



F.A. PROJECT:
STP-1216(17)

SEQUENCE OF CONSTRUCTION FOR TRACKWORK AND RAILWAY BRIDGE

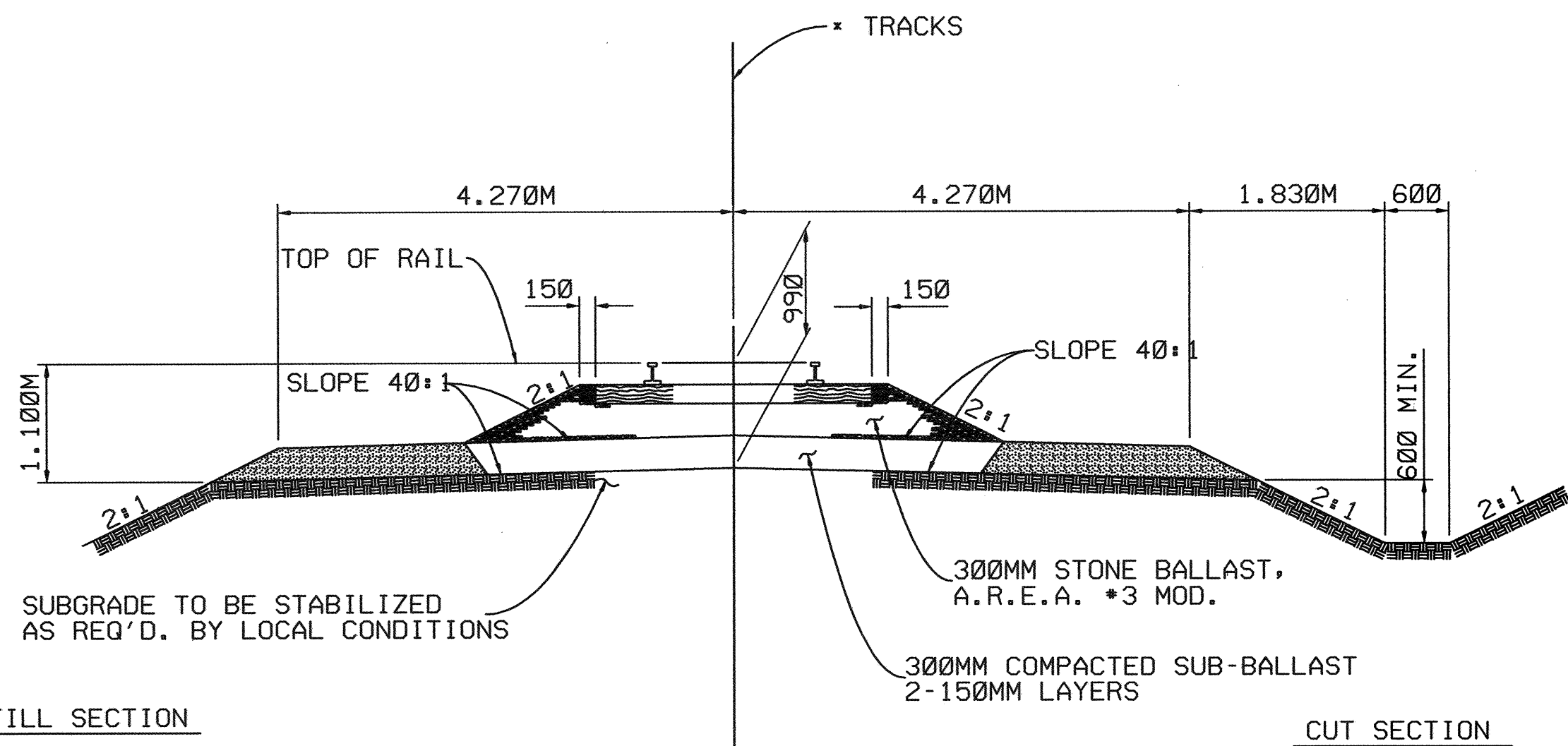
SEQUENCE AND DESCRIPTION OF WORK

- (1) DO ALL NECESSARY CLEARING AND GRUBBING REQUIRED FOR ROADBED CONSTRUCTION FOR DETOUR TRACKAGE AND FOR ALL DITCHES.
- (2) CLOSE 7th AVENUE NE JUST NORTH OF EXISTING AT-GRADE CROSSING.
- (3) DEMOLISH WOOD-DRYING STRUCTURE ON SHERRILL FURNITURE PROPERTY, RELOCATE SHERRILL FURNITURE FIRE-LOOP WATERLINE OUTSIDE OF LIMITS OF THE PROPOSED DETOUR TRACK EMBANKMENT LIMITS AS SHOWN ON PLANS.
- *(4) RELOCATE 1800mm CHAIN LINK FENCE FROM STATION 14+37.800-Y13- TO STATION 15+45.000-Y13- AND FROM STATION 15+70.000-Y13- TO STATION 16+29.800-Y13- TO APPROXIMATELY 3.0 METERS OUTSIDE OF THE DETOUR DITCH LINE. THE GATE AT STATION 15+00 WILL BE REMOVED (NOT RELOCATED).
- (5) CONSTRUCTION IMPROVEMENTS (INCLUDING ENCASEMENT) TO EXISTING WATER AND SEWER LINES IN EXISTING HIGHLAND AVENUE.
- (6) CLOSE HIGHLAND AVENUE TO TRAFFIC AND CONSTRUCT ROADBED FOR DETOUR TRACKAGE. CUT ALL REQUIRED DITCHES.
- (7) FURNISH AND PLACE SUB-BALLAST TO GRADE FOR DETOUR TRACKAGE.
- (8) CONSTRUCT 290 T.M. OF DETOUR MAIN TRACK (DETOUR STA. 13+40 TO 16+30) WITH CWR TO BE FURNISHED BY RAILWAY.
- *(9) CUT EXISTING MAIN TRACK AT SURVEY STA. 13+40 AND 16+30. LINE 129 T.M. OF EXISTING MAIN TRACK (SURVEY STA. 12+76 TO 13+40 AND 16+30 TO 16+95) TO DETOUR MAIN TRACK ALIGNMENT. CONNECT TO SEGMENT OF DETOUR MAIN TRACK CONSTRUCTED IN STEP 8, RAISE TO DETOUR GRADE, AND PLACE IN SERVICE.
- (10) REMOVE MAIN TRACK (RAILS, TIES, AND O.T.M.) BY-PASSED IN STEP 9 (SURVEY STA. 13+40 TO STA. 16+30).
- (11) CONSTRUCT NEW RAILWAY BRIDGE COMPLETE. CONSTRUCT ROADBED FOR MAIN TRACK AT EACH END OF BRIDGE. FURNISH AND PLACE SUB-BALLAST TO GRADE. RECONSTRUCT 290 T.M. OF MAINLINE TRACK FROM (SURVEY STA. 13+40 TO STA. 16+30 WITH NEW RAILS AND CROSSTIES. RAISE AND LINE TO GRADE.
- *(12) UNCOUPLE DETOUR MAIN TRACK AT DETOUR STA. 13+40 AND 16+32. LINE 128 T.M. OF DETOUR MAIN TRACK (DETOUR STA. 12+76 TO 13+40 AND 16+32 TO 16+96) TO PERMANENT ALIGNMENT AND CONNECT (FIELD WELD OR TEMPORARY JOINT BARS) TO RECONSTRUCTED SEGMENT OF BY-PASSED MAIN TRACK ACROSS NEW BRIDGE. PLACE MAIN TRACK IN SERVICE ACROSS NEW BRIDGE.
- (13) REMOVE REMAINING SEGMENT OF BY-PASSED DETOUR TRACK. CUT ANY PERMANENT DITCHES AND RESTORE ANY OTHER RAILWAY SIDE DITCHES. EMBANKMENT PLACED FOR THE DETOUR TRACK SHALL BE REMOVED AS DIRECTED BY THE ENGINEER. FENCE RELOCATION SHALL BE AS DIRECTED BY THE ENGINEER.
- (14) PERFORM FINAL CLEANUP.

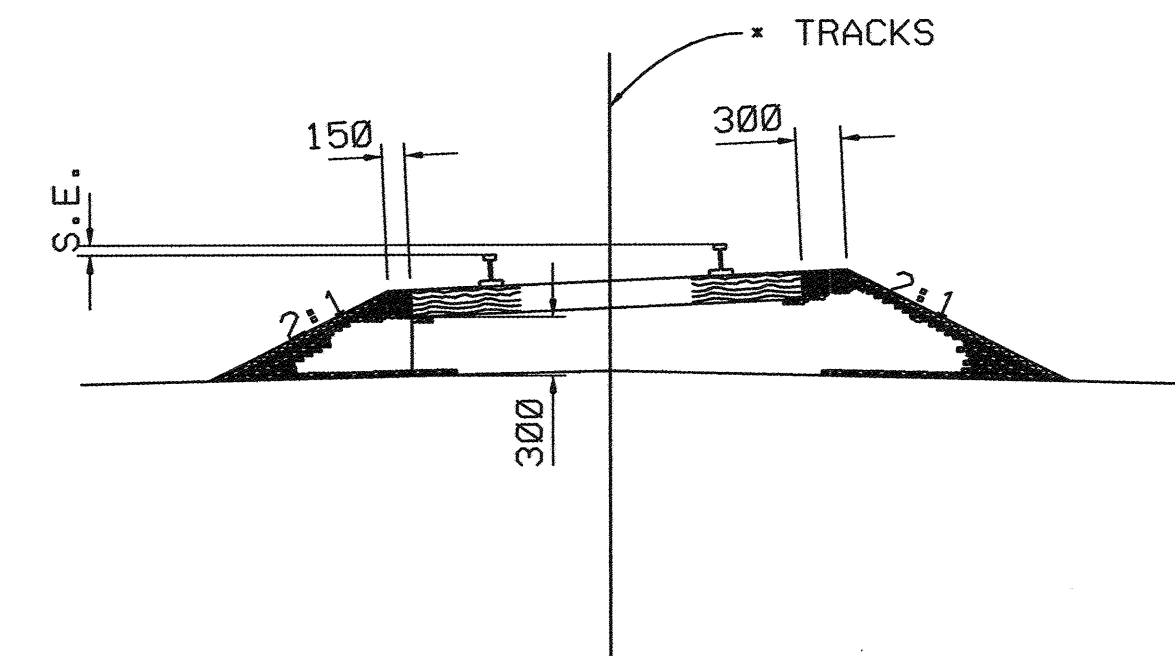
FILL SLOPES, CUT SLOPES AND SUCH OTHER AREAS AS MAY BE DESIGNATED BY THE ENGINEER WILL BE SEEDED AND MULCHED (EROSION CONTROL) AT THE APPROPRIATE TIME DURING THE CONSTRUCTION PERIOD. IN PERFORMING THE ABOVE OPERATIONS THE CONTRACTOR SHALL CONDUCT HIS WORK IN SUCH MANNER AND WITH SUCH OTHER CONTROL DEVICES AS REQUIRED TO MINIMIZE OR CONTROL EROSION AND SILTATION ON THE CONSTRUCTION SITE.

* WORK TO BE PERFORMED BY RAILWAY FORCES.

** WORK TO BE PERFORMED BY DEPARTMENT'S CONTRACTOR.



TYPICAL ROAD BED SECTION
PERMANENT AND DETOUR MAIN LINE TRACK



BALLAST SECTION
SUPERELEVATED TRACK

DIVISION OF WORK

WORK TO BE PERFORMED BY NORFOLK SOUTHERN RAILWAY COMPANY

- (A) FURNISH, OR CAUSE TO BE FURNISHED, ALL STONE BALLAST, MISCELLANEOUS TRACK HARDWARE, LABOR, EQUIPMENT AND SUPERVISION NECESSARY TO LINE EXISTING TRACK TO DETOUR TRACK AND LINE DETOUR TRACK TO REALIGNED PERMANENT TRACK. MAINTAIN DETOUR RAILWAY ABOVE TOP OF SUBBALLAST DURING CONSTRUCTION PERIOD.
- (B) FURNISH TO THE SITE THE NECESSARY STRANDS OF CWR FOR INSTALLATION IN THE DETOUR TRACK.
- (C) FURNISH THE NECESSARY SUPERVISION AND FLAGGING TO PERMIT THE DEPARTMENT'S CONTRACTOR TO WORK ADJACENT TO OPERATING TRACKAGE.
- (D) FURNISH THE NECESSARY LABOR, MATERIALS, EQUIPMENT AND SUPERVISION REQUIRED TO CUT AND WELD THE CWR AT THE PROJECT SITE.
- (E) RAILWAY PERSONNEL WILL MAKE, OR CAUSED TO BE MADE, ALL NECESSARY CHANGES TO ITS COMMUNICATION AND SIGNAL FACILITIES AND APPURTENANCES; WILL BOND TRACK WHERE NECESSARY; WILL MAKE RAIL CUTS AND FIELD WELD CONNECTIONS, AND PERFORM ALL OTHER WORK ON OPERATING TRACKAGE AT THE APPROPRIATE TIME DURING THE CONSTRUCTION PERIOD.

