

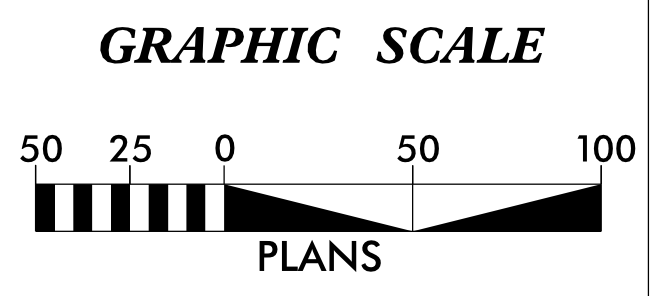
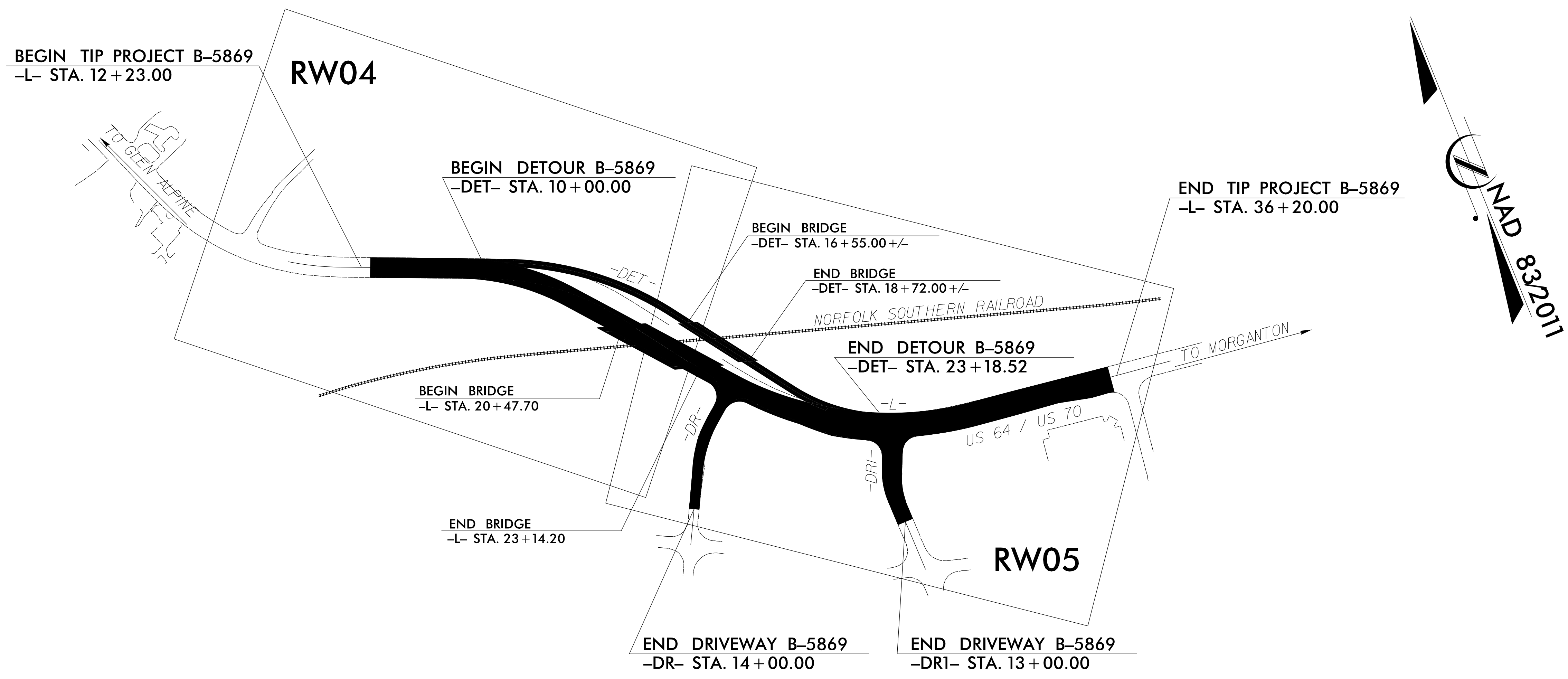
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5869	RW01	7

