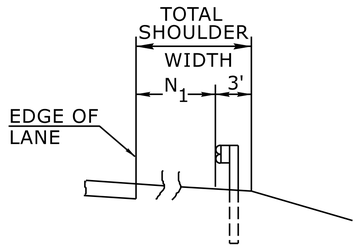
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

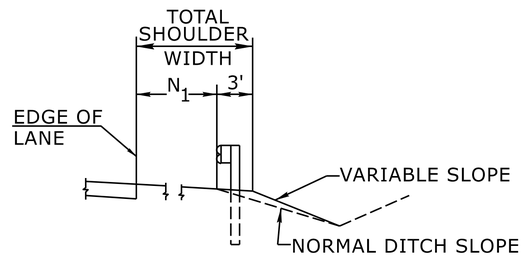
SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
DF18314.2044188	2C-4

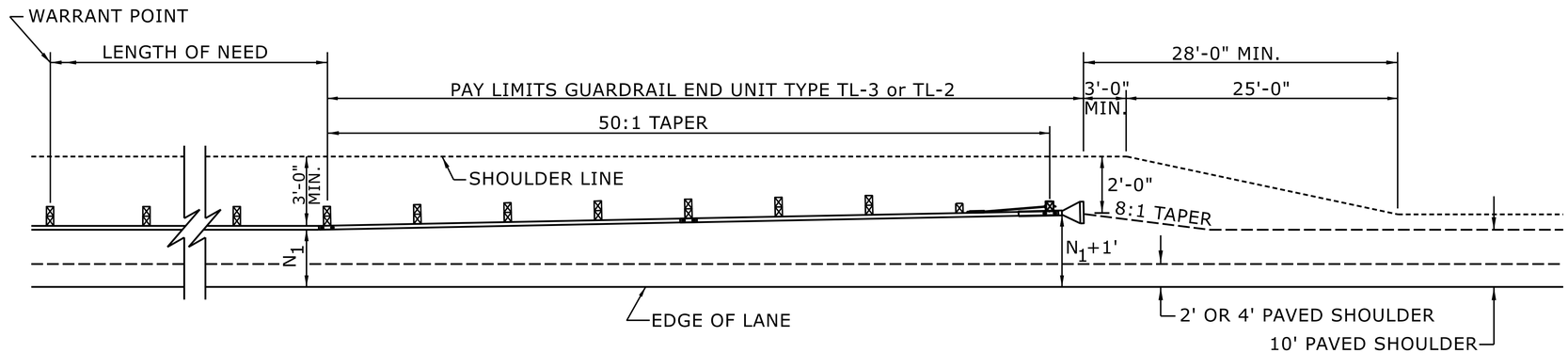


FILL SECTION



CUT SECTION

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



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

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

STATE OF
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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15

862D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKLER

Signed by:
Nicole M. Hackler
5884323D34164C5...
4/8/2025

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.:

COMPUTED BY:	LP	DATE: 10/31/2024
CHECKED BY:	MH	DATE: 12/16/2024

5/26/20

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC		G	NG				
-L-	11+62.15	12+05.81	LT	18.75'	50'		11+70.74	BRIDGE	3.9167'	6.9167'					1					1									R = 20'
-L-	13+28.19	13+59.00	LT	18.75'	50'		BRIDGE	13+63.26	3.9167'	6.9167'					1					1									R = 20'
-L-	11+75.00	12+05.81	RT	18.75'	50'		11+70.74	BRIDGE	3.9167'	6.9167'					1					1									R = 20'
-L-	13+28.19	13+84.44	RT	56.25'			BRIDGE	13+59.44	3.9167'	6.9167'		25'		0.5'	1			1											
			SUBTOTAL	112.5'	150'										4			1		3									
		LESS ANCHOR DEDUCTIONS																											
		Type III	4 @ 18.75' =	75'																									
		GREU, TL-2	1 @ 25' =	25'																									
		AT-1	3 @ 6.25' =		18.75'																								
		ADDITIONAL GUARDRAIL POSTS = 5																											
			PROJECT TOTAL	12.5'	131.25'																								
			SAY	**12.5'**	**137.5'**										**4**			**1**		**3**									
TOTAL																													

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	11+55.70	12+11.43	CL	110			
-L-	13+09.03	13+70.00	CL	107			
-L-	13+70.00	14+50.00	CL		144		
-DRWY-	10+00.00	10+44.50	CL	61			
			TOTAL:	278	144		
			SAY:	**280**	**150**		

SHOULDER BERM GUTTER SUMMARY

LINE	Station	Station	Location	LENGTH (FT)
-L-	13+39.06	13+57.00	LT	17.94
		TOTAL:		17.94
		SAY:		**18**

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT +%	BORROW	WASTE
-L- 11+10.13	-L- 12+05.81	144				144
	BEGIN BRIDGE					
-L- 13+28.19	-L- 15+80.00	7		290	283	
END BRIDGE						
	SUBTOTAL	**151**		**290**	**283**	**144**
-DRWY- 9+89.39	-DRWY- 10+59.45	6		16	10	
	SUBTOTAL	**6**		**16**	**10**	
	SUBTOTAL					
	TOTAL	**157**		**306**	**293**	**144**
WASTE IN LIEU OF BORROW					-144	-144
PROJECT TOTAL		**157**		**306**	**149**	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					7	
GRAND TOTAL		**157**			**156**	
SAY		**160**			**165**	

ESTIMATED SHALLOW UNDERCUT CONT. = 100 CY
ESTIMATED CLASS IV SUBGRADE STABILIZATION CONT. = 200 TONS
ESTIMATED UNDERCUT CONT. = 200 CY
ESTIMATED UNDERCUT FOR SUBGRADE STABILITY CONT. = 200 CY
ESTIMATED GRADE POINT UNDERCUT = 50 CY
ESTIMATED SELECT GRANULAR MATERIAL CONT. = 400 CY

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

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

DF18314.2044188
4RD1 | 3B-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

vhb
VHB Engineering NC, P.C. (C-2705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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) 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
L 13+51	14 LT	0403		2511.5																		
		0403	0402		2508.7	2508.6																
L 13+51	14 RT	0402		2511.5																		
		0402	0401		2508.6	2503.3			28													
L 14+87	34 RT	0404									48											
SHEET TOTALS (48" or Less)									28		48											
PROJECT TOTALS (48" or Less)									28		48											

LINE & STATION	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	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
L 13+51												1									
		28																			
L 13+51												1									
L 14+87																					
SHEET TOTALS (48" or Less)		28										2									
PROJECT TOTALS (48" or Less)		28										2									

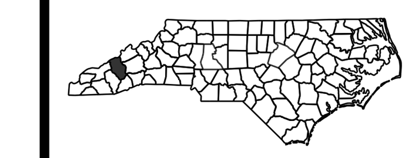
LINE & STATION	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	C.B. MIN DEPTH STD. (SPECIAL DETAIL)	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.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	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	##" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	##" SIDE DRAIN PIPE ELBOW	##" SIDE DRAIN PIPE ELBOW	##" R.C. ELBOW		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
L 13+51																1						1																
L 13+51																1						1																
																													2									
L 14+87																																						
SHEET TOTALS (48" or Less)																2						2							2									
PROJECT TOTALS (48" or Less)																2						2							2									

C.A.A. CORRUGATED ALUMINIUM ALLOY
C.B. CATCH BASIN
C.S. CORRUGATED STEEL
D.I. DROP INLET
G.D.I. GRATED DROP INLET
H.D.P.E. HIGH DENSITY POLYETHYLENE
J.B. JUNCTION BOX
M.H. MANHOLE
N.S. NARROW SLOT
P.V.C. POLYVINYL CHLORIDE
R.C. REINFORCED CONCRETE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX
W.S. WIDE SLOT

DF18314.2044188

4RD1 | 3D-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY



ROADWAY DESIGN UNIT

PREPARED BY

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

COMPUTED BY: _CRYSTAL D. JOHNSON, PG__ DATE: _02/10/2025_
CHECKED BY: __SHIPING YANG, PE__ DATE: _02/10/2025_

(9-17-24)

PROJECT NO.	SHEET NO.
DF18314.2044188	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

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

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

SUMMARY OF GEOTEXTILE FOR SUBGRADE STABILIZATION

LINE	Station	Station	Geotextile for Subgrade Stabilization SY
CONTINGENCY			300
		TOTAL SY:	300*

*Total square yards of "Geotextile for Subgrade Stabilization" is only the estimated quantity for subgrades and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

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				12	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.

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

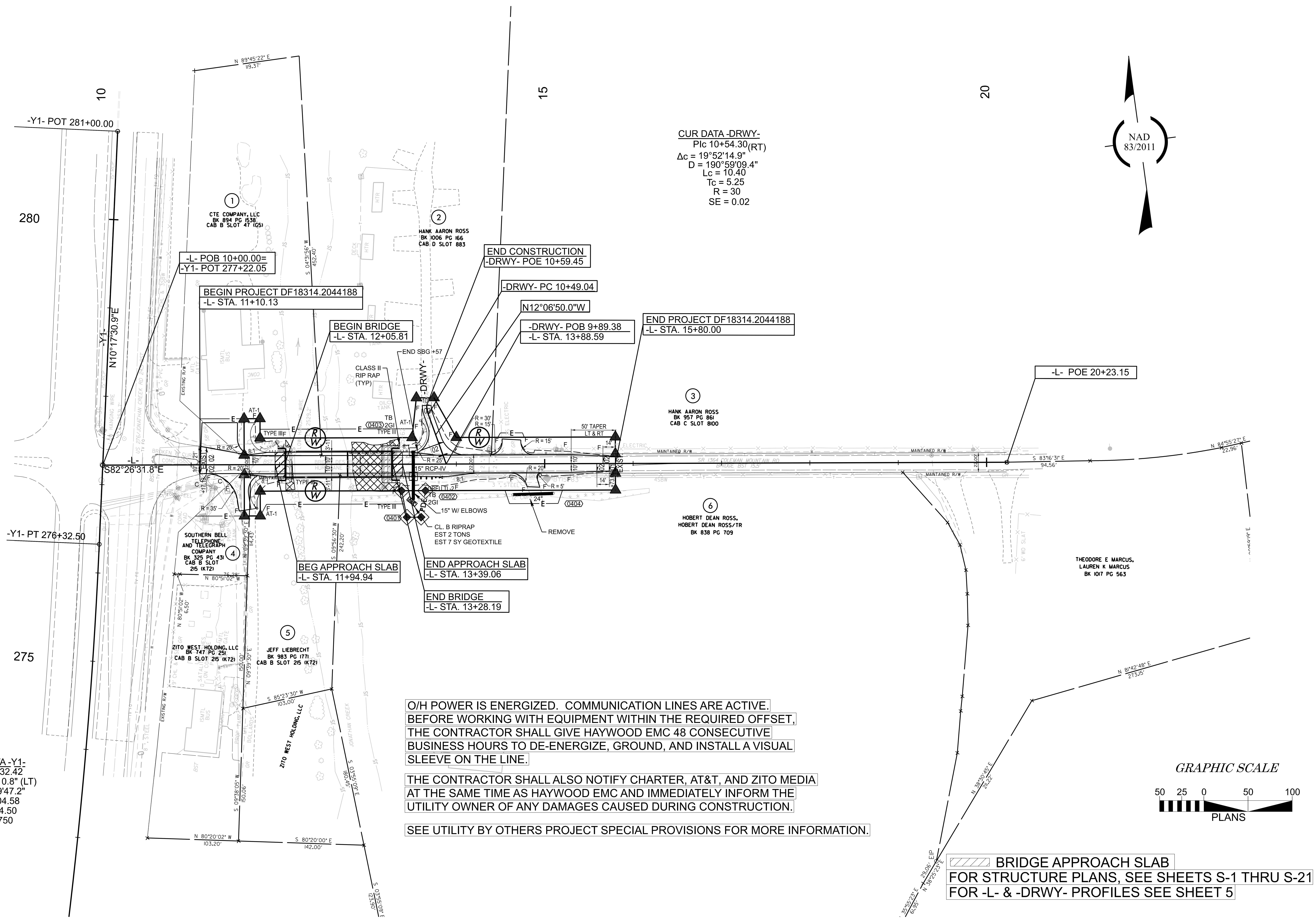
ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
7/8/2025
SEAL 25477 THAD F. DUNCAN
DocuSigned by: Thad Duncan

HYDRAULICS ENGINEER
7/8/2025
SEAL 44499 JAMES R. HOPSON, JR.
Signed by: James R. Hopson, JR.

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


10
15
20
280
275
NAD 83/2011
-Y1- POT 281+00.00
-L- POB 10+00.00=
-Y1- POT 277+22.05
BEGIN PROJECT DF18314.2044188
-L- STA. 11+10.13
BEGIN BRIDGE
-L- STA. 12+05.81
END CONSTRUCTION
-DRWY- POE 10+59.45
-DRWY- PC 10+49.04
N12°06'50.0"W
-DRWY- POB 9+89.38
-L- STA. 13+88.59
END PROJECT DF18314.2044188
-L- STA. 15+80.00
-L- POE 20+23.15
-Y1- PT 276+32.50
N10°17'30.9"E
S82°26'31.8"E
BEG APPROACH SLAB
-L- STA. 11+94.94
END APPROACH SLAB
-L- STA. 13+39.06
END BRIDGE
-L- STA. 13+28.19
CTE COMPANY, LLC
BK 894 PG 1538
CAB B SLOT 47 (G5)
HANK AARON ROSS
BK 1006 PG 166
CAB D SLOT 883
HANK AARON ROSS
BK 957 PG 861
CAB C SLOT 8100
SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY
BK 325 PG 431
CAB B SLOT 215 (K72)
ZITO WEST HOLDING, LLC
BK 747 PG 251
CAB B SLOT 215 (K72)
JEFF LIEBRECHT
BK 983 PG 1771
CAB B SLOT 215 (K72)
HOBERT DEAN ROSS,
HOBERT DEAN ROSS/TR
BK 838 PG 709
THEODORE E MARCUS,
LAUREN K MARCUS
BK 1017 PG 563
CLASS II RIP RAP (TYP)
END SBG +57
15" RCP-IV
15" W/ ELBOWS
CL. B RIPRAP
EST 2 TONS
EST 7 SY GEOTEXTILE
REMOVE
50' TAPER LT & RT
GRAPHIC SCALE
50 25 0 50 100
PLANS

CUR DATA -DRWY-
PI¢ 10+54.30 (RT)
Δc = 19°52'14.9"
D = 190°59'09.4"
Lc = 10.40
Tc = 5.25
R = 30
SE = 0.02

CUR DATA -Y1-
PI¢ 270+32.42
Δc = 12°00'10.8" (LT)
D = 00°59'47.2"
Lc = 1204.58
Tc = 604.50
R = 5,750

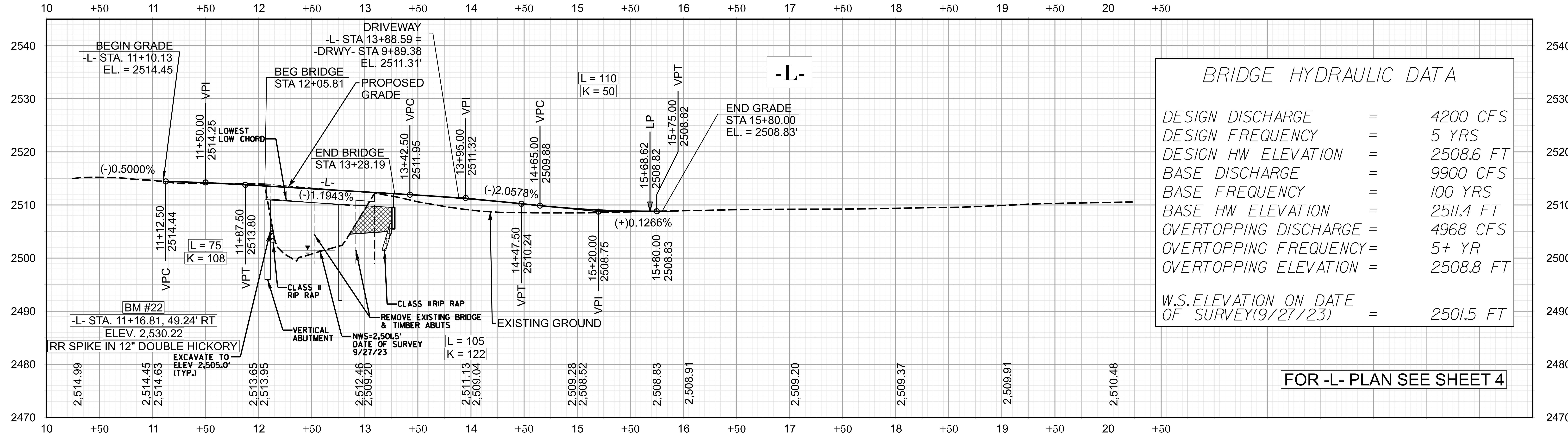
O/H POWER IS ENERGIZED. COMMUNICATION LINES ARE ACTIVE.
BEFORE WORKING WITH EQUIPMENT WITHIN THE REQUIRED OFFSET, THE CONTRACTOR SHALL GIVE HAYWOOD EMC 48 CONSECUTIVE BUSINESS HOURS TO DE-ENERGIZE, GROUND, AND INSTALL A VISUAL SLEEVE ON THE LINE.

THE CONTRACTOR SHALL ALSO NOTIFY CHARTER, AT&T, AND ZITO MEDIA AT THE SAME TIME AS HAYWOOD EMC AND IMMEDIATELY INFORM THE UTILITY OWNER OF ANY DAMAGES CAUSED DURING CONSTRUCTION.

