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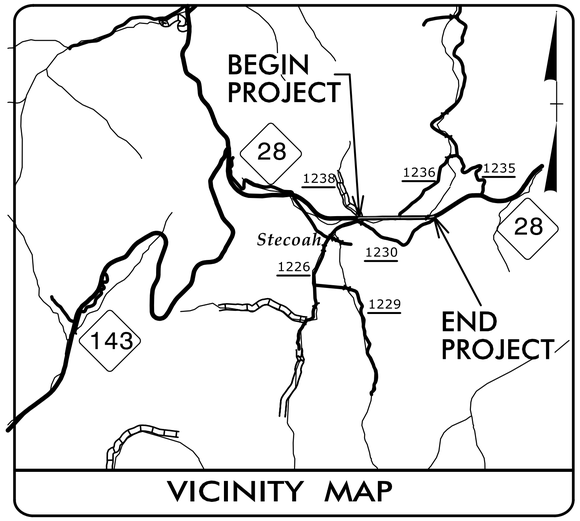
09/08/99

TIP PROJECT: A-0009CE

CONTRACT: DN01055

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GRAHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A-0009CE	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
32572.3.20		CONST	

LOCATION: ***MULTI-USE PATH ALONG NC 28***
FROM SR 1238(BILL CRISP RD) TO SR 1230 (HYDE TOWN RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS & CULVERT

BEGIN TIP PROJECT A-0009CE
-Y2- STA. 98+85

END TIP PROJECT A-0009CE
-Y2- STA. 132+35

NAD 83/2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT A-0009CE = 0.635 MILES

TOTAL LENGTH TIP PROJECT A-0009CE = 0.635 MILES

NCDOT CONTACT: WANDA H. PAYNE, PE

PLANS PREPARED BY:	*PLANS PREPARED FOR:*
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	NORTH CAROLINA DEPARTMENT OF TRANSPORATION DIVISION 14 252 Webster Rd Sylva, NC 28779

LETTING DATE:
AUGUST 27, 2024

2024 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

SANDRA MELVIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

7/22/2024

DocuSigned by: David B. Petty P.E.

SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY

ROADWAY DESIGN ENGINEER

7/22/2024

DocuSigned by: Jimmy Terry P.E.

SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

7/22/2024
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User:cpruett

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

5/29/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

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

CLEARING:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE, FRONTIER, AND ZITO MEDIA.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

STANDARD DRAWINGS

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
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	
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
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
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
848.06	Curb Ramp
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets

5/28/2024
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jsarisman

11/14/2023

PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge

- Woods Line
- Orchard
- Vineyard — Vlneyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

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

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE – LOS B)* — 2UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 ½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
J1	PROP. 6" AGGREGATE BASE COURSE.
U	EXISTING PAVEMENT

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	2A-1

ROADWAY DESIGN & PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY
5/21/2024

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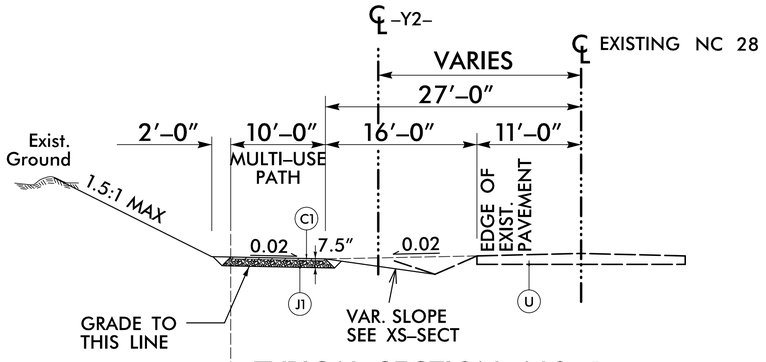
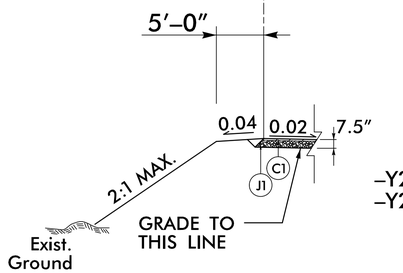


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

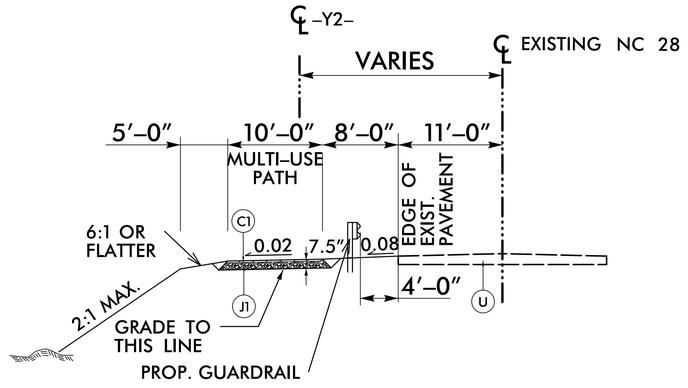
–Y2– STA. 99+14 +/– TO –Y2– STA. 117+50



PART SECTION NO. 1A

USE PART SECTION NO. 1A

–Y2– STA. 109+50 TO –Y2– STA. 111+50
–Y2– STA. 115+50 TO –Y2– STA. 117+50

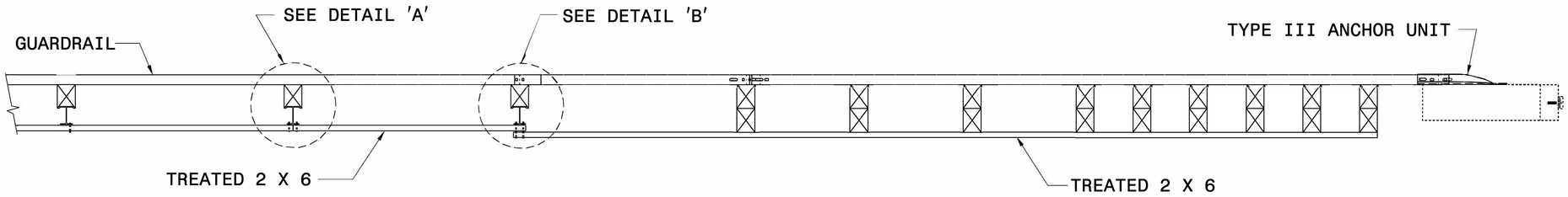


TYPICAL SECTION NO. 2

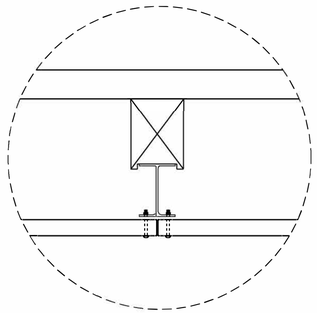
USE TYPICAL SECTION NO. 2

–Y2– STA. 117+50 TO –Y2– STA. 132+10 +/–

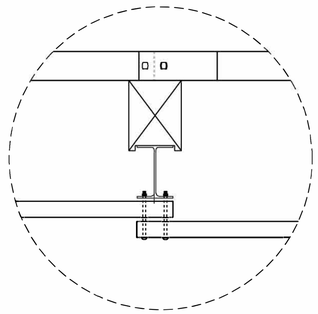
PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	2C-1



PLAN

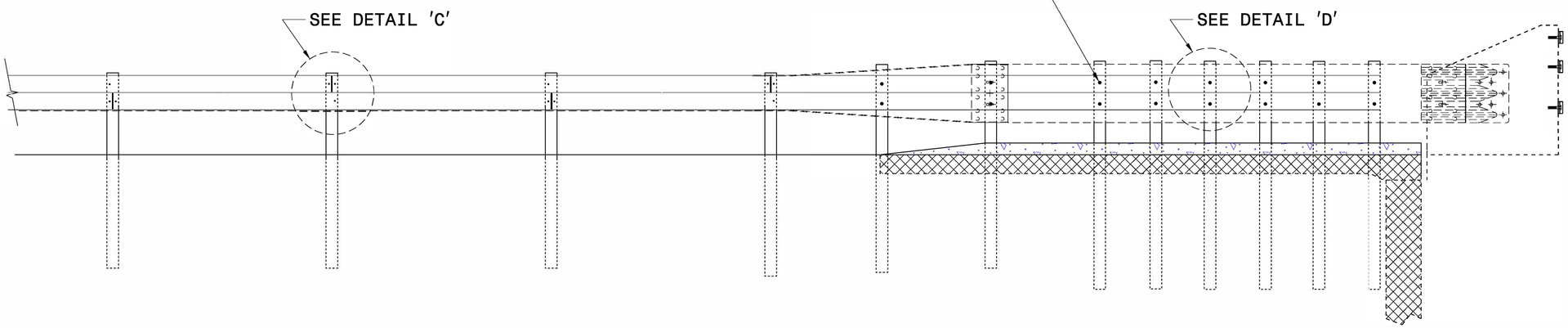


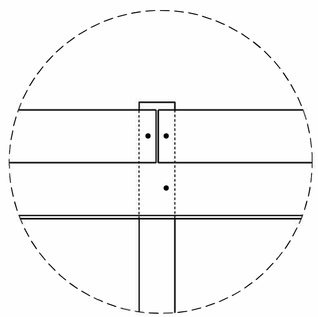
DETAIL 'A'



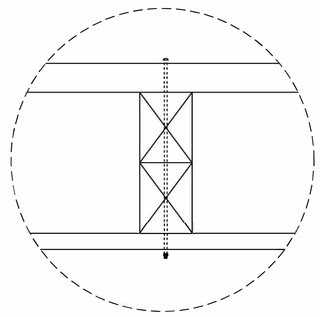
DETAIL 'B'

USE BOLTS AND NUTS FROM TYPE III ANCHOR UNIT TO FASTEN 2 X 6 WOOD RAILS TO THE WOOD POSTS - BOLTS MAY NEED TO BE LENGTHENED TO ACCOMMODATE FOR THE 2 X 6 WOOD RAILS.





DETAIL 'C'



DETAIL 'D'

ELEVATION

NOTES:

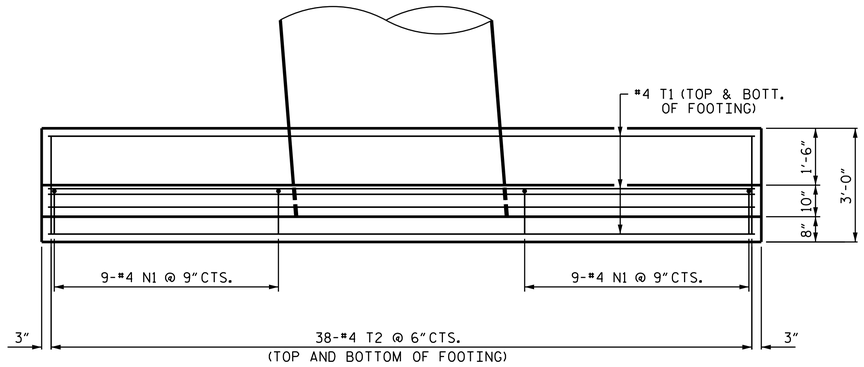
1. USE #2 SYP TREATED 2 X 6 FOR WOOD RAIL.
2. USE GUARDRAIL BOLTS TO FASTEN WOOD RAIL TO GUARDRAIL POSTS. SEE ROADWAY STD.NO.862.02.
3. THE MOUNTING HEIGHT OF THE WOOD RAIL TO BE DETERMINED IN THE FIELD.
4. PLACE THE TREATED 2 X 6 WOOD RAIL AS DIRECTED BY THE ENGINEER.
5. DO NOT PLACE WOOD RAIL WITHIN THE PAY LIMITS OF THE GREU TL-3 END UNIT.

5/30/2024

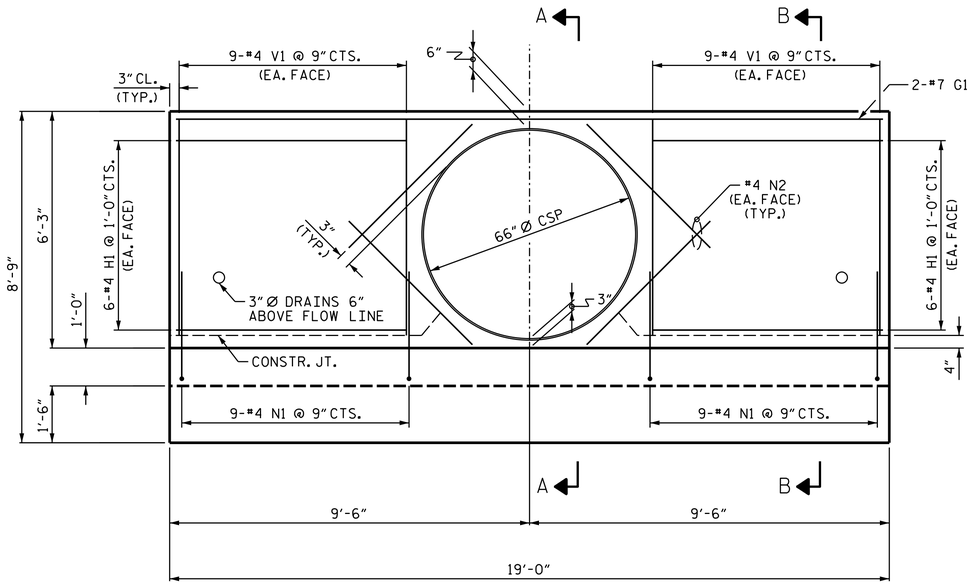
CONTRACT STANDARDS AND DEVELOPMENT UNIT
PLANS AND STANDARDS SECTION
Office 919-707-6950 FAX 919-250-4119

DETAIL OF WOOD RUB RAIL

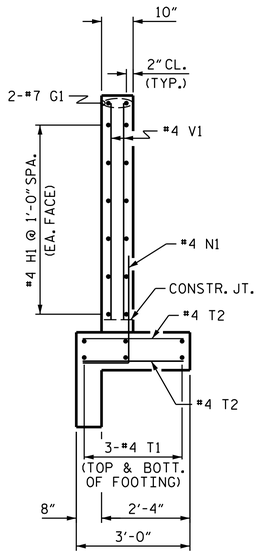
ORIGINAL BY:	STD.8.25	DATE:	1-25-12
MODIFIED BY:		DATE:	
CHECKED BY:		DATE:	
FILE SPEC.:	jhowerton/Wood Rail on Back of Guardrail		



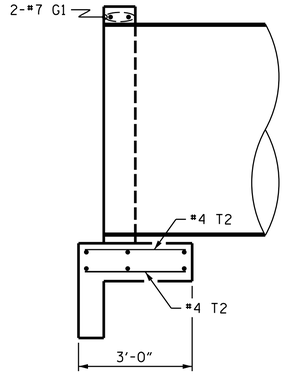
PLAN



ELEVATION

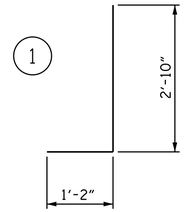


SECTION B-B



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	2D-1

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
G1	2	#7	STR	18'-8"	76
H1	24	#4	STR	6'-1"	98
N1	18	#4	1	4'-0"	48
N2	8	#4	STR	4'-8"	25
T1	6	#4	STR	18'-8"	75
T2	76	#4	STR	2'-8"	135
V1	36	#4	STR	5'-9"	138

REINFORCING STEEL 595 LBS

CLASS A CONCRETE
TOTAL 5.8 CY

GENERAL NOTES:

USE CLASS "A" CONCRETE.