**TIP PROJECT: B-5869**

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

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

**BURKE COUNTY**



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B5869-2" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 732,085.381(ft) EASTING: 1,197,265.729(ft) ELEVATION: 1,077.120(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986119

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B5869-2" TO -L- STATION 12+23.00 IS N 60°02'09.6" W 387.237(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

**TGS ENGINEERS**  
 804-C N. LAFAYETTE ST  
 SHELBY, NC 28150  
 PH (704) 476-0003  
 CORP. LICENSE NO.: C-0275

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:** 5/13/2021

**LETTING DATE:** 5/17/2022

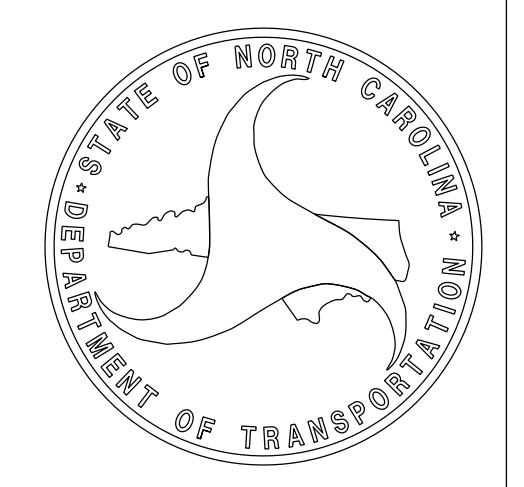
**PROFESSIONAL LAND SURVEYOR**



DocuSigned by:  
 Matthew Cornwell  
 EID:38F11473E47E

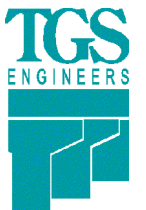


7/7/2021

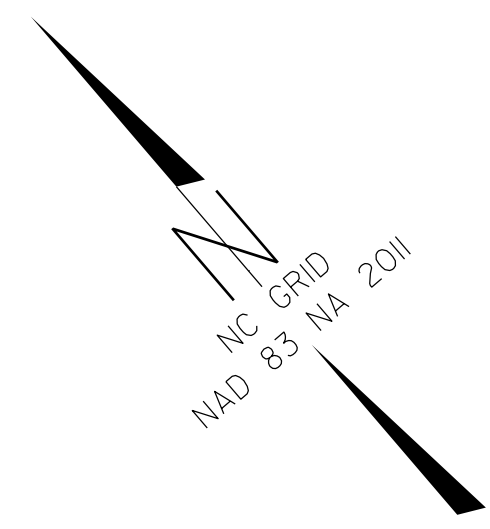
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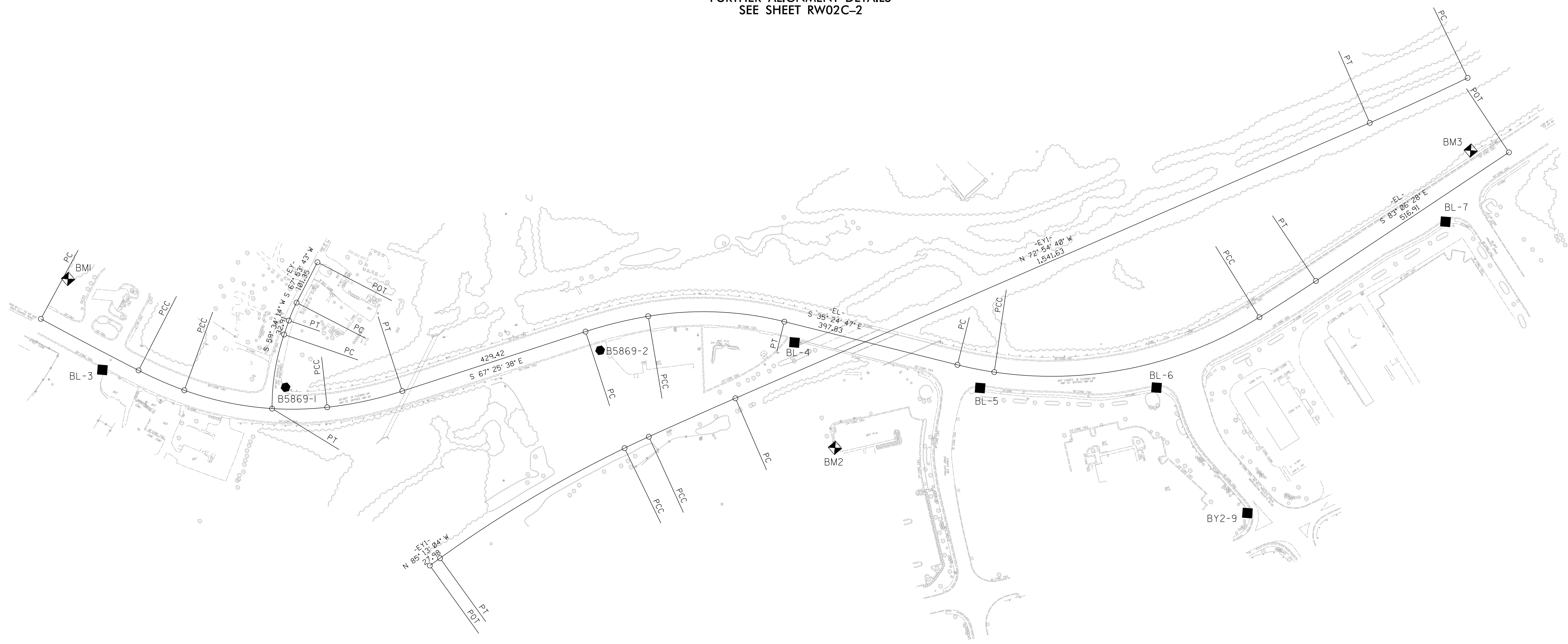
# SURVEY CONTROL SHEET

## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. B-5869	SHEET NO. RW02C-1
<b>Location and Surveys</b>	
 <b>TGS ENGINEERS</b> 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
 SEAL L-4775 MATTHEW T. CORNWELL LAND SURVEYOR	
DocuSigned by:  ERO39F11473E475... 7/7/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



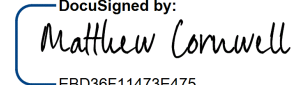
FOR BASELINE, BENCHMRKS &  
 FURTHER ALIGNMENT DETAILS  
 SEE SHEET RW02C-2



I, Matthew T. Cornwell, 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: RTN  
 Dates of survey: 2/26/2015  
 Datum/Epoch: NAD83/2011  
 Published/Fixed-control use: N/A  
 Localized around: GPS B-5869-2  
 Northing: 732085.381  
 Easting: 1197265.729  
 Combined grid factor: 0.99986119  
 Geoid model: 12NC  
 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 in April 2017, 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 7th day of July, 2021.  
 DocuSigned by:  
  
 ERO39F11473E475...  
 Professional Land Surveyor L-4775

### 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.

# SURVEY CONTROL SHEET

**W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION**

PROJECT REFERENCE NO. B-5869	SHEET NO. RW02C-2
<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 Documented by: <i>Matthew Cornwell</i> EBO39F114736475 7/7/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

## BASELINE

BL	POINT	DESC.	NORTH	EAST	ELEVATION
3		BL -3	732773.8226	1196394.5094	1058.98
1		GPS B5869-1	732478.7500	1196679.5310	1065.08
2		GPS B5869-2	732085.3810	1197265.7290	1077.12
4		BL -4	731816.9634	1197606.0411	1100.32
5		BL -5	731470.8036	1197854.4160	1123.47
6		BL -6	731215.6045	1198153.6185	1143.06
7		BL -7	731077.7601	1198883.5878	1153.93
BY2					
	POINT	DESC.	NORTH	EAST	ELEVATION
E06		BL -6	731215.6045	1198153.6185	1143.06
9		BY2-9	730871.4189	1198125.5996	1129.96

## BENCHMARKS

.....

BM1 ELEVATION = 1062.91  
 N 732978 E 1196468  
 BL STATION 5+00.00  
 N 19°53'21.9" E DIST 216.72  
 RR SPIKE IN BASE 20' YELLOW PINE

.....

BM2 ELEVATION = 1112.34  
 N 731580 E 1197522  
 BL STATION 21+93.00 207 RIGHT  
 CHISELED SQUARE IN CORNER TRANSFORMER  
 CONCRETE PAD

.....

