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09/08/99

PROJECT: EB-5923

CONTRACT: DN00679

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

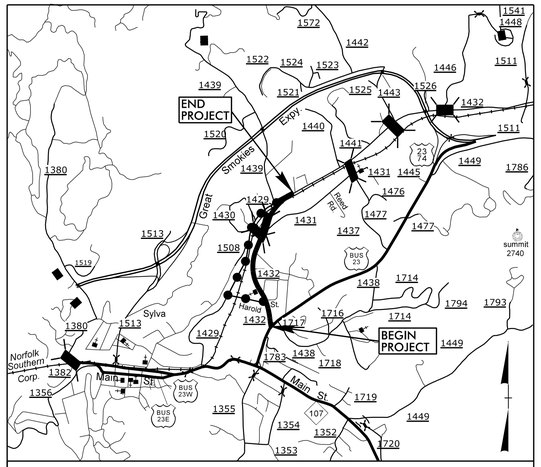
JACKSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB-5923	1	42

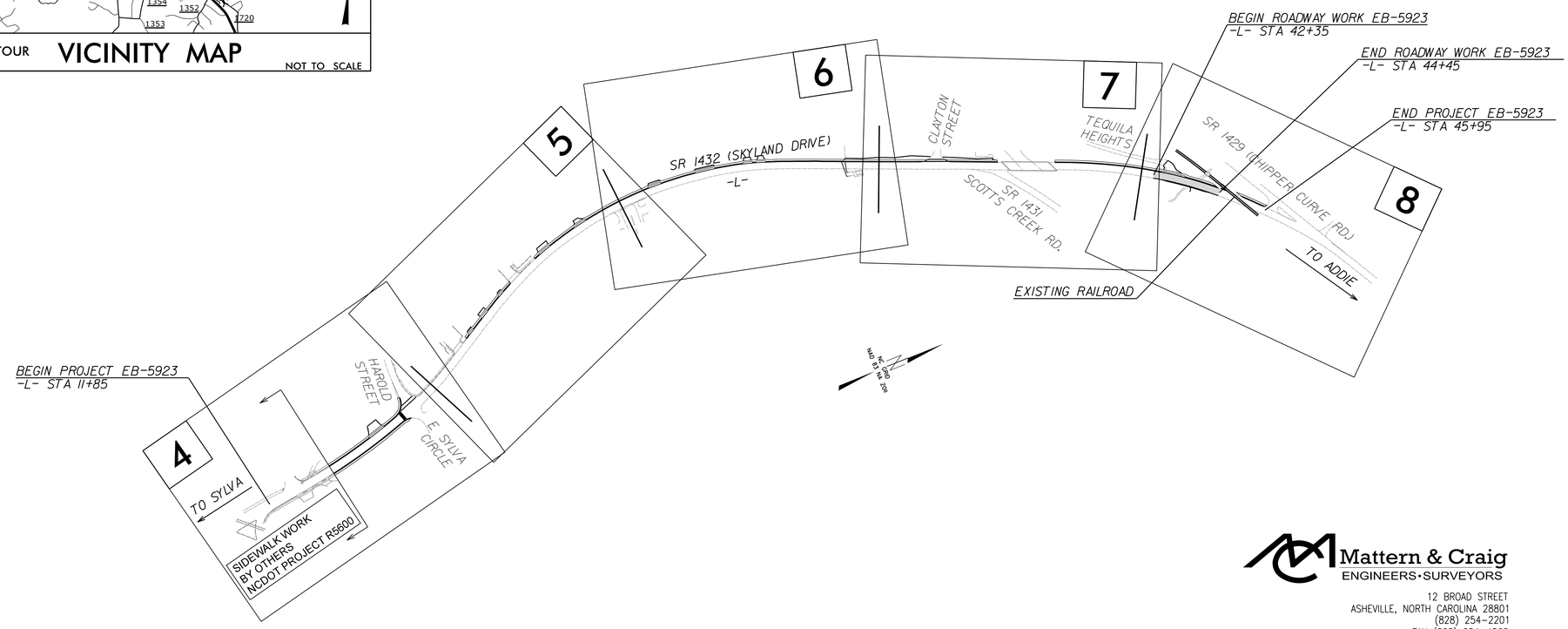
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47589.1.1	TAP-1432(007)	PE
47589.2.1	TAP-1432(007)	R/W & UTIL
47589.3.1	TAP-1432(007)	CONST.

LOCATION: SR 1432 (SKYLAND DRIVE) FROM US 23 BUS (ASHEVILLE HWY) TO SR 1429 (CHIPPER CURVE RD.)

TYPE OF WORK: SIDEWALK, CURB&GUTTER, GRADING, DRAINAGE, CULVERTS, UTILITIES, AND PAVING



DETOUR VICINITY MAP NOT TO SCALE



Mattern & Craig
ENGINEERS·SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

30 15 0 30 60
PLANS

5 2.5 0 5 10
PROFILE

DESIGN DATA

V = 40 MPH

FUNC CLASS = SUB-REGIONAL TIER

AADT: 6900

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT EB-5923 = 0.646 MILES

TOTAL LENGTH OF TIP PROJECT EB-5923 = 0.646 MILES

Prepared In the Office of:
MATTERN & CRAIG
12 BROAD ST
ASHEVILLE, NC 28801
FOR NCDOT DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 2018

LETTING DATE: APRIL 26, 2022

AARON CARVER, PE
PROJECT ENGINEER

ROBERT KUN
PROJECT DESIGN ENGINEER

GARRETT HIGDON, EI
NCDOT DIVISION 14 CONTACT

HYDRAULICS ENGINEER

DocuSigned by: Aaron Carver 8250B42A220F49C...
SIGNATURE: P.E. 3/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

ROADWAY DESIGN ENGINEER

DocuSigned by: Aaron Carver 8250B42A220F49C...
SIGNATURE: P.E. 3/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	1A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
2/18/2022	2/18/2022

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EFF. 01-16-2018

REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
DIVISION 12 - PAVEMENT MARKINGS	
1205.01	Line Types and Offsets
1205.02	Two-Lane and Multi-Lane Roadways
1205.07	Pedestrian Crosswalks

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

Power A/G, UG	Duke Energy
Telephone A/G, U/G	Balsam West
Telephone A/G, U/G	Frontier Communications
Cable A/G, U/G	Charter Communications
Gas U/G	PSNC
Water U/G	Tuckaseigee Water and Sewer Authority
Sewer U/G	Tuckaseigee Water and Sewer Authority

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

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL PLAN SHEET SYMBOLS
2A-1 thru 2A-2	PAVEMENT SCHEDULE & TYPICAL SECTIONS
2A-3	PEDESTRIAN HANDRAIL DETAIL
2C-1	ENDWALL DETAIL SHEET
3B-1	DRAINAGE SUMMARY SHEET-EARTHWORK SUMMARY SHEET
4 thru 8	PLAN SHEETS
TMP-1thru TMP-5	TRANSPORTATION MANAGEMENT PLAN
EC-1 thru EC-5	EROSION CONTROL PLANS
UC-1 thru UC-7	UTILITY CONSTRUCTION PLANS
X-0	CROSS-SECTION SUMMARY SHEET
X-1 thru X-10	CROSS SECTIONS

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NC LIC. NO. C-1154

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bpcas

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

***S.U.E. = Subsurface Utility Engineering**

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	2A-1

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER MARON C. CARVER — 2/18/2022

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER MARON C. CARVER — 2/18/2022

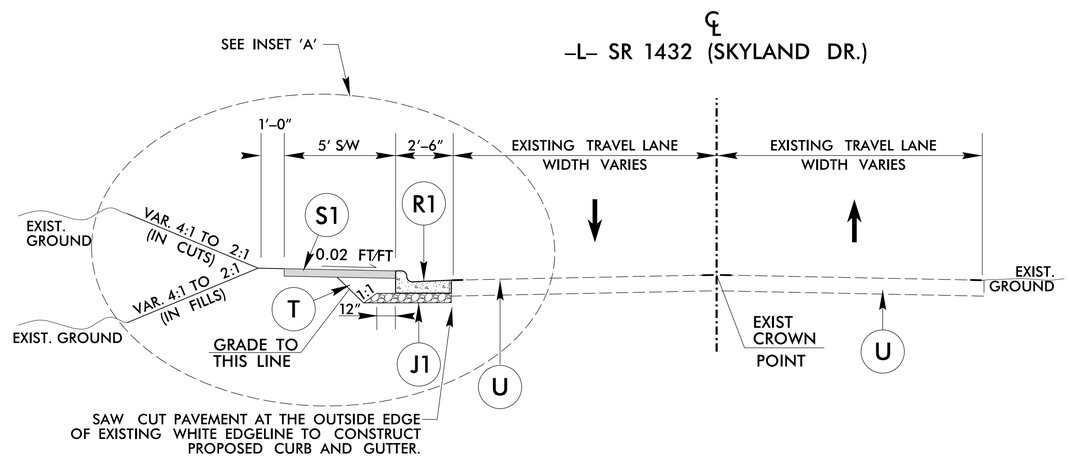
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DPETH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
J1	6" ABC
R1	2'-6" CONC. CURB AND GUTTER
R2	2' CONC. VALLEY GUTTER
S1	4" CONCRETE SIDEWALK
S2	6" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

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

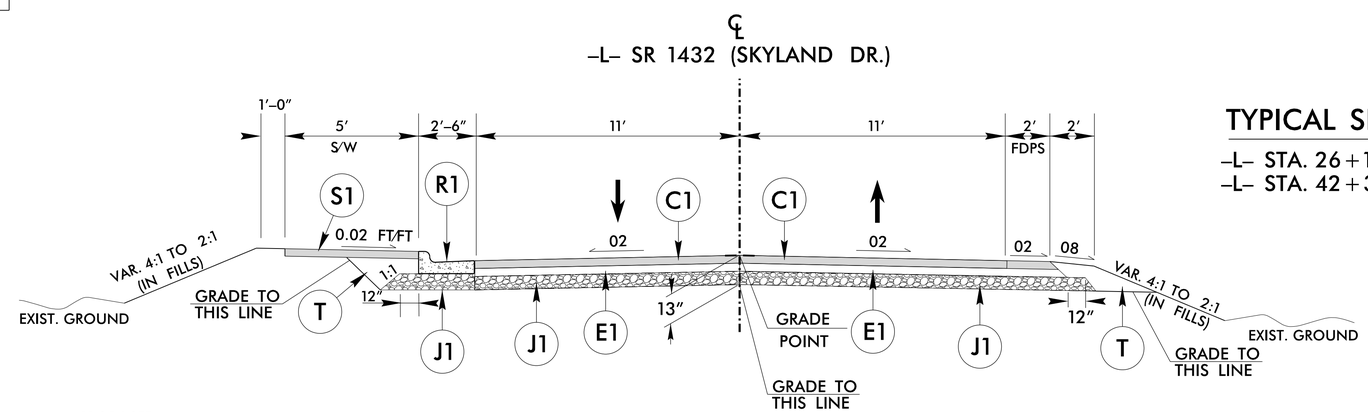
ALL SIDEWALKS CROSSING DRIVEWAYS MUST BE ADA COMPLIANT:

1. MINIMUM SIDEWALK WIDTH 4.0'
2. MAXIMUM SIDEWALK CROSS SLOPE 2.0%
3. MAXIMUM RUNNING SLOPE 8.33%



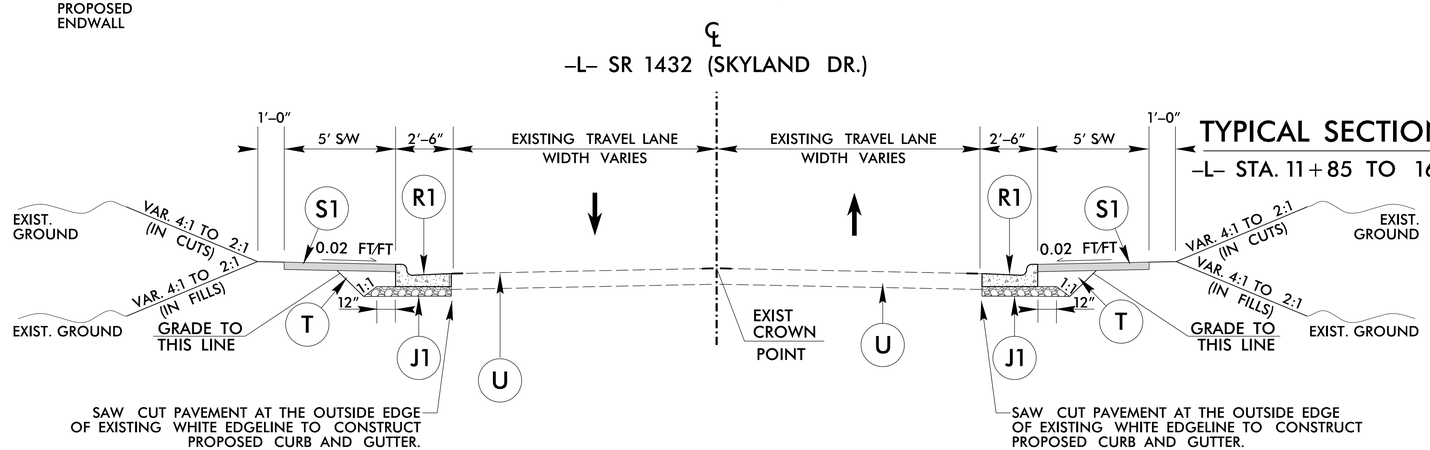
TYPICAL SECTION NO. 1

–L– STA. 19+80 TO 21+90
–L– STA. 22+95 TO 35+50
–L– STA. 36+00 TO 37+62
–L– STA. 39+36 TO 42+35
–L– STA. 44+45 TO 45+95



TYPICAL SECTION NO. 2

–L– STA. 26+15 TO 26+30
–L– STA. 42+35 TO 44+45



TYPICAL SECTION NO. 3

–L– STA. 11+85 TO 16+85

TIE IN ALL SIDEWALKS TO NEAREST EXISTING APPURTENANCES

SEE NCDOT STANDARD 654.01 FOR PAVEMENT REPAIRS

10:06:35 AM
USER: EB-5923 Sylva Sidewalk\06 EB-5923\Roadway\Proj\EB-5923_rdy_typ.dgn
DATE:

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PROJECT REFERENCE NO.	SHEET NO.
EB-5923	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

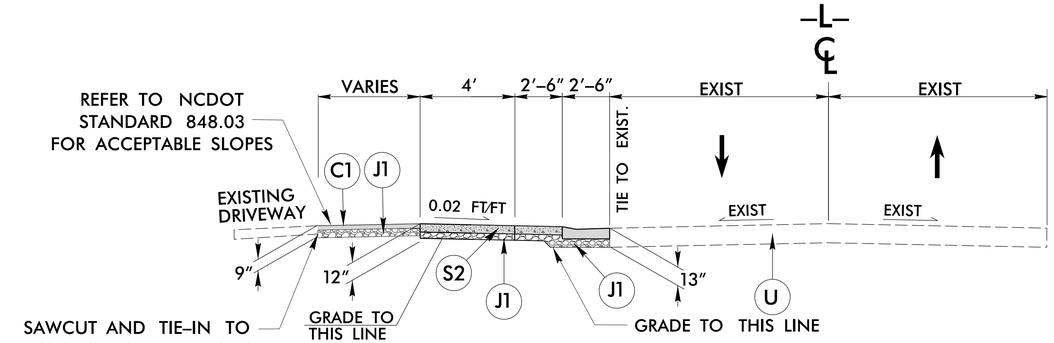
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DPETH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
J1	6" ABC
R1	2'-6" CONC. CURB AND GUTTER
R2	2' CONC. VALLEY GUTTER
S1	4" CONCRETE SIDEWALK
S2	6" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

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

ALL SIDEWALKS CROSSING DRIVEWAYS MUST BE ADA COMPLIANT:

1. MINIMUM SIDEWALK WIDTH 4.0'
2. MAXIMUM SIDEWALK CROSS SLOPE 2.0%
3. MAXIMUM RUNNING SLOPE 8.33%



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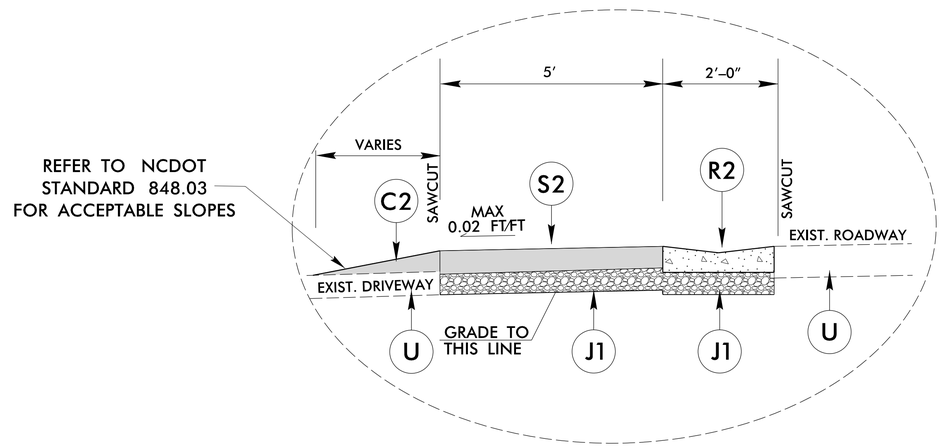
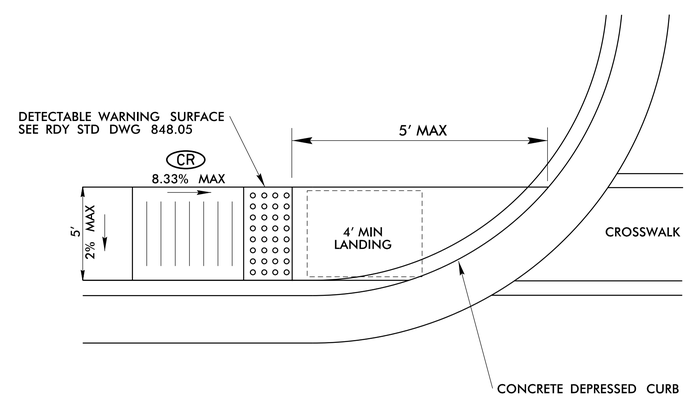
DRIVEWAY DETAIL



INSET 'A'

-L- STA. 33+00 TO 35+50
-L- STA. 36+00 TO 37+60



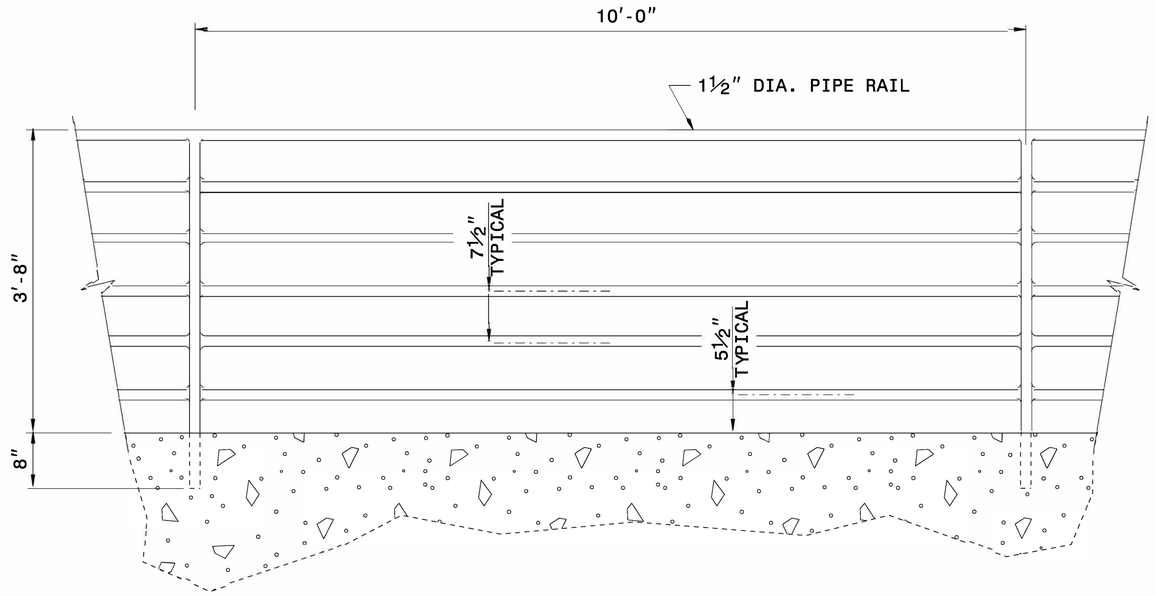
TYPICAL CURB TRANSITION DETAIL AT STREET

TIE IN ALL SIDEWALKS TO NEAREST EXISTING APPURTENANCES

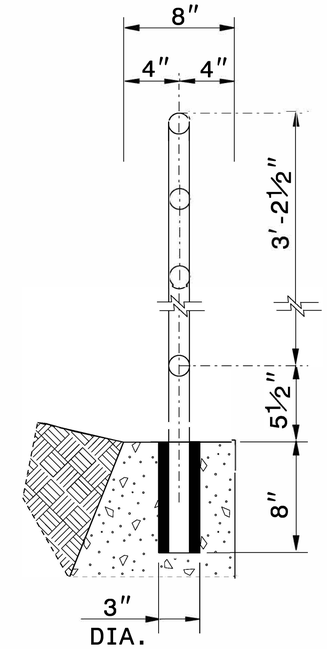
SEE NCDOT STANDARD 654.01 FOR PAVEMENT REPAIRS

9:48:43 AM
EB-5923 Sylva Sidewalk\06 EB-5923\Roadway\Proj\EB-5923_rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	2A-3



ELEVATION OF HANDRAIL



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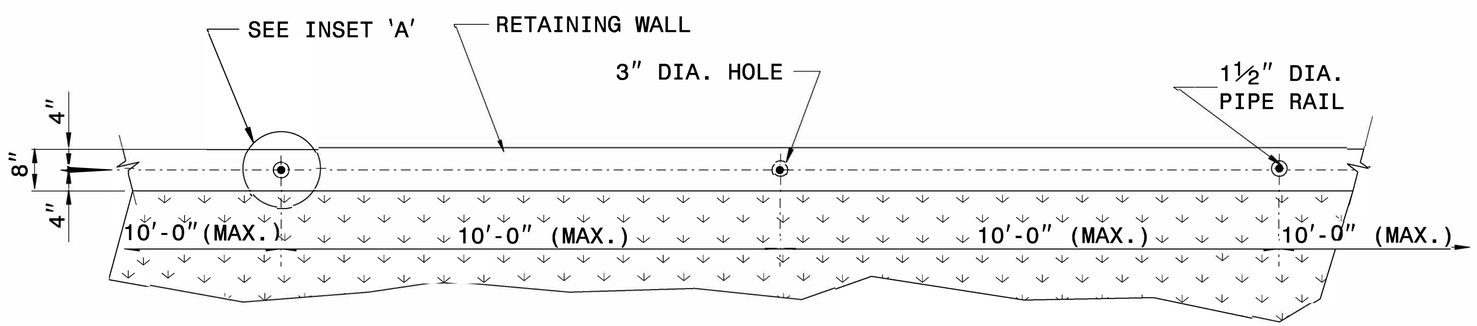


PLAN VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

EMBED PIPE RAIL 8" INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.

USE A ROTARY DRILL IF NEEDED FOR EMBEDMENT HOLES OF RAIL IN WALL. ROTARY DRILL ONLY (NO ROTARY-IMPACT DRILLS).

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

NORTH CAROLINA PROFESSIONAL SEAL 022071 ENGINEER

Ron Davenport
F8108603BA47A442...