CHAMFER ALL EXPOSED CORNERS 1".

ALL DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING STEEL ARE TO CENTERS OF BARS.

PLACE A STONE DRAIN CONSISTING OF ONE (1) CUBIC FOOT OF NUMBER 78M STONE CONTAINED IN A POROUS FABRIC AT EACH WEEP HOLE. PLACE SUBDRAIN FINE AGGREGATE BENEATH, AROUND AND OVER THE STONE DRAIN SO THE STONE DRAIN IS COMPLETELY COVERED BY A LAYER OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT THICK. WHERE THERE IS MORE THAN ONE WEEP HOLE IN A WING WALL, PLACE A HORIZONTAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION TO CONNECT ALL STONE DRAINS. PLACE A VERTICAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION AT EACH WEEP HOLE TO AN ELEVATION OF TWO (2) FEET BELOW THE SURFACE OF THE EMBANKMENT.

NORTH CAROLINA PROFESSIONAL SEAL 20129 ENGINEER MARSHALL G. CHEEK, JR.
Marshall G. Cheek Jr.
DocuSigned by: 5A7A7566-3B17-49F3-9899-959E8B97943D
5/29/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

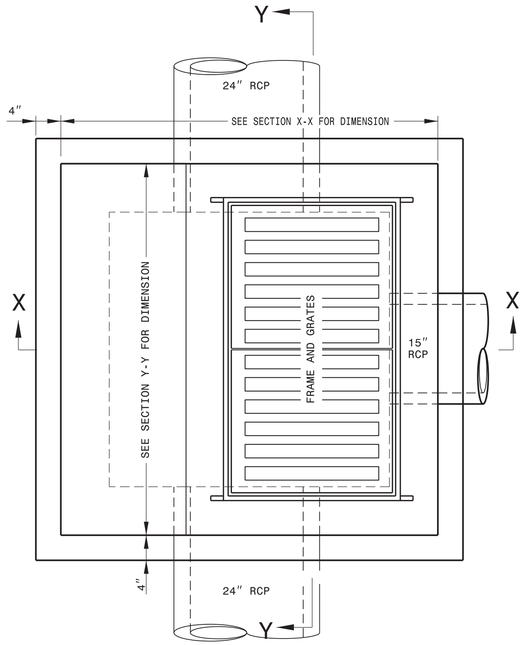
REINFORCED CONCRETE HEADWALL

66" CSP

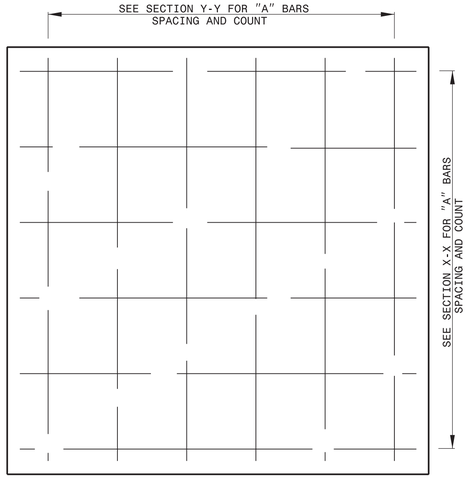
ASSEMBLED BY :	STM	DATE :	05/24
CHECKED BY :	MGC	DATE :	05/24
DESIGN ENGINEER OF RECORD:	STM	DATE :	05/24

5/15/2024
X:\NCDOT\A-0009CE\Drainage\Special Details\A-0009CE 66-Inch_Concrete_Headwall.dgn
User:smassinople

PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	2D-2



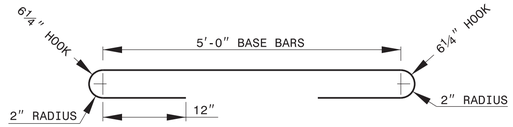
PLAN



PLAN OF BASE

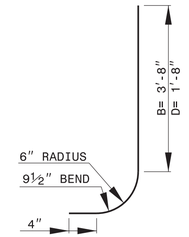
GENERAL NOTES:
-USE CLASS 'AA' CONCRETE FOR CAST IN PLACE CONCRETE BOX.
-USE CLASS 'M' CONCRETE IN THE WALL CAVITY FOR REINFORCED BRICK CONSTRUCTION AND CLASS 'AA' FOR THE FOOTING BASE.
-CHAMFER ALL EXPOSED CONCRETE CORNERS 1".
-USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
-IF PIPES ARE SET IN THE BASE FOLLOW CONSTRUCTION PROCEDURES SHOWN BY STD. DWG. 840.00.
-PRECAST UNITS MADE OF CLASS 'AA' CONCRETE MAY BE USED IN LIEU OF BRICK MASONRY CONSTRUCTION.
-INCLUDE REINFORCING STEEL COST IN THE UNIT OR LINEAR FOOT BID PRICE FOR "MASONRY DRAINAGE STRUCTURE".
-REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
-CONCRETE BRICK, JUMBO BRICK AND 4" SOLID CONCRETE BLOCK WILL BE PERMITTED.
-CONCRETE FOR BRICK BOX REFER TO SECTION 832 OF THE STANDARD SPECIFICATIONS.
-PROVIDE GRATED DROP INLETS OVER 3'-6" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
-FRAME AND GRATES ARE SEPARATE CONTRACT ITEMS.

STRAIGHT BARS

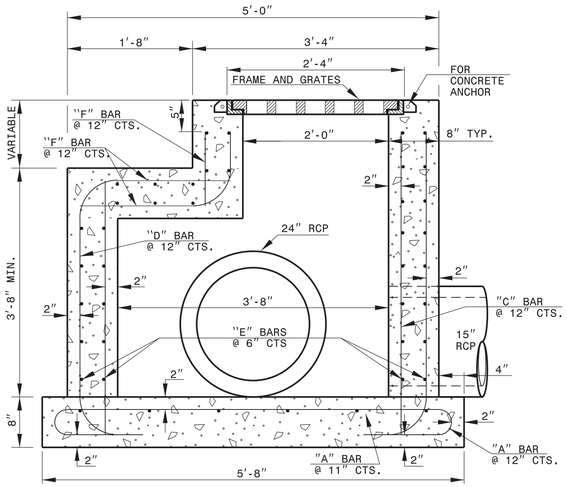


BASE BARS

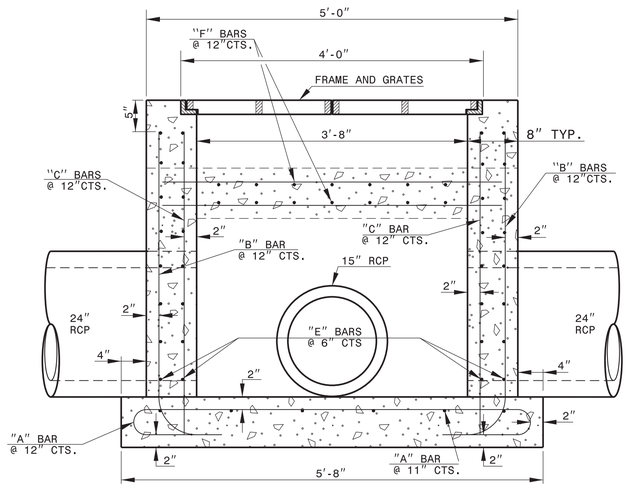
"A" BARS



CORNER BARS



SECTION X-X



SECTION Y-Y

BILL OF MATERIALS

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#5	8'-0½"	12	100.6
B	#5	4'-9½"	20	99.6
C	#5	5'-6"	20	114.7
D	#5	2'-9½"	16	46.6
E	#5	4'-8"	68	331.0
F	#5	2'-0"	44	91.8
REINF. STEEL (TOTAL WEIGHT LBS.)				784.3
CONCRETE IN BASE CLASS 'AA' (CUBIC YARDS)				0.79
CONCRETE IN WALLS CLASS 'AA' (CUBIC YARDS)				2.30
CONCRETE TOTAL (CUBIC YARDS)				3.09
CONC. CUBIC YARDS IN WALL/FOOT OF HEIGHT				0.46
LBS. OF REINF. STEEL IN WALL/FOOT OF HEIGHT				128.9

* PIPE DEDUCTIONS AND INLET OPENING DEDUCTION HAVE BEEN MADE.

NOTES:
-HORIZONTAL AND VERTICAL DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGN REQUIRE.
-MAXIMUM HEIGHT FOR THIS STRUCTURE SHALL BE 20'-0".
-ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.
-DEPTH OF STEEL GRATE WILL REQIURE DEEPER SEAT ALONG SHORT WALLS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRAFFIC BEARING DROP INLET TYPE "A"

ORIGINAL BY: tsspell DATE: 7-15-08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: s:tspell/details/840d35_a0011bb.dgn

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

COMPUTED BY: SGM DATE: 5/20/24
CHECKED BY: JLT DATE: 5/23/24

PROJECT NO.	SHEET NO.
A-0009CE	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
MUP along -Y2-						
-Y2- 98+85.00	-Y2- 117+17.64	14,656		876		13,780
SUBTOTAL #1:		14,656		876		13,780
-Y2- 117+69.20	-Y2-132+35.00	35		8,594	8,559	
SUBTOTAL #2:		35		8,594	8,559	
TOTALS:		14,691		9,470	8,559	13,780
Loss due to Clearing & Grubbing		-750				-750
Waste in Lieu of Borrow					-8,559	-8,559
PROJEECT TOTALS:		13,941		9,470	0	4,471
GRAND TOTALS:		13,941		9,470		4,471
SAY:		**14,000**				

Approximate quantities only. Unclassified excavation, fine grading, and clearing and grubbing willl be paid for at the lump sum price for "Grading".

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

EST. DDE = 250 CUBIC YARDS
SELECT GRANULAR MATERIAL = 3,700 CUBIC YARDS
PER GEOTECH RECOMMENDATION, ESTIMATED 3,700 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

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

GUARDRAIL SUMMARY

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS						TERMINAL SECTION (EA)		IMPACT ATTENUATOR TYPE 350				REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TL-3	III	AT-1						G	NG				
-Y2-	118+00.00	126+81.25	LT	881.25					4'	8'	50'	50'	1	1	2													PLACE GUARDRAIL DURING CONSTRUCTION (SEE TRAFFIC MANAGEMENT PLANS). REMOVE AND STOCKPILE. RESET IN PERMANENT LOCATION.
-Y2-	127+22.50	131+91.25	LT	468.75					4'	8'	50'	50'	1	1	2													
SUB-TOTAL				1350.00											4													
	LESS ANCHOR DEDUCTIONS																											
	TYPE TL-3	4 @ 50.00 FT		200																								
ANCHOR TOTALS				200																								
GRAND TOTALS				**1150.00**											**4**													
SAY				**1,175**											**4**													

ADDITIONAL GUARDRAIL POST: 5 EA

COMPUTED BY:	Zachary Richard, PE	**DATE:**	5/8/2024
CHECKED BY:	David Petty, PE	**DATE:**	6/19/2024

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
A-0009CE	3D-1

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)						DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE							R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03			CONCRETE TRANSITIONAL SECTION		CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17, 840.26, OR 840.45	G.D.I. TYPE "B" STD. 840.18, 840.27, OR 840.45	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	T.B. G.D.I TYPE "A" SEE SHEET 2D-2	15" ELBOW	BERM DRAINAGE OUTLET STD. 850.10 (SY)	FLOWABLE FILL	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%	15	18	24	30	36	42					15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	48 .109	18	24	30	36	42	48	15	18	24	30	36	42	CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		GRATE TYPE E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																		CY	CY	LIN. FT.	
Y2 103+93	56 LT	0403		2022.3																																																											11				15" BDO
		0403	0404		2020.8	2009.6		60						X																																																	1					
Y2 103+93	3 RT	0404		2012.6																																		1										1	1																			
		0404	0405		2009.6	2009.0		68							X	X																																																					
Y2 109+12	1 LT	0406		2003.0																																		1										1	1																			
		0406	0407		2000.0	1999.5																									48																																					
Y2 109+81	37 LT	0408																																			4.500																															42" HEADWALL
		0408	0409		1997.8	1997.0							16		X	X																																																			
Y2 109+81	20 LT	0409		2001.7																																		1																				1										See note on Sheet 4 to add knockout.
		0409	0410		1997.0	1996.0																														68																															
Y2 99+59	24 LT	0411			2015.7	2015.5			32																																																												
Y2 100+00	0 CL	0412			2016	2014						80																																																					0.524		TEMP 36". Plug at each end after pump-around.
Y2 111+31	2 RT	0501		1998.0																																		1										1	1																			
		0501	0502		1996.1	1996.0		20							X	X																																																					
Y2 111+31	36 LT	0502		1999.0																																																																	18" OEP
		0502	0503		1997.5	1996.0			16						X	X																																																				
Y2 111+31	20 LT	0503		1999.0																																		1																				1										JB with Slab Lid
		0503	0505		1996.0	1995.0																										60																																			
Y2 111+80	31 LT	0504		1999.0																																																																	18" OEP
		0504	0505		1997.5	1995.0			16					X																																																					
Y2 111+92	20 LT	0505		1998.0																																		1																				1										JB with Slab Lid
		0505	0506		1995.0	1991.0																										80																																			
Y2 116+00	2 LT	0507		1989.4																																		1										1	1																			
		0507	0508		1987.1	1985.9		88							X	X																																																				
Y2 116+89	20 LT	0508		1988.2																																		1										1	1																			
		0508	0509		1985.7	1984.3			32						X	X																																																				
Y2 117+05	47 LT	0509		1988.6																																		1																								1						See note on SHT 5 to add knockout. See SHT 2D-2
		0509	0510		1983.8	1983.6				16					X	X																																																			
Y2 117+20	47 LT	0510		1987.4																																		1																				1										JB with Slab Lid
		0510	0511		1983.6	1979.0	0.8																			60																																											
Y2 99+60	19 LT																																																																	2			Flowable Fill 18" CMP
Y2 109+24	5 LT																																																																			101	Remove 8" HDPE
Y2 109+62	27 LT																																																																			22	Remove 8" HDPE
Y2 111+62	14 LT																																																																			41	Remove 12" HDPE
Y2 111+93	23 RT																																																																11			Flowable Fill 30" CMP
Y2 111+98	56 RT																																																																			8	Remove 30" CMP
Y2 117+45	24 LT																																																																5			Flowable Fill 18" CMP
SHEET TOTALS								236	96	16		80	16													60					48	140				68	4.500	10										5	5								4				1	1	11	18	0.524	172	
PROJECT TOTALS								236	96	16		80	16													60					48	140				68	4.500	10										5	5								4				1	1	11	18	0.524	172	

ABBREVIATIONS

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

TGSZJR-LAPTOP

COMPUTED BY: Zachary Richard, PE **DATE:** 5/8/2024

CHECKED BY: David Petty, PE **DATE:** 6/19/2024

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
A-0009CE	3D-2

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 54	60	66	72	78	84	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 54	60	66	72	78	84	R. C. PIPE CLASS III 54	60	66	72	78	84	60" WELDED STEEL PIPE 0.5" THICK, GRADE B IN SOIL	60" WELDED STEEL PIPE 0.5" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.04 OR STD. 838.14 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
THICKNESS OR GAUGE																					.138																					
Y2 99+80	14 LT	0401																																5.800								
		0401	0402		2014.5	2013.7															12																					
Y2 99+83	5 LT	0402																																								
SHEET TOTALS																					12													5.800								
PROJECT TOTALS																					12													5.800								

LINE & STATION	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.		SPEC DSN HW FOR 66" CSP, SEE SHEET 2D-1				FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y2 99+80																																		1								SPEC DSN HW, SEE SHT 2D-1
Y2 99+83																																							3.1307			66" PIPE COLLAR
SHEET TOTALS																																		1					3.1307			
PROJECT TOTALS																																		1					3.1307			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
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D.I.	DROP INLET
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R.C.	REINFORCED CONCRETE
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T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: D. Matthew Brewer DATE: 5/24/24 CHECKED BY: D. Matthew Brewer DATE: 5/24/24	(2-3-23)	PROJECT NO. A-0009CE	SHEET NO. 3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	100
				TOTAL LF:	100

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

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
-Y2-	1.5:1	100+75	1.5:1	102+75	LT			2940	
-Y2-	1.5:1	104+25	1.5:1	106+75	LT			2360	
					TOTAL SY:	0	0	5300*	0

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

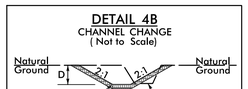
**Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

8/17/99

REVISIONS

NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.

