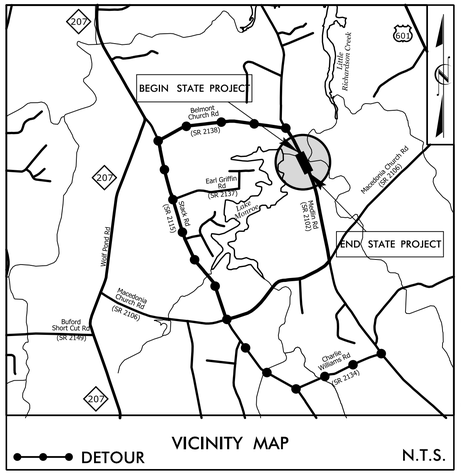
PROJECT TIP: BP10–R008

CONTRACT: DJ00546

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



FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

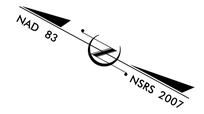
UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10–R008	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.10.R.127		P.E.
17BP.10.R.127		R /W & UTILITY
BP10.R008.3		CONSTRUCTION

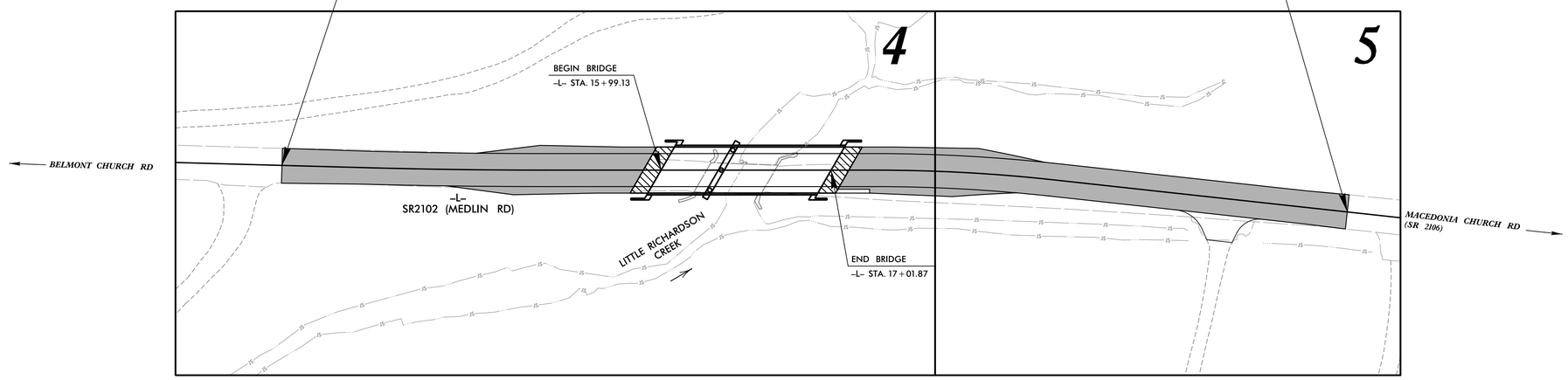
LOCATION: BRIDGE #890146 OVER LITTLE RICHARDSON CREEK ON SR 2102 (MEDLIN RD)

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



BEGIN STATE PROJECT TIP BP10–R008
–L– STA. 13 + 70.00

END STATE PROJECT TIP BP10–R008
–L– STA. 20 + 15.00



GRAPHIC SCALES

PLANS: 20 10 0 20 40

PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2025 = 1800
ADT 2045 = 3300
DHV = N/A
D = N/A
T = 6%
V = 45 MPH

FUNC. CLASSIFICATION: MINOR COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT TIP BP10–R008 = 0.103 MILES

LENGTH OF STRUCTURE PROJECT TIP BP10–R008 = 0.019 MILES

TOTAL LENGTH OF PROJECT TIP BP10–R008 = 0.122 MILES

NCDOT CONTACT: YANWEI MA, PE
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:

stv
STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F–0991

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 31, 2019

LETTING DATE:
MARCH 5, 2025

ROBERT M. KIRK, PE
PROJECT ENGINEER

CLARK E. GROVES
PROJECT DESIGNER

HYDRAULICS ENGINEER
1/17/2025
NORTH CAROLINA PROFESSIONAL SEAL 056663 ENGINEER CELINA ROCHIS CASARU P.E.
Signed by: Celina Rochis Casaru
DocuSigned by:
SIGNATURE:

ROADWAY DESIGN ENGINEER
1/17/2025
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M KIRK P.E.
Signed by: Robert M Kirk
DocuSigned by:
SIGNATURE:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

1/17/2025
R:\Roadway\Proj\SHT\R127_rdy_psh01_tsh.dgn
owensc

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

Signed by: Robert M. Kirk

NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

1/31/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

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

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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE SHOWN ON THE PLANS OR AS 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.

RIGHT-OF-WAY MARKERS:

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

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January, 2024

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - 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
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 4 - MAJOR STRUCTURES	
423.03	Bridge Approach Fills - Type 2 Approach FILL for 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	
840.20	Frames and Wide Slot Flat Grates
840.29	Frame and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet- for Cas Iron Double Frames and Grates
846.01	Concrete Curb, Gutter, and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels and Ditches
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1101.03	Temporary Road Closures
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01	Barricades - Type III

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage/Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

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

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

1/14/2025
R:\Roadway\Proj\SHT\R\27_rdy_psh01B.dgn
owensc

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
Signed by: Robert M. Kirk
C69B9A1B4B1F4F1...
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK
1/13/2025

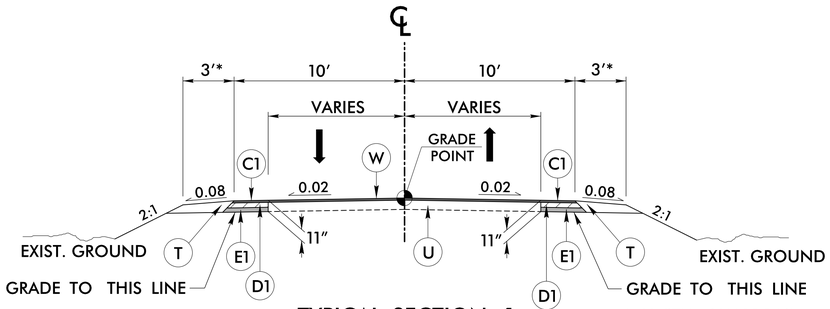
PAVEMENT DESIGN ENGINEER

PAVEMENT DESIGN PROVIDED BY NCDOT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

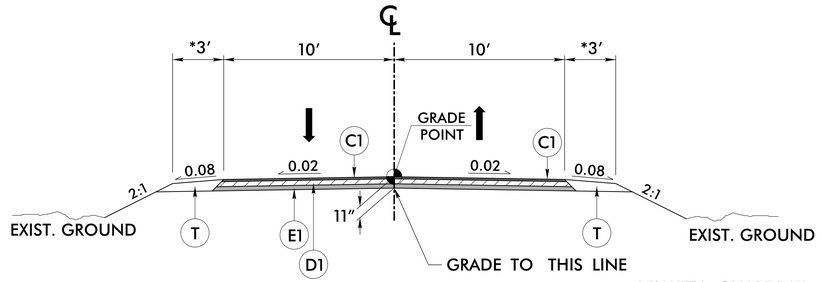
	PAVEMENT SCHEDULE
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD, PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" 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 3.0" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	PAVEMENT WEDGING

ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



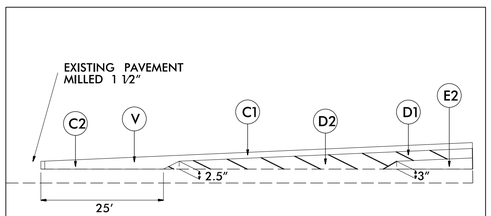
TYPICAL SECTION 1

–L– STA. 13+70.00 TO 14+96.00
–L– STA. 19+35.00 TO 20+15.00

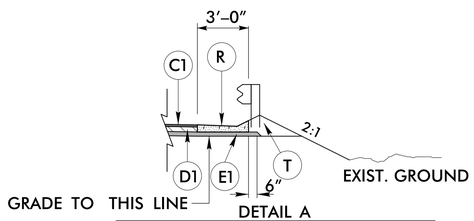


TYPICAL SECTION 2

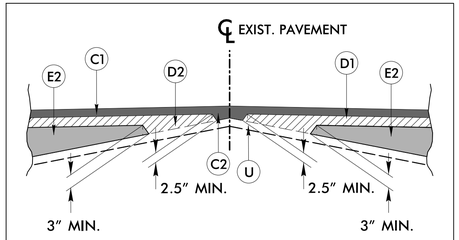
–L– STA. 14+96.00 TO 15+99.13 (BEGIN BRIDGE)
–L– STA. 17+01.87 (END BRIDGE) TO 19+35.00



MILLING DETAIL FOR PROFILE CONNECTIONS
TYING PROPOSED PAVEMENTS TO EXISTING PAVEMENTS
–L– STA. 13+70.00 TO 13+95.00
–L– STA. 19+90.00 TO 20+15.00



DETAIL A
–L– STA. 17+06.73 TO 17+09.91 (RT)



WEDGING DETAIL

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	3B-1

EARTHWORK SUMMARY (IN CUBIC YARDS)

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
–L–	13+70.00	15+99.13	LT & RT	50		450	400	
–L–	17+01.87	20+15.00	LT & RT	119		791	672	
TOTAL				169		1240	1072	
LOSS DUE TO CLEARING AND GRUBBING								
WASTE IN LIEU OF BORROW								
PROJECT TOTAL				169		1240	1072	
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS							54	
GRAND TOTAL				169		1240	1126	
SAY							1130	

DDE = 200 CY

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–L–	16+94	20+15	RT	142
			TOTAL:	142
			SAY:	145

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	C.S. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	CLASS IV R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
–L– STA. 17+19	RT	402	401	503.43	500.40	500.20			20																						
TOTAL									20'																						

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G			D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	T.B.J.B. STD. 840.34	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	T.B.G.D.I STD. 840.35						15" C.S. ELBOW	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
–L– STA. 17+19						1																	1		1						2				
TOTAL						1																	1		1						2				

ABBREVIATIONS

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

* W MEASURED FROM "N" AT THE BEGINNING OF THE ANCHOR TO "N" AT THE END OF THE ANCHOR.
"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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W* APPROACH END	W* TRAILING END	ANCHORS XI MOD	B-77	GREU TL-3	M-350	TYPE III	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	15+09.91	15+91.09	RT	81.25			15+91.09		3.9–4.9	3.9 – 4.9	50		1.0				1		1											
–L–	15+25.91	16+07.16	LT	81.25				16+07.16	3.9–4.9	3.9 – 4.9		50		1.0			1		1											
–L–	16+93.84	17+75.76	RT	81.25				17+75.76	3.9–4.9	3.9 – 4.9	50		1.0				1		1											
–L–	17+09.91	17+90.25	LT	81.25			17+90.25		3.9–4.9	3.9 – 4.9		50		1.0			1		1											
			TOTAL:	325													4 EA		4 EA											
			TOTAL ANCHOR LENGTH:	275																										
			TOTAL GUARDRAIL LENGTH:	50																										
			SAY:	50 LF			ADD 5' G/R POSTS																							

COMPUTED BY: __ PFT 1/27/2025	
CHECKED BY: _____ DATE: _____	

(9-17-24)

PROJECT NO.	SHEET NO.
BP10-R008	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

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

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

8/17/99

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

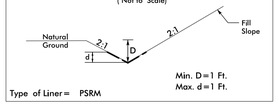
PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
Signed by: Robert M. Klink
SEAL 042069 NORTH CAROLINA PROFESSIONAL ENGINEER ROBERT M. KLINK 7/30/2025

HYDRAULICS ENGINEER
Signed by: Celina G. Boch
SEAL 056663 NORTH CAROLINA PROFESSIONAL ENGINEER CELINA BOCH CASTILLO 7/30/2025

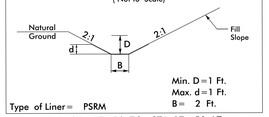
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



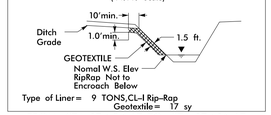
Min. D=1 Ft.
Max. d=1 Ft.
Type of Liner= PSRM
FROM STA. 14+00 TO STA. 15+65 RT

DETAIL B
SPECIAL BASE DITCH
(Not to Scale)



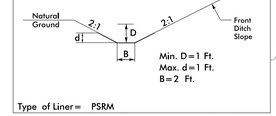
Min. D=1 Ft.
Max. d=1 Ft.
B= 2 Ft.
Type of Liner= PSRM
FROM STA. 17+16 TO STA. 17+50 LT

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 9 TONS,CL-I Rip-Rap
Geotextile= 17 sy
FROM STA. 17+06 LT TO STA. 17+16 LT

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D=1 Ft.
Max. d=1 Ft.
B=2 Ft.
Type of Liner= PSRM
FROM STA. 17+50 TO STA. 20+00 LT

NAD 83 NSRS 2007

JAMES RANDY MULLIS
DB 606 PG 268

13+00 14+00 15+00 16+00 17+00

BLK WALL

BEGIN STATE PROJECT TIP BP10-R008
-L- STA 13+70.00

① JAMES RANDY MULLIS
SUSAN W. MULLIS
DB 595 PG 465

POT Sta. 13+00.00

PC Sta. 14+19.97

PT Sta. 15+28.89

PC Sta. 17+28.34

50' TAPER (LT & RT)

+19.95

+24.61
30.00'

+95.70
48.00'

+95.54
37.87'

+25.91
14.91'

+09.91
14.96'

+20.00

20' (TYP)

+00.00
30.00' & 40.00'

SPECIAL LATERAL 'V' DITCH
147 SY PSRM
(SEE DETAIL A)

BEGIN APPROACH SLAB
-L- STA. 15+88.43

+83.00
60.00' & 66.00'

+88.00
60.00' & 66.00'

END APPROACH SLAB
-L- STA. 17+12.57

+28.34
60.00'

SPECIAL BASE DITCH
11 CY DDE
37 SY PSRM
(SEE DETAIL B)

RIPRAP AT EMBANKMENT
EST. 9 TON CL-I RIPRAP
EST. 17 SY GEOTEXTILE
(DETAIL C)