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

DETAIL OF PIPE HANDRAIL MOUNTED ON RETAINING WALL

ORIGINAL BY: E.E. WARD DATE: 12-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/handrail on retaining wall.dgn

$$$$SYSTEM$$$$
$$$$TIME$$$$
$$$$USERNAME$$$$

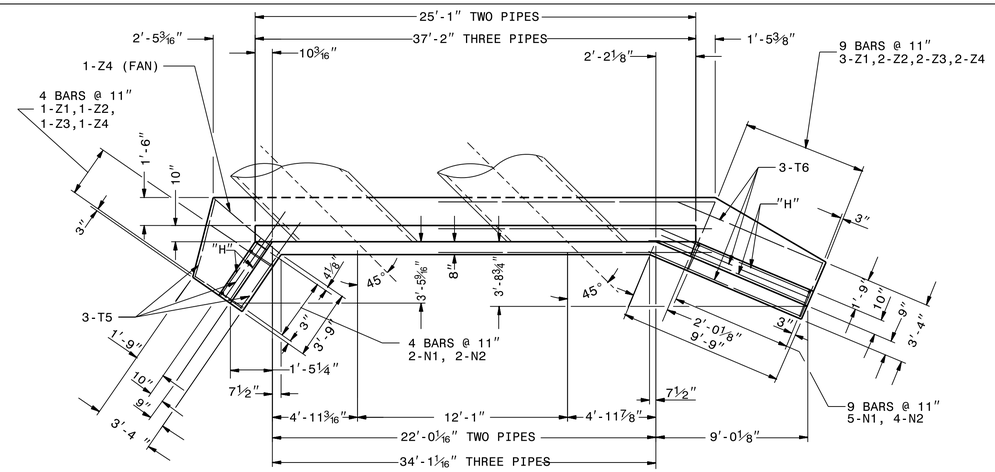
DocuSign Envelope ID: 3C36CE9B-D647-4AA3-BA8A-30B08DC11441

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	2C-1

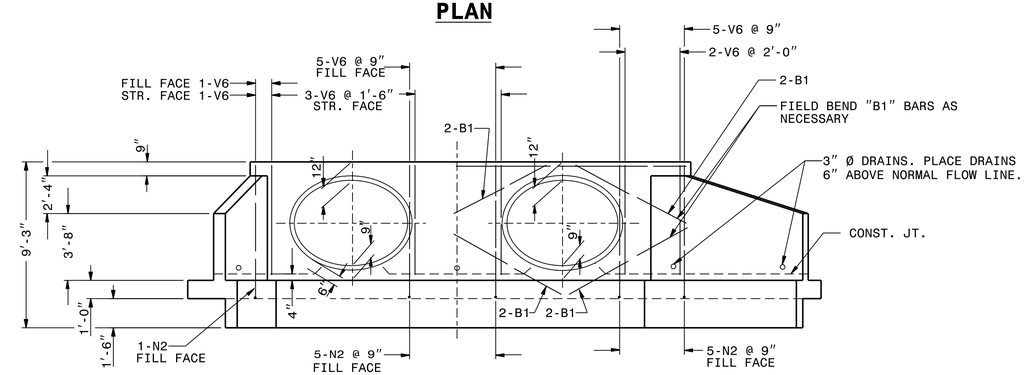
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
REINFORCED CONCRETE ENDWALL
FOR DOUBLE & TRIPLE 60" PIPE 45° OR 135° SKEW

SHEET 1 OF 1
838D32

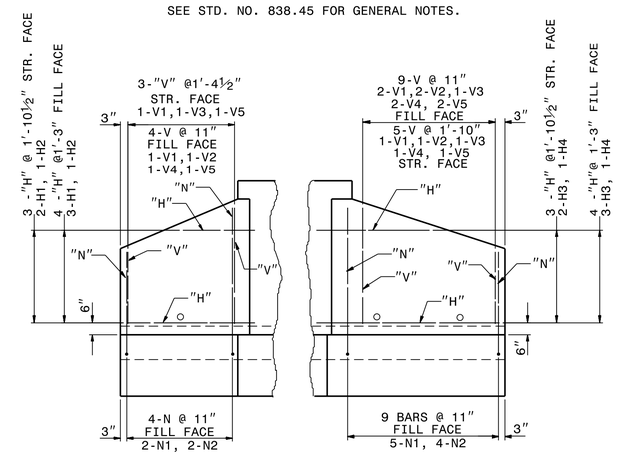


PLAN



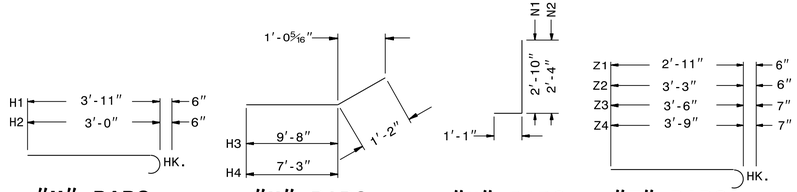
ELEVATION

SEE STD. NO. 838.45 FOR GENERAL NOTES.



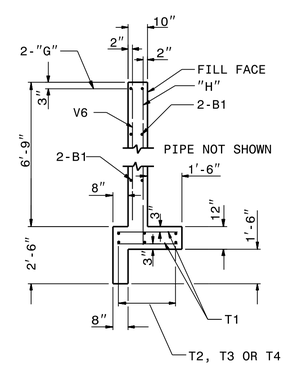
WING ELEVATION

BILL OF MATERIAL FOR ENDWALLS						
REINF. STEEL			2 - PIPES		3 - PIPES	
BAR	SIZE	LENGTH	NO.	WEIGHT	NO.	WEIGHT
Z1	#4	3'-5"	4	9	4	9
Z2	#4	3'-9"	3	8	3	8
Z3	#4	4'-1"	3	13	3	13
Z4	#5	4'-4"	4	18	4	18
N1	#4	3'-5"	7	16	7	16
N2	#5	3'-11"	17	69	22	90
V1	#4	3'-3"	5	11	5	11
V2	#4	3'-9"	4	10	4	10
V3	#5	4'-3"	3	9	3	9
V4	#4	4'-7"	4	12	4	12
V5	#4	5'-2"	5	17	5	17
V6	#4	6'-3"	17	71	25	104
H1	#4	4'-5"	5	15	5	15
H2	#4	3'-6"	2	5	2	5
H3	#4	10'-10"	5	36	5	36
H4	#4	8'-5"	2	11	2	11
G2	#7	24'-9"	2	101	-	-
G3	#7	19'-7"	-	-	4	160
T1	#4	2'-6"	100	167	148	247
T3	#4	28'-7"	6	115	-	-
T4	#4	21'-0"	-	-	12	168
T5	#4	4'-5"	3	9	3	9
T6	#6	8'-9"	3	39	3	39
B1	#4	5'-6"	16	59	24	88
REINF. STEEL LBS.				820		1095
CONC/C.M. CU. YDS.			11.3		14.7	
CONC/R.C. CU. YDS.			10.5		13.6	

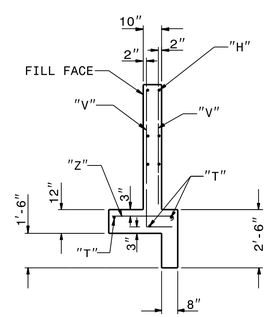


"H" BARS **"H" BARS** **"N" BARS** **"Z" BARS**

"H", "N", & "Z" BARS DIMENSIONS ARE OUT TO OUT.



SECTION - BB



SECTION - AA

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

ENGLISH DETAIL DRAWING FOR
REINFORCED CONCRETE ENDWALL
FOR DOUBLE & TRIPLE 60" PIPE 45° OR 135° SKEW

SHEET 1 OF 1
838D32

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

DETAIL OF REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 60" DIAMETER PIPE - 45° SKEW

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 06-30-10
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/hydro/60endwall,45sk.dgn

24-SEP-2019 10:42
S:\Contracts\Contracts\Special Details\ericward\usr\ds9\stand\838d32.dgn
jhowerton AT CSD-292595

DocuSign Envelope ID: B6F7900D-8803-490E-9D9A-01E8C2EC9927

6/21/00

REVISIONS

COMPUTED BY: BGR	DATE: 4-24-2020
CHECKED BY: ACC	DATE: 4-24-2020

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY NO.1					
-L- STA. 11+85 TO STA. 37+62	384		953	569	
SUBTOTAL SUMMARY NO.1	384		953	569	
SUMMARY NO.2					
-L- STA. 39+36 TO STA. 45+92	565		688	123	
SUBTOTAL SUMMARY NO.2	565		688	123	
PROJECT SUBTOTAL	949		1641	692	
EST. 5% FOR REPLACING TOP SOIL ON BORROW PITS				35	
GRAND TOTAL	949		1641	727	
SAY	950		1650	730	

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-	14+00	42+35	LT & RT	313
-L-	42+35	44+45	CL	502
-L-	14+00	42+35	LT	10
			TOTAL:	825
			SAY:	825

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

Part 1 – Line, station, structure and elevations

LINE & STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT, RT, OR CL)	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	SLOPE CRITICAL %
-L- 13+15	RT	401	402		2102.4	2095.5	
-L- 13+34	RT	402		2100.5	2095.5		
		402	403		2095.5	2086.1	
-L- 15+35	RT	403		2089.8	2086.1		
		403	404		2086.1	2083.9	
-L- 15+76	RT	404		2088.7	2083.9		
		404	405		2083.9	2083.7	
-L- 15+76	RT	405					
-L- 14+56	LT	406		2084.6	EXISTING		
-L- 15+28	LT	407		2090.9	2083.9		
		407	408		2083.9	2078.1	
-L- 15+58	LT	408		2084.7	2078.1	EXIST	
-L- 19+82	LT	501			2076.1		
		501	502		2076.1	2071.9	
-L- 21+82	LT	502			2071.9		
-L- 32+27	LT	602		2072.3	2069.08		
		602	601		2069.1	2069.0	
-L- 32+77	LT	603		2072.5	2069.3		
		603	602		2069.3	2069.1	
-L- 26+20	LT	604	605		2059.1	2057.3	
-L- 26+30	RT	605					
SHEET TOTAL							

Part 2 – Drainage pipe (RCP, CSP, CAAP, HDPE, or PVC) and C.S. pipe

FROM	TO	DRAINAGE PIPE 10	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12 (0.064)	15 (0.064)	18 (0.064)	24 (0.064)	30 (0.079)	36 (0.079)	42 (0.109)	48 (0.109)
401	402														24						
402																					
402	403		204																		
403																					
403	404		44																		
404		8																			
404	405				12																
405																					
406																					
407																					
407	408														40						
408																					
501																					
501	502		204																		
502																					
602																					
602	601		12																		
603																					
603	602		48																		
604	605																			72	
605																					
SHEET TOTAL		8	512		12										64					72	

Part 3 – R.C. pipe Class III and Class IV, other pipe, endwalls and quantities for drainage structures

FROM	TO	R.C. PIPE CLASS III 12	15	18	24	30	36	42	48	R.C. PIPE CLASS IV 12	15	18	24	30	36	42	48	** " R.C. PIPE (CLASS V)	15" RC PIPE CULVERTS, CONTRACTOR DESIGN	18" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS 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'	LIN.FT. B 10.0' AND ABOVE
401	402																										
402																									1		
402	403																										
403																									1		
403	404																										
404																									1		
404	405																										
405																											
406																									1		
407																									1	2.00	
407	408																										
408																									1	1.6	
501																											
501	502																										
502																											
602																									1		
602	601																										
603																									1		
603	602																										
604	605																							8			
605																											
SHEET TOTAL																								8	8	3.6	

Part 4 – Catch basins, inlets, frames and grates

FROM	TO	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION: DROP INLET STD. 852.04 OR 852.06	CATCH BASIN STD. 852.05	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	G.D.I. FRAME WITH TWO GRATES STD. 840.20 WIDE/FLAT	G.D.I. FRAME WITH TWO GRATES STD. 840.22 WIDE/SAG	G.D.I. FRAME STD. 840.29 NARROW/FLAT	G.D.I. FRAME WITH TWO GRATES STD. 840.24 NARROW/SAG
401	402															
402								1	1							
402	403															
403								1	1							
403	404															
404																
404	405															
405																
406								1	1							
407		1			1											
407	408															
408																
501																
501	502															
502																
602		1		1												
602	601															
603		1		1												
603	602															
604	605															
605																
SHEET TOTAL		3		2	1			3	3							

Part 5 – Junction boxes, manholes, outlets, collars, elbows and remarks

FROM	TO	J.B. STD. 840.31 OR 840.32 W/ MH COVER	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	MANHOLE FRAME AND COVER STD. 840.54	BERM DRAINAGE OUTLET (BDO) STD. 850.10	BERM DRAINAGE OUTLET (BDO) STD. 850.11	CONCRETE OPEN THROAT CATCH BASIN STD. 840.04	CONCRETE MEDIAN DI TYPE-A, EXTRA DEPTH (840D17)	CONCRETE COLLAR (C.Y.)	10" SIDE DRAIN PIPE ELBOWS	15" SIDE DRAIN PIPE ELBOWS	18" SIDE DRAIN PIPE ELBOWS NO. & SIZE	24" SIDE DRAIN PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PSH (PREFORMED SCOUR HOLE) (QTY. EACH)	PIPE REMOVAL LIN. FT.	15" PIPE END SECTION	18" PIPE END SECTION	REMARKS
401	402																			
402																				
402	403																50			
403																				
403	404																			
404								1			1 (HDPE)									
404	405																			
405										0.5										
406																				
407																				
407	408											2 (CSP)								
408		1			1															
501										0.4										
501	502																			
502										0.4										
602																				
602	601																			
603																				
603	602																			
604	605																			
605																				
SHEET TOTAL		1			1			1		1							50			

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

Part 1 – Station, structure, elevations and C.S. pipe

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54"	60"	66"	72"	78"	84"	C.S. PIPE 54" .109	54" .138	54" .168	54" SHOP ELONGATED .138	54" SHOP ELONGATED .168	60" .138	60" .168	66" .138	66" .168	72" .138	72" .168
43+49	CL				2071.75	2070.30														68				
43+59	CL				2070.75	2069.30														68				
43+70	CL				2071.75	2070.30														68				
																				204				

Part 2 – Structural plate pipe, endwalls and other items

STATION	STRUCTURAL PLATE PIPE 60" 12	60" 10	66" 12	66" 10	72" 12	72" 10	REINFORCED ENDWALLS WITH R.C. - C.Y.	WITH C.S. - C.Y.	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & SIZE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL "B" C.Y. STD 840.72	PIPE REMOVAL LIN.FT.	REMARKS
43+49								7.4							
43+59								7.2							
43+70								7.4							
								22							

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

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6/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARLTON — 11/29/2022

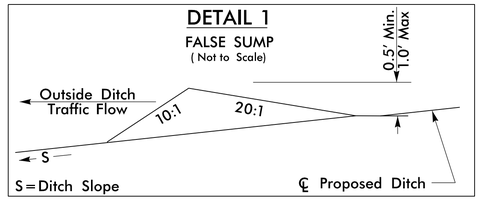
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS • SURVEYORS
FIRM LICENSE No. C-1154
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562

DATUM DESCRIPTION

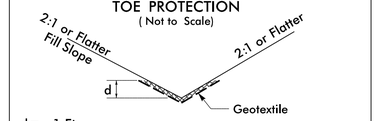
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS 103" FROM PROJECT R-5600 WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 613216.3160(ft) EASTING: 747762.8490(ft)
ELEVATION: 2220.27(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999776716
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BM-1" TO -L- STATION 10+00.00 IS S47°45'57.49"E - 1108.38'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

DETAIL 1
FALSE SUMP
(Not to Scale)



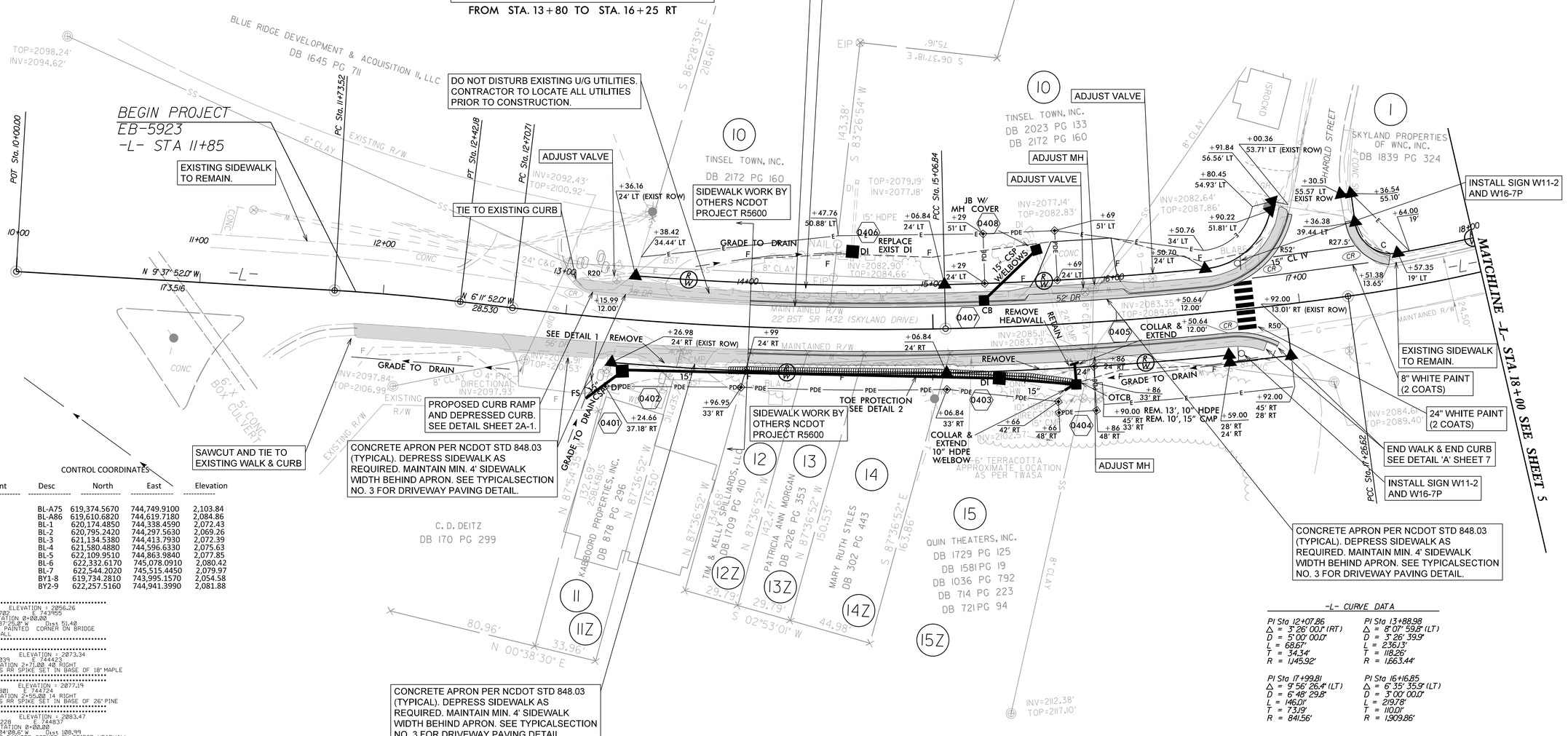
STA. 13+16

DETAIL 2
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
Type of Liner = EST. 60 TONS Class II Rip-Rap
125 SY GEOTEXTILE

FROM STA. 13+80 TO STA. 16+25 RT



CONTROL COORDINATES

Point	Desc	North	East	Elevation
A75	BL-A75	619,374.5670	744,749.9100	2,103.84
A86	BL-A86	619,610.6820	744,619.7180	2,084.86
1	BL-1	620,174.4850	744,338.4590	2,072.43
2	BL-2	620,795.2420	744,297.5630	2,069.26
3	BL-3	621,134.5380	744,413.7930	2,072.39
4	BL-4	621,580.4880	744,596.6330	2,075.63
5	BL-5	622,109.9510	744,863.9840	2,077.85
6	BL-6	622,332.6170	745,078.0910	2,080.42
7	BL-7	622,544.2020	745,515.4450	2,079.97
8	BY1-8	619,734.2810	743,995.1570	2,054.58
9	BY2-9	622,257.5160	744,941.3990	2,081.88

BM1 ELEVATION = 2056.26
N 619702 E 743955
BY1 STATION 0+00.00
S 50°37'25.0" W Dist 51.40
BM1 IS PAINTED CORNER ON BRIDGE HEADWALL

BM2 ELEVATION = 2073.34
N 621039 E 744423
BL STATION 2+71.00 40 RIGHT
BM2 IS RR SPIKE SET IN BASE OF 18" MAPLE

BM3 ELEVATION = 2077.19
N 621801 E 744724
BL STATION 2+55.00 14 RIGHT
BM3 IS RR SPIKE SET IN BASE OF 26" PINE

BM4 ELEVATION = 2083.47
N 622228 E 744837
BY2 STATION 0+00.00
S 74°04'08.6" W Dist 108.99
BM4 IS PAINTED CORNER ON BRIDGE HEADWALL

BM5 ELEVATION = 2082.99
N 622583 E 745662
BL STATION 4+86.00
N 75°08'34.3" E Dist 151.92
BM5 IS RR SPIKE SET IN BASE OF RR CROSSING SIGN

-L- CURVE DATA

PI Sta 12+07.86	PI Sta 13+88.98
Δ = 3° 26' 00.0" (RT)	Δ = 8° 07' 59.8" (LT)
D = 5° 00' 00.0"	D = 3° 26' 39.9"
L = 68.67'	L = 236.13'
T = 34.34'	T = 118.26'
R = 1,145.92'	R = 1,663.44'
PI Sta 17+99.81	PI Sta 16+16.85
Δ = 9° 56' 26.4" (LT)	Δ = 6° 35' 35.9" (LT)
D = 6° 48' 29.8"	D = 3° 00' 00.0"
L = 146.01'	L = 219.78'
T = 73.19'	T = 110.01'
R = 841.56'	R = 1,909.86'

— TOE PROTECTION SEE DETAIL 2

PROPOSED 4" CONCRETE SIDEWALK

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER — DocuSigned by: Aaron Carver — 2/18/2022

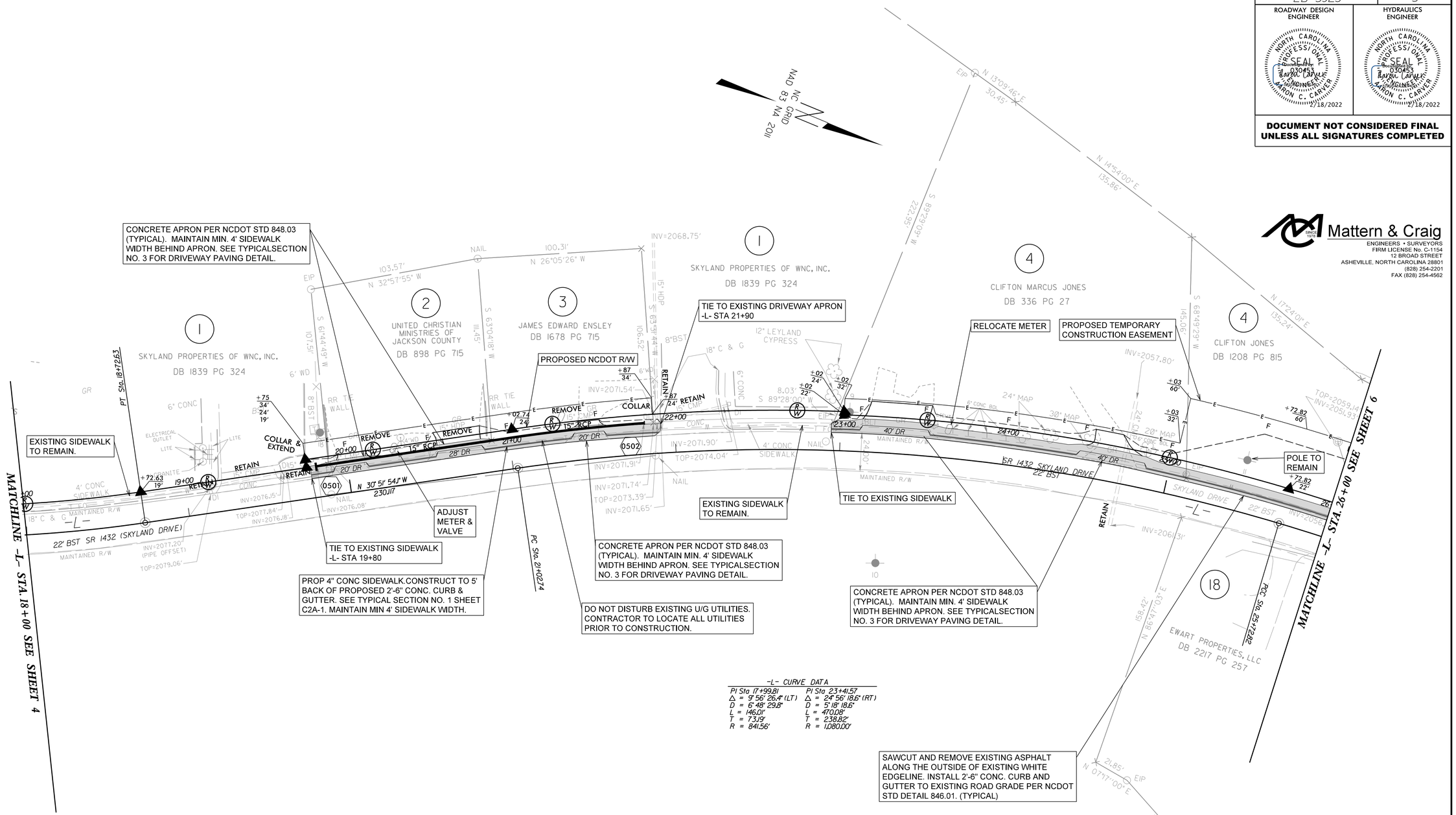
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER — DocuSigned by: Aaron Carver — 2/18/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS • SURVEYORS
FIRM LICENSE No. C-1154
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562

REVISIONS

6/2/99



PROJECT REFERENCE NO.	SHEET NO.
EB-5923	6

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER BARRON C. CARVER 2/18/2022	NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER BARRON C. CARVER 2/18/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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12 BROAD STREET
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(828) 254-2201
FAX (828) 254-4562