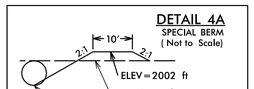
DETAIL 4B
CHANNEL CHANGE
(Not to Scale)



Length = 22 Ft.
Min. D = 3.0 Ft.
B = 5 Ft.
Type of Liner = CLASS II RIPRAP 25 TONS, NO GEOTEXTILE

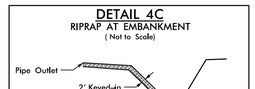
–Y2– STA 109+73(57' LT) TO 109+81(37' LT)
SEE BELOW FOR CHANNEL CHANGE GRADE (15%)

DETAIL 4A
SPECIAL BERM
(Not to Scale)



–Y2– STA. 109+98 LT

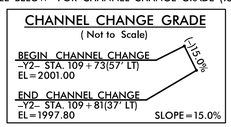
DETAIL 4C
RIPRAP AT EMBANKMENT
(Not to Scale)



Type of Liner = Class II Rip-Rap

–Y2– STA. 109+81 RT

CHANNEL CHANGE GRADE
(Not to Scale)



NAD 83/2011

INSTALL KNOCKOUT OR PLUG FOR FUTURE 15" RCP AT INVERT 1999.3'. THIS IS INCIDENTAL TO THE INSTALLED COST OF THE BOX.

PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY
10/19/2024

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY
10/19/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

146 JOSEPH LOCKE EDWARDS & WIFE NAOMI M. EDWARDS DB 234 PG 246

147 GREGORY DALE BURCHFIELD & WIFE VICKI BURCHFIELD DB 135 PG 426

148 WILLIAM CARR & WIFE TAMMY C. CARR DB 206 PG 123

149 ROANNE GORDON (BY WILL) DB 121PG 656

150 AARON E. FARLEY & WIFE APRIL G. FARLEY DB 288 PG 202

Y2– PT 96+97.32

10' X 10' LANDING AREA W/DETECTABLE DOMES

10' MULTI-USE PATH

PROP. DRIVE

SPECIAL BERM SEE DETAIL 4A

CHANNEL CHANGE SEE DETAIL 4B DDE=15 CY

DO NOT BURY INVERT

BM#33 ELEV. 2011.30'
-BY27- STA. 108+13.00 34' LT.
SPIKE NAIL IN BASE OF 10" POPLAR

N 89° 38' 56.2" E

FILL WITH FLOWABLE FILL 2 CY

PLUG F/O 66" CSP

COLLAR AND EXTEND

REMOVE HW

PLUG TEMPORARY 36" PIPE AFTER PUMP-AROUND (TO ALSO BE USED FOR FUTURE A-0009CD PUMP-AROUND)

PROP. 10' PATH DETECTABLE DOMES

CLASS I RIPRAP 3 TON, NO GEO

SPEC DSN HW SEE SHT 2D-1

ELBOW (OFFSET 28' LT & MAX INVERT=2011.1' IN ORDER TO TIE TO FUTURE DRAINAGE SYSTEM.)

RETAIN 12" HDPE

RETAIN TO HERE REMOVE 22 LF

MATCH LINE STA –Y2– 110+00.00
MATCH TO SHEET NO. 5

JOSEPH L. EDWARDS DB 234 PG 246

JEFFERY HYDE DB 350 PG 460

JEFFERY HYDE, ET AL DB 352 PG 471

STECOAH BAPTIST CHURCH DB 42 PG 598

ODELL LOVIN DB 52 PG 392

GREGORY D. BURCHFIELD DB 295 PG 32

LEONARD BRIDGES DB 87 PG 35

ROANNE GORDON DB 288 PG 499

JAIME J. HOOPER DB 365 PG 617

BM#38 ELEV. 2021.11'
-BY27- STA. 100+37.00 128' RT.
SPIKE NAIL SET IN 6" X 6" BRIDGE BEAM

RIPRAP AT EMBANKMENT SEE DETAIL 4C CLASS II RIPRAP 35 TONS, NO GEO

METES & BOUNDS

From	To	Direction	Dist.
A	B	N 07°53'20" E	17.13'
B	C	N 10°35'28" E	23.71'
C	D	N 32°56'27" E	21.45'
D	E	S 21°07'17" W	24.54'

BEGIN TIP PROJECT A-0009CE
–Y2– STA 98+85

★ PROPOSED SIGNAL

6/18/2024
K:\NCDOT\A-0009CE\Roadway\Proj\A-0009CE_Rdy_psh_04.dgn
User: smelvin

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
A-0009CE	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA — PROFESSIONAL SEAL 35018 — ENGINEER JIMMY L. TERRY — 5/29/2024

HYDRAULICS ENGINEER — NORTH CAROLINA — PROFESSIONAL SEAL 038697 — ENGINEER DAVID B. PETTY — 5/29/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2011

NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.

MATCH LINE STA –Y2– 110+00.00
MATCH TO SHEET NO. 4

MATCH LINE STA –Y2– 123+00.00
MATCH TO SHEET NO. 6

DANA KILBY
DB 201 PG 10

DANNY JENKINS
DB 171 PG 440

DANA KILBY
DB 201 PG 10

AARON E. FARLEY & WIFE APRIL G. FARLEY
DB 288 PG 202

LEONDUS McCRACKEN
DB 123 PG 252

JAIME J. HOOPER
DB 365 PG 617

BILLY HOLDER
DB 117 PG 163

SPECIAL BERM SEE DETAIL 4A

INSTALL KNOCKOUT OR PLUG FOR FUTURE 18" RCP AT INVERT 1984.3'. THIS IS INCIDENTAL TO THE INSTALLED COST OF THE BOX.

PROP. DRIVE

PROP. DRIVE

PROP. DRIVES & PARKNG

10' MULTI-USE PATH

SEE DETAIL SHT 2C-1
WOOD RUB RAIL
–Y2– STA 108+50 +/–
TO 126+32 +/–

DETECTABLE DOMES

DETECTABLE DOMES

DETECTABLE DOMES

REMOVE HW

REMOVE 8 LF

SPEC DSN TB 2GI-A SEE SHT 2D-2

24" RCP-III PLUG

CLASS I RIPRAP 4 TONS, 12 SY GEO

FILL WITH FLOWABLE FILL EST 11 CY

FILL WITH FLOWABLE FILL EST 5 CY

DO NOT BURY INVERT

RIPRAP AT EMBANKMENT SEE DETAIL 5A CLASS II RIPRAP 30 TONS, NO GEO

6' STEEL SHEATH FOR WATERLINE

TOP OF DECK TO BOTTOM FLANGE = 1.38'

JB w/Slab Lid

18" RCP-IV

30" CMP

24" CMP

18" CMP

12" CMP

15" CMP

24" ROCK WALL

CONC WALL

LARGE ROCKS

CONC BRIDGE

48" CROSS TIE WALL

IRRIGATION VALVE

SEPTIC TANK

DRAIN FIELD

DRAIN LINES

WD RAMP

WD SHED

MTL SHED

WD POLE SHED

ISF BUS

ISFD

SIGN

POND

STECOAH CREEK

SR 1235 (LOWER STECOAH RD)

NC 28 (FONTANA RD)

BY27-140

BY27-141

BY32-163

GREU TL-3

GTD

GPS-23

24' BST

(STECOAH)

N 89°38'56" E

S 83°27'22" W
1143.59'

S 00°20'38" W
267.49'

S 00°24'04" W
193.43'

N 00°24'39" E
67.35'

S 03°50'47" W
50.46'

N 06°14'08" E
23.56'

S 10°05'52" E
23.05'

N 10°37'37" E
14.06'

N 38°45'17" E
26.18'

S 18°26'38" E
49.32'

S 79°43'34" W
62.00'

S 88°55'34" W
82.00'

N 77°42'26" W
147.40'

N 63°59'26" W
64.59'

N 63°59'26" W
62.41'

N 88°57'24" W
43.74'

S 71°37'36" W
47.80'

N 20°11'34" E
94.60'

S 87°45'26" E
68.34'

N 82°14'34" E
60.07'

N 66°02'34" E
47.58'

N 47°33'34" E
58.77'

N 87°52'34" E
57.01'

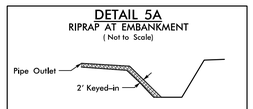
N 33°31'26" W
40.62'

S 5°25'18" E
39.03'

S 1°55'27" E
3.61'

11.19'

DETAIL 5A
RIPRAP AT EMBANKMENT
(Not to Scale)



Type of Liner = Class II Rip-Rap

–Y2– STA. 112+27 RT

5/28/2024
X:\NCDOT\A-0009CE\Roadway\Proj\A-0009CE_Rdy_psh_05.dgn
User: jsmeltzer

8/17/99

MATCH LINE STA –Y2– 123+00.00
MATCH TO SHEET NO. 5

NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.

–Y2– CURVE DATA
PI Sta 132+08.73
Δ = 30° 56' 09.8" (LT)
D = 4° 48' 53.2"
L = 642.52'
T = 329.30'
R = 1,190.00'

N 04°36'54" W 148.24'

DAVID R. HYDE
DB 284 PG 61

EIP IN CONC

S 05°17'40" E 216.60'

WD SHEDS

WD POLE SHED

DAVID R. HYDE
DB 284 PG 61

JAMES R. HYDE, TRUSTEE
DB 252 PG 224

125

152A
JAMES R. HYDE &
JUNE N. HYDE, TRUSTEES
DB 252 PG 224

CHANNEL CHANGE
SEE DETAIL 6A
DDE=135 CY

152
DANYELL D. WILSON
DB 343 PG 63

FILL EXISTING CHANNEL W/ COMPACTED BACKFILL

SEE DETAIL SHT 2C–1
WOOD RUB RAIL
–Y2– STA 108+50 +/–
TO 126+32 +/–

10' MULTI–USE PATH

–Y2– PC 128+79.43

"OLD STECOAH CREEK "STEAM BED"

PROP. DRIVE

DANYELL D. WILSON
DB 343 PG 63

EXISTING R/W

N 89° 38' 56.21" E

GREU TL–3

3@10'X9' CONC BOX CULVERT

STECOAH CREEK

Stecoah Creek

BANK STABILIZATION
SEE CULVERT INLET
CHANNEL DETAIL 6B
15 TONS CLASS II

SINGLE LINE OF 3'x2'x1' BOULDERS TO MAINTAIN LOW FLOW IN EASTERNMOST BARRELS
5 TONS

EXCAVATION
DDE 17 CY

BANK STABILIZATION
SEE CULVERT OUTLET
CHANNEL DETAIL 6C
85 TONS CLASS II

BOBBY EDWARDS
DB 198 PG 322

BENCH ELEV=1952'

SINGLE LINE OF 3'x2'x1' BOULDERS TO MAINTAIN LOW FLOW IN EASTERNMOST BARRELS
10 TONS

SEE DETAIL SHT 2C–1
WOOD RUB RAIL
–Y2– STA 127+72 +/–
TO 131+40 +/–

130

154
KICKSTAND LODGE, LTD.
DB 243 PG 455

–Y2– PT 135+21.96

BM#34 ELEV. 1956.92'
BY27– STA. 131+59.00 38' LT
SPIKE NAIL IN BASE OF 18" WALNUT

153
SUSAN B. IVEY
DB 252 PG 744

EXCAVATION
DDE 77 CY

RETAIN AND EXTEND
3@10'x9' RCBC

10' X 10' LANDING AREA
W/DETECTABLE DOMES

BY27–142

GRAHAM WELL DRILLING, LLC
DB 347 PG 257

WILLIAM M. HYDE
DB 347 PG 253

CIRCLE G MANAGEMENT, LLC
DB 366 PG 138

MICHAEL CABLE, ET AL
DB 373 PG 578

DETECTABLE DOMES

PROP. 10' PATH

RETAIN SYSTEM

SEPTIC TANK

DRAIN LINES

I SF BUS

I SF RENTAL UNIT

I SF MTL BUS (STORAGE UNITS)

I SBW

I SFD

DECK

ROCK WALK

POWER OUTLET BOXES

CONC PLATFORM

WELL

SIGN

F/O MARKER

8" TRAP

24" BST

18" CMP

15.79' EIP

S 44°26' 59" E 84.20'

S 16°25'05" W 360.67'

N 67°19'25" W 233.85'

N 20°08'51" W 28.92'

S 61°25'45" W 52.20'

S 78°47'56" W 48.60'

N 74°10'32" W 37.41'

N 14°17'09" E 19.69'

N 66°59'32" E 125.86'

N 46°16'58" E 102.62'

N 35°03'32" E 88.38'

N 65°54'32" E 70.57'

N 80°22'32" E 144.35'

S 35°39'13" E 67.75'

S 65°15'59" E 66.53'

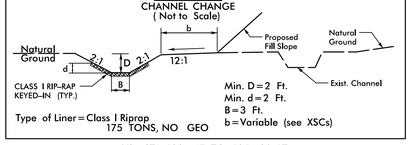
S 85°54'27" E 54.27'

NAD 83/2011

PG

END TIP PROJECT A–0009CE
–Y2– STA 132+35

DETAIL 6A
CHANNEL CHANGE
(Not to Scale)

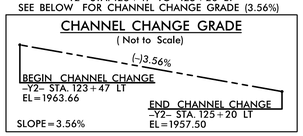


Min. D=2 Ft.
Min. d=2 Ft.
B=3 Ft.
b=Variable (see XSCs)

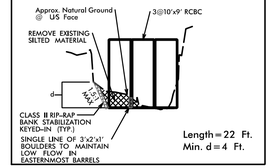
Type of Liner=Class I Riprap
175 TONS, NO GEO

–Y2– STA. 123+47 TO 125+20 LT
SEE BELOW FOR CHANNEL CHANGE GRADE (3.56%)

CHANNEL CHANGE GRADE
(Not to Scale)



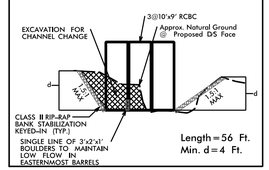
DETAIL 6B
CULVERT INLET CHANNEL DETAIL
Looking Downstream (Not to Scale)



Length=22 Ft.
Min. d=4 Ft.