SEE UTILITY BY OTHERS PROJECT SPECIAL PROVISIONS FOR MORE INFORMATION.

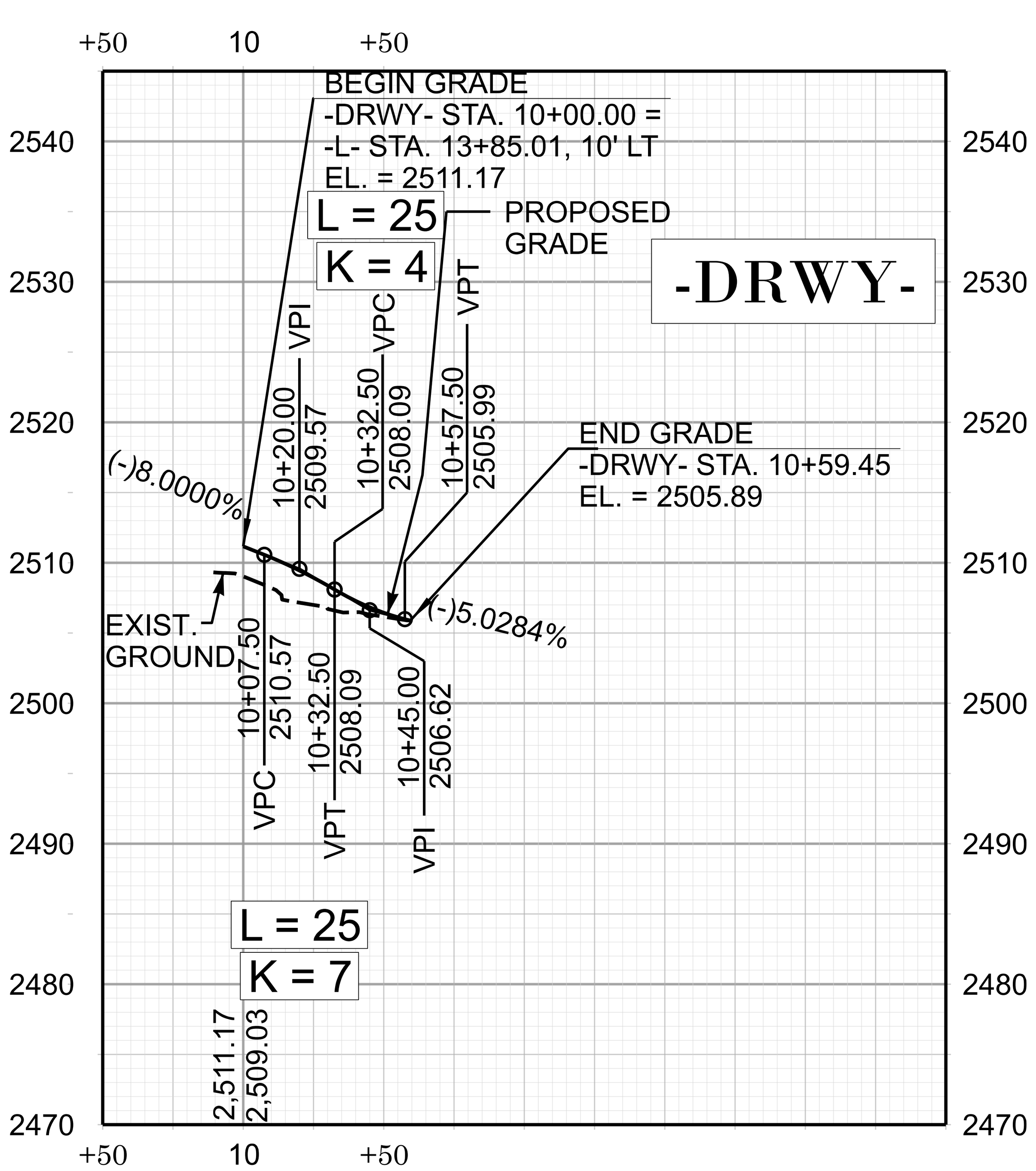
BRIDGE APPROACH SLAB
FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-21
FOR -L- & -DRWY- PROFILES SEE SHEET 5

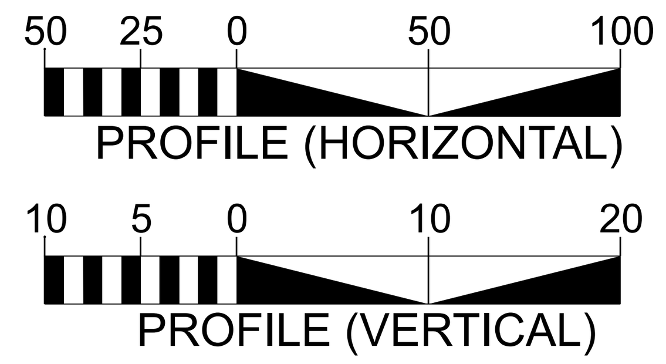
11/14/23



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	4200 CFS
DESIGN FREQUENCY	=	5 YRS
DESIGN HW ELEVATION	=	2508.6 FT
BASE DISCHARGE	=	9900 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	2511.4 FT
OVERTOPPING DISCHARGE	=	4968 CFS
OVERTOPPING FREQUENCY	=	5+ YR
OVERTOPPING ELEVATION	=	2508.8 FT
W.S. ELEVATION ON DATE OF SURVEY (9/27/23)	=	2501.5 FT





DF18314.2044188

4RDI | 05

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
4/9/2025
SEAL 25477 — THAD F. DUNCAN

HYDRAULICS ENGINEER
4/9/2025
SEAL 44499 — JAMES R. HOPSON, JR.

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

$$$-USER NAME-$$$ - $$$-DATE-$$$

09/08/99

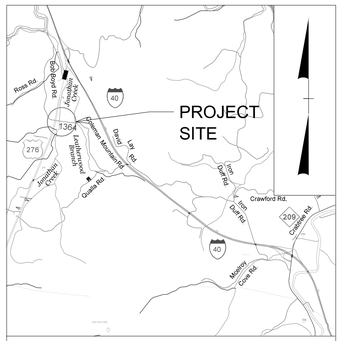
TIP PROJECT: *BP14.R030*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP14.R030	RW01	7

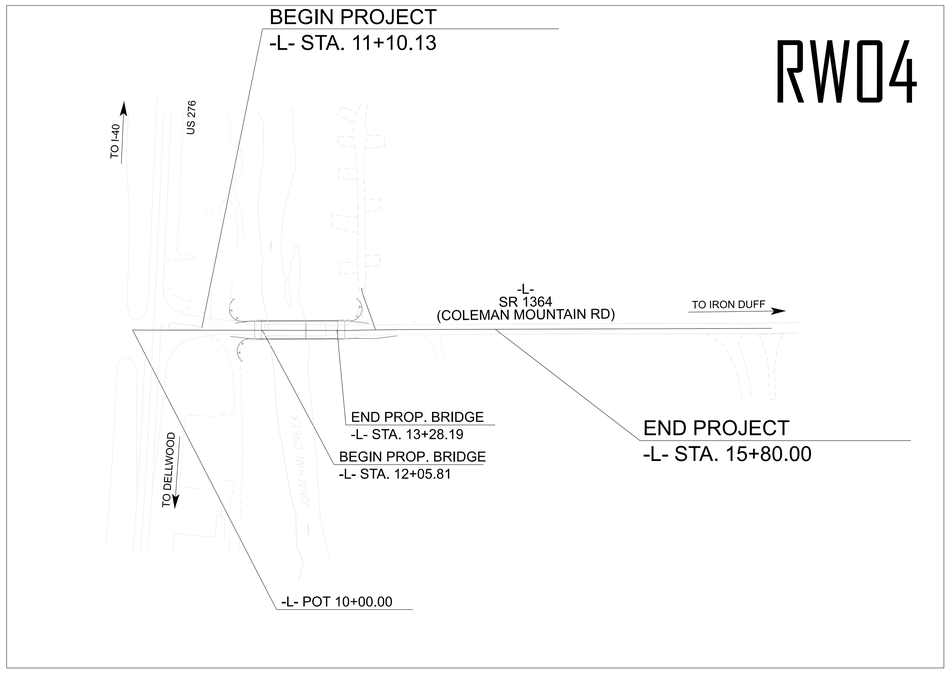
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

HAYWOOD COUNTY



VICINITY MAP (NTS)



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50' 25' 0' 50' 100'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT G-106
WITH NAD83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 682,555.5150' EASTING: 804080.4560'
ELEVATION: 2,611.42'
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00023364858
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

LOCATION AND SURVEYS
DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *NOVEMBER 14, 2025*

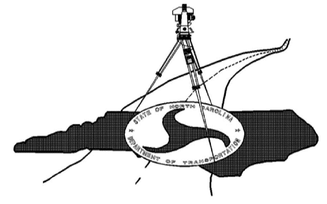
LETTING DATE: *OCTOBER 10, 2025*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BARON A. BARWATT

DocuSigned by: Baron Barwatt 02/05/2025

SIGNATURE: *DATE:*



PRIMARY SURVEY CONTROL SHEET

PRIMARY CONTROL TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
G101	G-101	669231.7540	801753.3560	2757.83
G102	G-102	669847.1150	801591.5210	2740.75
G103	G-103	675788.4270	802909.4430	2689.99
G104	G-104	676230.3810	802957.9930	2681.72
G105	G-105	682019.0640	804040.1710	2616.83
G106	G-106	682555.5020	804080.4520	2611.39
G107	G-107	688186.4040	806165.7620	2558.04
G108	G-108	688820.2960	806427.4530	2552.97

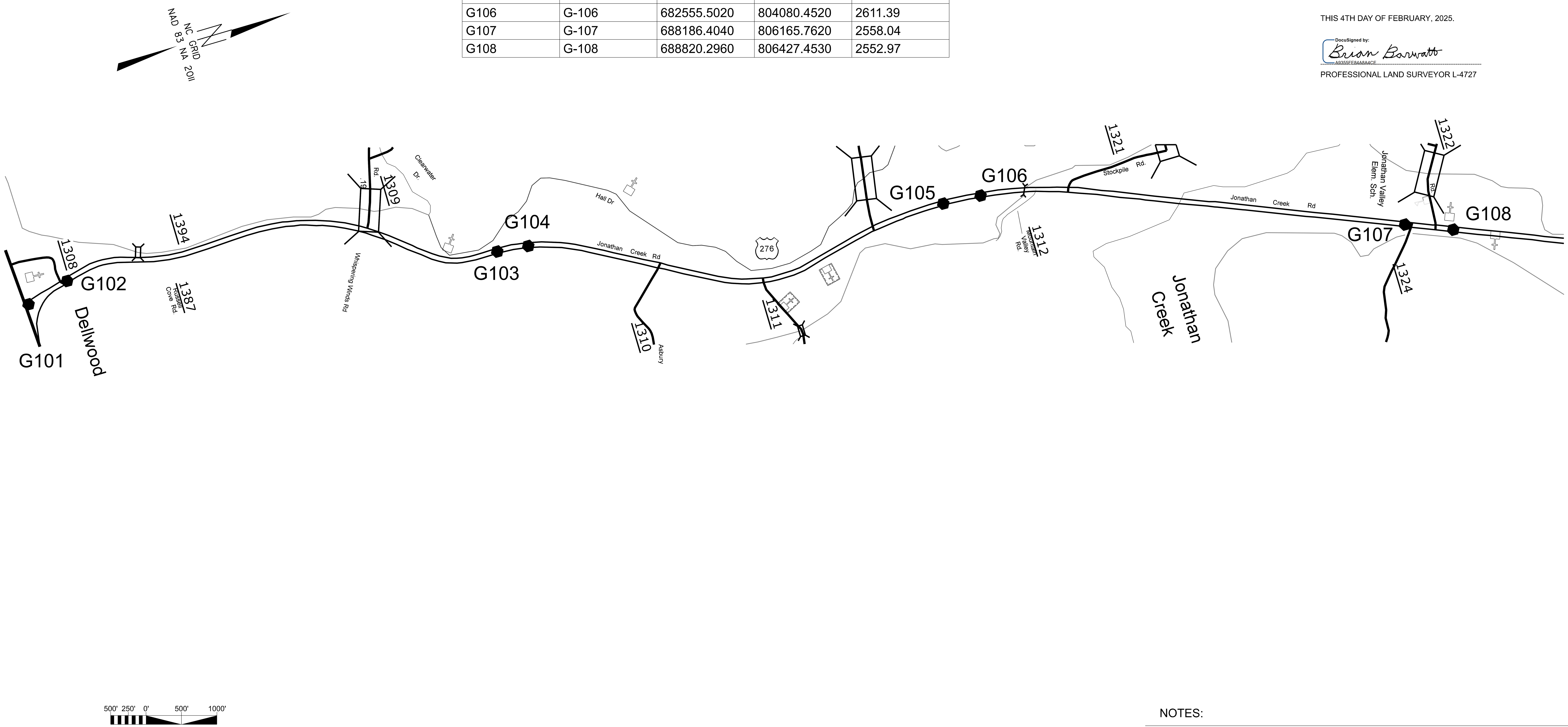
I, BRIAN BARWATT, PLS, CERTIFY THAT THE PRIMARY PROJECT CONTROL WAS PERFORMED UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

CLASS OF SURVEY: ***AA***
TYPE OF GPS FIELD PROCEDURE: VRS
DATES OF SURVEY: 3/18/2019
DATUM/EPOCH: NAD 83/NA 2011
PUBLISHED/FIXED-CONTROL USE: N/A
LOCALIZED AROUND: G106
NORTHING: 682555.5150
EASTING: 804080.4560
COMBINED GRID FACTOR: 0.999766406
VERTICAL DATUM: NAVD 88
GEOID MODEL: G12BNC
UNITS: U.S. SURVEY FEET

THIS 4TH DAY OF FEBRUARY, 2025.

DocuSigned by: Brian Barwatt

PROFESSIONAL LAND SURVEYOR L-4727



NOTES:

1. 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.

BP14.R030
R/W 02C-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

SEAL L-4727 BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP14.R030
County: Haywood

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY:
LOCATION AND SURVEYS DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

5/26/20

SECONDARY SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

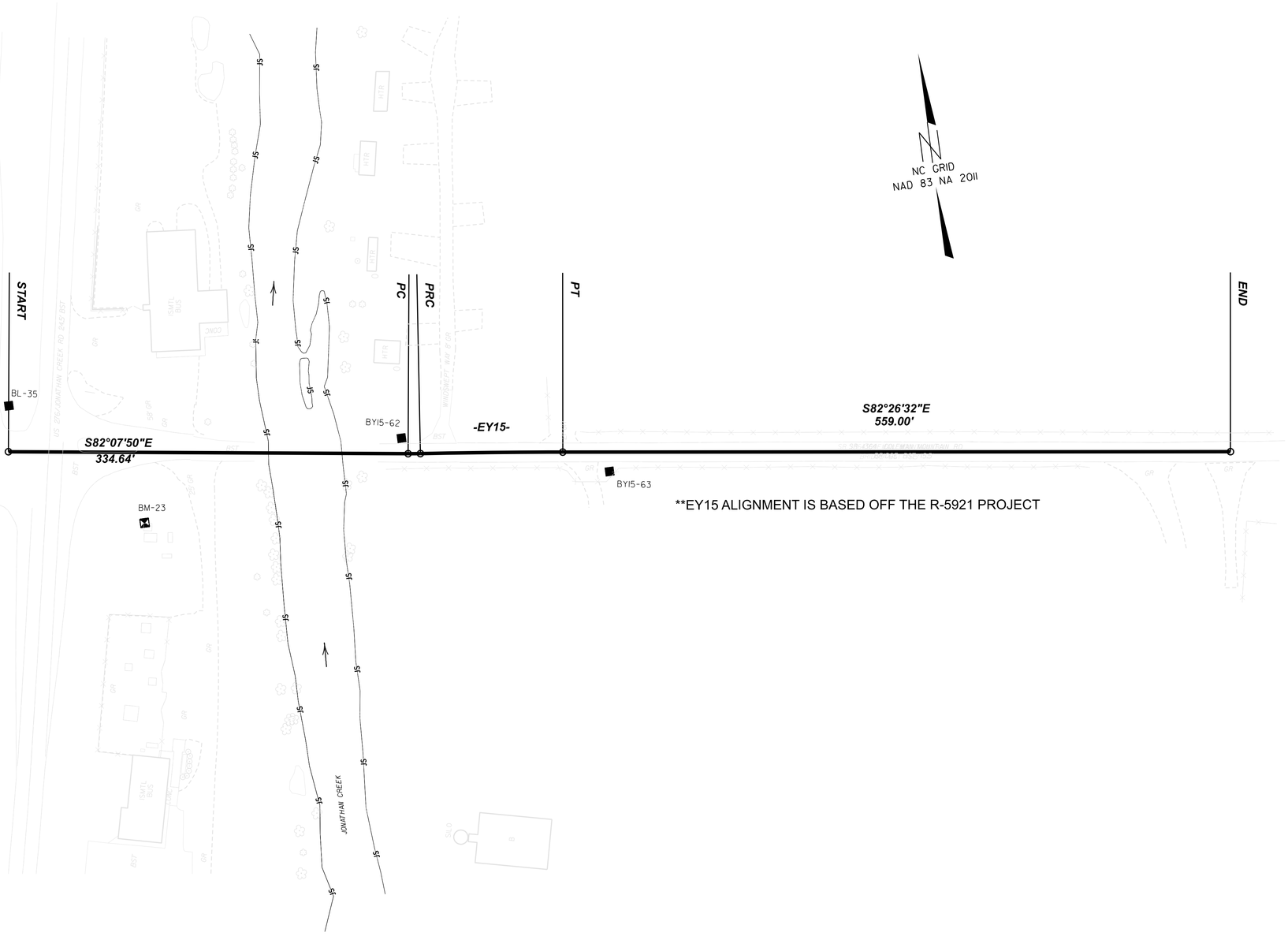
SEE SHEET RW02C-3
FOR FURTHER ALIGNMENT
AND CONTROL DETAILS

I, BRIAN BARWATT, PLS, CERTIFY THAT THE SECONDARY BASELINE CONTROL FOR THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION UTILIZING PRIMARY GPS CONTROL SET BY OTHERS; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:20,000 (CLASS AA) AND VERTICAL ACCURACY TO 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED IN OCTOBER OF 2024, AND ALL COORDINATES ARE BASED ON NAD 83/NA 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 4TH DAY OF FEBRUARY, 2025.