SPECIAL CUT BASE DITCH
278 SY PSRM
(SEE DETAIL D)

+73.35
59.00'

③ GRADY REID HILL
JUDY F. HILL
DB 507 PG 384

BM2
+55.42
43.59

+90.25
15.00

BL-4
+23.42
11.53

EST. 150 CY
UNCLASSIFIED EXCAVATION

EST. 190 CY
UNCLASSIFIED EXCAVATION
85 TON
CL-II RIPRAP (TYP.)
SEE STRUCTURES PLANS

125 TON
CL-II RIPRAP
(SEE STRUCTURES PLANS)

BEGIN BRIDGE
-L- STA. 15+99.13

END BRIDGE
-L- STA. 17+01.87

+18.00
40.00' & 60.00'

CHANNEL CHANGE
EST. 180 C.Y. DDE
EST. 73 TON CL-II RIPRAP
EST. 160 S.Y. GEOTEXTILE
(SEE DETAIL E)

+40.00
37.76' & 60.00'

END SBG
+25.09, 11.58'

+75.76
14.92'

MATCHLINE -L- STA 18+00 (SHEET 5)

② CITY OF MONROE
DB 130 PG 138
DB 130 PG 150

S 26° 53' 58.3" E

S 28° 27' 35.0" E

SR 2102
(MEDLIN ROAD)

-L-

8:1

GREU TL-3

TYPE-III

TB 2GI

Ø402

Ø401

15" RCP

18" RCP

EXISTING R/W

BST

GR

SOIL

MTL

EOM

4.23'

60.00'

N 76°43'25" W 209.45'

LITTLE RICHARDSON CREEK

JS

ST

N 02°00'20" E 109.90'

N 28°54'44" E 63.24'

BUCK BRANCH S 69°49'40" E 37.14'

S 43°10'22" E 31.34'

N 88°55'58" E 50.00'

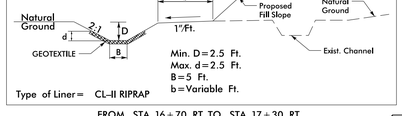
S 73°10'58" E 36.59'

N 64°34'17" W 64.09'

-L- CURVE DATA
PI Sta 14+74.44
Δ = 1° 33' 36.7" (LT)
D = 1° 25' 56.6"
L = 108.92'
T = 54.46'
R = 4,000.00'

-L- CURVE DATA
PI Sta 17+81.97
Δ = 6° 13' 59.5" (RT)
D = 5° 49' 00.6"
L = 107.16'
T = 53.63'
R = 985.00'

DETAIL E
CHANNEL CHANGE
(Not to Scale)



Min. D=2.5 Ft.
Max. d=2.5 Ft.
B=5 Ft.
b=Variable Ft.
Type of Liner= CL-II RIPRAP
FROM STA. 16+70 RT TO STA. 17+30 RT

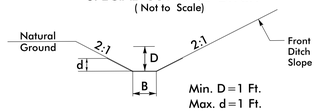
NOTE: INCIDENTAL MILL APPROXIMATELY 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING PAVEMENT

SEE SHEET 6 FOR -L- PROFILE

7/28/2025
K:\Projects\Monroe\Bypass\Proj\SHT\R127_rdy_pshts04.dgn

8/17/99

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)



Type of Liner = PSRM

FROM STA. 17+50 TO STA. 20+00 LT

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
Signed by: Christopher Peterson
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK
11/12/2025

HYDRAULICS ENGINEER
Signed by: Celina Boch
NORTH CAROLINA PROFESSIONAL SEAL 056663 ENGINEER CELINA BOCH-15-CELARD
11/12/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83 NSRS 2007

19+00 20+00 21+00

PT Sta. 18+35.49

POT Sta. 22+12.58

MATCHLINE -L- STA 18+00 (SHEET 4)

③ GRADY REID HILL
JUDY F. HILL
DB 507 PG 384

② CITY OF MONROE
DB 130 PG 138
DB 130 PG 150

ARUN K. BAHL
RAYETTA L. BAHL
DB 440 PG 073

DAVID A. GARDNER
NATENA G. GARDNER
DB 5225 PG 409

SPECIAL CUT BASE DITCH
278 SY PSRM
(SEE DETAIL D)

END STATE PROJECT TIP BP10-R008
-L- STA 20+15.00

SR 2102
(MEDLIN ROAD)
S 22°13'35.5" E

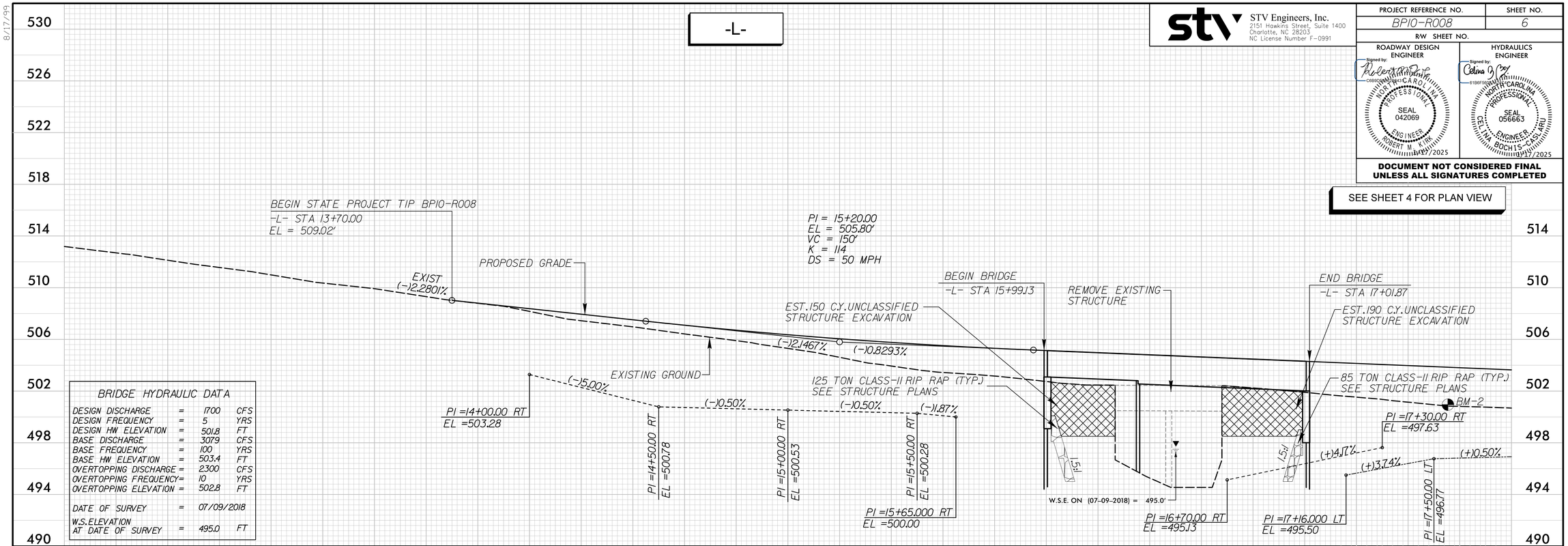
-L- CURVE DATA
PI Sta 17+81.97
Δ = 6°13'59.5" (RT)
D = 5°49'00.6"
L = 107.16'
T = 53.63'
R = 985.00'

NOTE: INCIDENTAL MILL APPROXIMATELY 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING PAVEMENT

SEE SHEET 6 FOR -L- PROFILE

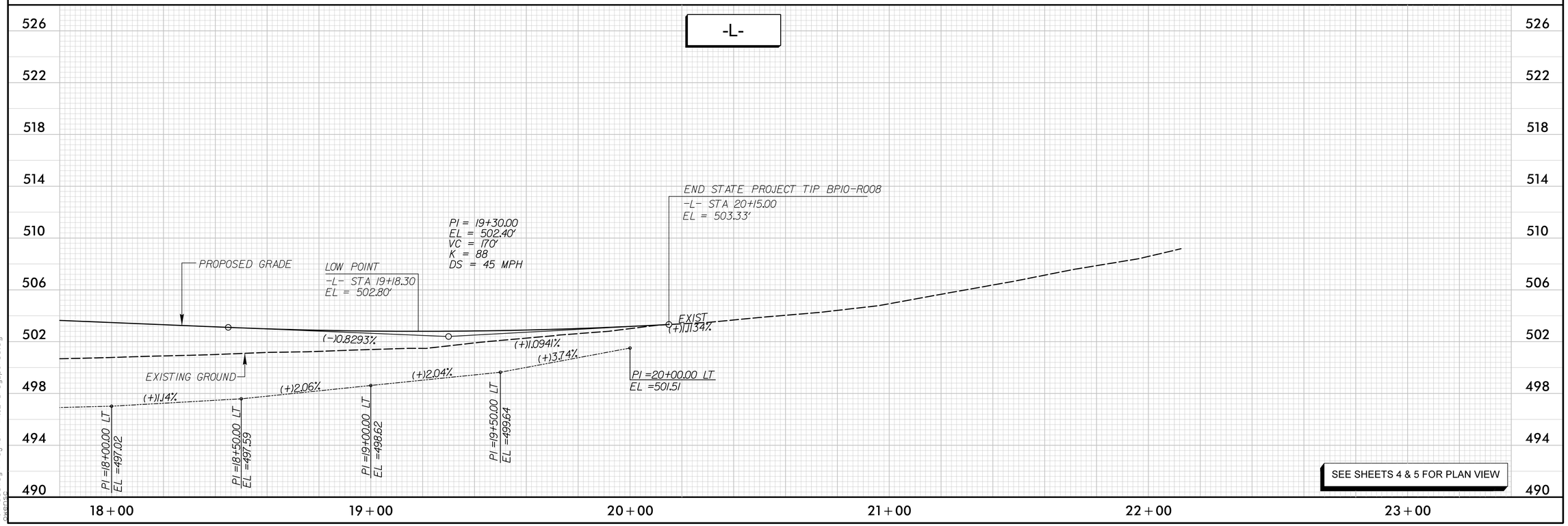
11/4/2025
K:\Roadway\Proj\SHT\R127_rdy_psh05.dgn
dwerse

8/17/99



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1700	CFS
DESIGN FREQUENCY	=	5	YRS
DESIGN HW ELEVATION	=	501.8	FT
BASE DISCHARGE	=	3079	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	503.4	FT
OVERTOPPING DISCHARGE	=	2300	CFS
OVERTOPPING FREQUENCY	=	10	YRS
OVERTOPPING ELEVATION	=	502.8	FT
DATE OF SURVEY	=	07/09/2018	
W.S.ELEVATION AT DATE OF SURVEY	=	495.0	FT



SEE SHEET 4 FOR PLAN VIEW

SEE SHEETS 4 & 5 FOR PLAN VIEW

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
Signed by: Robert M Kirk
Date: 8/19/2025
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

HYDRAULICS ENGINEER
Signed by: Celina Boch Clark
Date: 8/19/2025
NORTH CAROLINA PROFESSIONAL SEAL 056663 ENGINEER CELINA BOCH CLARK

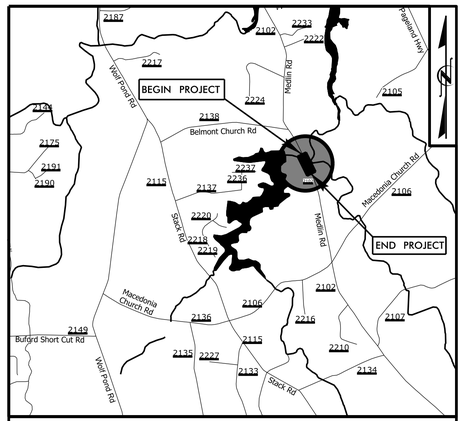
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/19/2025
K:\Roadway\Proj\SHT\R\127_rdy_psh06.dgn
dwensing

11/27/19

TIP PROJECT: 89-0146

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



VICINITY MAP — DETOUR — N.T.S.

RIGHT-OF-WAY PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

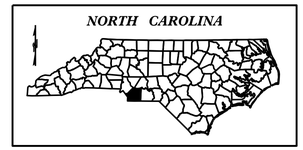
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

UNION COUNTY

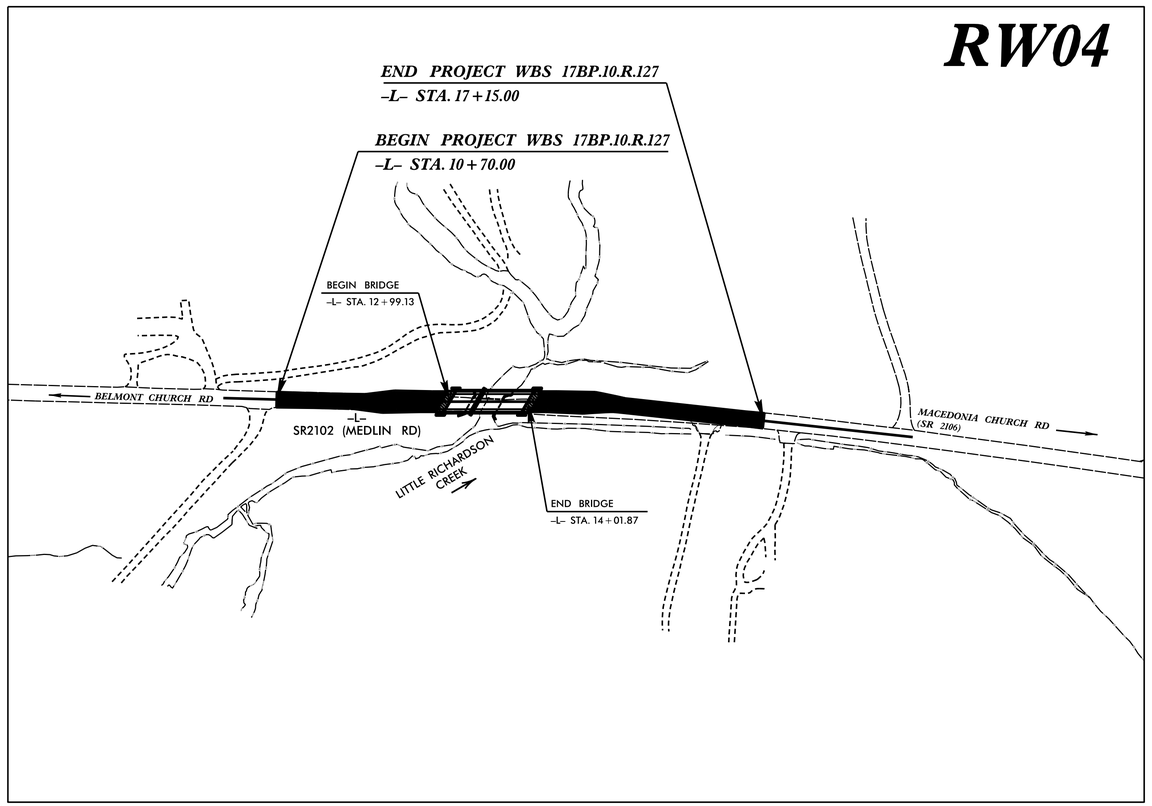
LOCATION: BRIDGE #890146 OVER BUCK BRANCH ON SR 2102 (MEDLIN RD)