BM3 ELEVATION = 1154.11  
 N 731162 E 1199030  
 BL STATION 36+12.00  
 N 60°02'13.5" E DIST 168.44  
 RR SPIKE IN BASE 24' TULIP POPLAR

.....

I, Matthew T. Cornwell, 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: **RTN**  
 Dates of survey: 2/26/2015  
 Datum/Epoch: **NAD83/2011**  
 Published/Fixed-control use: **N/A**  
 Localized around: **GPS B-5869-2**  
 Northing: **732085.381**  
 Easting: **1197265.729**  
 Combined grid factor: **0.99986119**  
 Geoid model: **12NC**  
 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 in April 2017, 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 21NCA 56.1600 as applicable.

This 7th day of July, 2021.

Documented by:  
*Matthew Cornwell* 7/7/2021  
 EBO39F114736475  
 Professional Land Surveyor L-4775

## EXISTING CENTERLINE ALIGNMENTS

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC		732949.490	1196364.315							
CURVE				S 21°37'41.3" E	246.32	01°24'40.9"(LT)	00°34'22.6"	246.33	123.17	10000.00
PCC		732720.511	1196455.104							
CURVE				S 25°54'51.3" E	111.16	07°09'39.1"(LT)	06°26'15.0"	111.23	55.69	890.00
PCC		732620.527	1196503.684							
CURVE				S 42°38'34.7" E	320.74	26°17'47.6"(LT)	08°07'37.4"	323.57	164.69	705.00
PCC		732384.598	1196720.959							
CURVE				S 61°36'33.5" E	171.31	11°38'01.0"(LT)	06°46'50.0"	171.61	86.10	845.00
PT		732303.141	1196871.670							
LINE				S 67°25'38.5" E	429.42					
PC		732138.305	1197268.195							
CURVE				S 63°10'23.6" E	143.91	08°30'29.8"(RT)	05°54'24.4"	144.04	72.15	970.00
PCC		732073.359	1197396.617							
CURVE				S 47°09'57.7" E	303.50	23°30'21.8"(RT)	07°41'26.6"	305.64	155.00	745.00
PT		731867.015	1197619.185							
LINE				S 35°24'46.8" E	397.83					
PC		731542.786	1197849.713							
CURVE				S 38°14'46.0" E	83.53	05°39'58.3"(LT)	06°46'50.0"	83.57	41.82	845.00
PCC		731477.184	1197901.422							
CURVE				S 61°08'27.9" E	603.74	40°07'25.4"(LT)	06°30'39.2"	616.26	321.37	880.00
PCC		731185.785	1198430.185							
CURVE				S 82°09'19.2" E	149.60	01°54'17.3"(LT)	01°16'23.7"	149.60	74.81	4500.00
PT		731165.367	1198578.381							
LINE				S 83°06'27.9" E	516.91					
POT		731103.337	1199091.555							

EY	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT		732644.425	1196914.775							
LINE				S 67°53'43.2" W	101.35					
PC		732606.289	1196820.879							
CURVE				S 63°43'58.7" W	43.55	08°19'29.0"(LT)	19°05'54.9"	43.59	21.83	300.00
PT		732587.016	1196781.826							
LINE				S 59°34'14.2" W	32.91					
PC		732570.348	1196753.449							
CURVE				S 49°44'30.6" W	167.29	19°39'27.1"(LT)	11°41'34.9"	168.11	84.89	490.00
PT		732462.239	1196625.783							

EY1	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC		731289.409	1199129.765							
CURVE				N 74°07'05.2" W	240.15	02°24'50.7"(RT)	01°00'18.7"	240.16	120.10	5700.00
PT		731355.126	1198898.787							
LINE				N 72°54'39.8" W	1541.63					
PC		731808.143	1197425.220							
CURVE				N 73°24'54.0" W	211.09	01°00'28.4"(LT)	00°28'38.9"	211.09	105.55	12000.00
PCC		731868.396	1197222.914							
CURVE				N 74°36'21.9" W	59.96	01°22'27.5"(LT)	02°17'30.6"	59.97	29.98	2500.00
PCC		731884.313	1197165.101							
CURVE				N 80°15'19.6" W	478.87	09°55'27.9"(LT)	02°04'11.5"	479.47	240.34	2768.10
PT		731965.366	1196693.137							
LINE				N 85°13'03.6" W	27.98					
POT		731967.698	1196665.258							

### 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. B-5869	SHEET NO. RW02D-1
<b>Location and Surveys</b>	
<div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                 TGS ENGINEERS                  804-C N. LAFAYETTE ST                  SHELBY, NC 28150                  PH. (704) 476-0003                  CORP. LICENSE NO.: C-0275             </div>	
PROJECT SURVEYOR	
DocuSigned by:  EBD09F11473E475... 2/4/2022	
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.

