

7/2023

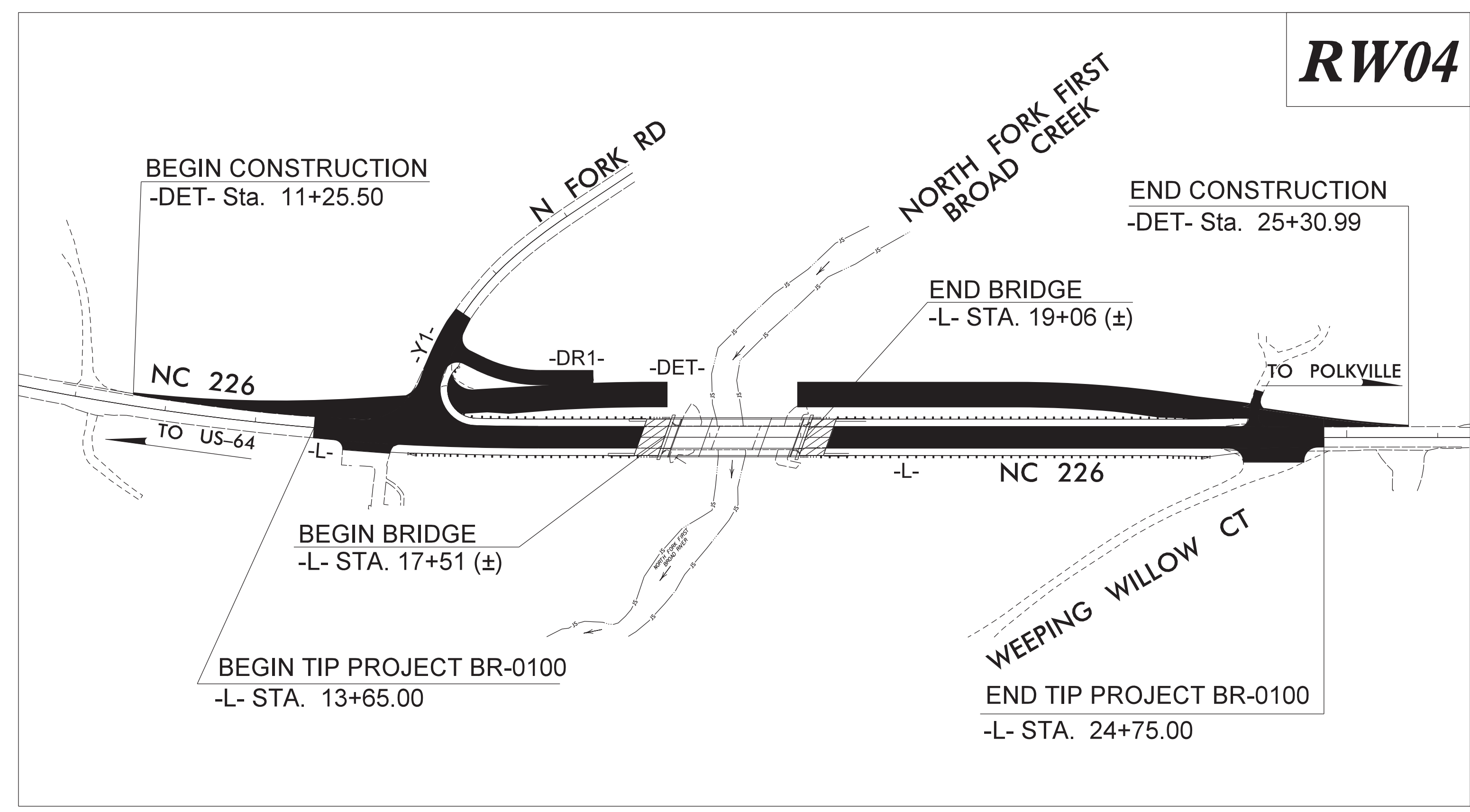
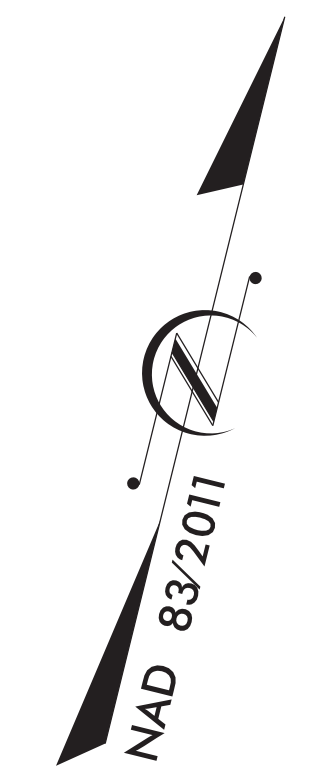
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0100	RW01	5