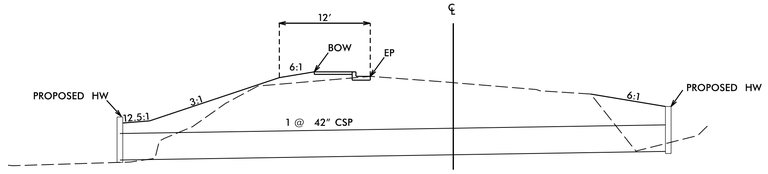
REVISIONS

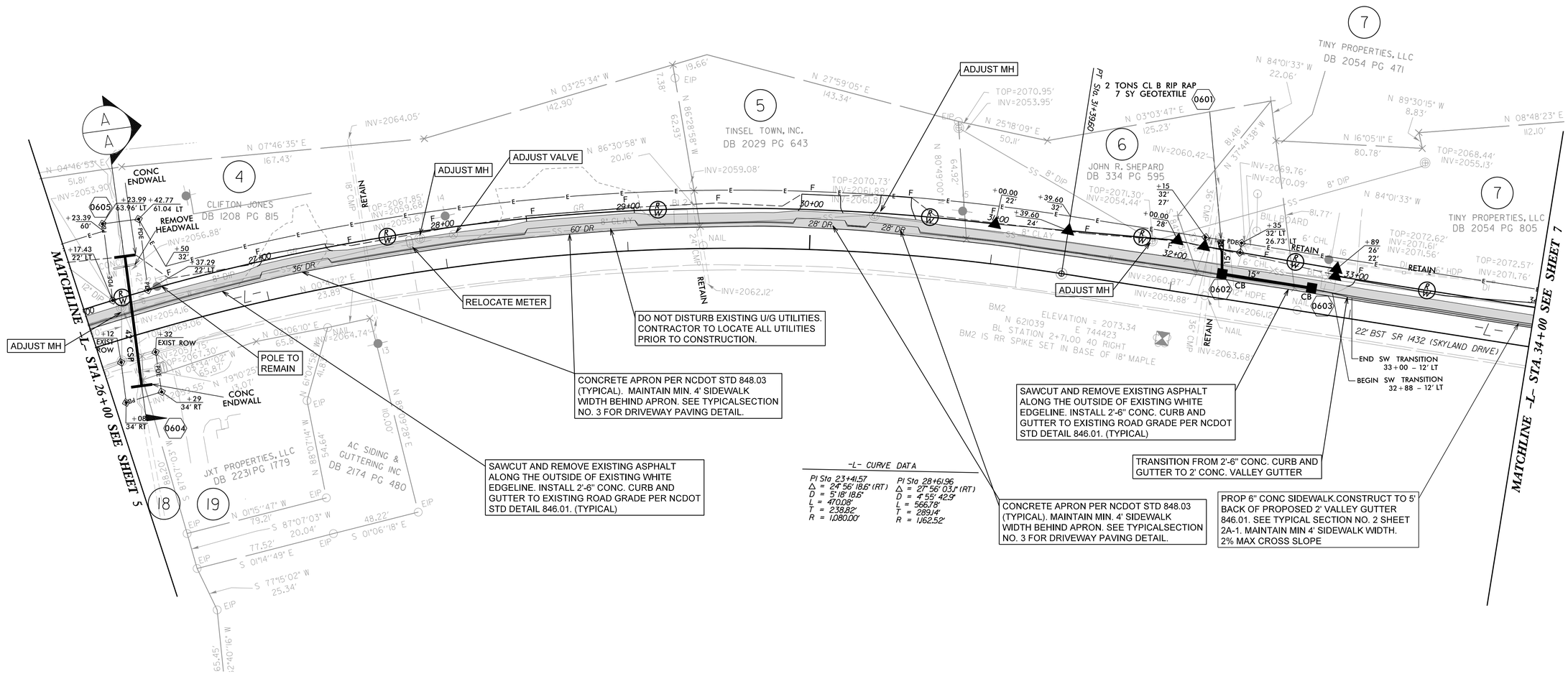
6/2/99

SECTION A-A

-L- STA 26+24 +/-

NOT TO SCALE





-L- CURVE DATA

PI Sta 23+41.57	PI Sta 28+61.96
Δ = 24° 56' 18.6" (RT)	Δ = 27° 56' 03.1" (RT)
D = 5° 18' 18.6"	D = 4° 55' 42.9"
L = 470.08'	L = 566.78'
T = 238.82'	T = 289.14'
R = 1,080.00'	R = 1,162.52'

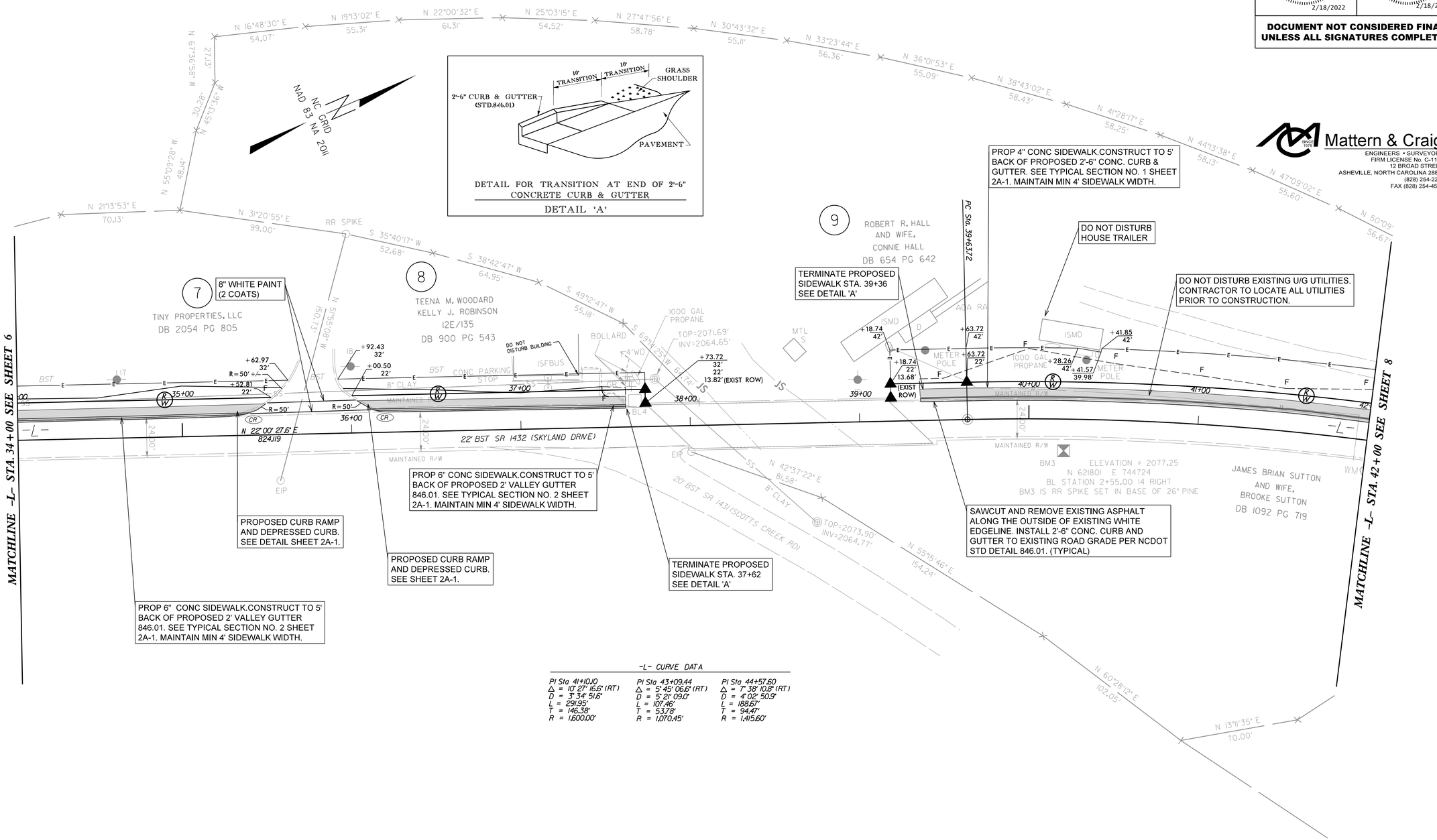
PROPOSED 4" CONCRETE SIDEWALK

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	7

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER 2/18/2022	NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER 2/18/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS • SURVEYORS
FIRM LICENSE No. C-1154
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562



-L- CURVE DATA

PI Sta 41+10.10	PI Sta 43+09.44	PI Sta 44+57.60
Δ = 10° 27' 16.6" (RT)	Δ = 5° 45' 06.6" (RT)	Δ = 7° 38' 10.8" (RT)
D = 3° 34' 51.6"	D = 5° 21' 09.0"	D = 4° 02' 50.9"
L = 291.95'	L = 107.46'	L = 188.67'
T = 146.38'	T = 53.78'	T = 94.47'
R = 1,600.00'	R = 1,070.45'	R = 1,415.60'

REVISIONS

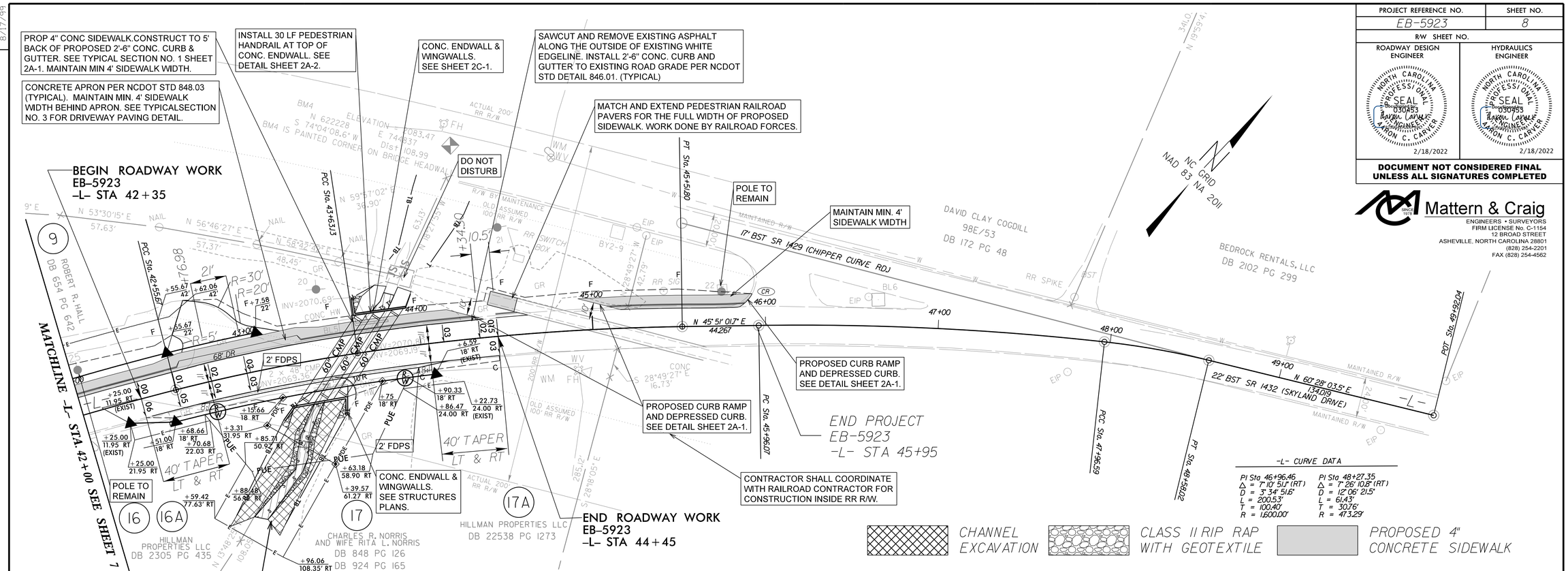
6/2/99

12:47:10 PM
EB-5923 Sylva Sidewalk\06 EB-5923\Roadway\Proj\EB-5923_rdy_Psh_07.dgn

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
2/18/2022	2/18/2022

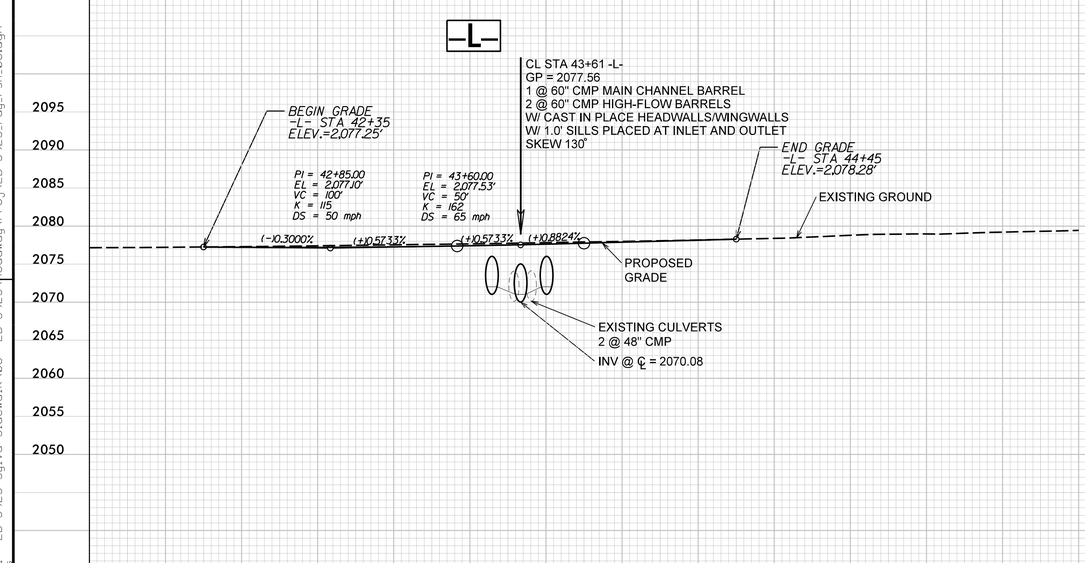
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS • SURVEYORS
FIRM LICENSE No. C-1154
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562



-L- CURVE DATA

PI Sta 46+96.46	PI Sta 48+27.35
Δ = 7° 10' 51.1" (RT)	Δ = 7° 26' 10.8" (RT)
D = 3° 34' 51.6"	D = 12° 06' 21.5"
L = 200.53'	L = 61.43'
T = 100.40'	T = 30.76'
R = 1,600.00'	R = 473.29'



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 680 CFS
DESIGN FREQUENCY	= 100-YEAR FEMA
DESIGN HW ELEVATION	= 2,080.1 FT
BASE DISCHARGE	= 500 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2,079.4 FT
OVERTOPPING DISCHARGE	= 320 CFS
OVERTOPPING FREQUENCY	= 10+ YRS
OVERTOPPING ELEVATION	= 2,078.1 FT
W.S. ELEVATION AT DATE OF SURVEY (DECEMBER 2018)	= 2,073.5 FT

BM4 ELEVATION = 2083.47
N 622228 E 744837
S 74^04'08.6" W Dist 108.99
BM4 IS PAINTED CORNER ON BRIDGE HEADWALL

BM5 ELEVATION = 2082.99
N 622583 E 745662
BL STATION 4+86.00
N 75^08'34.3" E Dist 151.92
BM5 IS RR SPIKE SET IN BASE OF RR CROSSING SIGN

REVISIONS

8/17/99

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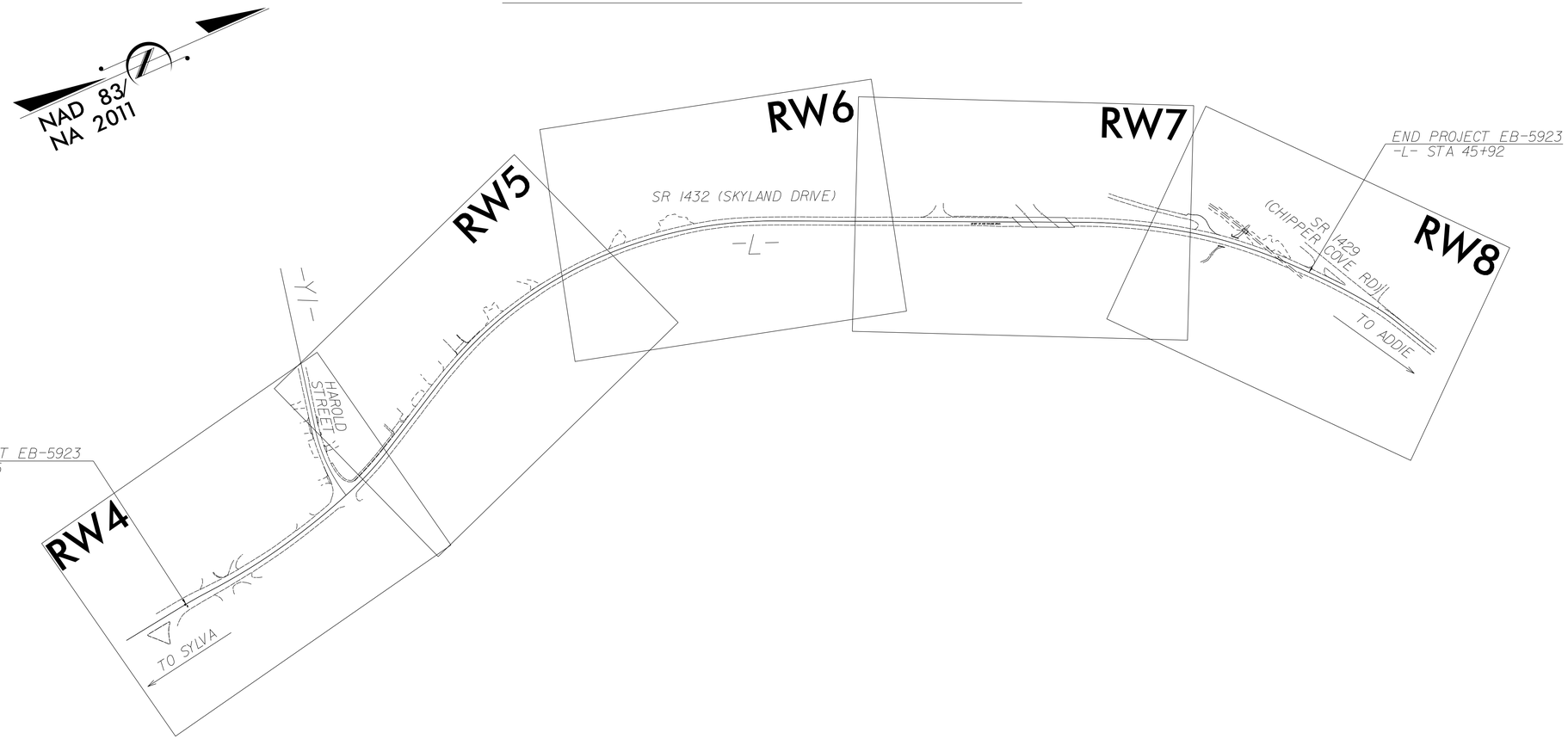
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB-5923	RW01	11

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

JACKSON COUNTY

TIP PROJECT: EB-5923



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 NCGS FOR MONUMENT "GPS 103" FROM PROJECT R-5600 WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 613216.3610(ft) EASTING: 747762.8490(ft) ELEVATION: 2220.27(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999776716
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS 103" TO -L- STATION 11+85.00 IS N 26°59'57.2" W 6647.16(ft)
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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
JUNE 2018	JANUARY 2022

PROFESSIONAL LAND SURVEYOR

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

DocuSigned by: Brian Barwatt 01/11/2022
—A035FFE8A8A4CE...
SIGNATURE: ***Date:***

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

10-NOV-2021 15:09
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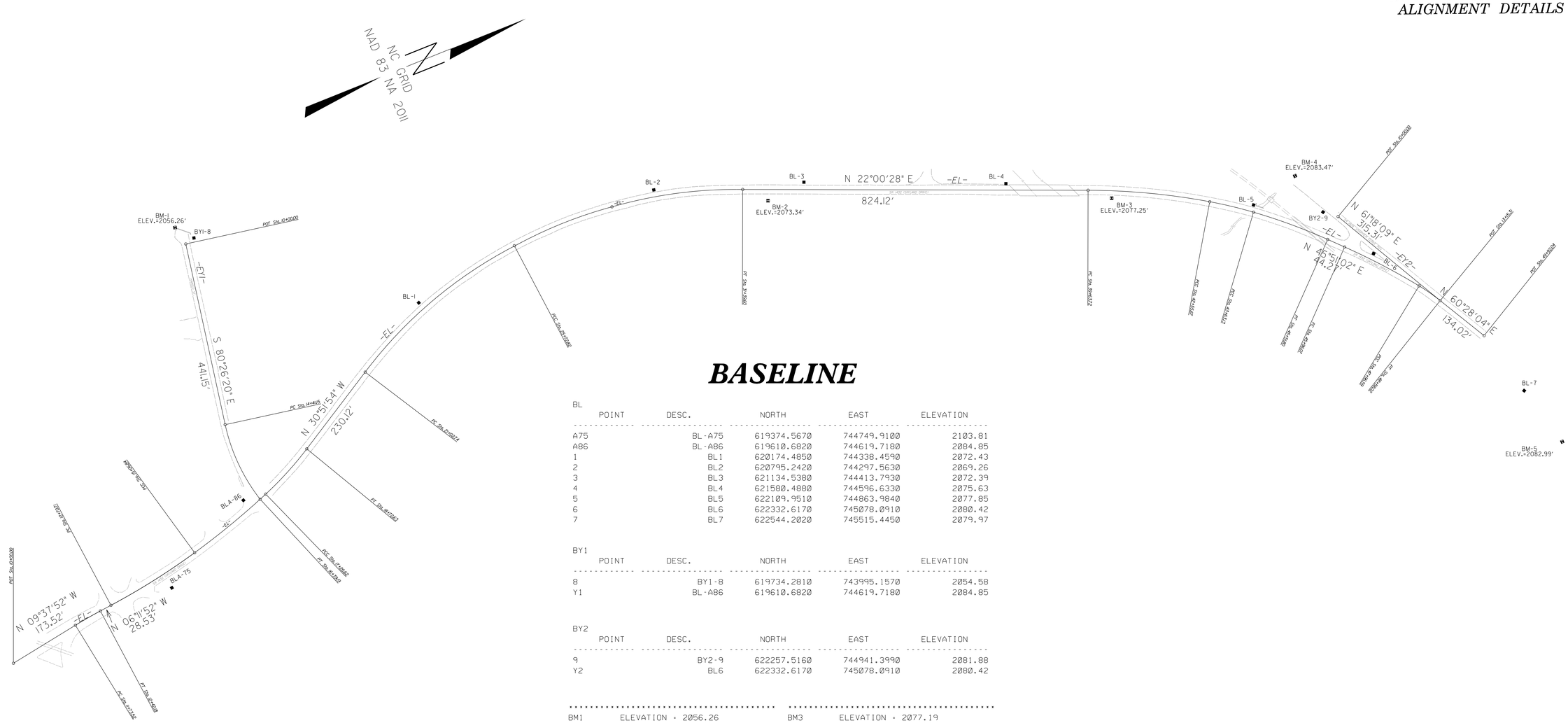
bbarwatt AT LS-31902

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW02C-1
Location and Surveys	
MATTERN AND CRAIG	

SURVEY CONTROL SHEET EB-5923

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

SEE SHEET RW0C-2 & RW02C-3 FOR FURTHER ALIGNMENT DETAILS



BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION
A75	BL-A75	619374.5670	744749.9100	2103.81
A86	BL-A86	619610.6820	744619.7180	2084.85
1	BL1	620174.4850	744338.4590	2072.43
2	BL2	620795.2420	744297.5630	2069.26
3	BL3	621134.5380	744413.7930	2072.39
4	BL4	621580.4880	744596.6330	2075.63
5	BL5	622109.9510	744863.9840	2077.85
6	BL6	622332.6170	745078.0910	2080.42
7	BL7	622544.2020	745515.4450	2079.97

BY1

POINT	DESC.	NORTH	EAST	ELEVATION
8	BY1-8	619734.2810	743995.1570	2054.58
Y1	BL-A86	619610.6820	744619.7180	2084.85

BY2

POINT	DESC.	NORTH	EAST	ELEVATION
9	BY2-9	622257.5160	744941.3990	2081.88
Y2	BL6	622332.6170	745078.0910	2080.42

BM1 ELEVATION - 2056.26
N 619702 E 743955
BM1 IS PAINTED CORNER ON BRIDGEHEADWALL

BM2 ELEVATION - 2073.34
N 621039 E 744423
BM2 IS RR SPIKE SET IN BASE OF 18" MAPLE

BM3 ELEVATION - 2077.19
N 621801 E 744724
BM3 IS RR SPIKE SET IN BASE OF 22" PINE

BM4 ELEVATION - 2083.47
N 622228 E 744837
BM4 IS PAINTED CORNER ON BRIDGE HEADWALL

BM5 ELEVATION - 2082.99
N 622583 E 745662
BM5 IS RR SPIKE SET IN BASE OF RRCROSSING SIGNAL

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.