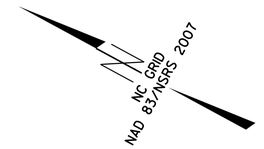
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.127	RW01	



RW04





THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE

50 25 0 50 100
PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5120-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 435,524.928(ft) EASTING: 1,546,518.377(ft) ELEVATION: 538.54(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5120-2" TO -L- STATION 10+00 IS N 23°26'47.7" W 1,594.74(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

TAYLOR WISEMAN & TAYLOR
ENGINEERS ▮ SURVEYORS ▮ SCIENTISTS
SUBSURFACE UTILITY ENGINEERS

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *APRIL 4, 2019*

LETTING DATE: *JANUARY 15, 2020*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4650 LAND SURVEYOR JAMES M. PEARSALL

DocuSigned by: James Pearsall
CBE0D7D61409469...
SIGNATURE:

11/27/2019
Date:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.127	RW02C

Location and Surveys

TAYLOR WISEMAN & TAYLOR
ENGINEERS | SURVEYORS | SCIENTISTS
SUBSURFACE UTILITY ENGINEERS

BL

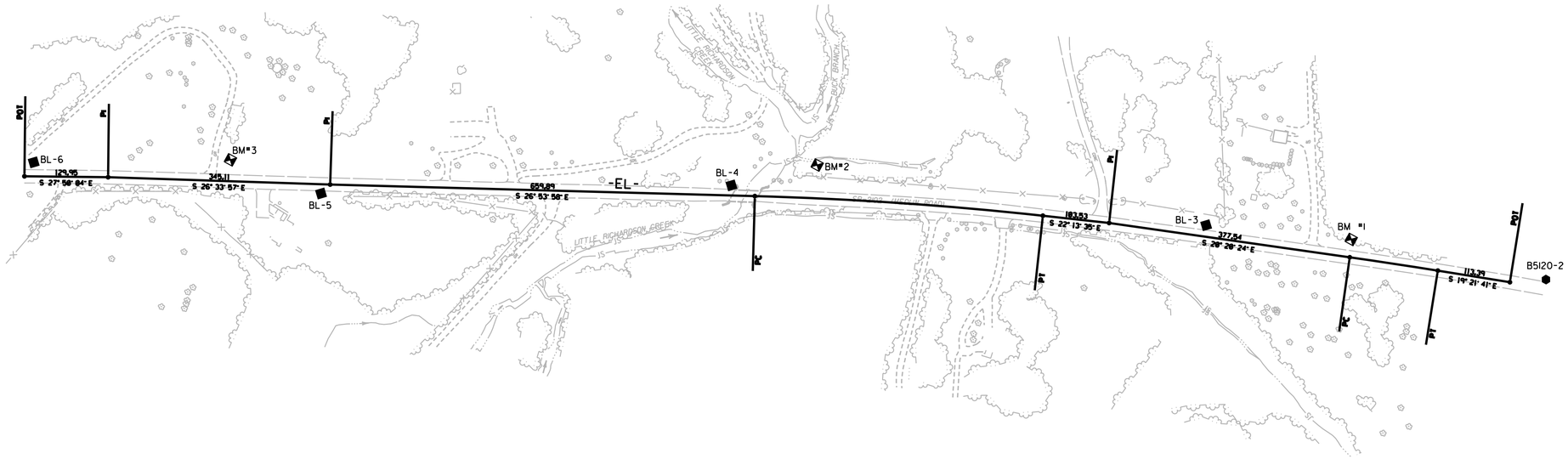
POINT	DESC.	NORTH	EAST	ELEVATION
119	UNION HM119	434375.4970	1546713.9570	554.86
1	B5120-1	434673.0860	1546708.9410	550.09
2	B5120-2	435524.9280	1546518.3770	538.54
3	BL-3	436029.1810	1546340.9110	515.80
4	BL-4	436706.9410	1546043.8970	502.02
5	BL-5	437261.3410	1545729.0730	519.12
6	BL-6	437676.7710	1545558.9080	536.34

NC GRID
NAD 83/NSRS 2007

BM1 ELEVATION = 525.62
N 435821 E 1546429
RR SPIKE IN POWER POLE

BM2 ELEVATION = 500.95
N 436605 E 1546135
RR SPIKE IN 15" BIRCH

BM3 ELEVATION = 530.96
N 437410 E 1545708
RR SPIKE IN POWER POLE



EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	437679.125	1545533.091							
LINE			S 27°50'03.7" E	129.95					
POT	437564.206	1545593.769							
LINE			S 26°33'57.1" E	345.11					
POT	437255.531	1545748.112							
LINE			S 26°53'58.3" E	659.89					
PC	436667.041	1546046.664							
CURVE			S 24°33'46.9" E	448.45	04°40'22.8"(RT)	01°02'30.3"	448.58	224.41	5500.00
PT	436259.173	1546233.082							
LINE			S 22°13'35.5" E	103.53					
POT	436163.339	1546272.243							
LINE			S 20°20'23.7" E	377.54					
PC	435809.340	1546403.472							
CURVE			S 19°51'02.3" E	138.34	00°58'42.8"(RT)	00°42'26.5"	138.34	69.17	8100.00
PT	435679.221	1546450.447							
LINE			S 19°21'40.8" E	113.39					
POT	435572.243	1546488.039							

NOTES:

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

REVISIONS

11/27/19

27-NOV-2019 10:54
G:\CAD\06600\06615 - NCDOT 2019\06615.6110.00 - dl0-rw_con_twt\89-0146\dwg\Microstation\r-127_ls_rw02c.dgn
Walker AT TWT710

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.127	RW02D
Location and Surveys	

TAYLOR WISEMAN & TAYLOR
ENGINEERS ▮ SURVEYORS ▮ SCIENTISTS
SUBSURFACE UTILITY ENGINEERS

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	436987.9906	1545883.8402
PC	11+19.97	436881.0006	1545938.1182
PT	12+28.89	436784.5461	1545988.7142
PC	14+28.34	436609.2051	1546083.7571
PT	15+35.49	436512.4076	1546129.6022
POT	19+12.58	436163.3390	1546272.2430

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

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

REVISIONS

11/27/19

27-NOV-2019 10:55
D:\CAD Design\06615 - NCDOT 2019\06615.6110.00 - d10rw.con_twt\89-0146\dwg\Microstation\r-127_ls_rw02d.dgn
Walker AT TWT710

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.127	RW03E

Location and Surveys

TAYLOR WISEMAN & TAYLOR
ENGINEERS | SURVEYORS | SCIENTISTS
SUBSURFACE UTILITY ENGINEERS

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4650 LAND SURVEYOR JAMES M. PEARSALL

DocuSigned by: James Pearsall C8F097DB1409449...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, JAMES M. PEARSALL, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, Planimetrics, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further 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.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 27th day of November, 2019.

DocuSigned by: James Pearsall C8F097DB1409449...

Professional Land Surveyor   L-4650 PLS #   Seal

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST	
L	11+00.00	40.00	436880.7134	1545893.4109	
L	11+00.00	30.00	436885.2377	1545902.3289	
L	11+24.61	-30.00	436890.4710	1545966.9565	
L	13+18.00	40.00	436687.1462	1545996.0110	
L	13+18.00	60.00	436677.6154	1545978.4280	
L	14+28.34	-60.00	436637.7975	1546136.5062	NOT SET
L	14+40.00	60.00	436570.9527	1546036.1703	
L	14+40.00	37.76	436581.3187	1546055.8467	
L	16+78.87	-28.47	436390.4525	1546210.1895	

PERMANENT EASEMENT MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+95.54	-37.87	436831.7078	1546006.3855
L	11+95.70	-48.00	436836.3164	1546015.4051
L	12+83.00	-66.00	436768.4299	1546072.5222
L	12+83.00	-60.00	436765.5706	1546067.2473
L	12+88.00	-66.00	436764.0341	1546074.9050
L	12+88.00	-60.00	436761.1749	1546069.6300
L	14+73.35	-59.00	436594.8681	1546157.3985
L	16+19.28	-47.45	436452.7919	1546205.2178
L	16+20.14	-45.56	436451.2827	1546203.7969
L	16+23.83	-49.52	436449.3646	1546208.8583
L	16+31.29	-33.16	436436.2780	1546196.5382

NOTES:

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

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

11/27/19

27-NOV-2019 11:00
O:\CAD\06600\06615 - NCDOT 2019\06615.6110.00 - d10rw_con_twt\89-0146\dwg\Microstation\r_127_ls_rw03e.dgn
walker AT TWT120

I, JAMES M. PEARSALL, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work (Items) (Base map Compilation, Planimetrics, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further 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.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 27th day of November, 2019.

DocuSigned by: James Pearsall
C8F097DB1409449...

Professional Land Surveyor — L-4650 PLS * — Seal

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.127	RW04

Location and Surveys

TAYLOR WISEMAN & TAYLOR
ENGINEERS ▮ SURVEYORS ▮ SCIENTISTS
SUBSURFACE UTILITY ENGINEERS

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4650 LAND SURVEYOR JAMES M. PEARSALL

DocuSigned by: James Pearsall
C8F097DB1409449...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

11/27/19

N 85°41'08" E 282.48'

LOUISE CLARK SUTTON
HUBERT CLARK
CURLEE DURIN
DB 1304 PG 835

N 59°22'30" E 113.88'

N 18°05'48" W 196.03'

60.00'

N 16°43'25" W 428.55'

N 29°44'07" W 323.99'

NC GRID
NAD 83/NSRS 2007

LITTLE RICHARDSON CREEK

JAMES RANDY MULLIS
DB 606 PG 268

N 02°00'20" E 103.30'

N 28°54'44" E 63.44'

S 43°10'22" E 31.34'

N 78°35'33" E 38.73'

S 88°59'40" E 37.76'

N 88°50'59" E 50.08'

PT Sta. 12+28.89

PC Sta. 11+19.97

① JAMES RANDY MULLIS
SUSAN W. MULLIS
DB 595 PG 465

+95.70 48.00'
+95.54 37.87'
+83.00 60.00' 66.00'
+88.00 60.00' 66.00'
+51.16 34.82'
+24.61 30.00'
+28.34 60.00'
+73.35 59.00'
PUE

③ GRADY REID HILL
JUDY F. HILL
DB 507 PG 384

PT Sta. 15+35.49

+19.28 47.45'
+20.14 45.56'
+23.83 49.52'
+31.29 33.16'
+78.87 28.47'

POT Sta. 19+12.58

S 73°05'58" E 56.55'

S 26°53'58.3" E -L- S 28°27'35.0" E

SR-2102 (MEDLIN ROAD)

-L- S 22°13'35.5" E

EXISTING R/W

S 29°44'14" E 180.05'

0.61' (EIP-COR)

EIP

S 10°19'45" E 172.58'

60.00'

POT Sta. 10+00.00

AFRICA O. HEATH
DB 1825 PG 877

ECM

+00.00 EX. R/W 40.00'

+18.00 40.00' 60.00'

+40.00 EX. R/W 60.00'

PC Sta. 14+28.34

② CITY OF MONROE
DB 130 PG 138
DB 130 PG 150

N 76°43'25" W 263.67' (T)
N 76°43'25" W 208.46'
+54.65 39.26'
+4.2%

-L- CURVE DATA
PI Sta 11+74.44
Δ = 1° 33' 36.7" (LT)
D = 1° 25' 56.6"
L = 108.92'
T = 54.46'
R = 4,000.00'

-L- CURVE DATA
PI Sta 14+81.97
Δ = 6° 13' 59.5" (RT)
D = 5° 49' 00.6"
L = 107.16'
T = 53.63'
R = 985.00'

+50.73 45.10'

N 64°34'17" W 60.09'

ARUN K. BAHL
RAYETTA L. BAHL
DB 440 PG 073

N 59°55'55" E 835.57'

SHELBY JEAN T. STEGALL
DB 2072 PG 216

DAVID A. GARDNER
NATENA G. GARDNER
DB 5225 PG 409

N 81°23'21" W 1177.62'

GR SOIL BST CONC

NOTES:

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

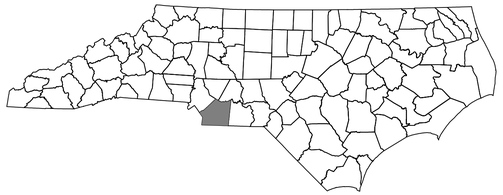
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

27-NOV-2019 11:03
C:\Users\walker.at.TWT\ProjectWise\Drawings\06615\d10\rw_con_twt\89-0146\dwg\Microstation\rc127_ls_rw04.dgn