WORK TO BE PERFORMED BY DEPARTMENT'S CONTRACTOR

THE DEPARTMENT'S CONTRACTOR WILL PERFORM ALL OTHER WORK NECESSARY TO COMPLETE THE PROJECT AS CALLED FOR ON THE PLANS, IN THE SEQUENCE OF CONSTRUCTION AND DESCRIPTION OF WORK, PROJECT SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS. THE DEPARTMENT'S CONTRACTOR WILL BE REQUIRED TO MAINTAIN THE REALIGNED RAILWAY ROAD BED BELOW TOP OF SUB-BALLAST DURING THE CONSTRUCTION PERIOD.

WORK BY NORFOLK SOUTHERN RAILWAY OR IT'S CONTRACTOR

PAY ITEM DESCRIPTION	UNIT	QUANTITY
✓ RAILROAD MAIN TRACK TO BE LINED	T.M.	257
✓ STONE BALLAST AREMA #3 MOD.	M.TON	450
✓ FIELD RAIL CUTS AND WELDS	EA.	10
✓ CONTINUOUS WELDED RAIL (CWR) STRANDS	EA.	3
✓ RAILROAD MAIN TRACK TO BE RAISED	T.M.	480
✓ RAILROAD DETOUR MAIN TRACK TO BE RAISED	T.M.	188
✓ JOINTED CWR CONNECTIONS	EA.	8

WORK BY DEPARTMENT'S CONTRACTOR

PAY ITEM DESCRIPTION	UNIT	QUANTITY
✓ STONE BALLAST AREMA #3 MOD.	M.TON	1450
✓ CROSS TIE REPLACEMENTS	EA.	75
✓ RAILROAD DETOUR MAIN TRACK TO BE CONSTRUCTED AND REMOVED	T.M.	290
✓ RAILROAD BYPASS MAIN TRACK TO BE REMOVED AND RELAYED	T.M.	290
✓ CLEARING AND GRUBBING	L.S.	-
✓ UNCLASSIFIED EXCAVATION (PLAN QUANTITY)	C.M.	5142
*** BORROWED EXCAVATION (PLAN QUANTITY)	C.M.	4143
✓ SEEDING AND MULCHING	SQ.M.	4800
✓ AGGREGATE BASE COURSE (SUB-BALLAST)	M.TON	1650
✓ SILT FENCE	L.M.	360
✓ REMOVE & REPLACE 1800mm CHAINLINK & 3-STRAND BARB WIRE FENCE	L.M.	250

***15% SHRINKAGE FACTOR HAS BEEN APPLIED; 100% WASTE FOR THIS PORTION OF THE PROJECT.

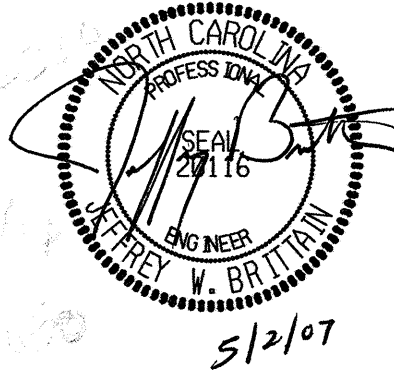
MILE POST S-56.67

PROJECT NO. U-2306A
 CATAWBA COUNTY
 STATION POT 18+83.139 -L-REV=
 POT 14+57.318-Y13-REV

REPLACES BRIDGE NO. 286

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SEQUENCE OF CONSTRUCTION
 ESTIMATED QUANTITIES
 TYPICAL ROAD BED SECTIONS
 NORFOLK SOUTHERN RAILWAY
 MAIN LINE TRACK BRIDGE OVER
 LENOIR RHYNE BLVD. EXT./HIGHLAND AVE.
 JULY 1999



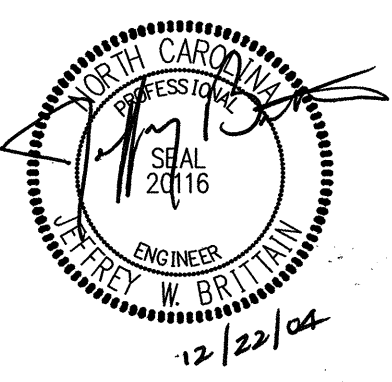
PREPARED BY
 TGS ENGINEERS
 107-A WEA AVE
 WORGANTON, NC 28655

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
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2			4		

DRAWN BY JLA DATE 7/99
 CHECKED BY TJP DATE 7/99

SHEET NO. TOTAL SHEETS

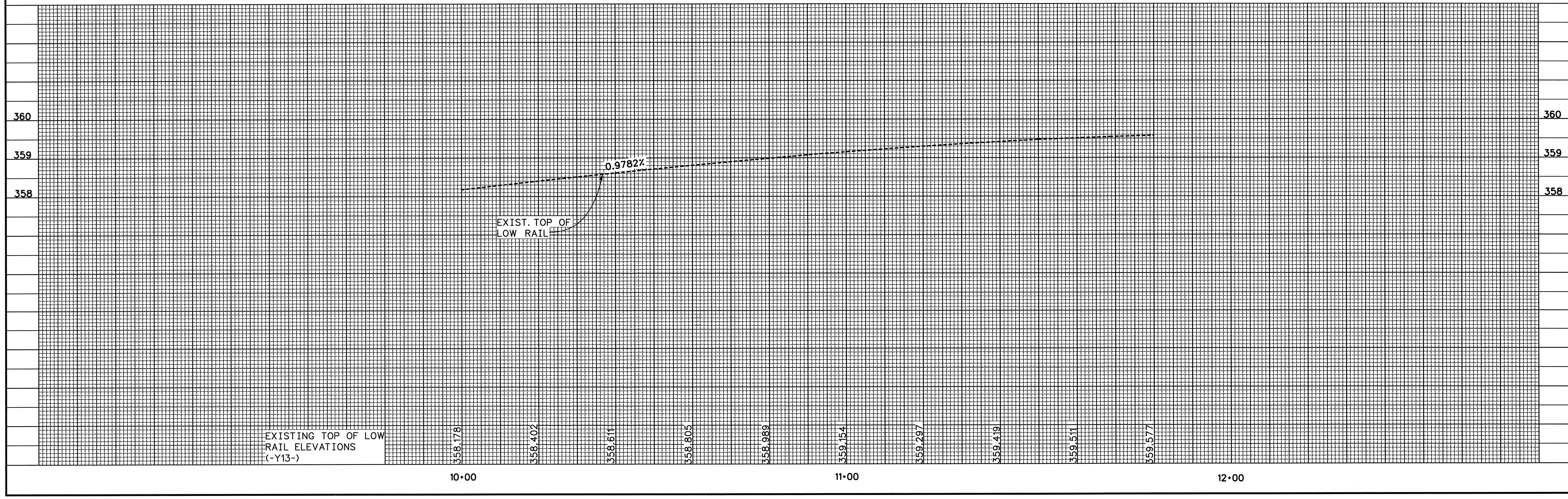
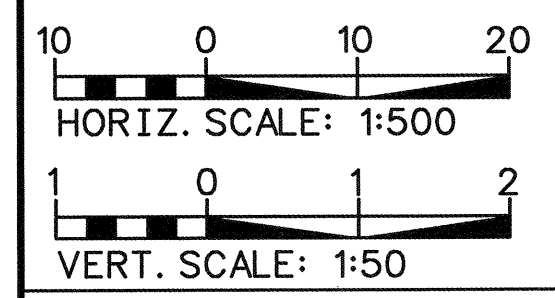
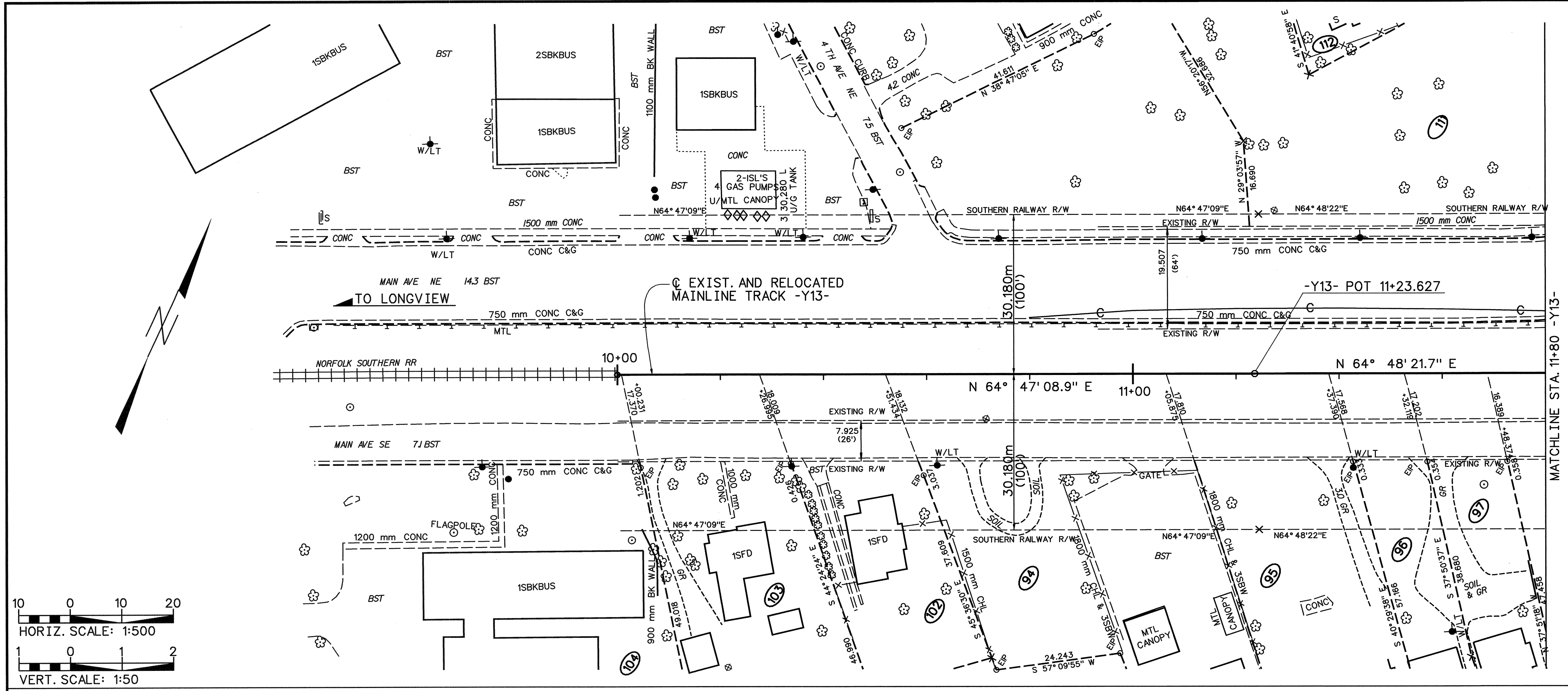
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DESIGN ENGINEER		DESIGN ENGINEER	



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DEC 22 2004
TGS ENGINEERS

TRACK PLAN AND PROFILE
STA. 10+00 TO STA. 11+80
NORFOLK SOUTHERN RAILWAY
BRIDGE OVER HIGHLAND AVE.
MILEPOST S-56.67

PREPARED BY
TGS ENGINEERS
145 WEST PARKER ROAD
MORGANTON, NC 28655



EXISTING TOP OF LOW
RAIL ELEVATIONS
(-Y13-)

