

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

TRACK SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 52000.1.STR07TIB(P-5206C) F.A. PROJ. FRA-FR-HSR-0006-10-01-00
 COUNTY ROWAN
 PROJECT DESCRIPTION NCRRNS MAINLINE REID TO NORTH KANNAPOLIS RAILROAD ROADBED (MP 337.0 TO MP 348.3), INVENTORY REPORT

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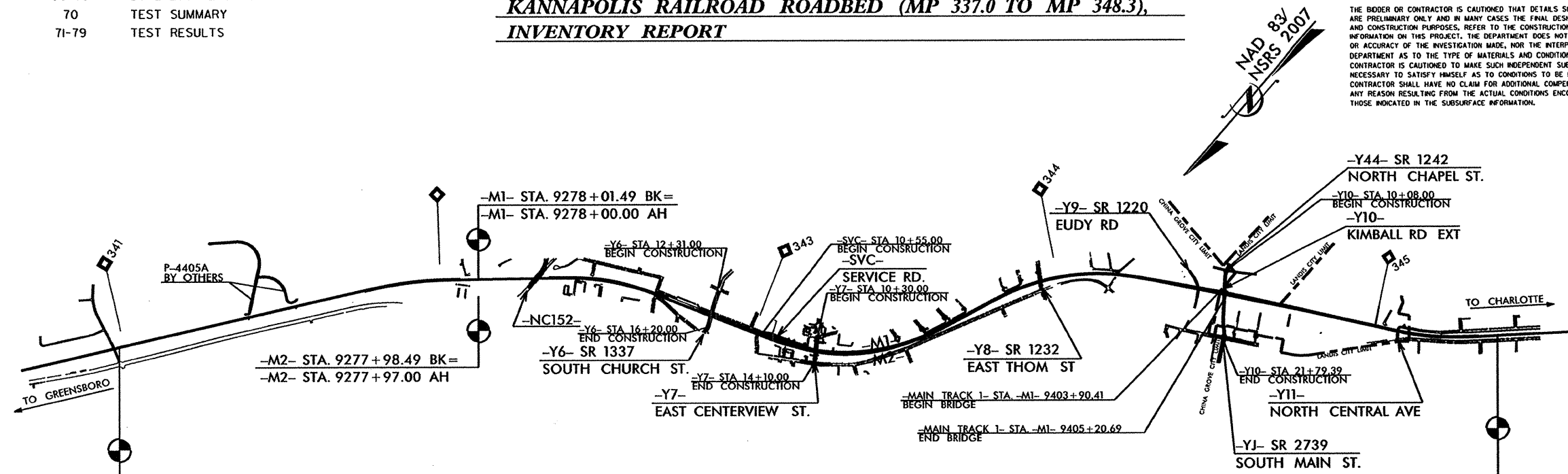
CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-PLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DEFERRING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

PROJECT: 52000.1.STR07TIB ID: P-5206C



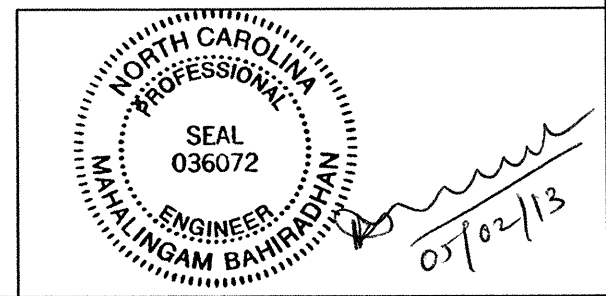
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 BEGIN TIP PROJECT P-5206C (PART2)
 MAIN TRACK 1 STA. -M1- 9218+00.00 BK =
 STA. -M1- 9218+02.82 AH
 MAIN TRACK 2 STA. -M2- 9218+01.63 BK =
 STA. -M2- 9218+02.82 AH

END TIP PROJECT P-5206C (PART2)
 BEGIN TIP PROJECT P-5206D (PART3)
 MAIN TRACK 1 STA. -M1- 9450+00.00 BK =
 STA. -M1- 9450+39.03 AH
 MAIN TRACK 2 STA. -M2- 9449+97.71 BK =
 STA. -M2- 9450+39.03 AH

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 DATE MAY 2013



DRAWN BY: S. KITTS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. 52000.I.STRO7TIB (P-5206C)	SHEET NO. 2 OF 79
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SUBSURFACE INVESTIGATION

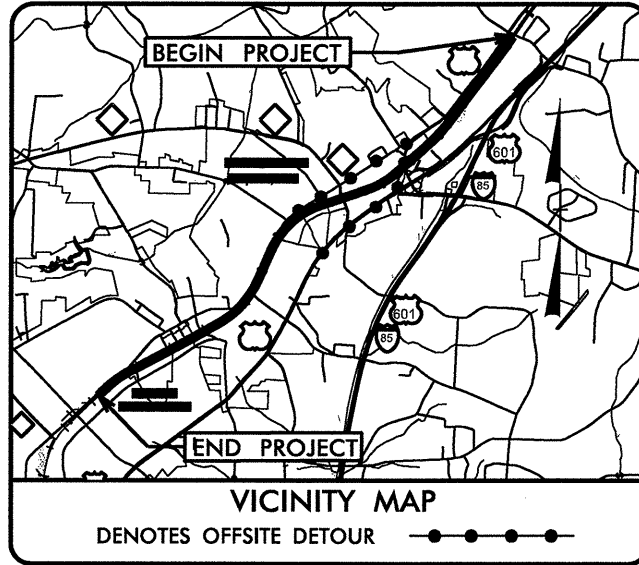
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																																																																																																																														
<p>SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:</p> <p style="text-align: center;"><i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>		<p>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.</p> <p style="text-align: center;">ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>		<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 20 BLOWS PER FOOT IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>		<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN OR BPF OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCRC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																																														
<p style="text-align: center;">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="6">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="6">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="2">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th> <th>A-3</th> <th colspan="3">A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th></th> <th></th> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1-a</td> <td>A-1-b</td> <td>A-2-4</td> <td>A-2-5</td> <td>A-2-6</td> <td>A-2-7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SYMBOL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>% PASSING</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> <td>50 30 15</td> </tr> <tr> <td>LIQUID LIMIT PLASTIC INDEX</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> <td>6 4 2</td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS, GRAVEL, AND SAND</td> <td>FINE SAND</td> <td colspan="3">SILTY OR CLAYEY GRAVEL AND SAND</td> <td>SILTY SOILS</td> <td>CLAYEY SOILS</td> <td colspan="2">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td>GRANULAR SOILS</td> <td>SILT-CLAY SOILS</td> <td colspan="3">MUCK, PEAT</td> </tr> <tr> <td>GEN. RATING AS A SUBGRADE</td> <td colspan="6">EXCELLENT TO GOOD</td> <td colspan="3">FAIR TO POOR</td> <td>FAIR TO POOR</td> <td>POOR</td> <td colspan="3">UNSATISFACTORY</td> </tr> </table> <p style="text-align: center;">PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30</p>		GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)						SILT-CLAY MATERIALS (> 35% PASSING #200)						ORGANIC MATERIALS		A-1	A-3	A-2			A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7			GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7									SYMBOL															% PASSING	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	50 30 15	LIQUID LIMIT PLASTIC INDEX	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	6 4 2	GROUP INDEX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL, AND SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND			SILTY SOILS	CLAYEY SOILS	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT			GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD						FAIR TO POOR			FAIR TO POOR	POOR	UNSATISFACTORY			<p style="text-align: center;">MINERALOGICAL COMPOSITION</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p>		<p style="text-align: center;">COMPRESSIBILITY</p> <p>SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50</p>		<p style="text-align: center;">WEATHERED ROCK (WR)</p> <p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.</p>		<p style="text-align: center;">CRYSTALLINE ROCK (CR)</p> <p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>		<p style="text-align: center;">NON-CRYSTALLINE ROCK (NCR)</p> <p>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p>		<p style="text-align: center;">COASTAL PLAIN SEDIMENTARY ROCK (CPS)</p> <p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>	
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0164DEL P1062

TIP PROJECT: P-5206C

CONTRACT: C203207



STATE OF NORTH CAROLINA
NCDOT RAIL DIVISION

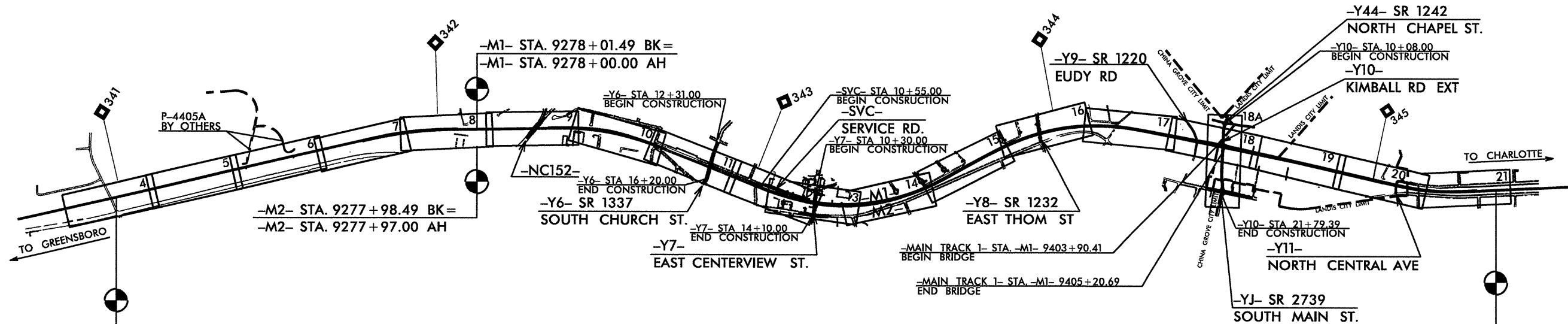
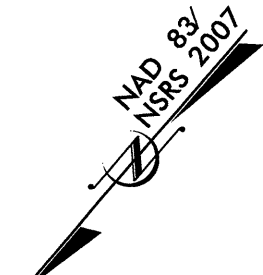
ROWAN COUNTY

LOCATION: NCRN MAINLINE RAILROAD ROADBED FROM SOUTH OF MT. HOPE CHURCH RD (SR 1505, MP 340.9) TO NORTH OF RYDER AVE (SR 1210, MP 345.4)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE CURB AND GUTTER, AND SIGNALS



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	P-5206C	2A	--
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
52000.1.STR07T1B		PE, UTL PE	
52000.1.STR08T3		PE, UTL PE	
43219.2.STR08P5206		ROW	
52000.3.STR02T4D	FRA-FR-HSR-0006-10-01-00	UTL CONST, CONST	

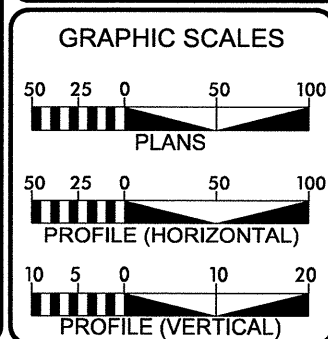


END TIP PROJECT P-5206B (PART1)
 BEGIN TIP PROJECT P-5206C (PART2)
 MAIN TRACK 1 STA. -M1- 9218+00.00 BK =
 STA. -M1- 9218+02.82 AH
 MAIN TRACK 2 STA. -M2- 9218+01.63 BK =
 STA. -M2- 9218+02.82 AH

END TIP PROJECT P-5206C (PART2)
 BEGIN TIP PROJECT P-5206D (PART3)
 MAIN TRACK 1 STA. -M1- 9450+00.00 BK =
 STA. -M1- 9450+39.03 AH
 MAIN TRACK 2 STA. -M2- 9449+97.71 BK =
 STA. -M2- 9450+39.03 AH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SUBMITTAL: 90% PLANS
DATE: JANUARY 25, 2013



PROJECT LENGTH	
LENGTH OF RAIL TIP PROJECT	= 4.368 MILES
LENGTH OF STRUCTURE TIP PROJECT	= 0.025 MILES
TOTAL LENGTH OF TIP PROJECT	= 4.393 MILES

Prepared In the Office of:
TGS ENGINEERS
 204-C N. LAFAYETTE STREET
 SHELBY, NC 28150
 PH (704) 476 0003
 CORP. LICENSE NO. C-0275

2012 STANDARD SPECIFICATIONS

LEONARD FLETCHER, PE, PLS
RAIL PROJECT ENGINEER

JIMMY TERRY, PE
RAIL DESIGN ENGINEER

DAVID PETTY, PE
HYDRAULIC ENGINEER

RAY ELLIOTT, PE
STRUCTURE ENGINEER

MATTHEW B. SIMMONS, PE
NCDOT PROJECT MANAGER

AUGUST 31, 2012

LETTING DATE:
JULY 16, 2013

RAIL ENGINEER	ROADWAY ENGINEER	HYDRAULICS ENGINEER
SIGNATURE: _____ P.E.	SIGNATURE: _____ P.E.	SIGNATURE: _____ P.E.

NCDOT RAIL DIVISION CONTACT:
MATTHEW B. SIMMONS, PE

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
PLANNING AND DEVELOPMENT

02-MAY-2013 09:23 12821003...TGS Engineers NCDOT RailProject\CADD\5206_GEO_TRACK_P_15.dgn SK1115 AT 08:21:00



May 2, 2013

Mr. Jimmy Terry, PE
TGS Engineers
804-C N. Lafayette Street
Shelby, North Carolina 28150

WBS Number: 52000.1.STR07T1B
TIP Number: P-5206C
FA Number: FRA-FR-HSR-0006-10-01-00
County: Rowan
Description: Reid to Kannapolis – Task Order 1

**Subject: Roadway Inventory Report
For Rail (Reid to North Kannapolis)
Schnabel Engineering Project No. 12821003.00**

Dear Mr. Terry:

SCHNABEL ENGINEERING SOUTH, PC (Schnabel) is pleased to submit our inventory report for this project. This report includes the results of our subsurface exploration. The recommendations for this project are submitted under a separate cover. This study was performed in accordance with our proposal dated October 17, 2011.

1.0 PROJECT DESCRIPTION

The N.C. Department of Transportation is proposing to construct 11 miles of a second rail along the North Carolina Railroad from south of Henderson Grove Church Road (SR 1526) in Salisbury to south of 18th Street in Kannapolis to increase capacity and efficiency of rail operations. This report covers the 4.4 mile section from Reid to North Kannapolis, NC (Sta 9218+00 to Sta 9450+00). We understand construction for the second rail will require cuts up to 20 feet and fills up to 25 feet to achieve the proposed alignment grades. Where the rails pass over Kimball Road, they will be supported by a new bridge. Recommendations for the new rail bridge over Kimball Road are provided in a separate report. Project information was provided by TGS Engineers (TGS).

2.0 AREAS OF SPECIAL INTEREST

Following location consisted of existing fill soils with organics and debris to a depth more than 10 feet below grade.

<u>Station</u>	<u>Offset</u>
9382+99	37 feet Rt.

3.0 PHYSIOGRAPHY AND GEOLOGY

The project site is located within the Piedmont geological province. The site is underlain by residual soils transitioning into bedrock. Natural alluvial deposits and artificial fill soils are locally found throughout the site as a result of previous site conditions and grading for the existing rail and adjacent roadways and buildings. Based on local geology maps and rock cores recovered nearby, we believe the parent bedrock in the southern portion of the site is composed of intrusive metamorphosed granitic rock from the late Proterozoic to middle Paleozoic age. Along the central and north portion of the alignment, we expect the parent bedrock generally consists of an older metavolcanic rock from the late Proterozoic to early Paleozoic age (North Carolina Geological Survey, 1985).

4.0 SITE DESCRIPTION

The existing rail generally slopes from EL 864 feet at the north end of the alignment to EL 816 feet at the south end of the alignment. Some sections of the rail are supported on fill embankments up to 25 feet tall, while other sections are near the surrounding grade or in cuts up to 20 feet deep. The site cover surrounding the rail is mostly wooded, while the areas near South Main Street and North Chapel Street vary from residential and commercial property to open fields or lots. Below grade utilities, including electric, water, and sewer, are present in the vicinity of the site and under the existing rail embankment. This information was obtained from information provided by TGS and during our field investigation.

5.0 SOIL PROPERTIES

We characterized the subsurface strata based on the subsurface data and the laboratory test results. We have divided the soil into strata as described below.

Ground Cover

Topsoil thicknesses of 0 to 12 inches were encountered in many of the borings. Several borings encountered gravel cover between 1 and 7 inches thick at the ground surface. Test borings T-09, T-10, T-16, and RW-2 were drilled through pavement and encountered between 0.1 and 1.4 feet of asphalt pavement and stone base.

Artificial Fill Soils

Artificial fill soils were encountered in sixteen test borings from below the ground surface or topsoil to depths of 0.1 to 14 feet below the existing ground surface. These fills were likely placed during previous site grading and construction of the original rail bed. The artificial fill soils observed at this project site typically consisted of brown Clayey and Sandy Silts (A-4, A-5, A-6), Silty and Clayey Sands (A-2) and some Clays (A-7), with varying amounts of rock fragments, gravel, asphalt, trash, debris, organics, and mica. Boring T-17, located near Station 9382+99, encountered trash and debris, including styrofoam, wood chips, and metal to the boring termination depth of 10 feet. The artificial fill had variable densities and consistencies, with Standard Penetration Test (N) values ranging from 1 to 21 blows per foot (bpf) indicating the fill may have been placed in an uncontrolled manner. The soil samples tested within this stratum have the following properties:

Liquid Limit	=	80 (one test)
Plasticity Index	=	41 (one test)
Moisture Content	=	27.7 to 31.9% (two tests)

Maximum Dry Density (MDD) = 92.0 pcf per AASHTO T-99 (one test)

Opt. Moisture Content (OMC) = 27.7% per AASHTO T-99 (one test)

Alluvial Soils

Alluvial soils were encountered in three test borings from below the ground cover or artificial fill to depths of 3.5 to 8.5 feet below the ground surface. The alluvial soils observed at this project site consisted of Silts (A-4, A-5) with varying amounts of clay and sand, with trace amounts of organics. The alluvial soils had Standard Penetration Test (N) values ranging from 7 to 11 blows per foot (bpf) indicating soft to stiff consistencies. The soil samples tested within this stratum have the following properties:

Moisture Content = 28.3 to 32.4% (three tests)

Residual Soils

The residual soils were encountered in all test borings from below the ground surface, artificial fills, or alluvial soils to boring termination depths of 10 to 35 ft below the ground surface. Residual materials are derived from the chemical and physical weathering of the underlying parent bedrock. The residual soils observed at this project site typically consisted of brown Clayey and Sandy Silts (A-4, A-5, A-6), Silty and Clayey Sands (A-2) and some Clays (A-7) with varying amounts of rock fragments, root hairs, and mica. N values ranged from 1 bpf to 53 bpf, indicating very loose to very dense soil densities and very soft to very stiff consistencies, generally increasing with depth. The soil samples tested within this stratum have the following properties:

Liquid Limits = NP to 75 (three tests)

Plasticity Indices = NP to 30 (three tests)

Moisture Content = 23.0 to 58.0% (five tests)

Consolidation tests were performed on two samples of residual soils. Due to their granular nature, the samples were highly disturbed during retrieval and the consolidation tests are not considered reliable. Therefore, the results of the consolidation tests were not considered in our analyses and are not included in this report.

Weathered Rock

Weathered rock is defined as residual material with SPT "N" values greater than 100 blows per foot. This material may exhibit rock-like qualities and some denser portions of this material could possess characteristics of hard rock. The weathered rock was encountered below the residual soils in boring T-19 at a depth of 12 feet below existing grade (EL 809.5).

6.0 GROUNDWATER

Groundwater was observed in four test borings from 7 to 24.8 feet below the existing ground surface (EL 789.3 to EL 816.2). Test borings RW-2 and RW-3 did not encounter groundwater during drilling, however the soils in the bottom of the boring were saturated. Our observations of groundwater while drilling are indicated on the test boring logs and are summarized in the Table 1. The test boring logs also describe the moisture condition of our split spoon samples, indicating whether the soil appeared to be saturated, wet, moist, or dry.

Table 1: Groundwater Observations Summary

Test Boring	Station along Rail	Offset	Existing Ground Surface Elevation (feet)	Proposed Rail Subgrade Elevation (feet)	Groundwater Elevation in Borehole (feet)	Depth below Proposed Rail Subgrade (feet)
T-12	9348+78	55 ft LT	802.8	825	789.3	35.7
T-20	9409+50	14 ft LT	812.0	833	805.0	28.0
T-21	9414+03	30 ft LT	814.0	832	804.8	27.2
RW-1	9396+07	40 ft LT	841.0	836	816.2	19.8
RW-2	9396+82	39 ft LT	842.0	836	Saturated below EL815	--
RW-3	9397+57	39 ft LT	841.5	836	Saturated below EL820	--

Perched water was observed in two test borings (T-08, T-25) within the artificial fill. Perched water may be encountered above these grades during excavation, particularly in the vicinity of the existing rail embankment. Perched water occurs when a low permeability soil retards surface infiltration. Perched water may occur at other locations on site and at different elevations than those recorded on the logs.

The water level readings are considered a reliable indication of the groundwater depth near the test boring at the time the observations were made. Fluctuations of the groundwater taken should be anticipated based on variations in precipitation, runoff, flooding, evaporation, leaking utilities, season of the year, and other similar factors.

7.0 EARTHWORK BALANCE SHEET

The Earthwork Balance Sheet (Sheet 3C) was provided by TGS Engineers to be included in this report. We recommend that TGS Engineers verify the quantities presented in this earthwork balance sheet considering the recommended quantities presented in the recommendations report submitted under a separate cover.

8.0 LIMITATIONS

We based the analyses and recommendations submitted in this report on the information revealed by our exploration. We attempted to provide for normal contingencies, but the possibility remains that unexpected conditions may be encountered during construction.

We prepared this report to aid in the evaluation of this site and to assist in the design of the project. We intend it for use concerning this specific project. We based our recommendations on information on the site and proposed construction as described in this report. Substantial changes in locations or grades should be brought to our attention so we can modify our recommendations as needed. We would appreciate an opportunity to review the plans and specifications as they pertain to the recommendations contained in this report, and to submit our comments to you based on this review.

We have endeavored to complete the services identified herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, express or implied, is included or intended, and no warranty or guarantee is included or intended in this report, or any other instrument of service.

TGS Engineers
Rail (Reid to North Kannapolis)

We appreciate the opportunity to be of service for this project. Please call us if you have any questions regarding this report.