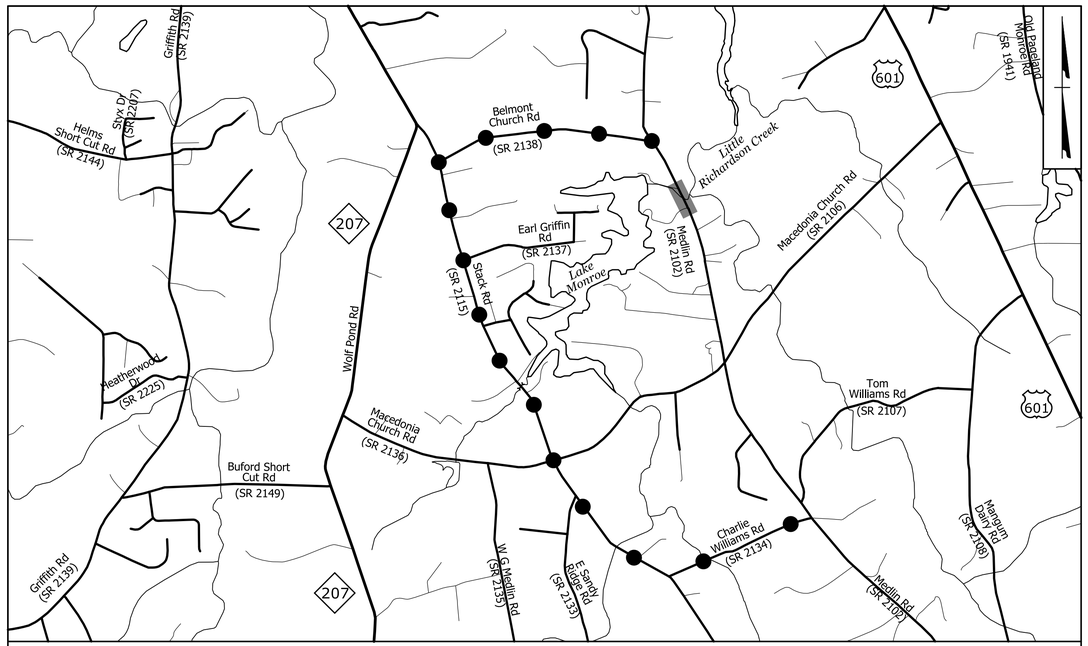
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

UNION COUNTY



LOCATION: BRIDGE #890146 OVER LITTLE RICHARDSON CREEK ON SR 2102 (MEDLIN RD)



VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

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

PLANS PREPARED BY:

ROBERT M. KIRK, PE
TRAFFIC ENGINEER

STEPHEN L. SAUCIER
TRANSPORTATION DESIGNER

NCDOT CONTACTS:

YANWEI MA, PE
PROJECT ENGINEER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

APPROVED: Signed by: Robert M Kirk C6B9058E6286431... 1/17/2025

DATE: 1/17/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

1/14/2025
R:\Traffic\TrafficControl\TCP\TMP\R.I27_RDY_TMP01_tsh.dgn
swelnsc

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJ. REFERENCE NO.	SHEET NO.
BP10-R008	TMP-2

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY MOD MODIFIED

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 MARKING

PAINT 4"

P2 WHITE SOLID LANE LINE

PAINT MARKING SYMBOLS

P71 RIGHT TURN ARROW

APPROVED: Signed by: Rdenson PE C9D05C58E7E28B431...

DATE: 1/17/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

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

1/14/2025
R:\Traffic\TrafficControl\TCP\TMP\R.I27_RDY_TMP02.dgn
svensc

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJ. REFERENCE NO.	SHEET NO.
BP10-R008	TMP-3

PROJECT NOTES

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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

B) 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.

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

TRAFFIC CONTROL DEVICES

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

LOCAL NOTES

1. CONTACT UNION COUNTY AND TOWN OF MONROE EMERGENCY SERVICES AND SCHOOLS AT LEAST ONE MONTH PRIOR TO CONSTRUCTION.

PHASING

NOTE: BEFORE BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL PLACE ADVANCE WORK ZONE WARNING SIGNS. (SEE RSD 1101.01, SHEET 3 OF 3)

PHASE 1

STEP 1

INSTALL OFF-SITE DETOUR SIGNING TO CLOSE BURNSVILLE ROAD TO THROUGH TRAFFIC AND THE PEDESTRIAN DETOUR (SEE TMP-4).

USING RSD 1101.03 (SHEETS 1 AND 2 OF 9) INSTALL TYPE III BARRICADES CLOSE MEDLIN ROAD TO THROUGH TRAFFIC.

STEP 2

AWAY FROM TRAFFIC, REMOVE THE EXISTING BRIDGE, CONSTRUCT PROPOSED BRIDGE, DRAINAGE, AND ROADWAY INCLUDING THE FINAL LAYER OF SURFACE CURSE.

STEP 3

PLACE FINAL PAVEMENT MARKINGS.

PHASE 2

STEP 1

USING RSD 1101.04, REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING AND DETOUR ROUTE SIGNING.

STEP 2

OPEN MEDLIN ROAD TO THE FINAL TRAFFIC PATTERN.

APPROVED: Signed by: Robert Kirk DocuSigned by: C8B0D5EE4D9A431...

DATE: 1/17/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

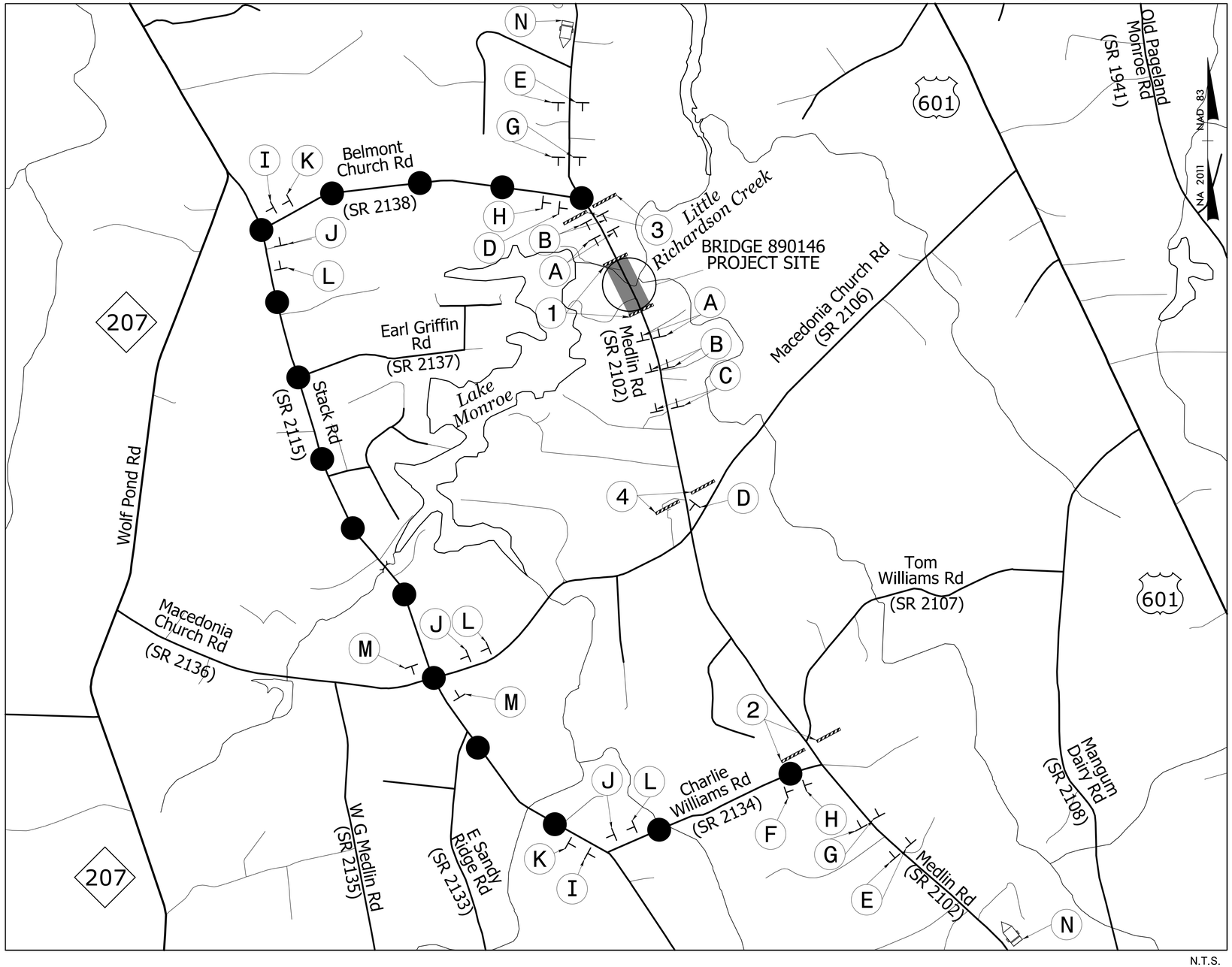
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSPORTATION MANAGEMENT PLAN
PROJECT NOTES

1/14/2025
R:\Traffic\TrafficControl\TCP\TMP\R.I27_RDY_TMP03.dgn
owensc

OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING



N.T.S.

R11-2
48″ x 30″
ROAD CLOSED
TYPE III BARRICADE(S)
1

R11-3
60″ x 30″
ROAD CLOSED
1,200 FEET AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10L
48″ x 18″
TYPE III BARRICADE
2

R11-3
60″ x 30″
ROAD CLOSED
1,300 FEET AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10R
48″ x 18″
TYPE III BARRICADE
3

R11-3
60″ x 30″
ROAD CLOSED
1 MILES AHEAD
LOCAL TRAFFIC ONLY
TYPE III BARRICADE
4

ROADWAY DETOUR

APPROVED: Robert M. Kirk
C689058E6286431...
DATE: 1/22/2025
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION MANAGEMENT PLAN
DETOUR ROUTE

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJ. REFERENCE NO.	SHEET NO.
BP10-R008	TMP-4

NOTE: MAINTAIN DRIVEWAY ACCESS THROUGHT THE PROJECT LIMITS.

SEE ROADWAY STD DWG 1101.03, SHEET 1 & 2 OF 9 FOR ADVANCE WARNING AND BARRICADE PLACEMENT.

ROAD CLOSED 500 FT — W20-3 48″ X 48″ — A
ROAD CLOSED 1000 FT — W20-3 48″ X 48″ — B
ROAD CLOSED AHEAD — W20-3 48″ X 48″ — C
ROAD CLOSED AHEAD — W20-3 48″ X 48″ — NEXT RIGHT SP-4R 42″ X 12″ — D
ROAD CLOSED AHEAD — W20-3 48″ X 48″ — 1/2 MILES W16-3P 24″ X 24″ — E
ROAD CLOSED AHEAD — W20-3 48″ X 48″ — NEXT LEFT SP-4L 42″ X 12″ — F
DETOUR AHEAD — W20-2 48″ X 48″ — G
MEDLIN RD — END DETOUR — M4-8 A 24″ X 18″ — H
MEDLIN RD — DETOUR M4-8 24″ X 12″ — M6-1 L 21″ X 15″ — I
MEDLIN RD — DETOUR M4-8 24″ X 12″ — M6-1 21″ X 15″ — J
MEDLIN RD — DETOUR M4-8 24″ X 12″ — M5-1 L 21″ X 15″ — K
MEDLIN RD — DETOUR M4-8 24″ X 12″ — M5-1 R 21″ X 15″ — L
MEDLIN RD — DETOUR M4-8 24″ X 12″ — M6-3 21″ X 15″ — M

MESSAGE PRIOR TO CLOSURE:

MESSAGE NO. 1	MESSAGE NO. 2
MEDLIN RD WILL BE CLOSED	STARTING (DAY) (TIME)

CHANGEABLE MESSAGE SIGN

MESSAGE DURING CLOSURE:

MESSAGE NO. 1	MESSAGE NO. 2
MEDLIN RD CLOSED 1 MILE	FOLLOW POSTED DETOUR

CHANGEABLE MESSAGE SIGN

N

8/17/99

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJ. REFERENCE NO.	SHEET NO.
BP10-R008	TMP-5

BRIDGE *890146

SIGN NUMBER: I-1
TYPE: D
QUANTITY: See Plans

SIGN WIDTH: 48″
HEIGHT: 12″
TOTAL AREA: 4.0 Sq.Ft.

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

NO. Z BARS:
LENGTH:

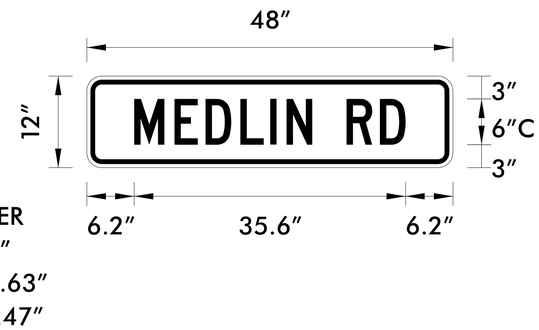
BACKG COLOR: Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2
1. Legend and border shall be direct applied encapsulated lens reflective sheeting.
2. Background shall be NC Grade B fluorescent.