358.178 358.402 358.611 358.805 358.989 359.154 359.297 359.419 359.511 359.577

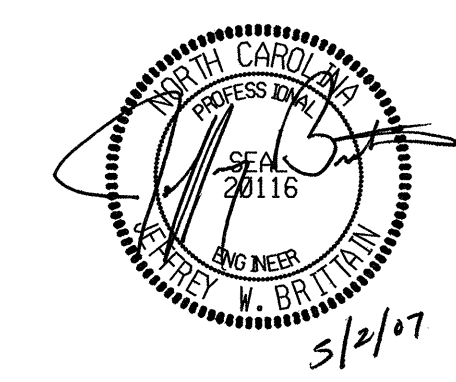
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PROJECT REFERENCE NO.	SHEET NO.
U-2306A	TW-3
DESIGN ENGINEER	DESIGN ENGINEER

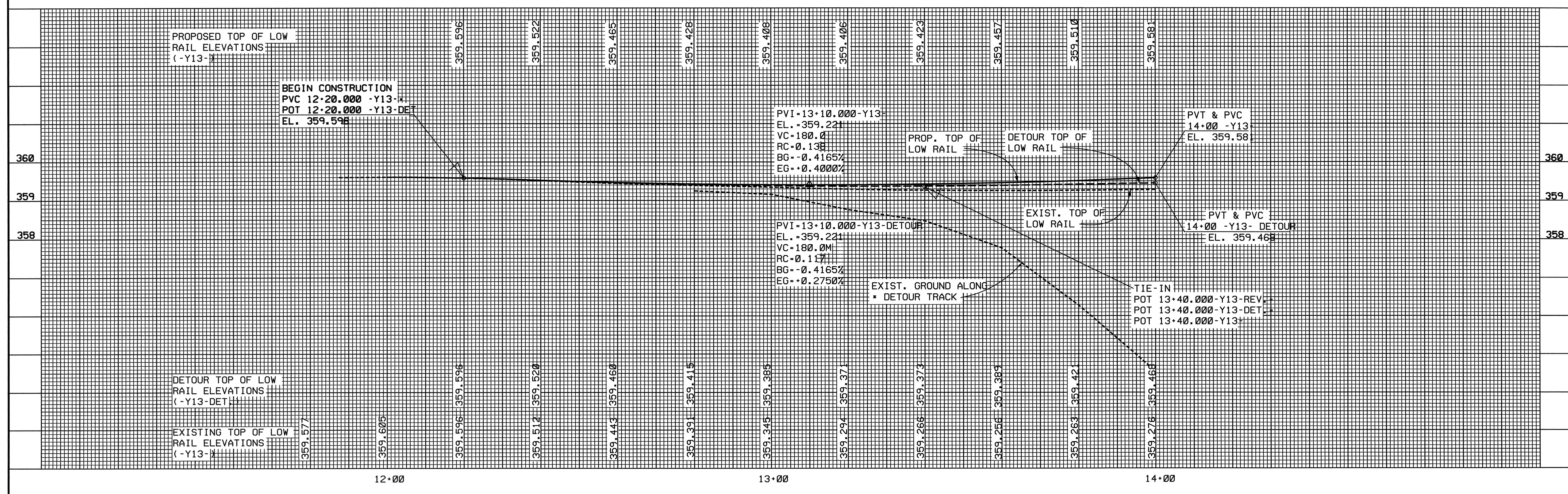
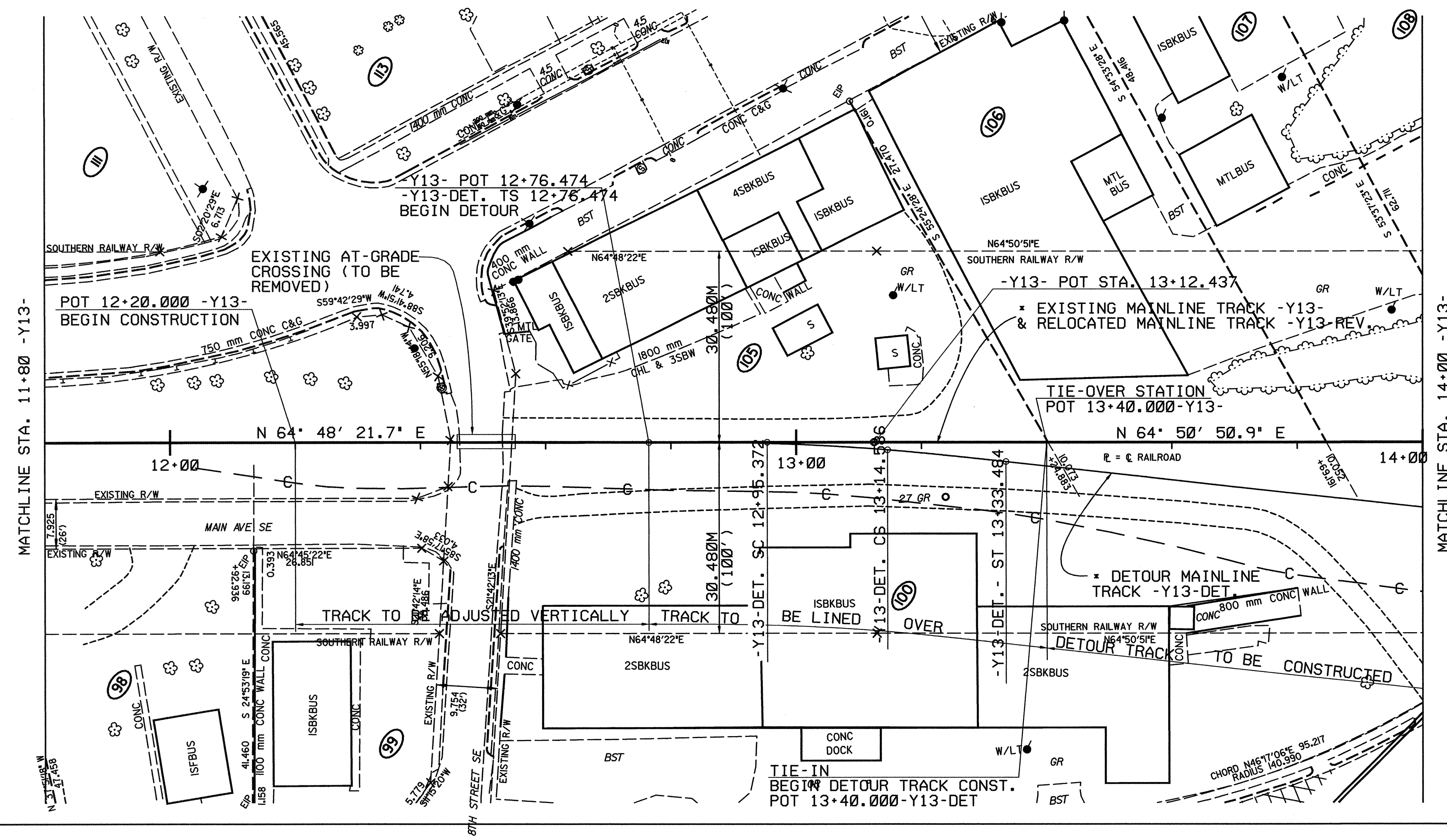
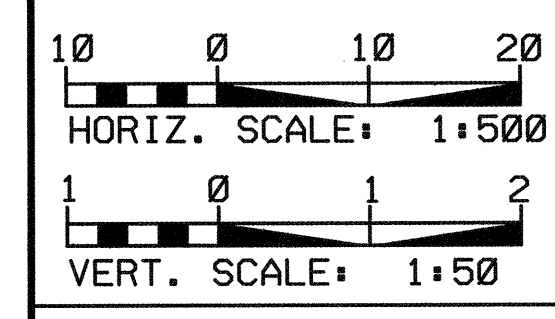
DETOUR HORIZ CURVE NO. 1 -Y13-DET.

METRIC	ENGLISH
P. I. = 13+04.981	P. I. = 42+81.434
$\Delta T = 6^{\circ}15'00''$ RT.	$\Delta T = 6^{\circ}15'00''$ RT.
$\Delta c = 3^{\circ}09'03.3''$	$\Delta c = 3^{\circ}09'03.3''$
$R_c = 349.386M$	$R_c = 1146.28'$
$T_s = 28.526M$	$T_s = 93.59'$
$T_c = 9.609M$	$T_c = 31.53'$
$L_c = 19.214M$	$L_c = 63.04'$
$L_s = 18.898M$	$L_s = 62.00'$
$C_s = 1^{\circ}32'58.3''$	$C_s = 1^{\circ}32'58.3''$
S. T. = 6.300M	S. T. = 20.67'
L. T. = 12.599M	L. T. = 41.34'
V = 40KMH	V = 25MPH
S. E. = 25MM	S. E. = 1"



PREPARED BY
TGS ENGINEERS
107-A MICA AVENUE
MORGANTON, NC 28655

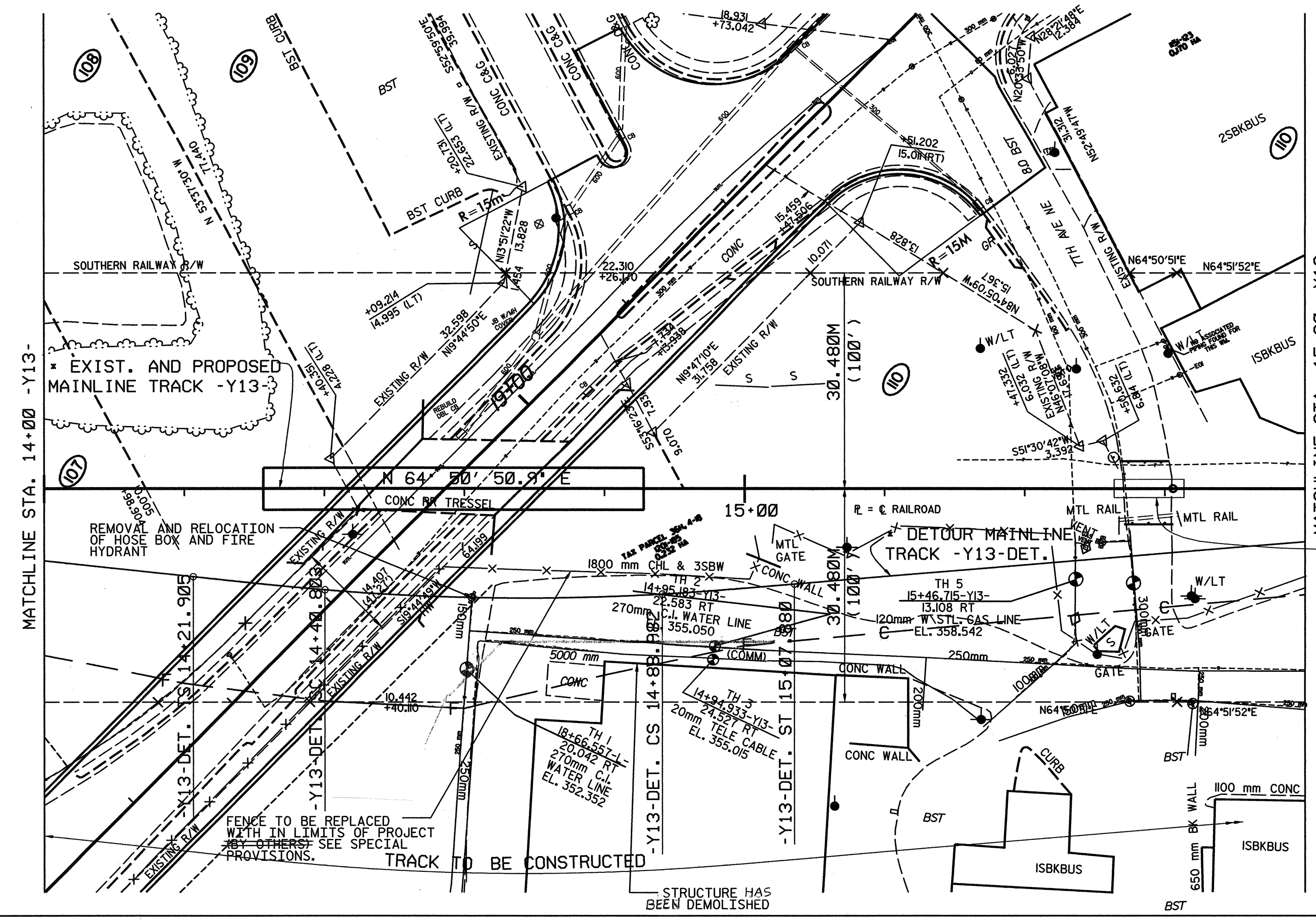
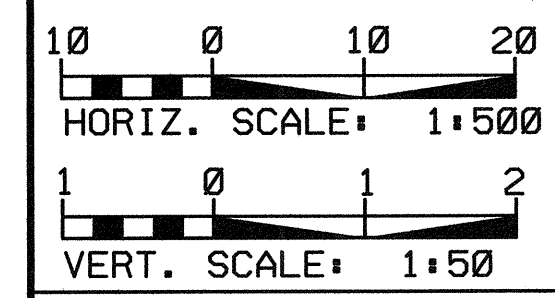
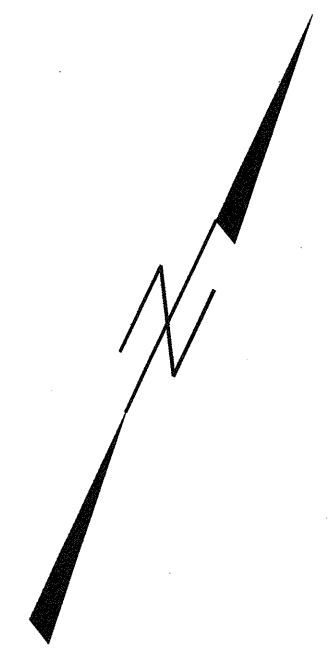
TRACK PLAN AND PROFILE
STA. 11+80 TO STA. 14+00
NORFOLK SOUTHERN RAILWAY
BRIDGE OVER HIGHLAND AVE.
MILEPOST S-56.67



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DETOUR HORIZ CURVE NO. 2 -Y13-DET.