Sincerely,
SCHNABEL ENGINEERING SOUTH, PC

Mahalingam Bahiradhan (Bahi), PE
Senior Engineer

Jeff Sewell, PE
Senior Associate

Earthwork Balance Sheet

30

PROJECT: P-5206C

COUNTY: Rowan

DATE: 4/30/2013

COMPILED BY: SGM

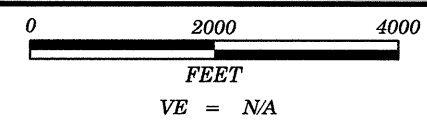
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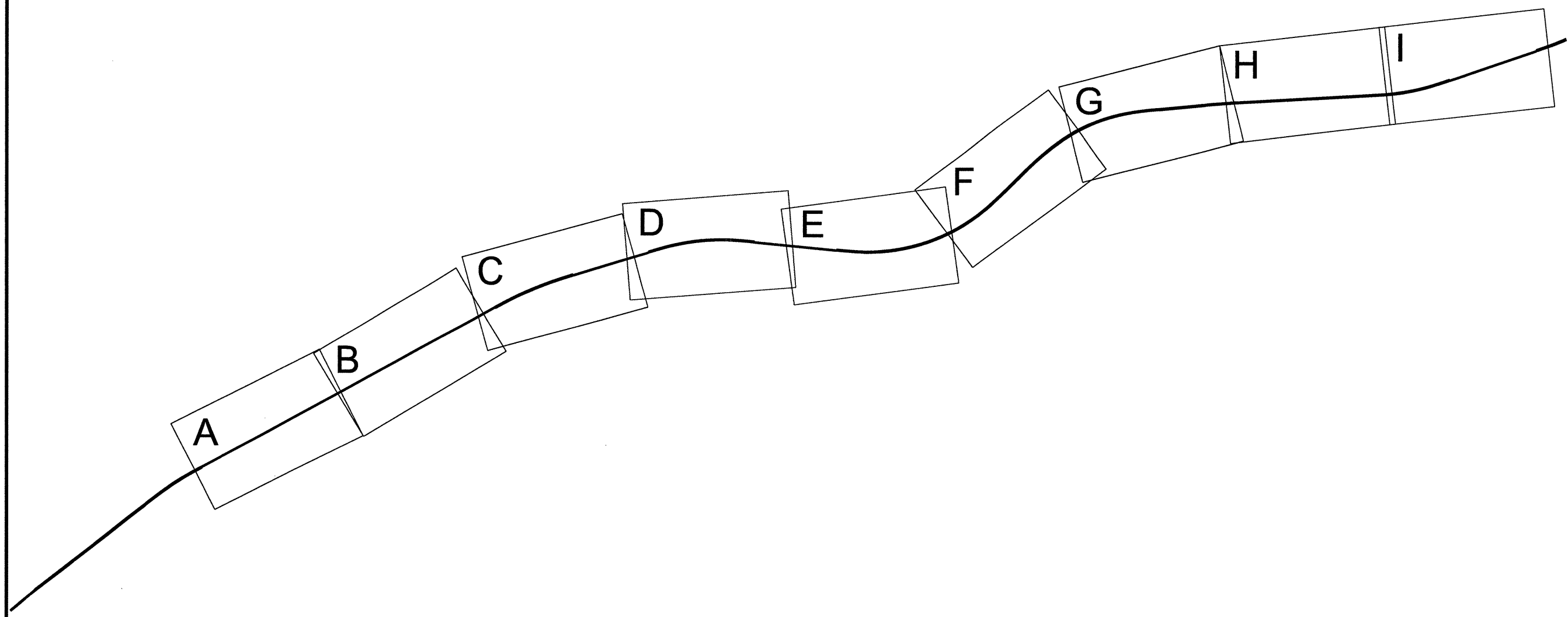
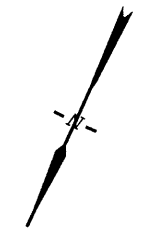
STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE					
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +20%		ROCK	SUITABLE	UNSUIT.	TOTAL		
-M2- 9218+02.82	-M2- 9248+00.00	4,953				4,953	7,058		7,058	8,470	3,517						
	SUBTOTAL 1	4,953				4,953	7,058		7,058	8,470	3,517						
-M2- 9248+00.00	-M2- 9277+98.49	5,205				5,205	1,042		1,042	1,250			2,966	989			3,955
	SUBTOTAL 2	5,205				5,205	1,042		1,042	1,250			2,966	989			3,955
-M2- 9277+97.00	-M2- 9308+00.00	7,574				7,574	5,693		5,693	6,832			557	186			742
	SUBTOTAL 3	7,574				7,574	5,693		5,693	6,832			557	186			742
-M2- 9308+00.00	-M2- 9316+95.86	1,872				1,872							1,404	468			1,872
-Y6- CROSSING																	
-M2- 9316+95.86	-M2- 9335+05.57	4,185				4,185	3,681		3,681	4,417	232						
-Y7- 10+30	-Y7-14+10	115				115	270		270	324	209						
-M2- 9335+05.57	-M2- 9338+00.00	3,128				3,128							2,346	782			3,128
	SUBTOTAL 4	9,300				9,300	3,951		3,951	4,741	441		3,750	1,250			5,000
-M2- 9338+00.00	-M2- 9368+00.00	15,549				15,549	29,812		29,812	35,774	20,225						
	SUBTOTAL 5	15,549				15,549	29,812		29,812	35,774	20,225						
-M2- 9368+00.00	-M2- 9398+00.00	22,272				22,272	3,718		3,718	4,462			13,358	4,453			17,810
	SUBTOTAL 6	22,272				22,272	3,718		3,718	4,462			13,358	4,453			17,810
-M2- 9398+00.00	-M2- 9403+87	5,731				5,731	5,684		5,684	6,821	1,090						
BRIDGE																	
-Y10- 10+08.00	-Y10- 21+79.39	16,180				16,180	673		673	808			6,186	9,186			15,372
-YJ- 10+96.84	-YJ- 13+12.98	15				15	25		25	30	15						
-M2- 9405+17	-M2- 9428+00.00	7,560				7,560	32,548		32,548	39,058	31,498						
	SUBTOTAL 7	29,486				29,486	38,930		38,930	46,716	32,602		6,186	9,186			15,372
-M2- 9428+00.00	-M2- 9449+97.71	5,667				5,667	1,303		1,303	1,564			3,078	1,026			4,103
	SUBTOTAL 8	5,667				5,667	1,303		1,303	1,564			3,078	1,026			4,103
TOTAL		100,006				100,006	91,507		91,507	109,808	56,786		29,894	17,089			46,983
LOSS DUE TO CLEARING & GRUBBING		-42,000				-42,000					42,000						
EST. SHOULDER MATERIAL							252		210	252	252						
WASTE IN LIEU OF BORROW											-29,894		-29,894				-29,894
PROJECT TOTAL		58,006				58,006	91,759		91,717	110,060	69,143			17,089			17,089
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											3,457						
GRAND TOTAL		58,006				58,006	91,759		91,717	110,060	72,600			17,089			17,089
SAY		58,600									73,400						

EST. DDE =410 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 1,600 CUBIC YARDS
 EST. SHALLOW UNDERCUT BY STATIONS = 1,350 CUBIC YARDS
 TOTAL SHALLOW UNDERCUT = 2,950 CUBIC YARDS
 CLASS IV SUBGRADE STABILIZATION = 6,250 TONS
 PER GEOTECH & DIVISION RECOMMENDATIONS , ESTIMATED 4,700 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

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PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	4 OF 79
PLAN KEY	



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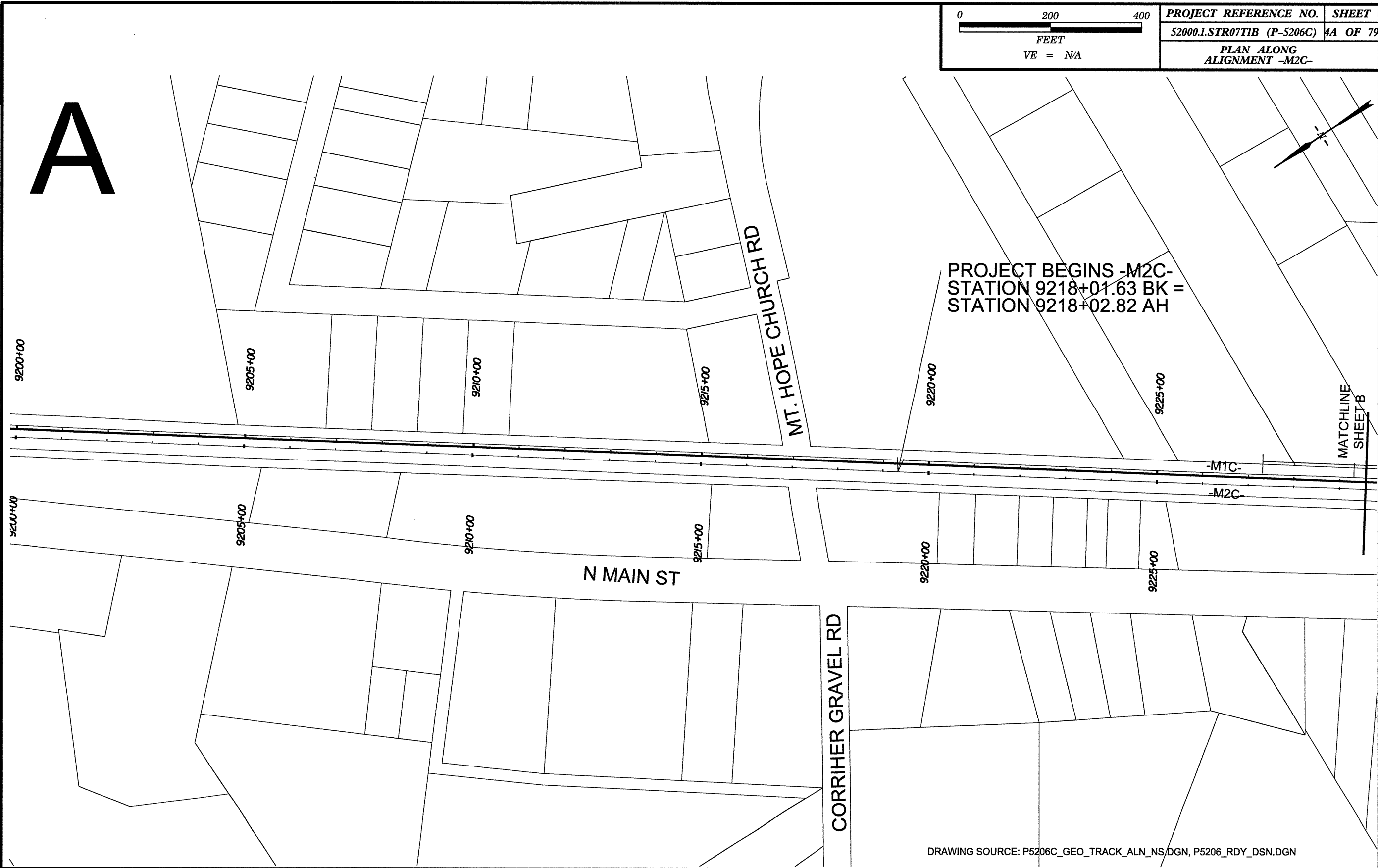
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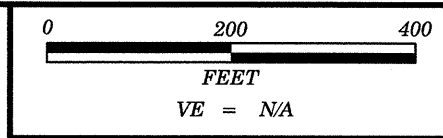
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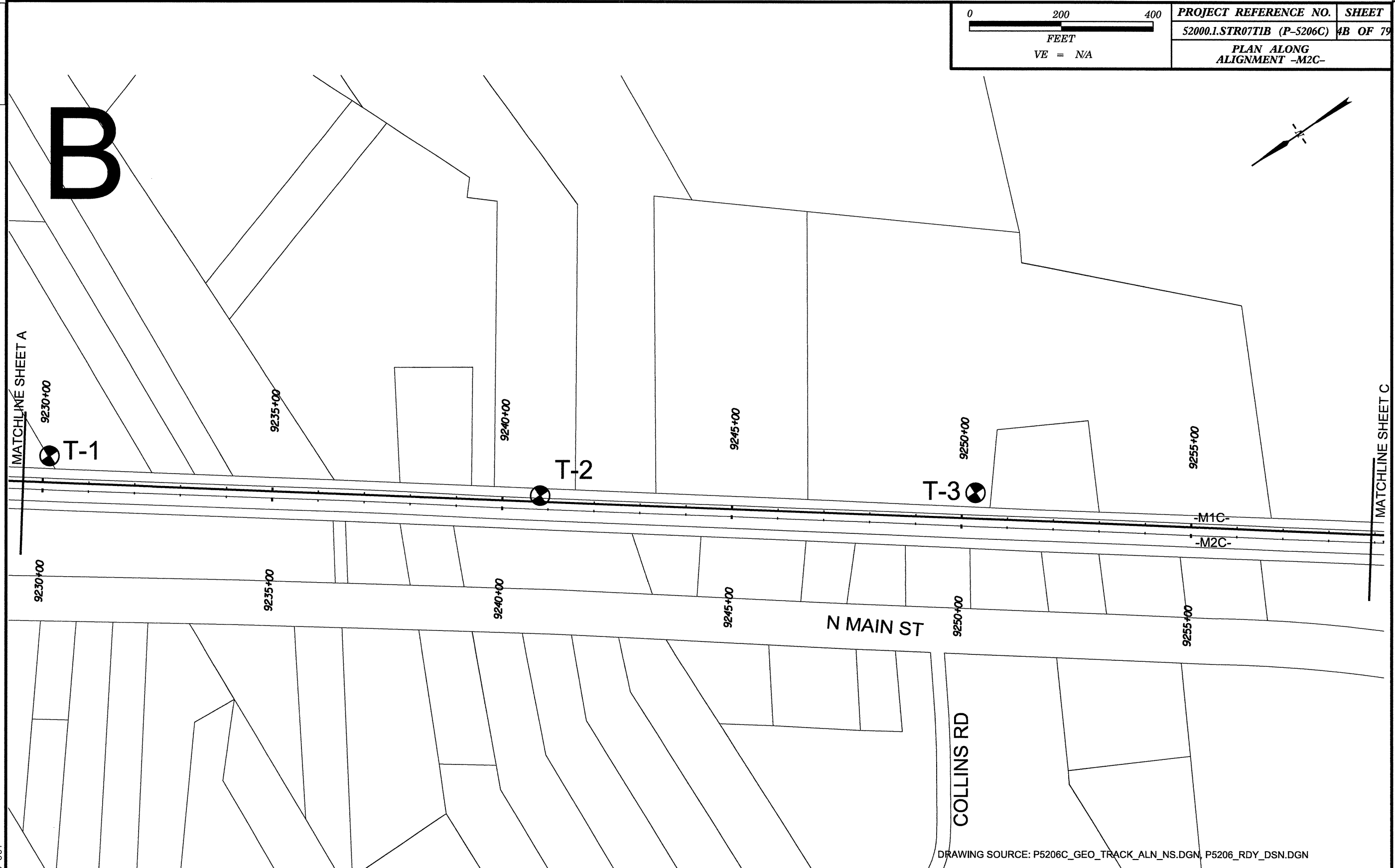
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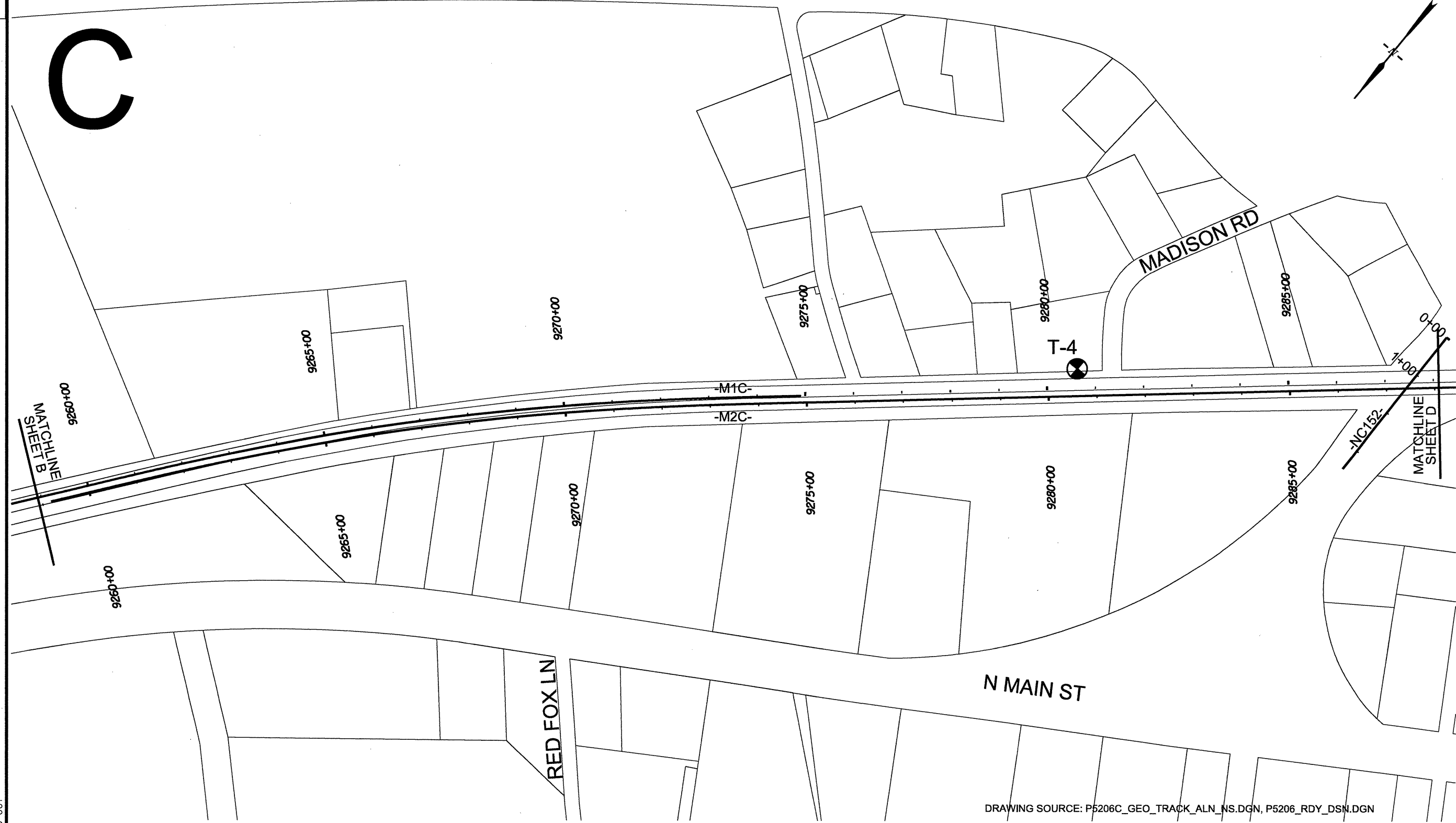
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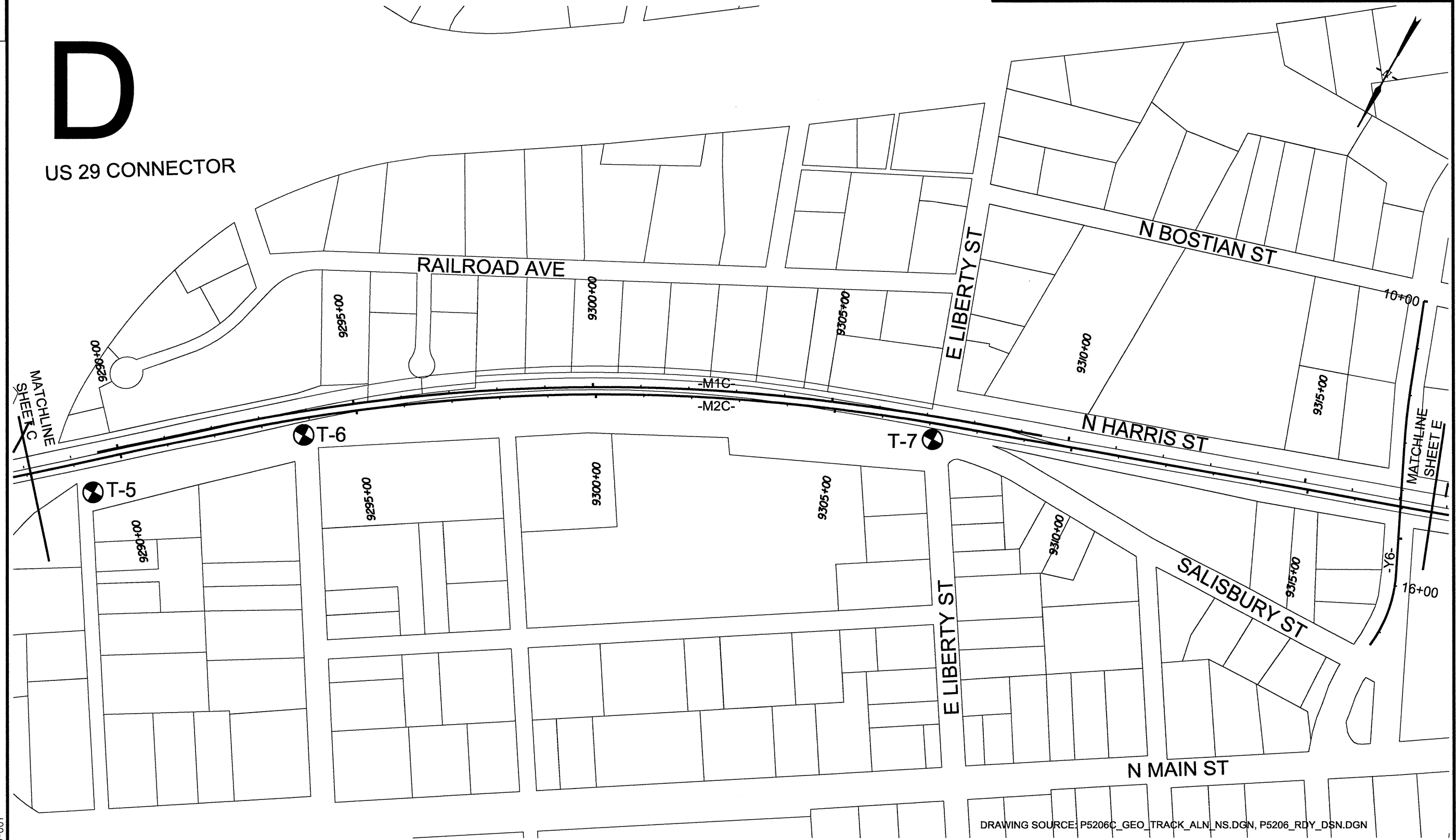
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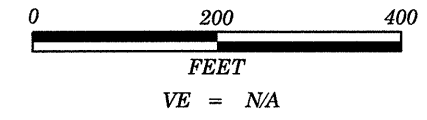
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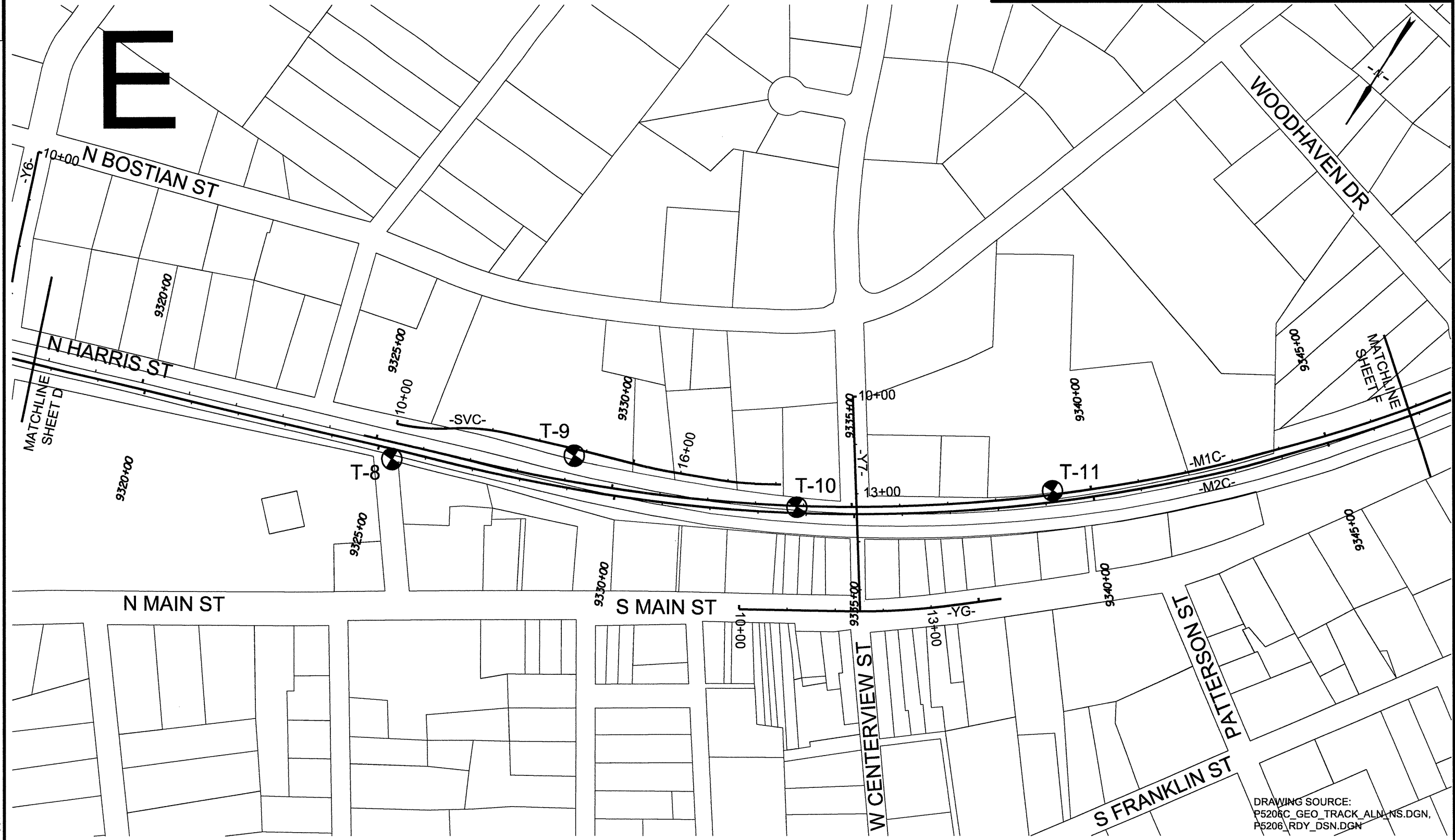
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CHK BY	MB	DATE	MAY 2013
SCALE 1" = 200'			SITE PLAN D

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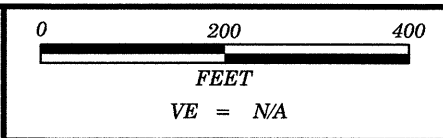
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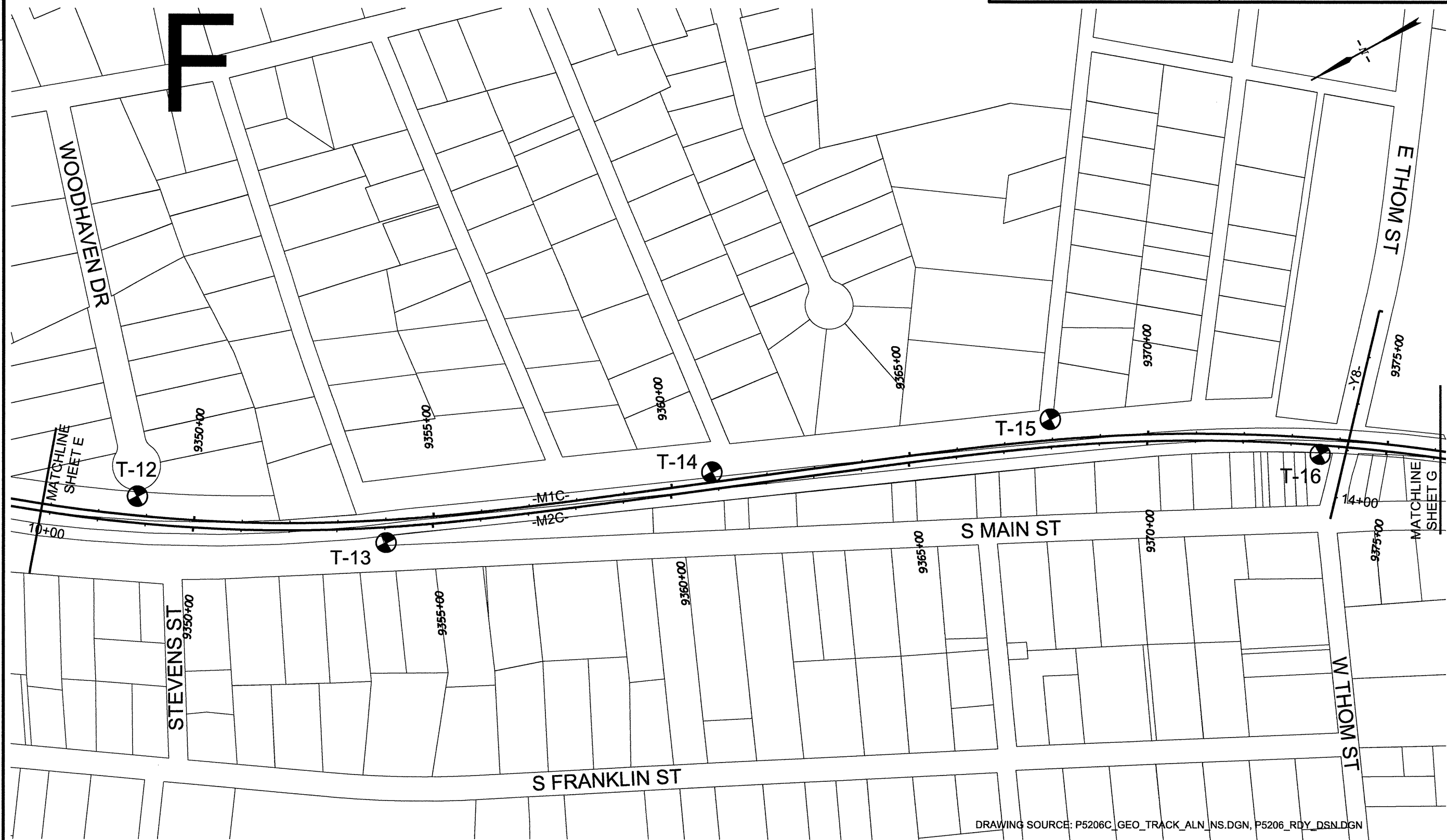
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DWN BY	SLK	DATE	MAY 2013
CHK BY	MB	SCALE	1" = 200'
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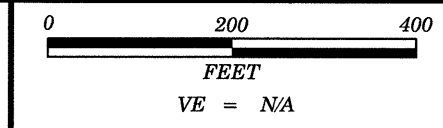