DESIGN BY: JCT
CHECKED BY: GHM
PROJECT ID: BP10-R008
DIV: 10
DATE: Jan 2, 2019



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter positions are to the lower left corners

	M	E	D	L	I	N		R	D															Series/Size Text Length
	6.2	11.5	15.6	20.1	24	26.2	29.6	34.1	38.4															C 2000 / 6 35.6

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: Signed by: Robert M Kirk C6B9D585E62B8431...
DATE: 1/17/2025
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION MANAGEMENT PLAN
SPECIAL SIGN DESIGN
MEDLIN ROAD

1/14/2025
R:\Traffic\TrafficControl\TCP\TMP\R-127_RDY_TMP05.dgn
owensc

8/17/99

TIP PROJECT: BP10-R008

PAVEMENT MARKING PLAN

TIP NO.	SHEET NO.
BP10-R008	PMP-1

APPROVED: Signed by: Robert M. Kirk C689D58E62B6431... 1/17/2025

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.02	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
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

GENERAL NOTES

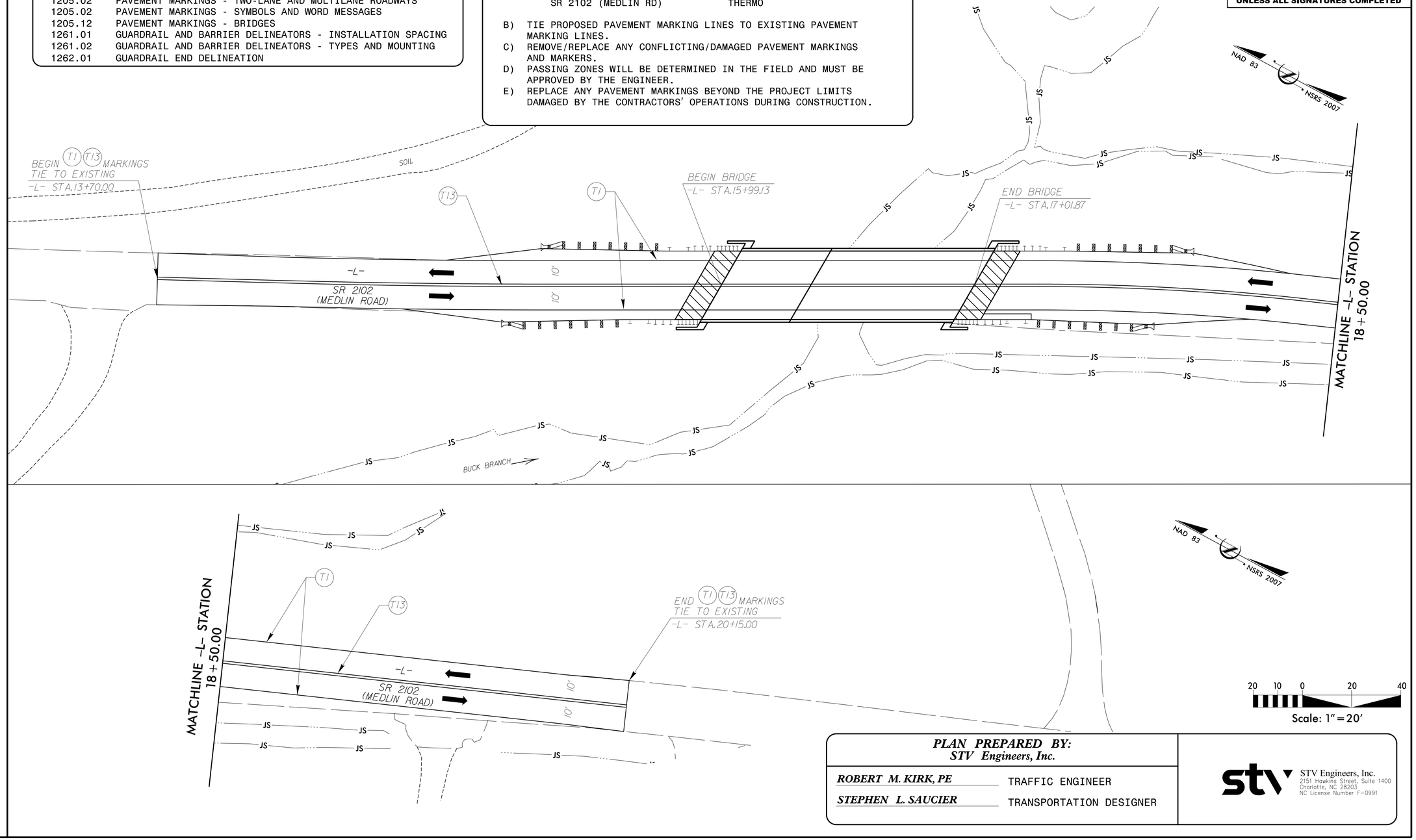
THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

ROAD NAME	MARKING
SR 2102 (MEDLIN RD)	THERMO

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.
E) REPLACE ANY PAVEMENT MARKINGS BEYOND THE PROJECT LIMITS DAMAGED BY THE CONTRACTORS' OPERATIONS DURING CONSTRUCTION.

PAVEMENT MARKING SCHEDULE	
T1 - THERMO	WHITE EDGELINE (4", 90MIL)
TI3 - THERMO	YELLOW DOUBLE CENTER LINE (4", 90MIL)

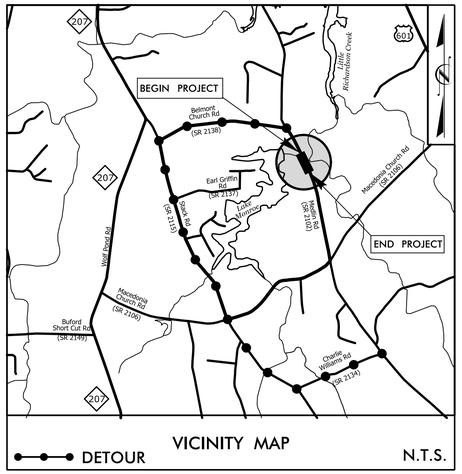


PLAN PREPARED BY: STV Engineers, Inc.	
ROBERT M. KIRK, PE	TRAFFIC ENGINEER
STEPHEN L. SAUCIER	TRANSPORTATION DESIGNER

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

1/14/2025
11:56:51
C:\projects\traffic\traffic control\tcp\R-127_RDY_PMP01.dgn
chenge

TIP PROJECT: BP10–R008



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10-R008	EC-1	10

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.10.R.127		P.E.
17BP.10.R.127		R/W & UTILITY
BP10.R008.3		CONSTRUCTION

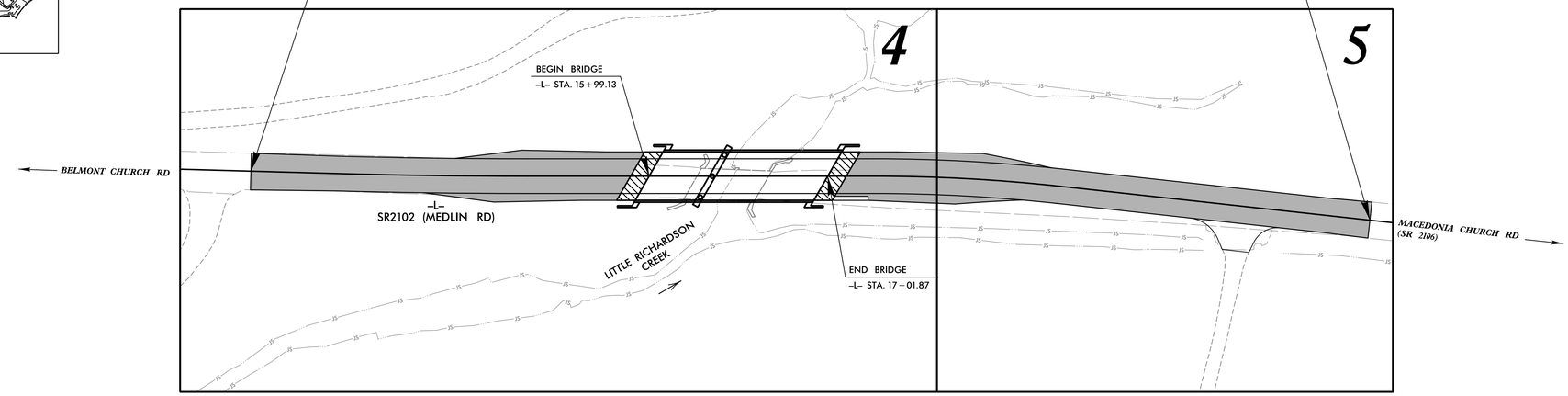
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

LOCATION: BRIDGE #890146 OVER LITTLE RICHARDSON CREEK ON SR 2102 (MEDLIN RD)
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

NAD 83 / NSRS 2007

BEGIN PROJECT TIP BP10–R008
–L– STA. 13+70.00

END PROJECT TIP BP10–R008
–L– STA. 20+15.00



GRAPHIC SCALE

20 10 0 20 40
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

stv
STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

Prepared In the Office of:
STV ENGINEERS, INC.
2151 HAWKINS STREET, SUITE 1400
CHARLOTTE, NC 28203

Designed by:
HALEY SMITH, EIT ***4688***
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.

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-1A

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

EROSION & SEDIMENT CONTROL LEGEND

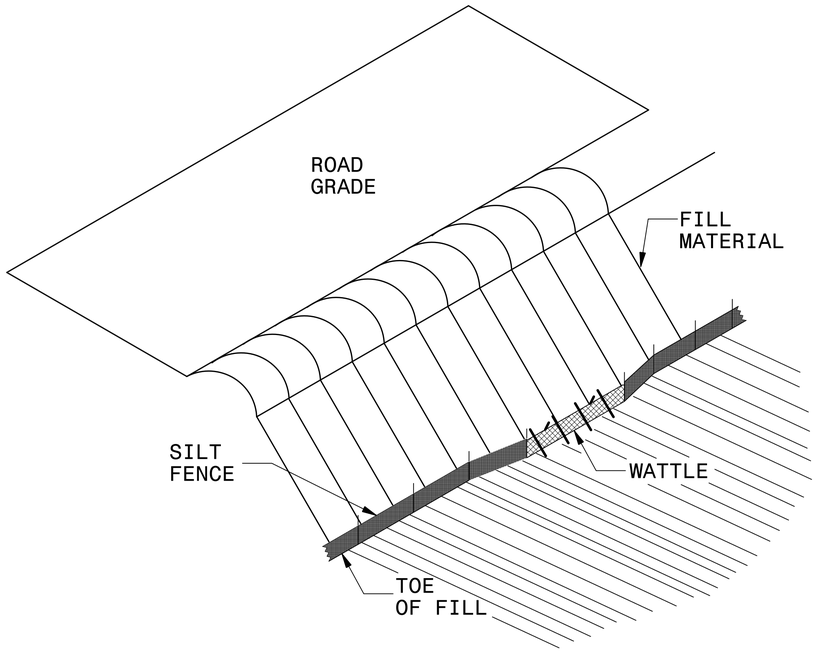
Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer 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	FFF
	Silt Fence Coir Fiber Wattle Break	FFF
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-2

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW

NOTES:

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

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

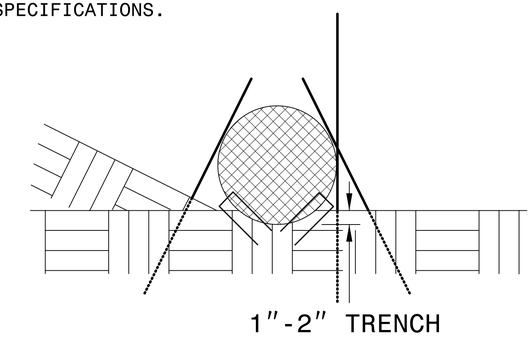
PROVIDE STAPLES MADE OF 11 GUAGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6″ IN LENGTH.

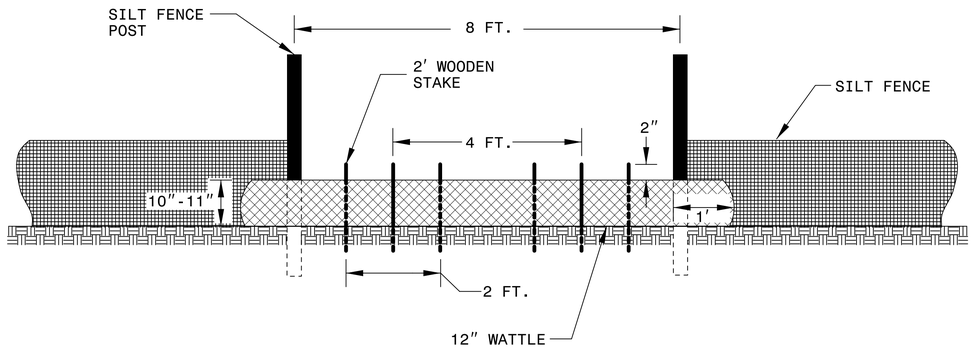
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

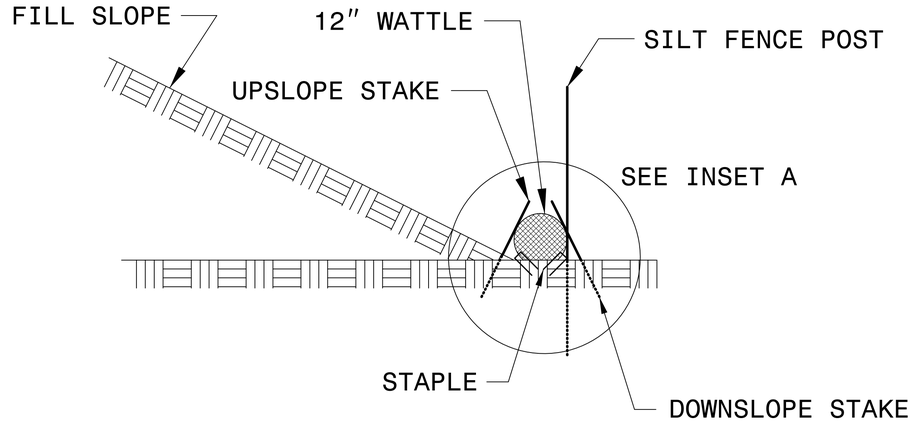
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





VIEW FROM SLOPE

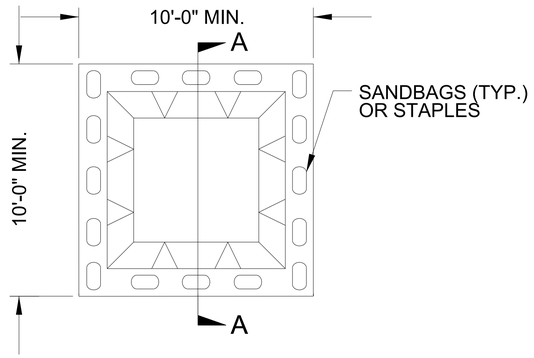


SIDE VIEW

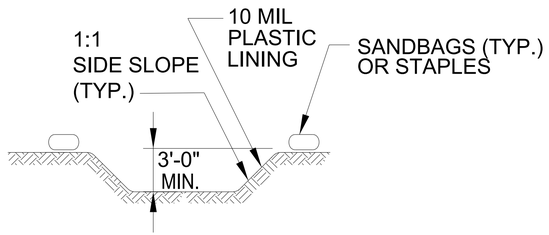
PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-2A

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

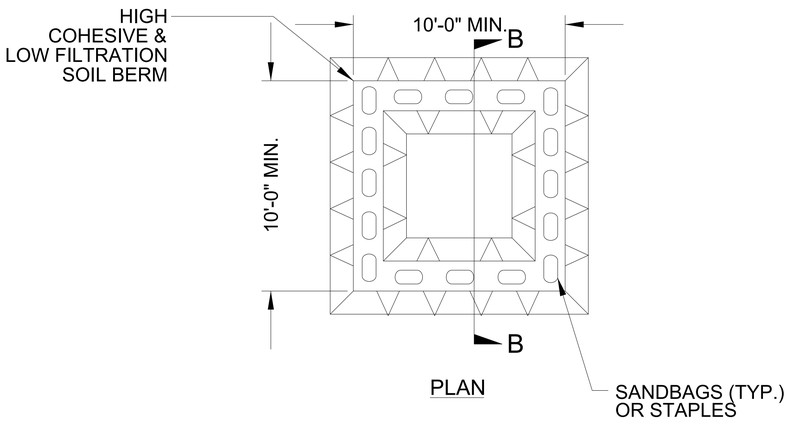
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD.