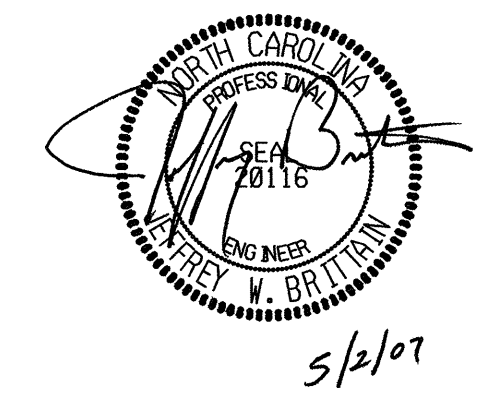
METRIC	ENGLISH
P.I. = 14+64.931	P.I. = 48+06.204
$\Delta_T = 11^\circ 00' 00''$ LT.	$\Delta_T = 11^\circ 00' 00''$ LT.
$\Delta_c = 7^\circ 54' 03.3''$	$\Delta_c = 7^\circ 54' 03.3''$
$R_c = 349.386M$	$R_c = 1146.28'$
$T_s = 43.095M$	$T_s = 141.39'$
$T_c = 24.128M$	$T_c = 31.00'$
$L_c = 48.179M$	$L_c = 158.07'$
$L_s = 18.898M$	$L_s = 62.00'$
$\Theta_s = 1^\circ 32' 58.3''$	$\Theta_s = 1^\circ 32' 58.3''$
S.T. = 6.300M	S.T. = 20.67'
L.T. = 12.599M	L.T. = 41.34'
V = 40KMH	V = 25MPH
S.E. = 25MM	S.E. = 1"



MATCHLINE STA. 14+00 -Y13-
 MATCHLINE STA. 15+80 -Y13-
 EXIST. AT-GRADE CROSSING (TO BE REMOVED)

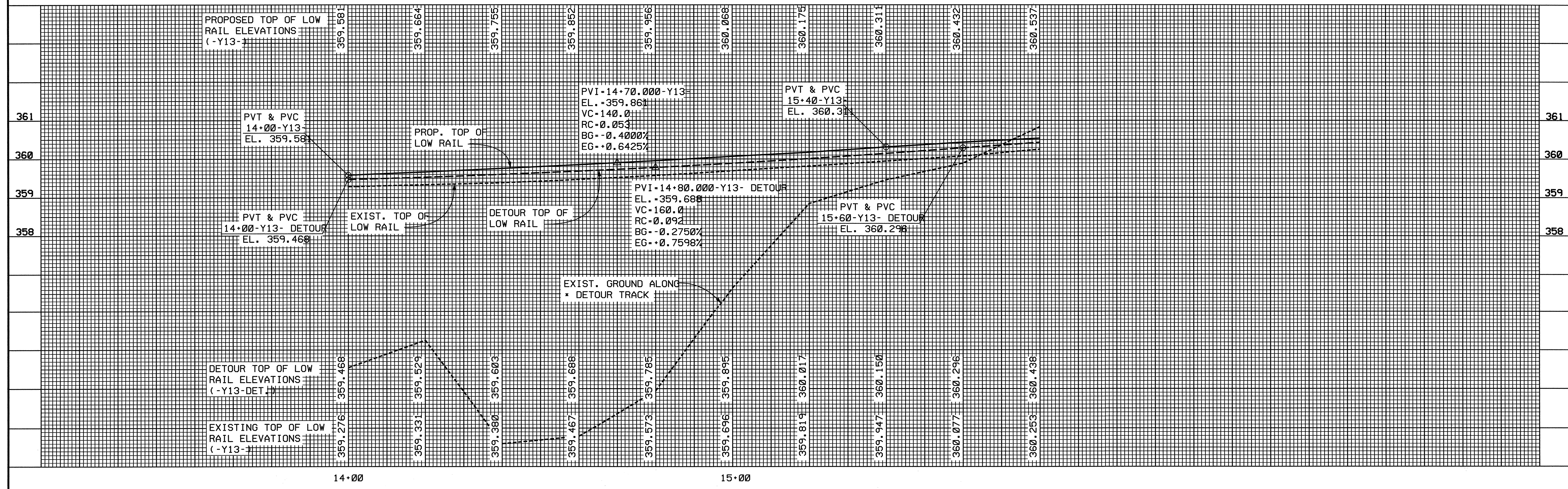
PROJECT REFERENCE NO. U-2306A	SHEET NO. FW-4
DESIGN ENGINEER	DESIGN ENGINEER

NOTES : FOR MODIFICATION TO ROADWAY DRAINAGE SYSTEM, SEE ROADWAY PLAN SHEETS.
 FOR MODIFICATION AND RELOCATION OF UTILITIES, SEE UTILITY PLAN SHEET.



TRACK PLAN AND PROFILE
 STA. 14+00 TO STA. 15+80
 NORFOLK SOUTHERN RAILWAY
 BRIDGE OVER HIGHLAND AVE.
 MILEPOST S-56.67

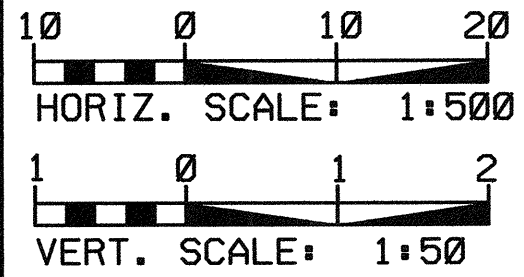
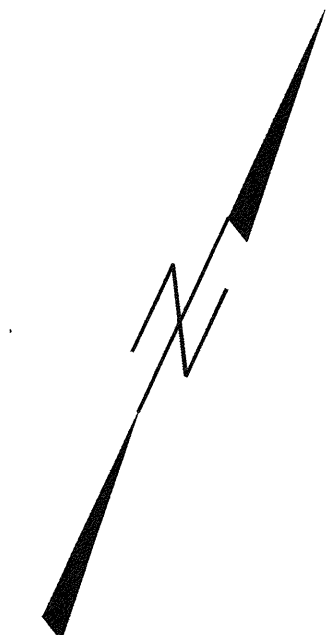
PREPARED BY
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 107-A MICA AVENUE
 MORGANTON, NC 28655



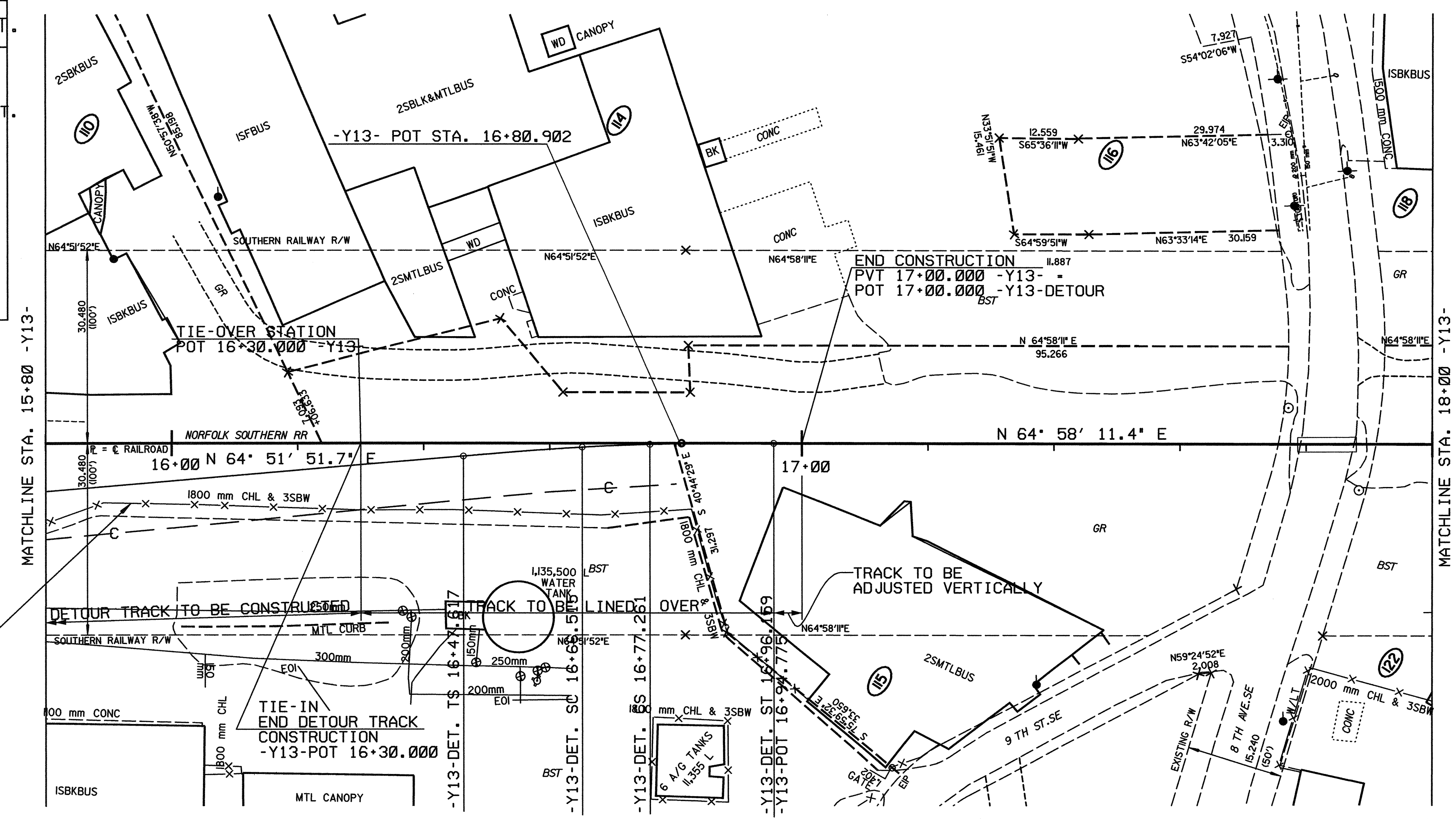
DETOUR HORIZ CURVE NO. 3 -Y13-DET.