2/4/2022

This \_\_\_\_\_

DocuSigned by:  
  
 EBD09F11473E475...  
 Professional Land Surveyor L-4775

REVISIONS

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	732377.8943	1196730.9729
PT	11+59.56	732303.1408	1196871.6695
PC	15+18.67	732165.2958	1197203.2671
PT	18+63.48	731962.7090	1197478.1662
PC	24+35.86	731522.9380	1197844.5169
PT	31+76.67	731177.2742	1198479.8764
POT	37+90.00	731103.6730	1199088.7741

EY1

TYPE	STATION	NORTH	EAST
PC	10+00.00	731289.4092	1199129.7655
PT	12+40.16	731355.1263	1198898.7867
PC	27+81.79	731808.1434	1197425.2201
PCC	28+98.30	731841.8387	1197313.6920
PT	30+13.30	731874.1122	1197203.3139

DR

TYPE	STATION	NORTH	EAST
POT	10+00.00	731532.8152	1197836.2887
PC	11+25.88	731453.7934	1197738.3078
PT	12+73.35	731340.3471	1197645.7417
POT	16+18.27	731033.8838	1197487.4867

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	731240.1592	1198233.8314
PC	11+31.77	731119.4528	1198180.9855
PT	12+23.80	731029.9133	1198162.9629
POT	14+56.04	730797.7069	1198166.5415

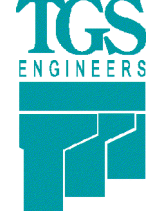

**NOTES:**

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.

04 FEB 2022 08:13  
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 m.cornwell  
 A:\MORNING\TOP



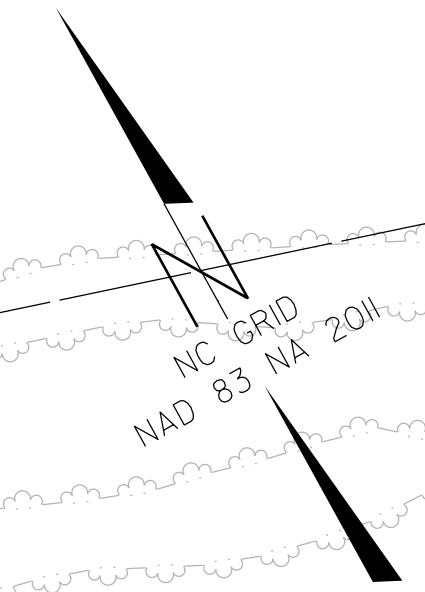


PROJECT REFERENCE NO. B-5869	SHEET NO. RW05
<b>Location and Surveys</b>	
 TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
 DocuSigned by: <b>Matthew Cornwell</b> <small>EBD08F1147E475</small> 7/6/2022	