6/2/99

REVISIONS

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bobarwatt AT LS-31702

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW02C-2
Location and Surveys	
MATTERN AND CRAIG	

SURVEY CONTROL SHEET EB-5923

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	618956.666	744776.074							
LINE			N 09°37'52.0" W	173.52					
PC	619127.736	744747.044							
CURVE			N 07°54'52.0" W	68.66	03°26'00.1"(RT)	05°00'00.0"	68.67	34.34	1145.92
PT	619195.739	744737.591							
LINE			N 06°11'52.0" W	28.53					
PC	619224.102	744734.511							
CURVE			N 10°15'51.9" W	235.93	08°07'59.8"(LT)	03°26'39.9"	236.13	118.26	1663.44
PT	619456.258	744692.470							
LINE			S 14°19'51.7" E	0.00					
PC	619456.257	744692.470							
CURVE			N 17°37'39.7" W	219.66	06°35'35.9"(LT)	03°00'00.0"	219.78	110.01	1909.86
PCC	619665.599	744625.951							
CURVE			N 25°53'40.9" W	145.83	09°56'26.4"(LT)	06°48'29.8"	146.01	73.19	841.56
PT	619796.783	744562.267							
LINE			N 30°51'54.1" W	230.12					
PC	619994.311	744444.213							
CURVE			N 18°23'44.8" W	466.38	24°56'18.6"(RT)	05°18'18.6"	470.08	238.82	1080.00
PCC	620436.856	744297.034							
CURVE			N 08°02'26.0" E	561.18	27°56'03.1"(RT)	04°55'42.9"	566.78	289.14	1162.52
PT	620992.521	744375.529							
LINE			N 22°00'27.6" E	824.12					
PC	621756.589	744684.351							
CURVE			N 27°14'05.9" E	291.54	10°27'16.6"(RT)	03°34'51.6"	291.95	146.38	1600.00
PT	622015.811	744817.773							
LINE			S 32°27'44.1" W	0.00					
PC	622015.811	744817.773							
CURVE			N 35°20'17.5" E	107.42	05°45'06.6"(RT)	05°21'09.0"	107.46	53.78	1070.45
PCC	622103.435	744879.902							
CURVE			N 42°01'56.2" E	188.53	07°38'10.8"(RT)	04°02'50.9"	188.67	94.47	1415.60
PT	622243.469	745006.133							
LINE			N 45°51'01.7" E	44.27					
PC	622274.303	745037.896							
CURVE			N 49°26'27.2" E	200.40	07°10'51.1"(RT)	03°34'51.6"	200.53	100.40	1600.00
PCC	622404.607	745190.143							
CURVE			N 56°44'58.1" E	61.38	07°26'10.8"(RT)	12°06'21.5"	61.43	30.76	473.29
PT	622438.264	745241.478							
LINE			N 60°28'03.5" E	134.02					
POT	622504.323	745358.084							

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

6/2/99

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bbarkett
Bentley Descartes
AT LS-31302

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW02C-3
Location and Surveys	
MATTERN AND CRAIG	

SURVEY CONTROL SHEET EB-5923

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	619710.857	744001.215							
LINE			S 80°26'20.0" E	441.15					
PC	619637.582	744436.234							
CURVE			N 86°45'01.4" E	196.40	25°37'17.1"(LT)	12°56'14.3"	198.04	100.71	442.87
PT	619637.582	744436.234							

EY2

POINT	N	E	BEARING	DIST
POT	622286.857	744964.899		
LINE			N 61°18'09.3" E	315.31
POT	622438.264	745241.478		

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

6/2/99

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bobarnett
AT LS-317902

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW02D-1

Location and Surveys

PREPARED IN THE OFFICE OF:

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

PROJECT SURVEYOR

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 11th day of January, 2022.

DocuSigned by:
Brian Barwatt
A9105FE9A8A4CE...

Professional Land Surveyor L-4727

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	618956.6659	744776.0743
PC	11+73.52	619127.7359	744747.0444
PT	12+42.18	619195.7388	744737.5907
PC	12+70.71	619224.1022	744734.5106
PCC	15+06.84	619456.2575	744692.4698
PCC	17+26.62	619665.5991	744625.9513
PT	18+72.63	619796.7836	744562.2666
PC	21+02.74	619994.3107	744444.2128
PCC	25+72.82	620436.8560	744297.0338
PT	31+39.60	620992.5209	744375.5286
PC	39+63.72	621756.5890	744684.3512
PCC	42+55.67	622015.8107	744817.7732
PCC	43+63.13	622103.4349	744879.9023
PT	45+51.80	622243.4692	745006.1328
PC	45+96.07	622274.3028	745037.8955
PCC	47+96.59	622404.6067	745190.1434
PT	48+58.02	622438.2635	745241.4776
POT	49+92.04	622504.3234	745358.0843

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	619710.8566	744001.2150
PC	14+41.15	619637.5823	744436.2340
PT	16+39.19	619648.7153	744632.3154

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

6/2/99

11-JAN-2022 10:00
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bbarwatt
AT LS-317902

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW03E-1

Location and Surveys

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

PROJECT SURVEYOR

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/18/2021 to 11/9/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of January, 2022.

DocuSigned by:
Brian Barwatt
Professional Land Surveyor L-4727

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+26.98	24.00	619283.3243	744751.2495
L	13+36.16	-24.00	619285.4852	744702.4273
L	15+06.84	-24.00	619450.3170	744669.2166
L	15+06.84	24.00	619462.1981	744715.7229
L	16+50.70	-24.00	619586.4932	744628.9080
L	16+59.00	28.00	619611.0926	744675.4685
L	16+59.00	24.00	619609.7973	744671.6841
L	16+90.22	-51.81	619613.9037	744589.8836
L	16+91.84	-56.56	619613.7722	744584.8853
L	16+92.00	28.00	619642.6767	744664.3518
L	16+92.00	13.01	619637.5794	744650.2596
L	17+30.51	-55.57	619649.1424	744572.7365
L	17+36.38	-39.44	619660.1799	744585.7395
L	17+36.54	-55.10	619654.5569	744571.1201
L	17+57.35	-19.00	619686.6667	744596.9676
L	18+72.63	-19.00	619787.0362	744545.9575
L	19+75.00	-24.00	619872.3451	744489.1469
L	19+75.00	-19.00	619874.9102	744493.4388
L	21+02.74	-24.00	619981.9983	744423.6117
L	23+02.00	-24.00	620165.4574	744335.7931
L	23+02.00	-22.00	620166.1511	744337.6689
L	25+72.82	-22.00	620434.5844	744275.1514
L	31+00.00	-22.00	620963.1030	744340.6507
L	31+39.60	-24.00	621001.5144	744353.2774
L	32+00.00	-28.00	621059.0099	744372.2017
L	32+15.00	-27.00	621072.5422	744378.7498
L	32+89.00	-22.00	621139.2764	744411.1155
L	32+89.00	-26.00	621140.7753	744407.4070
L	35+52.81	-22.00	621383.8666	744509.9745
L	36+00.50	-22.00	621428.0743	744527.8424
L	37+73.72	-13.82	621585.6063	744600.3408
L	37+73.72	-22.00	621588.6729	744592.7535
L	39+18.74	-13.68	621720.0092	744654.8067
L	39+18.74	-22.00	621723.1254	744647.0968
L	39+63.72	-22.00	621764.8331	744663.9543
L	42+25.00	11.95	621983.5558	744811.7684
L	42+51.00	18.00	622002.2451	744830.4890
L	42+55.67	-22.00	622027.6191	744799.2108
L	43+07.58	-22.00	622071.6113	744828.7183
L	44+06.59	18.00	622125.6040	744921.1043

PUE

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	42+68.66	18.00	622016.8827	744839.8804
L	42+88.48	56.12	622011.6624	744882.2142
L	43+63.18	58.90	622067.0361	744926.2149
L	43+90.33	18.00	622113.2421	744910.8615

PDE

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+24.66	37.18	619282.8358	744764.6322
L	13+96.95	33.00	619355.0065	744748.5774
L	13+99.00	24.00	619355.4020	744739.3478
L	15+06.84	33.00	619464.4258	744724.4429
L	15+29.00	-51.00	619464.4972	744637.5976
L	15+29.00	-24.00	619471.4834	744663.6781
L	15+66.00	42.00	619524.9934	744717.2920
L	15+66.00	48.00	619526.6579	744723.0565
L	15+69.00	-51.00	619501.9950	744627.1310
L	15+69.00	-24.00	619509.5259	744653.0595
L	15+86.00	24.00	619539.4242	744694.2795
L	15+86.00	48.00	619546.3232	744717.2665
L	26+08.00	34.00	620474.3795	744327.8406
L	26+12.00	12.01	620476.7200	744305.6237
L	26+17.43	-22.00	620479.8669	744271.3271
L	26+23.99	-63.96	620484.0516	744229.0265
L	26+29.00	34.00	620494.7231	744326.5338
L	26+32.00	12.01	620496.4774	744304.4128
L	26+37.29	-22.00	620500.0776	744270.1834
L	26+42.77	-61.04	620503.9612	744230.9270
L	32+15.00	-27.00	621072.5422	744378.7498
L	32+15.00	-32.00	621074.4191	744374.1154
L	32+35.00	-32.00	621092.9618	744381.6101
L	32+35.00	-26.73	621090.9868	744386.4963
L	43+03.31	31.95	622037.0921	744870.3962
L	43+15.66	18.00	622055.0005	744865.9952
L	43+39.57	61.27	622047.9299	744914.4966
L	43+75.00	18.00	622101.4814	744901.3362

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FROM 3/18/2021 TO 11/9/2021.

REVISIONS

6/2/99

13-JAN-2022 07:47
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bobarwatt AT LS-317302

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW04

Location and Surveys

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

PROJECT SURVEYOR

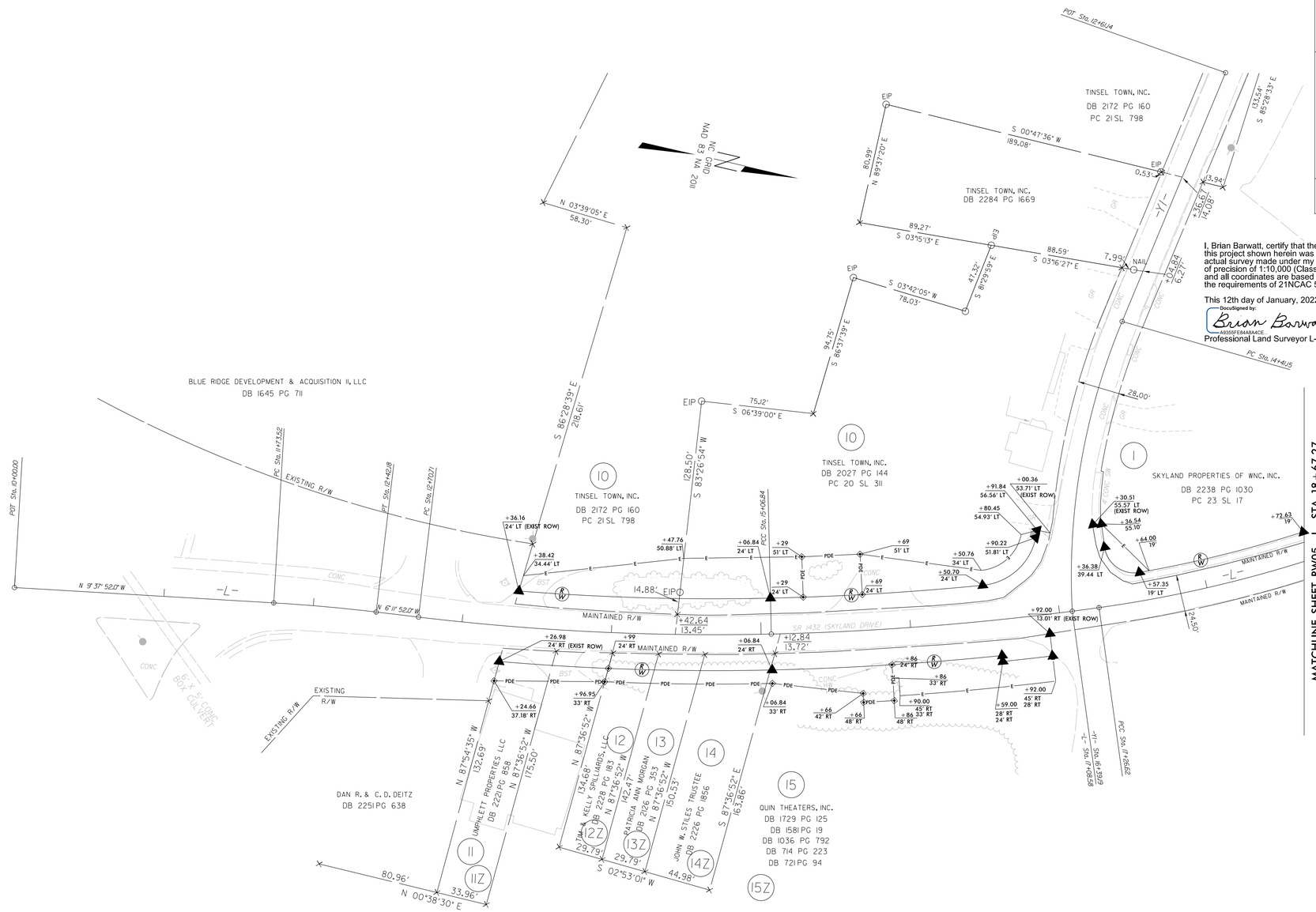
NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/18/2021 to 11/9/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 12th day of January, 2022.

DocuSigned by:
Brian Barwatt
A8B5FE8A8A4CE
Professional Land Surveyor L-4727



-L- CURVE DATA

PI Sta 12+07.86
Δ = 3°26' 00.1" (RT)
D = 5°00' 00.0"
L = 68.67'
T = 34.34'
R = 1,145.92'

PI Sta 13+88.98
Δ = 8°07' 59.8" (LT)
D = 3°26' 39.9"
L = 236.13'
T = 118.26'
R = 1,663.44'

PI Sta 17+99.81
Δ = 9°56' 26.4" (LT)
D = 6°48' 29.8"
L = 146.01'
T = 73.19'
R = 841.56'

PI Sta 16+16.85
Δ = 6°35' 35.9" (LT)
D = 3°00' 00.0"
L = 219.78'
T = 110.01'
R = 1,909.86'

-Y1- CURVE DATA

PI Sta 15+41.85
Δ = 25°37' 17.1" (LT)
D = 12°56' 14.3"
L = 198.04'
T = 100.71'
R = 442.87'

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FROM 3/18/2021 TO 11/9/2021.

REVISIONS

6/2/99

12-JAN-2022 14:05
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bobs-wkt A1 LS-31792

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW05

Location and Surveys

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

PROJECT SURVEYOR

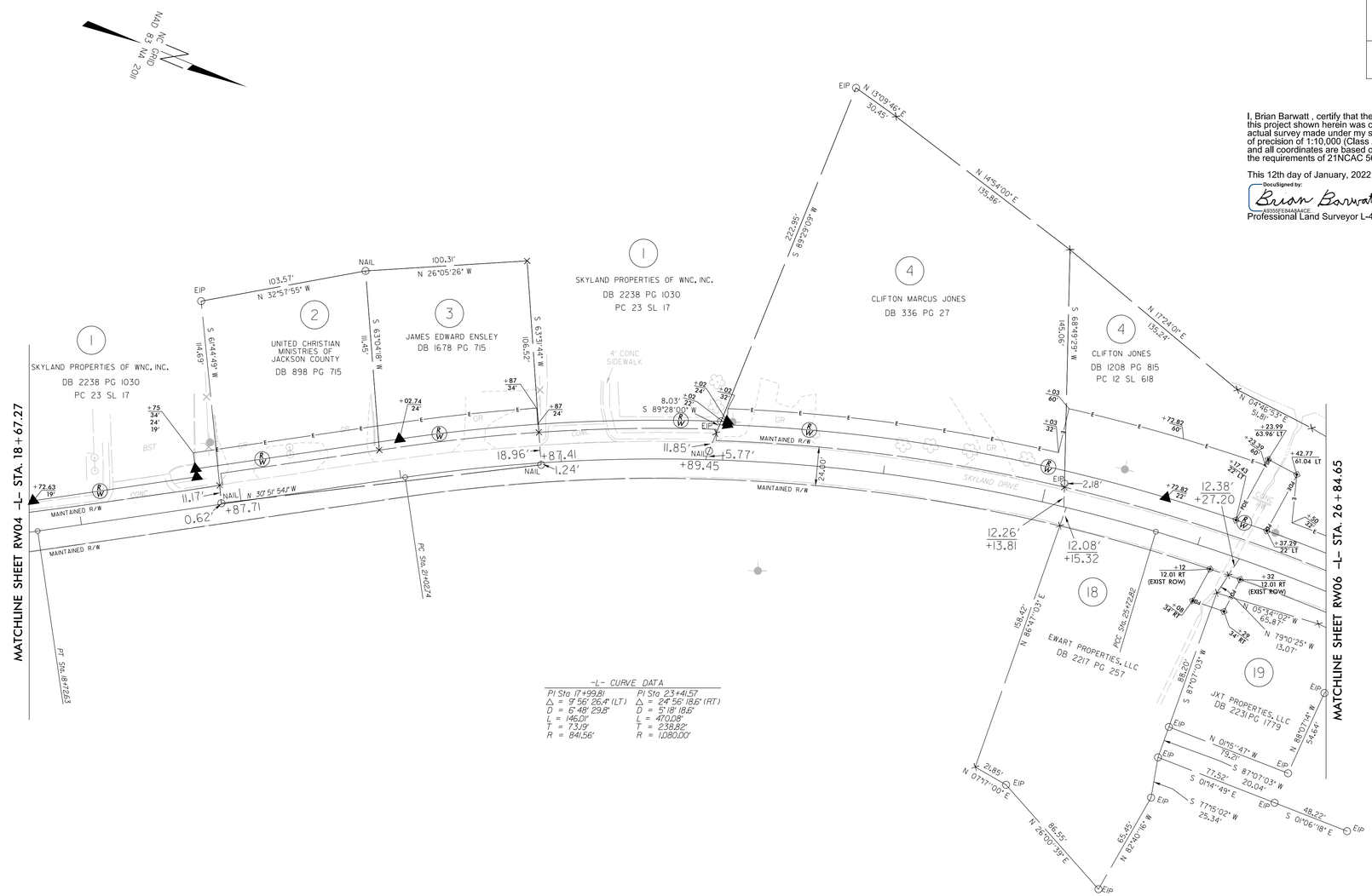
NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/18/2021 to 11/9/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 12th day of January, 2022.

DocuSigned by:
Brian Barwatt
A8B5EE8A8A4C4...
Professional Land Surveyor L-4727



NOTES:

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2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FROM 3/18/2021 TO 11/9/2021.

REVISIONS

6/2/99

12-JAN-2022 15:28
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bobbarwatt A1 LS-31790D

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW06

Location and Surveys

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

PROJECT SURVEYOR

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

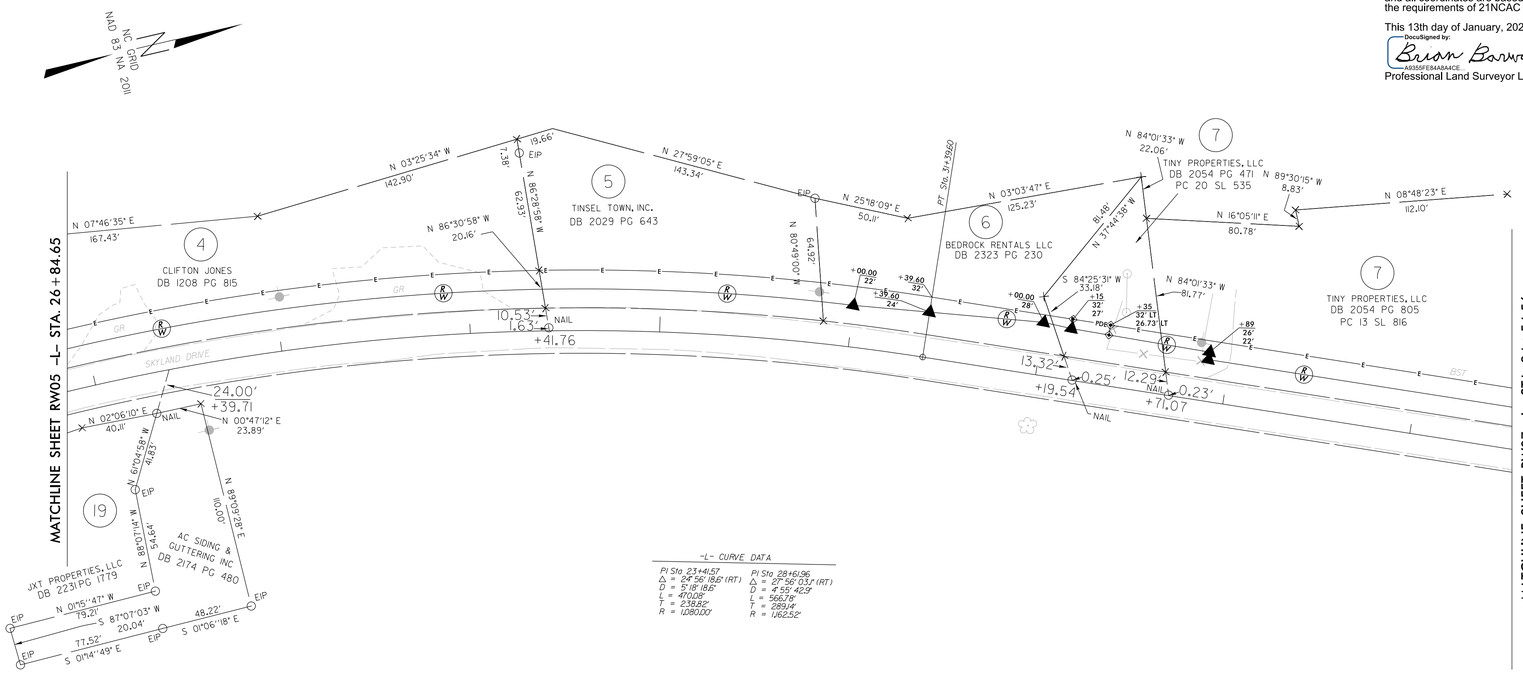
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/18/2021 to 11/9/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of January, 2022.

DocuSigned by:
Brian Barwatt
A8B5FE8A8A4E4E...

Professional Land Surveyor L-4727



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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FROM 3/18/2021 TO 11/9/2021.

REVISIONS

6/2/99

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bobbarwatt AT (S-317902)

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW07

Location and Surveys

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

PROJECT SURVEYOR

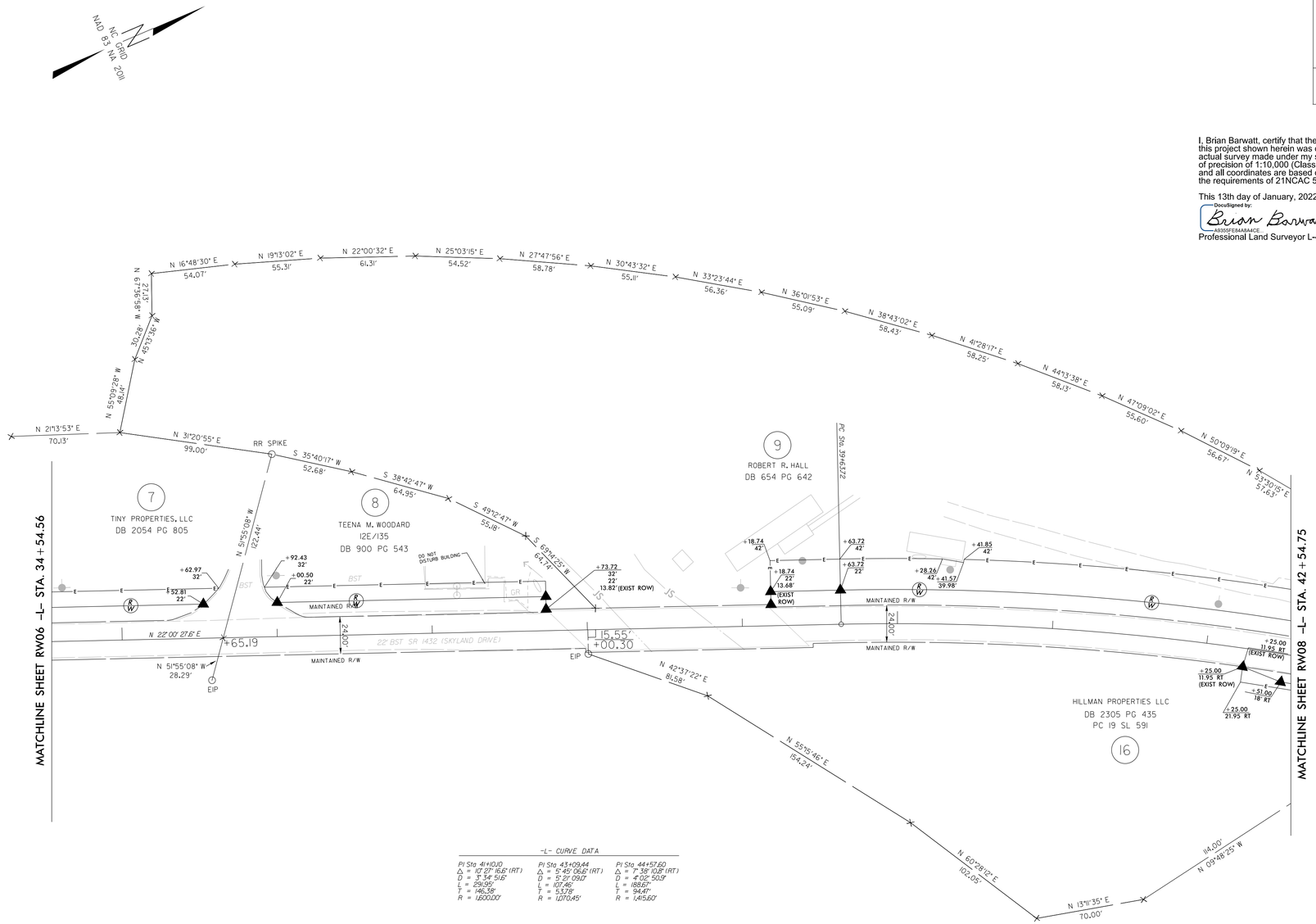
NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/18/2021 to 11/9/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of January, 2022.