**TIP PROJECT: BR-0100**

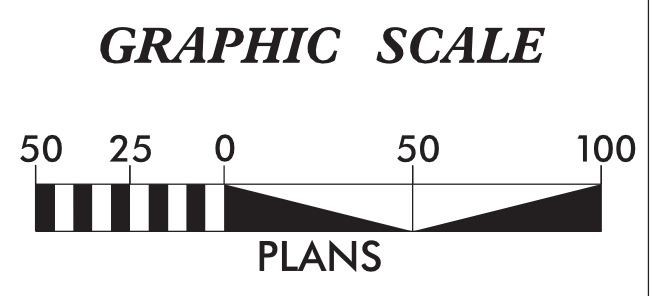
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

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

**RUTHERFORD COUNTY**



30-JUN-2023 15:43 SA:\Surveyors\projects\ncdot\BR-0100\2023 RW STAKING\MTC\BR-0100\_Is-rw01.dgn mcornewell AT MORNWELL\PTOP



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BR0100-2" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 657,749.965(ft) EASTING: 1,172,661.797(ft) ELEVATION: 1,109.15(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99983591 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BR0100-2" TO -L- STATION 10+00.00 IS S 88°32'52.9" E 480.971(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

**TGS ENGINEERS**  
 201 WEST MARION STREET  
 SUITE 200  
 SHELBY, NC 28150  
 PH (704) 476-0003  
 CORP. LICENSE NO.: C-0275

2024 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
6/01/2023

**LETTING DATE:**  
2/18/2025

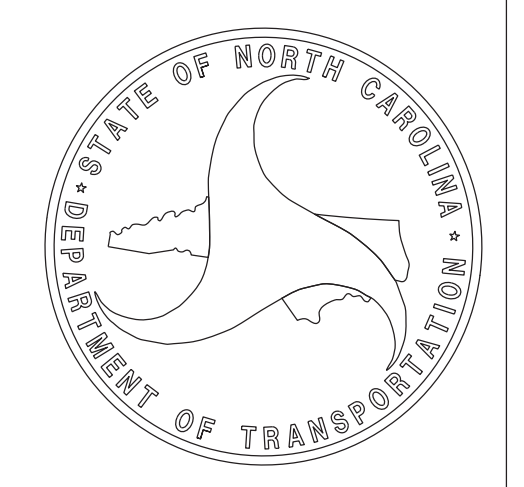
**PROFESSIONAL LAND SURVEYOR**

DocuSigned by:  
 Matthew Cornwell  
 EBD36F114756475...

7/7/2023

SIGNATURE:

Date:



# SURVEY CONTROL SHEET

*W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION*

PROJECT REFERENCE NO. BR-0100	SHEET NO. RW02C-1
<b>Location and Surveys</b>	
TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
DocuSigned by:  Matthew Cornwell EBC038F11473E475...	
9/2/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

## EXISTING ALIGNMENTS

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	657737.778	1173142.613	N 82°10'47.5" E	610.49	12°05'02.2"(LT)	01°58'32.6"	611.62	306.95	2900.00
CURVE									
PT	657820.843	1173747.427	N 76°08'16.4" E	1023.80					
LINE									
POT	658066.132	1174741.409							

EY POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	658127.856	1173778.362							
LINE			S 42°30'21.9" W	85.03					
PC	658065.170	1173720.909							
CURVE			S 38°29'22.9" W	80.55	08°01'57.9"(LT)	09°57'52.1"	80.61	40.37	575.00
PCC	658002.124	1173670.778							
CURVE			S 14°02'05.2" W	216.51	40°52'37.5"(LT)	18°28'57.0"	221.17	115.53	310.00
PT	657792.081	1173618.273							

## BENCHMARK

.....  
 BM1 ELEVATION = 1142.53  
 N 657952 E 1174601  
 BL STATION 25+29.00  
 N 85°56'13.9" E DIST 547.35  
 RR SPIKE IN BASE OF 22' WHITE OAK  
 .....