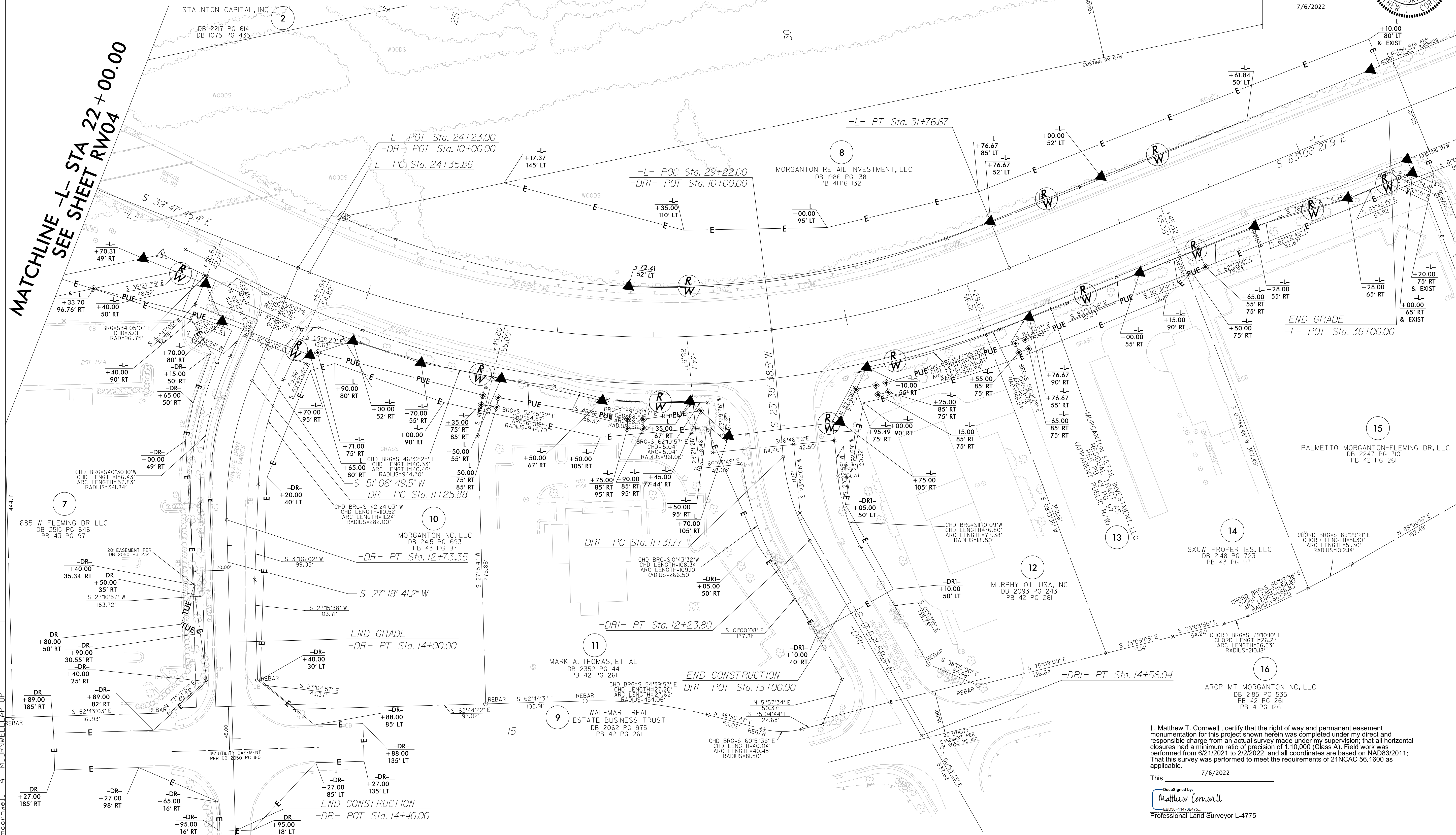
**NOTES:**

- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- RIGHT OF WAY MONUMENTATION ESTABLISHED 6/21/2021 TO 2/2/2022.

-L-	-DR-	-DRI-
PI Sta 28+24.97	PI Sta 12+00.69	PI Sta 11+78.50
$\Delta = 43^{\circ}18'42.4"$ (LT)	$\Delta = 23^{\circ}48'08.3"$ (LT)	$\Delta = 24^{\circ}31'37.1"$ (LT)
D = 5'50'47.4"	D = 16'08'22.8"	D = 26'38'57.1"
L = 740.81'	L = 147.48'	L = 92.04'
T = 389.12'	T = 74.82'	T = 46.73'
R = 980.00'	R = 355.00'	R = 215.00'
SE = 0.04	SE = 0.04	SE = 0.03
RO = 168.00'	RO = 72.00'	RO = 66.00'



**MATCHLINE -L- STA 22+00.00**  
**SEE SHEET RW04**



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 6/21/2021 to 2/2/2022, and all coordinates are based on NAD83/2011; that this survey was performed to meet the requirements of 21NCA6 56.1600 as applicable.

This 7/6/2022  
 DocuSigned by:  
**Matthew Cornwell**  
EBD08F1147E475  
 Professional Land Surveyor L-4775

REVISIONS

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 05-JUL-2022 07:40  
 User: mccornwell  
 AT: MCCORNWELL