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.

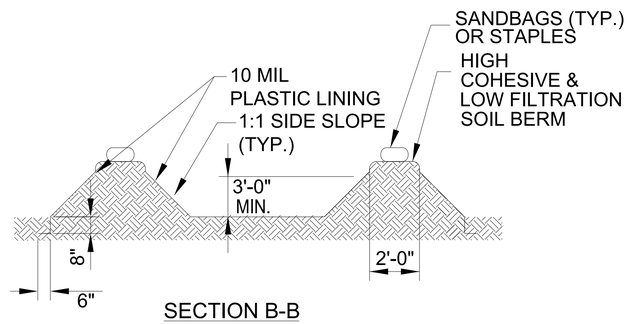
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

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.
BP10-R008	EC-3

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

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 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-3A

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					6,340
				TOTAL	6,340

PERMANENT SOIL REINFORCEMENT MATTING

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	17+16	20+50	LT	315
4	L	13+70	15+65	RT	147
				TOTAL	462

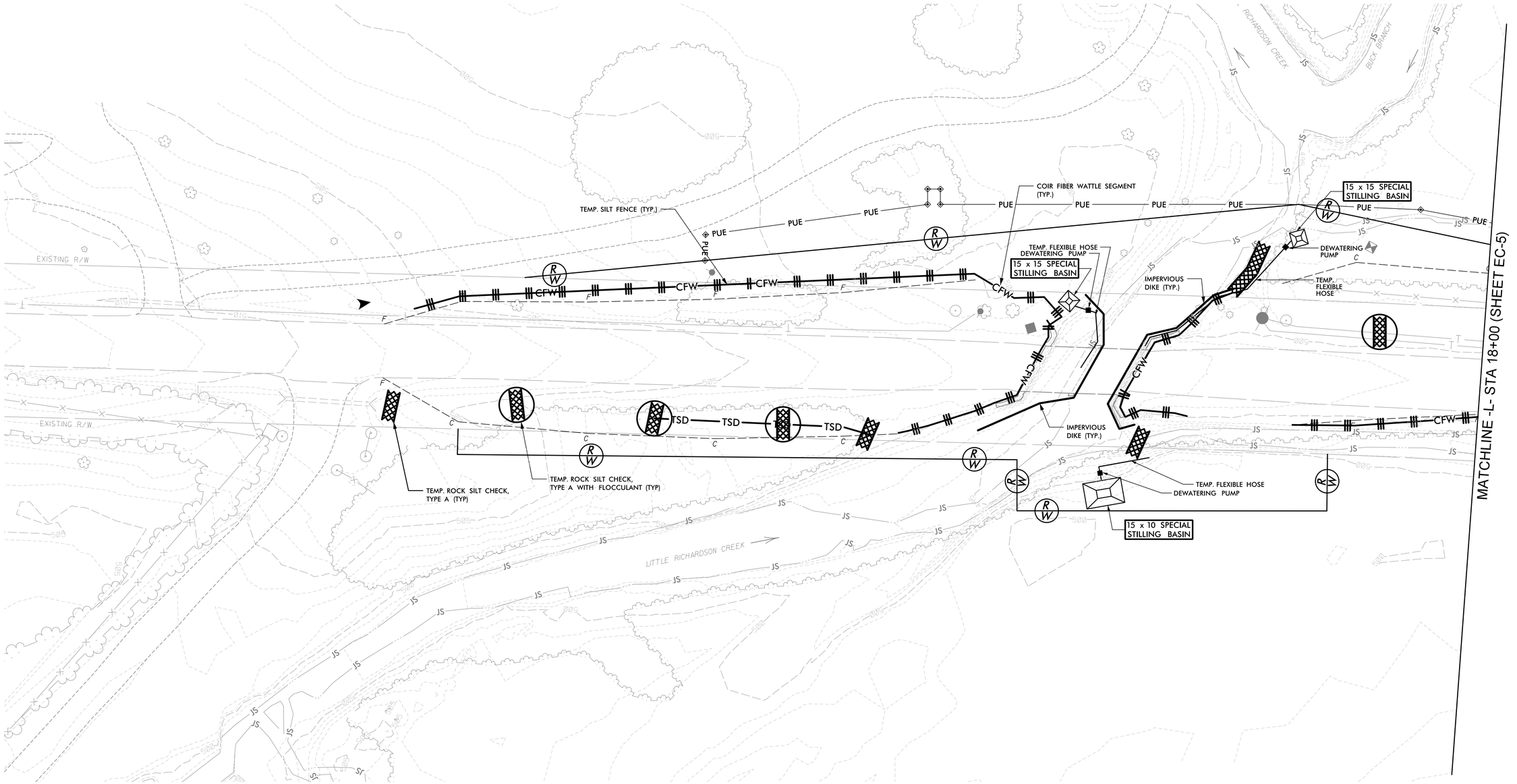
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-4/CONST-4

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

NAD 83 / NSRS 2007



NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

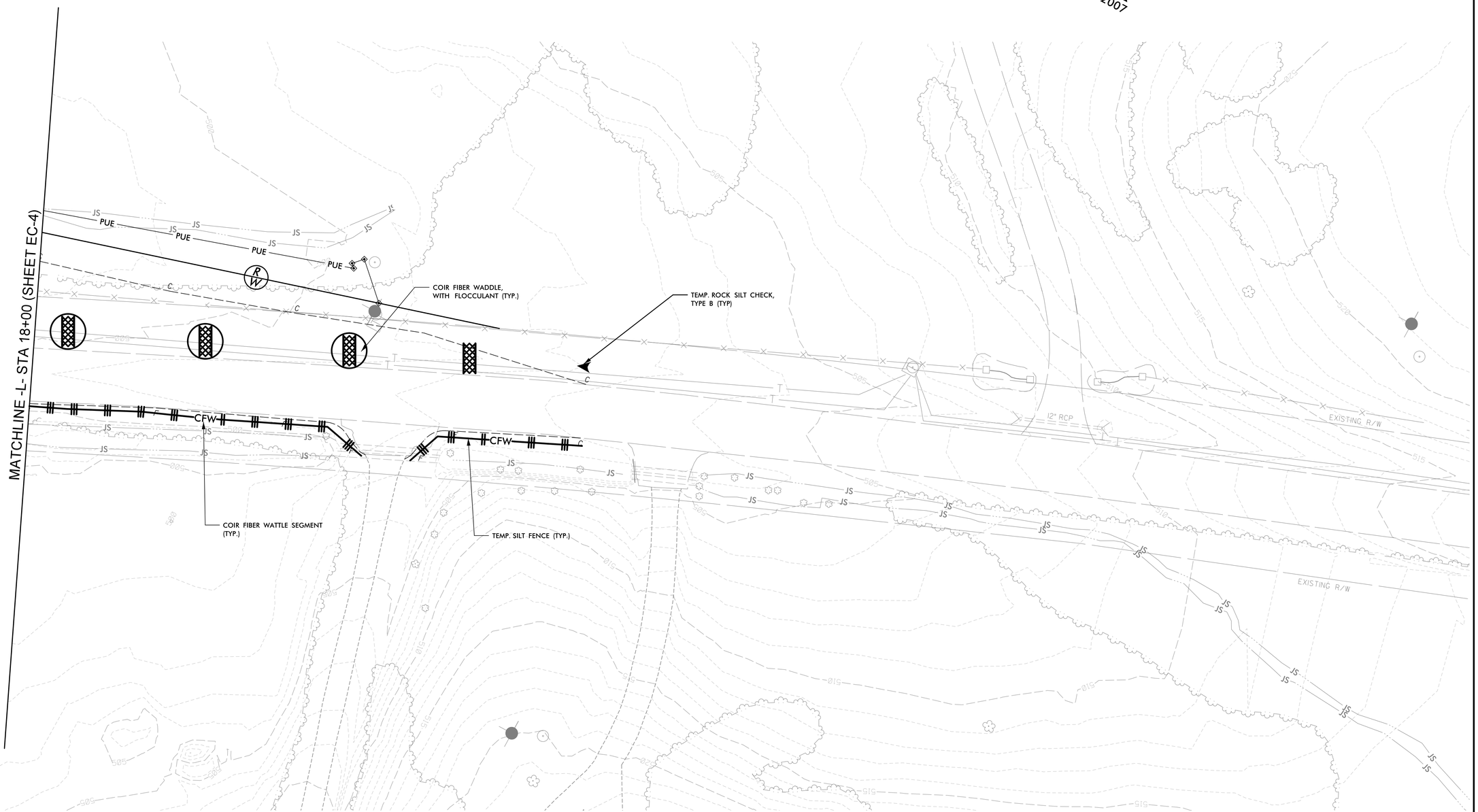
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-5/CONST-5

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

NAD 83 NSRS 2007



NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-6/CONST-4

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 4

NAD 83 NSRS 2007

14+00 15+00 16+00 17+00

POT Sta. 13+00.00

PC Sta. 14+19.97

PT Sta. 15+28.89

PC Sta. 17+28.34

S 26° 53' 58.3" E

S 28° 27' 35.0" E

-L-

SR 2102
(MEDLIN ROAD)

EXISTING R/W

GR

SOIL

LITTLE RICHARDSON CREEK

HARDSON CREEK

BUCK BRANCH

TEMP. SILT FENCE (TYP.)

COIR FIBER WATTLE SEGMENT (TYP.)

15 x 15 SPECIAL STILLING BASIN

TEMP. FLEXIBLE HOSE DEWATERING PUMP

DEWATERING PUMP

IMPERVIOUS DIKE (TYP.)

TEMP. FLEXIBLE HOSE

15 x 10 SPECIAL STILLING BASIN

TEMP. ROCK SILT CHECK, TYPE A (TYP)

TEMP. ROCK SILT CHECK, TYPE A WITH FLOCCULANT (TYP)

ROCK INLET SEDIMENT TRAP, TYPE C (TYP.)

GREU TL-3

TYPE-III

PUE

CFW

RW

TB

JS

F

C

.045 .04 .03 .02 .01 .00 .01 .02 .03 .04

.005 .00 .01 .02 .01 .00 .01 .02 .02

STA 18+00 (SHEET EC-7)

MATCHLINE -L- STA 13+00 (SHEET EC-5)

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	EC-7/CONST-5

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 5

NAD 83 NSRS 2007

MATCHLINE -L- STA 18+00 (SHEET EC-6)

PT Sta. 18+35.49

19+00

20+00

21+00

POT Sta. 22+12.58

COIR FIBER WADDLE, WITH FLOCCULANT (TYP.)

TEMP. ROCK SILT CHECK, TYPE B (TYP)

SR 2102
(MEDLIN ROAD)

S 22° 13' 35.5" E

-L-

.01 .02 .03 .04

.01 .02 .03 .04 .027

JS PUE

RW

C.

CFW

TB

COIR FIBER WATTLE SEGMENT (TYP.)

TEMP. SILT FENCE (TYP.)

SOIL

GR

EXISTING R/W

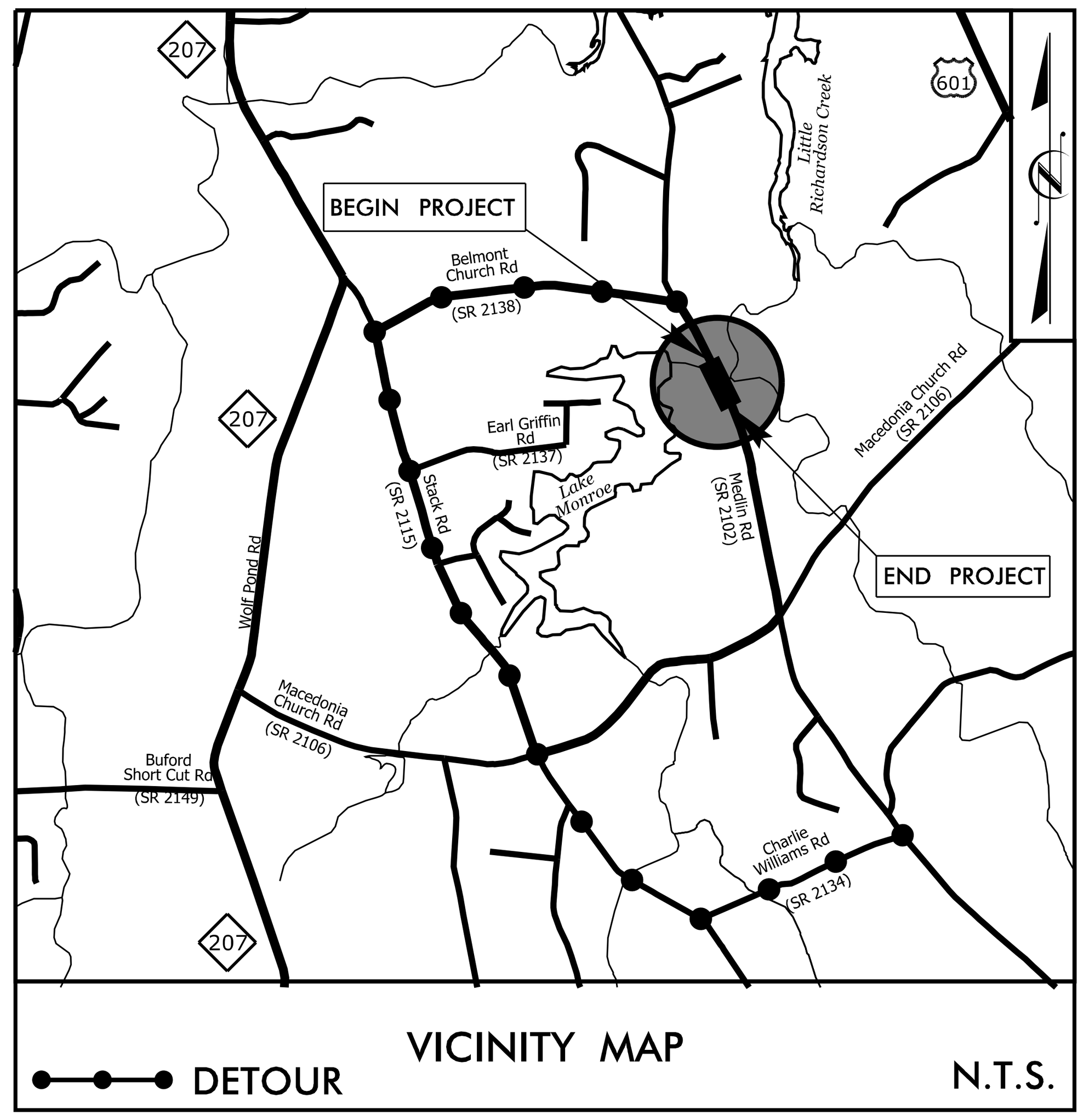
PROJECT WBS: BP10-R008

T.I.P. NO.	SHEET NO.
BP10-R008	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
UNION COUNTY