METRIC	ENGLISH
P.I. = 16+71.889	P.I. = 54+85.200
$\Delta_T = 4^{\circ}54'49.8"$ LT.	$\Delta_T = 4^{\circ}54'49.83"$ LT.
$\Delta_c = 1^{\circ}46'52.6"$	$\Delta_c = 1^{\circ}46'52.55"$
$R_c = 345.652M$	$R_c = 1134.02'$
$T_s = 24.442M$	$T_s = 80.19'$
$T_c = 5.373M$	$T_c = 17.63'$
$L_c = 10.746M$	$L_c = 35.25'$
$L_s = 18.898M$	$L_s = 62.00'$
$\phi_s = 1^{\circ}33'58.6"$	$\phi_s = 1^{\circ}33'58.6"$
S.T. = 6.300M	S.T. = 20.67'
L.T. = 12.599M	L.T. = 41.34'
V = 40KMH	V = 25MPH
S.E. = 25MM	S.E. = 1"

PROJECT REFERENCE NO. U-2306A	SHEET NO. TW-5
DESIGN ENGINEER	DESIGN ENGINEER

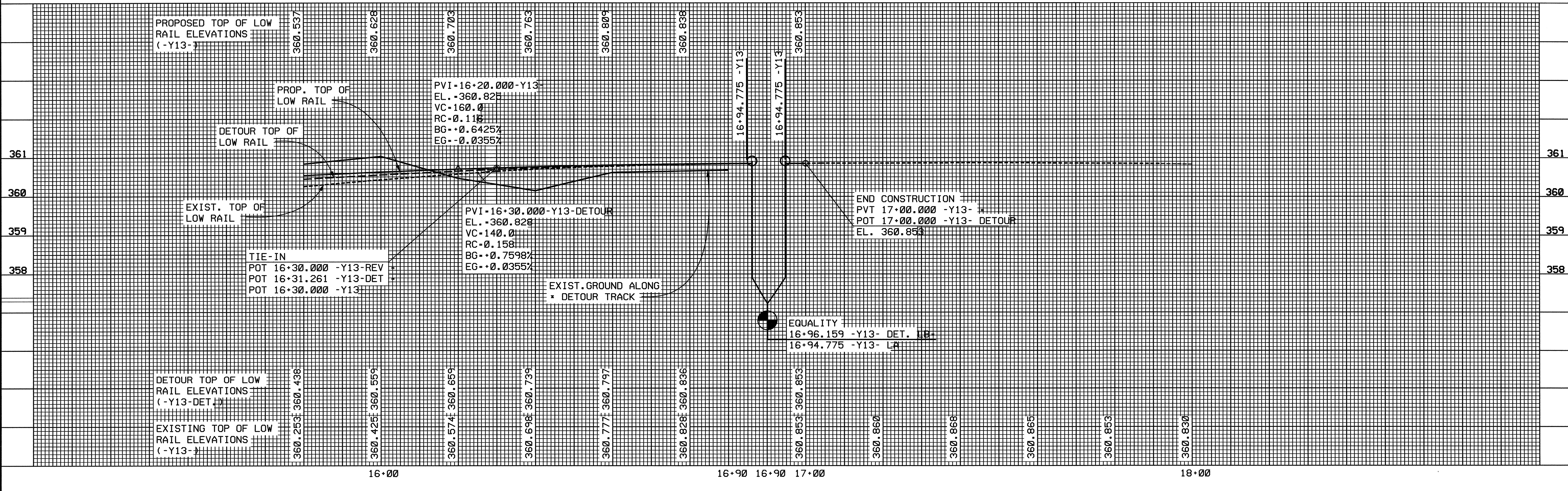


FENCE TO BE RELOCATED WITH IN LIMITS OF PROJECT (BY OTHERS)



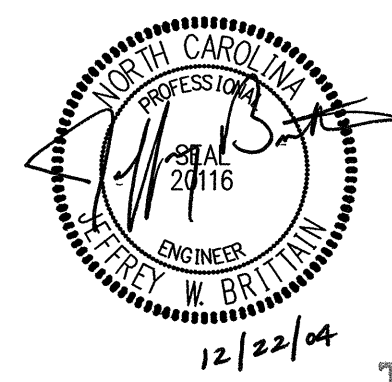
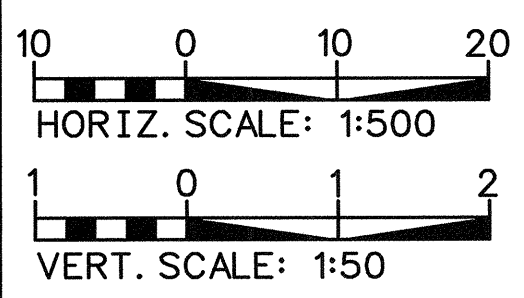
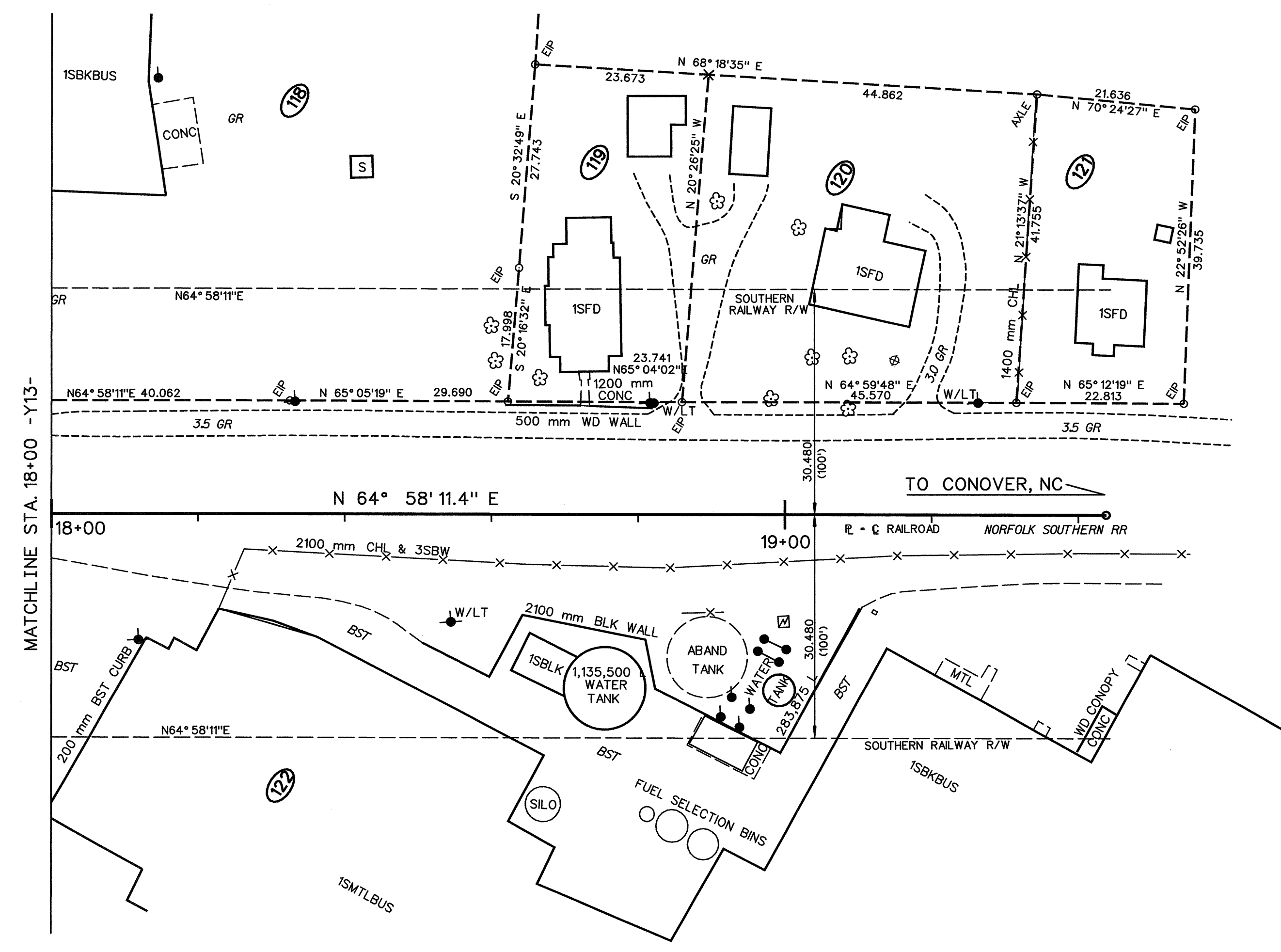
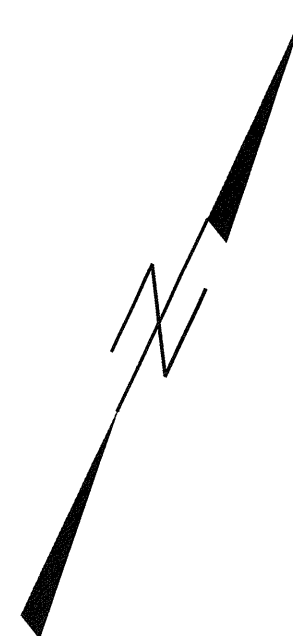
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TGS ENGINEERS
107-A MICA AVENUE
MORGANTON, NC 28655

TRACK PLAN AND PROFILE
STA. 15+80 TO STA. 18+00
NORFOLK SOUTHERN RAILWAY
BRIDGE OVER HIGHLAND AVE.
MILEPOST S-56.67





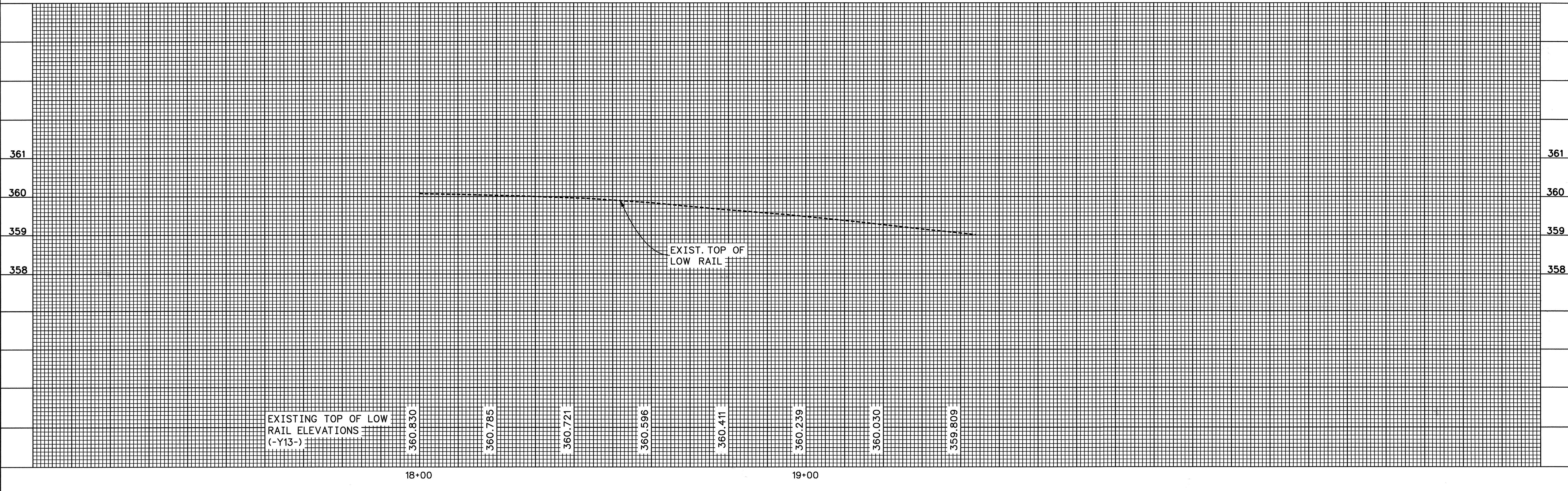
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DESIGN ENGINEER	DESIGN ENGINEER