–Y2– STA. 128+47 RT

DETAIL 6C
CULVERT OUTLET CHANNEL DETAIL
Looking Downstream (Not to Scale)



Length=56 Ft.
Min. d=4 Ft.

–Y2– STA. 129+26 LT

★ PROPOSED SIGNAL

PROJECT REFERENCE NO.	SHEET NO.
A–0009CE	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY
5/29/2024

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY
5/29/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476–0003
CORP. LICENSE NO.: C–0275

5/29/2024
X:\NCDOT\A-0009CE\Roadway\Proj\A-0009CE_Rdy_psh_06.dgn
User:smalvin

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
A-0009-C	RW02C-48

Location and Surveys

Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A PARRIS — DocuSigned by: F1570CB65C7248A...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

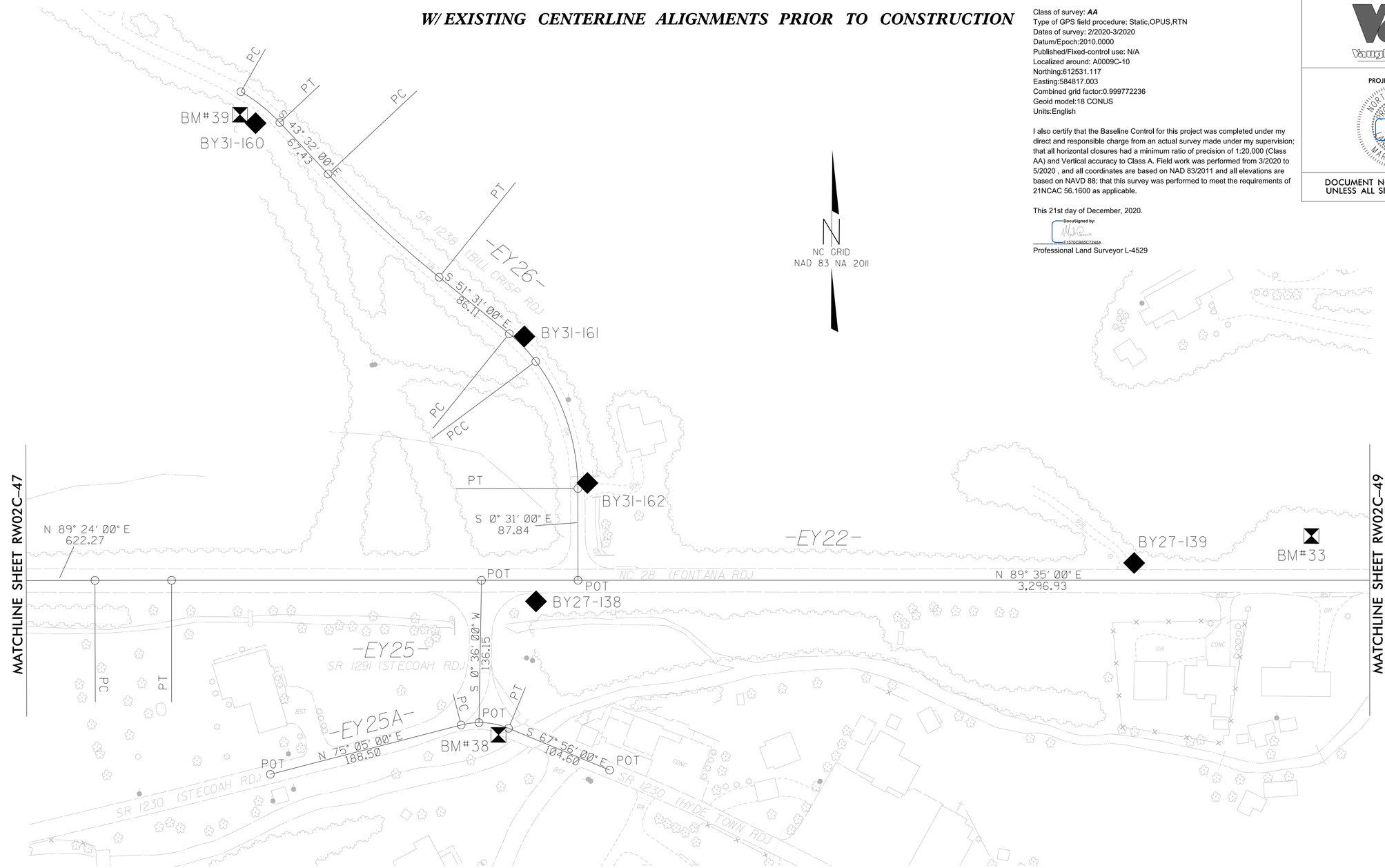
Class of survey: ***AA***
Type of GPS field procedure: Static,OPUS,RTN
Dates of survey: 2/2020-3/2020
Datum/Epoch:2010.0000
Published/Fixed-control use: N/A
Localized around: A0009C-10
Northing:612531.117
Easting:584817.003
Combined grid factor:0.999772236
Geoid model:18 CONUS
Units:English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 3/2020 to 5/2020 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of December, 2020.

DocuSigned by: F1570CB65C7248A...

Professional Land Surveyor L-4529



SEE SHEETS RW02C-56 THRU RW02C-65 FOR FURTHER ALIGNMENT DETAILS

NOTES:

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

REVISIONS

6/2/99

21-JAN-2021 09:35
V:\NC\Survey\2012-14 A-0009 CON\Survey\Data - Work\Control Sheets\A0009C_1s_RW02C-48.dgn
jcgordon AT WKS-1903PY-34

6/2/99

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: Static,OPUS,RTN
Dates of survey: 2/2020-3/2020
Datum/Epoch:2010.0000
Published/Fixed-control use: N/A
Localized around: A0009C-10
Northing:612531.117
Easting:584817.003
Combined grid factor:0.999772236
Geoid model:18 CONUS
Units:English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 3/2020 to 5/2020 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of December, 2020.

DocuSigned by:
F1570CB85C7248A...

Professional Land Surveyor L-4529

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
A-0009-C	RW02C-49

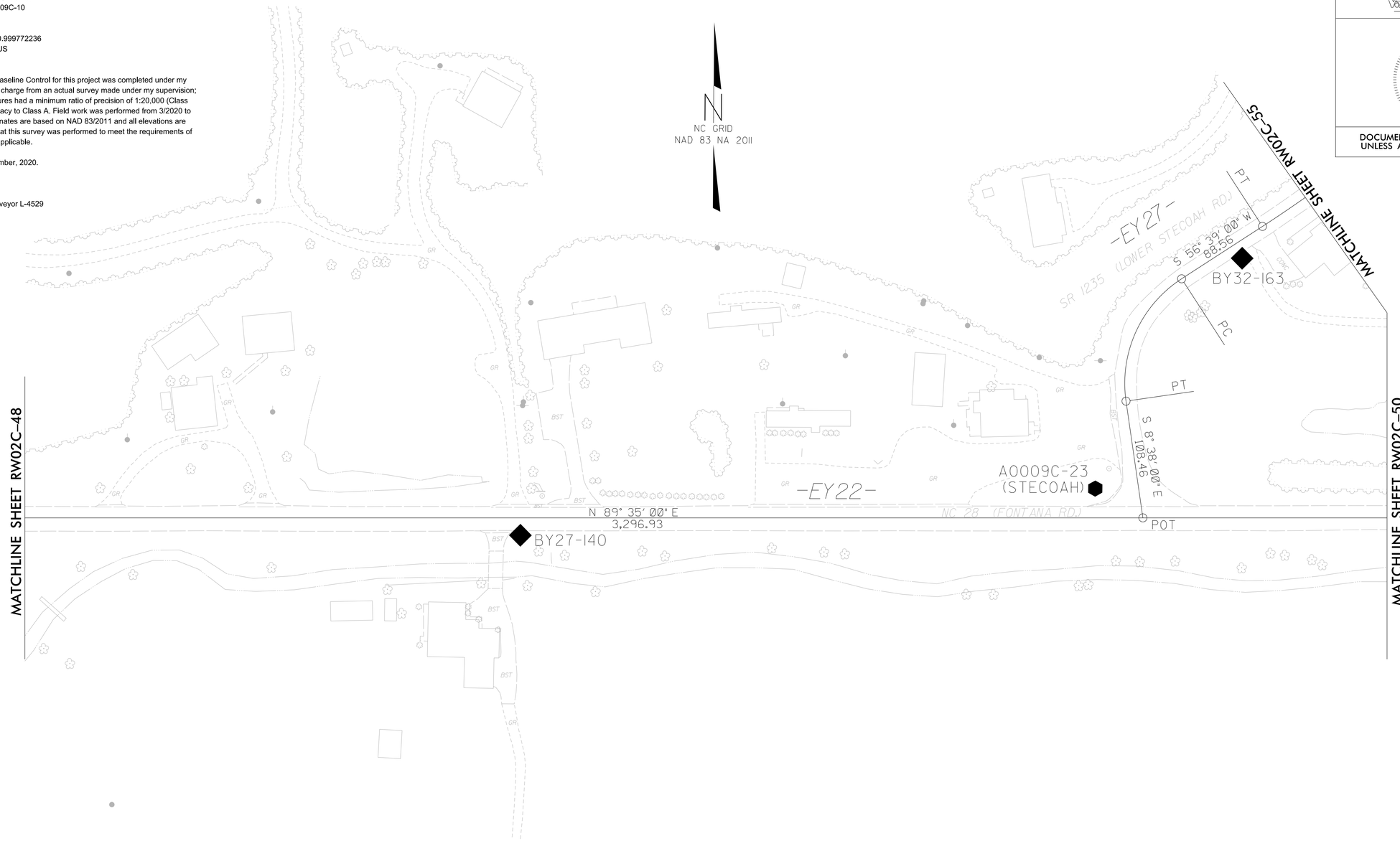
Location and Surveys

Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A PARRIS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEETS RW02C-56 THRU RW02C-65 FOR FURTHER ALIGNMENT DETAILS

NOTES:

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

REVISIONS

21-JAN-2021 09:31
V:\NCDOT Survey\2012-14 A-0009 CON\Survey Data - Work\Control Sheets\A0009C_ls_RW02C-49.dgn
jcgordon AT WKS-1903PY-34

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: Static,OPUS,RTN
Dates of survey: 2/2020-3/2020
Datum/Epoch:2010.0000
Published/Fixed-control use: N/A
Localized around: A0009C-10
Northing:612531.117
Easting:584817.003
Combined grid factor:0.999772236
Geoid model:18 CONUS
Units:English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 3/2020 to 5/2020 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of December, 2020.

DocuSigned by:
E157DCB85C72484...
Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
A-0009-C	RW02C-50

Location and Surveys

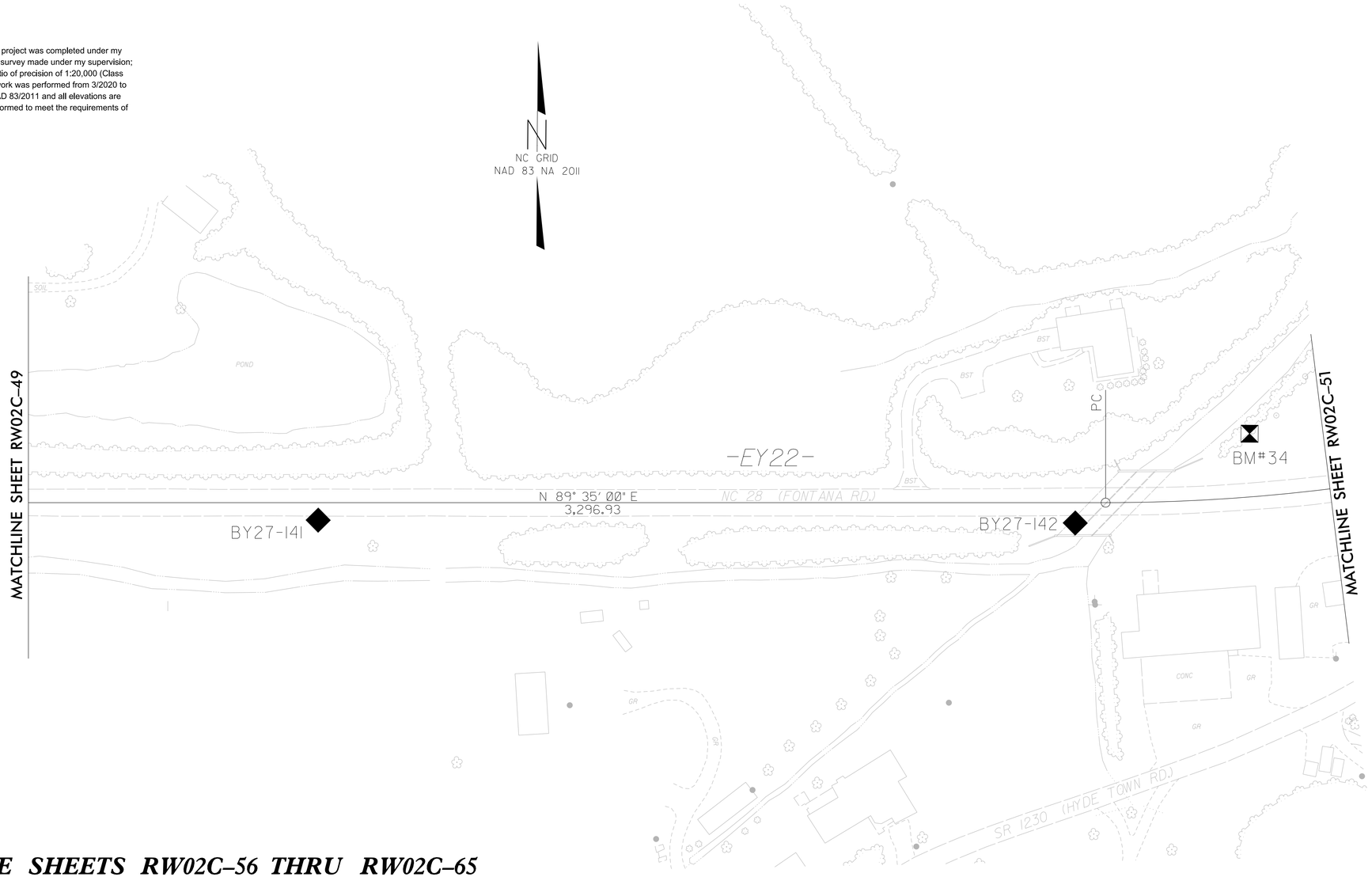
Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 SURVEYOR MARK A PARRIS

DocuSigned by: L-4529 12/21/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEETS RW02C-56 THRU RW02C-65 FOR FURTHER ALIGNMENT DETAILS

NOTES:

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

21-JAN-2021 09:44
W:\NCI Survey\032012-14 A-0009 CON\Survey\Data - Work\Control Sheets\A0009C_ls_RW02C-50.dgn
jcgordon At WKS-1903PY-34

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: Static,OPUS,RTN
Dates of survey: 2/2020-3/2020
Datum/Epoch:2010.0000
Published/Fixed-control use: N/A
Localized around: A0009C-10
Northing:612531.117
Easting:584817.003
Combined grid factor:0.999772236
Geoid model:18 CONUS
Units:English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 3/2020 to 5/2020 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of December, 2020.