DocuSigned by:
Brian Barwatt
A935F23A4A4CE...

PROFESSIONAL LAND SURVEYOR L-4727



**EY15 ALIGNMENT IS BASED OFF THE R-5921 PROJECT

NOTES:

1. 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.

BP14.R030
R/W | 02C-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

***TIP PROJECT:** BP14.R030*
County: Haywood

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY:

LOCATION AND SURVEYS
DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

5/26/20

SECONDARY SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

I, BRIAN BARWATT, PLS, CERTIFY THAT THE SECONDARY BASELINE CONTROL FOR THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION UTILIZING PRIMARY GPS CONTROL SET BY OTHERS; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:20,000 (CLASS AA) AND VERTICAL ACCURACY TO 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED IN OCTOBER OF 2024 , AND ALL COORDINATES ARE BASED ON NAD 83/NA 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 4TH DAY OF FEBRUARY, 2025.

DocuSigned by:
Brian Barwatt
A9355F5E8A8B4CE...

PROFESSIONAL LAND SURVEYOR L-4727

BASELINE POINTS TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
G101	G-101	669231.754	801753.356	2757.83
G102	G-102	669847.115	801591.521	2740.75
G103	G-103	675788.427	802909.443	2689.99
G104	G-104	676230.381	802957.993	2681.72
G105	G-105	682019.064	804040.171	2616.83
G106	G-106	682555.502	804080.452	2611.39
G107	G-107	688186.404	806165.762	2558.04
G108	G-108	688820.296	806427.453	2552.97
35	BL-35	694404.809	808540.317	2512.99
62	BY15-62	694334.556	808862.545	2510.65
63	BY15-63	694283.867	809031.513	2508.25

BENCHMARK TABLE				
BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM-23	694292.6740	808640.0270	2517.17	NW CORNER OF TELECOMUNICATIONS PAD

EXISTING ALIGNMENT NAME:EY15									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
START	694366.7436	808534.8389							
LINE			S82°07'50.0"E	334.6409					
PC	694320.9258	808866.3284							
CURVE					01°26'08.7" Left	13°56'26.1"	10.2991	5.1498	411.0000
PRC	694319.6437	808876.5472							
CURVE					01°07'27.0" Right	00°56'35.3"	119.1934	59.5986	6075.0402
PT	694305.1266	808994.8513							
LINE			S82°26'31.8"E	558.9959					
END	694231.6036	809548.9909							

NOTES:

1. 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.

BP14.R030

R/W | 02C-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP14.R030

County: Haywood

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY:

LOCATION AND SURVEYS
DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

5/26/20

PROPOSED ALIGNMENT CONTROL SHEET

I, BRIAN BARWATT, PLS, CERTIFY THAT THE DATA COMPILED CAME FROM AVAILABLE SURVEYS/MAPPING PERFORMED BY OTHERS AND PROVIDED TO ME BY NCDOT AND DO NOT CERTIFY TO THE ACCURACY OR QUALITY OF THE INDIVIDUAL DATA SOURCES.

THIS 13TH DAY OF FEBRUARY, 2025.

DocuSigned by:
Brian Barwatt
A9365FE684A8AACE...

PROFESSIONAL LAND SURVEYOR L-4727

PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	10+00.00	694366.0933	808535.3485	S82°26'31.8"E	1023.1486							
END	20+23.15	694231.5216	809549.6086									

PROPOSED ALIGNMENT: Y1												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	264+00.00	693098.0593	808171.4211	N22°17'41.7"E	27.92							
PC	264+27.92	693123.8949	808182.0144	N16°17'36.3"E	1202.38	12°00'10.8"	00°59'47.2"	1204.58	604.50	5750.00		
PT	276+32.50	694277.9800	808519.3485	N10°17'30.9"E	467.50							
END	281+00.00	694737.9580	808602.8736									

PROPOSED ALIGNMENT: DRWY												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	9+89.38	694314.9838	808920.5578	N12°06'49.9""W	59.66							
PC	10+49.04	694373.3188	808908.0371	N02°10'42.5""W	10.35	19°52'14.8""	190°59'09.4""	10.4	5.25	30		
END	10+59.45	694383.6636	808907.6436									

NOTES:

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

BP14.R030

R/W | 02D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP14.R030

County: Haywood

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY:

LOCATION AND SURVEYS
DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

5/26/20

RIGHT OF WAY CONTROL SHEET

I, BRIAN BARWATT, PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED IN JANUARY OF 2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 13TH DAY OF FEBRUARY, 2025.

DocuSigned by:
Brian Barwatt

PROFESSIONAL LAND SURVEYOR L-4727

PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
11+60.00	11.30	694333.8512	808692.4728
11+60.00	-52.00	694396.5972	808700.7979
11+60.00	-10.70	694355.6604	808695.3664
11+60.00	58.00	694287.5528	808686.3299
11+78.00	58.00	694285.1854	808704.1736
11+78.00	-52.00	694394.2297	808718.6415
11+78.00	-30.00	694372.4209	808715.7480
11+78.00	30.00	694312.9421	808707.8563
13+50.00	-30.00	694349.7985	808886.2517
13+55.00	-75.00	694393.7496	808897.1290
13+75.00	-75.00	694391.1191	808916.9552
14+00.00	-30.00	694343.2218	808935.8198
15+80.00	-30.00	694319.5470	809114.2556
15+80.00	11.00	694278.9032	809108.8630
15+80.00	30.00	694260.0682	809106.3640
15+80.00	-11.00	694300.7121	809111.7566

- PK NAIL SET (11+60.00, 11.30)

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
13+38.00	30.00	694291.8978	808866.4663
13+44.00	60.00	694261.3692	808868.4684
13+60.00	60.00	694259.2648	808884.3294
13+65.00	30.00	694288.3464	808893.2332

NOTES:

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

BP14.R030

R/W | 03E-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

SEAL L-4727 BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP14.R030

County: Haywood

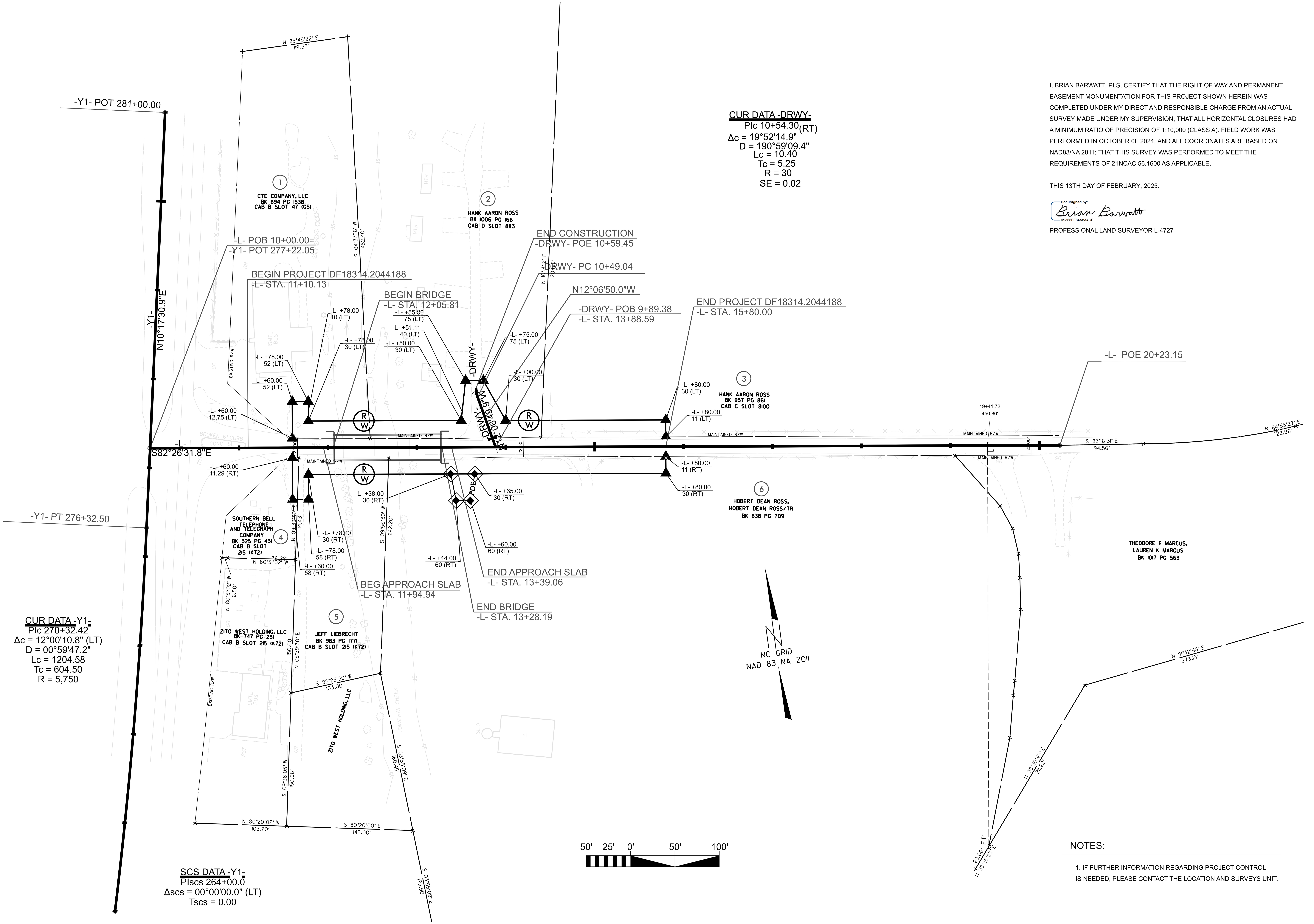
PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY:

LOCATION AND SURVEYS
DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

5/26/20



I, BRIAN BARWATT, PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED IN OCTOBER 0F 2024, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 13TH DAY OF FEBRUARY, 2025.

DocuSigned by:
Brian Barwatt
A9355FE84A8A4CE...

PROFESSIONAL LAND SURVEYOR L-4727

NOTES:

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

BP14.R030

R/W	04

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP14.R030
County: Haywood

PREPARED FOR

LOCATION AND SURVEYS UNIT

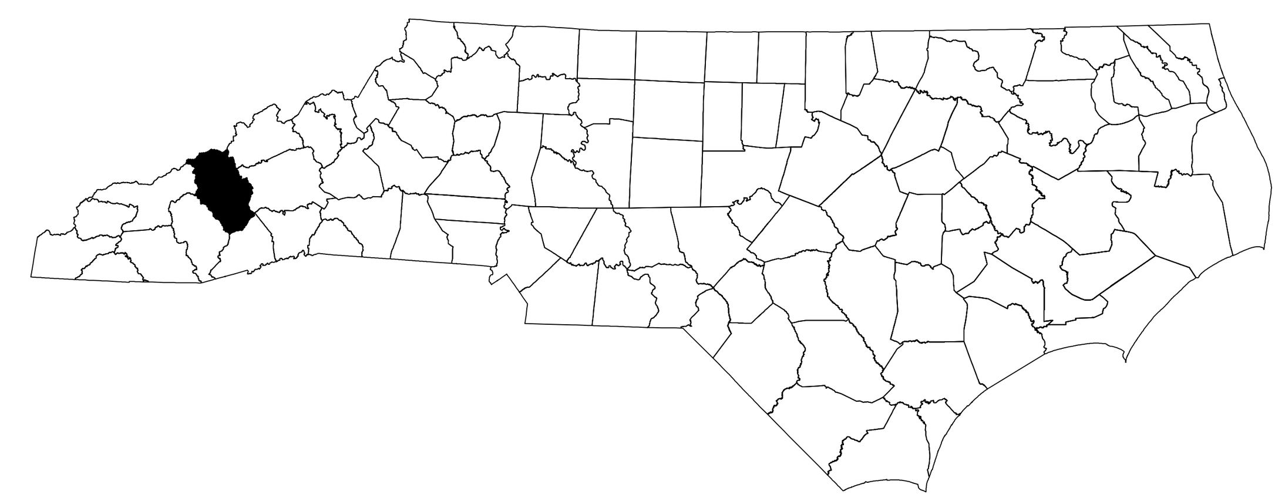
PREPARED BY:

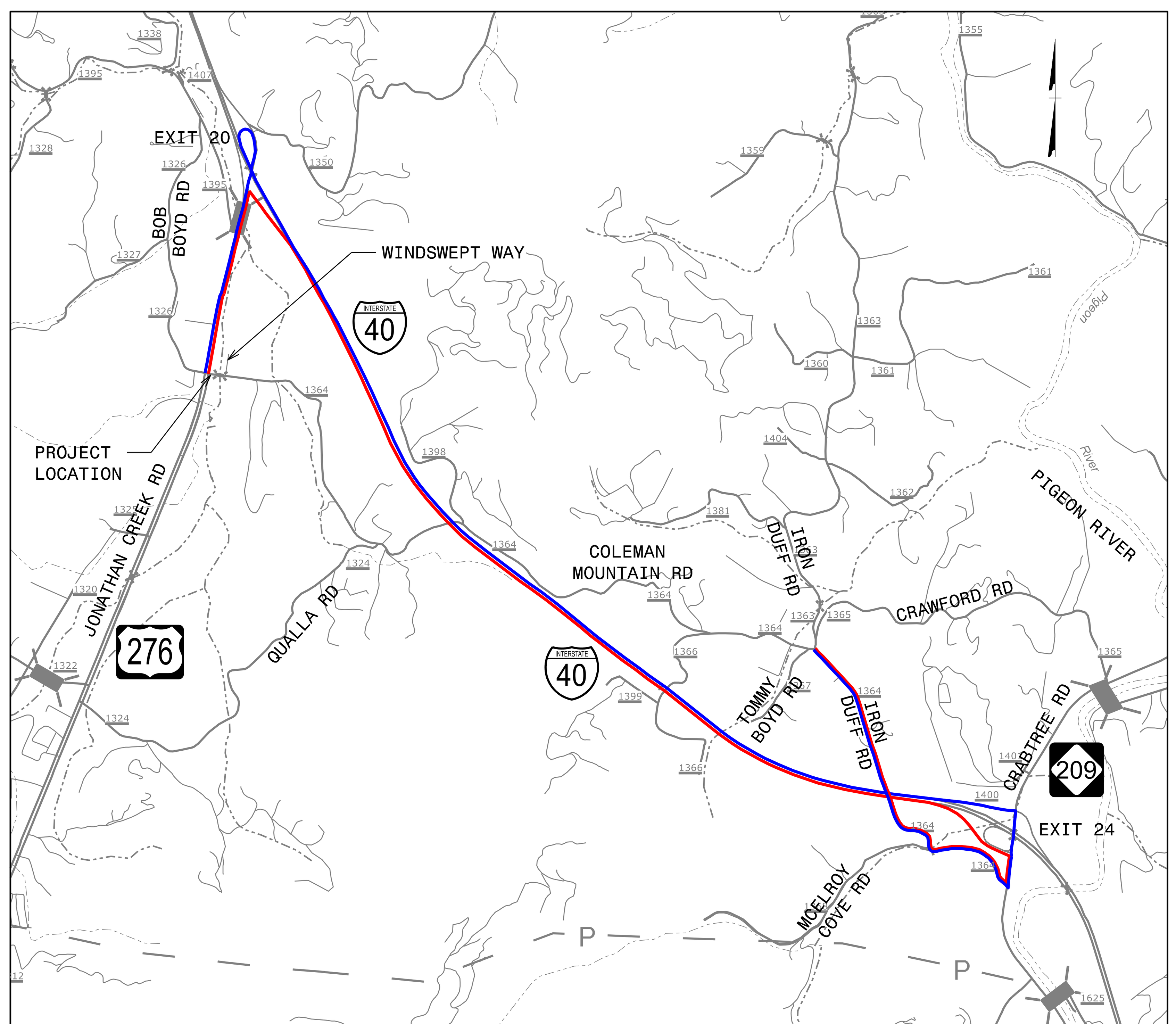
LOCATION AND SURVEYS
DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

HAYWOOD COUNTY



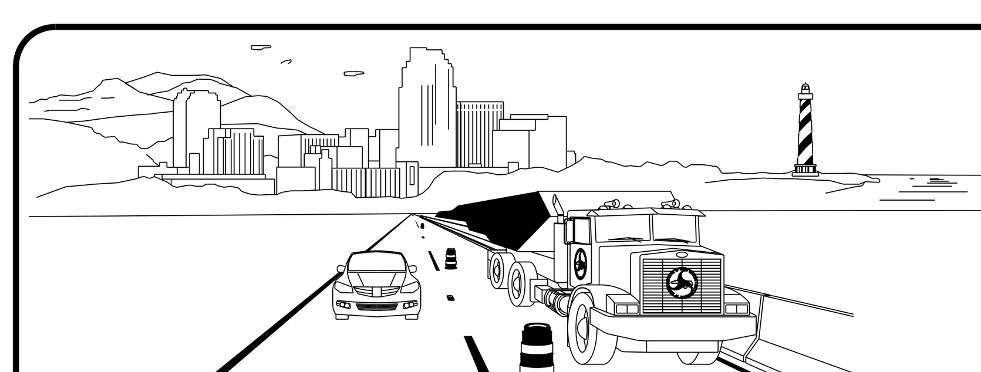


VICINITY MAP
(NOT TO SCALE)
DETOUR ROUTE (APPROX. LENGTH = 9.0 MILES)

LOCATION: REPLACE BRIDGE #430046 ON SR 1364 (COLEMAN MOUNTAIN ROAD) OVER JONATHAN CREEK
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURES

INDEX OF SHEETS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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

PLANS PREPARED BY:

J. TOWNSEND, PE (VHB)

NCDOT CONTACTS:

ZACH SHULER, PE
PROJECT ENGINEER

JOSH DEYTON, PE
DIVISION CONSTRUCTION ENGINEER

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

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

APPROVED:

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031533 JOHN G. TOWNSEND
DocuSigned by: John Townsend 5B21C1C41D6F4AC...
1/27/2025

SHEET NO.
TMP-1

PROJECT: DF18314.2044188

PROJ. REFERENCE NO.	SHEET NO.
DF18314.2044188	TMP-1A

PREPARED BY

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

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 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
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS 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/ADJACENT ON/OFF RAMPS
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

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

LEGEND

GENERAL

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

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

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKINGS

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

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G TOWNSEND
1/27/2025

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

PROJ. REFERENCE NO.	SHEET NO.
DF18314.2044188	TMP-1B

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

MANAGEMENT STRATEGIES

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

<u>ROAD CLOSURE:</u>

- MAINTAIN (SR 1364) TRAFFIC ON OFF-SITE DETOUR VIA US 276, I-40, NC 209, AND IRON DUFF RD.