DocuSigned by:
Brian Barwatt
A8B5F8B4A4C4C...
Professional Land Surveyor L-4727



-L- CURVE DATA

PI Sta. 41+10.10	PI Sta. 43+09.44	PI Sta. 44+57.60
Δ = 10° 27' 16.6" (RT)	Δ = 5° 45' 06.6" (RT)	Δ = 7° 38' 10.8" (RT)
D = 3° 34' 51.6"	D = 5° 21' 09.0"	D = 4° 02' 50.9"
L = 291.95'	L = 107.46'	L = 188.67'
T = 146.38'	T = 53.78'	T = 94.47'
R = 1,600.00'	R = 1,070.45'	R = 1,415.60'

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FROM 3/18/2021 TO 11/9/2021.

REVISIONS

6/2/99

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bobbarwatt AT (S-3179)02

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	RW08

Location and Surveys

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

PROJECT SURVEYOR

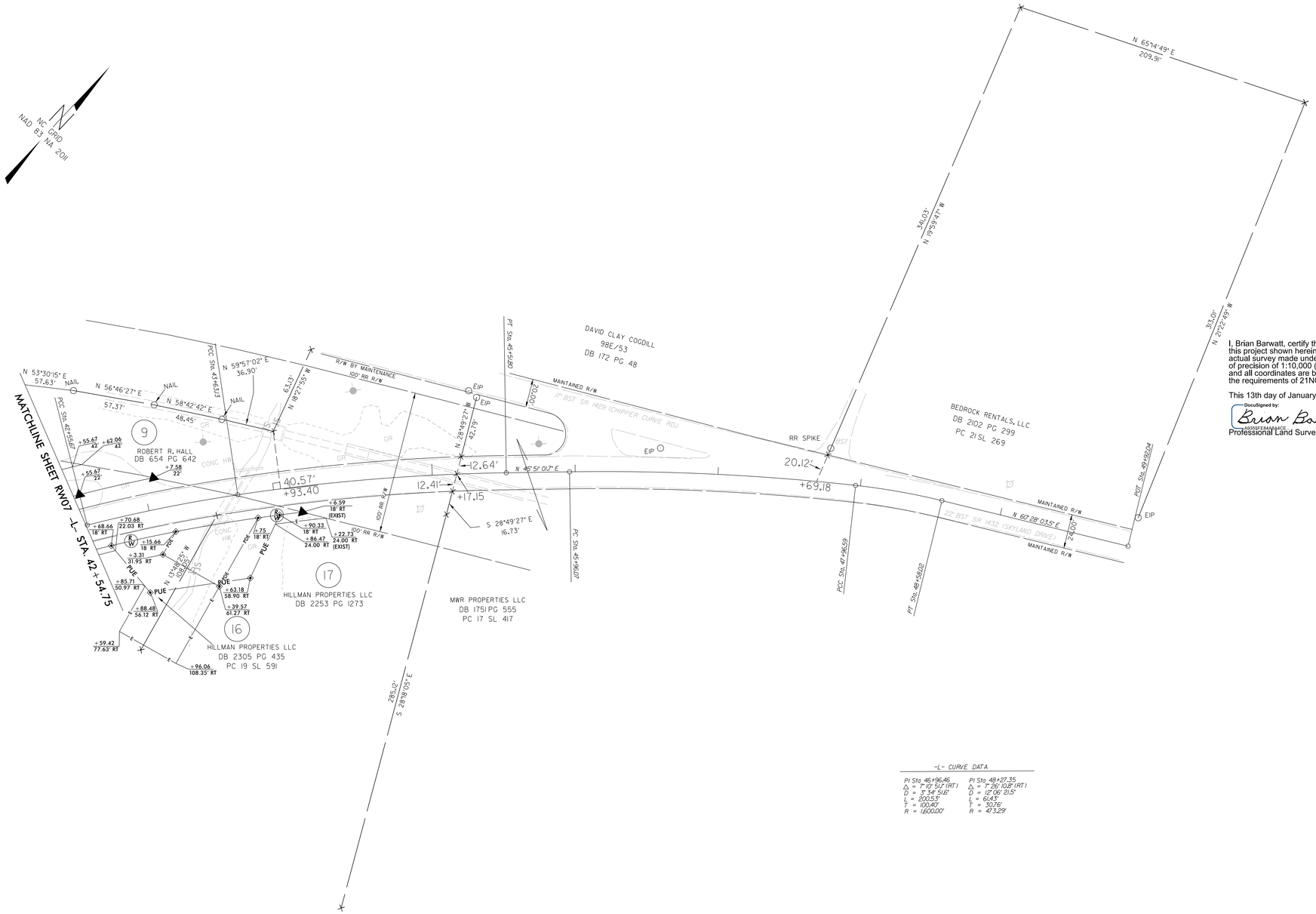
NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/18/2021 to 11/9/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of January, 2022.

DocuSigned by: Brian Barwatt
BRIAN BARWATT
Professional Land Surveyor L-4727



-L- CURVE DATA

PI Sta. 46+96.46	PI Sta. 48+27.35
Δ = 7°10'51" (RT)	Δ = 7°29'10.8" (RT)
D = 3°34'51.6"	D = 11°06'21.5"
L = 200.55'	L = 61.45'
T = 100.40'	T = 30.76'
R = 1600.00'	R = 473.29'

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FROM 3/18/21 TO 11/9/2021.

REVISIONS

6/2/99

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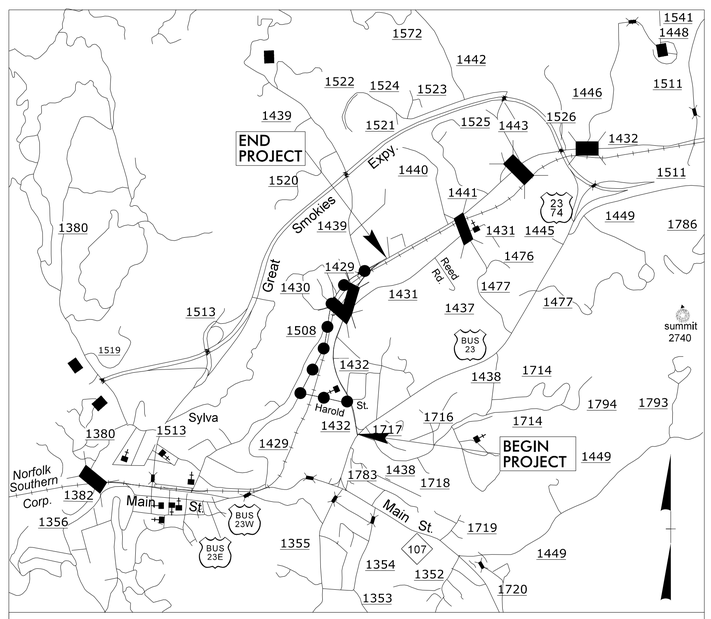
bobarwat AT LS-317302

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

JACKSON COUNTY



DETOUR

VICINITY MAP

NOT TO SCALE

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-2	TEMPORARY TRAFFIC CONTROL PHASING
TMP-3	TEMPORARY TRAFFIC CONTROL PHASE I DETOUR
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE II DETOUR
TMP-5	SIGN DETAIL

SHEET NO.
TMP-1

PROJECT: EB-5923

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

PLANS PREPARED BY:

Mattern & Craig
ENGINEERS SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

NCDOT CONTACTS:

AARON C. CARVER, PE
PROJECT ENGINEER

ROBERT L. KUN
PROJECT DESIGN ENGINEER

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

APPROVED: DocuSigned by: Aaron Carver 8250B42A220F49C...

DATE: 2/18/2022

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

12:51:56 PM
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bgross

PROJ. REFERENCE NO.	SHEET NO.
EB-5923	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

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
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY (T E M P)

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

Mattern & Craig
ENGINEERS SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

APPROVED: DocuSigned by: Aaron Carver B250B42A220F49C...

DATE: 2/18/2022

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWINGS & LEGEND

12:52:36 PM
EB-5923 Sylva Sidewalk\06 EB-5923\Traffic\TrafficControl\TCP\EB-5923_tmp_typ.dgn
bgross

PROJ. REFERENCE NO.	SHEET NO.
EB-5923	TMP-1B

GENERAL NOTES / LOCAL 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.

TIME RESTRICTIONS

A) DURING PHASE III DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1432 SKYLAND DRIVE	MONDAY THROUGH FRIDAY 7-9AM and 4-6PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

SR 1432 SKYLAND DRIVE

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) 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.

D) 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.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, 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 ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

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

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

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

   SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

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

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

TRAFFIC CONTROL DEVICES

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.

MISCELLANEOUS

P) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

Q) ADA COMPLIANT BARRIERS ARE TO BE USED TO KEEP NEWLY CONSTRUCTED SIDEWALKS CLOSED UNTIL CONTINUITY IS ESTABLISHED.

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APPROVED: DocuSigned by: Aaron Carver 82508A2A220F49C...
DATE: 2/18/2022
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

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

TRANSPORTATION OPERATIONS PLAN

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EB-5923 Sylva Sidewalk\06 EB-5923\Traffic\TrafficControl\TCP\EB-5923_tmp_typ.dgn
bgross

PROJ. REFERENCE NO.	SHEET NO.
EB-5923	TMP-2

PHASING

NOTES: "RSD" REFERS TO NCDOT ROADWAY STANDARD DRAWINGS.

BEFORE BEGINNING ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES. FIELD VERIFY LOCATIONS WITH THE NCDOT PRIOR TO INSTALLATION.

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

PHASE I

STEP 1: -INSTALL OFF-SITE DETOUR ROUTE SIGN ASSEMBLIES FOR THE CLOSING OF SR1432 (SKYLAND DRIVE, -L-). SEE TMP-3.
-USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 OF 9 AND 2 OF 9, CLOSE SR1432 (SKYLAND DRIVE, -L-)

STEP 2: -REMOVE THE EXISTING STRUCTURE AND CONSTRUCT THE PROPOSED STRUCTURE, ROADWAY, AND PLACE FINAL PAVEMENT MARKINGS ON SR1432 (SKYLAND DRIVE, -L-) FROM STATION 25+75 +/- -L- TO STATION 26+75 +/- -L-. (SEE CONSTRUCTION PLANS)

STEP 3: -REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING, AND DETOUR ROUTE SIGNING. -OPEN TO FINAL TRAFFIC PATTERN

PHASE II

STEP 1: -INSTALL OFF-SITE DETOUR ROUTE SIGN ASSEMBLIES FOR THE CLOSING OF SR1432 (SKYLAND DRIVE, -L-). SEE TMP-4.
-USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 OF 9 AND 2 OF 9, CLOSE SR1432 (SKYLAND DRIVE, -L-)

STEP 2: -REMOVE THE EXISTING STRUCTURE AND CONSTRUCT THE PROPOSED STRUCTURE, ROADWAY, AND PLACE FINAL PAVEMENT MARKINGS ON SR1432 (SKYLAND DRIVE, -L-) FROM STATION 42+35 +/- -L- TO STATION 44+45 +/- -L-. (SEE CONSTRUCTION PLANS)

STEP 3: -REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING, AND DETOUR ROUTE SIGNING. -OPEN TO FINAL TRAFFIC PATTERN

PHASE III

FOLLOWING STEP 3 IN PHASE II, INITIATE PHASE III BY PERFORMING THE FOLLOWING ACTIVITIES:

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1 OF 14, CONSTRUCT THE FOLLOWING:

CURB & GUTTER, SIDEWALK, DRIVE APRONS, DRAINAGE AND APPURTENANCES AS SHOWN ON ROADWAY PLANS
-L- STA 11+85 TO -L- STA 45+95

COMPLETE WORK ON PHASE III, STEP 1 USING DAILY LANE CLOSURES. BACKFILL ANY TRENCHES OF ROADWAY CUTS AND MAKE SUITABLE FOR TRAFFIC FLOW AT THE END OF EACH DAYS ACTIVITIES. REMOVE LANE CLOSURE DEVICES AND OPEN LANE TO TRAFFIC OVERNIGHT.

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NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

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

TRAFFIC CONTROL
PHASING

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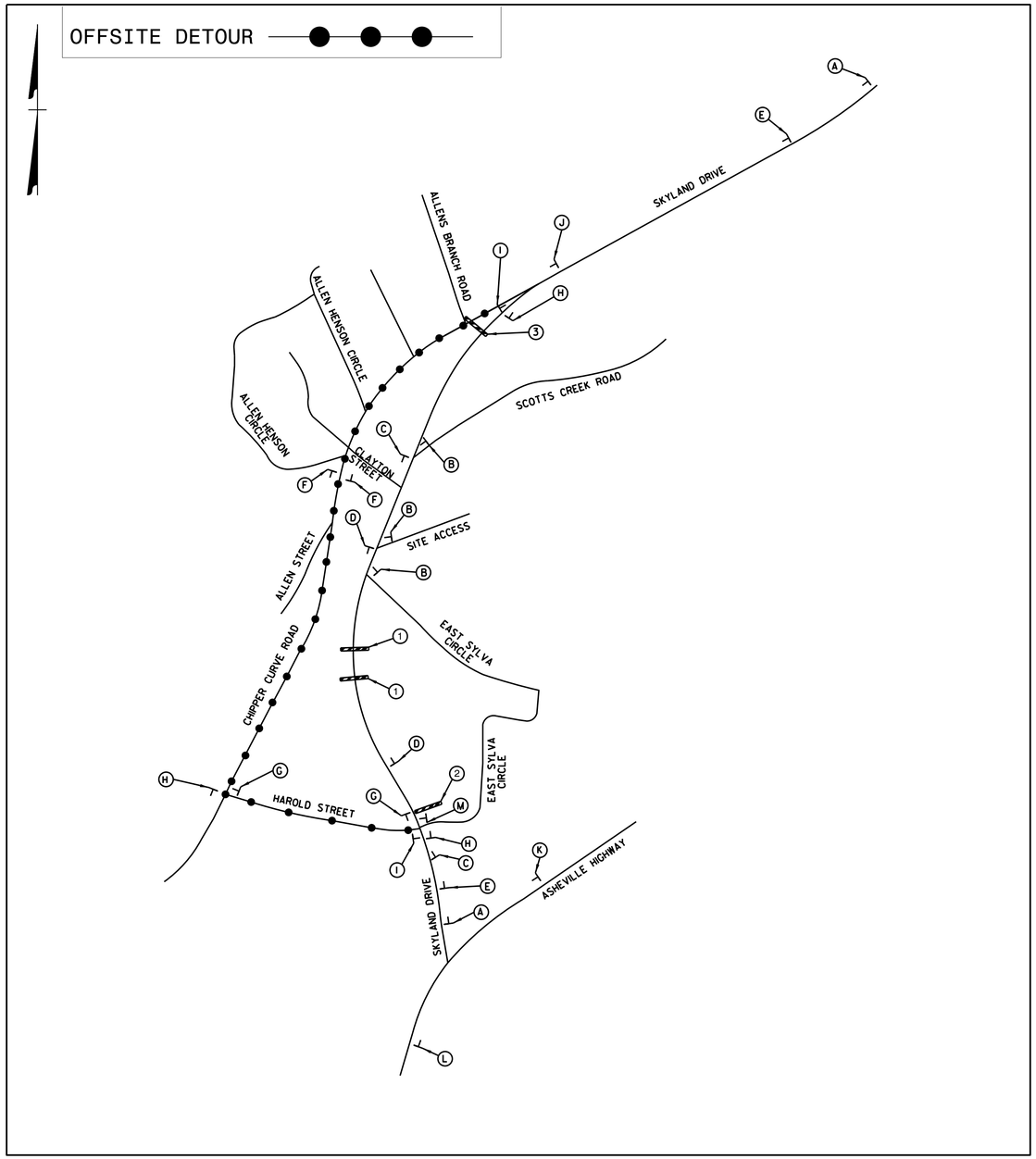
bgross

PROJ. REFERENCE NO.	SHEET NO.
EB-5923	TMP-3

OFF-SITE DETOUR AND ROAD CLOSURE FOR THE CONSTRUCTION OF CULVERT AT -L- STATION 26+25



PHASING:

STEP 1: -INSTALL OFF-SITE DETOUR ROUTE SIGN ASSEMBLIES FOR THE CLOSING OF SR1432 (SKYLAND DRIVE, -L-)
-USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 OF 9 AND 2 OF 9, CLOSE SR1432 (SKYLAND DRIVE, -L-)

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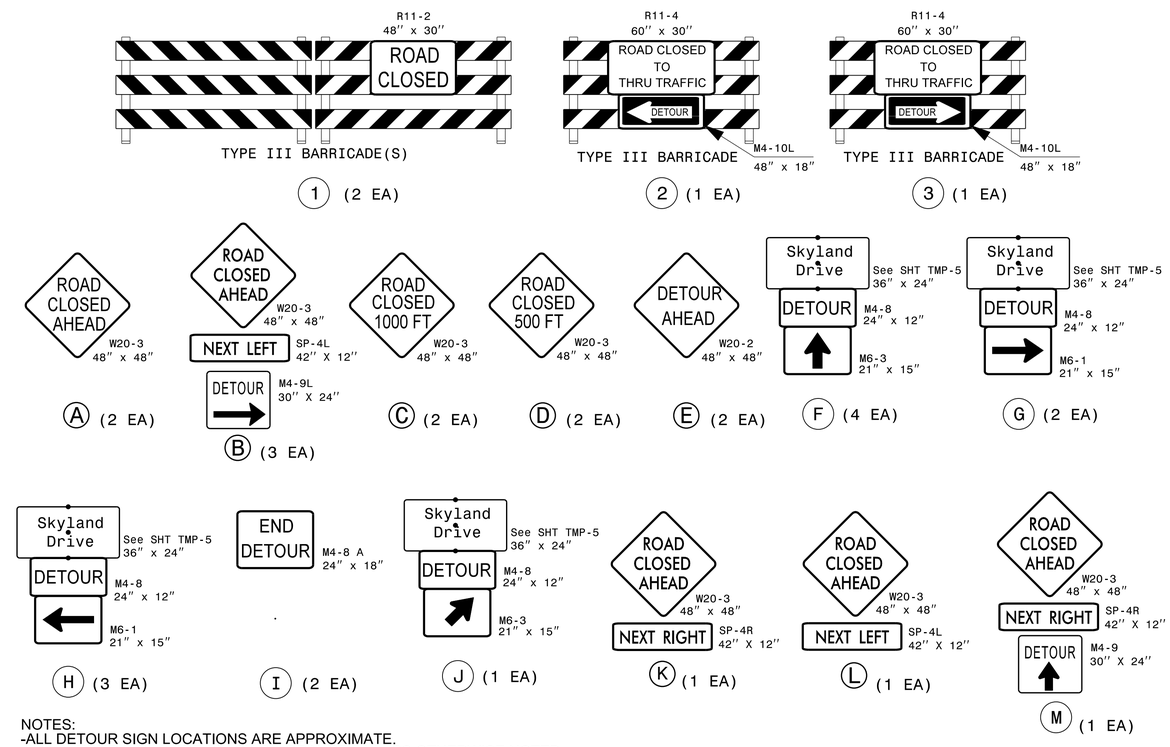
STEP 3: -REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING, AND DETOUR ROUTE SIGNING.
-OPEN TO FINAL TRAFFIC PATTERN



NOTES:
-ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.
-ALL DETOUR SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE NOTED.
-TRAFFIC CONTROL DEVICES A THROUGH E SHALL BE INSTALLED ACCORDING TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9.
-TRAFFIC CONTROL DEVICES F THROUGH H SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTIONS, AND AS SHOWN HEREON.
*SEE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND 2 OF 9, FOR ADDITIONAL WORK ZONE SIGNS.

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DATE: 2/18/2022

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

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

PHASE I
OFFSITE DETOUR ROUTE

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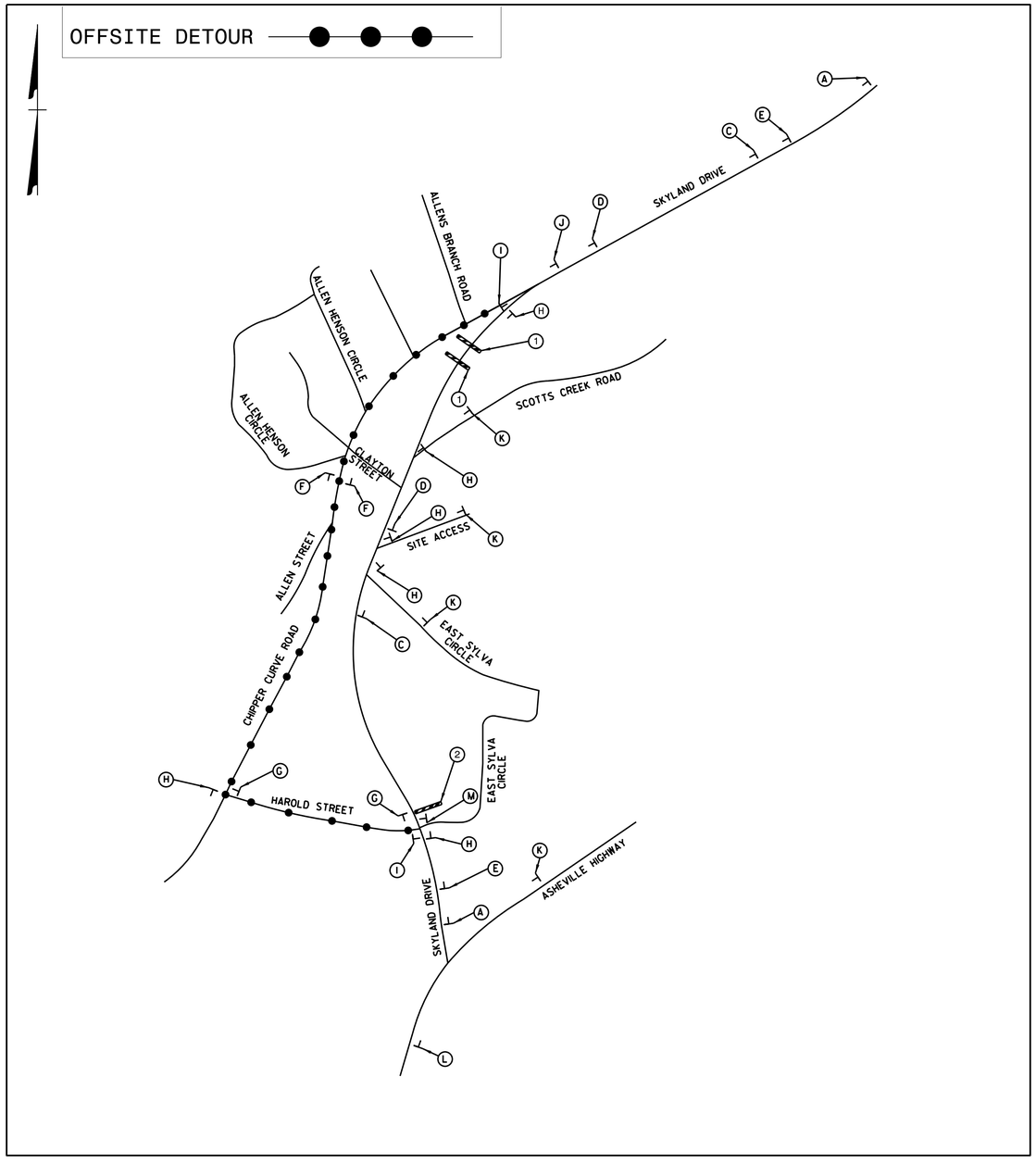
bgross

PROJ. REFERENCE NO.	SHEET NO.
EB-5923	TMP-4

OFF-SITE DETOUR AND ROAD CLOSURE FOR THE CONSTRUCTION OF CULVERT AT -L- STATION 43+35



PHASING:

STEP 1: -INSTALL OFF-SITE DETOUR ROUTE SIGN ASSEMBLIES FOR THE CLOSING OF SR1432 (SKYLAND DRIVE, -L-)
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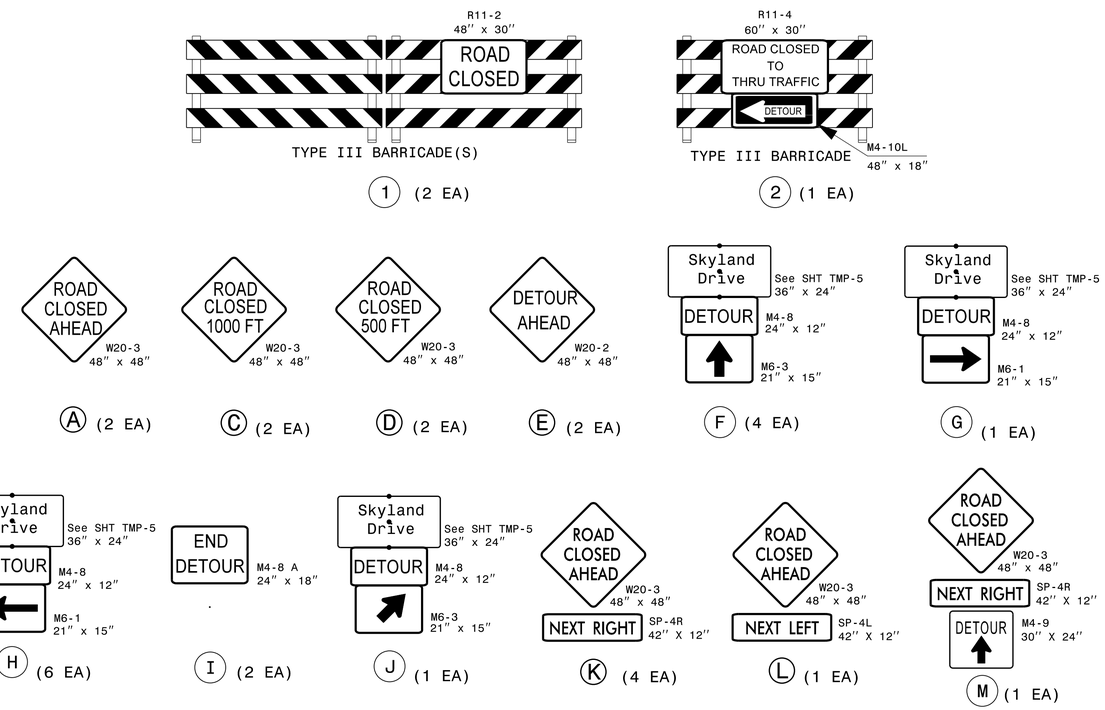
STEP 3: -REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING, AND DETOUR ROUTE SIGNING.
-OPEN TO FINAL TRAFFIC PATTERN



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*SEE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND 2 OF 9, FOR ADDITIONAL WORK ZONE SIGNS.