DocuSigned by:
F1570CB85C7248A...
Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
A-0009-C	RW02C-51

Location and Surveys

Vaughn&Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A PARRIS
DocuSigned by: F1570CB85C7248A...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE SHEETS RW02C-56 THRU RW02C-65 FOR FURTHER ALIGNMENT DETAILS

NOTES:

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

REVISIONS

6/2/99

21-JAN-2021 09:47
V:\NCL\Survey\032012-14 A-0009 CON\Survey\Data - Work\Control Sheets\A0009C_1s_RW02C-51.dgn
jcgordon "AT WKS-1903PY-34

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BY25

POINT	DESC.	NORTH	EAST	ELEVATION
B40	BL-40	617874.8580	589687.9530	2353.90
101	BY25-101	618094.3990	589858.2180	2361.85
102	BY25-102	618463.3860	589933.2950	2375.42
103	BY25-103	618773.9610	590049.0190	2397.53
104	BY25-104	618852.4600	590231.3830	2421.71
105	BY25-105	619074.5250	590376.8040	2435.57
106	BY25-106	619127.6290	590572.0880	2449.68
107	BY25-107	619223.1130	590671.1520	2459.21
108	BY25-108	619426.6460	590723.2200	2470.81
109	BY25-109	619592.5040	590924.7330	2489.75
110	BY25-110	619780.3410	590959.9380	2500.97
111	BY25-111	619891.7040	591079.8550	2520.42
112	BY25-112	620091.3970	591018.2560	2533.21
113	BY25-113	620152.7280	591158.2880	2553.95
114	BY25-114	620295.9930	591222.2840	2569.85
115	BY25-115	620440.2020	591197.9380	2584.80
B45	BL-45	620597.1760	591057.1780	2599.60

BY27

POINT	DESC.	NORTH	EAST	ELEVATION
116	BY27-116	627668.7710	595746.1540	2396.26
117	BY27-117	627326.8000	595877.6660	2423.89
118	BY27-118	627008.2080	596006.2820	2451.34
119	BY27-119	626682.7130	596209.7880	2482.85
120	BY27-120	626363.1360	596498.3810	2514.49
YGPS20	A0009C-20	626011.6230	596470.4230	2510.58
121	BY27-121	625776.6740	596555.8310	2502.81
122	BY27-122	625496.1090	596516.2830	2484.55
123	BY27-123	625187.5690	596523.0380	2464.13
124	BY27-124	624993.6440	596480.9010	2451.73
125	BY27-125	624688.4920	596531.7970	2427.37
126	BY27-126	624381.8220	596676.0270	2401.29
127	BY27-127	624086.8430	596954.9890	2369.62
128	BY27-128	623916.0190	597303.6880	2338.16
129	BY27-129	623901.6750	597674.7440	2307.40
130	BY27-130	623923.5590	598192.9300	2266.46
131	BY27-131	623940.6670	598571.9230	2236.14
132	BY27-132	623956.8800	598922.7950	2207.83
133	BY27-133	623951.4930	599326.2620	2177.41
134	BY27-134	623822.0140	599570.4980	2153.60
GPS21	A0009C-21	623606.0530	599868.7320	2122.69
135	BY27-135	623071.7070	600405.2240	2080.82
136	BY27-136	622910.5300	600884.0640	2063.26
137	BY27-137	622916.7800	601599.8220	2037.15
138	BY27-138	622916.3840	602164.6920	2021.20
139	BY27-139	622957.2640	602736.5220	2012.03
140	BY27-140	622929.6210	603417.6160	1997.79
GPS23	NCGS *STECOAH*	622976.4500	603945.8670	1988.16
141	BY27-141	622938.6050	604456.0790	1978.34
142	BY27-142	622940.8330	605087.6130	1966.33
143	BY27-143	623053.9380	605538.9120	1958.94
144	BY27-144	623316.9250	606070.0410	1975.21
145	BY27-145	623582.7310	606398.6840	2000.07
146	BY27-146	623836.6670	606805.8240	2032.90
147	BY27-147	623961.9320	607208.1130	2055.75
148	BY27-148	623945.1160	607549.4850	2064.37
149	BY27-149	623769.6940	607845.3930	2068.27
150	BY27-150	623659.4710	608229.4840	2063.54
151	BY27-151	623714.6670	608713.6890	2041.99
152	BY27-152	623896.7650	609047.4660	2018.05
GPS25	A0009C-25	624253.0900	609365.0450	1986.82

BY28

POINT	DESC.	NORTH	EAST	ELEVATION
153	BY28-153	624417.1610	597608.9850	2263.12
154	BY28-154	624325.8510	597917.7750	2239.15
155	BY28-155	624278.9330	598098.4640	2225.72
156	BY28-156	624314.9970	598370.3740	2206.90
157	BY28-157	624189.9470	598694.1370	2184.02
158	BY28-158	624094.7480	598887.8720	2173.67
159	BY28-159	624069.7320	599157.9850	2162.39
YY133	BY27-133	623951.4930	599326.2620	2177.41

BY31

POINT	DESC.	NORTH	EAST	ELEVATION
160	BY31-160	623371.8520	601893.1250	2051.44
161	BY31-161	623169.7250	602151.7110	2030.72
162	BY31-162	623029.9760	602213.0550	2023.15
Y138	BY27-138	622916.3840	602164.6920	2021.20

BY32

POINT	DESC.	NORTH	EAST	ELEVATION
YGPS23	NCGS *STECOAH*	622976.4500	603945.8670	1988.16
163	BY32-163	623189.2390	604079.3270	1991.07
164	BY32-164	623535.8830	604485.6710	2006.37
165	BY32-165	623766.7880	604751.7330	2005.72

BM1 ELEVATION = 1993.80
N 607747 E 568452
SPIKE NAIL IN 18" MAPLE

BM2 ELEVATION = 2015.91
N 607797 E 569652
CHISELED "X" IN CONC PAD FOR TRAFFICSIGNAL BOX

BM3 ELEVATION = 2016.23
N 607058 E 571713
SPIKE NAIL IN 10" POPLAR

BM4 ELEVATION = 2108.41
N 607414 E 573959
SPIKE NAIL IN 14" PINE

BM5 ELEVATION = 2132.48
N 607421 E 576156
SPIKE NAIL IN 15" DOUBLE OAK

BM6 ELEVATION = 2100.03
N 609056 E 577733
SPIKE NAIL IN 24" WHITE OAK

BM7 ELEVATION = 2125.10
N 609693 E 579533
SPIKE NAIL IN 20" POPLAR

BM8 ELEVATION = 2148.72
N 610368 E 581380
SPIKE NAIL IN 14" POPLAR

BM9 ELEVATION = 2183.22
N 611767 E 583110
SPIKE NAIL IN 30" MAPLE

BM10 ELEVATION = 2200.60
N 612773 E 584352
SPIKE NAIL IN 14" DOUBLE POPLAR

BM11 ELEVATION = 2234.92
N 613603 E 586710
SPIKE NAIL IN 18" POPLAR

BM12 ELEVATION = 2269.68
N 614929 E 588131
SPIKE NAIL IN 15" POPLAR

BM13 ELEVATION = 2313.25
N 616593 E 589377
SPIKE NAIL IN 24" POPLAR

BM14 ELEVATION = 2410.76
N 618630 E 589915
SPIKE NAIL IN 14" POPLAR

BM15 ELEVATION = 2571.99
N 620243 E 591023
SPIKE NAIL IN 10" POPLAR

BM16 ELEVATION = 2715.81
N 621413 E 592250
SPIKE NAIL IN 13" PINE

BM17 ELEVATION = 2882.87
N 621951 E 593832
SPIKE NAIL IN 12" POPLAR

BM18 ELEVATION = 3033.61
N 619882 E 593172
SPIKE NAIL IN 10" POPLAR

BM19 ELEVATION = 3094.55
N 619399 E 594281
SPIKE NAIL IN 24" MAPLE

BM20 ELEVATION = 2982.50
N 620695 E 595078
SPIKE NAIL IN 20" POPLAR

BM21 ELEVATION = 2806.49
N 622539 E 596717
SPIKE NAIL IN 24" PRINCESS TREE

BM22 ELEVATION = 2715.62
N 623495 E 595954
SPIKE NAIL IN 12" POPLAR

BM23 ELEVATION = 2523.73
N 625892 E 596342
SPIKE NAIL IN 15" POPLAR

BM24 ELEVATION = 1989.37
N 608121 E 567911
BOLT IN MCDONALDS SIGN BASE

BM25 ELEVATION = 2027.51
N 604128 E 568732
SPIKE NAIL IN 18"" WALNUT

BM26 ELEVATION = 2018.64
N 606947 E 567547
SPIKE NAIL IN SYCAMORE

BM27 ELEVATION = 2011.45
N 606635 E 568845
SPIKE NAIL IN 12" POPLAR

BM28 ELEVATION = 2360.04
N 618106 E 589822
SPIKE NAIL IN 14" POPLAR

BM29 ELEVATION = 2368.94
N 627954 E 595589
SPIKE NAIL IN 18" POPLAR

BM30 ELEVATION = 2373.76
N 624052 E 596958
SPIKE NAIL IN 30" POPLAR

BM31 ELEVATION = 2178.05
N 623982 E 599277
SPIKE NAIL IN 26" POPLAR

BM32 ELEVATION = 2055.94
N 622874 E 600916
SPIKE NAIL IN 36" POPLAR

BM33 ELEVATION = 2011.30
N 622984 E 602906
SPIKE NAIL IN 10" POPLAR

BM34 ELEVATION = 1956.92
N 623016 E 605233
SPIKE NAIL IN 18" WALNUT

BM35 ELEVATION = 2036.22
N 623779 E 606834
SPIKE NAIL IN 12" DOUBLE POPLAR

BM36 ELEVATION = 2022.34
N 623959 E 608884
SPIKE NAIL IN 24" POPLAR

BM37 ELEVATION = 2238.93
N 624326 E 597907
SPIKE NAIL IN 12" TRIPLE POPLAR

BM38 ELEVATION = 2021.11
N 622788 E 602130
SPIKE NAIL SET IN 6X6 BRIDGE BEAM

BM39 ELEVATION = 2056.76
N 623380 E 601878
SPIKE NAIL SET IN 36" DOUBLE SYCAMORE

BM40 ELEVATION = 2001.31
N 623696 E 604730
SPIKE NAIL IN 30" POPLAR

BM41 ELEVATION = 2063.76
N 624033 E 607585
SPIKE NAIL IN 22" POPLAR

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: Static,OPUS,RTN
Dates of survey: 2/2020-3/2020
Datum/Epoch:2010.0000
Published/Fixed-control use: N/A
Localized around: A0009C-10
Northing:612531.117
Easting:584817.003
Combined grid factor:0.999772236
Geoid model:18 CONUS
Units:English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 3/2020 to 5/2020 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of December, 2020.

DocuSigned by:
F1570CB85C7248A...

Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
A-0009-C	RW02C-57

Location and Surveys

Vaughn&Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A PARRIS

DocuSigned by:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

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

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

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jcgordon At WKS-1903PY-34

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
A-0009-C	RW02C-63

Location and Surveys

Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A PARRIS

DocuSigned by: F1570C885C7248A...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

EY22

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R	DELTA S	Ls	LT	ST
PC	627741.064	595689.284											
CURVE			S 24°31'35.4" E	220.27	08°49'10.8"(RT)	04°00'00.0"	220.49	110.46	1432.39				
PT	627540.665	595780.722											
LINE			S 20°07'00.0" E	113.67									
PC	627433.928	595819.818											
CURVE			S 19°51'30.0" E	103.33	00°31'00.0"(RT)	00°30'00.0"	103.33	51.67	11459.16				
PT	627336.739	595854.920											
LINE			S 19°36'00.0" E	92.61									
TS	627249.494	595885.986											
SPIRAL			S 21°15'59.6" E	199.93						05°00'00.0"(LT)	200.00	133.39	66.72
SC	627063.177	595958.503											
CURVE			S 31°49'30.0" E	288.23	14°27'00.0"(LT)	05°00'00.0"	289.00	145.27	1145.92				
CS	626818.274	596110.497											
SPIRAL			S 42°23'00.4" E	199.93						05°00'00.0"(LT)	200.00	133.39	66.72
ST	626670.594	596245.269											
LINE			S 44°03'00.0" E	121.42									
TS	626583.329	596329.688											
SPIRAL			S 40°33'03.6" E	149.78						10°30'00.0"(RT)	150.00	100.18	50.16
SC	626469.525	596427.061											
CURVE			S 19°42'00.0" E	195.94	27°42'00.0"(RT)	14°00'00.0"	197.86	100.90	409.26				
CS	626285.057	596493.110											
SPIRAL			S 00°00'00.0" E	0.00						00°00'00.0"(RT)	0.00	0.00	0.00
ST	626285.057	596493.110											
LINE			S 05°51'00.0" E	303.67									
PC	625982.965	596524.062											
CURVE			S 03°59'30.0" E	185.80	03°43'00.0"(RT)	02°00'00.0"	185.83	92.95	2864.79				
PT	625797.615	596536.996											
LINE			S 02°08'00.0" E	33.04									
PC	625764.602	596538.226											
CURVE			S 01°45'00.0" W	310.43	07°46'00.0"(RT)	02°30'00.0"	310.67	155.57	2291.83				
PT	625454.318	596528.746											
LINE			S 05°38'00.0" W	162.84									
TS	625292.260	596512.761											
SPIRAL			S 03°08'01.3" W	299.77						07°30'00.0"(LT)	300.00	200.18	100.16
SC	624992.937	596496.373											
CURVE			S 44°40'00.0" E	1557.16	85°36'00.0"(LT)	05°00'00.0"	1712.00	1061.13	1145.92				
CS	623885.468	597591.031											
SPIRAL			N 89°11'59.6" E	199.93						05°00'00.0"(LT)	200.00	133.39	66.72
ST	623888.260	597790.943											
LINE			N 87°32'00.0" E	1166.46									
PC	623938.462	598956.324											
CURVE			N 89°20'03.9" E	205.80	03°36'07.8"(RT)	01°45'00.0"	205.84	102.95	3274.04				
PCC	623940.853	599162.113											
CURVE			S 82°21'56.4" E	199.54	12°59'51.7"(RT)	06°30'00.0"	199.96	100.41	881.47				
PCC	623914.345	599359.881											
CURVE			S 58°36'30.3" E	715.73	34°31'00.5"(RT)	04°45'00.0"	726.67	374.74	1206.23				
PT	623541.532	599970.848											
LINE			S 41°21'00.0" E	314.25									
TS	623305.630	600178.457											
SPIRAL			S 42°52'14.7" E	149.96						04°33'45.0"(LT)	150.00	100.03	50.03
SC	623195.728	600280.481											
CURVE			S 62°56'00.0" E	551.39	34°02'30.0"(LT)	06°05'00.0"	559.59	288.33	941.85				
CS	622944.828	600771.485											
SPIRAL			S 87°03'08.7" E	349.46						10°38'45.0"(LT)	350.00	233.76	117.05
ST	622926.858	601120.486											
LINE			N 89°24'00.0" E	622.27									
PC	622933.375	601742.723											
CURVE			N 89°29'30.0" E	73.33	00°11'00.0"(RT)	00°15'00.0"	73.33	36.67	22918.31				
PT	622934.025	601816.054											
LINE			N 89°35'00.0" E	3296.93									
PC	622958.001	605112.896											
CURVE			N 85°30'06.8" E	217.49	08°09'46.4"(LT)	03°45'00.0"	217.68	109.02	1527.89				
PCC	622975.058	605329.719											
CURVE			N 70°07'06.8" E	359.32	22°36'13.6"(LT)	06°15'00.0"	361.66	183.21	916.73				
PT	623097.254	605667.623											
LINE			N 58°49'00.0" E	135.14									
PC	623167.225	605783.235											
CURVE			N 57°59'30.0" E	164.99	01°39'00.0"(LT)	01°00'00.0"	165.00	82.51	5729.58				
PT	623254.679	605923.145											
LINE			N 57°10'00.0" E	825.77									
TS	623702.408	606616.998											
SPIRAL			N 61°26'33.5" E	399.11						12°50'00.0"(RT)	400.00	267.37	133.97
SC	623893.198	606967.551											
CURVE			N 84°32'30.0" E	448.40	29°05'00.0"(RT)	06°25'00.0"	453.25	231.62	892.92				
CS	623935.850	607413.914											
SPIRAL			N 90°00'00.0" E	0.00						00°00'00.0"(RT)	0.00	0.00	0.00
ST	623935.850	607413.914											
LINE			S 80°55'00.0" E	30.23									
PC	623931.078	607443.763											
CURVE			S 73°59'56.0" E	220.83	13°50'08.0"(RT)	06°15'00.0"	221.37	111.23	916.73				
PT	623870.204	607656.039											
LINE			S 67°04'52.0" E	58.27									
POT	623847.513	607709.708											