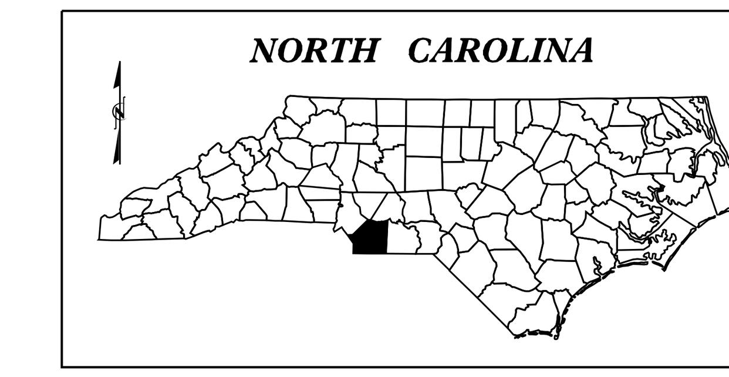
NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

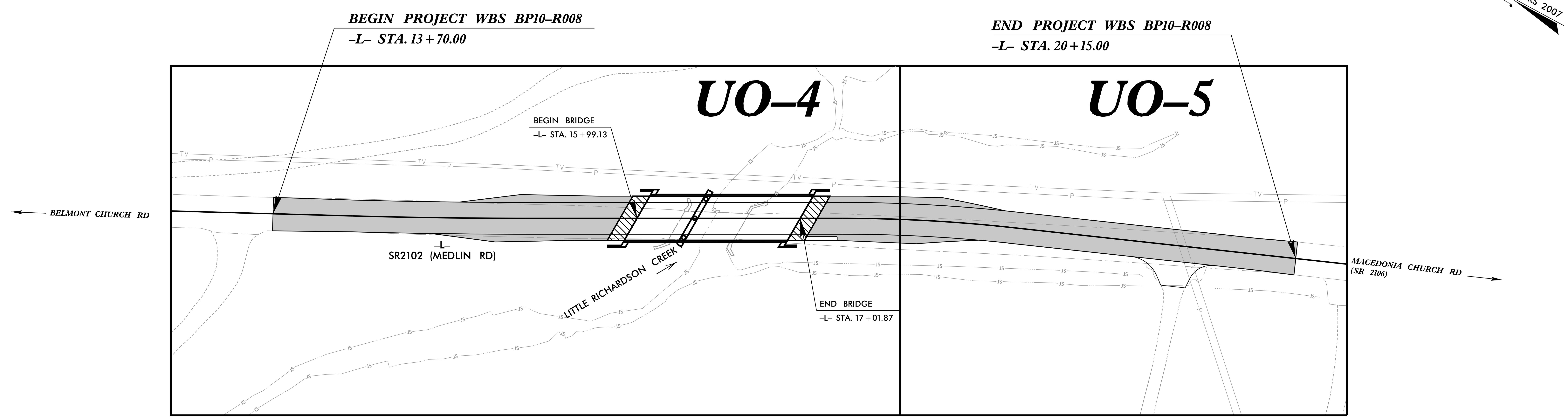


FINAL PLANS

LOCATION: BRIDGE #890146 OVER LITTLE RICHARDSON CREEK ON SR 2102 (MEDLIN RD)

TYPE OF WORK: RELOCATION OF POWER, GAS, TELEPHONE, CABLE, AND FIBER





GRAPHIC SCALES

20 10 0 20 40

PLANS

INDEX OF SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER - DUKE ENERGY
(B) TELEPHONE - FRONTIER COMMUNICATIONS
(C) CABLE - TIME WARNER - CHARTER

PREPARED IN THE OFFICE OF:

JMT

Johnson, Mirmiran, & Thompson, Inc.

2550 W. Tyvola Rd.
Charlotte, NC 28217
License No. C-3097

Nicholas Asaro, PLS — PROJECT UTILITY COORDINATOR
Shane Waidner — PROJECT UTILITY DESIGNER

DIVISION OF HIGHWAYS
DIVISION 10
DIV ADDRESS
716 West Main Street
Albermarle, NC 28001

Adam Presslar, EI
SENIOR DIVISION UTILITY ENGINEER
Lynn Basinger
DIVISION UTILITY ENGINEER

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	U0-2

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" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

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

*For Existing Utilities

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

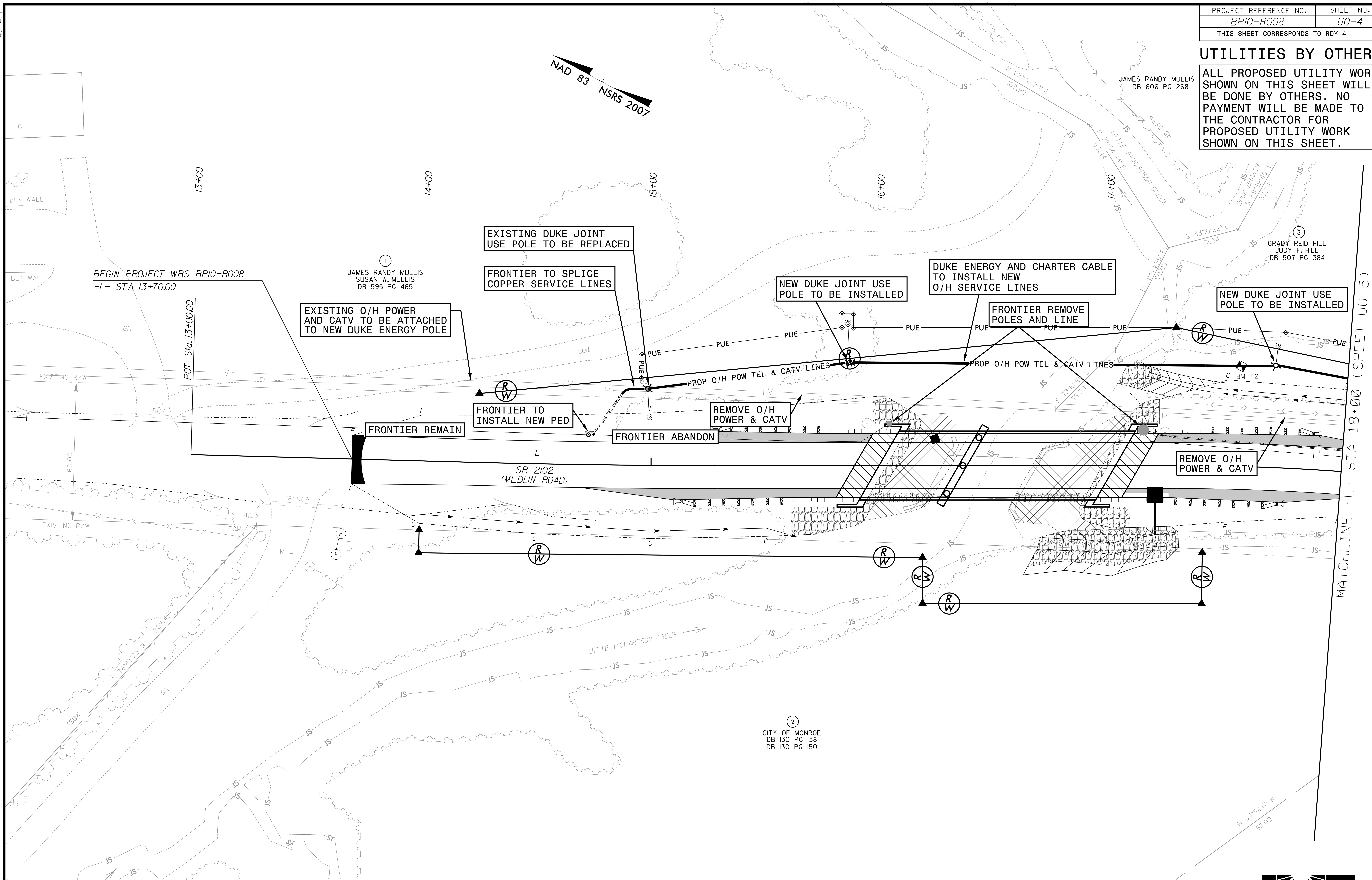
REV: 2/1/2012

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	UO-4

THIS SHEET CORRESPONDS TO RDY-4

UTILITIES BY OTHERS

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


NAD 83 NSRS 2007
13+00
14+00
15+00
16+00
17+00
BEGIN PROJECT WBS BP10-R008
-L- STA 13+70.00
POT Sta. 13+00.00
JAMES RANDY MULLIS
SUSAN W. MULLIS
DB 595 PG 465
JAMES RANDY MULLIS
DB 606 PG 268
GRADY REID HILL
JUDY F. HILL
DB 507 PG 384
CITY OF MONROE
DB 130 PG 138
DB 130 PG 150
EXISTING DUKE JOINT USE POLE TO BE REPLACED
FRONTIER TO SPLICE COPPER SERVICE LINES
EXISTING O/H POWER AND CATV TO BE ATTACHED TO NEW DUKE ENERGY POLE
NEW DUKE JOINT USE POLE TO BE INSTALLED
DUKE ENERGY AND CHARTER CABLE TO INSTALL NEW O/H SERVICE LINES
FRONTIER REMOVE POLES AND LINE
NEW DUKE JOINT USE POLE TO BE INSTALLED
PROP O/H POW TEL & CATV LINES
PROP O/H POW TEL & CATV LINES
FRONTIER TO INSTALL NEW PED
REMOVE O/H POWER & CATV
FRONTIER REMAIN
FRONTIER ABANDON
REMOVE O/H POWER & CATV
SR 2102
(MEDLIN ROAD)
-L-
EXISTING R/W
BLK WALL
PUE
BM #2
LITTLE RICHARDSON CREEK
BUCK BRANCH
MATCHLINE -L- STA 18+00 (SHEET UO-5)

Johnson, Mirmiran, & Thompson, Inc.
2550 W. Tyvola Rd.
Charlotte, NC 28217
License No. C-3097

PROJECT REFERENCE NO.	SHEET NO.
BP10-R008	U0-5
THIS SHEET CORRESPONDS TO RDY-5	

UTILITIES BY OTHERS

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

NAD 83 NSRS 2007

DUKE ENERGY, CHARTER CABLE TO INSTALL NEW O/H SERVICE LINES

EXISTING DUKE POLE TO REMAIN

EXISTING O/H POWER AND CATV TO BE ATTACHED TO EXISTING DUKE ENERGY POLE

EXISTING FRONTIER PEDESTAL TO REMAIN

EXISTING FRONTIER PED TO REMAIN

END PROJECT WBS BP10-R008
-L- STA 20+15.00

POT Sta. 22+12.58

PROP O/H POW TEL & CATV LINES

FRONTIER ABANDON

FRONTIER ABANDON

FRONTIER ABANDON

FRONTIER REMAIN

-L-
SR 2102
(MEDLIN ROAD)

MATCHLINE -L- STA 18+00 (SHEET U0-4)

19+00

20+00

21+00

3
GRADY REID HILL
JUDY F. HILL
DB 507 PG 384

2
CITY OF MONROE
DB 130 PG 138
DB 130 PG 150

ARUN K. BAHL
RAYETTA L. BAHL
DB 440 PG 073

DAVID A. GARDNER
NATENA G. GARDNER
DB 5225 PG 409

48" WD RAIL

LANDSCAPED AREA

24"BK WALL
BK COLUMNS

12" RCP

2- 24" CMP

EXISTING R/W

60.00'

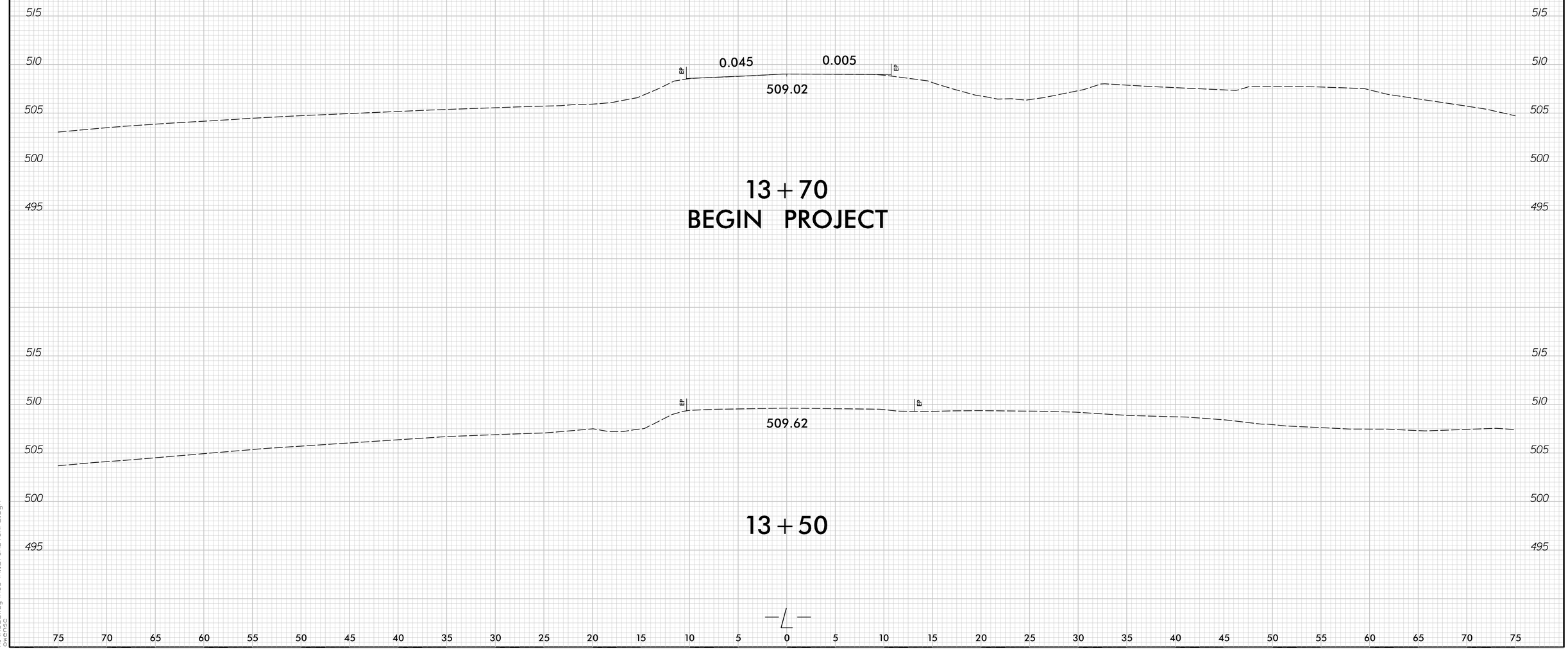
ISBKD

Johnson, Mirmiran, & Thompson, Inc.
2550 W. Tyvola Rd.
Charlotte, NC 28217
License No. C-3097