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RAIL DIVISION

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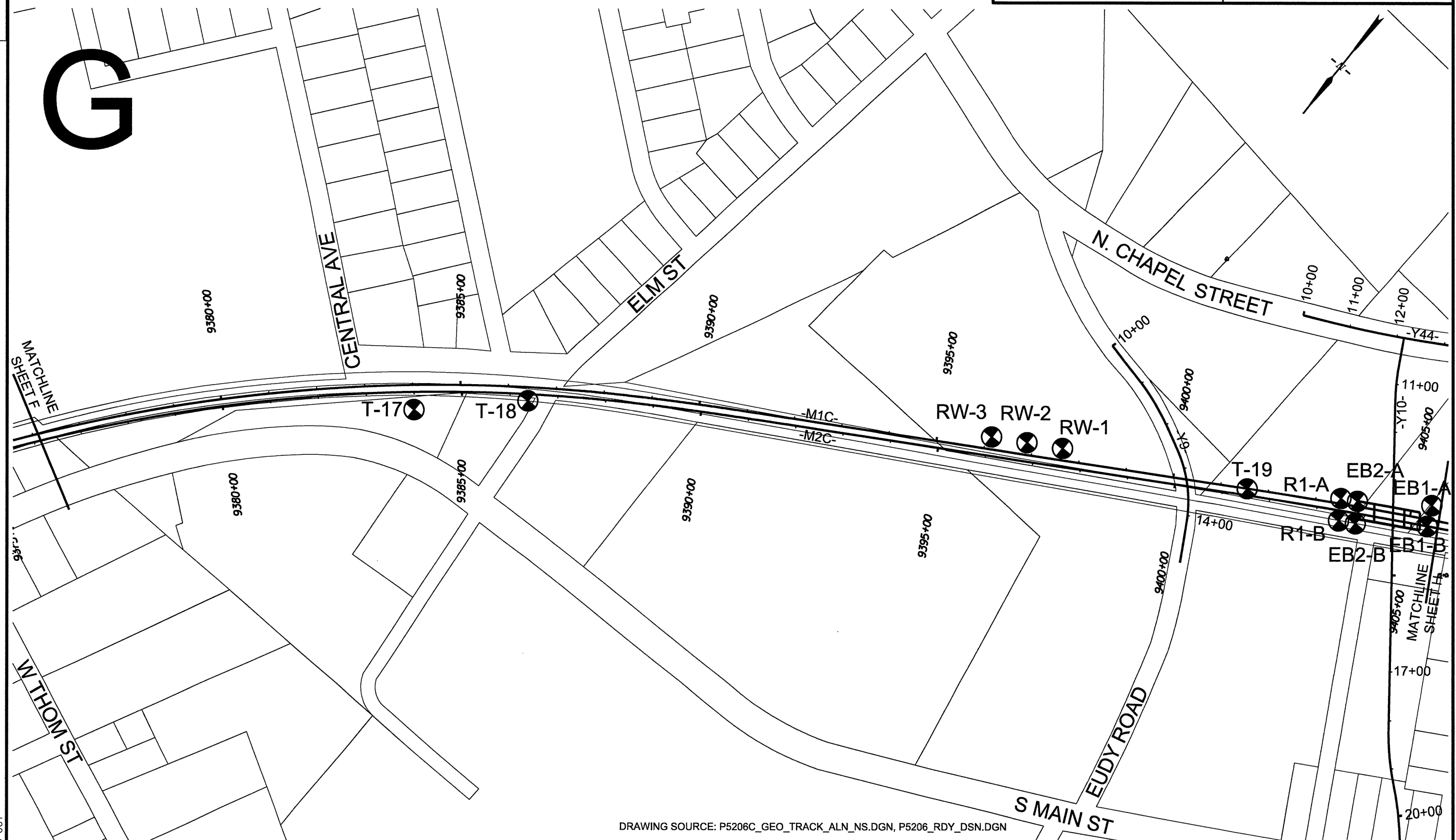
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CHK BY	MB	DATE	MAY 2013
		SCALE	1" = 200'
			MILE POST
			DRAWING
			SITE PLAN F

DRAWING SOURCE: P5206C_GEO_TRACK_ALN_NS.DGN, P5206_RDY_DSN.DGN

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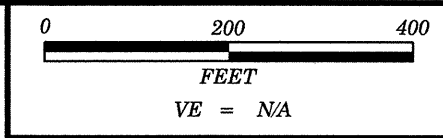
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RAIL DIVISION

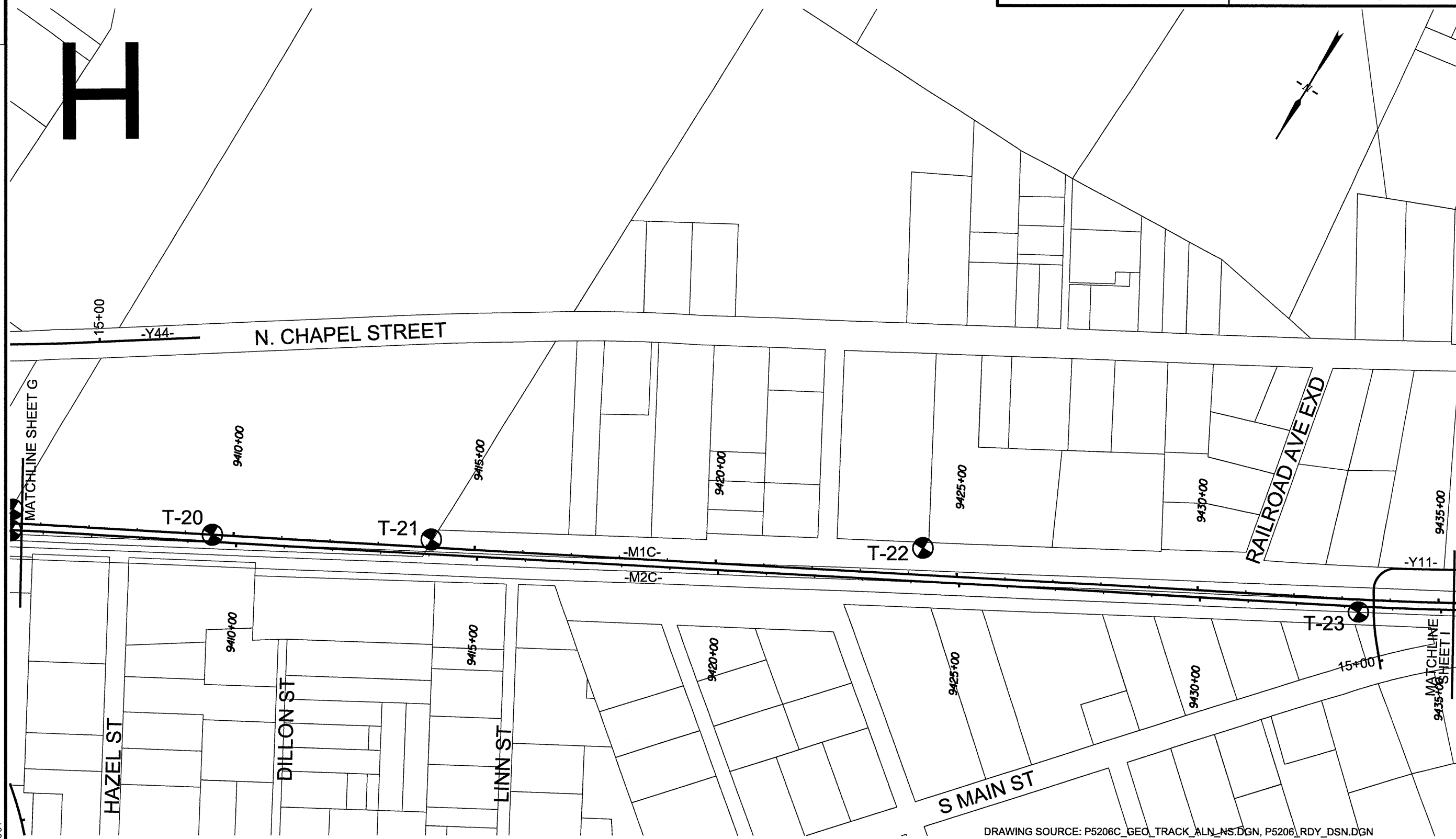
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LOCATION		DRAWING	
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DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
		SCALE	1" = 200'
			SITE PLAN G

0164DEL P1062



PROJECT REFERENCE NO. SHEET
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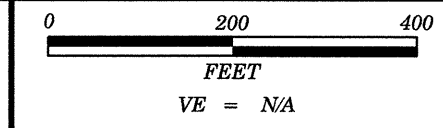
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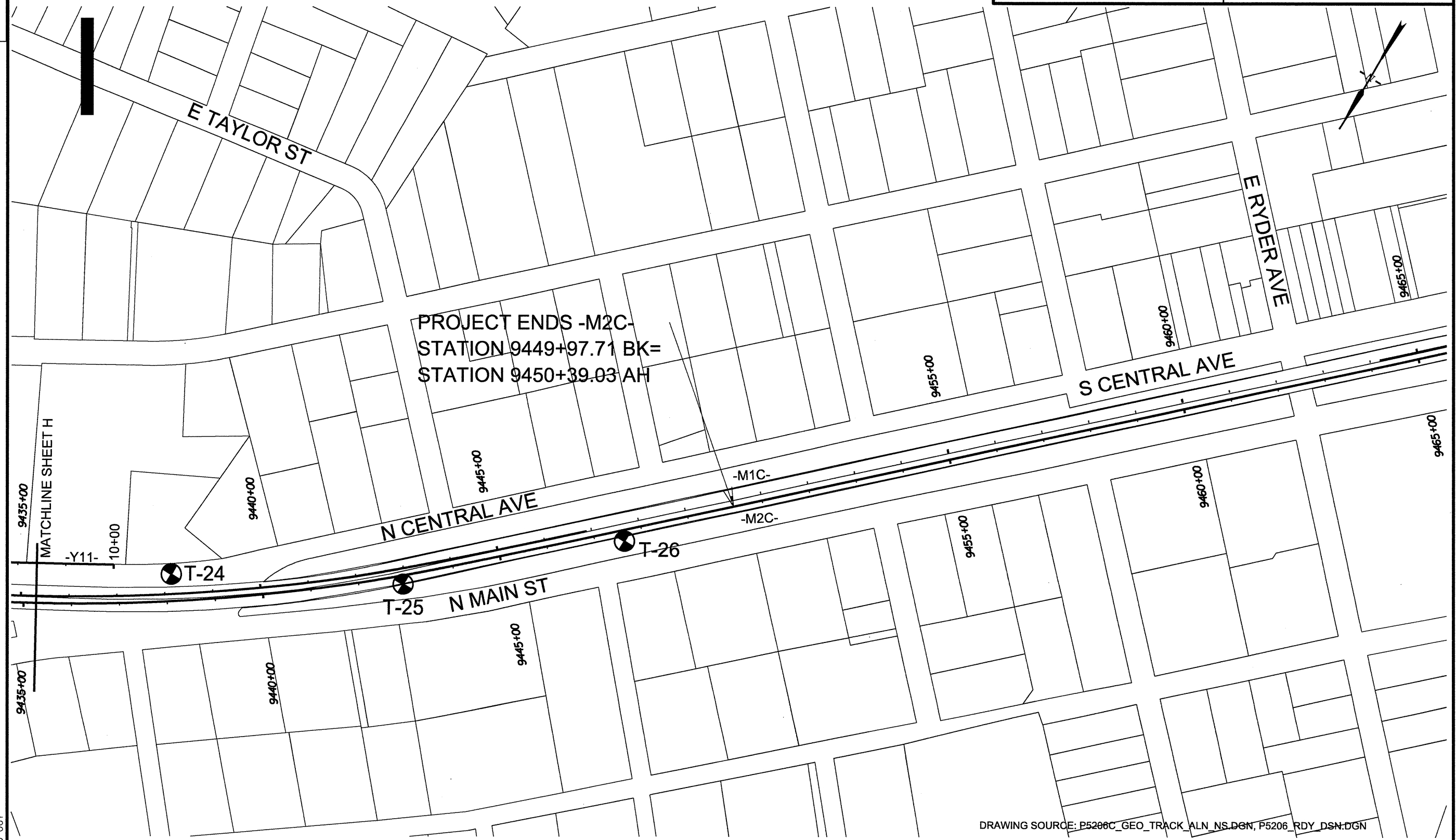
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SCALE			1" = 200'
DRAWING			SITE PLAN H

DRAWING SOURCE: P5206C_GEO_TRACK_ALN_NS.DGN, P5206_RDY_DSN.DGN

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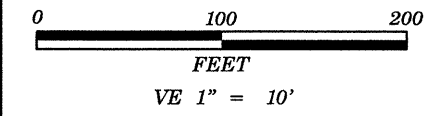
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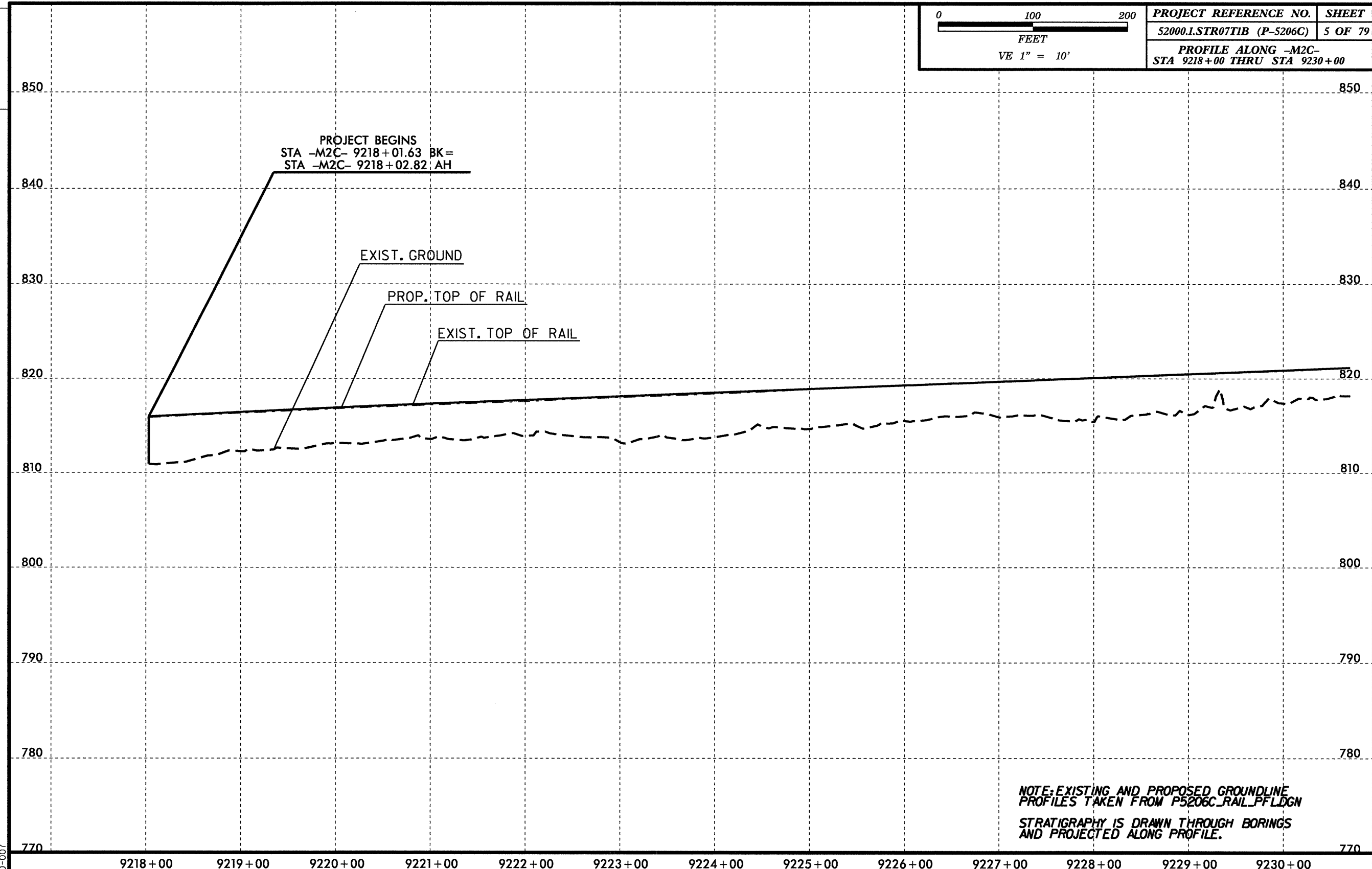
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PROJECT REID TO NORTH KANNAPOLIS		MILE POST	
TITLE		52000.1.STR07TIB (P-5206C)	
LOCATION		NORTH CAROLINA RR & NORFOLK SOUTHERN RR	
DGN BY MB	RAILROAD	VAL SEC V-8/2	DRAWING
DWN BY SLK	DATE MAY 2013	SCALE 1" = 200'	SITE PLAN 1

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	5 OF 79
PROFILE ALONG -M2C-	
STA 9218+00 THRU STA 9230+00	



NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

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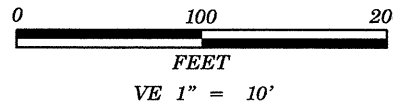
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

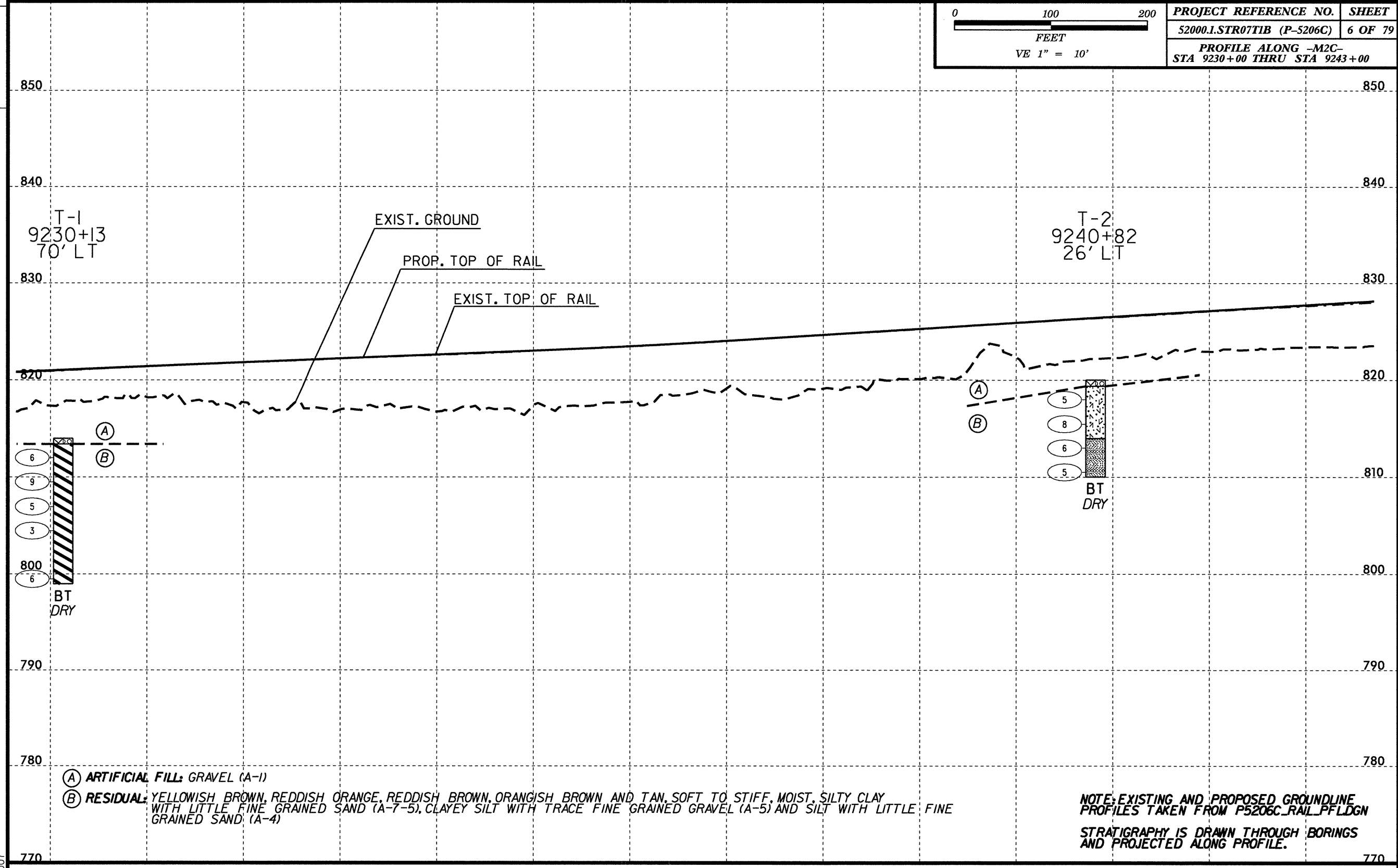
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319 8850
CORP. LICENSE NO. 1-C-0275

PROJECT	REID TO NORTH KANNAPOLIS		
TITLE	52000.1.STR07TIB (P-5206C)		
LOCATION	RAILROAD	MILE POST	
DGN BY MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	DRAWING	
DWN BY SLK	VAL SEC V-8/2		
CHK BY MB	DATE MAY 2013	SCALE 1"=100' Horiz., 1"=10' Vert.	PROFILE ALONG -M2C-

0164DEL P1062

	PROJECT REFERENCE NO.	SHEET
	52000.1.STR07T1B (P-5206C)	6 OF 79
PROFILE ALONG -M2C- STA 9230+00 THRU STA 9243+00		



- (A) ARTIFICIAL FILL: GRAVEL (A-1)
- (B) RESIDUAL: YELLOWISH BROWN, REDDISH ORANGE, REDDISH BROWN, ORANGISH BROWN AND TAN, SOFT TO STIFF, MOIST, SILTY CLAY WITH LITTLE FINE GRAINED SAND (A-7-5), CLAYEY SILT WITH TRACE FINE GRAINED GRAVEL (A-5) AND SILT WITH LITTLE FINE GRAINED SAND; (A-4)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

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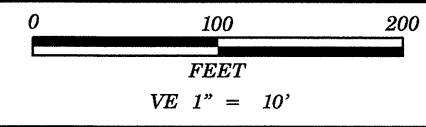
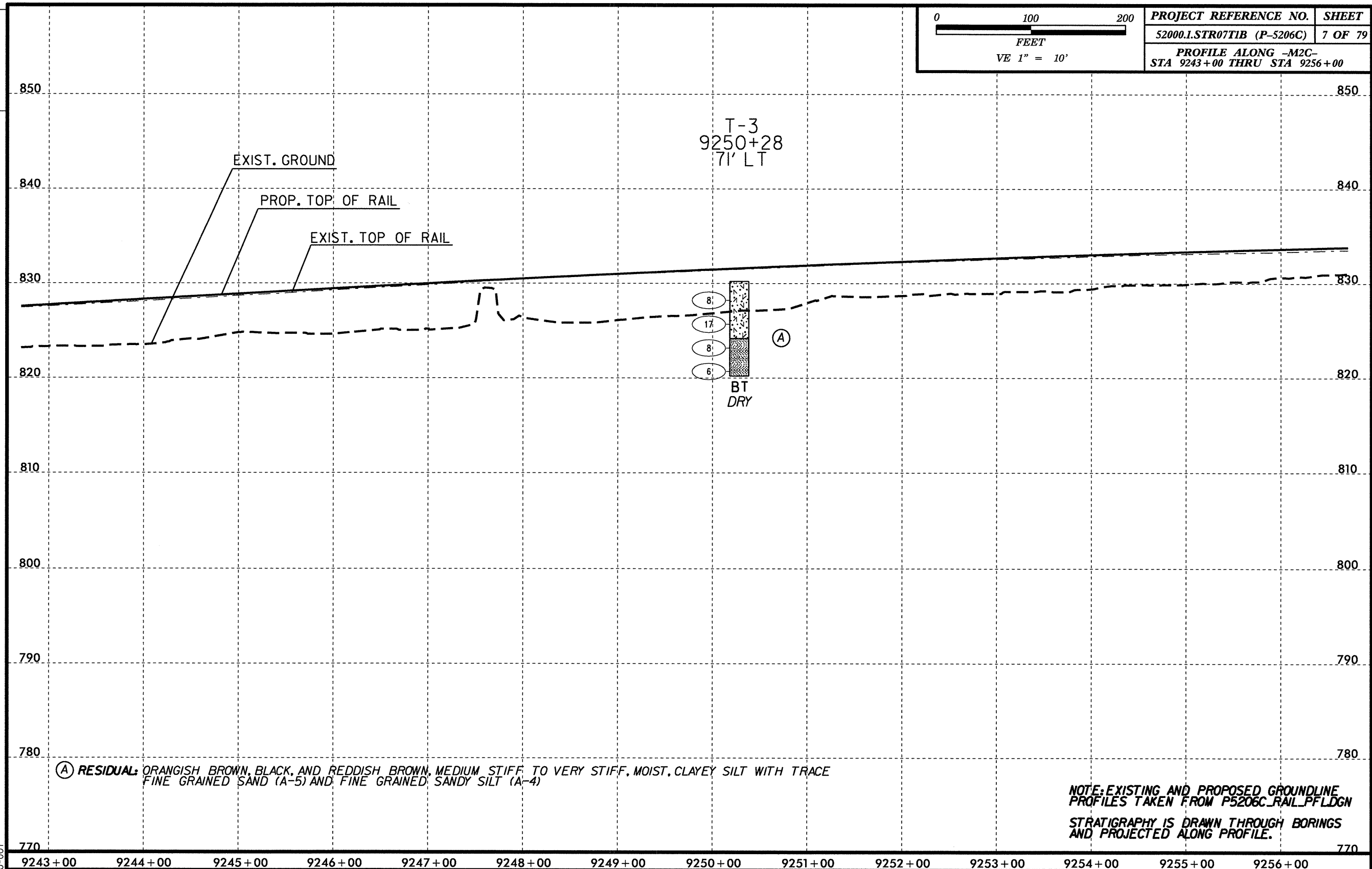
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RAIL DIVISION
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 375 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