PHASING

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.

<u>PHASE I</u>

STEP 1 – USING RSD 1101.03, SHEET 1 OF 9, AND SHEETS TMP-2 AND TMP-3, INSTALL ROAD CLOSURE AND DETOUR SIGNS, PLACE TYPE III BARRICADES TO CLOSE SR 1364 TO THROUGH TRAFFIC, PLACE DRUMS ALONG US 276 TO CLOSE THE EXISTING NORTHBOUND RIGHT TURN LANE AT COLEMAN MOUNTAIN ROAD, AND DETOUR SR 1364 TRAFFIC OFF-SITE.

STEP 2 – WITH TRAFFIC DETOURED OFF-SITE AND USING RSD 1101.02 SHEET 1 OF 19, CONSTRUCT THE PROPOSED REALIGNMENT OF WINDSWEPT WAY UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE ROADWAY PLANS) PLACE TEMPORARY PAINT PAVEMENT MARKINGS ON THE AFFECTED SECTION OF COLEMAN MOUNTAIN ROAD IN ACCORDANCE WITH THE FINAL PAVEMENT MARKING PLANS.

STEP 3 – WITH TRAFFIC DETOURED OFF-SITE AND AWAY FROM TRAFFIC, REMOVE REMAINING EXISTING STRUCTURE AND CONSTRUCT PROPOSED STRUCTURE. (SEE ROADWAY AND STRUCTURE PLANS)

STEP 4 – WITH TRAFFIC DETOURED OFF-SITE AND AWAY FROM TRAFFIC AND USING RSD 1101.02 SHEET 1 OF 19, CONSTRUCT THE REMAINING PROPOSED ROADWAY UP TO AND INCLUDING FINAL LAYER OF SURFACE COURSE. (SEE ROADWAY PLANS)
PLACE FINAL PAVEMENT MARKINGS AND TIE INTO EXISTING PAVEMENT MARKINGS. (SEE PAVEMENT MARKING PLANS)

STEP 5 – REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES, ALL ROAD CLOSURE AND DETOUR SIGNING AND OPEN SR 1364 TO PROPOSED TRAFFIC PATTERN.

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.

<u>LANE AND SHOULDER CLOSURE REQUIREMENTS</u>

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.

<u>PAVEMENT EDGE DROP OFF REQUIREMENTS</u>

F) 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.

G) 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) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

<u>TRAFFIC PATTERN ALTERATIONS</u>

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

<u>SIGNING</u>

I) 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.

J) 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.

K) 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.

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

M) 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.

<u>TRAFFIC CONTROL DEVICES</u>

N) 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.

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

<u>PAVEMENT MARKINGS AND MARKERS</u>

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

ROAD NAME	MARKING	MARKER
SR 1364	PAINT	NONE

Q) 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.

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

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

APPROVED: ____________________

DATE: ____________

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND
DocuSigned by: 6B2101C41D6F4AC...
1/27/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN

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

PROJ. REFERENCE NO.	SHEET NO.
DF18314.2044188	TMP-2

PREPARED BY

vhb
VHB Engineering NC, P.C. (C-3705)
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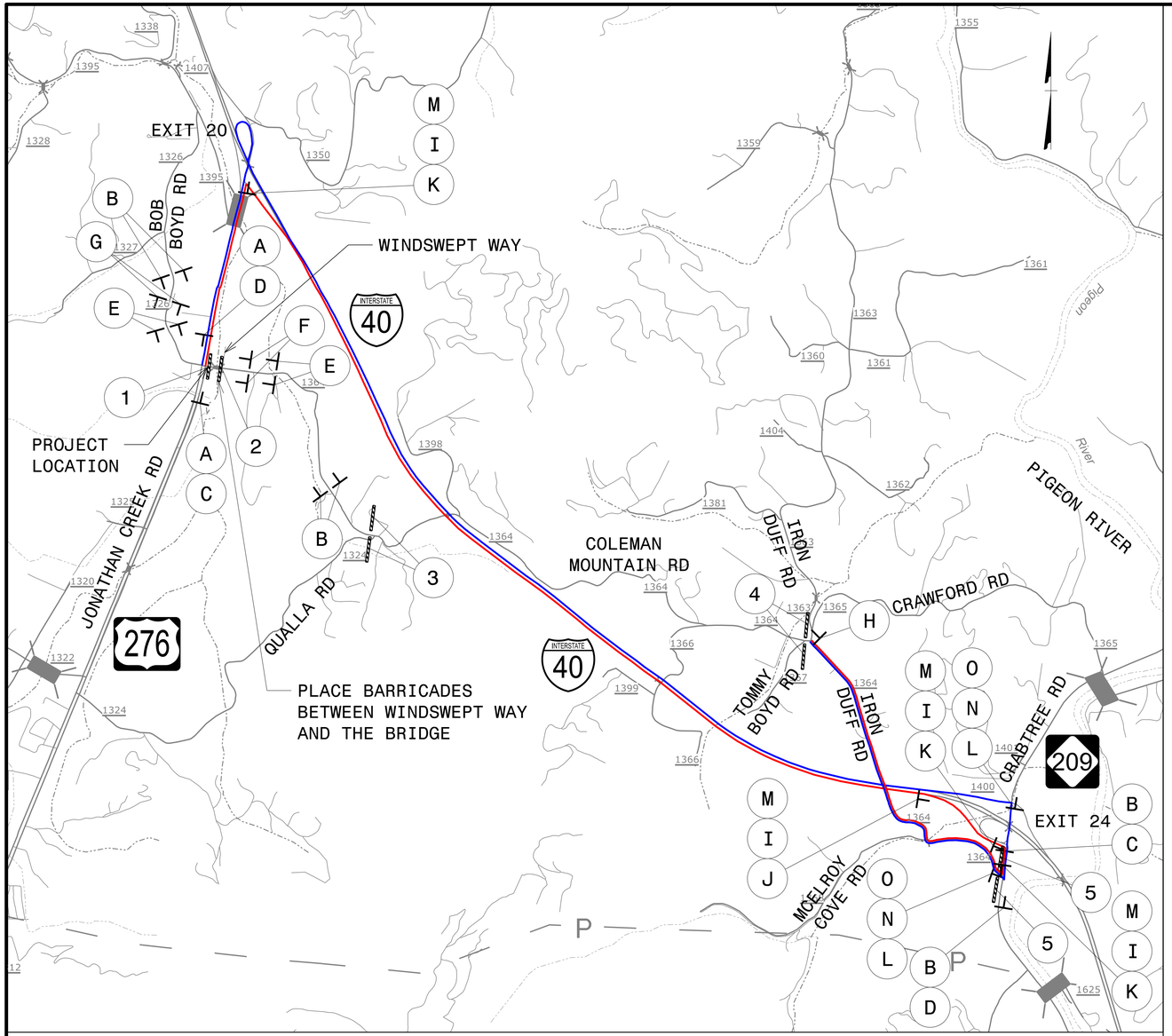


EASTBOUND
WESTBOUND

STATIONARY SIGN

VICINITY MAP

(NOT TO SCALE)

DETOUR ROUTE (APPROX. LENGTH = 9.0 MILES)

REFER TO RSD 1103.01 SHEET 1 AND 2 OF 9 FOR ADDITIONAL DETAIL.

1 — R11-2, 48" x 30", ROAD CLOSED, DETOUR, M4-10L, 48" x 18" — TYPE III BARRICADE

2 — R11-2, 48" x 30", ROAD CLOSED — TYPE III BARRICADE(S)

3 — R11-3, 60" x 30", ROAD CLOSED, 1.0 MILES AHEAD, LOCAL TRAFFIC ONLY — TYPE III BARRICADE

4 — R11-3, 60" x 30", ROAD CLOSED, 2.8 MILES AHEAD, LOCAL TRAFFIC ONLY — TYPE III BARRICADE

5 — R11-3, 60" x 30", ROAD CLOSED, 4.0 MILES AHEAD, LOCAL TRAFFIC ONLY, DETOUR, M4-10R, 48" x 18" — TYPE III BARRICADE

ROAD CLOSED — W20-3, 48" x 48" — A

ROAD CLOSED AHEAD — W20-3, 48" x 48" — B

NEXT RIGHT — SP-4R, 42" x 12" — C

NEXT LEFT — SP-4L, 42" x 12" — D

ROAD CLOSED 1000 FT — W20-3, 48" x 48" — E

ROAD CLOSED 500 FT — W20-3, 48" x 48" — F

DETOUR AHEAD — W20-2, 48" x 48" — G

END DETOUR — M4-8a, 24" x 18" — H

DETOUR — M4-8, 24" x 12" — I

M6-2, 21" x 15" — J

M6-1, 21" x 15" — K

M6-1, 21" x 15" — L

COLEMAN MOUNTAIN RD — SP-1*, 48" x 42" — M

276 — M1-4, 30" x 24" — N

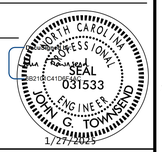
TO — M4-5, 24" x 12" — O

* SEE SHEET TMP-3 FOR SPECIAL SIGN DESIGN.

APPROVED: _____

DATE: _____

SEAL



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
COLEMAN MOUNTAIN ROAD DETOUR

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

PROJ. REFERENCE NO.	SHEET NO.
DF18314.2044188	TMP-3

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

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

SIGN WIDTH: 4'-0"
HEIGHT: 3'-6"
TOTAL AREA: 14.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0.47"
WIDTH: 0.63"
RADII: 1.5"

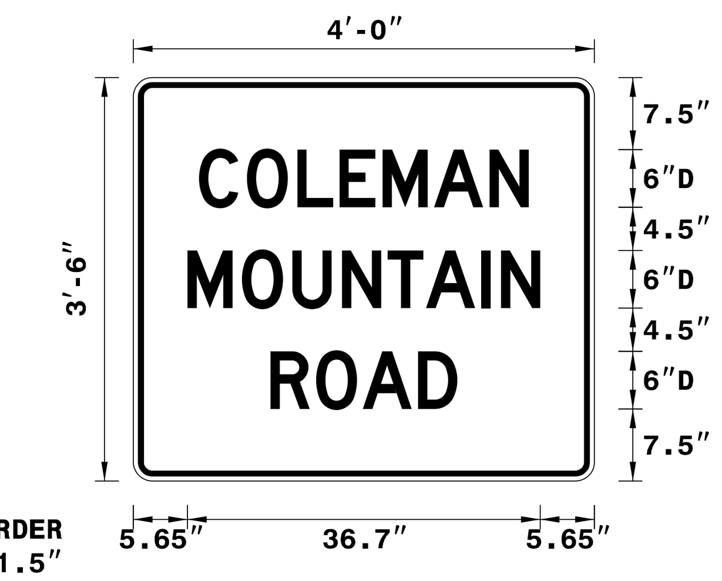
NO. Z BARS:
LENGTH:

BACKG COLOR: Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.063" (1.6 mm) ALUMINUM

DESIGN BY: VHB
PROJECT ID: DF18314.2044188
CHECKED BY:
LOCATION:
Jan 24, 2025
DIV: 14



BORDER
R=1.5"
TH=0.63"
IN=0.47"

USE NOTES:

1. Legend and border shall be non-reflective black.
2. Background shall be Grade B reflective sheeting.

LETTER POSITIONS

Letter spacings are to start of next letter

											Series/Size Text Length
		C	O	L	E	M	A	N			D 2000
	6.8	5	5.2	4.4	4.5	5.4	5.8	4.1	6.8		34.3
		M	O	U	N	T	A	I	N		D 2000
	5.6	5.7	5.2	5.2	4.8	4	5.8	2	4.1	5.6	36.7
		R	O	A	D						D 2000
	14.3	4.8	4.8	5.8	4.1	14.3					19.5

FILENAME: DF18314_2044188_TMP_DET

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: ____________________

DATE: ____________________

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND
1/27/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPECIAL SIGN DESIGN

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
HAYWOOD COUNTY

LOCATION: REPLACE BRIDGE #430046 ON SR 1364 (COLEMAN MOUNTAIN ROAD) OVER JONATHAN CREEK

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 MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

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

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	MARKER
-L- COLEMAN MTN RD	PAINT	NONE

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

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

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

INDEX

DF18314.2044188

PMP | 001

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

SIGNING AND DELINEATION UNIT

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND
1/27/2025

PREPARED BY

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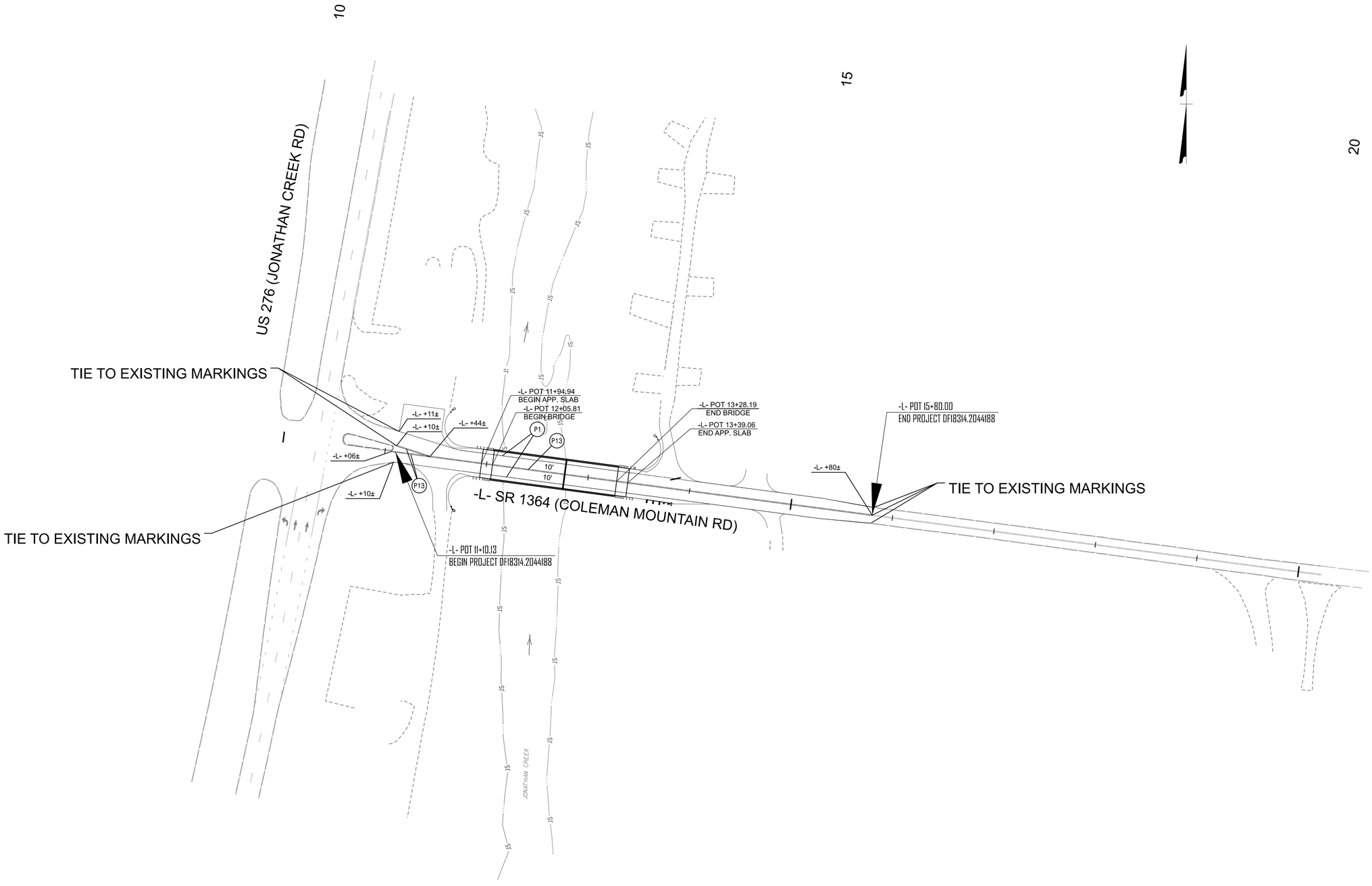
Raleigh, NC 27606