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DATE: 2/18/2022

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

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

PHASE II
OFFSITE DETOUR ROUTE

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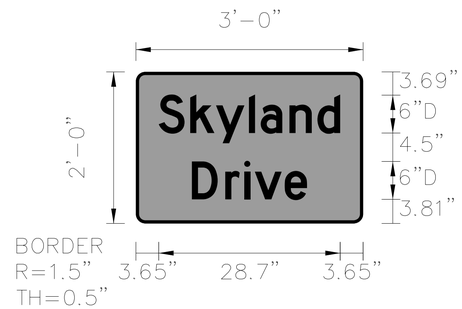
bgross

PROJ. REFERENCE NO.	SHEET NO.
EB-5923	TMP-5

SIGN DETAIL

1" = 1'



SIGN NUMBER	Skyland Drive
WIDTH x HGHT.	3'-0" x 2'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT

Panel Style:
Dimensions are inches, tenths

Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)																					LENGTH	SERIES/SIZE
S	k	y	l	a	n	d																D 2000
3.6	8.6	12.7	17.9	19.8	24.3	28.8															28.7	6/4.5
D	r	i	v	e																		D 2000
8.9	14.2	17.2	18.8	23.6																	18.2	6/4.5

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SIGN DETAIL

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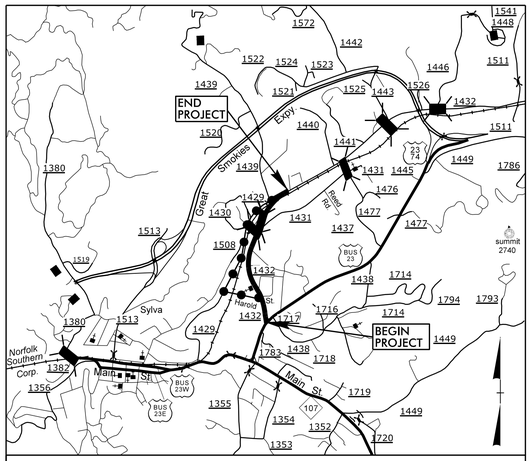
TIP PROJECT: EB-5923

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

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47589.1.1	N/A	P.E.
47589.2.1	N/A	R/W & UTIL
47589.3.1	N/A	CONST



VICINITY MAP

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

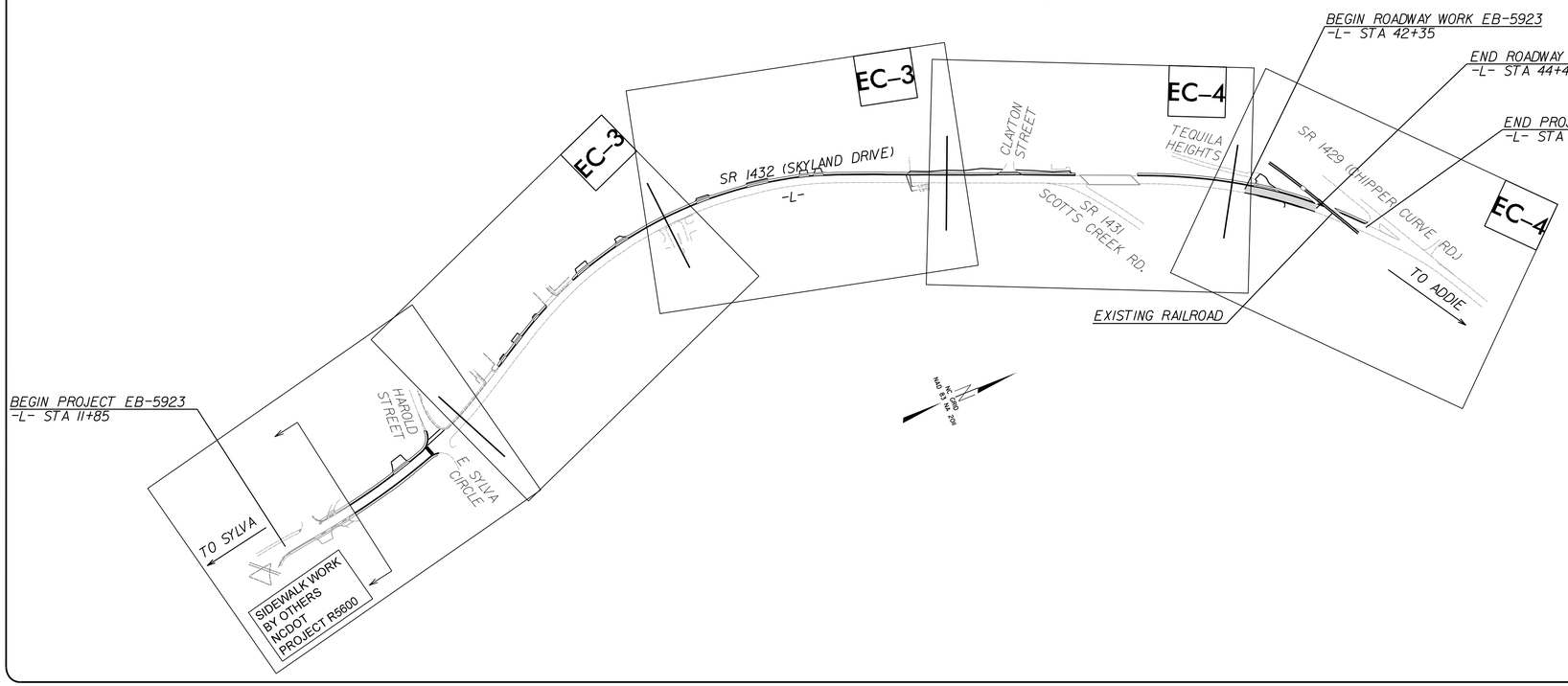
PLAN FOR PROPOSED

HIGHWAY EROSION CONTROL

JACKSON COUNTY

LOCATION: SR 1432 (SKYLAND DRIVE) FROM US 23 BUS (ASHEVILLE HWY) TO SR 1429 (CHIPPER CURVE RD.)

TYPE OF WORK: SIDEWALK, GRADING, DRAINAGE, RETAINING WALL, PAVING



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
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	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

PLANS PREPARED BY:

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GRAPHIC SCALE

30 15 0 30 60

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT EB-5923 = 0.645 MILES

TOTAL LENGTH OF TIP PROJECT EB-5923 = 0.645 MILES

Prepared In the Office of:
MATTERN & CRAIG
12 BROAD ST.
ASHEVILLE, NC 28801
FOR NCDOT DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS	Designed by:
RIGHT OF WAY DATE:	NICK WOODS (NAME)
LETTING DATE:	4289 (LEVEL III CERTIFICATION NO.)
	GARRETT HIGDON, EI (NCDOT DIVISION 14 CONTACT)

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	EC-1A

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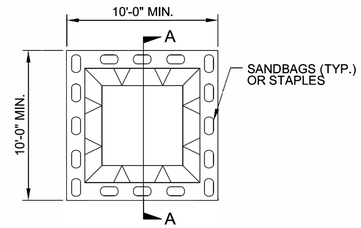
FAX (828) 254-4562

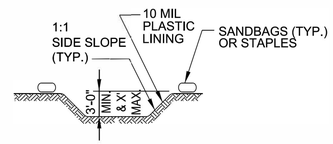
NICK WOODS
LEVEL IIIA NAME

4289
LEVEL IIIA CERTIFICATION NO.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

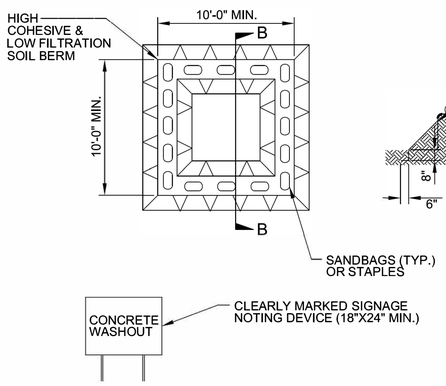
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

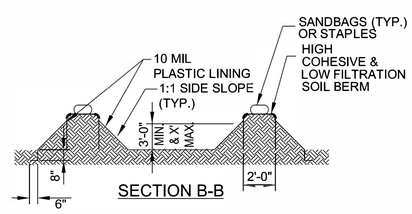
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

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

BORROW PIT DEWATERING BASIN DETAIL

GENERAL NOTES:

DETERMINE BORROW PIT DEWATERING BASIN SIZE USING $V = 8.0203 * Q * T$, WHERE V IS VOLUME (FT^3), Q IS PUMP FLOW RATE (GPM), AND T IS DEWATERING TIME (HR). USE MAXIMUM FLOW RATE OF 1000 GPM AND A MINIMUM DEWATERING TIME OF 2 HOURS.

RISER SHALL BE A NON-PERFORATED, SMOOTH OR CORRUGATED MATERIAL WITH A FLASHBOARD OPTION.

CONSTRUCT THE COIR FIBER BAFFLE IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1640.01 AND WITH MATERIAL THAT MEETS THE SPECIFICATIONS OF ROADWAY STANDARD 1060-14.

PROVIDE 5′ STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 3′ OF THE POST APPEARING ABOVE THE GROUND.

ATTACH THE COIR FIBER MAT TO THE STEEL POSTS WITH WIRE OR OTHER ACCEPTABLE MEANS AND STAPLED INTO THE BOTTOM AND SIDE SLOPES OF THE BASIN WITH 12″ STAPLES.

INSTALL TYPE 2 GEOTEXTILE ON SIDESLOPES AND BOTTOM OF BASIN AT INLET AS SHOWN IN THE DETAIL.

USE THE TYPICAL SECTION SHOWN FOR THE BORROW PIT DEWATERING BASIN AS A GUIDE. THE BASIN MAY HAVE ANY TYPE CONFIGURATION AS LONG AS SUFFICIENT VOLUME IS PROVIDED AND PROVISIONS ARE MADE FOR A NON-PERFORATED RISER.

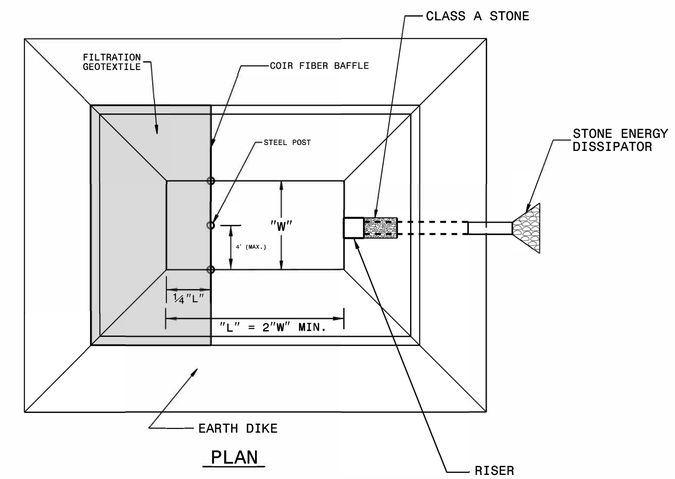
DO NOT EXCEED 3½ FT. IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

THE BORROW PIT DEWATERING BASIN SIZE IS VARIABLE AND DEPENDENT ON SPECIFIC SITE REQUIREMENTS AS WELL AS PROPOSED CONSTRUCTION OPERATIONS.

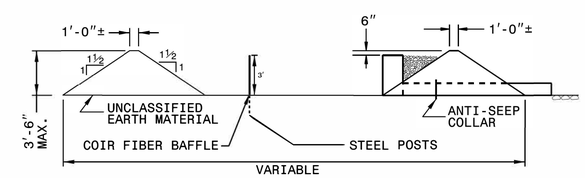
SUBMIT THE SIZE, LOCATION AND RISER PIPE MATERIAL FOR APPROVAL PRIOR TO CONSTRUCTION.

PUMP THE EFFLUENT INTO THE BORROW PIT DEWATERING BASIN TO A MAXIMUM DEPTH OF 6 IN. BELOW TOP OF EARTH DIKE.

PROVIDE A STONE ENERGY DISSIPATOR PAD AT THE OUTLET OF THE PUMP DISCHARGE HOSE AND OUTLET OF THE RISER BARREL IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 876.02 FOR OUTLET W/O DITCH.



PLAN



TYPICAL SECTION VIEW

NOT TO SCALE

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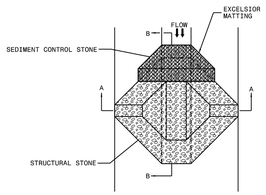
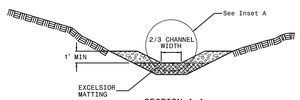
8/17/99

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

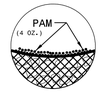
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

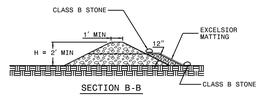
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



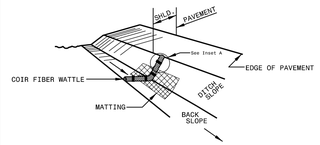
INSET A



SECTION B-B

NOT TO SCALE

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

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

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

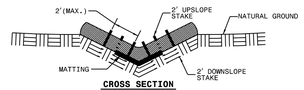
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

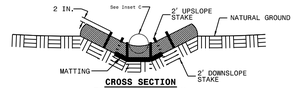
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

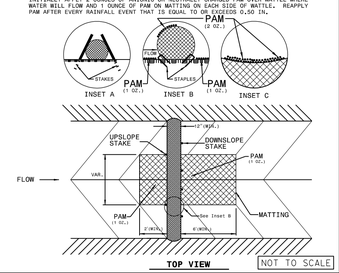
INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH



TOP VIEW

NOT TO SCALE

EROSION CONTROL NOTES

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT BECOMES APPROXIMATELY 0.5 FEET DEEP AT THE FENCE. THE SEDIMENT FENCE SHALL BE REPAIRED AS NECESSARY TO MAINTAIN BARRIER.
3. THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.
4. WITHIN 7 CALENDAR DAYS ON PERIMETER AREAS AND GREATER THAN 3:1 SLOPES AND 14 DAYS ON OTHER AREAS UPON COMPLETION OF FINAL GRADING, STABILIZE AND INSTALL PERMANENT VEGETATION ON DISTURBED AREAS.
5. ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER. ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	EC-2

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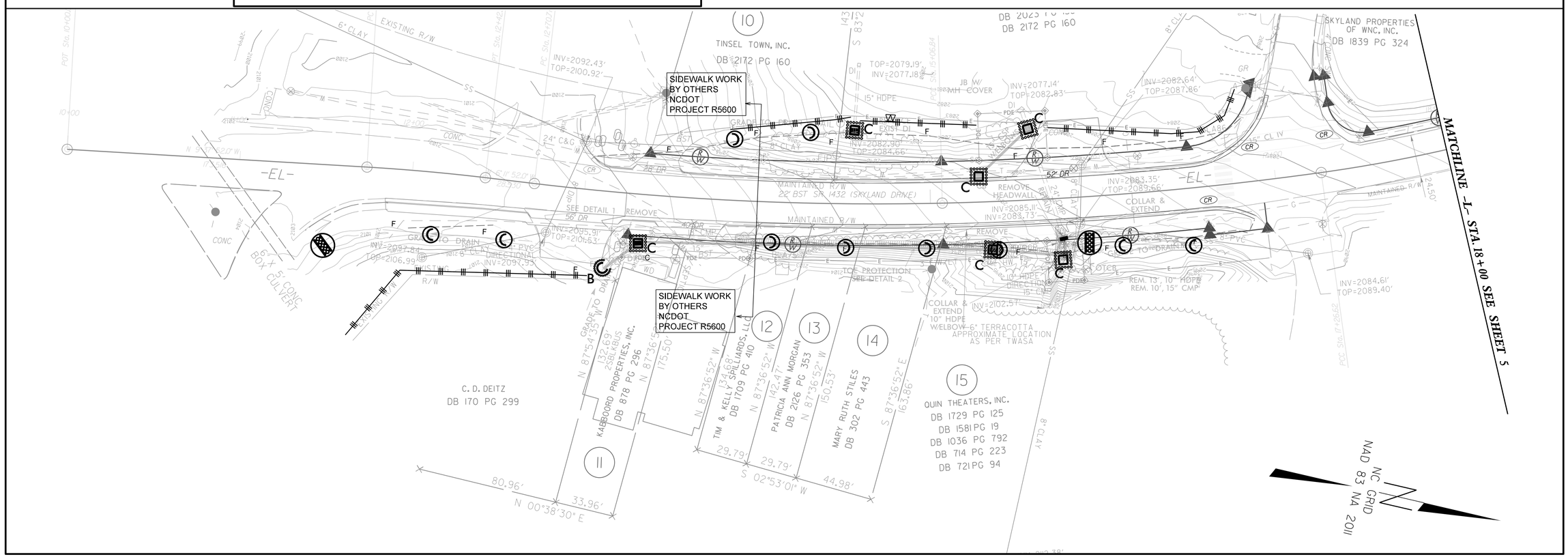
NICK WOODS
LEVEL IIIA NAME

4289
LEVEL IIIA CERTIFICATION NO.

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.



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PROJECT REFERENCE NO.	SHEET NO.
EB-5923	EC-3

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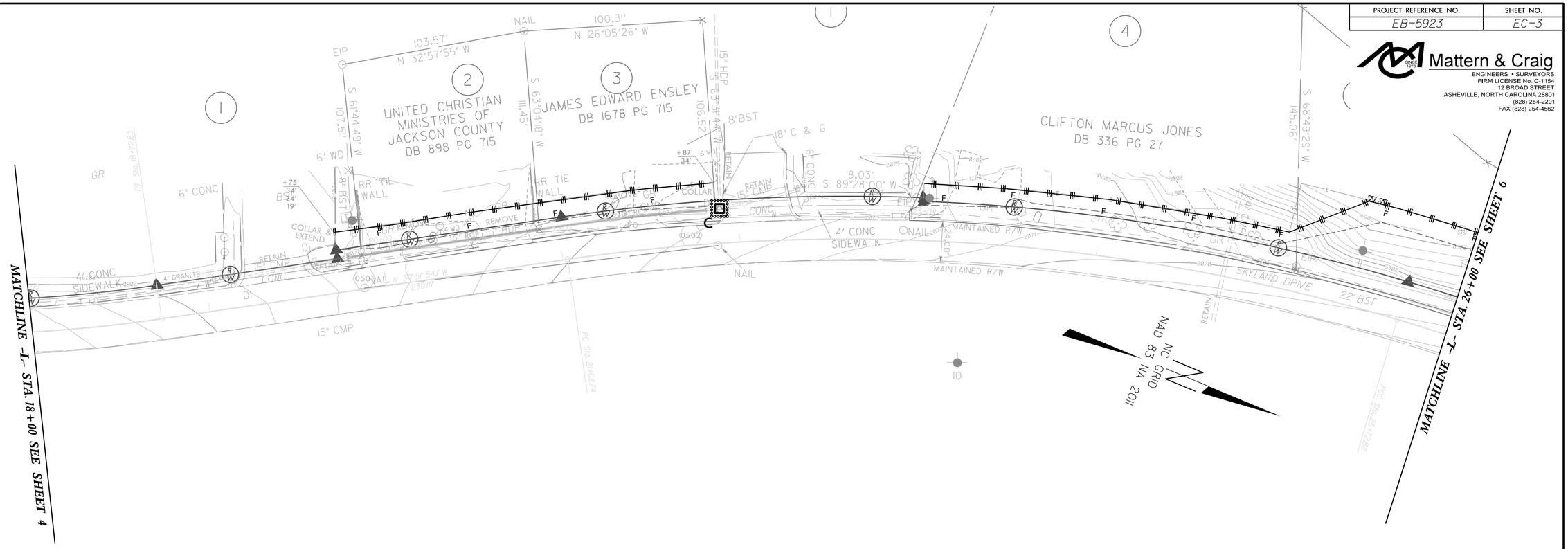
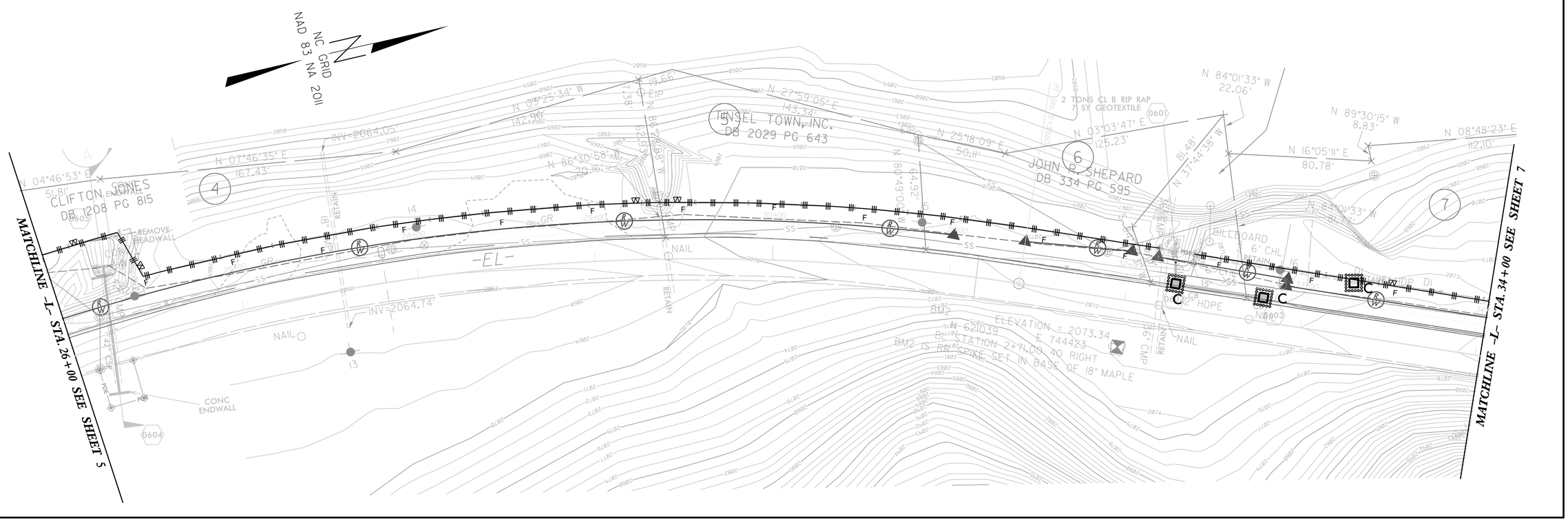
REVISIONS