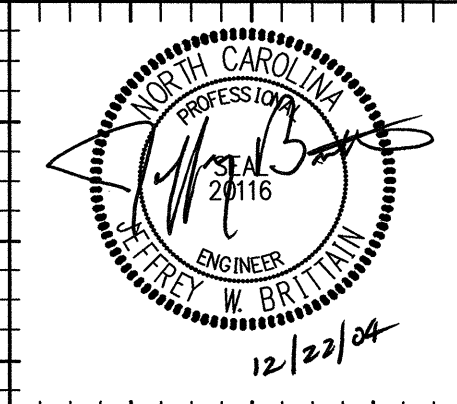
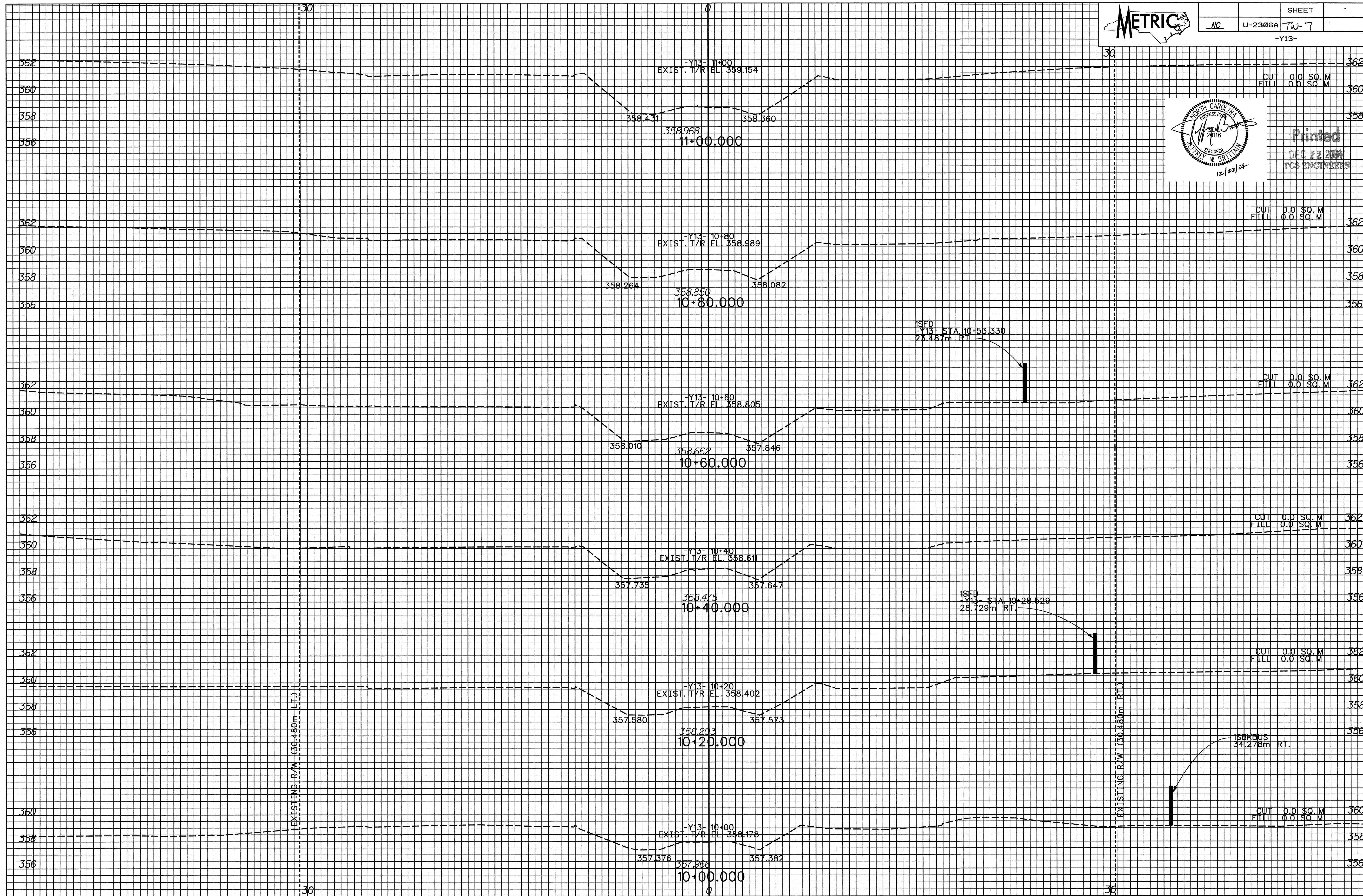


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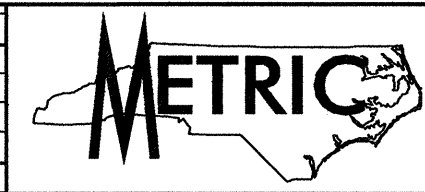
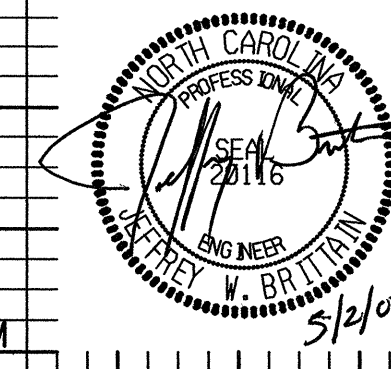
TRACK PLAN AND PROFILE
STA. 18+00 TO STA. 19+40
NORFOLK SOUTHERN RAILWAY
BRIDGE OVER HIGHLAND AVE.
MILEPOST S-56.67

PREPARED BY
TGS ENGINEERS
145 WEST PARKER ROAD
MORGANTON, NC 28655



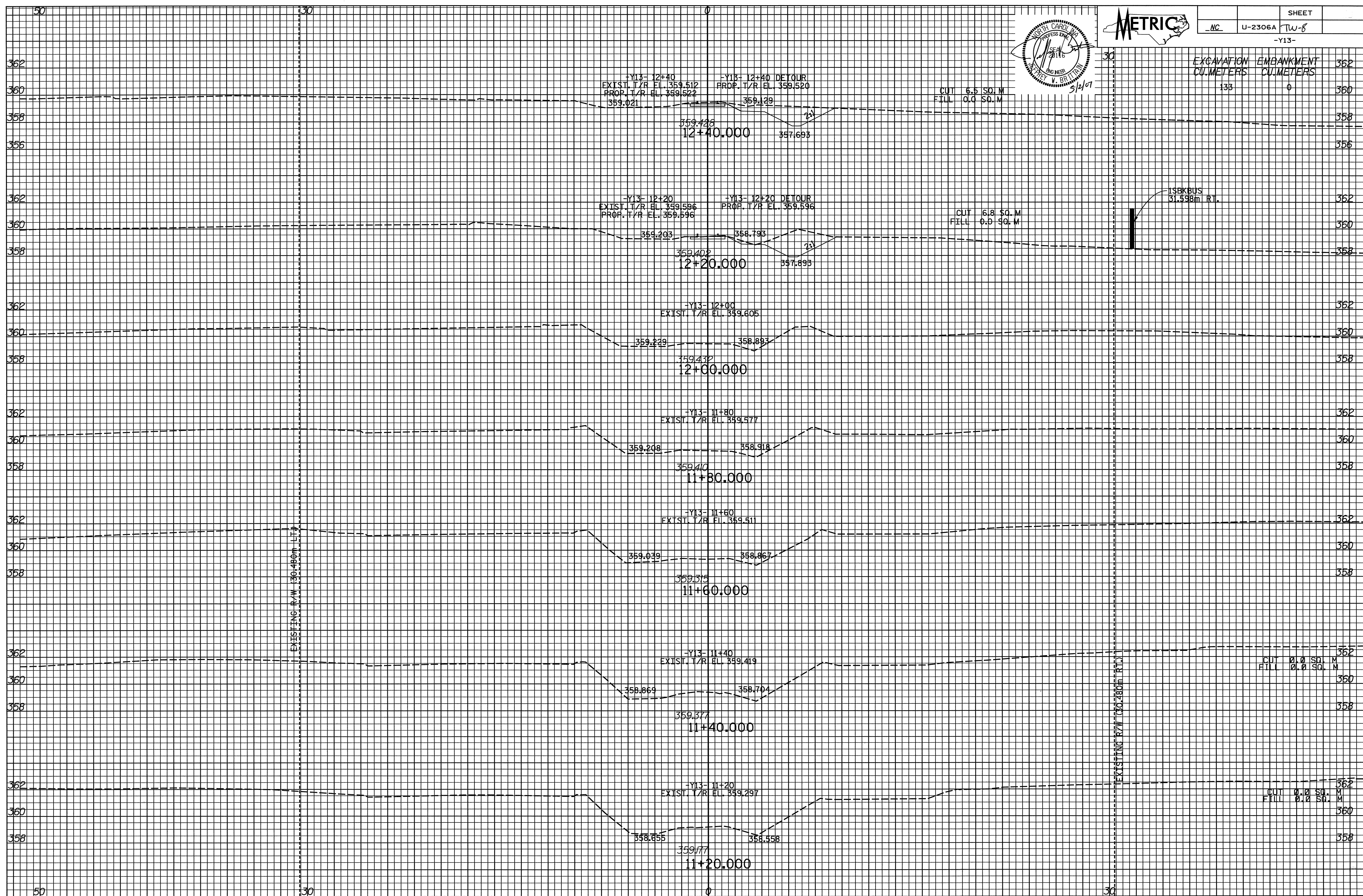


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FSS ENGINEERS

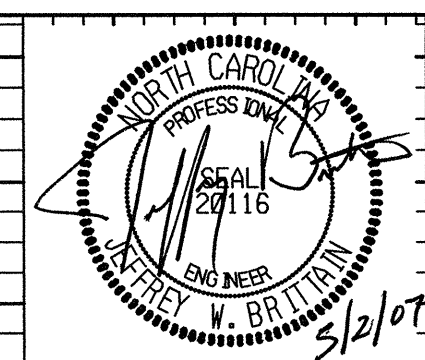


NC	U-2306A	TW-8	SHEET
			-Y13-

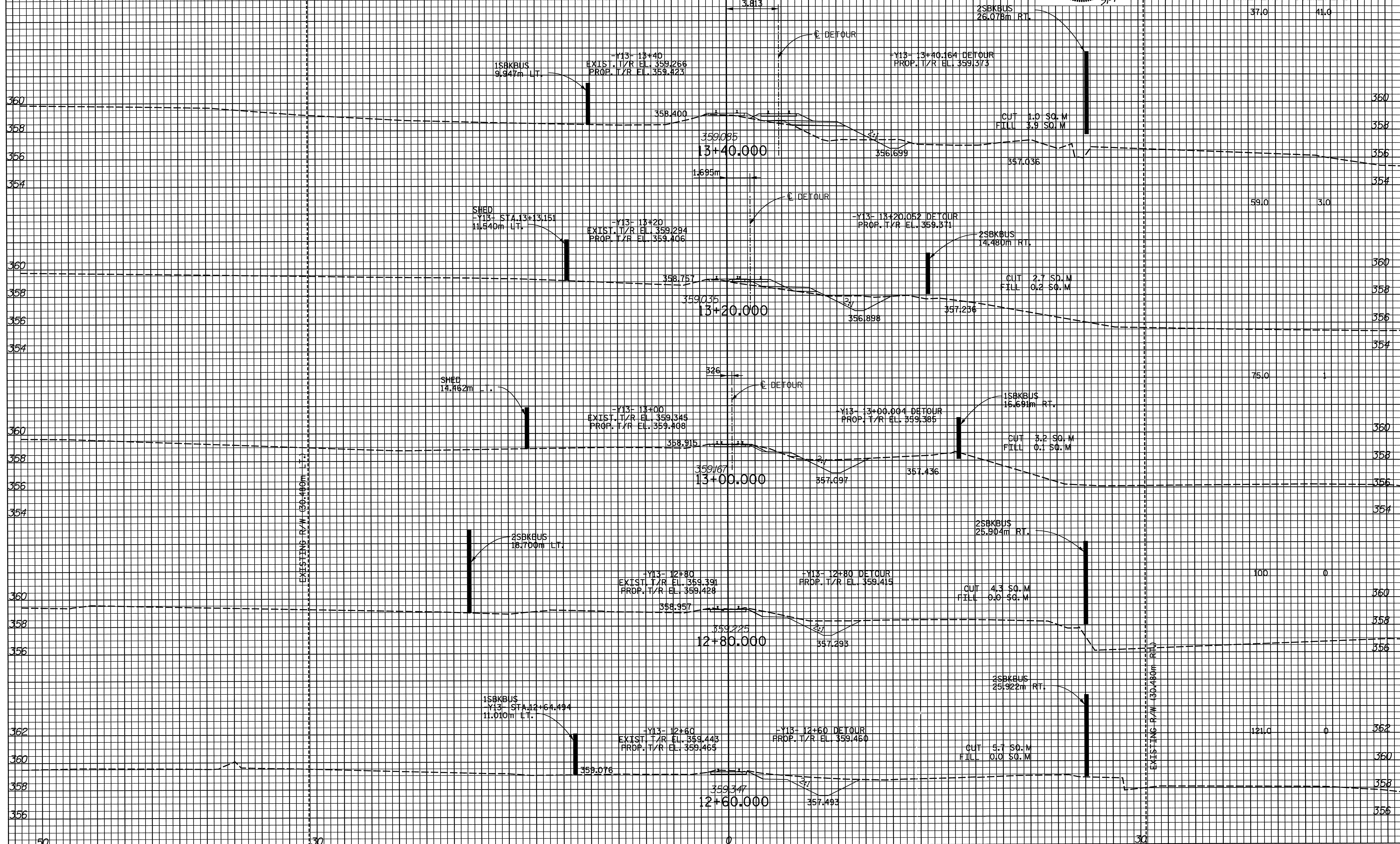
EXCAVATION CU. METERS	EMBANKMENT CU. METERS	
133	0	362