PROJECT	REID TO NORTH KANNAPOLIS		
TITLE	52000.1.STR07T1B (P-5206C)		
LOCATION	MILE POST		
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE			1" = 100' Horiz., 1" = 10' Vert.
PROFILE ALONG -M2C-			

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	7 OF 79
PROFILE ALONG -M2C- STA 9243+00 THRU STA 9256+00	

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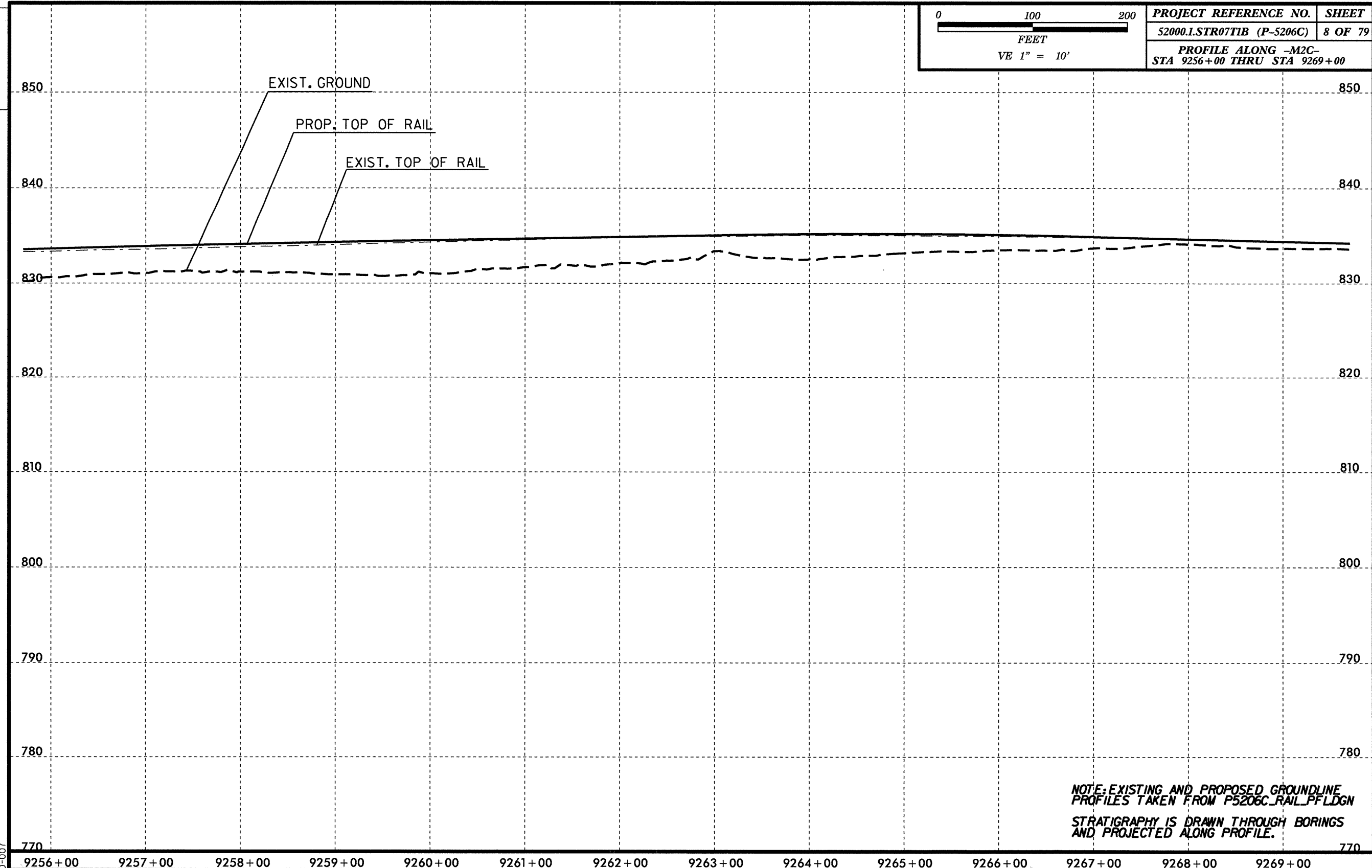
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RAIL DIVISION

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 PH 919 319 8850
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PROJECT REID TO NORTH KANNAPOLIS		MILE POST	
TITLE		DRAWING	
52000.1.STR07T1B (P-5206C)			
LOCATION	RAILROAD	VAL SEC	DATE
DGN BY MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	V-8/2	MAY 2013
DWN BY SLK			
CHK BY MB			
SCALE 1"=100' Horiz., 1"=10' Vert.			PROFILE ALONG -M2C-

0164DEL P1062



0	100	200	PROJECT REFERENCE NO.	SHEET
FEET			52000.1.STR07TIB (P-5206C)	8 OF 79
VE 1" = 10'			PROFILE ALONG -M2C- STA 9256+00 THRU STA 9269+00	

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

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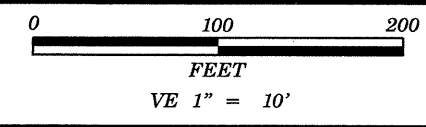
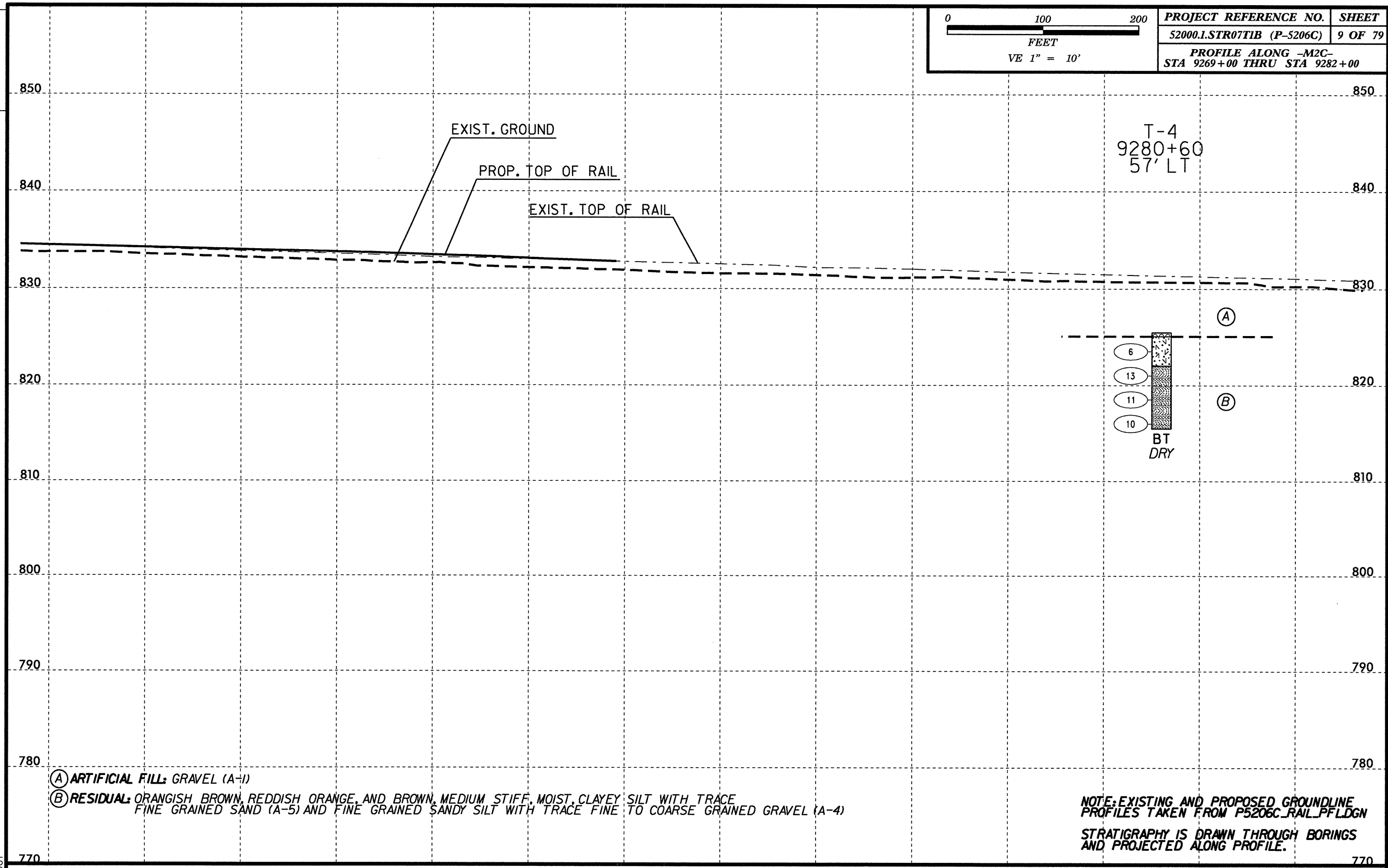
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CARY, NC 27511
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CORP. LICENSE NO. LC-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST
TITLE 52000.1.STR07TIB (P-5206C)		DRAWING
LOCATION	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR	DRAWING
DGN BY MB	VAL SEC V-B/2	PROFILE ALONG -M2C-
DWN BY SLK	DATE MAY 2013	SCALE 1" = 100' Horiz., 1" = 10' Vert.
CHK BY MB		

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	9 OF 79
PROFILE ALONG -M2C- STA 9269+00 THRU STA 9282+00	

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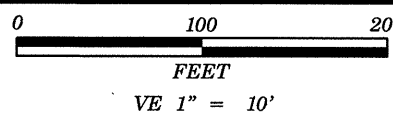
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

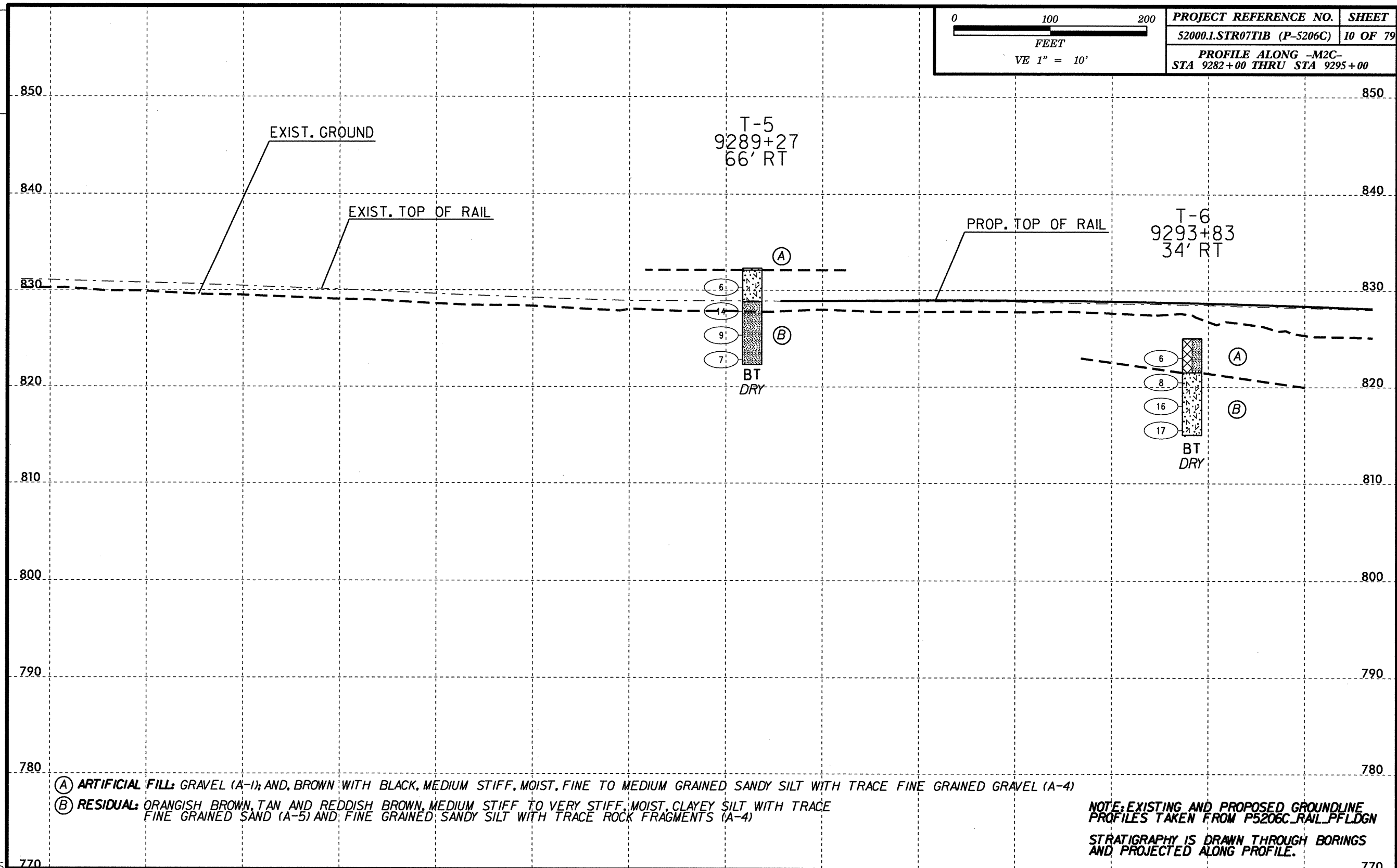
PREPARED BY: TGS ENGINEERS
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 CARY, NC 27513
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 CORP. LICENSE NO. C-0275

PROJECT	REID TO NORTH KANNAPOLIS	MILE POST	
TITLE	52000.1.STR07TIB (P-5206C)	DRAWING	
LOCATION	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE		1" = 100' Horiz., 1" = 10' Vert.	
PROFILE ALONG -M2C-			

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	PROJECT REFERENCE NO.	SHEET
	52000.1.STR07T1B (P-5206C)	10 OF 79
PROFILE ALONG -M2C- STA 9282+00 THRU STA 9295+00		



- (A) ARTIFICIAL FILL: GRAVEL (A-1); AND, BROWN WITH BLACK, MEDIUM STIFF, MOIST, FINE TO MEDIUM GRAINED SANDY SILT WITH TRACE FINE GRAINED GRAVEL (A-4)
- (B) RESIDUAL: ORANGISH BROWN, TAN AND REDDISH BROWN, MEDIUM STIFF TO VERY STIFF, MOIST, CLAYEY SILT WITH TRACE FINE GRAINED SAND (A-5) AND FINE GRAINED SANDY SILT WITH TRACE ROCK FRAGMENTS (A-4)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

9282+00 9283+00 9284+00 9285+00 9286+00 9287+00 9288+00 9289+00 9290+00 9291+00 9292+00 9293+00 9294+00 9295+00

NO.	BY	DATE	REVISION

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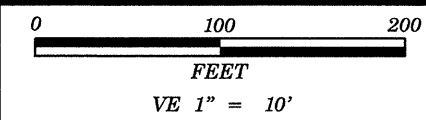
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

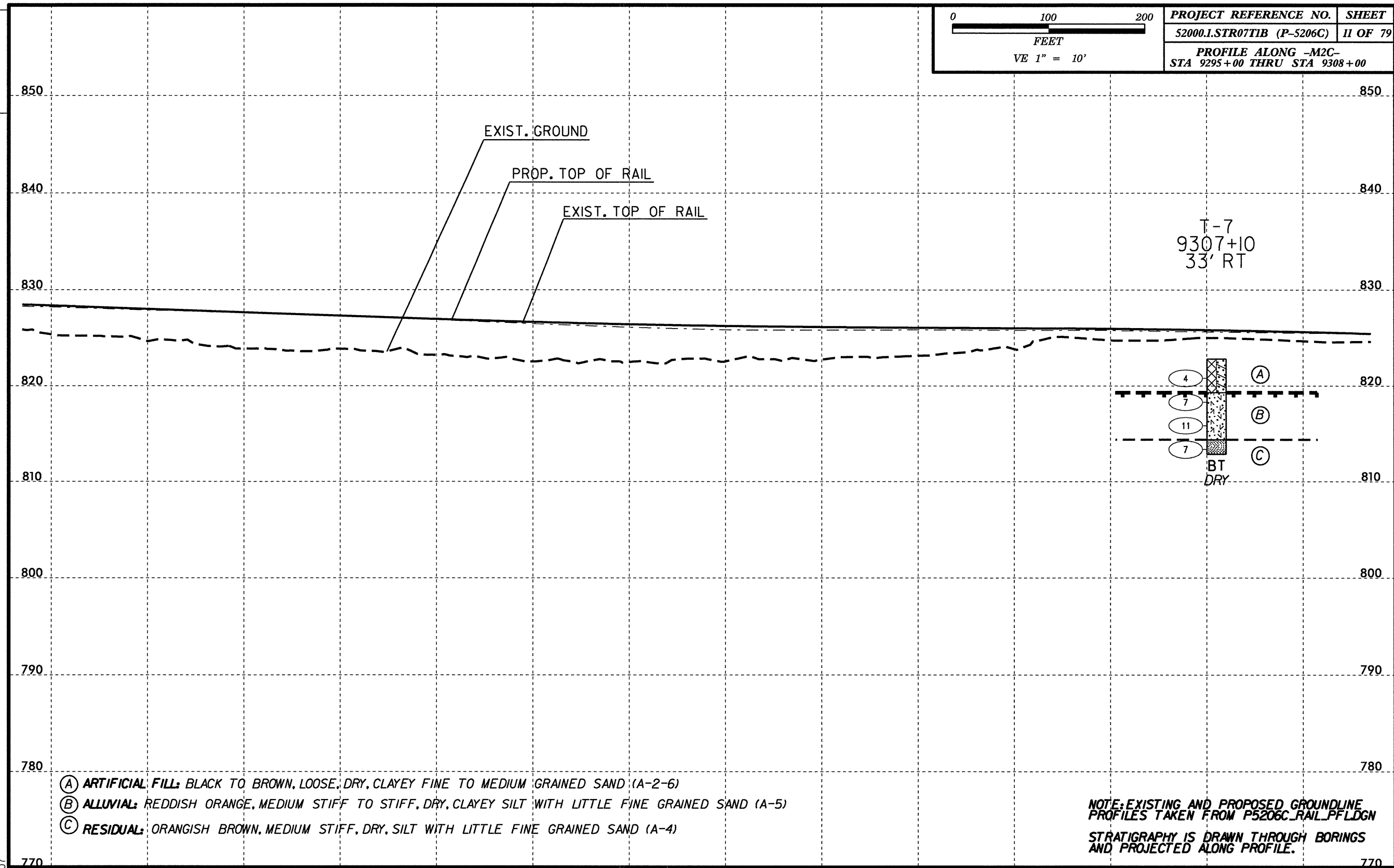
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 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

PROJECT	REID TO NORTH KANNAPOLIS		
TITLE	52000.1.STR07T1B (P-5206C)		
LOCATION	RAILROAD	MILE POST	
DGN BY	MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	DRAWING
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE			1" = 100' Horiz., 1" = 10' Vert.
PROFILE ALONG -M2C-			

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	11 OF 79
PROFILE ALONG -M2C-	
STA 9295+00 THRU STA 9308+00	



- (A) **ARTIFICIAL FILL:** BLACK TO BROWN, LOOSE, DRY, CLAYEY FINE TO MEDIUM GRAINED SAND (A-2-6)
- (B) **ALLUVIAL:** REDDISH ORANGE, MEDIUM STIFF TO STIFF, DRY, CLAYEY SILT WITH LITTLE FINE GRAINED SAND (A-5)
- (C) **RESIDUAL:** ORANGISH BROWN, MEDIUM STIFF, DRY, SILT WITH LITTLE FINE GRAINED SAND (A-4)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

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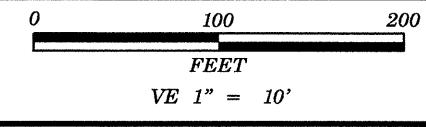
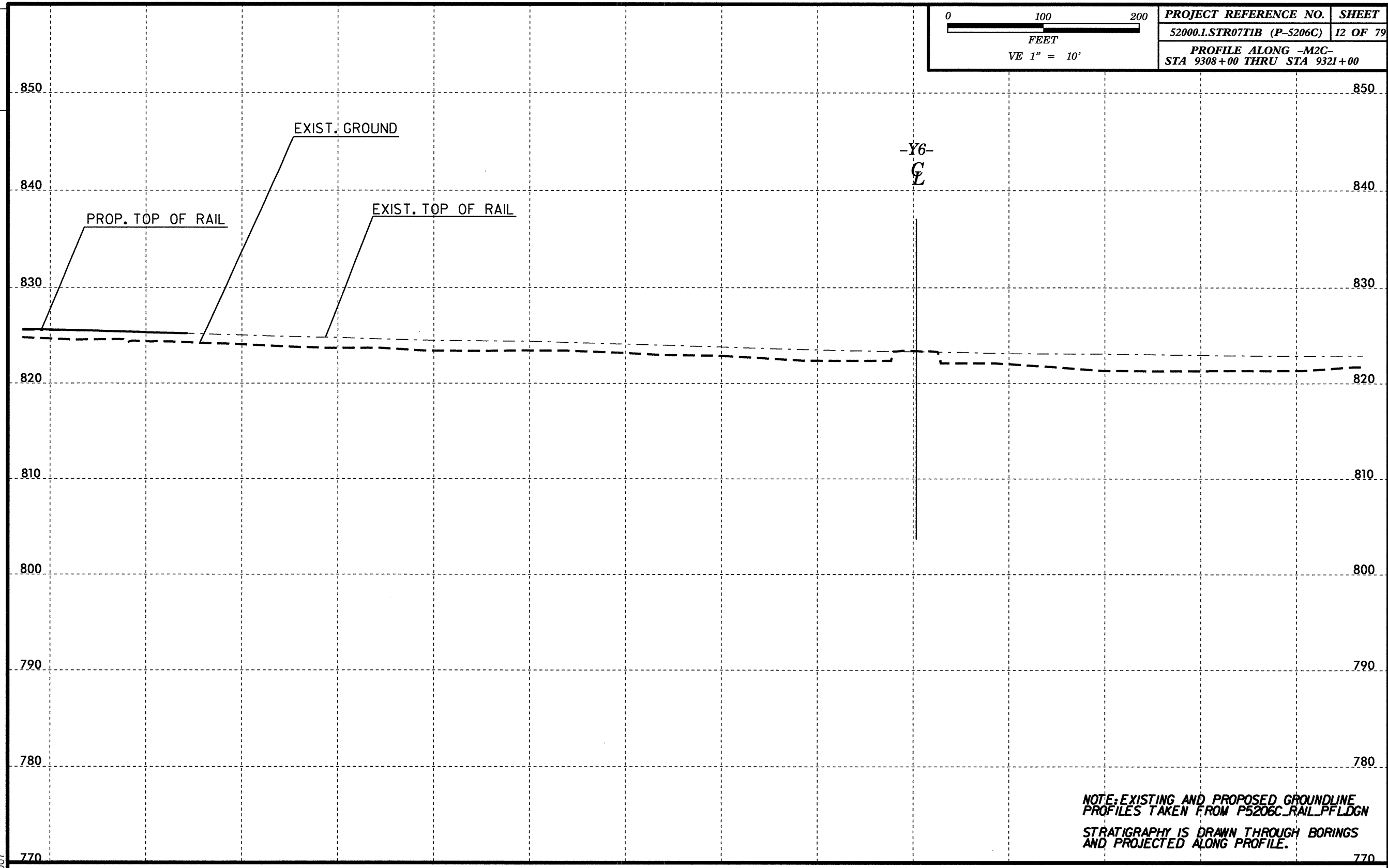
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PROJECT	REID TO NORTH KANNAPOLIS		
TITLE	52000.1.STR07TIB (P-5206C)		
LOCATION	RAILROAD	MILE POST	
DGN BY MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
DWN BY SLK	VAL SEC V-B/2		
CHK BY MB	DATE MAY 2013	SCALE 1"=100' Horiz., 1"=10' Vert.	PROFILE ALONG -M2C-

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	12 OF 79
PROFILE ALONG -M2C-	
STA 9308+00 THRU STA 9321+00	

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NOTE: EXISTING AND PROPOSED GROUNDLINE
 PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
 STRATIGRAPHY IS DRAWN THROUGH BORINGS
 AND PROJECTED ALONG PROFILE.