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PROJECT REFERENCE NO.	SHEET NO.
EB-5923	EC-4

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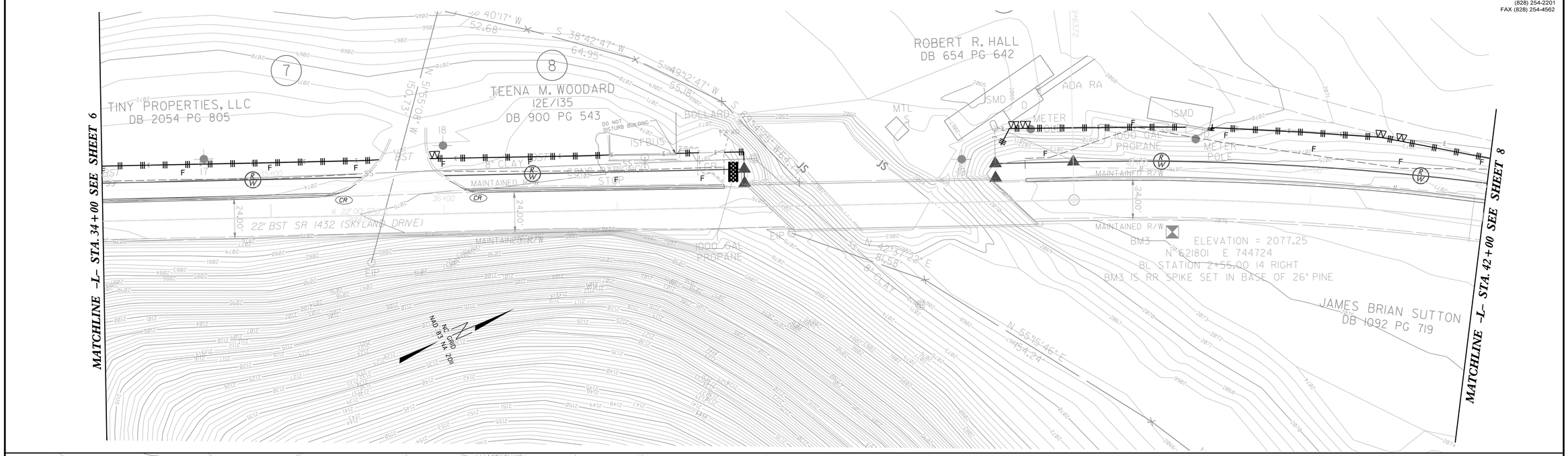
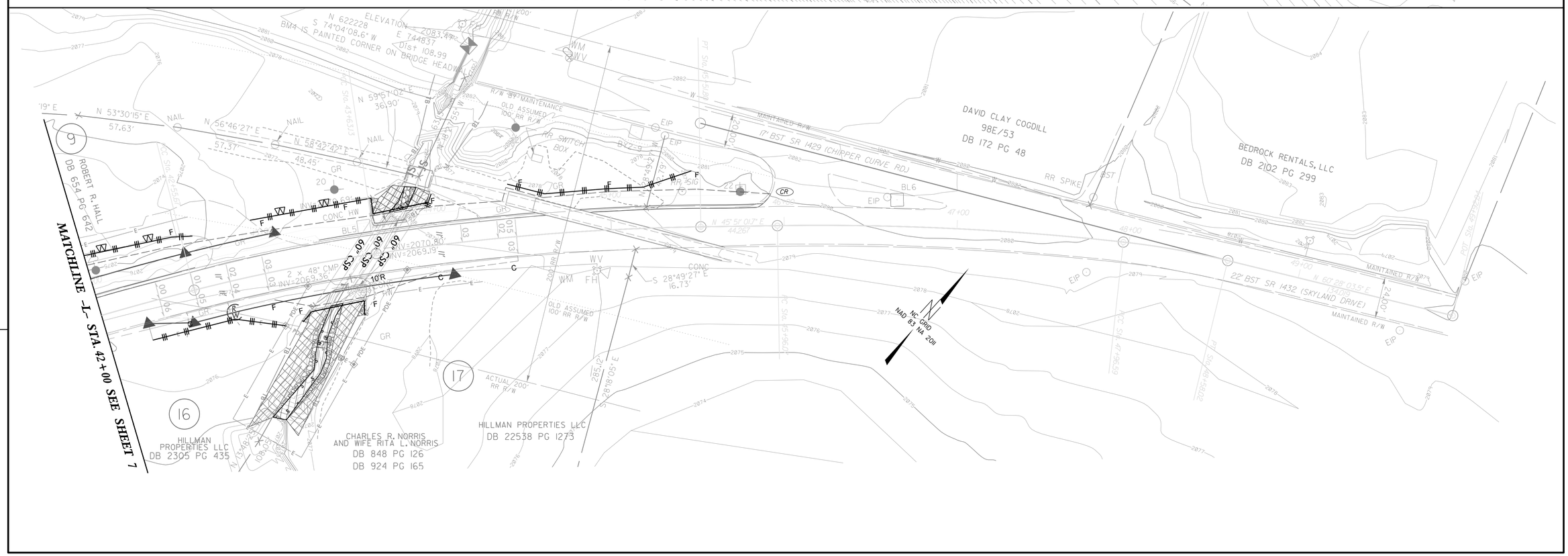
REVISIONS





PROJECT REFERENCE NO.	SHEET NO.
EB-5923	EC-5/CONST.4

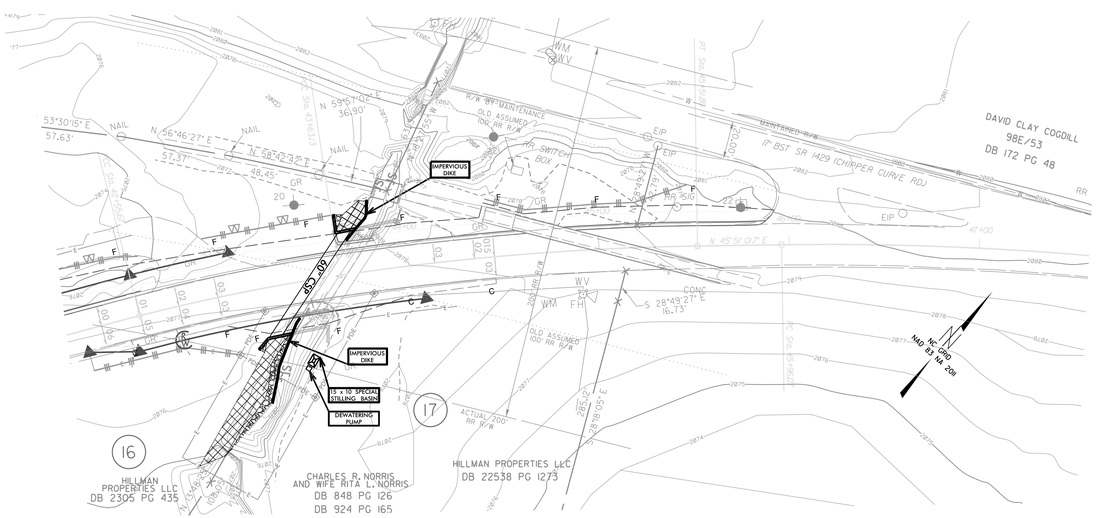
CULVERT CONSTRUCTION SEQUENCE STA. 43 + 61 –L–

Mattern & Craig
ENGINEERS • SURVEYORS

PHASE I

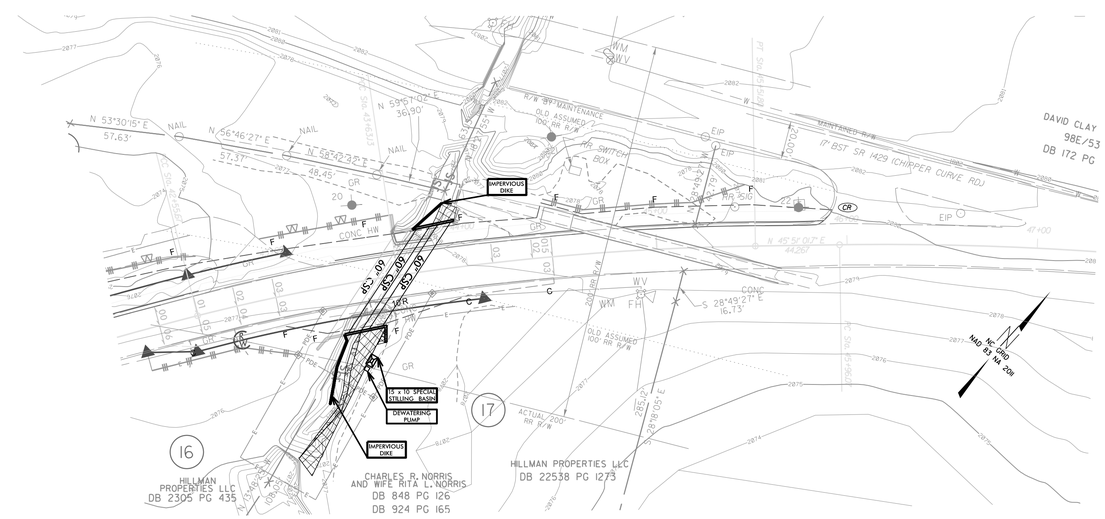
1. INSTALL PERIMETER EROSION CONTROL DEVICES PRIOR TO CONSTRUCTION AS SHOWN IN THE CLEAR AND GRUBBING PHASE
2. INSTALL IMPERVIOUS DIKES ALONG STREAM CHANNEL EDGE TO DIVERT WATER INTO EXISTING 2 @ 48" CMP. TOP OF DIKE SHOULD BE 1' ABOVE SOFFIT.
3. INSTALL DEWATERING PUMP AND SPECIAL STILLING BASIN AS DIRECTED BY THE ENGINEER.
4. INSTALL PROPOSED 1 @ 60" CSP APPROX. STA. 43 + 50.
5. REPAIR STREAM BED UPSTREAM AND DOWNSTREAM AS DESCRIBED IN THE CSR. ENSURE EXCAVATION ALLOWS INSTALLED 1 @ 60" CSP TO FLOW IN DOWNSTREAM CHANNEL.

NOTES:
1. CULVERT CONSTRUCTION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
2. REMOVE EMBANKMENT AND ROADWAY BEHIND THE WINGWALLS OF THE EXISTING CULVERTS PRIOR TO REMOVAL OF THE CULVERTS THEMSELVES. THIS WILL PREVENT SEDIMENT FROM BEING DEPOSITED IN THE STREAM BED.
3. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
4. IMPERVIOUS DIKE SHALL BE INSTALLED PRIOR TO CULVERT REMOVAL UPSTREAM AND DOWNSTREAM OF CONSTRUCTION TO CONTAIN THE WORK SITE AND SHALL BE DE–WATERED WITH TEMPORARY 36" PIPE. PLACEMENT SHALL BE APPROVED BY THE ENGINEER.
5. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
6. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
7. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
8. THE CONTRACTOR SHALL NOT PUMP SEDIMENT–LADEN WATER DIRECTLY INTO STREAM. FOR DE–WATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT–LADEN WATER THROUGH SPECIAL STILLING BASIN.



PHASE II

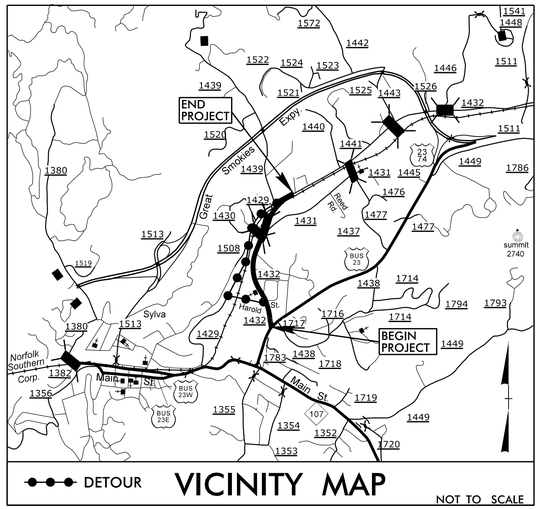
1. INSTALL FINAL GRADE EROSION CONTROL DEVICES AS REMOVAL OF THE EXISTING ROADWAY AND CULVERTS MAKE THEM NECESSARY.
2. RELOCATE IMPERVIOUS DIKES TO ALLOW FLOW IN THE INSTALLED 1 @ 60" CSP.
3. INSTALL ADDITONAL 2 @ 60" CSP.
4. CONSTRUCT THE REMAINDER OF THE PROPOSED ROADWAY.
5. ENSURE DISTURBED LAND IS STABILIZED.
6. REMOVE TEMPORARY EROSION CONTROL DEVICES



T.I.P. NO.	SHEET NO.
EB–5923	UC–1

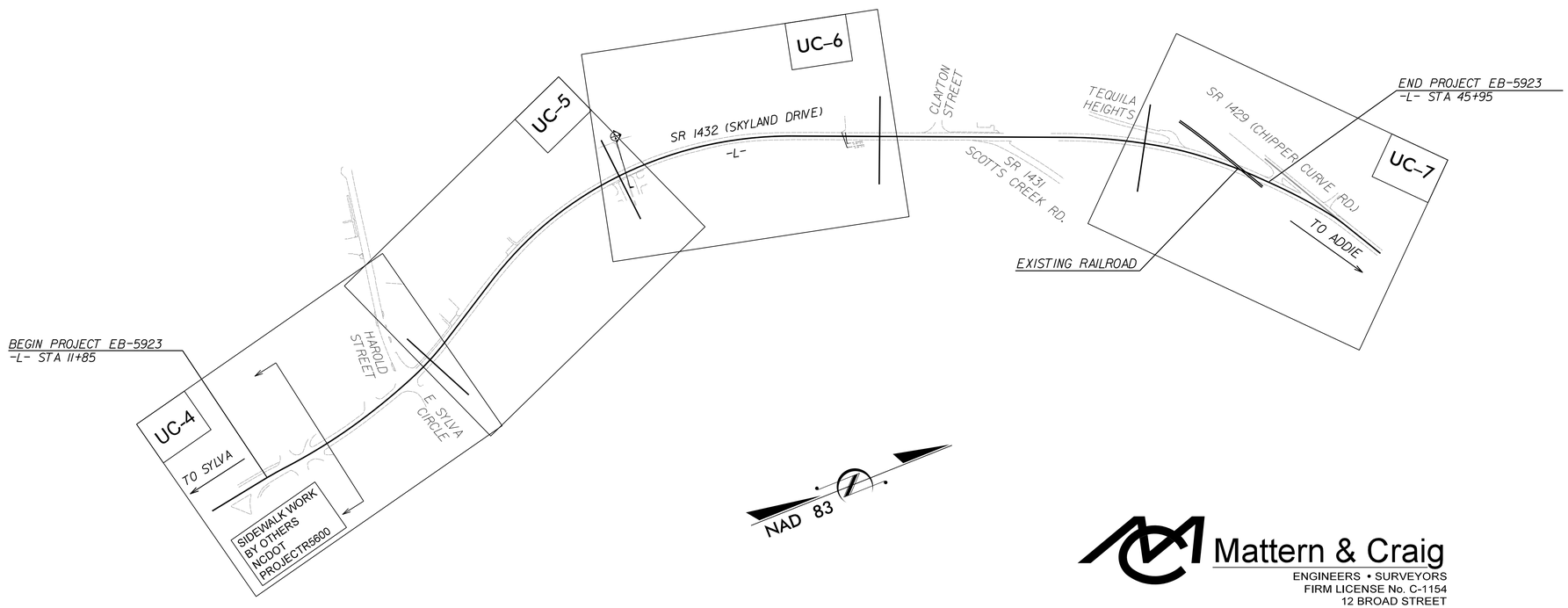
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
JACKSON COUNTY



LOCATION: SR 1432 (SKYLAND DRIVE) FROM US 23 BUS (ASHEVILLE HWY) TO SR 1429 (CHIPPER CURVE RD.)

TYPE OF WORK: BURIED WATER RELOCATION



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TIP PROJECT: EB–5923

CONTRACT: DN00679

GRAPHIC SCALE

30 15 0 30 60
PLANS

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UC–1	*TITLE SHEET*
UC–2	*UTILITY SYMBOLOGY*
UC–3	*NOTES*
UC–3A	*DETAILS*
UC–4 THRU UC–7	*UTILITY CONSTRUCTION SHEETS*

WATER AND SEWER OWNERS ON PROJECT

(A) WATER – TUCKASEIGEE WATER & SEWER AUTHORITY

PREPARED IN THE OFFICE OF

MATTERN & CRAIG
FIRM LICENSE No. C–1154
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ASHEVILLE, NC 28801
(828)254–2201

FOR NCDOT DIVISION OF HIGHWAYS

RANDY BECKNER, PE	*CONSULTANT CONTACT #1*
JAMES VOSO, PE	*CONSULTANT CONTACT #2*
ROBERT KUN	*CONSULTANT CONTACT #3*

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSO

DocuSigned by: James Voso 140FD60379E041F... 3/29/2022

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

Donald E. Hampton	*UTILITIES REGIONAL ENGINEER*
Jong–Tae Yoon, PE	*UTILITIES ENGINEER*
Steve C. Trexler	*UTILITIES AREA COORDINATOR*
Steve C. Trexler	*UTILITIES COORDINATOR*

09/08/99
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EB-5923 Sylva Sidewalk\06 EB-5923\Utilities\EB-5923_ut_tsh_UC01_psh.dgn
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PROJECT REFERENCE NO.	SHEET NO.
EB-5923	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" 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
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable
- *Underground TV Cable
- *Underground Fiber Optics TV Cable
- *Underground Gas Pipeline
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line
- 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
- Underground Unknown Utility Line
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities
- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

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EB-5923 Sylva Sidewalk\06 EB-5923\Utilities\EB-5923_ut_sym_UC02_psh.dgn
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PROJECT REFERENCE NO.	SHEET NO.
EB-5923	UC-3
DESIGNED BY: RJLK	
DRAWN BY: RJLK	
CHECKED BY: RWB	
APPROVED BY: JBV	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER

Jaclyn Vose 4/18/2022

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UTILITY CONSTRUCTION

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UTILITY CONSTRUCTION

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 2018.

2. THE EXISTING UTILITIES BELONG TO TUCKASEIGEE WATER & SEWER AUTHORITY.

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

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

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE 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 UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

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

PROJECT SPECIFIC NOTES:

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

LIST OF STANDARD DRAWINGS

1520.01 SEWER CLEAN OUT
300.01 METHOD OF PIPE INSTALLATION

5/14/99
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EB-5923 Sylva Sidewalk\06 EB-5923\Utilities\EB-5923_ut_notes_UC03.psh.dgn
bgross

PROJECT TYPICAL DETAILS

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	UC-3A
DESIGNED BY: RJLK	
DRAWN BY: RJLK	
CHECKED BY: RWB	
APPROVED BY: JBV	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSS
DocuSigned by: James B. Voss 9/29/2022

UTILITY CONSTRUCTION

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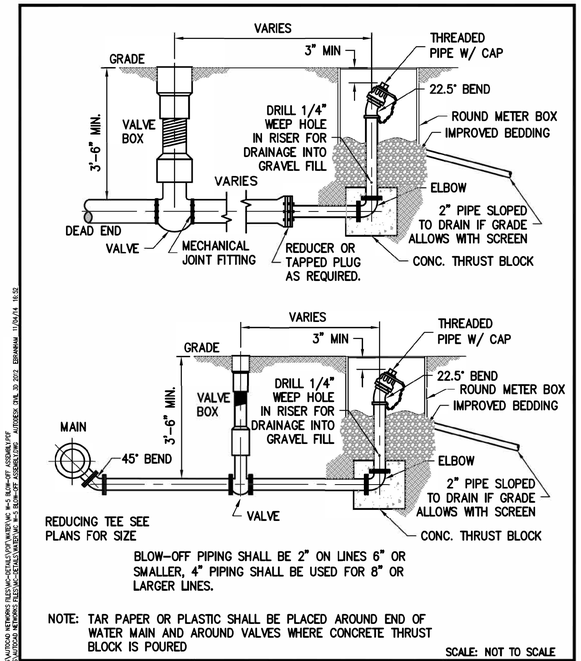
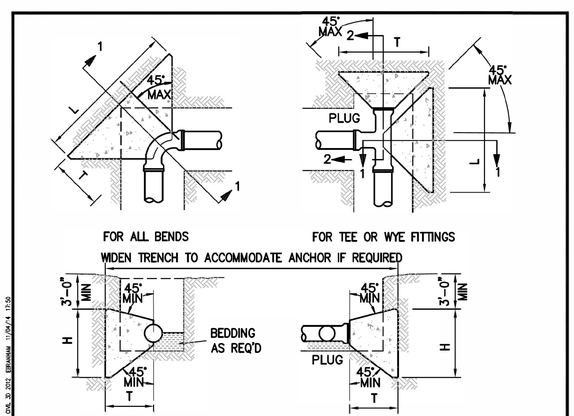


BLOW-OFF PIPING SHALL BE 2" ON LINES 6" OR SMALLER, 4" PIPING SHALL BE USED FOR 8" OR LARGER LINES.

NOTE: TAR PAPER OR PLASTIC SHALL BE PLACED AROUND END OF WATER MAIN AND AROUND VALVES WHERE CONCRETE THRUST BLOCK IS POURED

SCALE: NOT TO SCALE

Mattern & Craig ENGINEERS • SURVEYORS | BLOW-OFF DETAIL (STANDARD) | DETAIL NUMBER MC W-5 | Date: NOV 2014 | Revision: ____

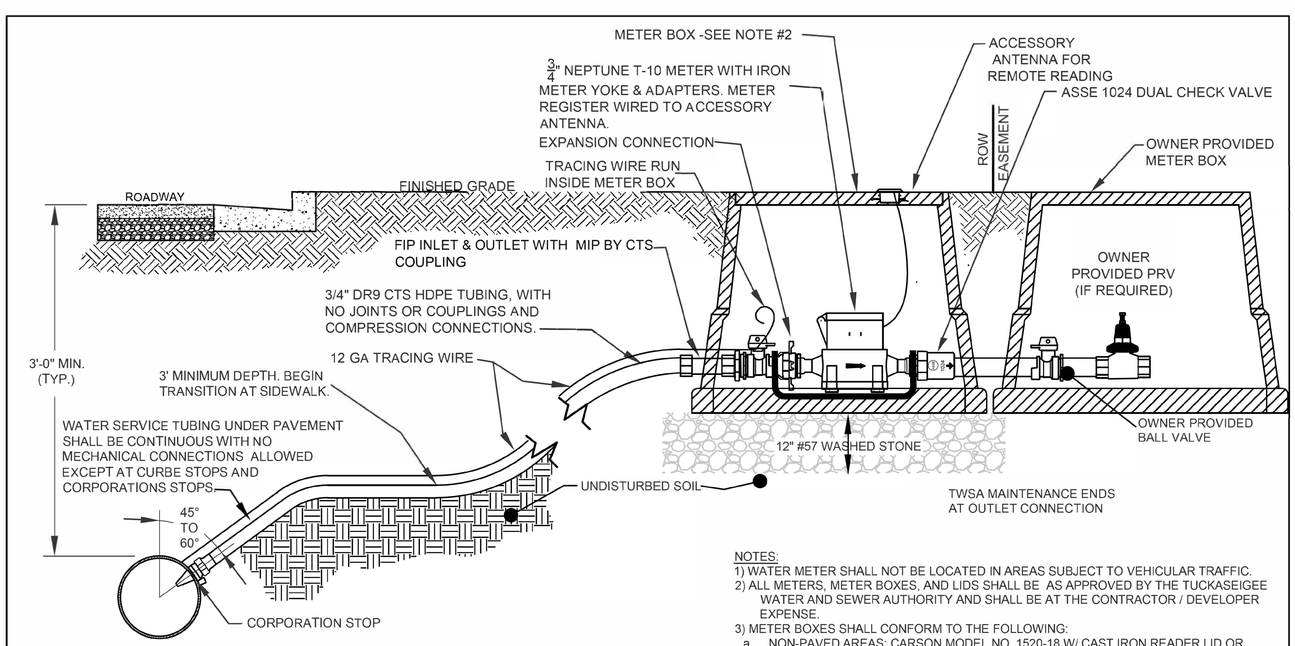


PIPE SIZE	DEGREE OF BEND	BEND DIMENSIONS (FEET) L	H	T	VOL. CU.YD.	TEE AND PLUGS (FEET) L	H	T	VOL. CU.YD.
4" & 6"	90	2.50	2.50	3.01	0.24	2.00	2.25	2.50	0.15
	45	2.00	2.25	2.60	0.15				
	22 1/2	1.50	2.00	2.52	0.10				
	11 1/4	1.50	2.00	2.50	0.10				
8"	90	3.66	3.16	4.71	0.48	3.16	2.91	2.66	0.32
	45	2.83	2.91	3.37	0.25				
	22 1/2	1.66	2.16	2.73	0.13				
	11 1/4	1.66	2.16	2.67	0.13				
10" & 12"	90	4.83	3.83	6.12	0.82	3.83	4.00	2.83	0.52
	45	3.33	3.58	4.62	0.43				
	22 1/2	2.33	2.98	3.86	0.24				
	11 1/4	1.83	2.33	2.84	0.18				
14"	90	5.83	4.00	7.63	1.10	4.00	4.5	3.00	0.70
	45	4.00	4.00	5.11	0.65				
	22 1/2	3.16	4.00	3.83	0.50				
	11 1/4	2.00	3.33	3.00	0.35				

1. THRUST BLOCKS ARE REQUIRED WHENEVER THE PIPELINE: CHANGES DIRECTION, CHANGES SIZE, DEAD ENDS AND AT VALVES.
2. USE 3000 P.S.I. CONCRETE
3. NO CONCRETE SHALL BE POURED ON ANY PART OF THE JOINT.
4. TAR PAPER OR PLASTIC SHALL BE PLACED AROUND END OF WATER MAIN AND AROUND VALVES WHERE CONCRETE ANCHOR BLOCK IS POURED.