PAVEMENT MARKING TITLE SHEET

CONTRACT: DN01098 PROJECT: DF18314.2044188

11/14/23



DF18314.2044188

PMP | 002

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

SIGNING AND DELINEATION UNIT

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOHN G. TOWNSEND
1/27/2025

PREPARED BY

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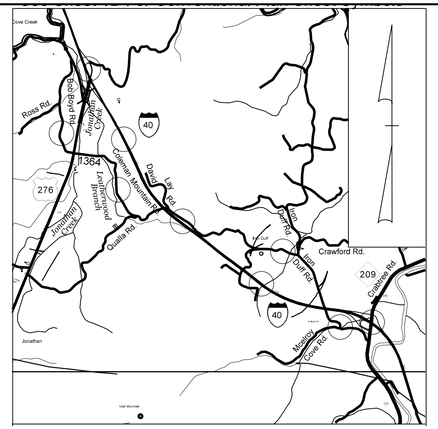
Raleigh, NC 27606

PAVEMENT MARKING DETAIL SHEET

PROJECT: DF18314.2044188

TIP PROJECT: DF18314.2044188



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

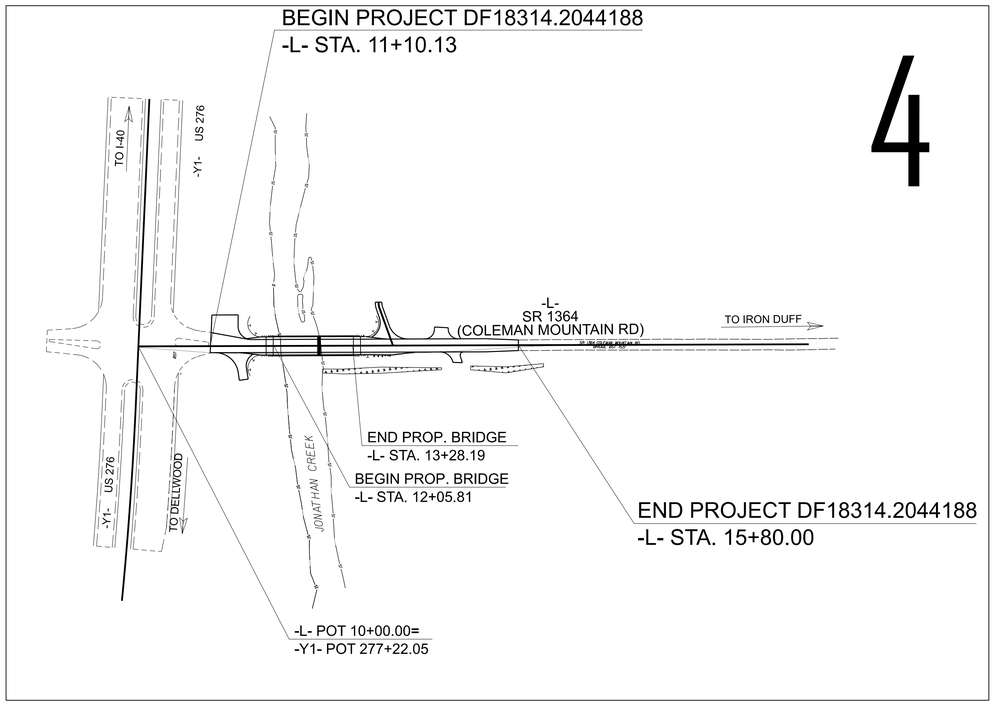
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

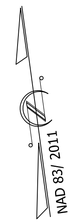
HAYWOOD COUNTY

LOCATION: *REPLACE BRIDGE #430046 ON SR 1364 (COLEMAN MOUNTAIN ROAD) OVER JONATHAN CREEK*
TYPE OF WORK: *GRADING, PAVING, DRAINAGE, AND STRUCTURES*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18314.2044188	EC-1	

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





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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALE

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:

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

Designed by:

J.R. Hopson, PE — ***3736***
NAME — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

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

2/25/2026
...\DF18314.R030_EC_TSH.dgn
USER:

PROJECT REFERENCE NO.	SHEET NO.
DF18314.2044188	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

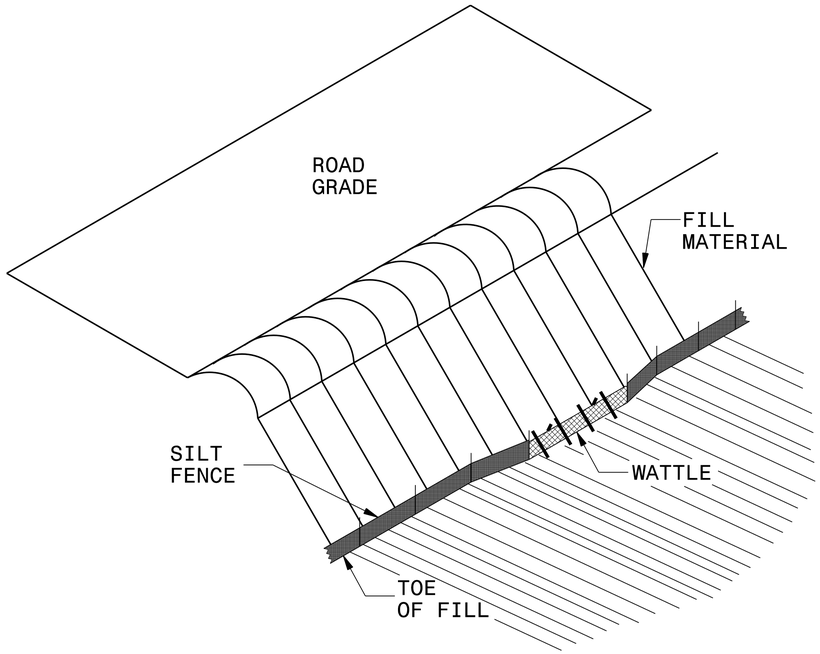
EROSION & SEDIMENT CONTROL LEGEND

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

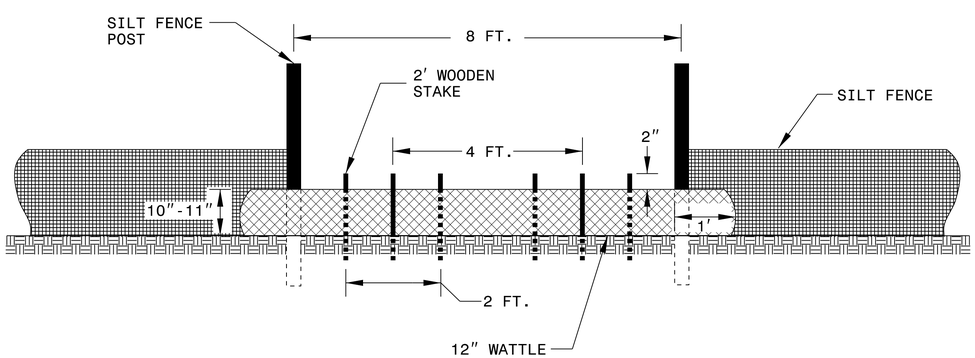
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet 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.
DF1831(2044188	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW



VIEW FROM SLOPE

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.

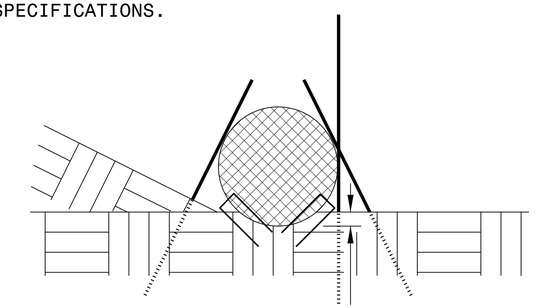
PROVIDE STAPLES MADE OF 11 GUAGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6″ IN LENGTH.

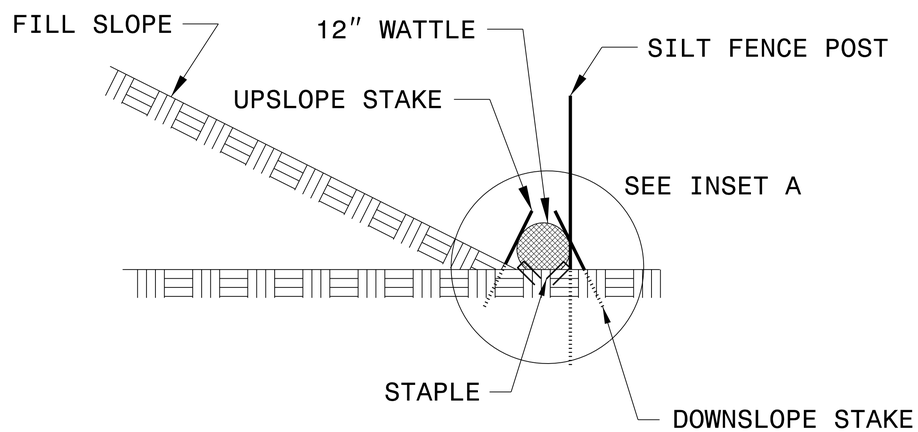
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

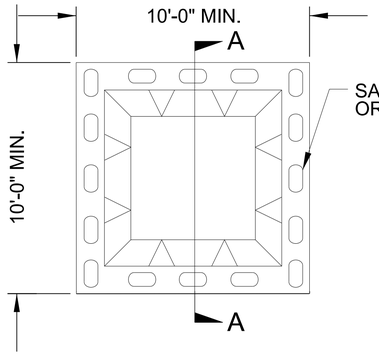




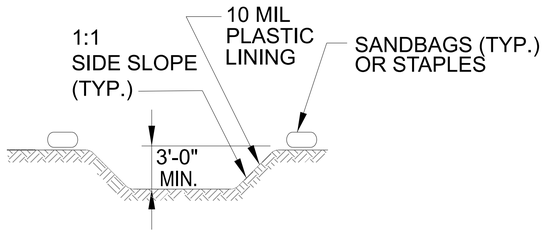
SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
DF18314.2044188	EC-28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

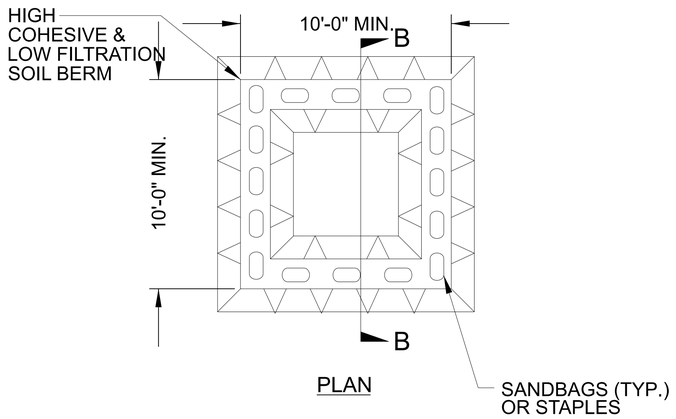
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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.

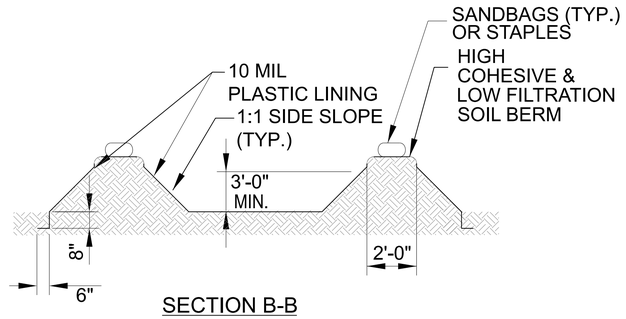
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

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.
DF18314.2044188	EC-03
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

-L- POB 10+00.00=
-Y1- POT 277+22.05

BEGIN PROJECT DF18314.2044188
-L- STA. 11+10.13

BEGIN BRIDGE
-L- STA. 12+05.81

END CONSTRUCTION
-DRWY- POE 10+59.45

-DRWY- PC 10+49.04

N12°06'50.0"W

-DRWY- POB 9+89.38
-L- STA. 13+88.59

END PROJECT DF18314.2044188
-L- STA. 15+80.00

-L- POE 20+23.15

BEG APPROACH SLAB
-L- STA. 11+94.94

END APPROACH SLAB
-L- STA. 13+39.06

END BRIDGE
-L- STA. 13+28.19

CLASS II RIP RAP (TYP)

END SBG +57

15" RCP-IV

15" W/ ELBOWS

CL. B RIPRAP
EST 2 TONS
EST 7 SY GEOTEXTILE

REMOVE

50' TAPER LT & RT

CTE COMPANY, LLC
BK 894 PG 1538
CAB B SLOT 47 (05)

HANK AARON ROSS
BK 1006 PG 166
CAB D SLOT 883

HANK AARON ROSS
BK 957 PG 861
CAB C SLOT 800

HOBERT DEAN ROSS,
HOBERT DEAN ROSS/TR
BK 838 PG 709

THEODORE E MARCUS,
LAUREN K MARCUS
BK 1017 PG 563

SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY
BK 325 PG 431
CAB B SLOT 25 (K72)

ZITO WEST HOLDING, LLC
BK 1473 PG 258
CAB B SLOT 25 (K72)

JEFF LIEBRECHT
BK 983 PG 1171
CAB B SLOT 25 (K72)

ZITO WEST HOLDING LLC

SR 1364 COLEMAN MOUNTAIN RD

NC GRID
NAD 83 NA 2011

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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

EC-4/CONST.4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25477 JHAD F. DUNCAN

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24964 JOSEPH T. HOLLAND

PREPARED BY

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

-L- POB 10+00.00=
-Y1- POT 277+22.05

BEGIN PROJECT DF18314.2044188
-L- STA. 11+10.13

BEGIN BRIDGE
-L- STA. 12+05.81

END CONSTRUCTION
-DRWY- POE 10+59.45

-DRWY- PC 10+49.04

N12°06'50.0"W

-DRWY- POB 9+89.38
-L- STA. 13+88.59

END PROJECT DF18314.2044188
-L- STA. 15+80.00

-L- POE 20+23.15

BEG APPROACH SLAB
-L- STA. 11+94.94

END APPROACH SLAB
-L- STA. 13+39.06

END BRIDGE
-L- STA. 13+28.19

CL. B RIPRAP
EST 2 TONS
EST 7 SY GEOTEXTILE

15" W ELBOWS

REMOVE

END SBG +57

CLASS II
RIP RAP
(TYP)

50' TAPER
LT & RT

CTE COMPANY, LLC
BK 894 PG 1538
CAB B SLOT 47 (G5)

HANK AARON ROSS
BK 1006 PG 166
CAB D SLOT 883

HANK AARON ROSS
BK 957 PG 861
CAB C SLOT 8100

HOBERT DEAN ROSS,
HOBERT DEAN ROSS/TR
BK 838 PG 709

THEODORE E MARCUS,
LAUREN K MARCUS
BK 1017 PG 563

SOUTHERN BELL
TELEPHONE
AND TELEGRAPH
COMPANY
BK 325 PG 431
CAB B SLOT
215 (K72)

ZITO WEST HOLDING, LLC
BK 7473 PG 259
CAB B SLOT 215 (K72)

JEFF LIEBRECHT
BK 983 PG 177
CAB B SLOT 215 (K72)

ZITO WEST HOLDING, LLC

SR 1364 COLEMAN MOUNTAIN RD
BRIDGE BST 1553

US 276/JONATHAN CREEK RD 2455

JONATHAN CREEK

NC GRID
NAD 83 NA 2011

EC-5/CONST.4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25477 JHAD F. DUNCAN

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24964 JOSEPH T. HOLLAND

PREPARED BY

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

11/14/23

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
HAYWOOD COUNTY

LOCATION: REPLACE BRIDGE #430046 ON SR 1364 (COLEMAN MOUNTAIN ROAD) OVER JONATHAN CREEK

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4025000000	901	CONTRACTOR FURNISHED, TYPE E SIGN	11.25	S.F.
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	26.0	LF.
4155000000	903	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	5	EA.
4102000000	904	SIGN ERECTION, TYPE E	2	EA.