9308+00 9309+00 9310+00 9311+00 9312+00 9313+00 9314+00 9315+00 9316+00 9317+00 9318+00 9319+00 9320+00 9321+00

NO.	BY	DATE	REVISION

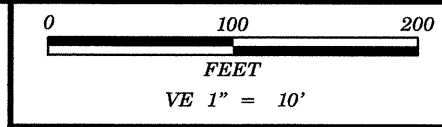
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RAIL DIVISION

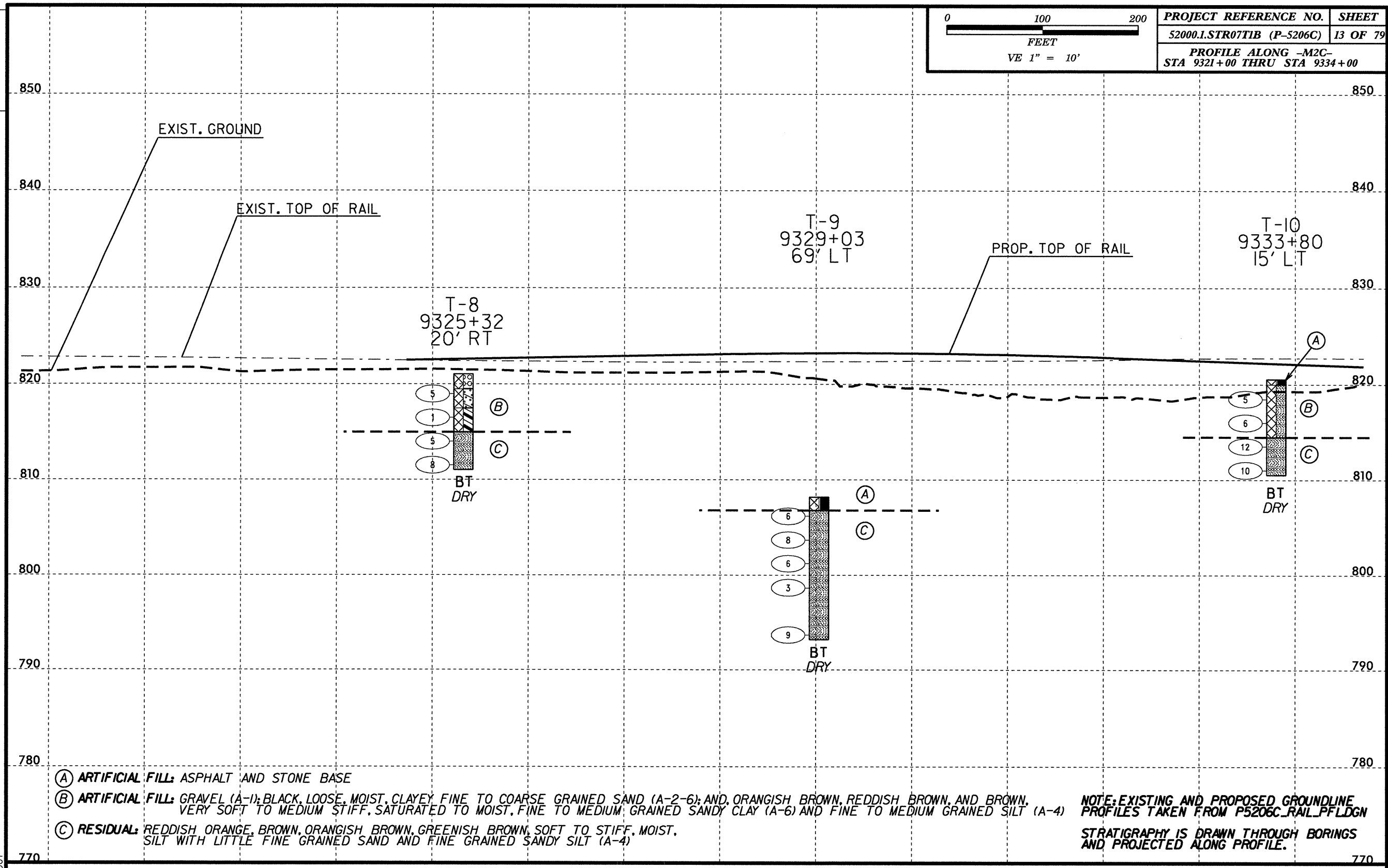
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 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. 1-C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST
TITLE		52000.1.STR07T1B (P-5206C)
LOCATION	RAILROAD	DRAWING
DGN BY MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	
DWN BY SLK	VAL SEC V-8/2	
CHK BY MB	DATE MAY 2013	SCALE 1" = 100' Horiz., 1" = 10' Vert.
		PROFILE ALONG -M2C-

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	13 OF 79
PROFILE ALONG -M2C- STA 9321+00 THRU STA 9334+00	



- (A) **ARTIFICIAL FILL:** ASPHALT AND STONE BASE
- (B) **ARTIFICIAL FILL:** GRAVEL (A-1); BLACK, LOOSE, MOIST, CLAYEY FINE TO COARSE GRAINED SAND (A-2-6); AND, ORANGISH BROWN, REDDISH BROWN, AND BROWN, VERY SOFT TO MEDIUM STIFF, SATURATED TO MOIST, FINE TO MEDIUM GRAINED SANDY CLAY (A-6) AND FINE TO MEDIUM GRAINED SILT (A-4)
- (C) **RESIDUAL:** REDDISH ORANGE, BROWN, ORANGISH BROWN, GREENISH BROWN, SOFT TO STIFF, MOIST, SILT WITH LITTLE FINE GRAINED SAND AND FINE GRAINED SANDY SILT (A-4)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

9321+00	9322+00	9323+00	9324+00	9325+00	9326+00	9327+00	9328+00	9329+00	9330+00	9331+00	9332+00	9333+00	9334+00
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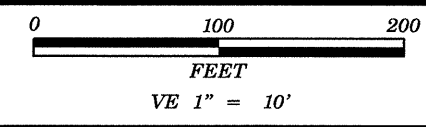
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RAIL DIVISION

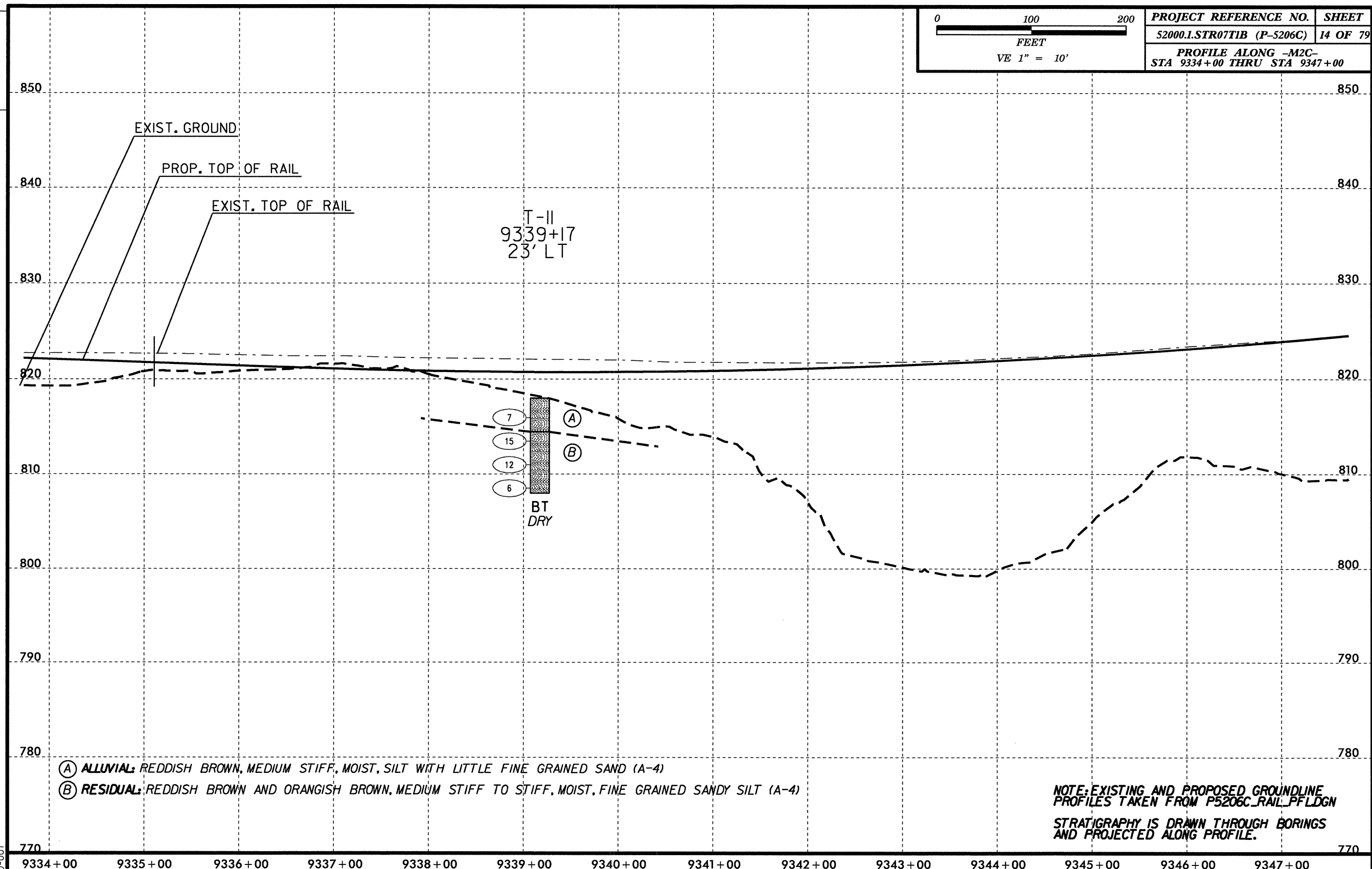
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 CARY, NC 27513
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 CORP. LICENSE NO. 1C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST
TITLE		
52000.1.STR07TIB (P-5206C)		
LOCATION		
DGN BY MB	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR	DRAWING
DWN BY SLK	VAL SEC V-8/2	
CHK BY MB	DATE MAY 2013	SCALE 1"=100' Horiz., 1"=10' Vert.
		PROFILE ALONG -M2C-

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PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	14 OF 79
PROFILE ALONG -M2C- STA 9334+00 THRU STA 9347+00	



- (A) ALLUVIAL: REDDISH BROWN, MEDIUM STIFF, MOIST, SILT WITH LITTLE FINE GRAINED SAND (A-4)
- (B) RESIDUAL: REDDISH BROWN AND ORANGISH BROWN, MEDIUM STIFF TO STIFF, MOIST, FINE GRAINED SANDY SILT (A-4)

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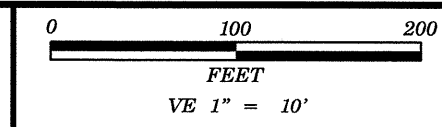
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RAIL DIVISION

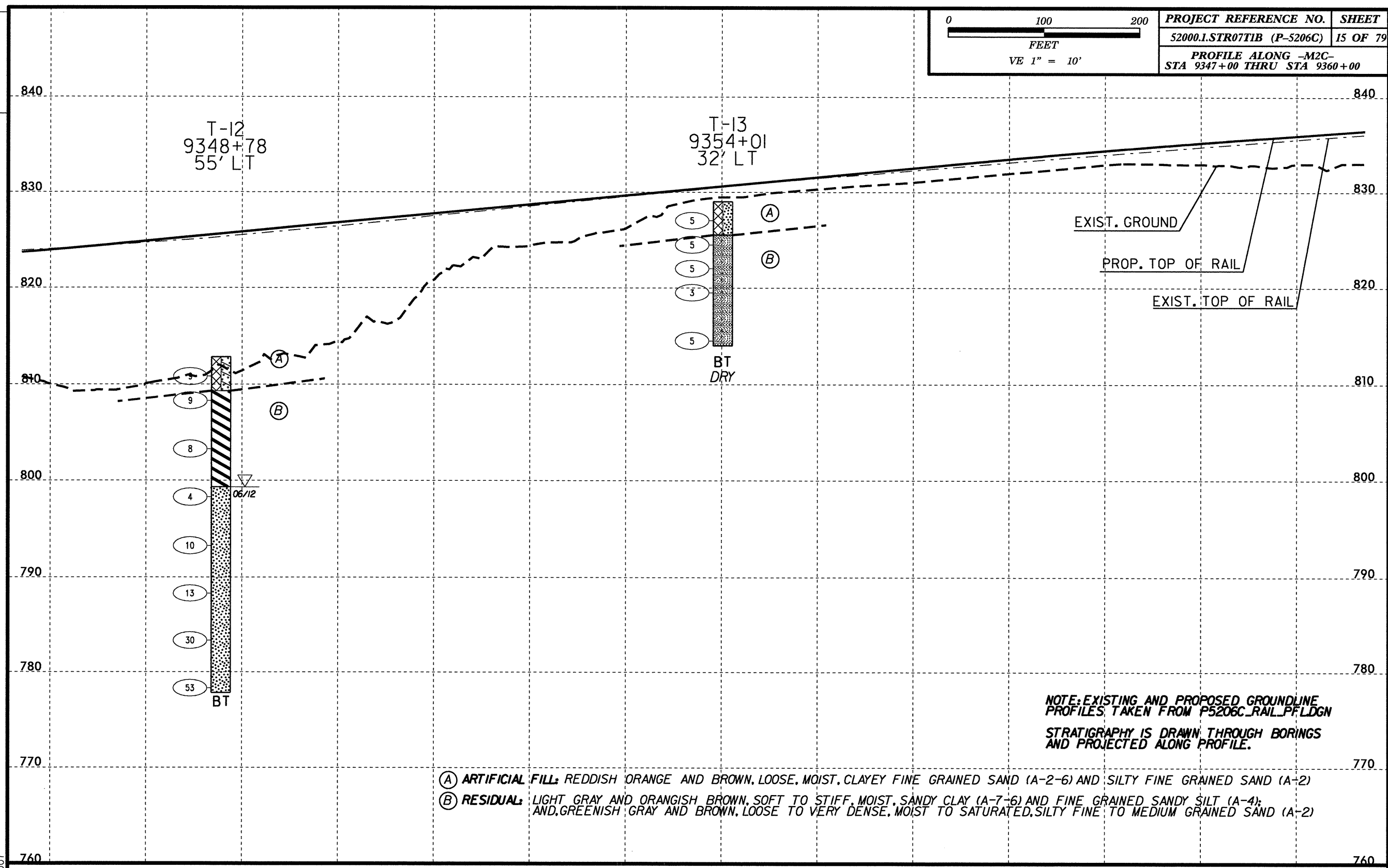
PREPARED BY: **TGS ENGINEERS**
 375 WALNUT STREET, SUITE 141
 CARY, NC 27513
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 CORP. LICENSE NO. C-0275

PROJECT		REID TO NORTH KANNAPOLIS	
TITLE		52000.1.STR07TIB (P-5206C)	
LOCATION		MILE POST	
DDN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
		SCALE	1" = 100' Horiz., 1" = 10' Vert.
PROFILE ALONG -M2C-			

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	15 OF 79
PROFILE ALONG -M2C- STA 9347+00 THRU STA 9360+00	



NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

- (A) ARTIFICIAL FILL: REDDISH ORANGE AND BROWN, LOOSE, MOIST, CLAYEY FINE GRAINED SAND (A-2-6) AND SILTY FINE GRAINED SAND (A-2)
- (B) RESIDUAL: LIGHT GRAY AND ORANGISH BROWN, SOFT TO STIFF, MOIST, SANDY CLAY (A-7-6) AND FINE GRAINED SANDY SILT (A-4); AND GREENISH GRAY AND BROWN, LOOSE TO VERY DENSE, MOIST TO SATURATED, SILTY FINE TO MEDIUM GRAINED SAND (A-2)

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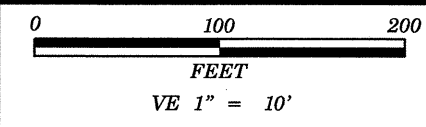
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

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 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

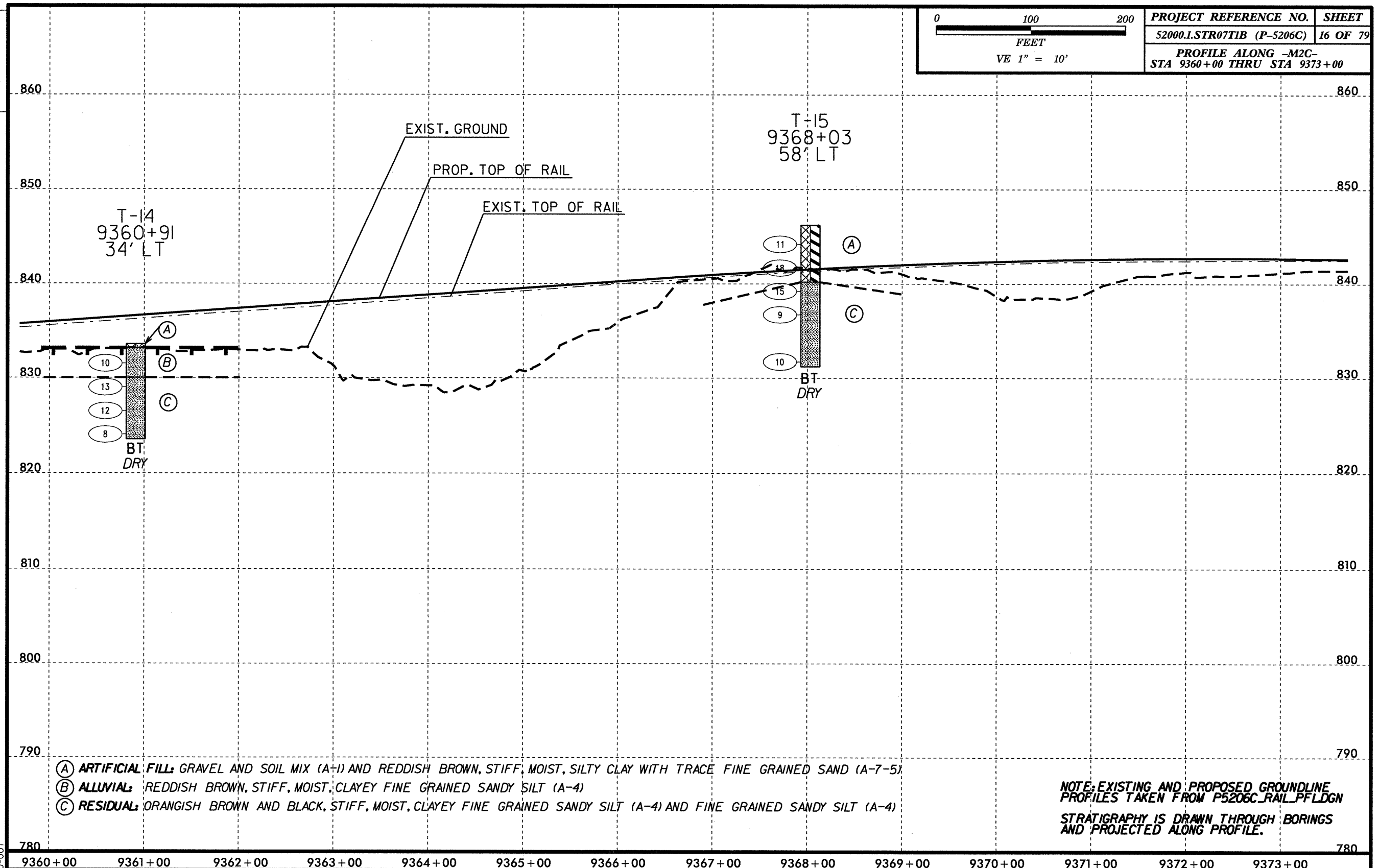
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TITLE		DRAWING	
52000.1.STR07T1B (P-5206C)			
LOCATION	RAILROAD		
DGN BY MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
DWN BY SLK	VAL SEC V-8/2		
CHK BY MB	DATE MAY 2013	SCALE 1"=100' Horiz., 1"=10' Vert.	PROFILE ALONG -M2C-

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PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	16 OF 79
PROFILE ALONG -M2C- STA 9360+00 THRU STA 9373+00	



- (A) ARTIFICIAL FILL: GRAVEL AND SOIL MIX (A+1) AND REDDISH BROWN, STIFF, MOIST, SILTY CLAY WITH TRACE FINE GRAINED SAND (A-7-5)
- (B) ALLUVIAL: REDDISH BROWN, STIFF, MOIST, CLAYEY FINE GRAINED SANDY SILT (A-4)
- (C) RESIDUAL: ORANGISH BROWN AND BLACK, STIFF, MOIST, CLAYEY FINE GRAINED SANDY SILT (A-4) AND FINE GRAINED SANDY SILT (A-4)

NOTE: EXISTING AND PROPOSED GROUNDLINE
PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS
AND PROJECTED ALONG PROFILE.

NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

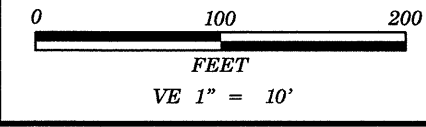
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: TGS ENGINEERS
375 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319 8850
CORP. LICENSE NO.: C-0275

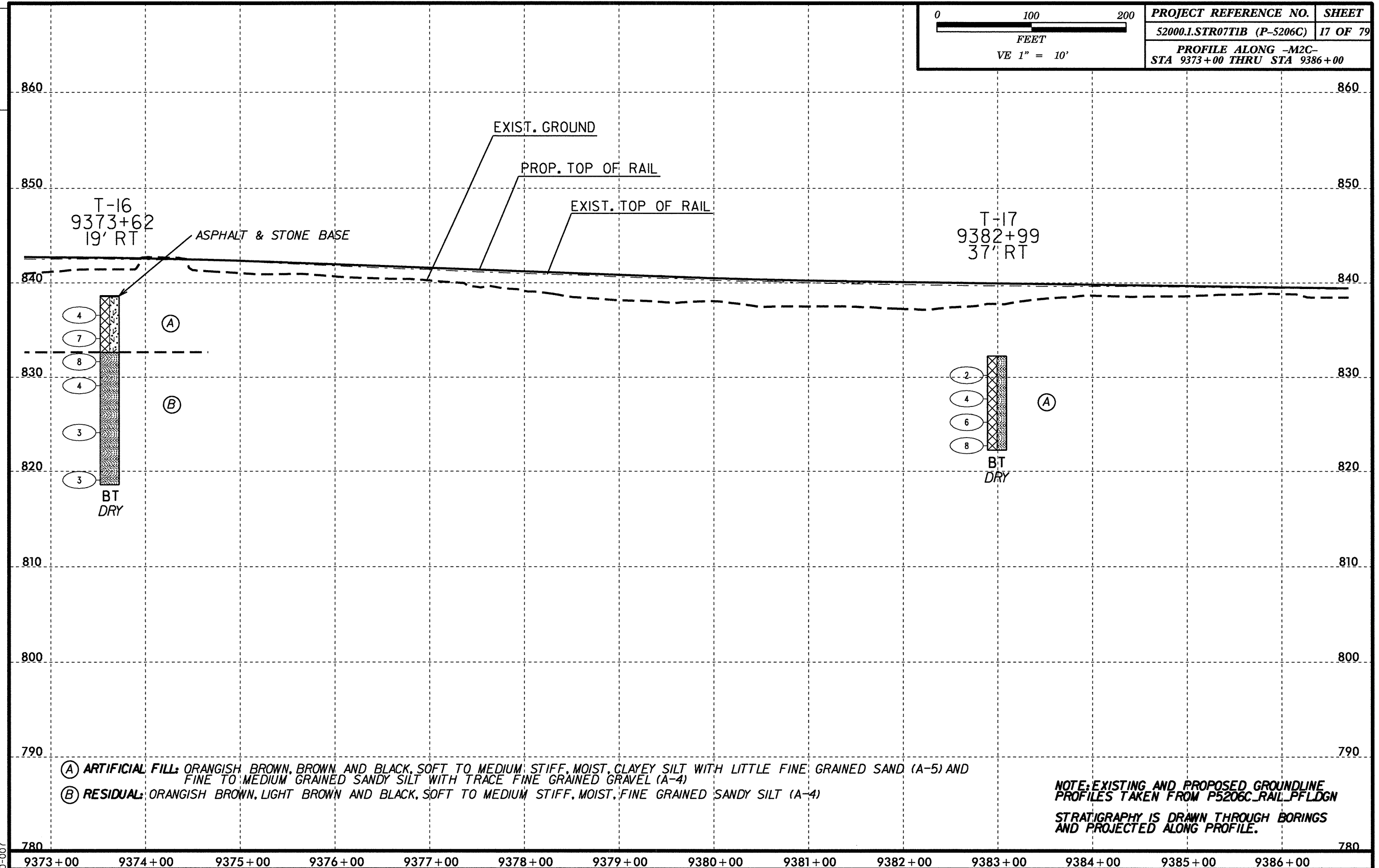
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TITLE		52000.1.STR07T1B (P-5206C)	
LOCATION		MILE POST	
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE			1" = 100' Horiz., 1" = 10' Vert.
PROFILE ALONG -M2C-			

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SKITTS



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	17 OF 79
PROFILE ALONG -M2C-	
STA 9373+00 THRU STA 9386+00	



- (A) **ARTIFICIAL FILL:** ORANGISH BROWN, BROWN AND BLACK, SOFT TO MEDIUM STIFF, MOIST, CLAYEY SILT WITH LITTLE FINE GRAINED SAND (A-5) AND FINE TO MEDIUM GRAINED SANDY SILT WITH TRACE FINE GRAINED GRAVEL (A-4)
- (B) **RESIDUAL:** ORANGISH BROWN, LIGHT BROWN AND BLACK, SOFT TO MEDIUM STIFF, MOIST, FINE GRAINED SANDY SILT (A-4)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

NO.	BY	DATE	REVISION

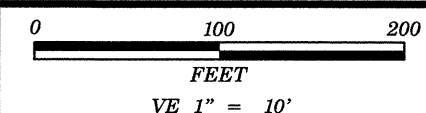
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