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: Static,OPUS,RTN
Dates of survey: 2/2020-3/2020
Datum/Epoch:2010.0000
Published/Fixed-control use: N/A
Localized around: A0009C-10
Northing:612531.117
Easting:584817.003
Combined grid factor:0.999772236
Geoid model:18 CONUS
Units:English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 3/2020 to 5/2020 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of December, 2020.

DocuSigned by: F1570C885C7248A...

Professional Land Surveyor L-4529

NOTES:

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

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jcgordon AT WKS-1903PY-34

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
A-0009-C	RW02C-64

Location and Surveys

V&M Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 MARK A PARRIS SURVEYOR

DocuSigned by: IL-4529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

EY23

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	624219.431	598639.498							
LINE			S 69°57'00.0" E	64.08					
PC	624197.463	598699.690							
CURVE			S 65°30'00.0" E	59.27	08°54'00.0"(RT)	15°00'00.0"	59.33	29.73	381.97
PT	624172.883	598753.627							
LINE			S 61°03'00.0" E	75.35					
PC	624136.409	598819.563							
CURVE			S 66°44'00.9" E	103.17	11°22'01.8"(LT)	11°00'00.0"	103.34	51.84	520.87
PCC	624095.657	598914.341							
CURVE			S 83°16'00.9" E	128.78	21°41'58.2"(LT)	16°45'00.0"	129.55	65.56	342.06
PT	624080.559	599042.230							
LINE			N 85°53'00.0" E	33.56					
PC	624082.968	599075.708							
CURVE			N 89°49'00.0" E	78.60	07°52'00.0"(RT)	10°00'00.0"	78.67	39.40	572.96
PT	624083.220	599154.312							
LINE			S 86°15'00.0" E	63.59					
PC	624079.061	599217.770							
CURVE			S 79°24'00.0" E	29.24	13°42'00.0"(RT)	46°45'00.0"	29.30	14.72	122.56
PT	624073.683	599246.506							
LINE			S 72°33'00.0" E	8.57					
PC	624071.113	599254.681							
CURVE			S 41°12'00.0" E	59.62	62°42'00.0"(RT)	100°00'00.0"	62.70	34.90	57.30
PT	624026.256	599293.951							
LINE			S 09°51'00.0" E	26.29					
PC	624000.354	599298.448							
CURVE			S 06°46'00.0" E	61.64	06°10'00.0"(RT)	10°00'00.0"	61.67	30.86	572.96
PT	623939.146	599305.711							
LINE			S 03°41'00.0" E	13.14					
POT	623926.029	599306.555							

EY24

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	623569.043	599945.874							
LINE			S 24°40'00.0" W	65.79					
PC	623509.253	599918.416							
CURVE			S 20°17'30.0" W	48.56	08°45'00.0"(LT)	18°00'00.0"	48.61	24.35	318.31
PT	623463.703	599901.574							
LINE			S 15°55'00.0" W	47.85					
POT	623417.684	599888.451							

EY25

POINT	N	E	BEARING	DIST
POT	622936.181	602112.442		
LINE			S 00°36'00.0" W	136.15
POT	622800.042	602111.016		

EY25A

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	622749.119	601911.855							
LINE			N 75°05'00.0" E	188.50					
PC	622797.642	602094.005							
CURVE			S 86°25'30.0" E	45.43	36°59'00.0"(RT)	80°00'00.0"	46.23	23.95	71.62
PT	622794.810	602139.348							
LINE			S 67°56'00.0" E	104.60					
POT	622755.515	602236.282							

EY26

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	623401.804	601878.990							
CURVE			S 52°02'47.2" E	47.45	17°01'34.4"(RT)	35°45'00.0"	47.63	23.99	160.27
PT	623372.621	601916.405							
LINE			S 43°32'00.0" E	67.43					
PC	623323.738	601962.847							
CURVE			S 47°31'30.0" E	145.03	07°59'00.0"(LT)	05°30'00.0"	145.15	72.69	1041.74
PT	623225.801	602069.820							
LINE			S 51°31'00.0" E	86.11					
PC	623172.217	602137.225							
CURVE			S 44°14'41.8" E	36.72	14°32'36.3"(RT)	39°30'00.0"	36.82	18.51	145.05
PCC	623145.912	602162.846							
CURVE			S 18°44'41.8" E	128.02	36°27'23.7"(RT)	28°00'00.0"	130.20	67.39	204.63
PT	623024.685	602203.985							
LINE			S 00°31'00.0" E	87.84					
POT	622936.852	602204.777							

EY27

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	623720.789	604718.473							
LINE			S 50°30'00.0" W	14.91					
PC	623711.302	604706.964							
CURVE			S 54°09'00.0" W	121.58	07°18'00.0"(RT)	06°00'00.0"	121.67	60.92	954.93
PT	623640.095	604608.414							
LINE			S 57°48'00.0" W	42.89					
PC	623617.239	604572.120							
CURVE			S 52°05'00.0" W	120.15	11°26'00.0"(LT)	09°30'00.0"	120.35	60.38	603.11
PT	623543.404	604477.332							
LINE			S 46°22'00.0" W	65.94					
PC	623497.902	604429.605							
CURVE			S 47°38'00.0" W	126.66	02°32'00.0"(RT)	02°00'00.0"	126.67	63.34	2864.79
PT	623412.552	604336.025							
LINE			S 48°54'00.0" W	152.39					
PC	623312.372	604221.187							
CURVE			S 52°46'30.0" W	154.88	07°45'00.0"(RT)	05°00'00.0"	155.00	77.62	1145.92
PT	623218.677	604097.860							
LINE			S 56°39'00.0" W	88.56					
PC	623169.990	604023.883							
CURVE			S 24°00'30.0" W	123.62	65°17'00.0"(LT)	50°00'00.0"	130.57	73.40	114.59
PT	623057.067	603973.586							
LINE			S 08°38'00.0" E	108.46					
POT	622949.834	603989.868							

EY28

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	623026.491	605523.570							
LINE			S 14°36'00.0" W	34.14					
PC	622993.457	605514.965							
CURVE			S 26°33'00.0" W	37.37	23°54'00.0"(RT)	63°30'00.0"	37.64	19.10	90.23
PT	622960.031	605498.264							
LINE			S 38°30'00.0" W	35.71					
PC	622932.085	605476.034							
CURVE			S 45°24'40.3" W	122.57	13°49'20.6"(RT)	11°15'00.0"	122.87	61.73	509.30
PT	622846.041	605388.746							

EY29

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	624120.468	607578.448							
CURVE			S 17°25'45.1" W	92.64	09°02'29.8"(RT)	09°45'00.0"	92.73	46.46	587.65
PT	624032.083	607550.700							
LINE			S 21°57'00.0" W	14.85					
PC	624018.309	607545.150							
CURVE			S 19°42'00.0" W	44.99	04°30'00.0"(LT)	10°00'00.0"	45.00	22.51	572.96
PT	623975.954	607529.984							
LINE			S 17°27'00.0" W	61.19					
POT	623917.582	607511.635							

NOTES:

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

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

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: Static,OPUS,RTN
Dates of survey: 2/2020-3/2020
Datum/Epoch:2010.0000
Published/Fixed-control use: N/A
Localized around: A0009C-10
Northing:612531.117
Easting:584817.003
Combined grid factor:0.999772236
Geoid model:18 CONUS
Units:English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 3/2020 to 5/2020 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of December, 2020.

DocuSigned by: F157DCB85C7248A...

Professional Land Surveyor L-4529

6/2/99

REVISIONS

MATCHLINE SHEET RW44

MATCHLINE SHEET RW46

-Y2- CURVE DATA
PI Sta 93+85.36
△ = 3° 06' 33.3" (RT)
D = 0° 29' 53.6"
L = 624.07'
T = 312.11'
R = 11,500.00'

-Y3- CURVE DATA
PI Sta 10+46.10
△ = 5° 04' 03.3" (LT)
D = 5° 30' 00.0"
L = 92.14'
T = 46.10'
R = 1,041.74'

-Y3- CURVE DATA
PI Sta 12+06.60
△ = 49° 12' 03.3" (RT)
D = 22° 55' 05.9"
L = 214.68'
T = 114.46'
R = 250.00'

-Y3- PC 10+00.00

-Y3- PRC 10+92.14

-Y2- PT 96+97.32

-Y2- POT 98+65.27 =
-Y3- POT 14+20.24

-Y3- PT 13+06.82

NC GRID
NAD 83 NA 2011

JOSEPH LOCKE EDWARDS & WIFE NAOMI M. EDWARDS
DB 234 PG 246
146

JOSEPH L. EDWARDS
DB 234 PG 246
146

GREGORY DALE BURCHFIELD & WIFE VICKI BURCHFIELD
DB 135 PG 426
147

WILLIAM CARR & WIFE TAMMY C. CARR
DB 206 PG 123
148

ROANNE GORDON (BY WILL)
DB 121 PG 656
149

150

JOSEPH L. EDWARDS
DB 234 PG 246

JEFFERY HYDE
DB 350 PG 460

JEFFERY HYDE, ET AL
DB 352 PG 471

STECOAH BAPTIST CHURCH
DB 42 PG 598

GREGORY D. BURCHFIELD
DB 295 PG 32

ODELL LOVIN
DB 52 PG 392

LEONARD BRIDGES
DB 87 PG 35

ROANNE GORDON
DB 288 PG 499

JAIME J. HOOPER
DB 365 PG 617

N 89°38'56.2" E

NC 28 (FONTANA RD.) 24' BST

SR 1238 (BILL CRISP RD)

SR 1238 (STECOAH RD)

SR 1230 (HYDE TOWN RD)

I, Mark A. Parris, 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 11/15/21 to 1/14/22, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 14th day of January, 2022.

DocuSigned By:
[signature]
Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
A-0009CC	RW45

Location and Surveys

Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

DocuSigned By:
[signature]

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 11/15/21 TO 1/14/22 .

20-JAN-2022 10:41
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jgordon
ALT P40V-21H1-20

6/2/99

REVISIONS

I , Mark A. Parris , 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 11/15/21 to 1/14/22, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 14th day of January, 2022.

DocuSigned by:

Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
A-0009CC	RW46

Location and Surveys

Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

DocuSigned by: 2B6D27248A...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID
NAD 83 NA 2011

MATCHLINE SHEET RW45

MATCHLINE SHEET RW47

150
AARON E. FARLEY &
WIFE APRIL G. FARLEY
DB 288 PG 202

151
DANA KILBY
DB 201 PG 10

152
DANYELL D.
WILSON
DB 343 PG 63

152A
JAMES R. HYDE &
JUNE N. HYDE, TRUSTEES
DB 252 PG 224

DANA KILBY
DB 201 PG 10

DANNY JENKINS
DB 171 PG 440

LEONDUS McCRACKEN
DB 123 PG 252

DAVID R. HYDE
DB 284 PG 61

JAIME J. HOOPER
DB 365 PG 617

BILLY HOLDER
DB 117 PG 163

SR 1235 (LOWER STECOAH RD)

NC 28 (FONTANA RD)

'OLD' ST E

N 89° 38' 56.2" E

S 83°27'22" W
1143.59'

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 11/15/21 TO 1/14/22 .

20-JUN-2022 10:42
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ALT_P40V_21H1_20

6/2/99

REVISIONS

-Y2- CURVE DATA
PI Sta 132+08.73
△ = 30° 56' 09.8" (LT)
D = 4° 48' 53.2"
L = 642.52'
T = 329.30'
R = 1,190.00'

NC GRID
NAD 83 NA 2011

I , Mark A. Parris , 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 11/15/21 to 1/14/22, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 14th day of January, 2022.

DocuSigned by:
Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
A-0009CC	RW47

Location and Surveys

Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE SHEET RW46

MATCHLINE SHEET RW48

152A
JAMES R. HYDE &
JUNE N. HYDE, TRUSTEES
DB 252 PG 224

152
DANYELL D. WILSON
DB 343 PG 63

153
SUSAN B. IVEY
DB 252 PG 744

154
KICKSTAND LODGE, LTD.
DB 243 PG 455

155
CIRCLE G MANAGEMENT, LLC
DB 366 PG 138

BOBBY EDWARDS
DB 198 PG 322

DAVID R. HYDE
DB 284 PG 61

JAMES R. HYDE, TRUSTEE
DB 252 PG 224

GRAHAM WELL DRILLING, LLC
DB 347 PG 257

WILLIAM M. HYDE
DB 347 PG 253

MICHAEL CABLE, ET AL
DB 373 PG 578

-Y2- PC 128+79.43

-Y2- PT 135+21.96

N 89°38'56.2" E

N 58°42'46.3" E

NC 28 (FONTANA RD)

SR 1230 (HYDE TOWN RD)

'OLD STECOAH CREEK 'STEAM BED'

EXISTING R/W

WOODS

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 11/15/21 TO 1/14/22 .

20-JUN-2022 10:42
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jgordon
AT P40V 21H1 20

6/2/99

REVISIONS

-Y2- CURVE DATA

PI Sta 142+30.76	PI Sta 152+17.13
△ = 1° 24' 23.1" (LT)	△ = 54° 14' 50.1" (RT)
D = 0° 28' 38.9"	D = 5° 21' 17.1"
L = 294.56'	L = 1,013.07'
T = 147.29'	T = 548.10'
R = 12,000.00'	R = 1,070.00'

NC GRID
NAD 83 NA 2011

I, Mark A. Parris, 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 11/15/21 to 1/14/22, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 14th day of January, 2022.