I, Matthew T. Cornwell, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

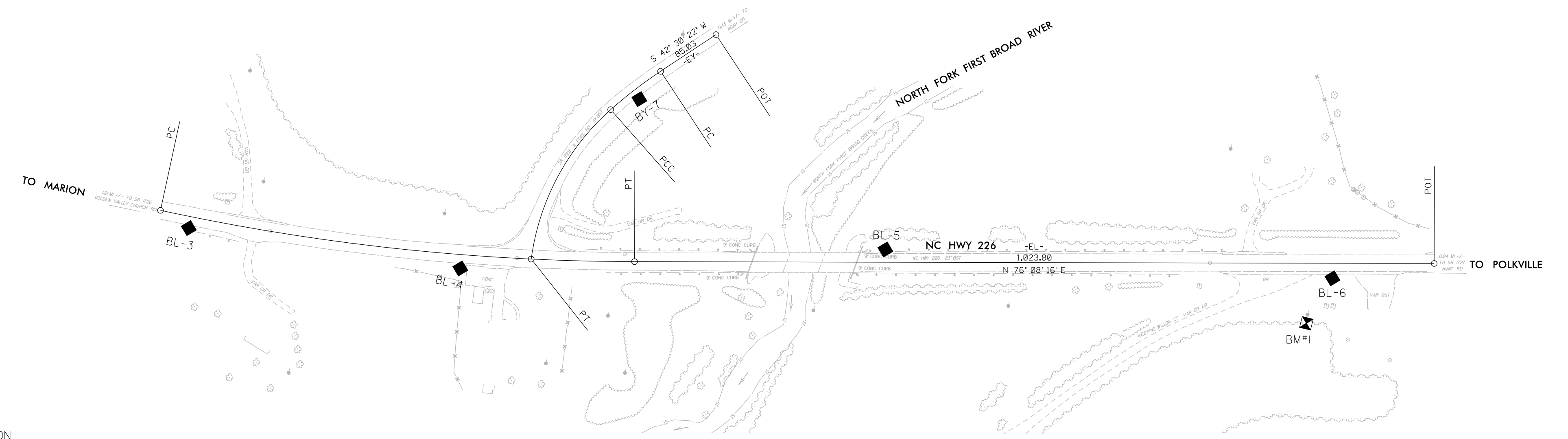
Class of survey: **AA**  
 Type of GPS field procedure: **RTN**  
 Dates of survey: 6/23/2021  
 Datum/Epoch: **NAD83/2011**  
 Published/Fixed-control use: **N/A**  
 Localized around: **BR0100-2**  
 Northing: 657749.965  
 Easting: 1172661.797  
 Combined grid factor: 0.99983591  
 Geoid model: **12BNC**  
 Units: **US Survey Feet**

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 8/3/2021 to 8/4/2021, 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 21NAC 56.1600 as applicable.

This 2nd day of September, 2021.  
 DocuSigned by:  
  
 Matthew Cornwell  
 EBC038F11473E475...  
 Professional Land Surveyor L-4775

BRO100-1

BRO100-2



## BASELINE

BL POINT	DESC.	NORTH	EAST	ELEVATION
1	BR0100-1	657741.4410	1172050.9310	1109.41
2	BR0100-2	657749.9650	1172661.7970	1109.15
3	BL-3	657724.4590	1173183.1660	1109.87
4	BL-4	657758.4222	1173532.9923	1110.20
5	BL-5	657913.5502	1174055.2097	1108.93

BY POINT	DESC.	NORTH	EAST	ELEVATION
BY4		657758.4222	1173532.9923	1110.20
7	BY-7	658024.0217	1173703.0633	1111.42

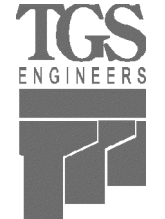
### NOTES:

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.

# PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BR-0100	RW02D-1

### Location and Surveys



TGS ENGINEERS  
201 WEST MARION STREET  
SUITE 200  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275

PROJECT SURVEYOR

DocuSigned by:  
*Matthew Cornwell*  
E8D38F11473E475...

7/7/2023



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Matthew T. Cornwell, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 7/7/2023

DocuSigned by:  
*Matthew Cornwell*  
E8D38F11473E475...

Professional Land Surveyor L-4775

REVISIONS

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TYPE	STATION	NORTH	EAST
PC	10+00.00	657737.7776	1173142.6132
PT	16+11.62	657820.8434	1173747.4265
POT	26+35.42	658066.1320	1174741.4091

Y1

TYPE	STATION	NORTH	EAST
PC	10+00.00	657792.0809	1173618.2733
PT	12+21.17	658002.1235	1173670.7782
PC	12+21.17	658002.1235	1173670.7782
PT	13+01.78	658065.1700	1173720.9091
POT	13+86.81	658127.8556	1173778.3621

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	657893.2294	1173623.5717
PC	10+42.86	657884.0247	1173665.4340
PT	11+11.66	657884.9046	1173733.6287
POT	11+69.94	657898.8836	1173790.2018

### NOTES:

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

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# RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

<b>PROJECT REFERENCE NO.</b> BR-0100	<b>SHEET NO.</b> RW03E-1
<b>Location and Surveys</b>	
<div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                 TGS ENGINEERS                  201 WEST MARION STREET                  SUITE 200                  SHELBY, NC 28150                  PH (704) 476-0003                  CORP. LICENSE NO.: C-0275             </div>	
<b>PROJECT SURVEYOR</b>	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: left;"> <p><small>DocuSigned by:</small> <i>Matthew Cornwell</i> <small>EB036F1473E475...</small></p> </div> <div style="text-align: center;"> </div> </div> <p style="text-align: center; margin-top: 5px;">7/7/2023</p>	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+65.00	-30.00	657801.6336	1173501.0756
L	13+65.00	-17.00	657788.7933	1173503.1069
L	13+65.00	30.00	657742.3706	1173510.4508
L	13+65.00	17.00	657755.2109	1173508.4195
L	14+53.29	-30.00	657816.5989	1173587.1621
L	15+12.66	-30.00	657828.1314	1173644.7696
L	16+12.00	30.00	657791.8073	1173754.9794
L	16+12.00	-30.00	657850.0598	1173740.6042
L	24+75.00	-30.00	658056.8227	1174578.4694
L	24+75.00	-17.00	658044.2014	1174581.5840
L	24+75.00	30.00	657998.5702	1174592.8446
L	24+75.00	17.00	658011.1916	1174589.7299

I, Matthew T. Cornwell, 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 6/27/2023 to 6/28/2023, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 58.1600 as applicable.

This 7/7/2023

DocuSigned by:  
*Matthew Cornwell*  
EB036F1473E475...  
Professional Land Surveyor L-4775

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+35.00	-17.00	657771.4668	1173375.0466
L	13+09.00	-86.00	657848.9738	1173438.5748
L	13+50.00	-86.00	657854.7087	1173477.9431
L	13+61.78	-42.20	657813.1888	1173496.0393
L	14+71.00	39.00	657752.2021	1173617.6327
L	14+71.00	30.00	657761.0342	1173615.9025
L	15+59.00	45.00	657764.8219	1173706.2107
L	15+59.00	30.00	657779.4478	1173702.8817
L	15+59.00	89.20	657721.7241	1173716.0200
L	18+41.00	97.00	657781.6239	1173993.3620
L	20+92.00	90.75	657847.8280	1174235.5543
L	21+75.00	-80.00	658033.4906	1174275.2275
L	23+04.00	-30.00	658015.8535	1174412.4497
L	23+04.00	-113.07	658096.5089	1174392.5461
L	23+04.00	-122.00	658105.1740	1174390.4078
L	23+34.00	-104.23	658095.1046	1174423.7926
L	23+34.00	-30.00	658023.0411	1174441.5760
L	23+34.00	-122.00	658112.3616	1174419.5341
L	23+58.75	68.75	657933.0969	1174489.2643
L	23+96.00	67.00	657943.7205	1174525.0101
L	24+67.00	-65.00	658088.8867	1174562.3169
L	24+75.00	45.00	657984.0071	1174596.4384
L	25+70.00	-63.00	658111.6223	1174662.7962
L	25+70.00	-17.00	658066.9621	1174673.8171