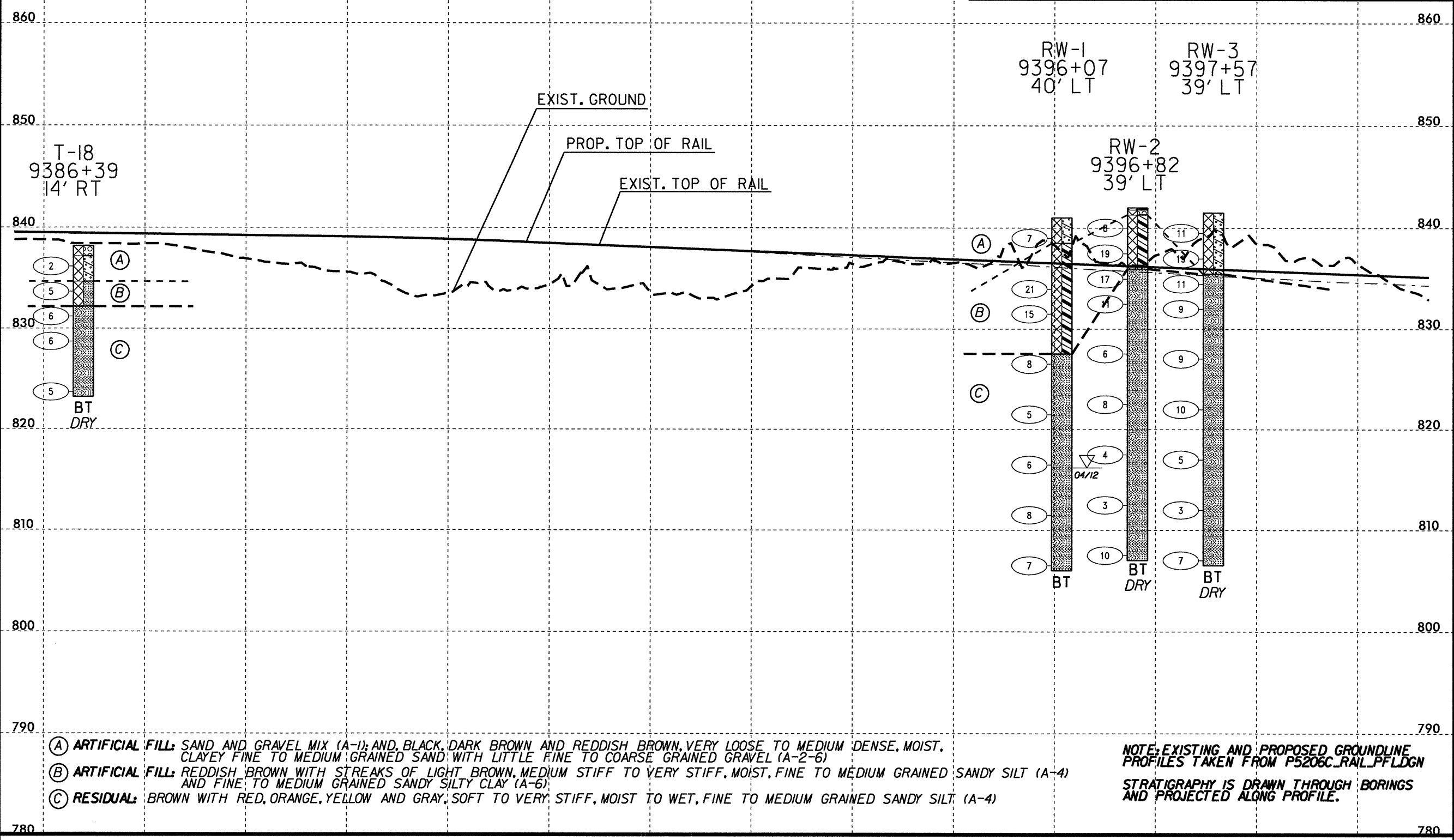
PREPARED BY: **TGS ENGINEERS**
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319 8850
CORP. LICENSE NO.: C-0275

PROJECT TITLE		REID TO NORTH KANNAPOLIS	
LOCATION		52000.1.STR07T1B (P-5206C)	
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
		SCALE	1" = 100' Horiz., 1" = 10' Vert.
		PROFILE ALONG -M2C-	

0164DEL P1062



PROJECT REFERENCE NO. SHEET
 52000.1.STR07T1B (P-5206C) 18 OF 79
 PROFILE ALONG -M2C-
 STA 9386+00 THRU STA 9399+00



- (A) ARTIFICIAL FILL: SAND AND GRAVEL MIX (A-1); AND, BLACK, DARK BROWN AND REDDISH BROWN, VERY LOOSE TO MEDIUM DENSE, MOIST, CLAYEY FINE TO MEDIUM GRAINED SAND WITH LITTLE FINE TO COARSE GRAINED GRAVEL (A-2-6)
- (B) ARTIFICIAL FILL: REDDISH BROWN WITH STREAKS OF LIGHT BROWN, MEDIUM STIFF TO VERY STIFF, MOIST, FINE TO MEDIUM GRAINED SANDY SILT (A-4) AND FINE, TO MEDIUM GRAINED SANDY SILTY CLAY (A-6)
- (C) RESIDUAL: BROWN WITH RED, ORANGE, YELLOW AND GRAY, SOFT TO VERY STIFF, MOIST TO WET, FINE TO MEDIUM GRAINED SANDY SILT (A-4)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
 STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

9386+00 9387+00 9388+00 9389+00 9390+00 9391+00 9392+00 9393+00 9394+00 9395+00 9396+00 9397+00 9398+00 9399+00

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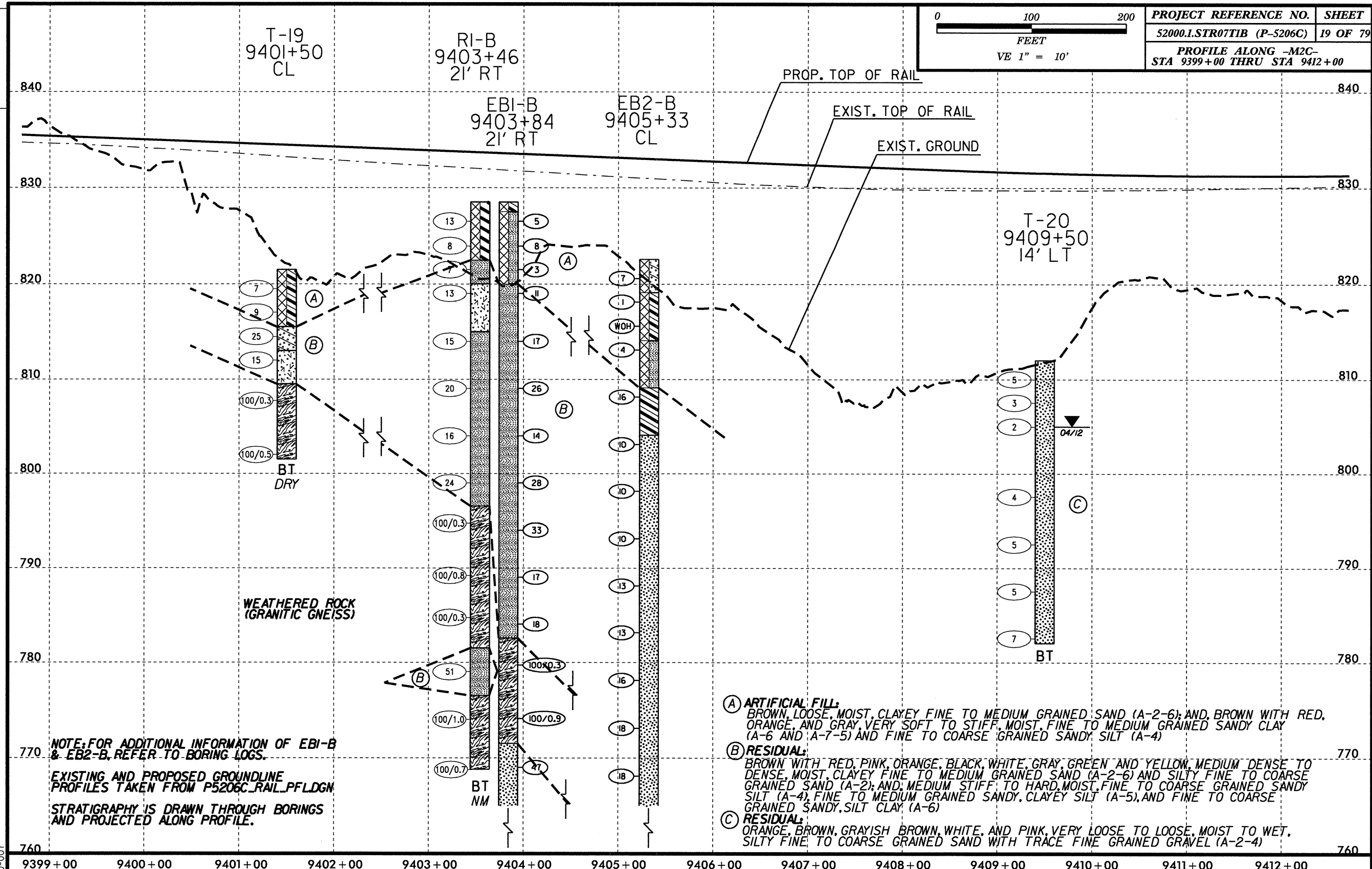
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

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 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

PROJECT	REID TO NORTH KANNAPOLIS		
TITLE	52000.1.STR07T1B (P-5206C)		
LOCATION	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE			1" = 100' Horiz., 1" = 10' Vert.
PROFILE ALONG -M2C-			

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NO.	BY	DATE	REVISION

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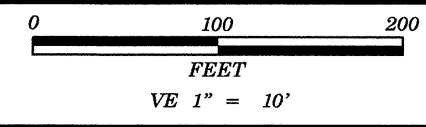
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RAIL DIVISION

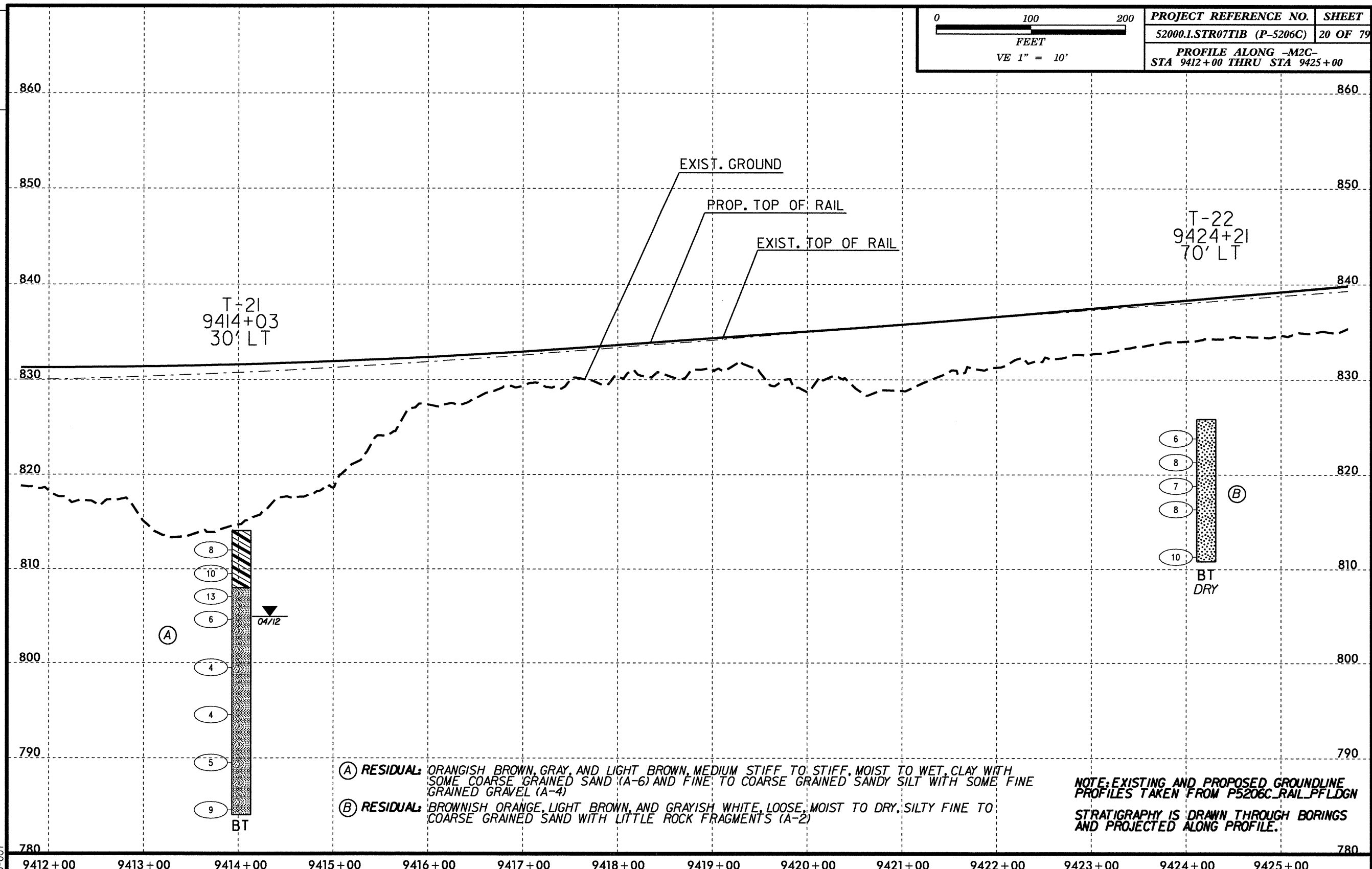
PREPARED BY: TGS ENGINEERS
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CARY, NC 27513
PH (919) 319 8850
CORP. LICENSE NO. C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST	
TITLE 52000.1.STR07T1B (P-5206C)		DRAWING	
LOCATION	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	
DGN BY MB	VAL SEC	V-8/2	
DWN BY SLK	DATE	MAY 2013	
CHK BY MB	SCALE	1" = 100' Horiz., 1" = 10' Vert.	
PROFILE ALONG -M2C-			

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	20 OF 79
PROFILE ALONG -M2C- STA 9412+00 THRU STA 9425+00	



- (A) RESIDUAL: ORANGISH BROWN, GRAY, AND LIGHT BROWN, MEDIUM STIFF TO STIFF, MOIST TO WET, CLAY WITH SOME COARSE GRAINED SAND (A-6) AND FINE TO COARSE GRAINED SANDY SILT WITH SOME FINE GRAINED GRAVEL (A-4)
- (B) RESIDUAL: BROWNISH ORANGE, LIGHT BROWN, AND GRAYISH WHITE, LOOSE, MOIST TO DRY, SILTY FINE TO COARSE GRAINED SAND WITH LITTLE ROCK FRAGMENTS (A-2)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

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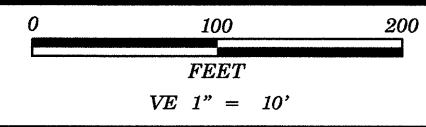
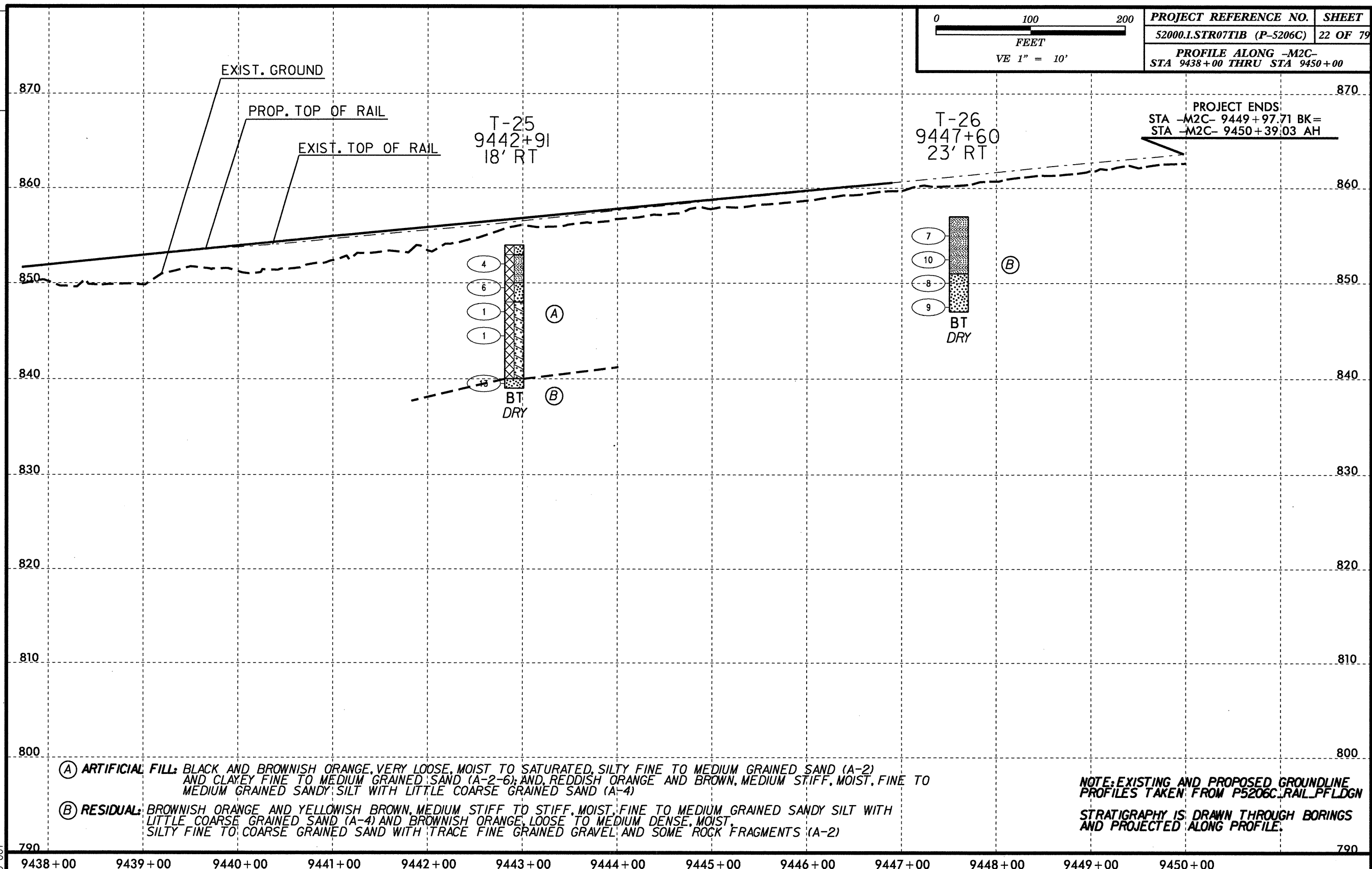
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

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 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST	
TITLE		DRAWING	
52000.1.STR07T1B (P-5206C)			
LOCATION	RAILROAD		
DGN BY MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
DWN BY SLK	VAL SEC V-8/2		
CHK BY MB	DATE MAY 2013	SCALE 1"=100' Horiz., 1"=10' Vert.	
PROFILE ALONG -M2C-			

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	22 OF 79
PROFILE ALONG -M2C- STA 9438+00 THRU STA 9450+00	

- (A) ARTIFICIAL FILL: BLACK AND BROWNISH ORANGE, VERY LOOSE, MOIST TO SATURATED, SILTY FINE TO MEDIUM GRAINED SAND (A-2) AND CLAYEY FINE TO MEDIUM GRAINED SAND (A-2-6); AND, REDDISH ORANGE AND BROWN, MEDIUM STIFF, MOIST, FINE TO MEDIUM GRAINED SANDY SILT WITH LITTLE COARSE GRAINED SAND (A-4)
- (B) RESIDUAL: BROWNISH ORANGE AND YELLOWISH BROWN, MEDIUM STIFF TO STIFF, MOIST, FINE TO MEDIUM GRAINED SANDY SILT WITH LITTLE COARSE GRAINED SAND (A-4) AND BROWNISH ORANGE, LOOSE TO MEDIUM DENSE, MOIST, SILTY FINE TO COARSE GRAINED SAND WITH TRACE FINE GRAINED GRAVEL AND SOME ROCK FRAGMENTS (A-2)

NOTE: EXISTING AND PROPOSED GROUNDLINE PROFILES TAKEN FROM P5206C_RAIL_PFLDGN
STRATIGRAPHY IS DRAWN THROUGH BORINGS AND PROJECTED ALONG PROFILE.

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

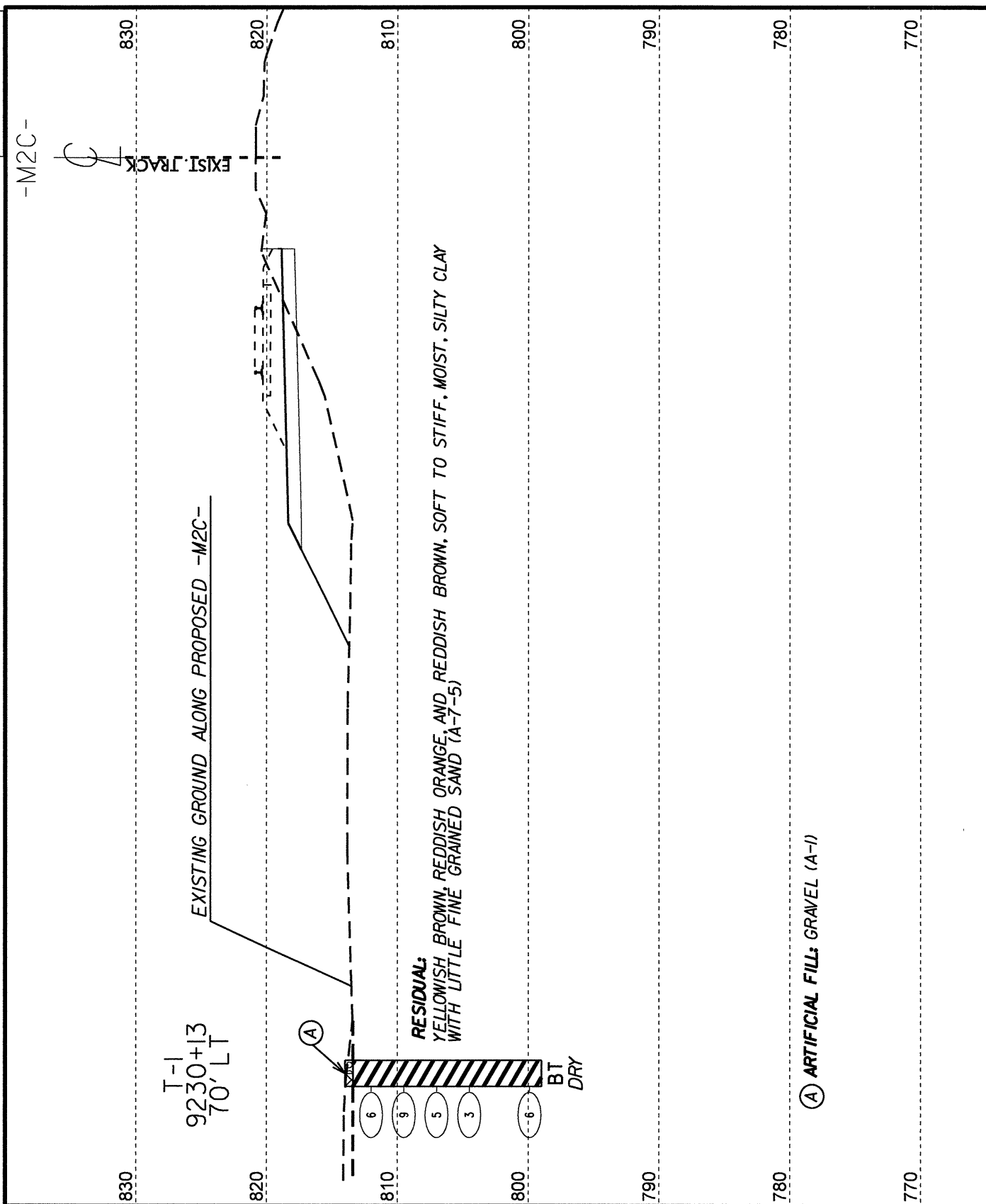
PREPARED BY: TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27513
PH (919) 319 8850
CORP. LICENSE NO. C-0275

PROJECT	REID TO NORTH KANNAPOLIS	MILE POST	
TITLE	52000.1.STR07T1B (P-5206C)	DRAWING	
LOCATION	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	SCALE	1" = 100' Horiz., 1" = 10' Vert.
DGN BY	MB	VAL SEC	V-9/2
DWN BY	SLK	DATE	MAY 2013
CHK BY	MB		