ROADWAY STANDARD DRAWINGS

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
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON U-CHANNEL POSTS

GENERAL NOTES

- SIGNS WILL BE FURNISHED BY CONTRACTOR
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

INDEX

DF18314.2044188
SIGN | 001

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

SIGNING AND DELINEATION UNIT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031533 JONATHAN G. TOWNSEND
1/27/2025

PREPARED BY

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

SIGNING PLAN
TITLE SHEET

CONTRACT: DN01098 PROJECT: DF18314.2044188

11/14/23

(401) QUANTITY REQ'D _1_

24 X 30
R2-1

ONE "U" POST PER SIGN

(402) QUANTITY REQ'D _1_

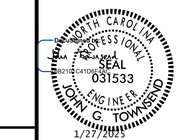
30 X 30
W11-5

ONE "U" POST PER SIGN

DF18314.2044188
SIGN | 002

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

SIGNING AND DELINEATION UNIT



PREPARED BY

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Raleigh, NC 27606

TYPE "E" SIGNS

PROJECT: DF18314.2044188

10

15

20

US 276 (JONATHAN CREEK RD)

WINDSWEPT WAY

-L- SR 1364 (COLEMAN MOUNTAIN RD)

-L- POT 11+10.13
BEGIN PROJECT BP14-R030

-L- POT 11+94.94
BEGIN APP. SLAB

-L- POT 12+05.81
BEGIN BRIDGE

-L- POT 13+28.19
END BRIDGE

-L- POT 13+39.06
END APP. SLAB

-L- POT 15+80.00
END PROJECT BP14-R030

OVER 26,000 LBS
SEE NOTE 1

WEIGHT LIMIT 13 TONS NEXT 3 MILES 18 TONS
SEE NOTE 1

SPEED LIMIT 30
SEE NOTE 1

SPEED LIMIT 30

401

SEE NOTE 1

402

WEIGHT LIMIT 13 TONS NEXT 3 MILES 18 TONS
SEE NOTE 1

SEE NOTE 1

JONATHAN CREEK

PROJECT NOTES
1. DISPOSAL OF SIGN SYSTEM, U-CHANNEL

DF18314.2044188
SIGN | 003

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

SIGNING AND DELINEATION UNIT

NORTH CAROLINA PROFESSIONAL SEAL 031533 ENGINEER JOAN G. TOWNSEND
1/27/2025

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

EXISTING AND PROPOSED SIGNS

PROJECT: DF18314.2044188

CONTRACT: DN01098 BRIDGE PROJECT: DF18314.2044188

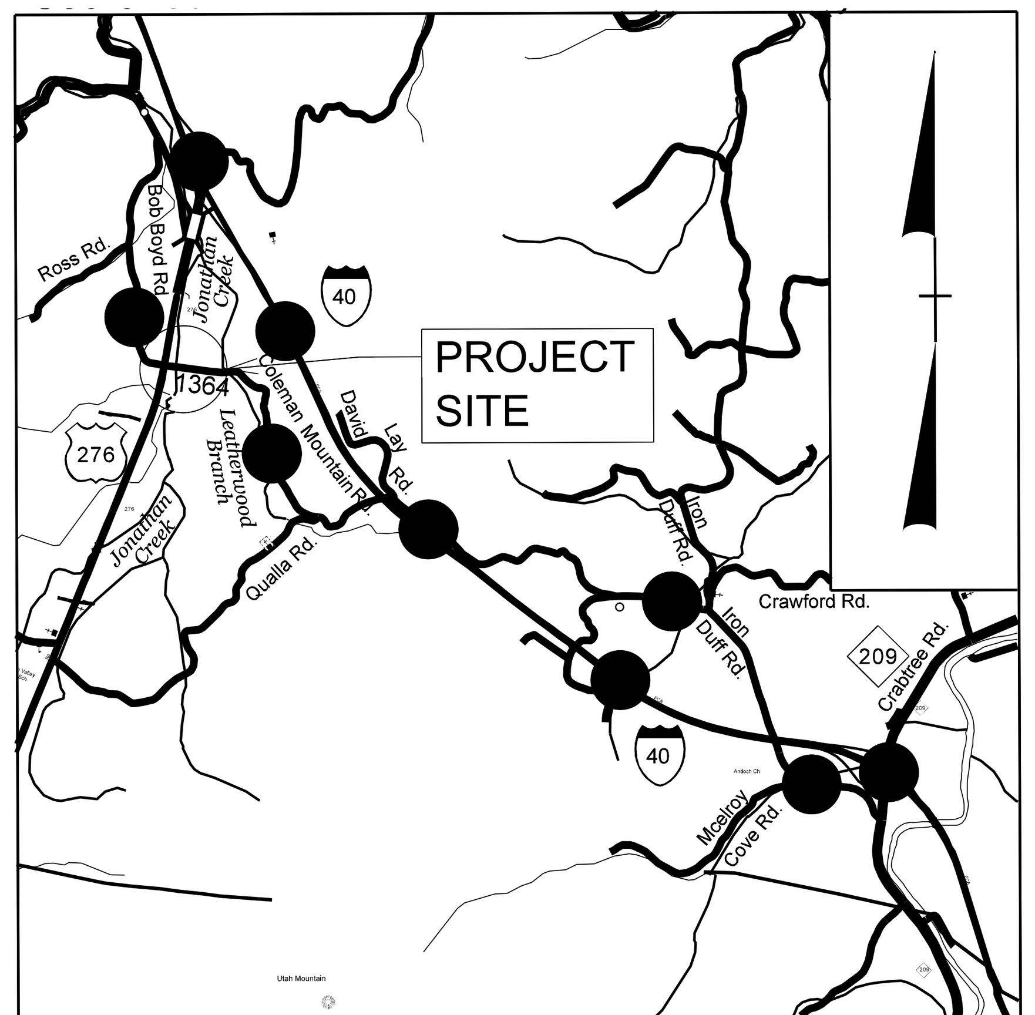
T.I.P. NO.	SHEET NO.
DF18314.2044188	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

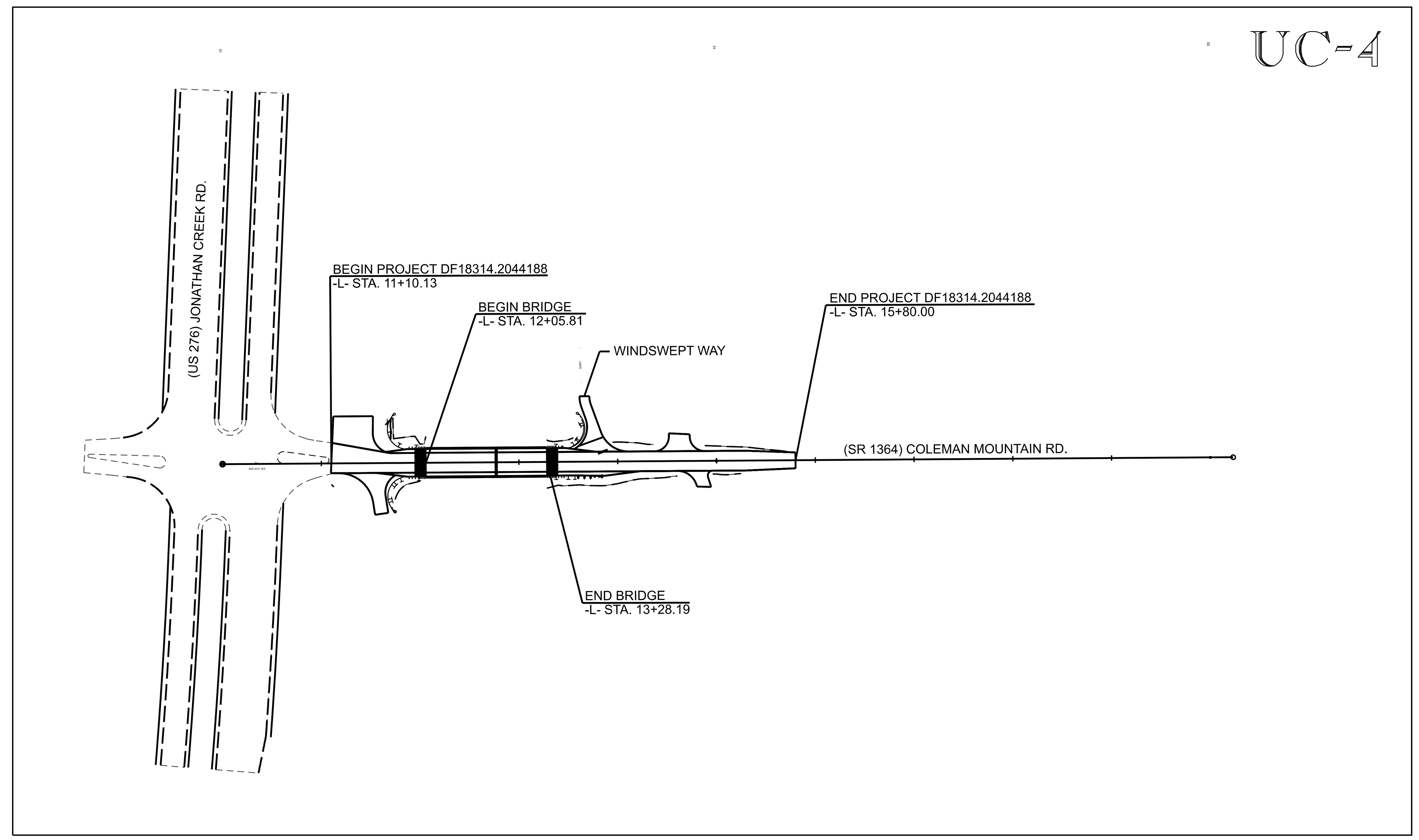
LOCATION: SR 1364 (COLEMAN MOUNTAIN RD.) EAST OF US 276 (JONATHAN CREEK RD.)

TYPE OF WORK: WATER LINE RELOCATION



VICINITY MAP (NTS)

DETOUR ROUTE



NAD 83/2011

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

WATER AND SEWER OWNERS ON THE PROJECT

ALL WATER LINES ON THE PROJECT ARE OWNED BY THE MAGGIE VALLEY SANITARY DISTRICT.

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

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

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 13, 2025

LETTING DATE:
JUNE 10, 2025

THAD F. DUNCAN, PE
PROJECT ENGINEER

JOHN M. KAMPRATH, PE
UTILITIES DESIGN ENGINEER

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14101 JOHN M. KAMPRATH
DocuSigned by: John M. Kamprath
89925907D84D400
1/14/2025

DIVISION OF HIGHWAYS
DIVISION 14
PROJECT DELIVERY UNIT
253 WEBSTER ROAD
SYLVA, NC 28779
PHONE (828) 331-5200
FAX (828) 331-5201

BRIAN KETNER, PE	TEAM LEAD
BRIAN KETNER, PE	PROJECT MANAGER
BOB GOLDING	DIVISION UTILITIES ENGINEER
JOSH DEYTON, PE	DIVISION CONSTRUCTION ENGINEER

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
DF18314.2044188	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

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

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

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

EXISTING UTILITIES SYMBOLS

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

*For Existing Utilities

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

REV: 2/1/2012

5/14/99

UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
DF18314.2044188	UC-3
DESIGNED BY: JMK	
DRAWN BY: JMK	
CHECKED BY: BTB	
APPROVED BY: JMK	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

DocuSigned by: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14101 JOHN McKAMPRETH 5/14/2025

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES:

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

2. ALL WATER FACILITIES ON THE PROJECT BELONG TO THE MAGGIE VALLEY SANITARY DISTRICT.

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

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

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

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

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

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

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

PROJECT SPECIFIC NOTES:

1. ALL WATER LINES SHALL BE INSTALLED WITH A MINIMUM OF 3.0' OF COVER.

2. MAINTAIN 18" MINIMUM VERTICAL SEPARATION BETWEEN UTILITIES.

3. VERIFY ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF CONFLICTS ARE ENCOUNTERED.

4. CONTRACTOR SHALL COORDINATE UTILITY RELOCATION OR ABANDONMENT WITH LOCAL UTILITY COMPANIES AS REQUIRED.

5. WATER LINES SHALL BE AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS. WHERE LOCAL CONDITIONS PREVENT A SEPARATION OF 10 FEET, THE WATER LINE MAY BE LAID CLOSER PROVIDED THAT THE ELEVATION OF THE BOTTOM OF THE WATER LINE IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER WITH A HORIZONTAL SEPARATION OF 3 FEET.

6. FIRE HYDRANT, FIRE HYDRANT LEG, AND VALVE WILL BE PROVIDED BY THE MAGGIE VALLEY SANITARY DISTRICT TO THE CONTRACTOR FOR INSTALLATION ON THIS PROJECT.

7. EXISTING TOPOGRAPHIC SURVEY AND SUE BY OTHERS. CONTRACTOR TO VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR TO CONFIRM FINAL CONNECTION POINTS IN THE FIELD.

8. EXISTING WATER LINE DEPTHS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION. ACTUAL DEPTHS ARE TO BE CONFIRMED IN THE FIELD.

9. EXISTING 3" WATER LINE SHALL BE RE-MOVED BETWEEN THE CONNECTION POINTS OF THE NEW WATER LINE.

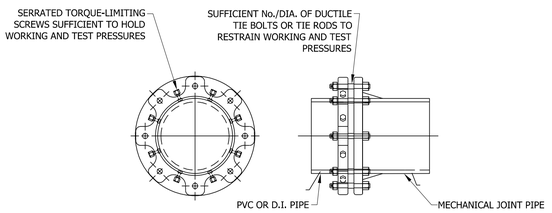
10. ALL CONNECTIONS TO EXISTING WATER LINES SHALL BE MADE WITH A THRUST COLLAR IN ACCORDANCE WITH THE DETAILS OF THESE PLANS.

11. CONTRACTOR SHALL COORDINATE WITH AT&T TO ENSURE THAT THE WATER LINE INSTALLATION DOES NOT CONFLICT WITH THE EXISTING UNDERGROUND FACILITIES.

12. ALL WATER LINES SHALL COMPLY WITH AWWA C151. ALL FITTINGS SHALL BE DUC-TILE IRON CONFORMING TO AWWA C110/C153. USE RESTRAINED JOINT PIPE WITH A MINIMUM WORKING PRESSURE RATING OF 200 PSI AND A FACTOR OF SAFETY OF 2.

13. DUCTILE IRON PIPE COUPLINGS SHALL BE MADE TO COMPLY TO ASTM A536, GRADE 65-45-12. GASKETS SHALL BE VIRGIN SBR RUBBER COMPOUNDED FOR WATER AND SEWER SERVICE, MEETING ASTM D2000 MBA 710. BOLTS AND HEAVY HEX NUTS SHALL BE STEEL MEETING AWWA C111 SPECIFICATIONS.

5/14/99

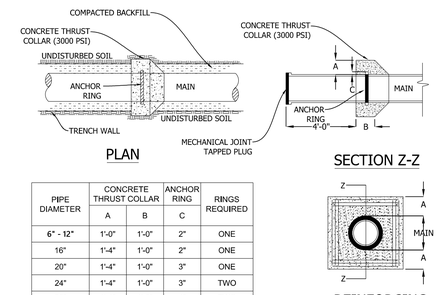


RESTRAINED JOINTS ON MECHANICAL JOINT PIPE & FITTINGS

MINIMUM FOOTAGE OF RESTRAINED PIPE FOR VARIOUS DIAMETERS & DEGREES CAST & DUCTILE IRON ELBOWS

COVER / DIA. MAIN	DEGREE OF ELBOW 11.25°	22.5°	45°	90°	VERTICAL OFFSET 45° UPPER BEND (3')	VERTICAL OFFSET 45° LOWER BEND (3')	BRANCH OF TEE	REDUCER (LARGE SIDE ONLY)
	3'	3'	3'	3'			3'	3'
6"	2'	5'	10'	25'	15'	10'	15'	20'
8"	4'	6'	14'	33'	25'	15'	30'	40'
10"	5'	8'	18'	42'	27'	18'	40'	40'
12"	5'	10'	20'	50'	30'	20'	55'	45'
16"	7'	13'	28'	67'	45'	30'	80'	45'
20"	8'	17'	35'	84'	55'	35'	105'	45'

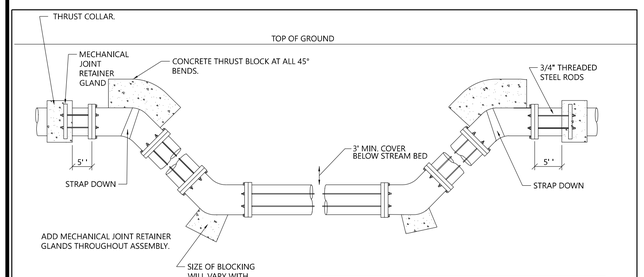
RESTRAINED JOINT DETAIL



PIPE DIAMETER	CONCRETE THRUST COLLAR A	CONCRETE THRUST COLLAR B	ANCHOR RING C	RINGS REQUIRED
6" - 12"	1'-0"	1'-0"	2"	ONE
16"	1'-4"	1'-0"	2"	ONE
20"	1'-4"	1'-0"	3"	ONE
24"	1'-4"	1'-0"	3"	TWO
30"	1'-4"	1'-2"	4"	TWO
36"	1'-4"	1'-4"	4"	TWO

NOTE:
6" TO 16" MAINS--12-NO. 7 BARS
20"TO 36" MAINS--12-NO. 8 BARS
* BARS PLACED AS SHOWN

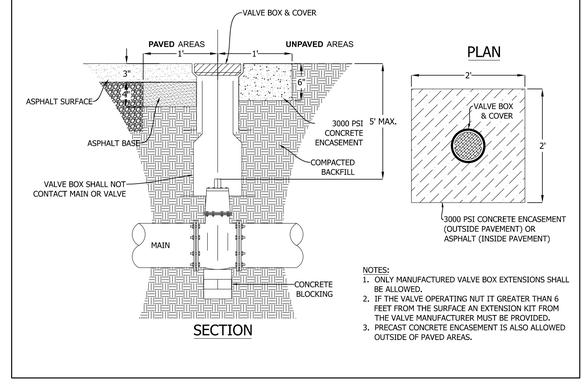
THRUST COLLAR INSTALLATION



ROD REQUIREMENTS		
SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

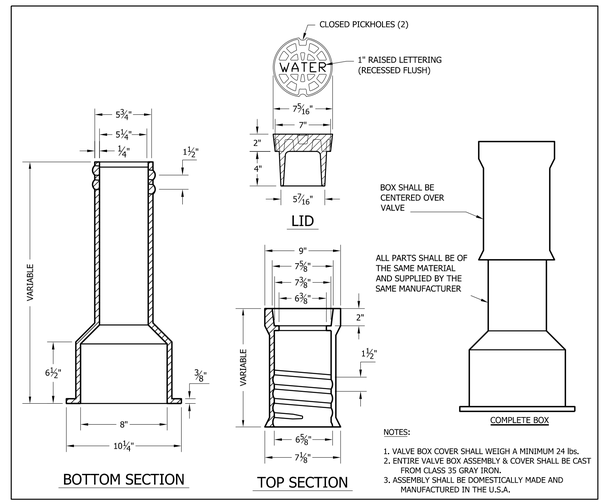
GENERAL NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS

STANDARD VERTICAL BEND



NOTES:
1. ONLY MANUFACTURED VALVE BOX EXTENSIONS SHALL BE ALLOWED.
2. IF THE VALVE OPERATING NUT IT GREATER THAN 6 FEET FROM THE SURFACE AN EXTENSION KIT FROM THE VALVE MANUFACTURER MUST BE PROVIDED.
3. PRECAST CONCRETE ENCASEMENT IS ALSO ALLOWED OUTSIDE OF PAVED AREAS.