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	10+73.90	25.00	657862.6447	1173643.6204
Y1	10+79.48	-25.00	657874.9316	1173594.8357

**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 6/27/2023 TO 6/28/2023.

REVISIONS


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 Matthew T. Cornwell

### Location and Surveys

**TGS ENGINEERS**  
 201 WEST MARION STREET  
 SUITE 200  
 SHELBY, NC 28150  
 PH (704) 476-0003  
 CORP. LICENSE NO.: C-0275

PROJECT SURVEYOR

DocuSigned by:  
**Matthew Cornwell**  
 ERO39F11473E475...  
 7/7/2023

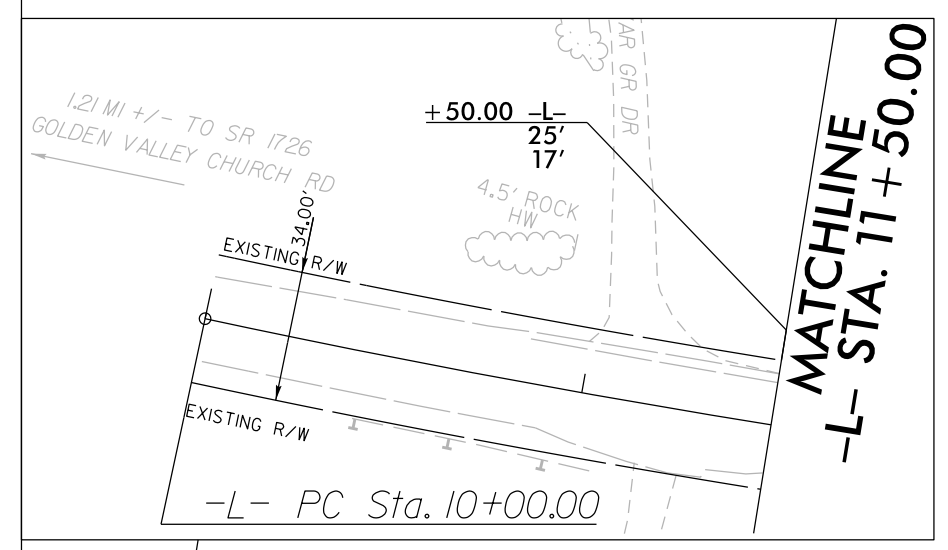
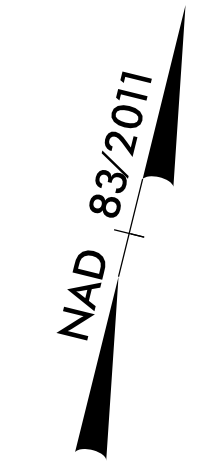