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-1

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



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

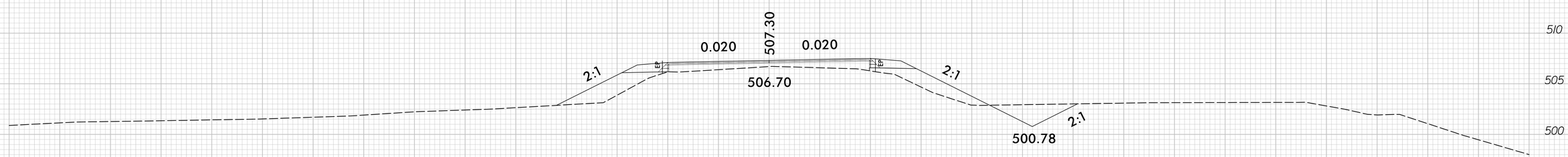
1/14/2025
P:\Roadway\Xsc\R.127_RDY_XPL.dgn
owens

6/23/16

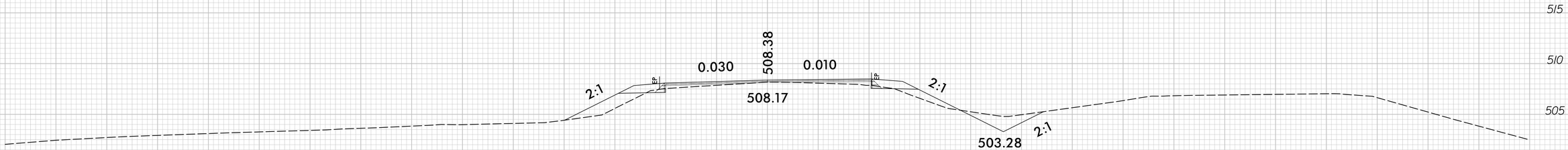
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-2

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

515
510
505
500
495



14+50



14+00

515
510
505
500
495

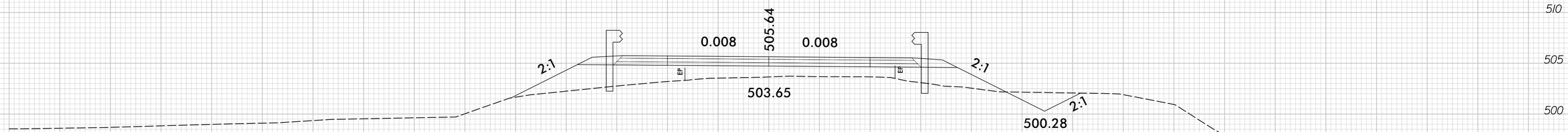
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

6/23/16

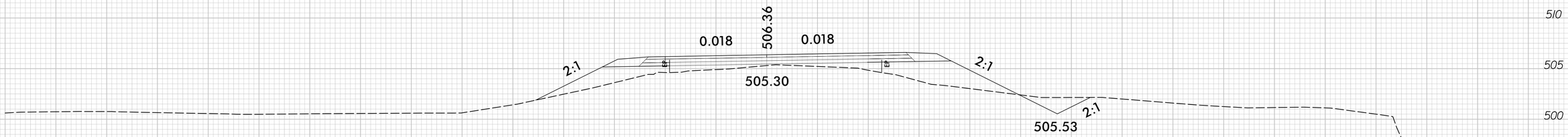
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-3

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

515
510
505
500
495



15 + 50



15 + 00

515
510
505
500
495

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

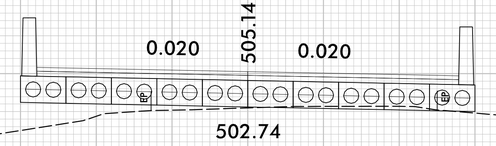
1/14/2025
P:\Roadway\Xsc\R127_RDY_XPL.dgn
owens

6/23/16

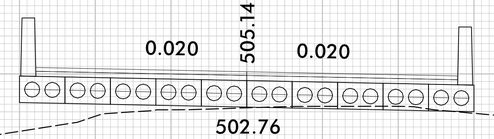
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-4

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

510
505
500
495
490



16+00



15+99.13
BEGIN BRIDGE

—℄—

510
505
500
495
490

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

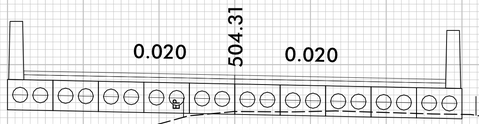
1/14/2025
P:\Roadway\Xsc\R.127_RDY_XPL.dgn
owens

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-5

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

510
505
500
495
490



501.91

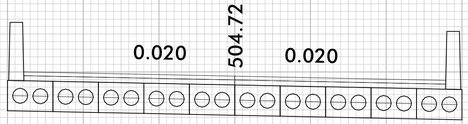
2:1

2:1

496.38

17+00

510
505
500
495
490

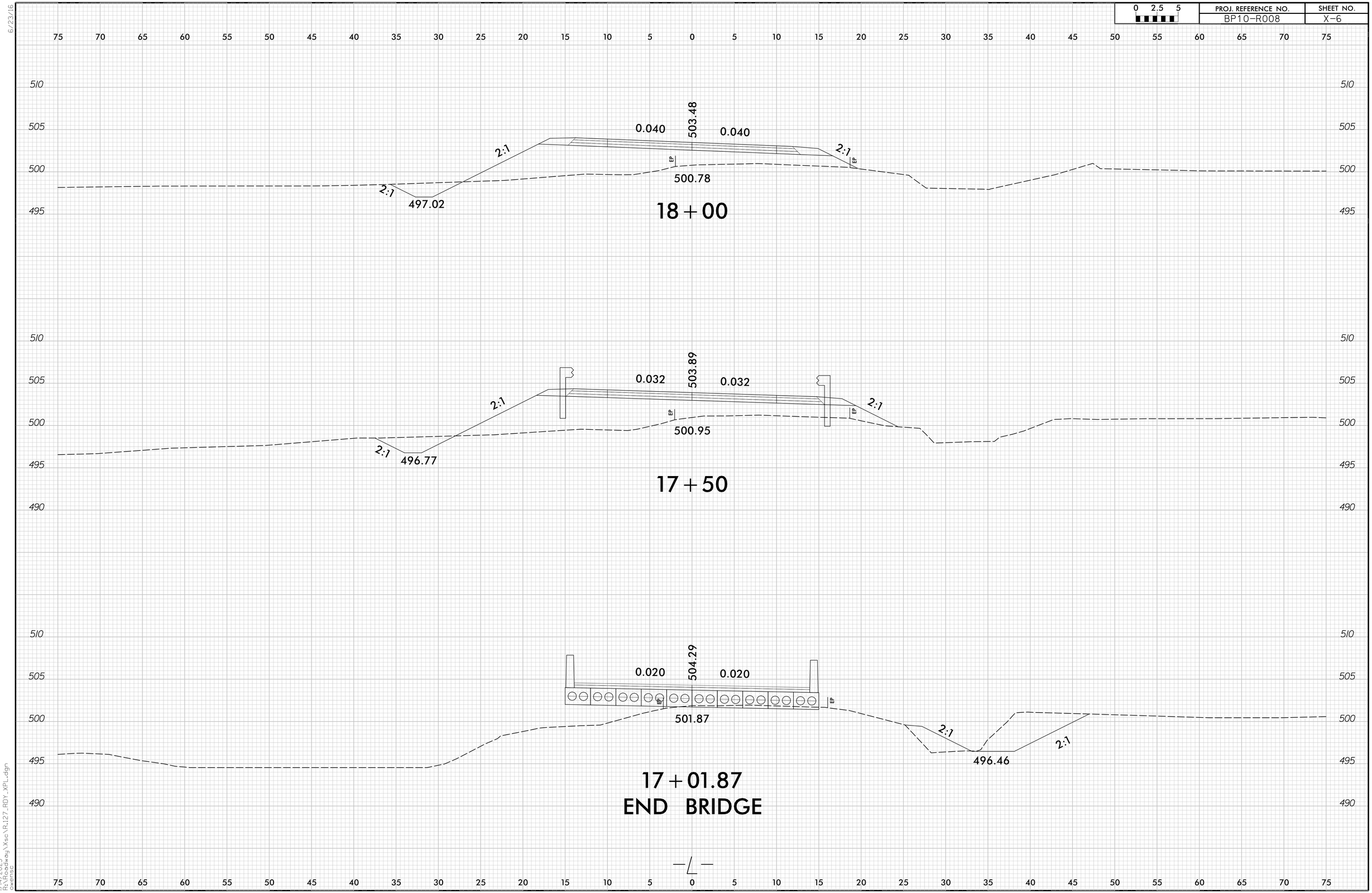


494.55

16+50

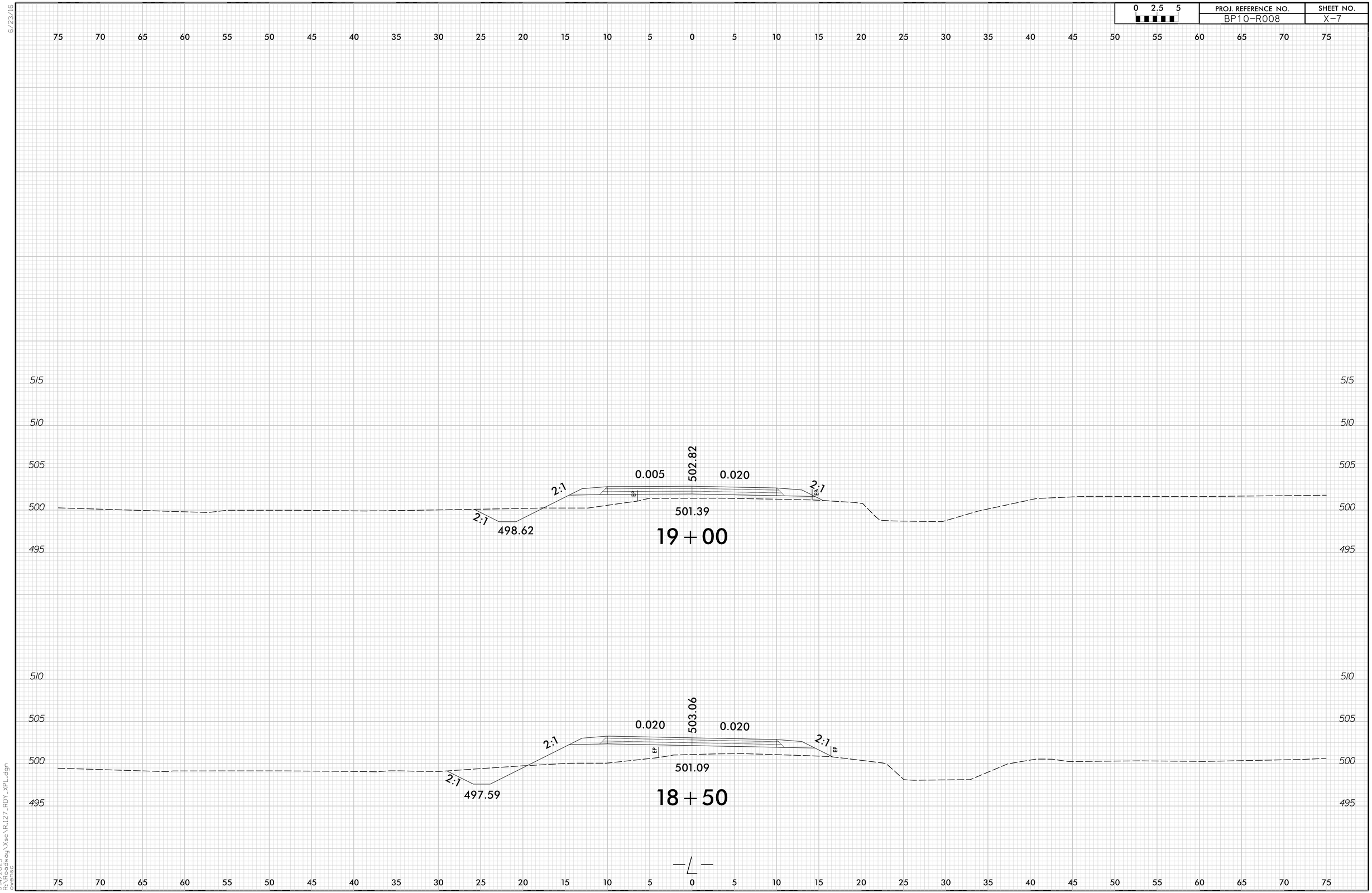
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-6



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-7



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP10-R008	X-8

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

525 520 515 510 505 500

2:1 EP 0.032 503.18 0.020 EP 2:1

503.01

20+00

525 520 515 510 505 500

520 515 510 505 500 495

2:1 499.64 2:1 EP 0.020 502.86 0.020 EP 2:1

502.10

19+50

520 515 510 505 500 495

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

6/23/16

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BP10-R008	X-9

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

530
525
520
515
510
505
500

EP EP

503.87

20+50

525
520
515
510
505
500

EP 0.040 0.027 EP

503.32

20+15

END PROJECT