PROFILE ALONG -M2C-

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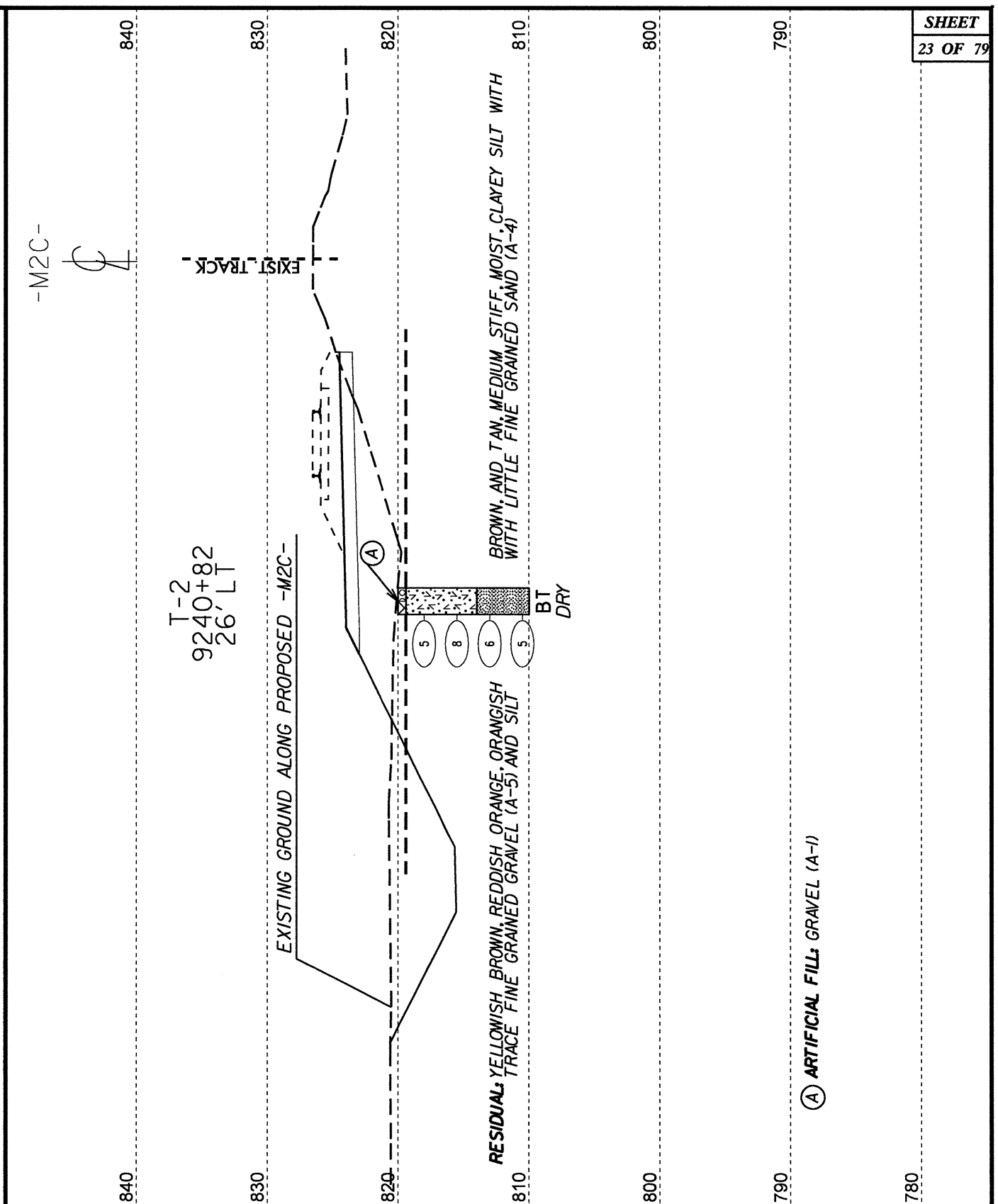
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HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 CROSS SECTION THROUGH STA 9230+00

NO.	BY	DATE	REVISION

INCOMPLETE PLANS
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 PRELIMINARY PLANS
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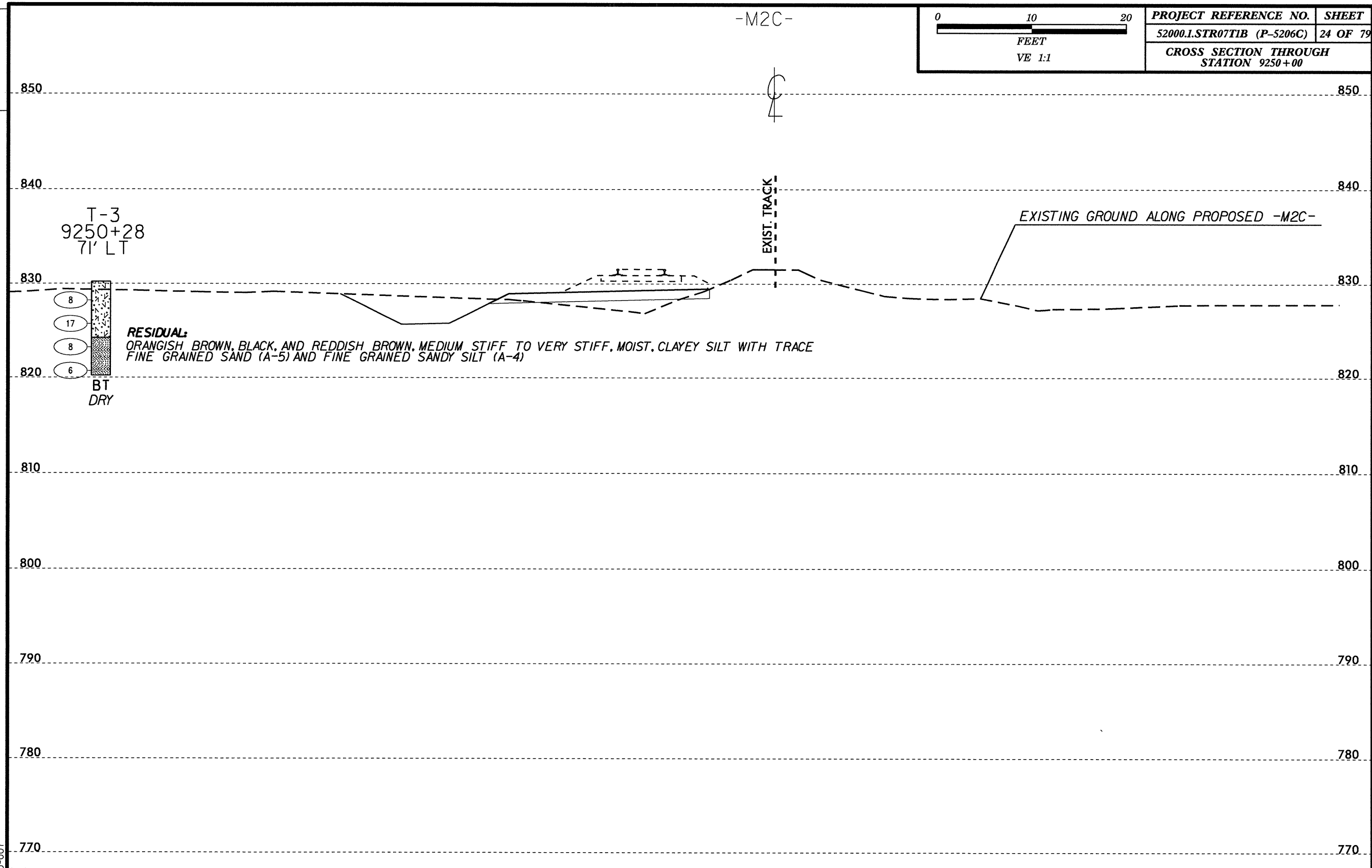
HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 CROSS SECTION THROUGH STA 9241+00

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY:

PROJECT		REID TO NORTH KANNAPOLIS	
TITLE		52000.1.STR07T1B(P-5206C)	
LOCATION		MILE POST	
DESIGNED BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DRAWN BY	SLK	VAL SEC	V-9/2
CHECKED BY	MB	DATE	MAY 2013
		SCALE	1" = 10' Horiz., 1" = 10' Vert.
			DRAWING
			CROSS SECTION ALONG -M2C-

0164DEL P1062



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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

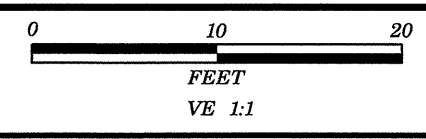
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

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375 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
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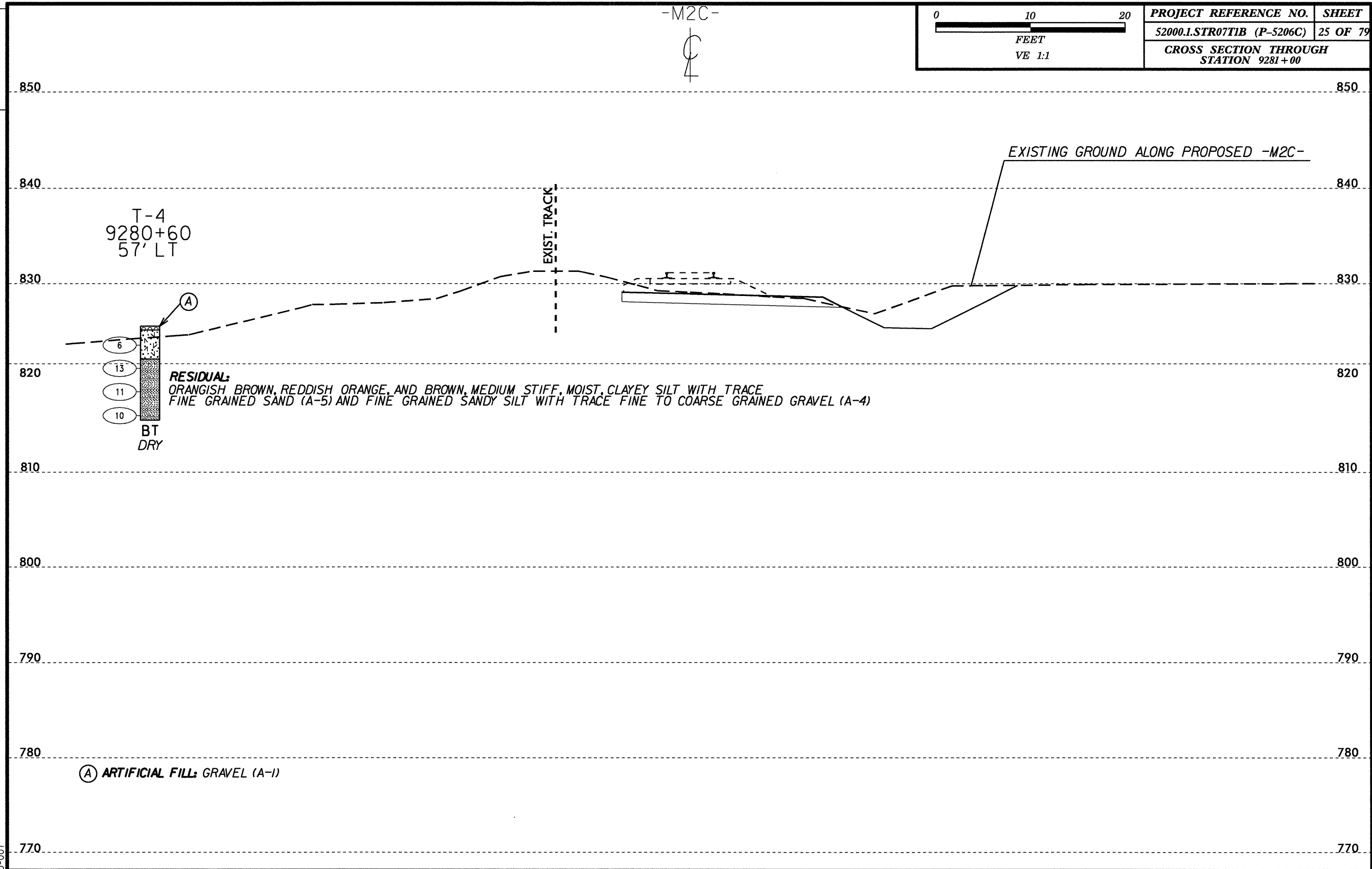
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TITLE 52000.1.STR07T1B (P-5206C)			
LOCATION NORTH CAROLINA RR & NORFOLK SOUTHERN RR			MILE POST
DESIGNED BY MB	RAILROAD	DRAWING	
DRAWN BY SLK	VAL SEC	V-8/2	
CHECKED BY MB	DATE	MAY 2013	SCALE 1" = 10' Horiz., 1" = 10' Vert.
			CROSS SECTION ALONG -M2C-

0164DEL P1062

-M2C-
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PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	25 OF 79
CROSS SECTION THROUGH STATION 9281+00	



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PRELIMINARY PLANS
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

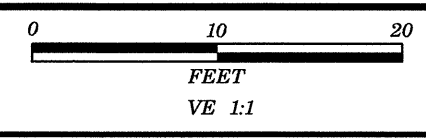
PREPARED BY: **TGS ENGINEERS**
 975 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. 1C-0275

PROJECT REID TO NORTH KANNAPOLIS		LOCATION		MILE POST
TITLE		NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
52000.1.STR07T1B (P-5206C)		VAL SEC V-8/2		
DESIGN BY MB	RAILROAD	DATE MAY 2013	SCALE 1" = 10' Horiz., 1" = 10' Vert.	
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CHK BY MB	DATE			

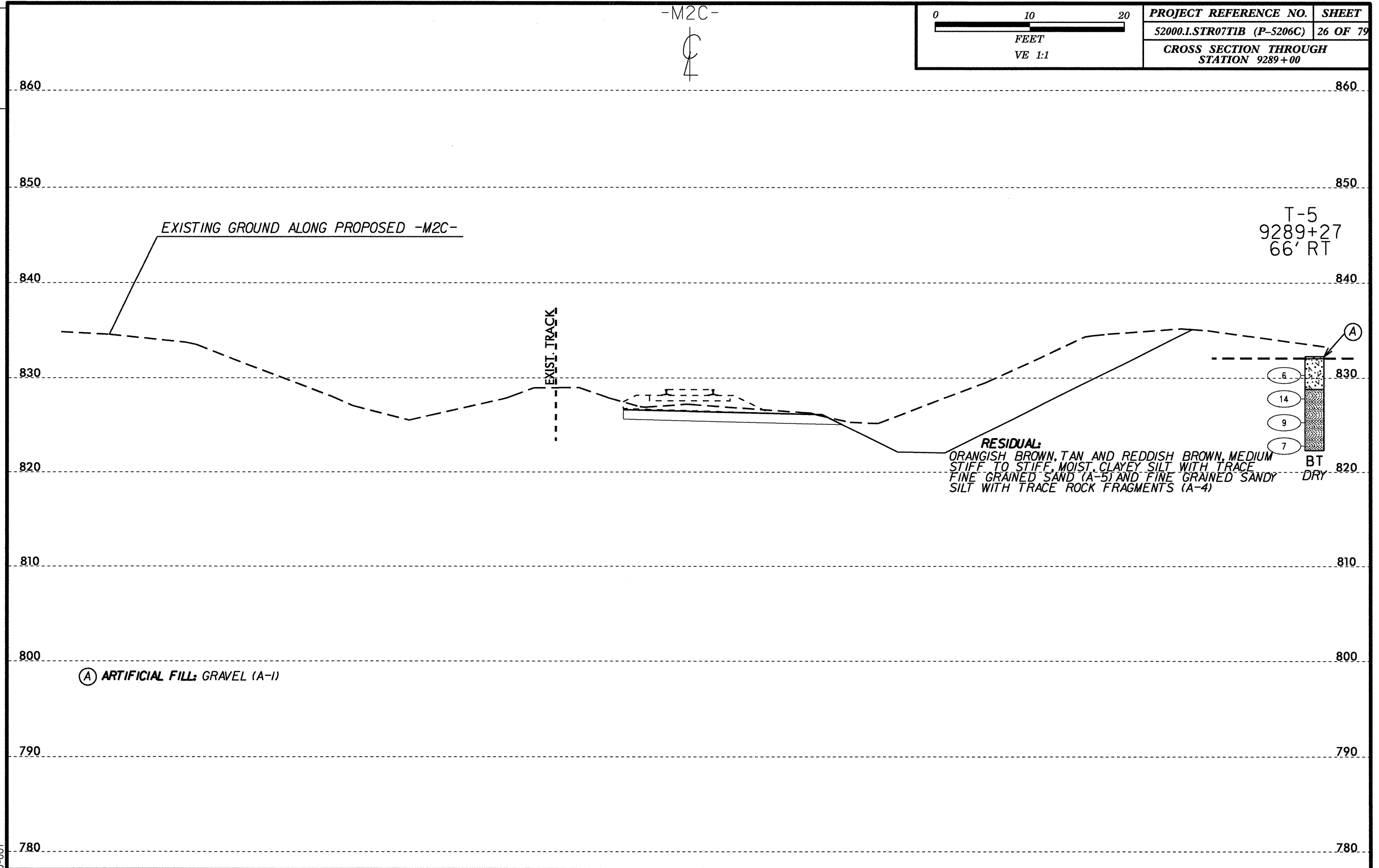
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-M2C-





PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	26 OF 79
CROSS SECTION THROUGH STATION 9289+00	



NO.	BY	DATE	REVISION

INCOMPLETE PLANS
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PRELIMINARY PLANS
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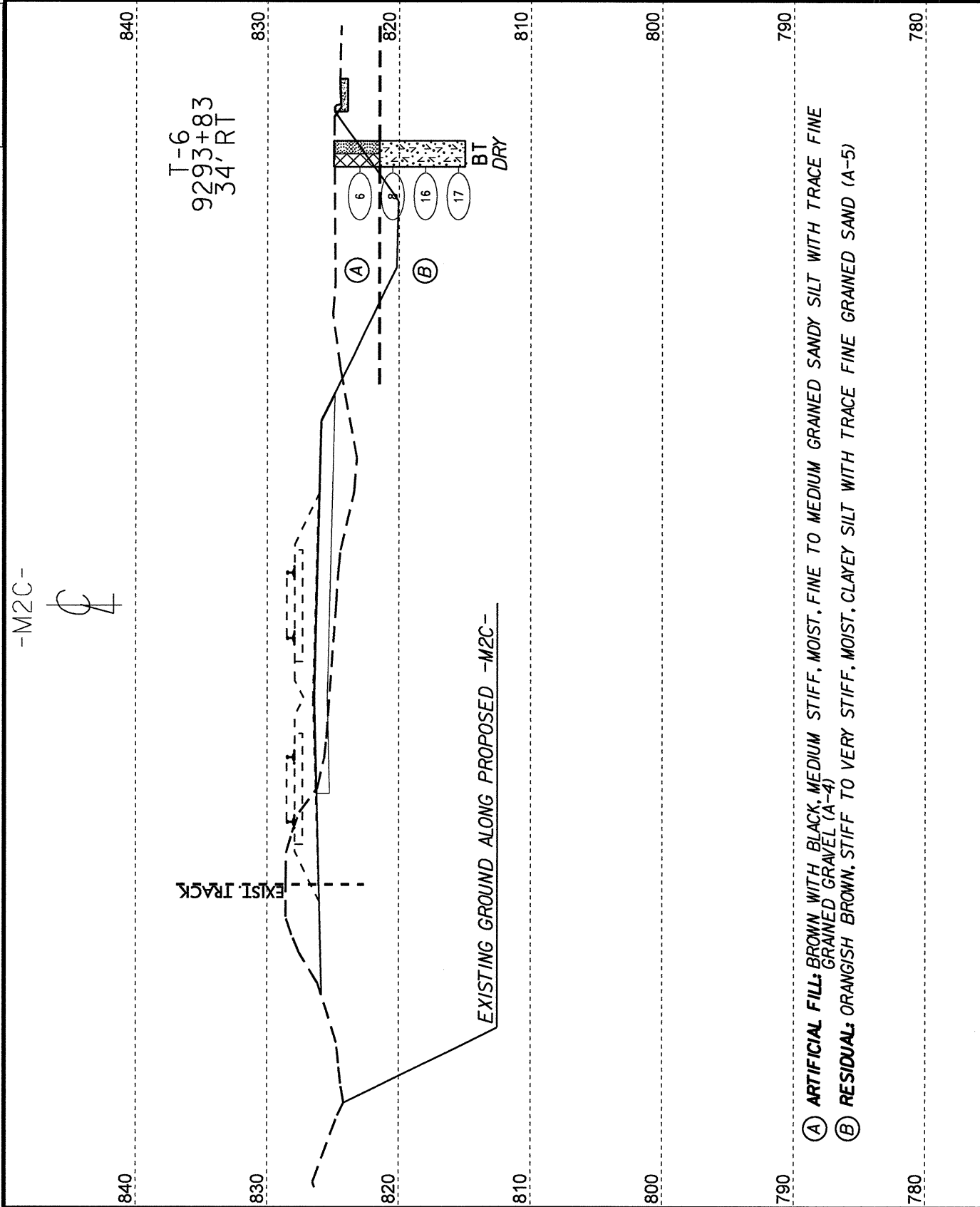
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

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 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST
TITLE 52000.1.STR07T1B (P-5206C)		DRAWING
LOCATION	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR	CROSS SECTION ALONG -M2C-
DGN BY MB	VAL SEC V-8/2	SCALE 1" = 10' Horiz., 1" = 10' Vert.
DWN BY SLK	DATE MAY 2013	
CHK BY MB		

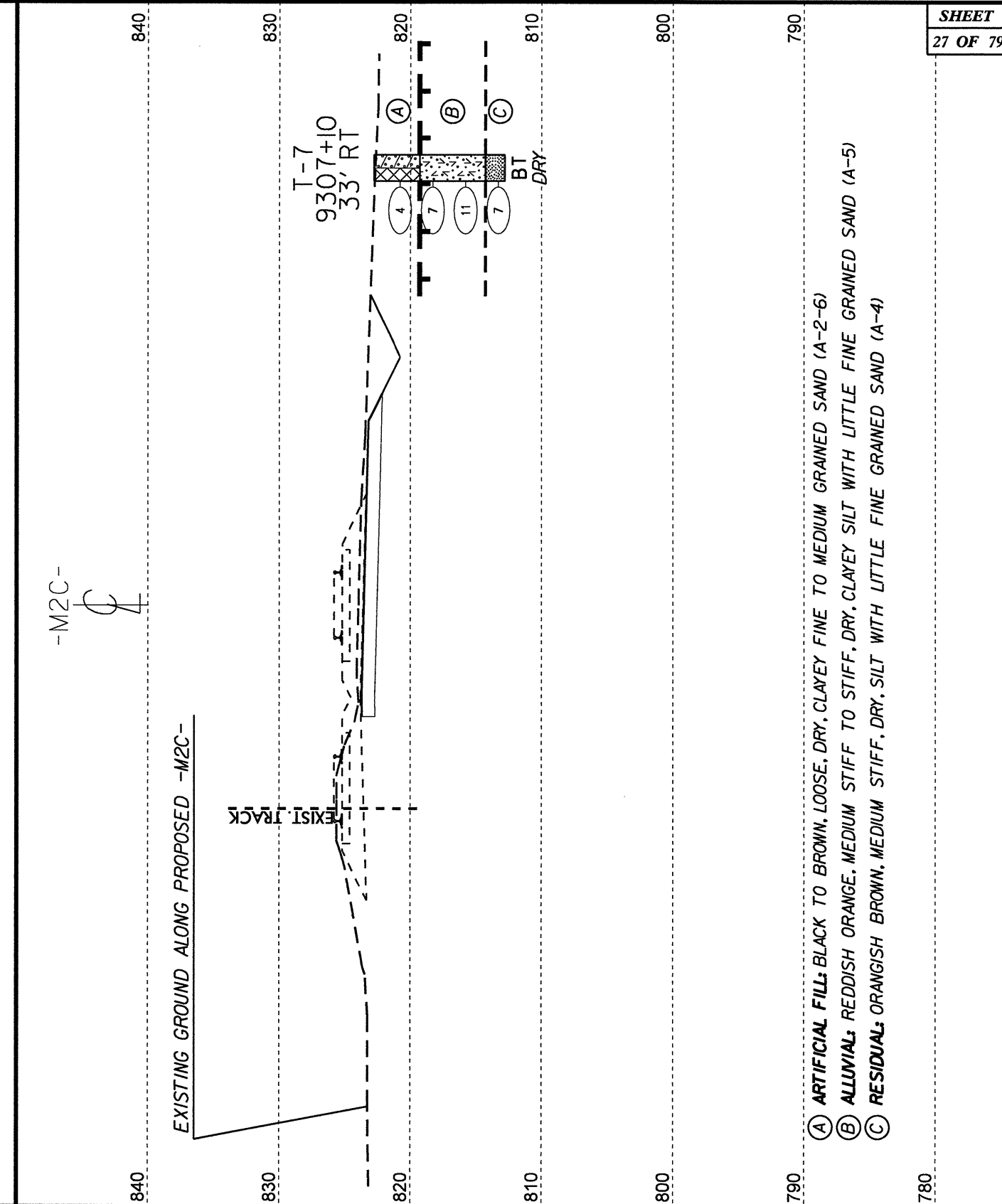
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- (A) ARTIFICIAL FILL: BROWN WITH BLACK, MEDIUM STIFF, MOIST, FINE TO MEDIUM GRAINED SANDY SILT WITH TRACE FINE GRAINED GRAVEL (A-4)
- (B) RESIDUAL: ORANGISH BROWN, STIFF TO VERY STIFF, MOIST, CLAYEY SILT WITH TRACE FINE GRAINED SAND (A-5)

HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 CROSS SECTION THROUGH STA 9294+00



- (A) ARTIFICIAL FILL: BLACK TO BROWN, LOOSE, DRY, CLAYEY FINE TO MEDIUM GRAINED SAND (A-2-6)
- (B) ALLUVIAL: REDDISH ORANGE, MEDIUM STIFF TO STIFF, DRY, CLAYEY SILT WITH LITTLE FINE GRAINED SAND (A-5)
- (C) RESIDUAL: ORANGISH BROWN, MEDIUM STIFF, DRY, SILT WITH LITTLE FINE GRAINED SAND (A-4)

HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 CROSS SECTION THROUGH STA 9307+00