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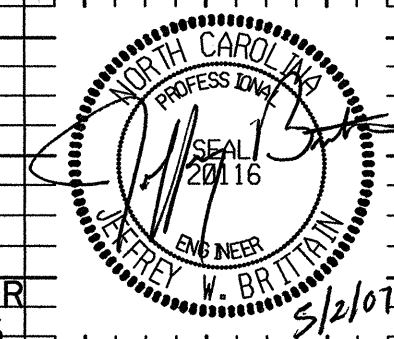


EXCAVATION CU. METERS	EMBANKMENT CU. METERS
37.0	41.0
59.0	3.0
75.0	1.0
100	0
121.0	0



EXISTING R/W (30.480m LT)

EXISTING R/W (30.480m RT)



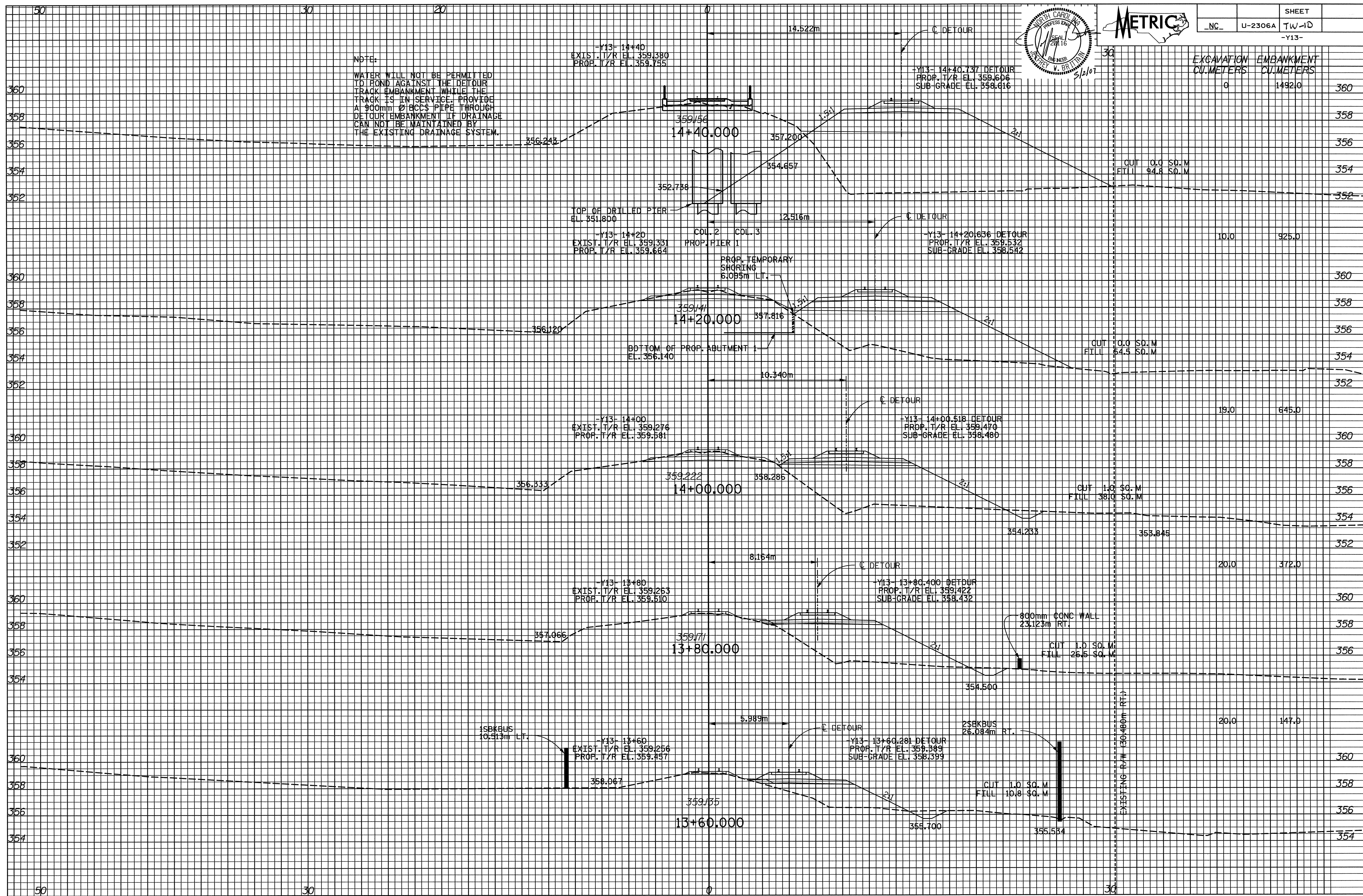
NOTE:

WATER WILL NOT BE PERMITTED TO POND AGAINST THE DETOUR TRACK EMBANKMENT WHILE THE TRACK IS IN SERVICE. PROVIDE A 900mm Ø BCCS PIPE THROUGH DETOUR EMBANKMENT IF DRAINAGE CAN NOT BE MAINTAINED BY THE EXISTING DRAINAGE SYSTEM.

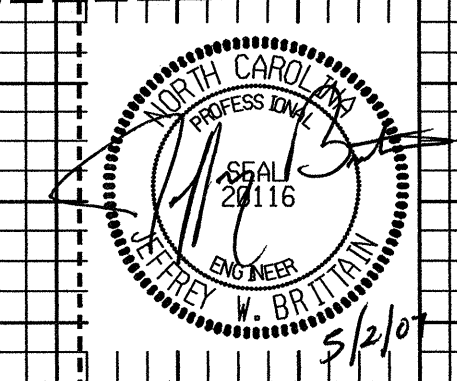
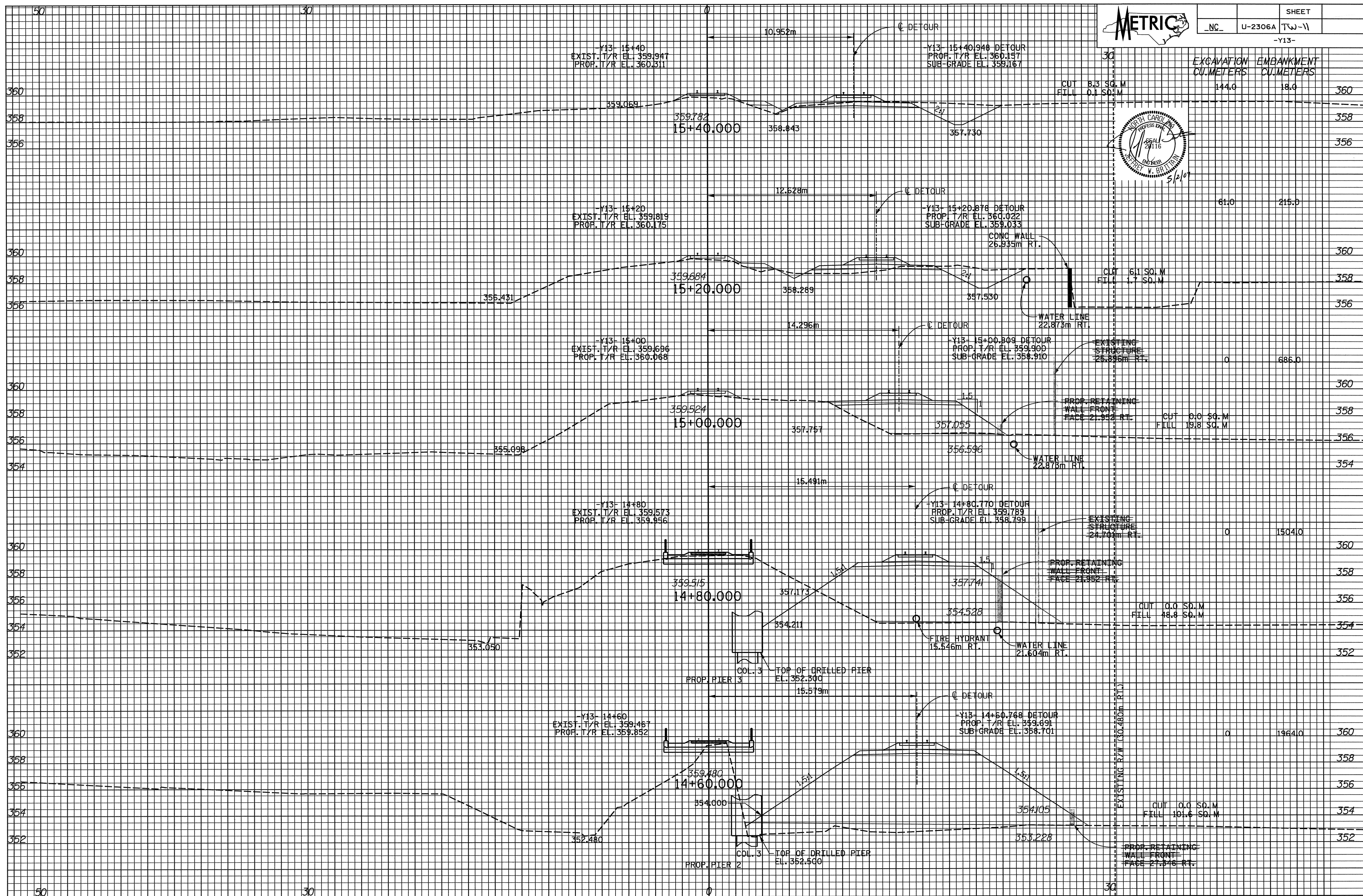
-Y13- 14+40
EXIST. T/R EL. 359.380
PROP. T/R EL. 359.755

-Y13- 14+40.737 DETOUR
PROP. T/R EL. 359.606
SUB-GRADE EL. 358.616

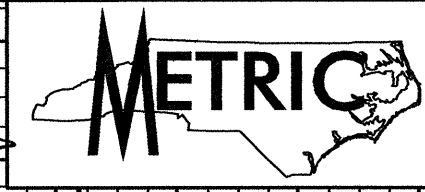
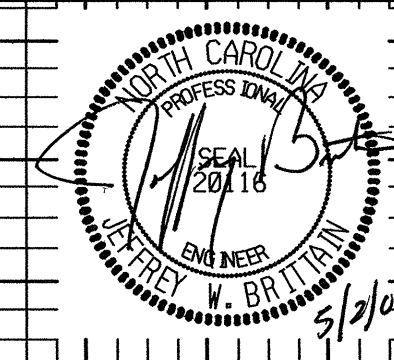
EXCAVATION CU. METERS	EMBANKMENT CU. METERS	
0	1492.0	360
		358
		356
		354
		352
10.0	925.0	360
		358
		356
		354
		352
19.0	645.0	360
		358
		356
		354
		352
20.0	372.0	360
		358
		356
		354
		352
20.0	147.0	360
		358
		356
		354