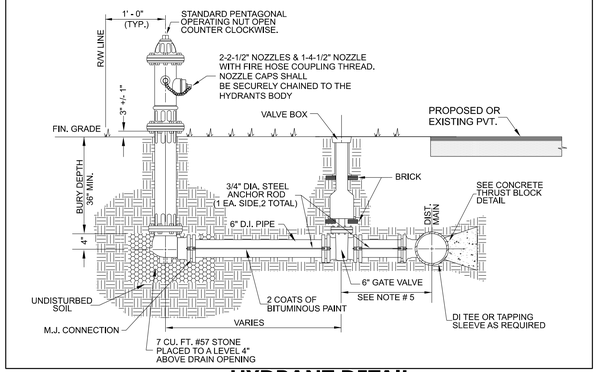
VALVE BOX INSTALLATION



NOTES:
1. VALVE BOX COVER SHALL WEIGH A MINIMUM 24 lbs.
2. ENTIRE VALVE BOX ASSEMBLY & COVER SHALL BE CAST FROM CLASS 35 GRAY IRON.
3. ASSEMBLY SHALL BE DOMESTICALLY MADE AND MANUFACTURED IN THE U.S.A.

VALVE BOX INSTALLATION

NOTES:
1. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT OR ANCHOR LUGS AND 3/4" DIA. STEEL ANCHOR RODS.
2. 3/4" DIA. STEEL RODS AND ALL BURIED SURFACES SHALL BE PAINTED WITH 2 COATS OF BITUMINOUS PAINT, MARRED OR SCRATCHED SURFACES SHALL BE REPAINTED. PAINT SHALL CURE PRIOR TO BACK FILLING TRENCH.
3. FIRE HYDRANTS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
4. HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY ENGINEER.
5. HYDRANT EXTENSIONS SHALL BE APPROVED BY ENGINEER.



HYDRANT DETAIL

PROJECT DETAILS

PROJECT REFERENCE NO.	SHEET NO.
DF1831.2044188	UC-3A
DESIGNED BY: JMK	
DRAWN BY: JMK	
CHECKED BY: BTB	
APPROVED BY: JMK	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

2/27/2025
NORTH CAROLINA PROFESSIONAL SEAL 14101 ENGINEER JOHN McKANNER
DocuSigned by:

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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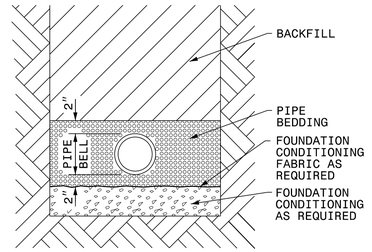
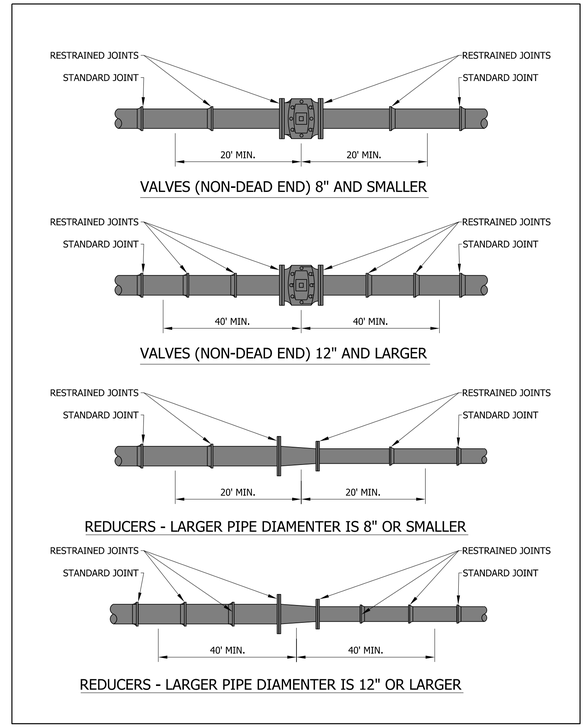
TRENCH DETAIL



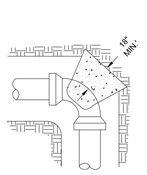
PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL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



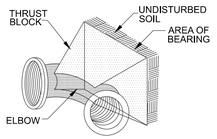
TYP. RESTRAINING FOR VALVES AND REDUCERS

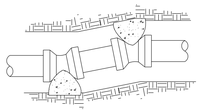
5/14/99

PROJECT DETAILS

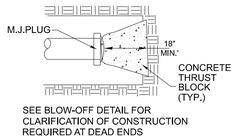


ELBOW



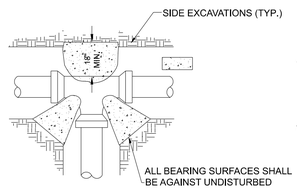


HORIZONTAL BEND

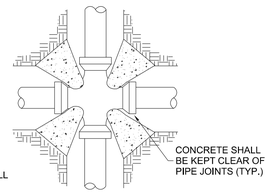


SEE BLOW-OFF DETAIL FOR CLARIFICATION OF CONSTRUCTION REQUIRED AT DEAD ENDS

DEAD END



TEE



CROSS

NOTES:

1.) THRUST BLOCKS SHALL BE INSTALLED ON DI WATER DISTRIBUTION LINES 6" THRU 12" DIA. IN THE MANNER SHOWN.

2.) PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.

3.) SAC-CRETE SHALL NOT BE ALLOWED.

4.) NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.

5.) CONCRETE SHALL BE A MINIMUM 3,000 psi.

6.) ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL.

CONCRETE THRUST BLOCK DETAIL

THRUST BLOCKING SCHEDULE						
FITTING SIZE (IN.)	MINIMUM BLOCKING AREA AND VOLUME IN S.F. AND (C.Y.)					
	11 1/4°	22 1/2°	45°	90°	TEE	PLUG
2			0.23 (0.11)	0.38 (0.11)	0.30 (0.11)	0.30 (0.11)
4			0.83 (0.18)	1.35 (0.18)	0.98 (0.18)	0.98 (0.18)
6	0.40 (0.01)	0.80 (0.02)	1.73 (0.20)	3.00 (0.33)	2.17 (0.25)	2.17 (0.25)
8	0.80 (0.02)	1.50 (0.04)	3.08 (0.34)	5.40 (0.60)	3.83 (0.42)	3.83 (0.42)
10	1.20 (0.03)	2.30 (0.07)	4.72 (0.52)	8.40 (0.94)	5.92 (0.66)	5.92 (0.66)
12	1.70 (0.05)	3.30 (0.12)	6.82 (0.75)	12.00 (1.33)	8.48 (0.94)	8.48 (0.94)
16	3.00 (0.33)	5.90 (0.65)	11.60 (0.86)	21.30 (1.57)	15.00 (0.97)	15.00 (0.97)
20	4.60 (0.52)	9.20 (0.76)	18.00 (1.32)	33.30 (3.60)	23.30 (1.87)	23.30 (1.87)
24	6.70 (0.75)	13.20 (0.97)	26.00 (2.28)	48.00 (5.29)	33.60 (3.24)	33.60 (3.24)
30	10.40 (0.77)	20.70 (1.80)	40.60 (4.45)	75.00 (10.30)	52.50 (6.32)	52.50 (6.32)
36	15.00 (1.28)	29.80 (3.11)	58.40 (7.67)	108.0 (17.90)	75.60 (10.90)	75.60 (10.90)

NOTE: Values given are based on 150 psi water pressure and 2000 lb/sf soil bearing capacity. Soils with less bearing capacity such as muck, peat or soft clay will require greater blocking areas and volumes.

The thrust blocking shown above is based on the use of mechanical joint as shown on plans.

PROJECT REFERENCE NO.	SHEET NO.
DF18314.2044188	UC-3B
DESIGNED BY: JMK	
DRAWN BY: JMK	
CHECKED BY: BTB	
APPROVED BY: JMK	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

2/27/2024

NORTH CAROLINA PROFESSIONAL SEAL 14101 ENGINEER JOHN MCKANNAN

UTILITY CONSTRUCTION

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11/14/23

THIS SHEET CORRESPONDS TO ROADWAY PLAN SHEET 4.

5/7/2025

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14101

UTILITY CONSTRUCTION PLANS ONLY

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

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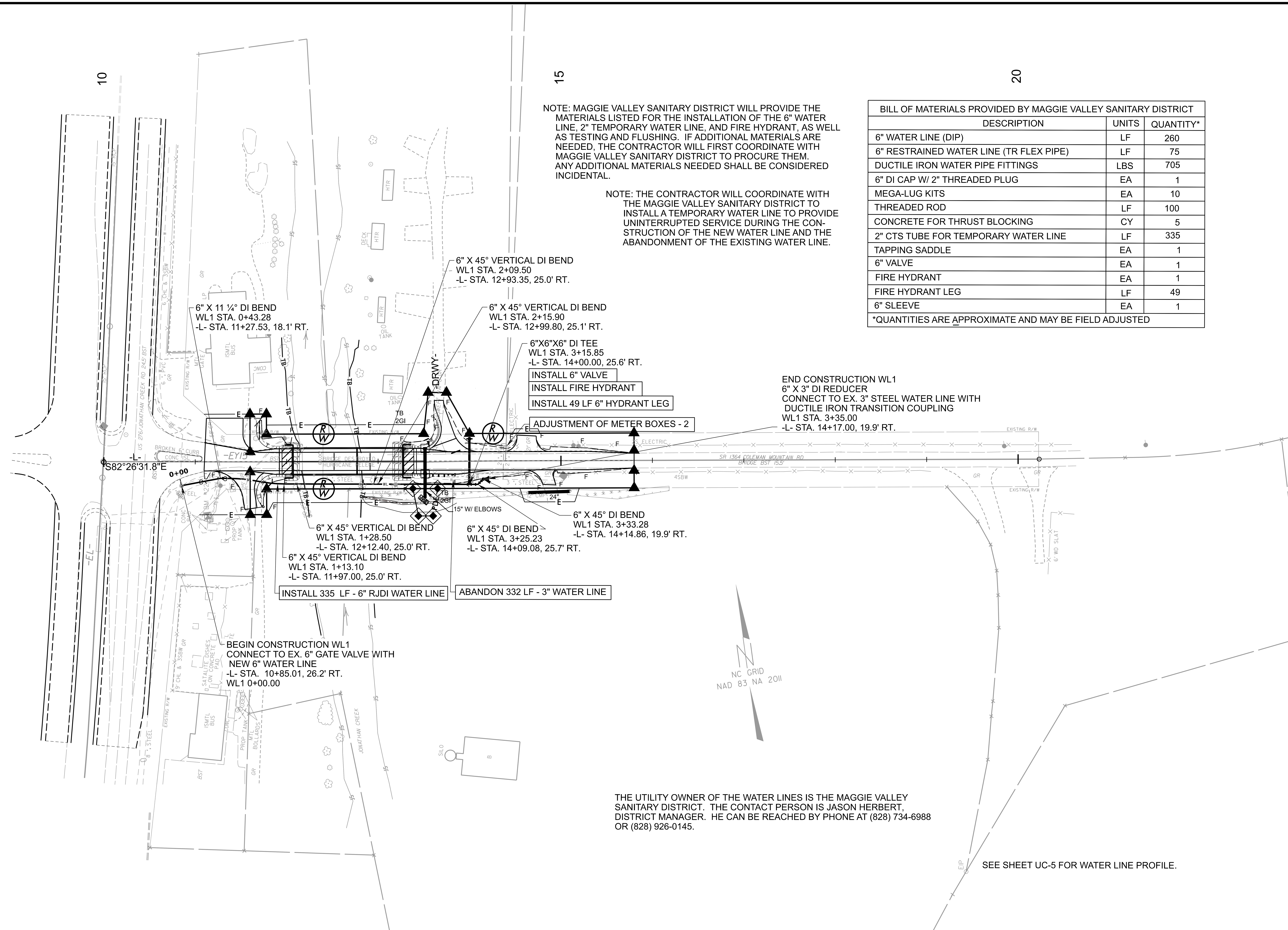
NOTE: MAGGIE VALLEY SANITARY DISTRICT WILL PROVIDE THE MATERIALS LISTED FOR THE INSTALLATION OF THE 6" WATER LINE, 2" TEMPORARY WATER LINE, AND FIRE HYDRANT, AS WELL AS TESTING AND FLUSHING. IF ADDITIONAL MATERIALS ARE NEEDED, THE CONTRACTOR WILL FIRST COORDINATE WITH MAGGIE VALLEY SANITARY DISTRICT TO PROCURE THEM. ANY ADDITIONAL MATERIALS NEEDED SHALL BE CONSIDERED INCIDENTAL.

NOTE: THE CONTRACTOR WILL COORDINATE WITH THE MAGGIE VALLEY SANITARY DISTRICT TO INSTALL A TEMPORARY WATER LINE TO PROVIDE UNINTERRUPTED SERVICE DURING THE CONSTRUCTION OF THE NEW WATER LINE AND THE ABANDONMENT OF THE EXISTING WATER LINE.

BILL OF MATERIALS PROVIDED BY MAGGIE VALLEY SANITARY DISTRICT

DESCRIPTION	UNITS	QUANTITY*
6" WATER LINE (DIP)	LF	260
6" RESTRAINED WATER LINE (TR FLEX PIPE)	LF	75
DUCTILE IRON WATER PIPE FITTINGS	LBS	705
6" DI CAP W/ 2" THREADED PLUG	EA	1
MEGA-LUG KITS	EA	10
THREADED ROD	LF	100
CONCRETE FOR THRUST BLOCKING	CY	5
2" CTS TUBE FOR TEMPORARY WATER LINE	LF	335
TAPPING SADDLE	EA	1
6" VALVE	EA	1
FIRE HYDRANT	EA	1
FIRE HYDRANT LEG	LF	49
6" SLEEVE	EA	1

*QUANTITIES ARE APPROXIMATE AND MAY BE FIELD ADJUSTED



THE UTILITY OWNER OF THE WATER LINES IS THE MAGGIE VALLEY SANITARY DISTRICT. THE CONTACT PERSON IS JASON HERBERT, DISTRICT MANAGER. HE CAN BE REACHED BY PHONE AT (828) 734-6988 OR (828) 926-0145.

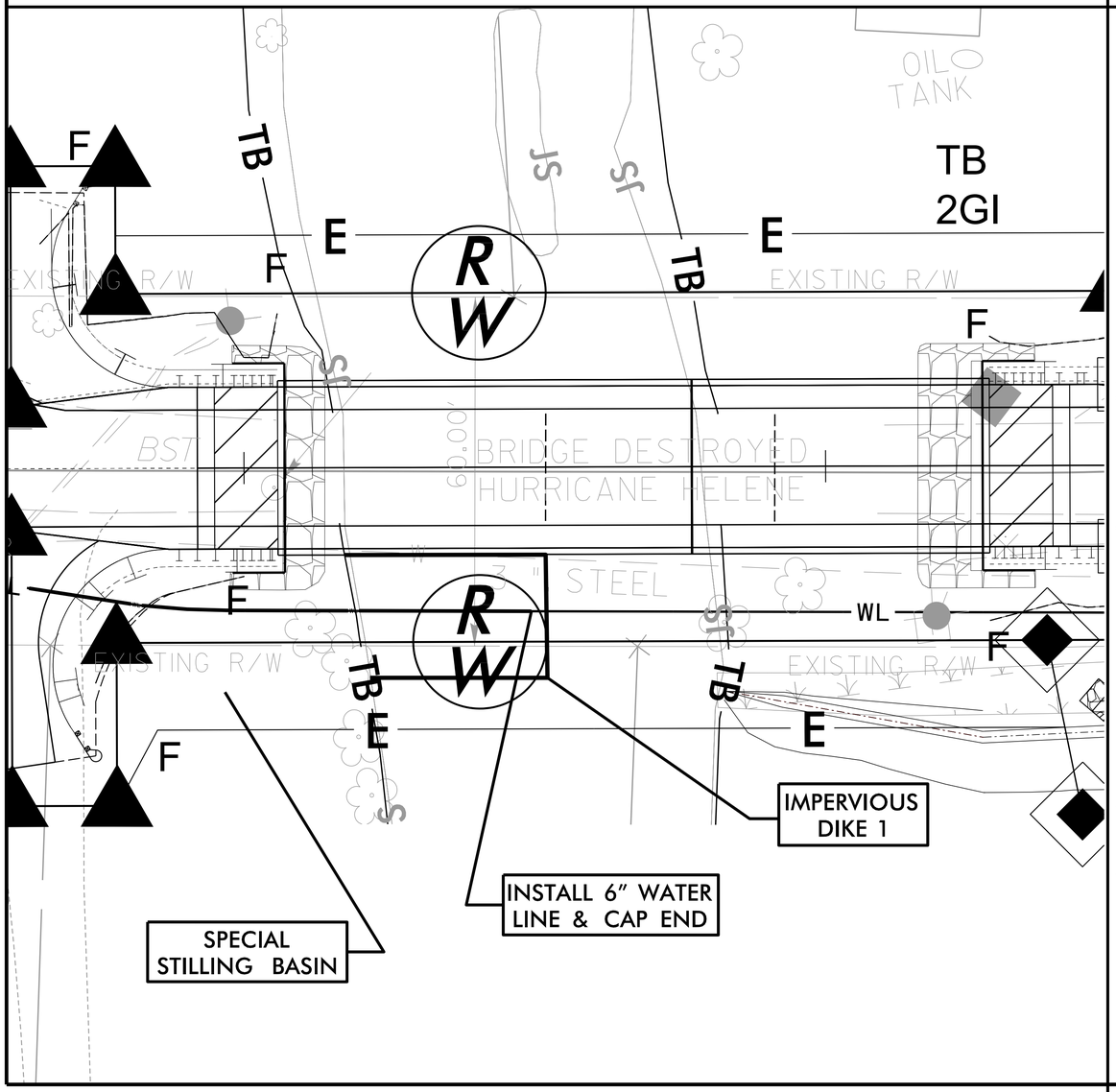
SEE SHEET UC-5 FOR WATER LINE PROFILE.