Signature of
Professional Land Surveyor L-4529

PROJECT REFERENCE NO.	SHEET NO.
A-0009CC	RW48

Location and Surveys

Vaughn & Melton

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

Document signed by:
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE SHEET RW47

MATCHLINE SHEET RW49

154
KICKSTAND LODGE, LTD.
DB 243 PG 455

156
ESTATE OF T. J. EDWARDS
DB 191 PG 512

MICHAEL HOLDER
DB 169 PG 194

-Y2- PC 140+83.47

-Y2- PT 143+78.03

-Y2- PC 146+69.03

N 41°54'12" W 432.10'

N 68°30'33" W 748.37'

N 68°30'33" W 595.67'

N 58° 42' 46.3" E

N 57° 18' 23.3" E

N 84°55'06" E 840.79'

N 41°54'12" W 117.32'

+88.21 740.46'

+62.40 101.67'

+62.40 84.86'

NC 28 (FONTANA RD.) 24' BST

POPLAR HILL RD.

155
CIRCLE G MANAGEMENT, LLC
DB 366 PG 138

157
MICHAEL HOLDER &
WIFE DELORES HOLDER
DB 169 PG 194

+22.00 72.28' E
+48.00 80.00' E
+50.00 96.00' E
+44.00 135.00' E
+00.00 79.77' PDE
+37.00 132.00' PDE
+59.00 82.77' PDE
+75.00 170.00' E
+00.00 83.93' PDE
+98.00 100.00' E
+25.00 103.00' PDE
+27.00 83.81' E
+41.00 279.00' E
+71.00 76.45' E
+55.00 74.18' PDE
+32.00 113.00' PDE
+05.00 131.00' PDE
+31.00 132.00' PDE
+61.00 82.00' PDE
+84.00 68.41' E
+62.00 66.41' E
+50.00 116.00' E
+00.00 114.00' E
+00.00 82.00' E
+48.00 111.00' E
+63.00 91.00' E
+75.22 60.00' E
+51.00 60.00' PDE
+76.00 114.00' PDE
+97.00 106.00' PDE
+97.00 60.00' E

EIP

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 11/15/21 TO 1/14/22 .

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jgordon PAV-21H1-20

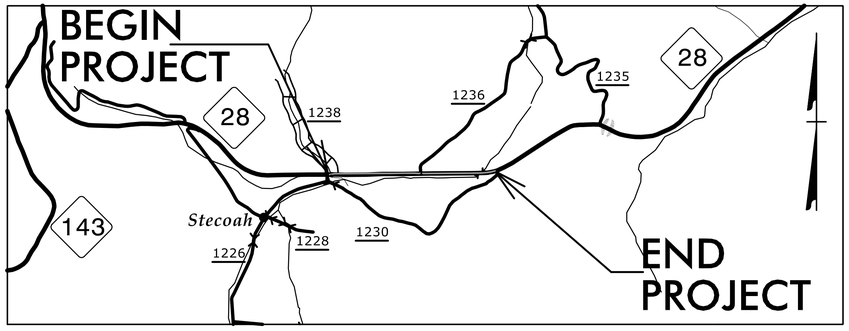
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GRAHAM COUNTY

DIVISION 14

MULTI-USE PATH ALONG NC 28 FROM SR 1238 (BILL CRISP RD) TO SR 1230 (HYDE TOWN RD)



LEGEND

GENERAL

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

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

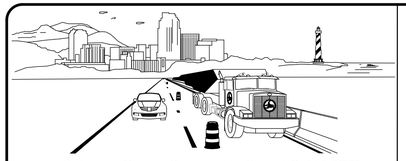
- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS



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

PLANS PREPARED BY:

DON A. PARKER, PE
PROJECT ENGINEER

SANDRA MELVIN
DESIGN ENGINEER

NCDOT CONTACTS:

WANDA H. AUSTIN, PE
DIVISION ENGINEER

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

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1A	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES)
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-2A	TEMPORARY SHORING DATA
TMP-3	TRAFFIC CONTROL SEQUENCE
TMP-4 THRU TMP-6	TEMPORARY TRAFFIC CONTROL DETAILS

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1150.01	FLAGGING DEVICES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

APPROVED: DocuSigned by: Don A. Parker 75DB9E90ADEF440...

DATE: 5/29/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

SHEET NO.
TMP-1

TIP PROJECT: A-0009CE

5/23/2024
X:\NCDOT\A-0009CE\Traffic\TrafficControl\TCP\A-0009CE_TC_TMP_01.dgn
User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
A-0009CE	TMP-1A

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME

NC 28 (-Y2-)
ANY OTHER ROAD

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 4:00 P.M. DECEMBER 31st TO 9:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 A.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 4:00 P.M. THURSDAY AND 9:00 A.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 4:00 P.M. FRIDAY TO 9:00 A.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 4:00 P.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 4:00 P.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 4:00 P.M. FRIDAY AND 9:00 A.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 4:00 P.M. TUESDAY TO 9:00 A.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 4:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) 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.

C) 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.

D) 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.

E) 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.

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

SIGNING

G) 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.

TRAFFIC CONTROL DEVICES

H) 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.

MANAGEMENT STRATEGIES

THE PROPOSED MULTI-USE PATH ALONG NC 28 (-Y2-) WILL BE CONSTRUCTED USING TEMPORARY LANE CLOSURES AND FLAGGERS.

APPROVED: DocuSigned by: Don A. Parker 75DB9E90ADEF440...

DATE: 5/29/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

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

TRANSPORTATION OPERATIONS PLAN

5/21/2024
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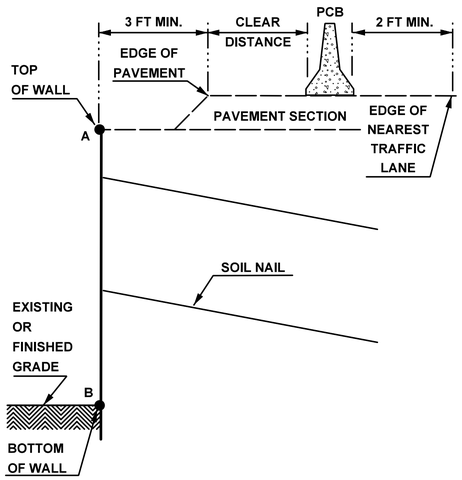
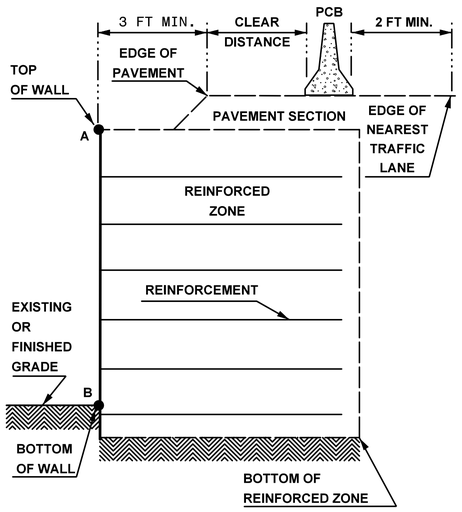
User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
A-0009CE	TMP-2

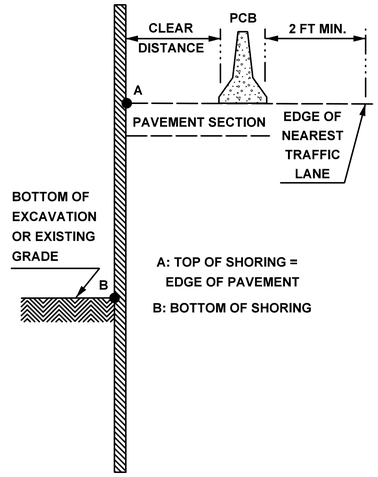
TEMPORARY SOIL NAIL WALL



TEMPORARY MSE WALL



TEMPORARY SHORING



NOTE: WALL OR SHORING HEIGHT = A-B

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" STANDARD PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING/WALL IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING/WALLS EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS OR APPROVED BY THE ENGINEER.

8- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THIS MINIMUM REQUIRED DISTANCE IS NOT AVAILABLE, CONTACT THE ENGINEER.

9- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

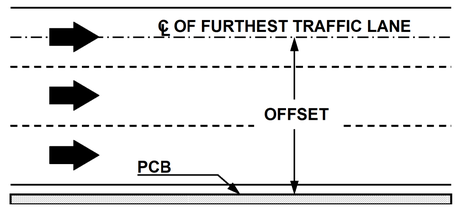


FIGURE B

APPROVED: Docusigned by: Don A. Parker 75DB9E90ADEF440...

DATE: 5/29/2024

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043251 DON A. PARKER

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

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

5/21/2024
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User:tsmelvin

TEMPORARY SHORING DATA

PROJ. REFERENCE NO.	SHEET NO.
A-0009CE	TMP-2A

Shoring Location No. 1 (CUT SHORING):

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE STRUCTURE CONSTRUCTION FROM -Y2- STATION 128+71, 8.0 FT LT TO -Y2- STATION 128+77, 8.0 FT LT.

DO NOT USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -Y2- STATION 128+71, 8.0 FT LT TO -Y2- STATION 128+77, 8.0 FT LT. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM -Y2- STATION 128+71, 8.0 FT LT TO -Y2- STATION 128+77, 8.0 FT LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

ABOVE ELEVATION 1946 FT
UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 28 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 1950 FT

BELOW ELEVATION 1946 FT
UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM -Y2- STATION 128+71, 8.0 FT LT TO -Y2- STATION 128+77, 8.0 FT LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM -Y2- STATION 128+71, 8.0 FT LT TO -Y2- STATION 128+77, 8.0 FT LT MAY NOT PENETRATE BELOW ELEVATION 1934 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM -Y2- STATION 128+71, 8.0 FT LT TO -Y2- STATION 128+77, 8.0 FT LT.

Shoring Location No. 2 (CUT SHORING):

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE STRUCTURE CONSTRUCTION FROM -Y2- STATION 129+22, 8.0 FT LT TO -Y2- STATION 129+46, 8.0 FT LT.

DO NOT USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -Y2- STATION 129+22, 8.0 FT LT TO -Y2- STATION 129+46, 8.0 FT LT. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM -Y2- STATION 129+22, 8.0 FT LT TO -Y2- STATION 129+46, 8.0 FT LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

ABOVE ELEVATION 1949 FT
UNIT WEIGHT (γ) = 110 LB/CF
FRICTION ANGLE (ϕ) = 26 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 1952 FT

ELEVATION 1949 FT TO ELEVATION 1934 FT
UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 32 DEGREES
COHESION (c) = 0 LB/SF

BELOW ELEVATION 1934 FT
UNIT WEIGHT (γ) = 135 LB/CF
FRICTION ANGLE (ϕ) = 38 DEGREES
COHESION (c) = 500 LB/SF

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM -Y2- STATION 129+22, 8.0 FT LT TO -Y2- STATION 129+46, 8.0 FT LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM -Y2- STATION 129+22, 8.0 FT LT TO -Y2- STATION 129+46, 8.0 FT LT MAY NOT PENETRATE BELOW ELEVATION 1934 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM -Y2- STATION 129+22, 8.0 FT LT TO -Y2- STATION 129+46, 8.0 FT LT.

APPROVED: DocuSigned by: Matthew Brewer 38612...
DATE: 5/29/2024
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 041986 ENGINEER MATTHEW BREWER

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

TEMPORARY SHORING NOTES

5/21/2024
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User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
A-0009CE	TMP-3

TRAFFIC CONTROL SEQUENCE

NOTE: FOR FLAGGING OPERATIONS, REFER TO RSD 1101.02, SHEET 1.

STEP 1 -- INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH RSD 1101.01, SHEET 3.

STEP 2 -- USING FLAGGERS, BEGIN CLEARING AND GRUBBING, AND PROPOSED DRAINAGE THROUGHOUT THE PROJECT LIMITS.

STEP 3 -- INSTALL TEMPORARY GUARDRAIL FROM -Y2- STA. 118+00 +/- TO STA. 132+00 +/- (SEE TMP-5 AND 6).

NOTE: WHEN NO LONGER REQUIRED, TEMPORARY GUARDRAIL INSTALLED IN STEP 3 SHALL BE REMOVED AND STOCKPILED TO BE RESET IN THE PERMANENT LOCATION IN ACCORDANCE WITH SECTION 864 OF THE STANDARD SPECIFICATIONS.

NOTE: STEPS 4 AND 5 MAY BE CONSTRUCTED CONCURRENTLY

STEP 4 -- BEHIND TEMPORARY GUARDRAIL, CONSTRUCT CULVERT EXTENSION AT -Y2- STA. 128+90 +/-. (SEE TMP-6)

NOTE: UNLESS APPROVED OTHERWISE BY THE ENGINEER, INSTALL TEMPORARY SHORING FOR THE CULVERT EXTENSION PRIOR TO REMOVAL OF THE EXISTING WING WALLS. (SEE TMP-2, 2A, 6 AND CULVERT SHEET C2-1).

STEP 5 -- USING FLAGGERS OR WORKING BEHIND TEMPORARY GUARDRAIL, CONSTRUCT PROPOSED EMBANKMENT UP TO TEMPORARY GUARDRAIL POST FROM -Y2- STA. 99+14 +/-TO STA. 132+10 +/- (SEE TMP-4 THROUGH 6).

STEP 6 -- USING FLAGGERS, REMOVE AND STOCKPILE TEMPORARY GUARDRAIL AND REPLACE WITH DRUMS.

STEP 7 -- USING FLAGGERS, COMPLETE GRADING AND MULTI-USE PATH INCLUDING ASPHALT SURFACE COURSE, SIGNING, MARKINGS, AND RRFB.

NOTE: USE ADA COMPLIANT PEDESTRIAN BARRICADES TO KEEP MULTI-USE PATH CLOSED TO PUBLIC USE DURING CONSTRUCTION. (SEE SPECIAL PROVISION)

STEP 8 -- USING FLAGGERS, RESET GUARDRAIL IN PERMANENT LOCATION.

STEP 9 -- OPEN THE MULTI-USE PATH TO PUBLIC AND REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: DocuSigned by: Don A. Parker 75DB9E90ADEF440...