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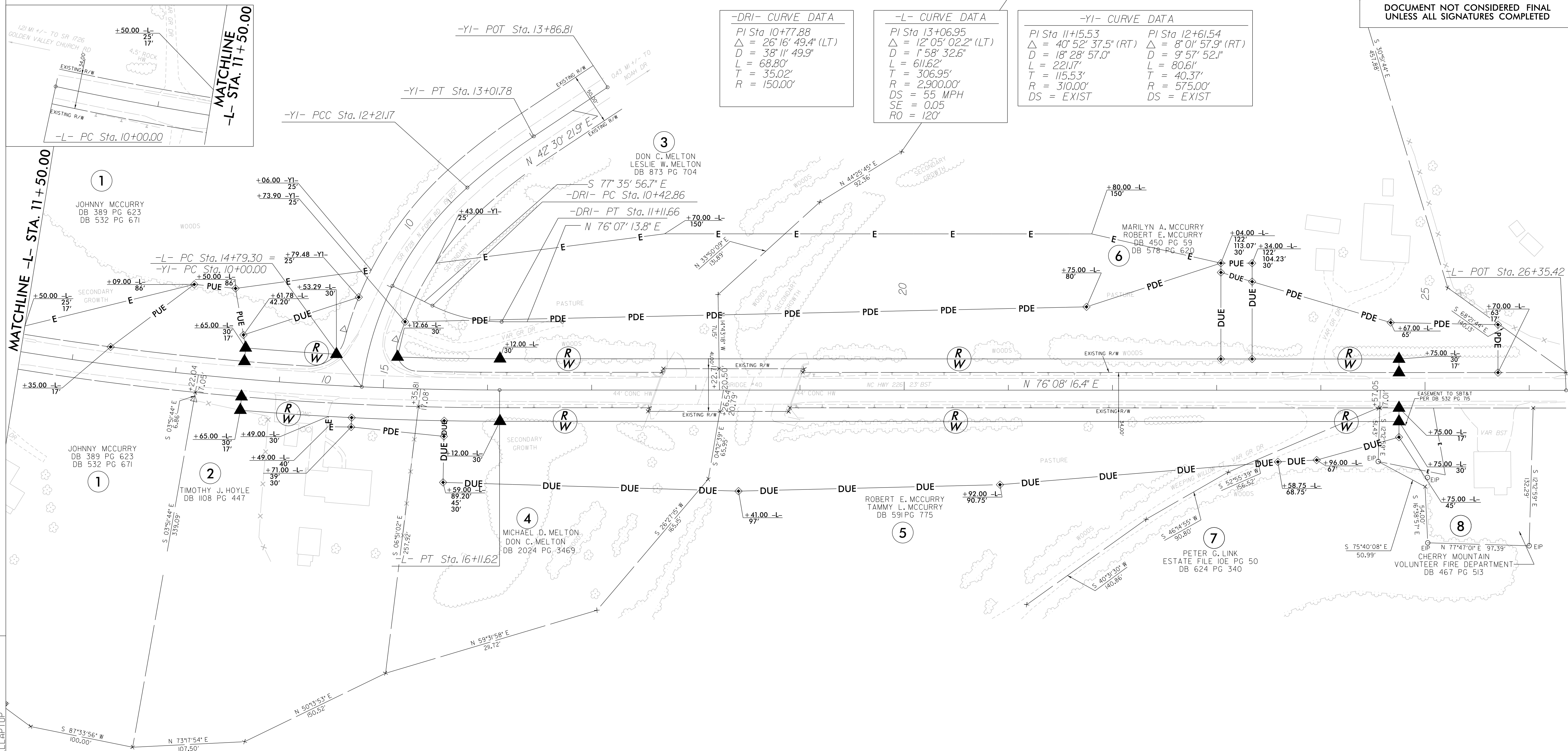
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This 7/7/2023

DocuSigned by:  
**Matthew Cornwell**  
 ERO39F11473E475...  
 Professional Land Surveyor L-4775



-DRI- CURVE DATA		-L- CURVE DATA		-YI- CURVE DATA	
PI Sta 10+77.88	$\Delta = 26^\circ 16' 49.4''$ (LT)	PI Sta 13+06.95	$\Delta = 12^\circ 05' 02.2''$ (LT)	PI Sta 11+5.53	$\Delta = 40^\circ 52' 37.5''$ (RT)
D = 38' 11" 49.9"	L = 68.80'	D = 1' 58" 32.6"	L = 611.62'	D = 18' 28" 57.0"	L = 221.17'
T = 35.02'	R = 150.00'	T = 306.95'	R = 2,900.00'	T = 115.53'	R = 310.00'
		DS = 55 MPH	SE = 0.05	DS = EXIST	DS = EXIST
		RO = 120'			



### NOTES:

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3. RIGHT OF WAY MONUMENTATION ESTABLISHED 6/27/2023 TO 6/28/2023.

REVISIONS

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