11/14/23

6" WATER LINE STREAM CROSSING CONSTRUCTION SEQUENCE

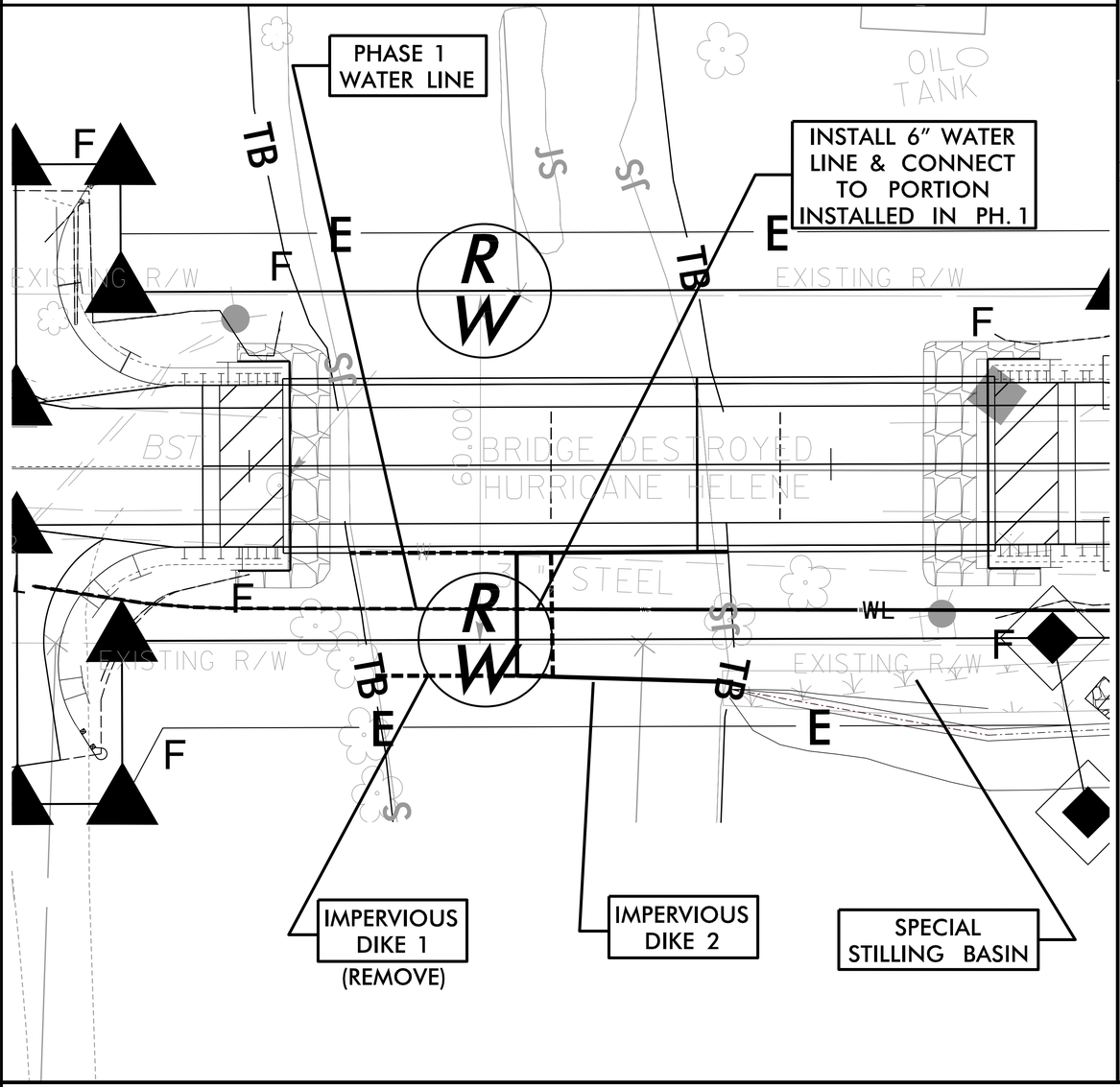
PHASE I

1. INSTALL SPECIAL STILLING BASIN AS NEEDED ON WEST SIDE OF PROPOSED CROSSING FOR DEWATERING.
2. INSTALL IMPERVIOUS DIKE 1 AND DEWATER WORK AREA.
3. CONSTRUCT 6" WATER LINE BEYOND MIDPOINT OF STREAM AND INSTALL TEMPORARY CAP.
4. PLACE CLASS II RIP RAP IN AREA OF DISTURBED CHANNEL BED.
4. BEGIN PHASE II.



PHASE II

1. REMOVE IMPERVIOUS DIKE 1.
2. INSTALL SPECIAL STILLING BASIN ON EAST SIDE OF PROPOSED CROSSING FOR DEWATERING.
3. INSTALL IMPERVIOUS DIKE 2 AND DEWATER WORK AREA.
4. CONSTRUCT REMAINDER OF 6" WATER LINE WITHIN STREAM CHANNEL. CONNECT TO LINE COMPLETED IN PHASE I CONSTRUCTION.
5. PLACE CLASS II RIP RAP IN AREA OF DISTURBED CHANNEL BED.
6. REMOVE IMPERVIOUS DIKE 2.



DFI8314.2044188

UC-4A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

UTILITY CONSTRUCTION PLANS ONLY

PREPARED BY

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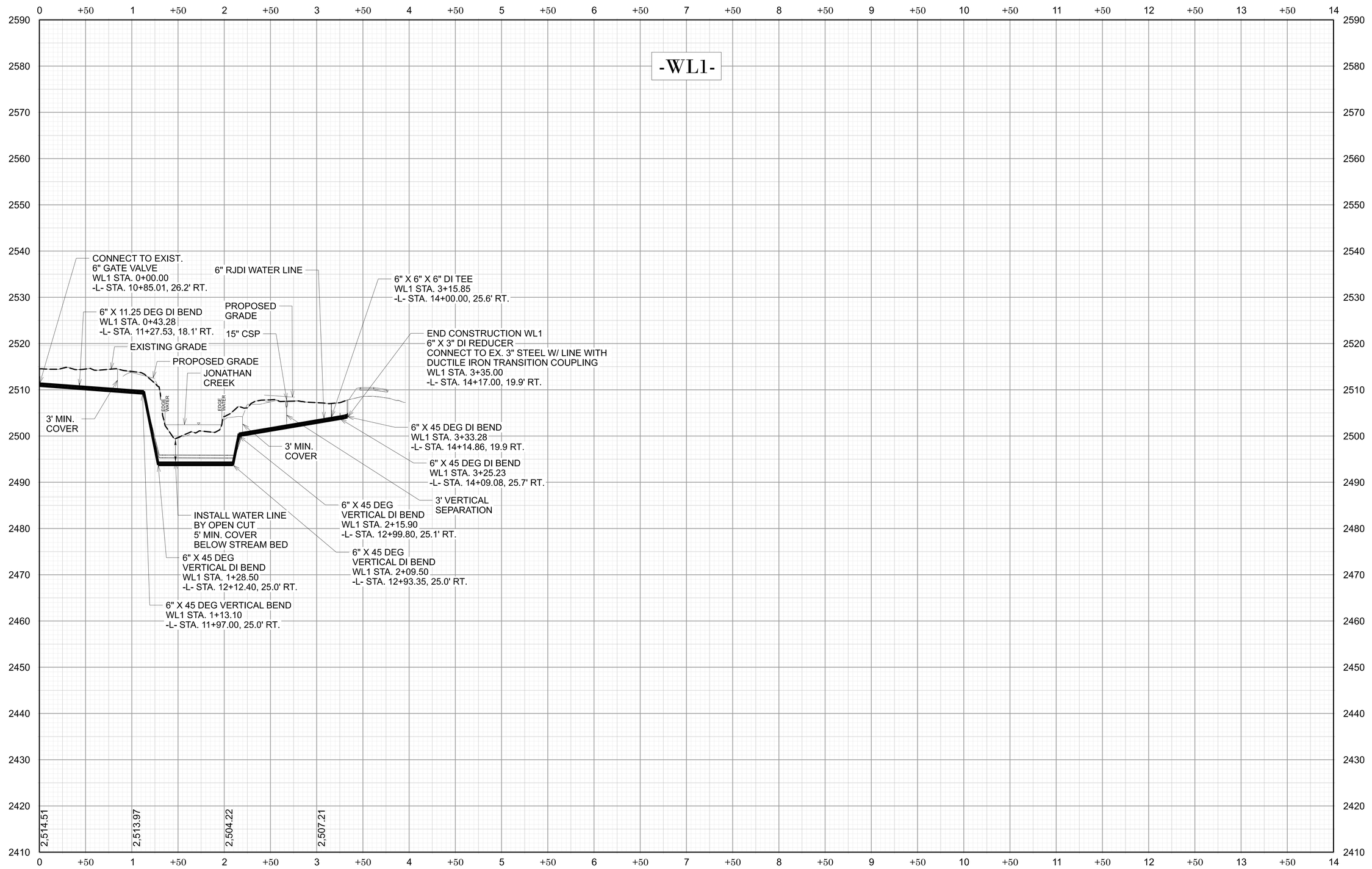
11/14/23



NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14101 JOHN M. KAMPSEN 4/14/2023

UTILITY CONSTRUCTION PLANS ONLY

PREPARED BY

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Raleigh, NC 27606

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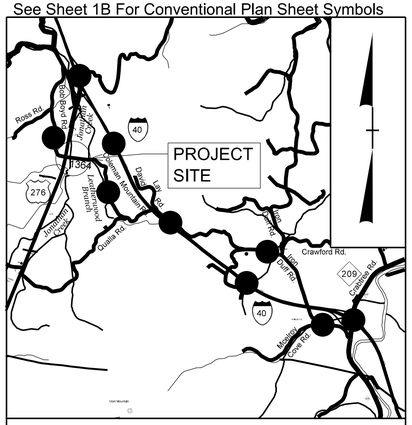
10/28/24

TIP PROJECT: DF18314.2044188

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



VICINITY MAP (NTS)

DETOUR ROUTE

100% PLANS SUBMITTAL SET

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

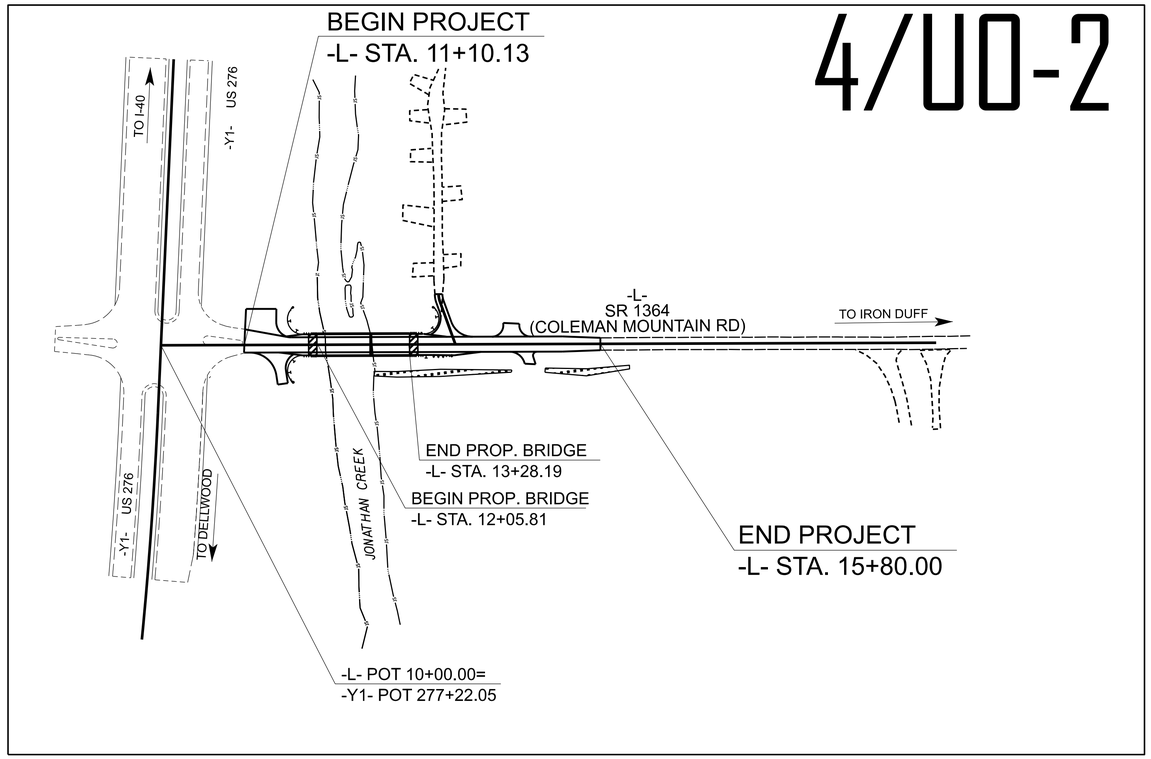
UTILITIES BY OTHERS PLANS
HAYWOOD COUNTY

T.I.P. NO.	SHEET NO.
DF18314.2044188	UO–1

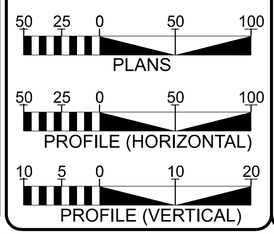
NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

LOCATION: REPLACE BRIDGE #430046 ON SR 1364 (COLEMAN MOUNTAIN ROAD) OVER JONATHAN CREEK

TYPE OF WORK: POWER AND COMMUNICATION RELOCATION



GRAPHIC SCALES



INDEX OF SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER HAYWOOD EMC
(B) COMMUNICATION AT&T
(C) COMMUNICATION CHARTER
(D) COMMUNICATION ZITO MEDIA

Prepared in the Office of:

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MATTHEW WARD *UTILITY COORDINATOR*

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ROBERT GOLDING *DIV. UTILITY ENGINEER*
JOSH DEYTON, PE *DIV. CONSTRUCTION ENGINEER*
JARED BOND *PROJECT MANAGER*

5/26/20

DF18314.2044188

U02

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

UTILITIES UNIT

PREPARED BY

SAM

NAD 83/2011

HAYWOOD EMC SWITCH

ZITO MEDIA U/G LINE TO TIE TO EXISTING & ATTACH RISER

O/H POWER & COMM (HAYWOOD EMC, & ZITO MEDIA)

O/H POWER & COMM (HAYWOOD EMC, CHARTER, AT&T, & ZITO MEDIA)

U/G COMM HH (AT&T)

O/H POWER & COMM (HAYWOOD EMC, CHARTER, AT&T& ZITO MEDIA)

HAYWOOD EMC SWITCH

ABANDON

U/G POWER (HAYWOOD EMC)

ABANDON

U/G COMM & ATTACH RISER (AT&T)

U/G COMM HH (AT&T)

ABANDON

O/H POWER IS ENERGIZED. COMMUNICATION LINES ARE ACTIVE. BEFORE WORKING WITH EQUIPMENT WITHIN THE REQUIRED OFFSET, THE CONTRACTOR SHALL GIVE HAYWOOD E.M.C. 48 CONSECUTIVE BUISINESS HOURS TO DE-ENERGIZE, GROUND, & INSTALL A VISUAL COVER.

THE CONTRACTOR WILL ALSO NOTIFY CHARTER, AT&T, & ZITO MEDIA OF THIS WORK & NOTIFY THE UTILIYT OWNER OF ANY DAMAGES.

SEE UTILITY PROJECT SPECIAL PROVISIONS FOR MORE INFORMATION.

P1 P2 P3 P4 P5 P6 P7

1 CTE COMPANY, LLC BK 894 PG 1538 CAB B SLOT 47 (G5)

2 HANK AARON ROSS BK 1006 PG 166 CAB D SLOT 883

3 HANK AARON ROSS BK 957 PG 861 CAB C SLOT 8100

4 SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY BK 325 PG 431 CAB B SLOT 215 (K72)

5 JEFF LIEBRECHT BK 983 PG 177 CAB B SLOT 215 (G7)

6 HOBERT DEAN ROSS, HOBERT DEAN ROSS/TR BK 838 PG 709

THEODORE E MARCUS, LAUREN K MARCUS BK 1017 PG 563

S82°26'31.8"E

SR 1364 COLEMAN MOUNTAIN RD BRIDGE BST 155

Other, 5 ", PVC, Maggie Valley Sanitary District (S/M per Water Dept.)