DATE: 5/29/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

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

TRAFFIC CONTROL SEQUENCE

5/21/2024
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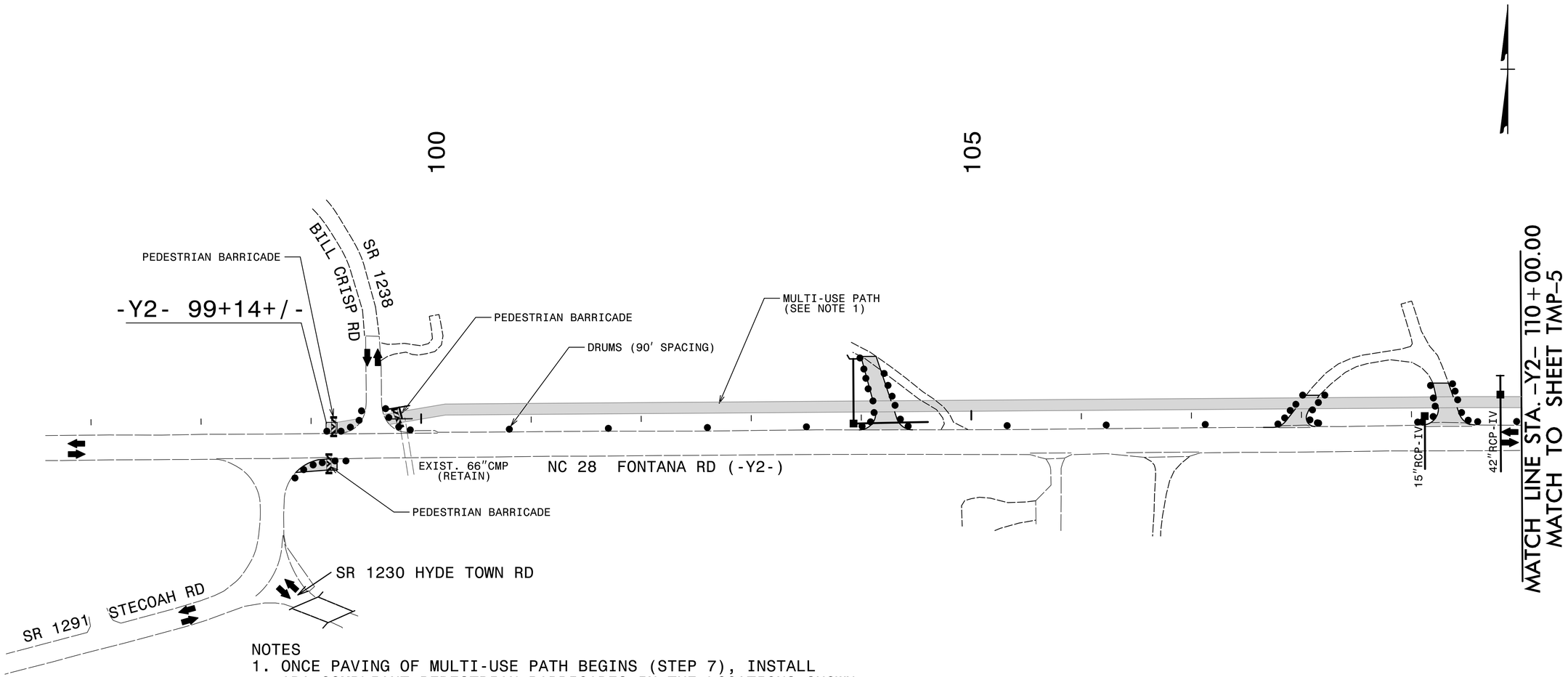
User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
A-0009CE	TMP-4

TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



NOTES

1. ONCE PAVING OF MULTI-USE PATH BEGINS (STEP 7), INSTALL ADA COMPLIANT PEDESTRIAN BARRICADES IN THE LOCATIONS SHOWN TO KEEP PATH CLOSED TO PUBLIC PRIOR TO COMPLETION.

2. INSTALL CROSSPIPES UNDER NC 28 AS FOLLOWS UNLESS ALLOWED OR DIRECTED OTHERWISE BY THE ENGINEER:

   A. TO PROVIDE SPACE FOR A 1 LANE 2 WAY FLAGGING OPERATION DURING STAGED PIPE CONSTRUCTION, PLACE 4FT X 250 FT PAD OF INCIDENTAL STONE ON EACH SHOULDER AT EACH PIPE LOCATION.

   B. BEGINNING DOWNSTREAM AND USING FLAGGERS, INSTALL FIRST HALF OF PIPE TO CENTERLIUNE OF NC 28

   C. BACKFILL AND COVER WITH STEEL PLATE BEFORE REOPENING ROAD TO TRAFFIC. INSTALL PORTABLE 48" X 48" "STEEL PLATE AHEAD" (W8-24) 350 FT IN ADVANCE OF THE PLATE. SWEEP THE ROAD OF LOOSE DEBRIS AT THE END OF THE WORK PERIOD.

   D. USING FLAGGERS, REPEAT STEPS B AND C FOR THE SECOND HALF OF THE PIPE.

   E. REPAIR ASPHALT, REMOVE STONE, AND REGRADE THE SHOULDER.

SEE ROADWAY PLAN FOR DETAILED DRAINAGE LAYOUT.

APPROVED: DocuSigned by: Don A. Parker 75DB9E90ADEF440...
DATE: 5/29/2024
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

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

TEMPORARY TRAFFIC CONTROL DETAIL

5/21/2024
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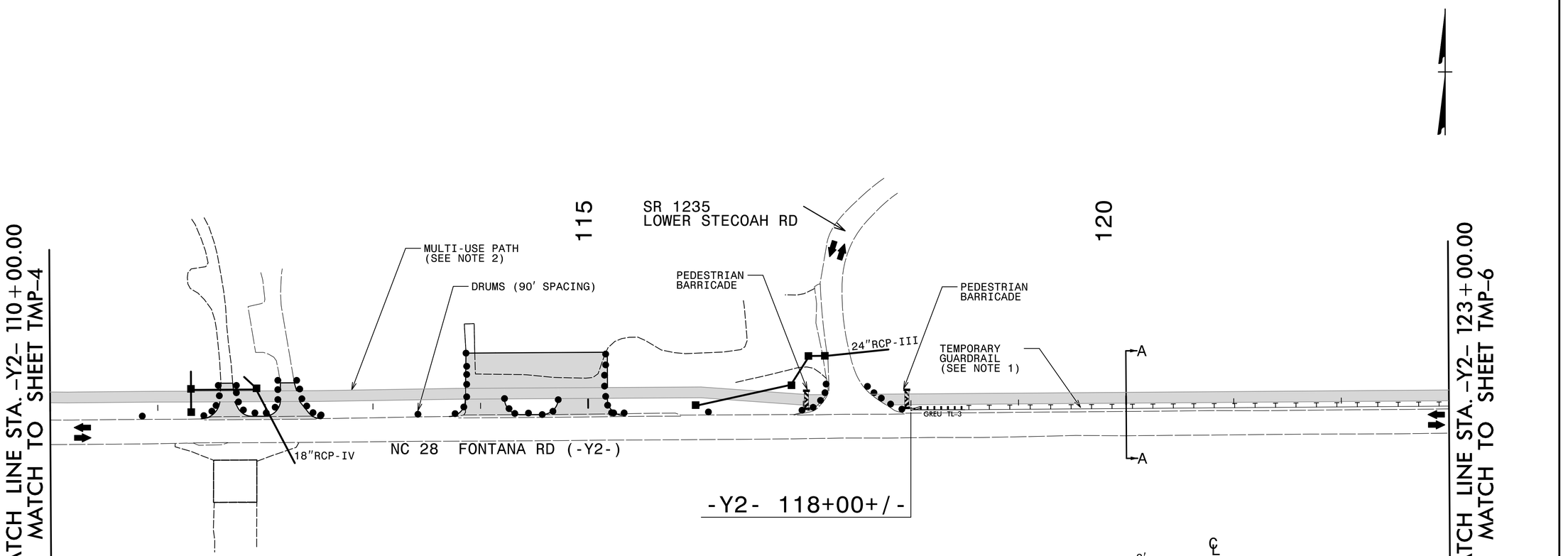
User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
A-0009CE	TMP-5

TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



NOTES

1. WHEN NO LONGER REQUIRED, TEMPORARY GUARDRAIL SHALL BE REMOVED AND STOCKPILE TO BE RESET IN THE PERMANENT LOCATION (SEE SECTION 864 OF THE STANDARD SPECIFICATIONS)

2. ONCE PAVING OF MULTI-USE PATH BEGINS (STEP 7), INSTALL ADA COMPLIANT PEDESTRIAN BARRICADES IN THE LOCATIONS SHOWN TO KEEP PATH CLOSED TO PUBLIC PRIOR TO COMPLETION.

3. INSTALL CROSSPIPES UNDER NC 28 AS FOLLOWS UNLESS ALLOWED OR DIRECTED OTHERWISE BY THE ENGINEER:

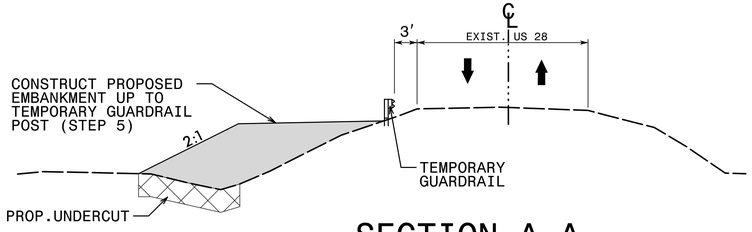
   A. TO PROVIDE SPACE FOR A 1 LANE 2 WAY FLAGGING OPERATION DURING STAGED PIPE CONSTRUCTION, PLACE 4FT X 250 FT PAD OF INCIDENTAL STONE ON EACH SHOULDER AT EACH PIPE LOCATION.

   B. BEGINNING DOWNSTREAM AND USING FLAGGERS, INSTALL FIRST HALF OF PIPE TO CENTERLIUNE OF NC 28

   C. BACKFILL AND COVER WITH STEEL PLATE BEFORE REOPENING ROAD TO TRAFFIC. INSTALL PORTABLE 48" X 48" "STEEL PLATE AHEAD" (W8-24) 350 FT IN ADVANCE OF THE PLATE. SWEEP THE ROAD OF LOOSE DEBRIS AT THE END OF THE WORK PERIOD.

   D. USING FLAGGERS, REPEAT STEPS B AND C FOR THE SECOND HALF OF THE PIPE.

   E. REPAIR ASPHALT, REMOVE STONE, AND REGRADE THE SHOULDER.



SECTION A-A

-Y2- STA. 120+00.00

SEE ROADWAY PLAN FOR DETAILED DRAINAGE LAYOUT.

APPROVED: DocuSigned by: Don A. Parker 75DBFE90ADEF440...

DATE: 5/29/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

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

TEMPORARY TRAFFIC CONTROL DETAIL

5/21/2024
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User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
A-0009CE	TMP-6

TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

1 QUANTITY = 78 SF

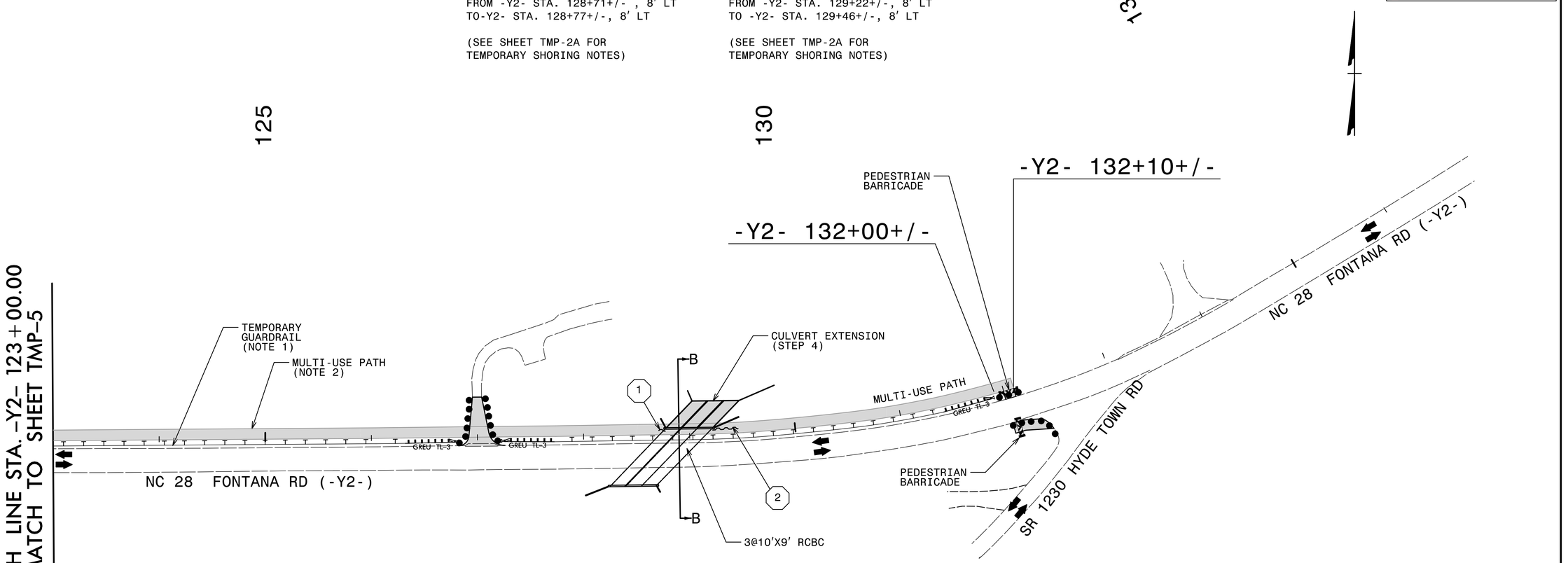
TEMPORARY SHORING
FROM -Y2- STA. 128+71+/- , 8′ LT
TO-Y2- STA. 128+77+/-, 8′ LT

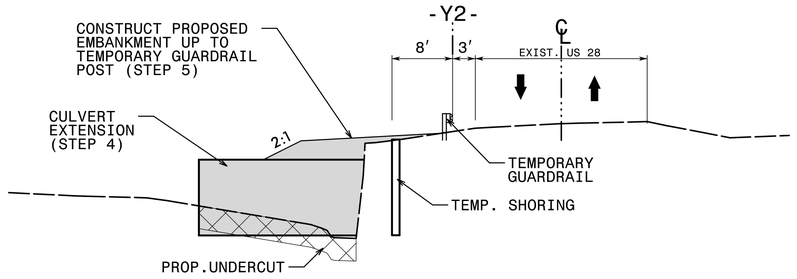
(SEE SHEET TMP-2A FOR
TEMPORARY SHORING NOTES)

2 QUANTITY = 240 SF

TEMPORARY SHORING
FROM -Y2- STA. 129+22+/-, 8′ LT
TO -Y2- STA. 129+46+/-, 8′ LT

(SEE SHEET TMP-2A FOR
TEMPORARY SHORING NOTES)





SECTION A-A

-Y2- STA. 129+80+/-

NOTES
1. WHEN NO LONGER REQUIRED, TEMPORARY GUARDRAIL SHALL BE REMOVED AND STOCKPILE TO BE RESET IN THE PERMANENT LOCATION (SEE SECTION 864 OF THE STANDARD SPECIFICATIONS)

2. ONCE PAVING OF MULTI-USE PATH BEGINS (STEP 7), INSTALL ADA COMPLIANT PEDESTRIAN BARRICADES IN THE LOCATIONS SHOWN TO KEEP PATH CLOSED TO PUBLIC PRIOR TO COMPLETION.

SEE ROADWAY PLAN FOR DETAILED DRAINAGE LAYOUT.

APPROVED: DocuSigned by: Don A. Parker 75DB9E90ADEF440...
DATE: 5/29/2024
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A PARKER

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

TEMPORARY TRAFFIC CONTROL DETAIL

5/21/2024
X:\NCDOT\A-0009CE\Traffic\TrafficControl\TCP\A-0009CE_TC_TMP_06.dgn
User:smevin