SCALE: NOT TO SCALE

Mattern & Craig ENGINEERS • SURVEYORS | THRUST BLOCK | DETAIL NUMBER MC W-7A | Date: NOV 2014 | Revision: ____



NOTES:
1) WATER METER SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.
2) ALL METERS, METER BOXES, AND LIDS SHALL BE AS APPROVED BY THE TUCKASEIGEE WATER AND SEWER AUTHORITY AND SHALL BE AT THE CONTRACTOR / DEVELOPER EXPENSE.
3) METER BOXES SHALL CONFORM TO THE FOLLOWING:
   a. NON-PAVED AREAS: CARSON MODEL NO. 1520-18 W/ CAST IRON READER LID OR EQUAL
   b. PAVED AREAS: PRE-APPROVED H-20 TRAFFIC RATED METER BOX, MINIMUM 15"X20" INTERIOR DIMENSION.
4) ALL SERVICE LINES, VALVES AND FITTINGS SHALL COMPLY WITH AWWA C800.
5) FOR NON-RESIDENTIAL APPLICATIONS THAT REQUIRE AN ABOVE-GROUND BACKFLOW PREVENTER, THE DUAL CHECK ASSEMBLY MAY BE OMITTED.
6) ALL BRASS OF 85-5-5-5 RED BRASS, AWWA C800, ASTM B62.
7) ONE 2" OR 6" GRADE ADJUSTER MAY BE UTILIZED WHEN NEEDED TO MEET FINAL GRADE (NO GRADE ADJUSTERS MAY BE USED ON NEW CONSTRUCTION PROJECTS). GRADE ADJUSTER AND BOX SHALL BE BY THE SAME MANUFACTURER.
8) 3/4" BALL VALVE (REQUIRED) AND PRESSURE REDUCING VALVE (IF REQUIRED) SHALL BE INSTALLED BETWEEN METER BOX AND STRUCTURE ENTRY POINT.

5/8"X3/4", 3/4", AND 1" WATER SERVICE LATERAL
N.T.S.

TUCKASEIGEE Water & Sewer Authority
SERVING JACKSON COUNTY
1246 W. MAIN ST. SYLVA, NC 28779

811 Know what's below. Call before you dig.

SHEET NO. 1 OF 1	DWG. NO. W.2	DWG. BY: W.A.S.
	DATE: JUNE 27, 2019	APPROVED BY: D.E.H.

NO.	DATE	REVISION

W2-WLAT.dwg

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	UC-4

DESIGNED BY: RJLK
DRAWN BY: RJLK
CHECKED BY: RWB
APPROVED BY: JBV
REVISED:

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

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSO
DocuSigned by: James B. Voso 14DFD6037962447... 8/29/2022
UTILITY CONSTRUCTION PLANS ONLY

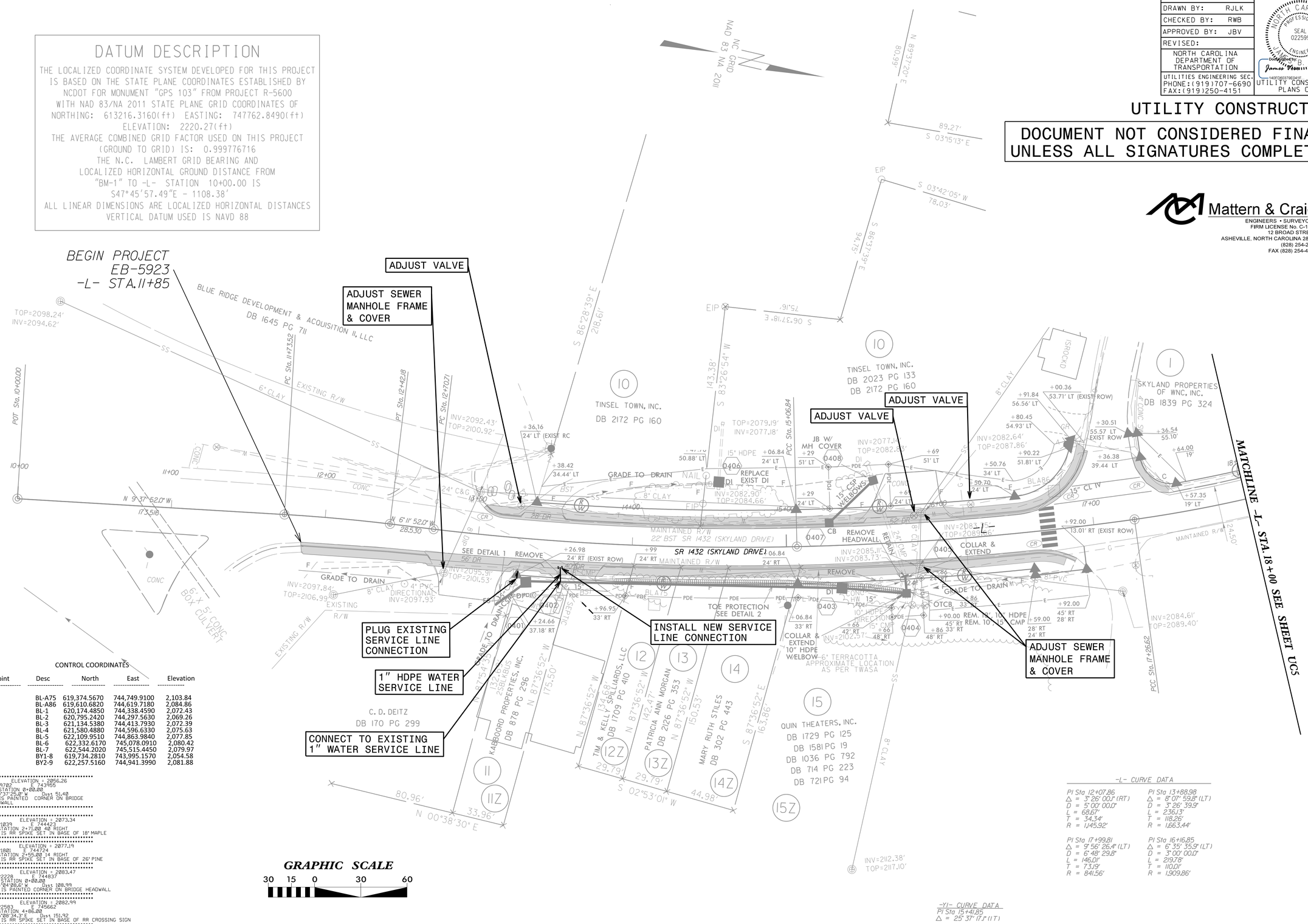
UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS • SURVEYORS
FIRM LICENSE No. C-1154
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS 103" FROM PROJECT R-5600 WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 613216.3160(ft) EASTING: 747762.8490(ft) ELEVATION: 2220.27(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999776716
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BM-1" TO -L- STATION 10+00.00 IS S47°45'57.49"E - 1108.38'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



CONTROL COORDINATES

Point	Desc	North	East	Elevation
A75	BL-A75	619,374.5670	744,749.9100	2,103.84
A86	BL-A86	619,610.6820	744,619.7180	2,084.86
1	BL-1	620,174.4850	744,338.4590	2,072.43
2	BL-2	620,795.2420	744,297.5630	2,069.26
3	BL-3	621,134.5380	744,413.7930	2,072.39
4	BL-4	621,580.4880	744,596.6330	2,075.63
5	BL-5	622,109.9510	744,863.9840	2,077.85
6	BL-6	622,332.6170	745,078.0910	2,080.42
7	BL-7	622,544.2020	745,515.4450	2,079.97
8	BY1-8	619,734.2810	743,995.1570	2,054.58
9	BY2-9	622,257.5160	744,941.3990	2,081.88

BM1 ELEVATION = 2096.26
N 619702 E 743955
BY1 STATION 0+00.00
S 80°57'25.0"W Dist 51.40
BM1 IS PAINTED CORNER ON BRIDGE HEADWALL

BM2 ELEVATION = 2073.34
N 621039 E 744423
BL STATION 2+71.00 40 RIGHT
BM2 IS RR SPIKE SET IN BASE OF 18" MAPLE

BM3 ELEVATION = 2077.19
N 621801 E 744724
BL STATION 2+55.00 14 RIGHT
BM3 IS RR SPIKE SET IN BASE OF 26" PINE

BM4 ELEVATION = 2083.47
N 622228 E 744837
BY2 STATION 0+00.00
S 74°04'08.6"W Dist 108.99
BM4 IS PAINTED CORNER ON BRIDGE HEADWALL

BM5 ELEVATION = 2082.99
N 622583 E 745662
BL STATION 4+86.00
N 75°38'34.3"E Dist 151.92
BM5 IS RR SPIKE SET IN BASE OF RR CROSSING SIGN

-L- CURVE DATA

PI Sta 12+07.86
Δ = 3° 26' 00.1" (RT)
D = 5° 00' 00.0"
L = 68.67'
T = 34.34'
R = 1,145.92'

PI Sta 13+88.98
Δ = 8° 07' 59.8" (LT)
D = 3° 26' 39.9"
L = 236.13'
T = 118.26'
R = 1,663.44'

PI Sta 17+99.81
Δ = 9° 56' 26.4" (LT)
D = 6° 48' 29.8"
L = 146.01'
T = 73.19'
R = 841.56'

PI Sta 16+16.85
Δ = 6° 35' 35.9" (LT)
D = 3° 00' 00.0"
L = 219.78'
T = 110.0'
R = 1,909.86'

-Y1- CURVE DATA
PI Sta 15+41.85
Δ = 25° 37' 17.1" (LT)

8/17/99

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bargess

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	UC-5
DESIGNED BY: RJLK	
DRAWN BY: RJLK	
CHECKED BY: RWB	
APPROVED BY: JBV	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSS
14DFD6037BD43F... 11/18/2022

UTILITY CONSTRUCTION

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12 BROAD STREET
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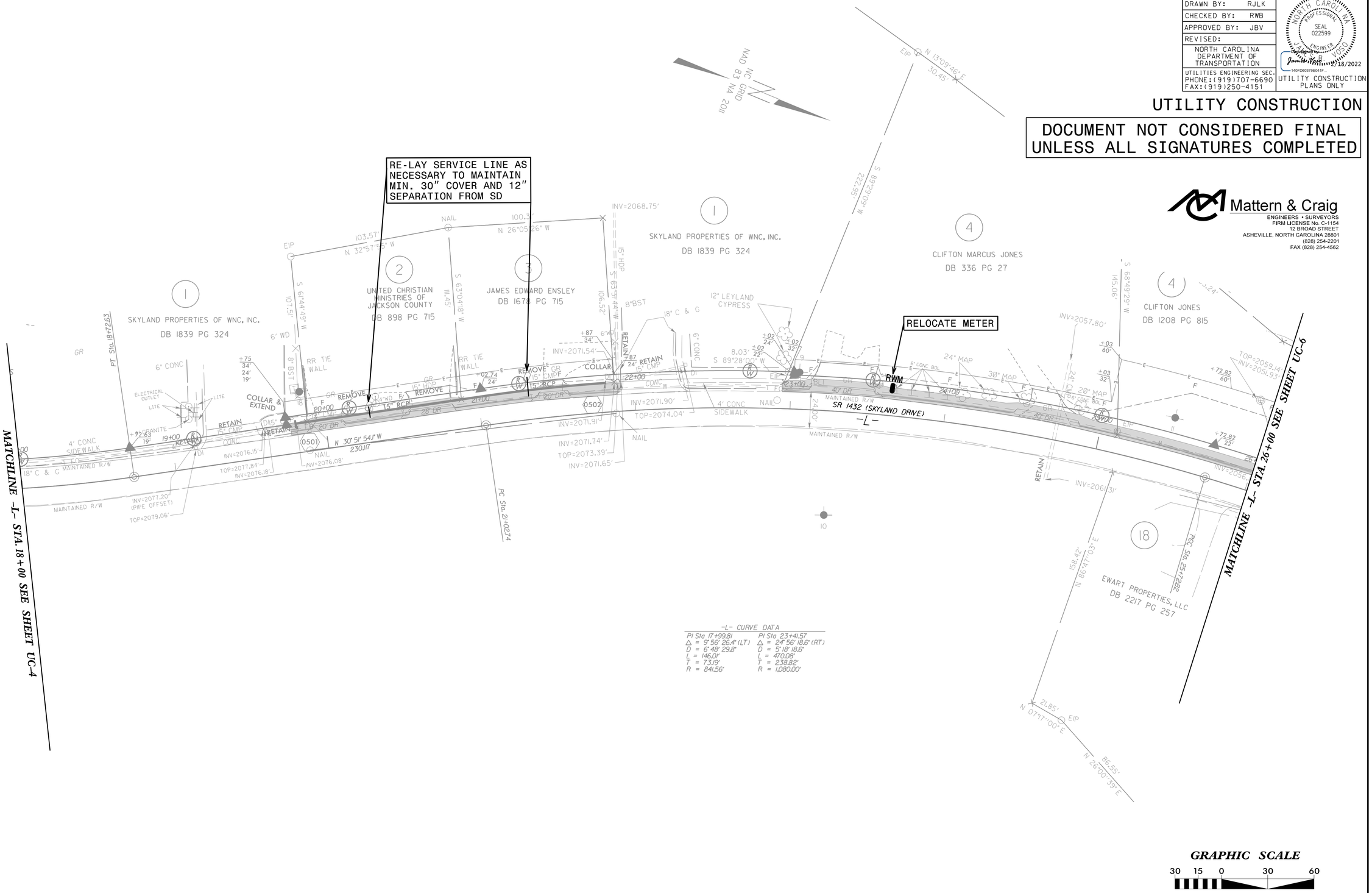
FAX (828) 254-4562



-L- CURVE DATA

PI Sta 17+99.81	PI Sta 23+41.57
Δ = 9°56' 26.4" (LT)	Δ = 24°56' 18.6" (RT)
D = 6°48' 29.8"	D = 5°18' 18.6"
L = 146.01'	L = 470.08'
T = 73.19'	T = 238.82'
R = 841.56'	R = 1,080.00'

GRAPHIC SCALE

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8/17/99

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bgrass

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	UC-6
DESIGNED BY: RJLK	
DRAWN BY: RJLK	
CHECKED BY: RWB	
APPROVED BY: JBV	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSS

9/29/2022

UTILITY CONSTRUCTION

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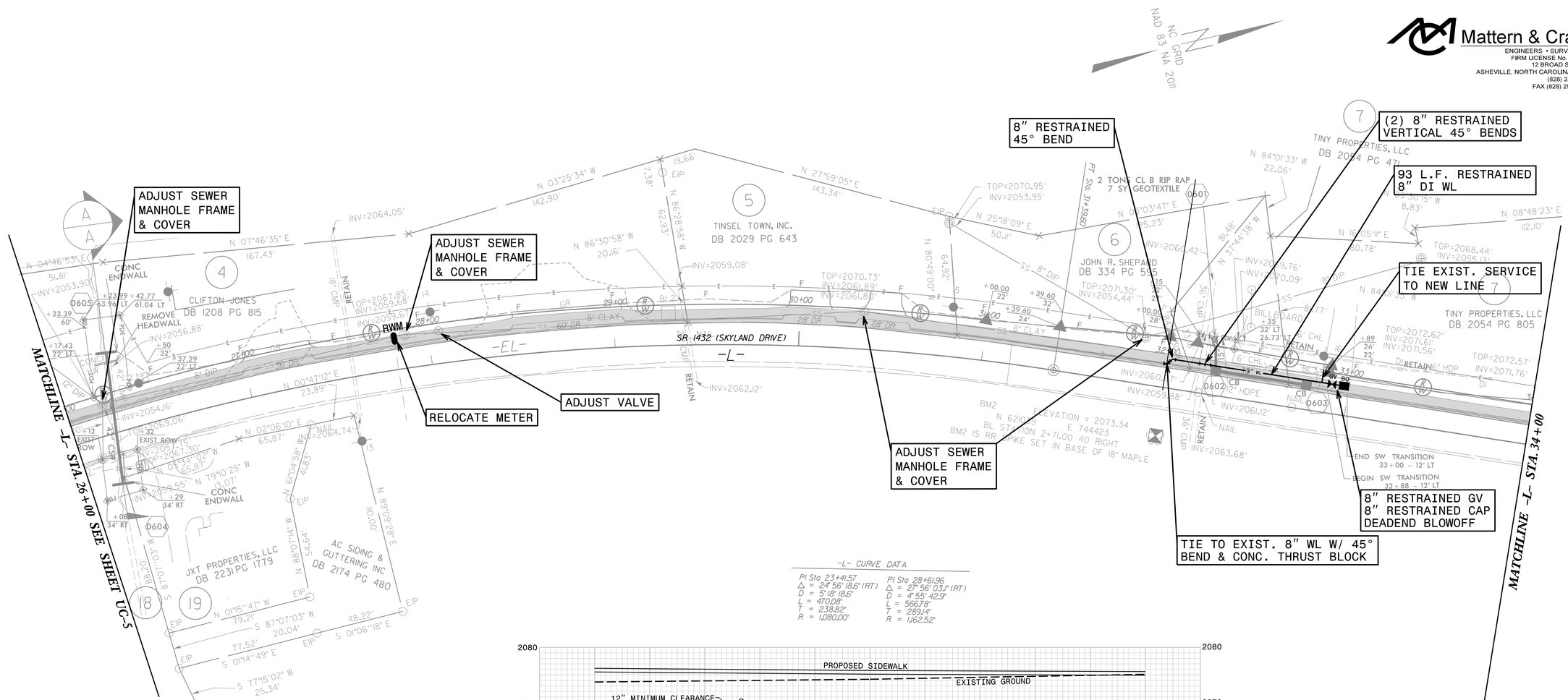
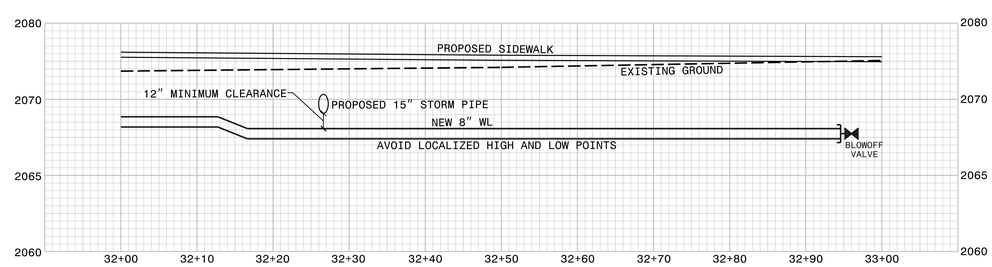
FIRM LICENSE No. C-1154
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562



-L- CURVE DATA

PI Sta 23+41.57	PI Sta 28+61.96
Δ = 24°56'18.6" (RT)	Δ = 27°56'03.1" (RT)
D = 5°18'18.6"	D = 4°55'42.9"
L = 470.08'	L = 566.78'
T = 238.82'	T = 289.14'
R = 1,080.00'	R = 1,162.52'



NEW WATER LINE PROFILE
SCALE: 1" = 10' HORIZONTAL
1" = 5' VERTICAL

GRAPHIC SCALE
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8/17/99

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Bureau

PROJECT REFERENCE NO.	SHEET NO.
EB-5923	UC-7
DESIGNED BY: RJLK	
DRAWN BY: RJLK	
CHECKED BY: RWB	
APPROVED BY: JBV	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSO

140FD6037BE34FF... 8/18/2022

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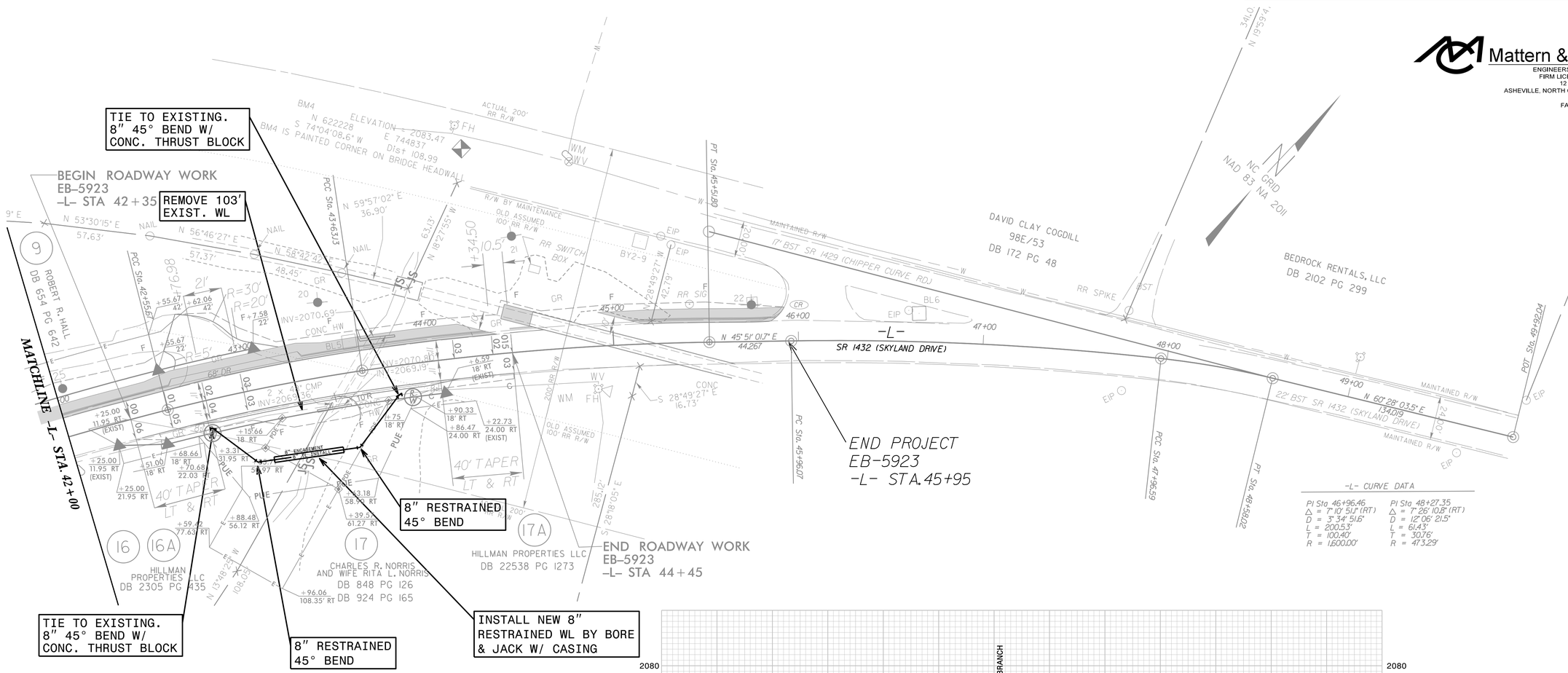

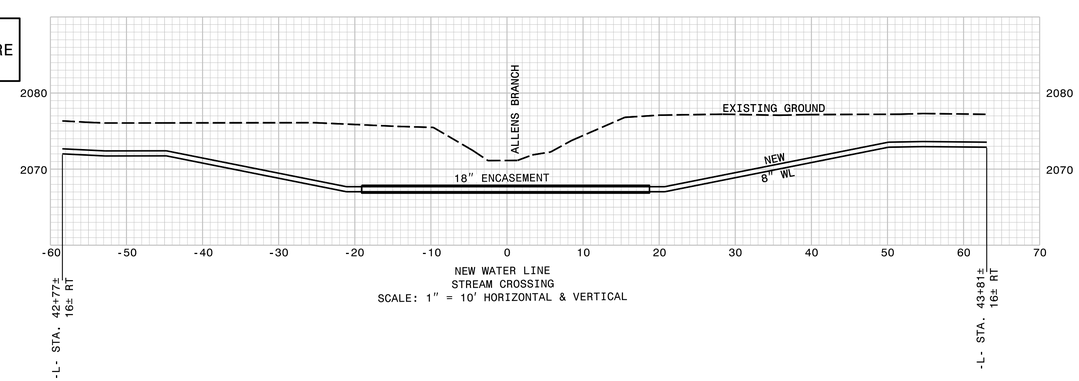

GRAPHIC SCALE
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8/17/99

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