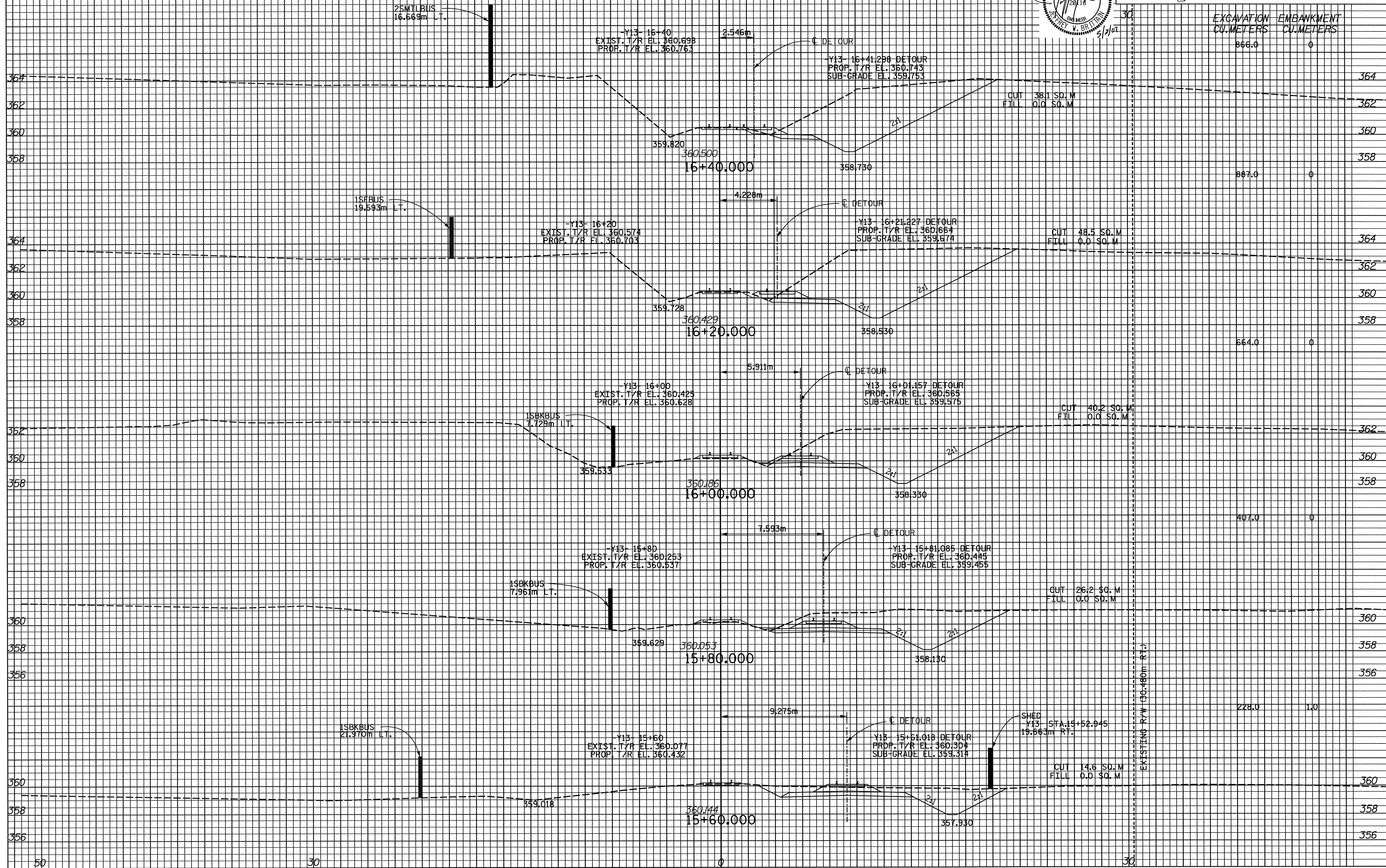
EXISTING R/W (30+480m RT.)



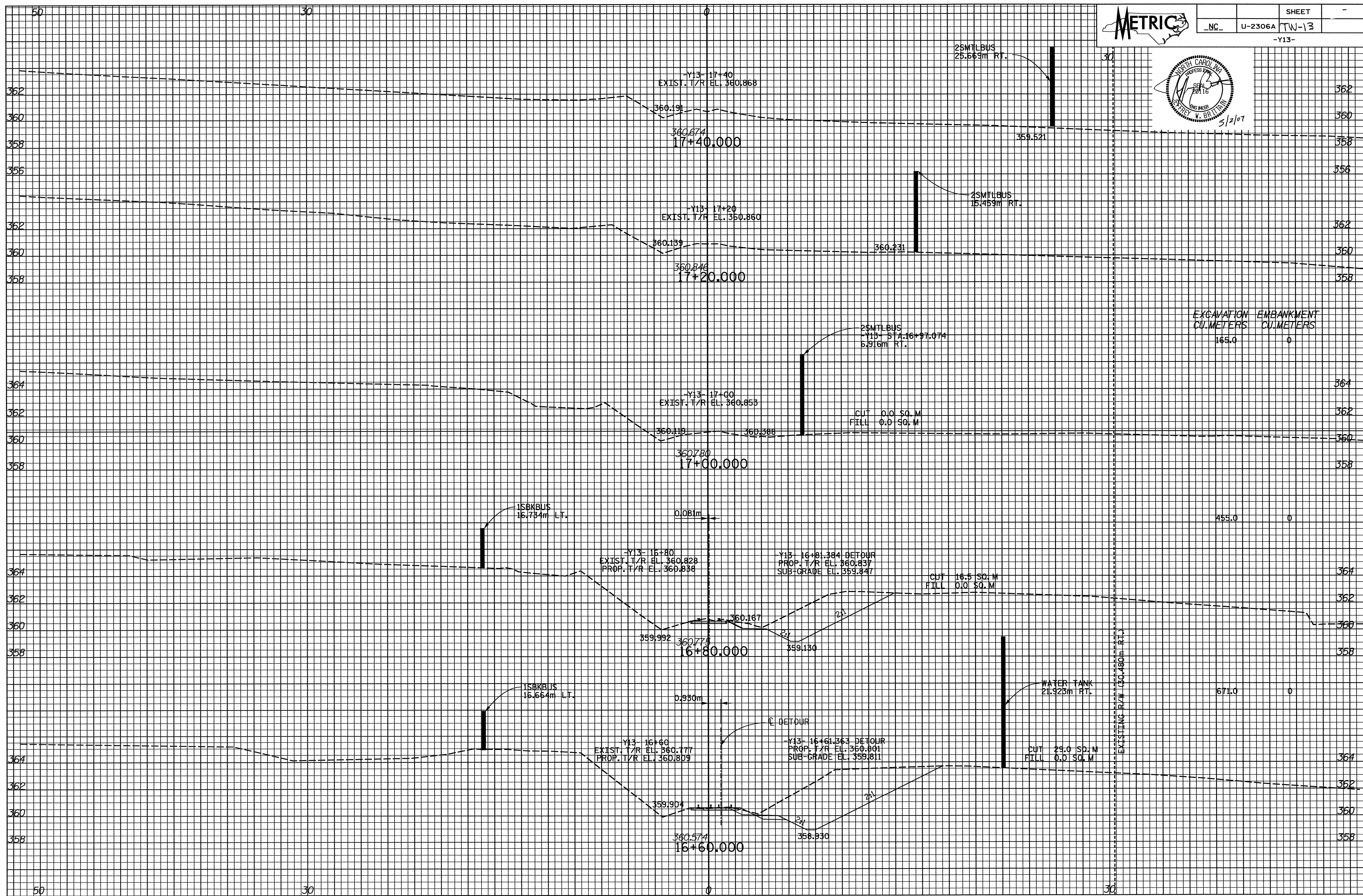
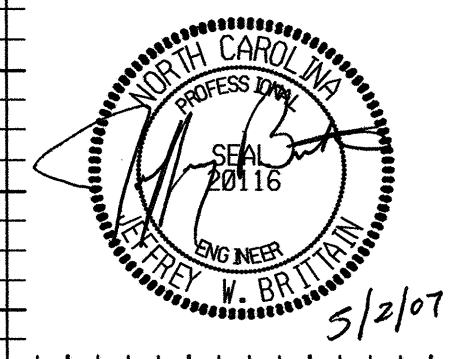
STATION	EXCAVATION CU. METERS	EMBANKMENT CU. METERS	TOTAL
15+40	144.0	18.0	360
15+20	61.0	215.0	360
15+00	0	686.0	360
14+80	0	1504.0	360
14+60	0	1964.0	360
14+40	0	101.6	360



EXCAVATION CU. METERS	EMBANKMENT CU. METERS
866.0	0



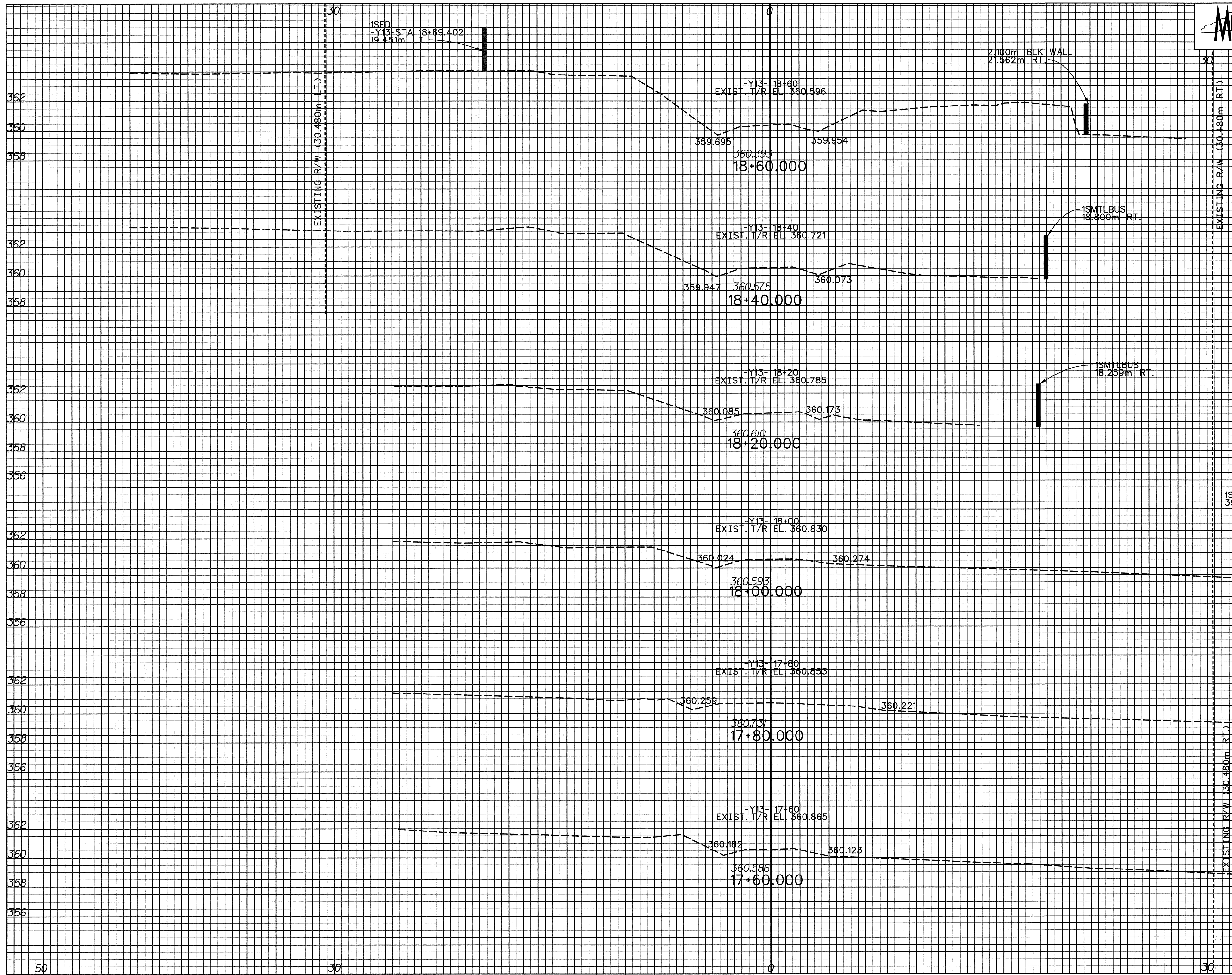
EXISTING R/W (50'-180m RT.)

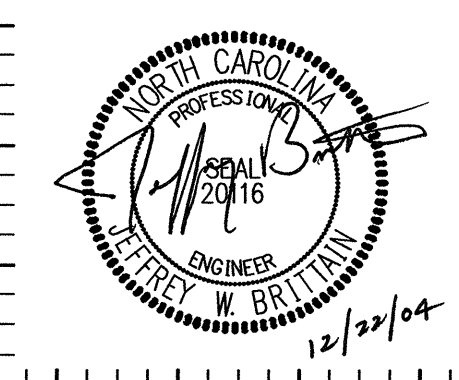




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CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360
CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360
CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360
CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360
CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360
CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360
CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360
CUT	0.0	SQ. M	362
FILL	0.0	SQ. M	360





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MVA ENGINEERS