NO.	BY	DATE	REVISION

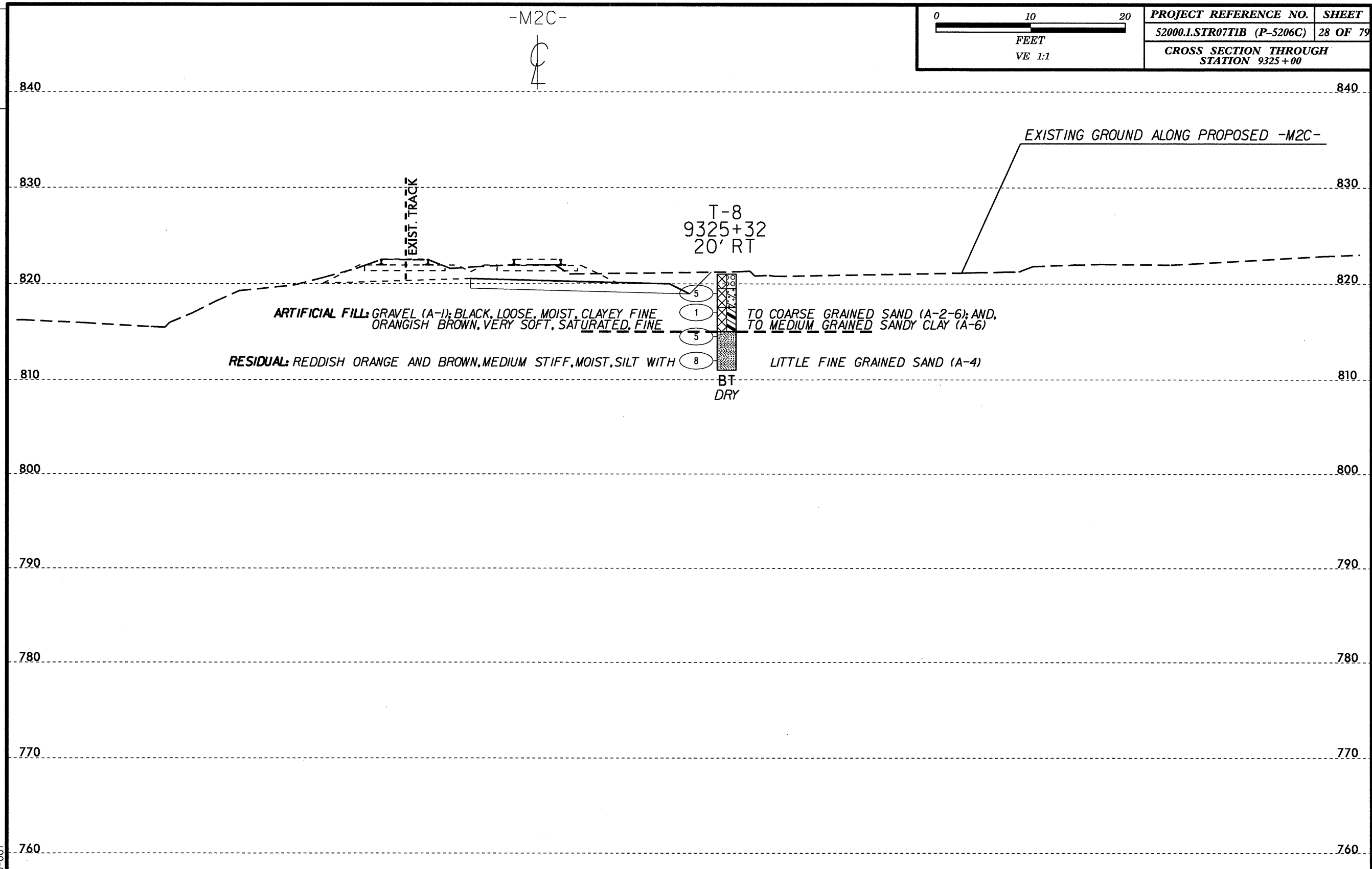
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RAIL DIVISION

PREPARED BY:

PROJECT TITLE		REID TO NORTH KANNAPOLIS	
LOCATION		52000.1.STR07T1B(P-5206C)	
DESIGNED BY	RAILROAD	NORTH CAROLINA RR	& NORFOLK SOUTHERN RR
DRAWN BY	VAL SEC	V-8/2	
CHECKED BY	DATE	MAY 2013	SCALE 1"=10' Horiz., 1"=10' Vert.
DRAWING			CROSS SECTION ALONG -M2C-

0164DEL P1062



	PROJECT REFERENCE NO.	SHEET
	52000.1.STR07T1B (P-5206C)	28 OF 79
CROSS SECTION THROUGH STATION 9325+00		

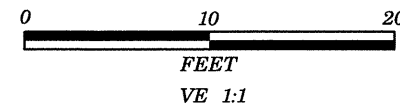
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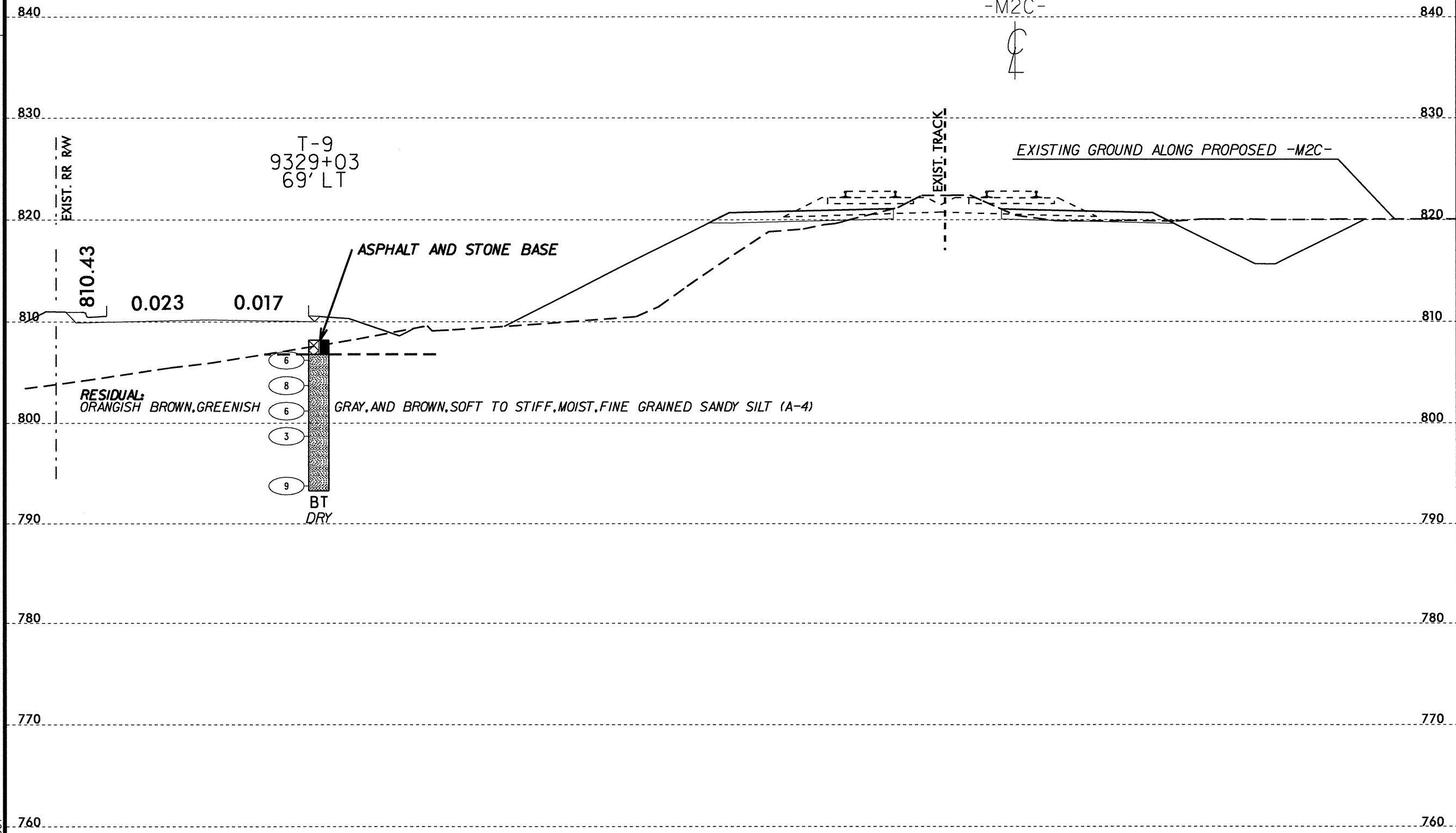
PREPARED BY: TGS ENGINEERS
 975 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO.: C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST	
TITLE 52000.1.STR07T1B (P-5206C)		DRAWING	
LOCN BY MB	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR	CROSS SECTION ALONG -M2C-	
DWN BY SLK	VAL SEC V-8/2	SCALE 1" = 10' Horiz., 1" = 10' Vert.	
CHK BY MB	DATE MAY 2013		

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	29 OF 79
CROSS SECTION THROUGH STATION 9329+00	



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NO.	BY	DATE	REVISION

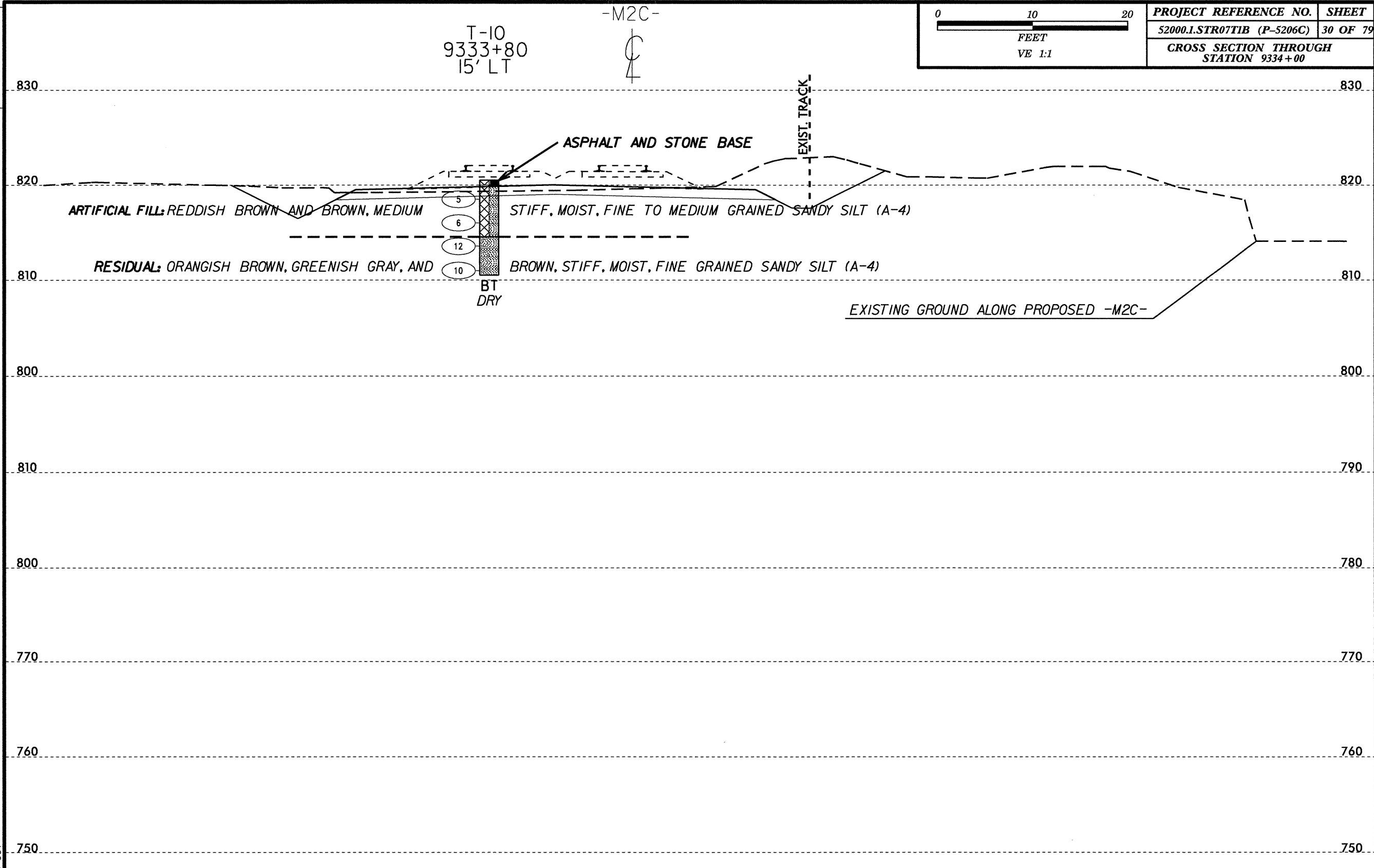
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PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: TGS ENGINEERS
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 CARY, NC 27511
 PH (919) 319 8850
 CORP. LICENSE NO. 1C-0275

PROJECT REID TO NORTH KANNAPOLIS		LOCATION	
TITLE 52000.1.STR07TIB (P-5206C)		NORTH CAROLINA RR & NORFOLK SOUTHERN RR	
DGN BY MB	RAILROAD	MILE POST	
DWN BY SLK	VAL SEC V-8/2	DRAWING	
CHK BY MB	DATE MAY 2013	CROSS SECTION ALONG -M2C-	
SCALE 1"=10' Horiz., 1"=10' Vert.			

0164DEL P1062



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 SKITTS AT 08-2110-007

NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

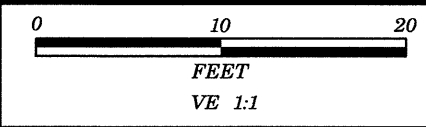
PREPARED BY: **TGS ENGINEERS**
975 WALNUT STREET, SUITE 141
 CARY, NC 27511
 PH (919) 319 8850
 CORP. LICENSE NO. 1-C-0275

PROJECT		REID TO NORTH KANNAPOLIS	
TITLE		52000.1.STR07T1B (P-5206C)	
LOCATION		MILE POST	
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
		SCALE 1"=10' Horiz., 1"=10' Vert.	
CROSS SECTION ALONG -M2C-			

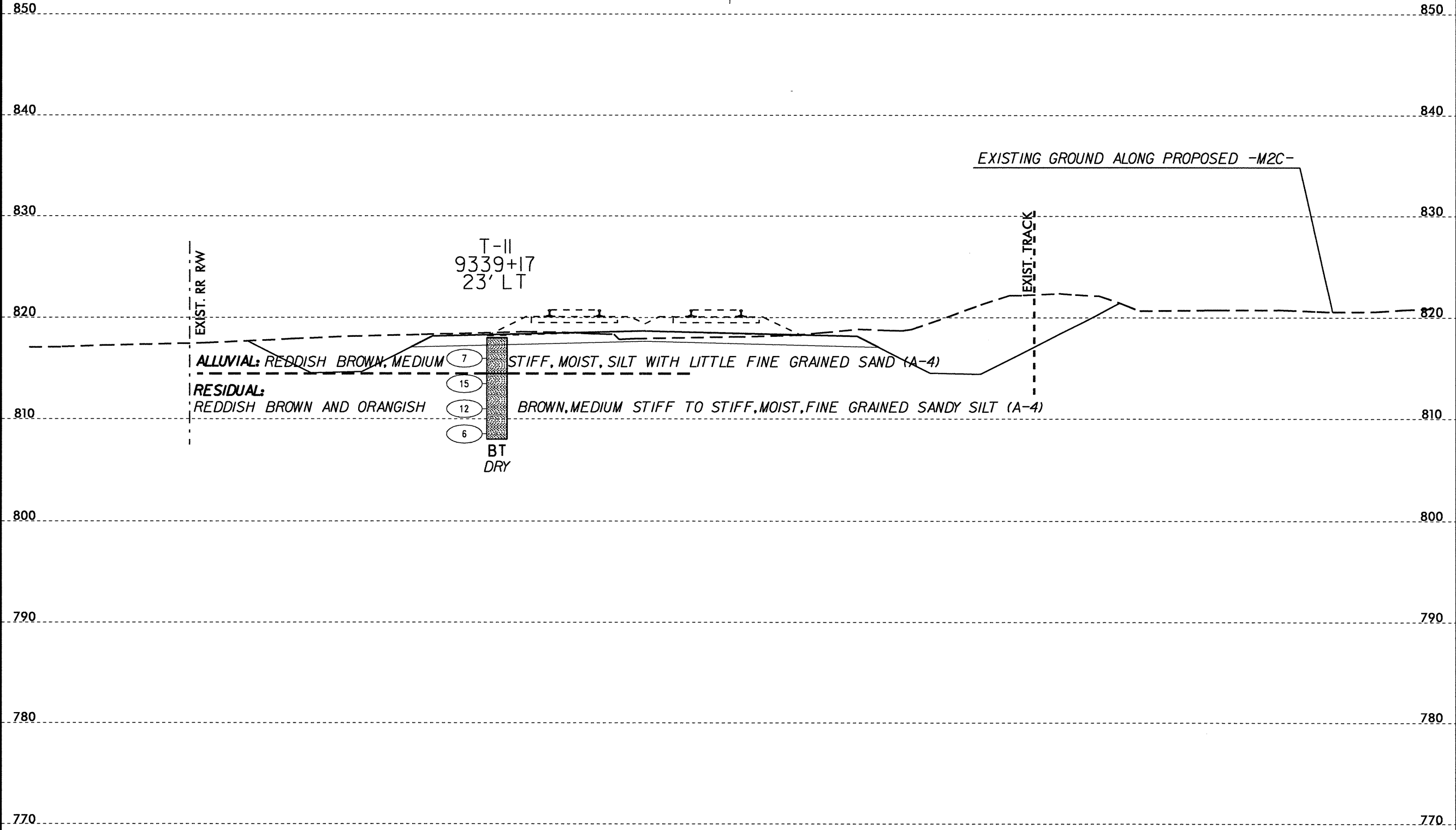
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52000.1.STR07T1B (P-5206C)	30 OF 79
CROSS SECTION THROUGH STATION 9334+00	

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-M2C-




PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	31 OF 79
CROSS SECTION THROUGH STATION 9339+00	



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NO.	BY	DATE	REVISION


INCOMPLETE PLANS
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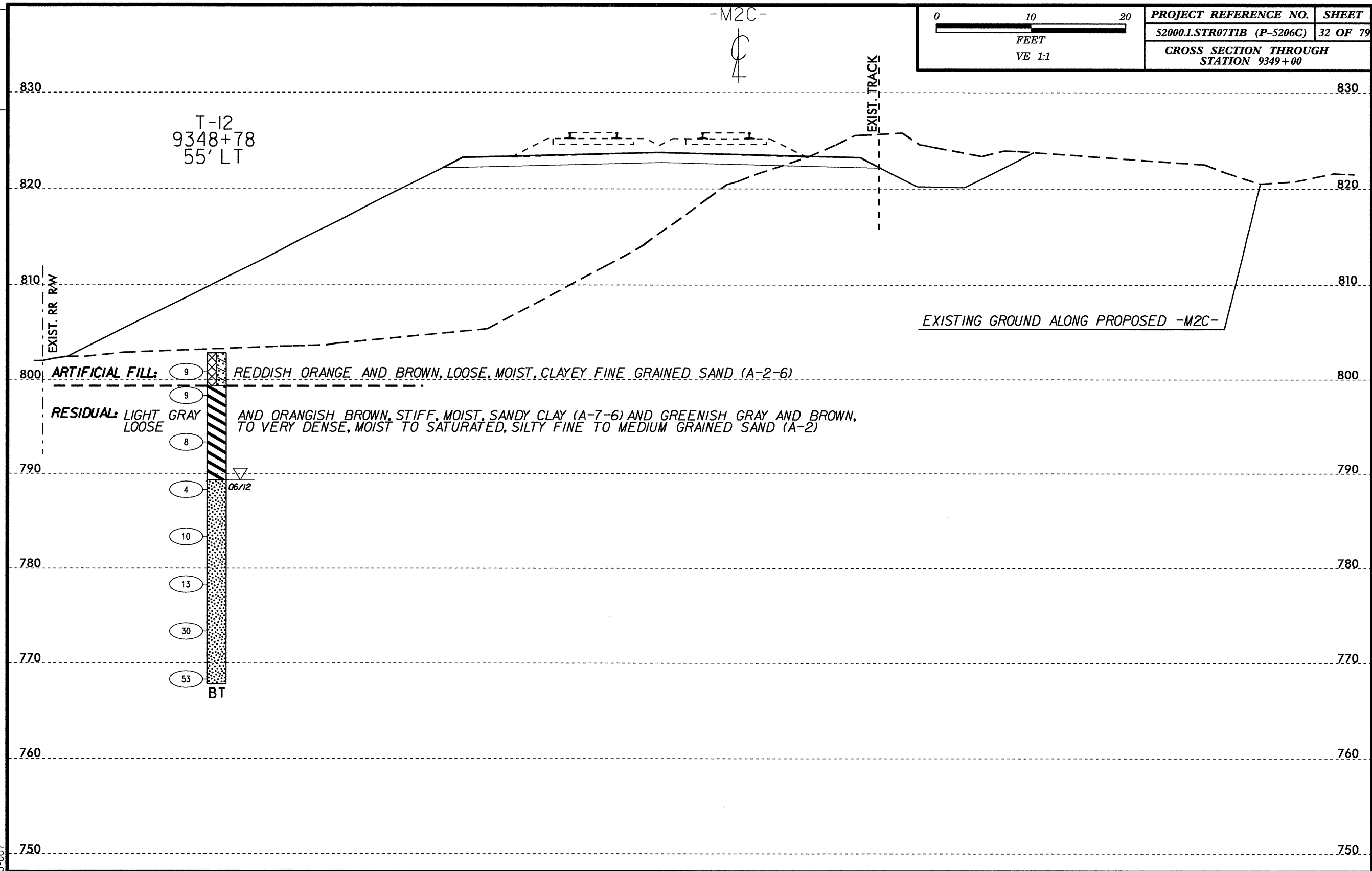
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

PREPARED BY:  **TGS ENGINEERS**
 975 WALNUT STREET, SUITE 141
 CARY, NC 27514
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

PROJECT REID TO NORTH KANNAPOLIS		LOCATION		MILE POST	
TITLE 52000.1.STR07TIB (P-5206C)		NORTH CAROLINA RR & NORFOLK SOUTHERN RR		DRAWING	
DGN BY MB	RAILROAD	VAL SEC V-B/2	CROSS SECTION ALONG -M2C-		
DWN BY SLK	DATE MAY 2013	SCALE 1" = 10' Horiz., 1" = 10' Vert.			
CHK BY MB					

0164DEL P1062



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SKITTS AT 08-210-007

NO.	BY	DATE	REVISION

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DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

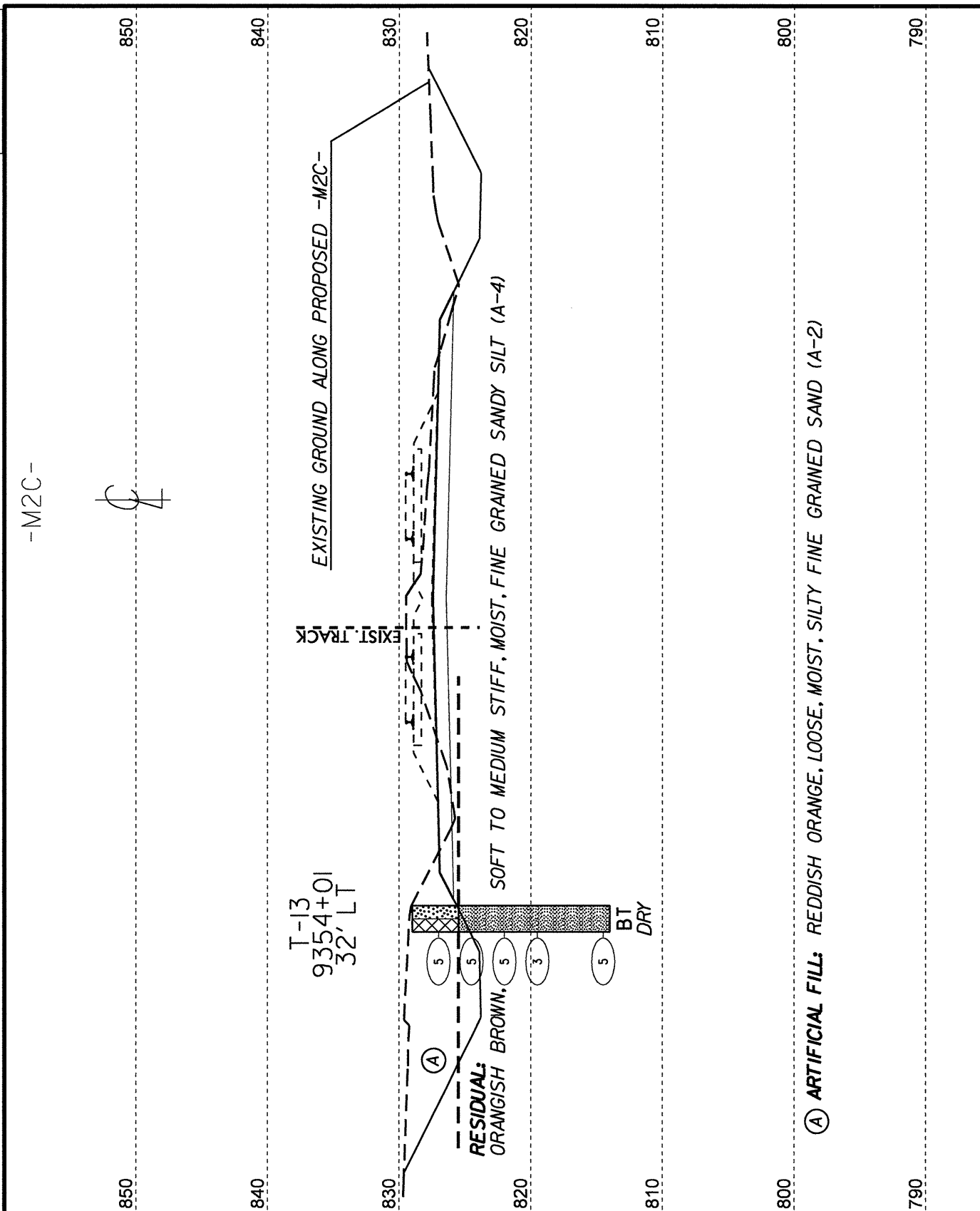
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319 8850
CORP. LICENSE NO. 1C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST	
TITLE 52000.1.STR07T1B (P-5206C)		DRAWING	
LOCATION	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	
DGN BY MB	VAL SEC	V-8/2	
CHK BY MB	DATE	MAY 2013	SCALE 1" = 10' Horiz., 1" = 10' Vert.
CROSS SECTION ALONG -M2C-			

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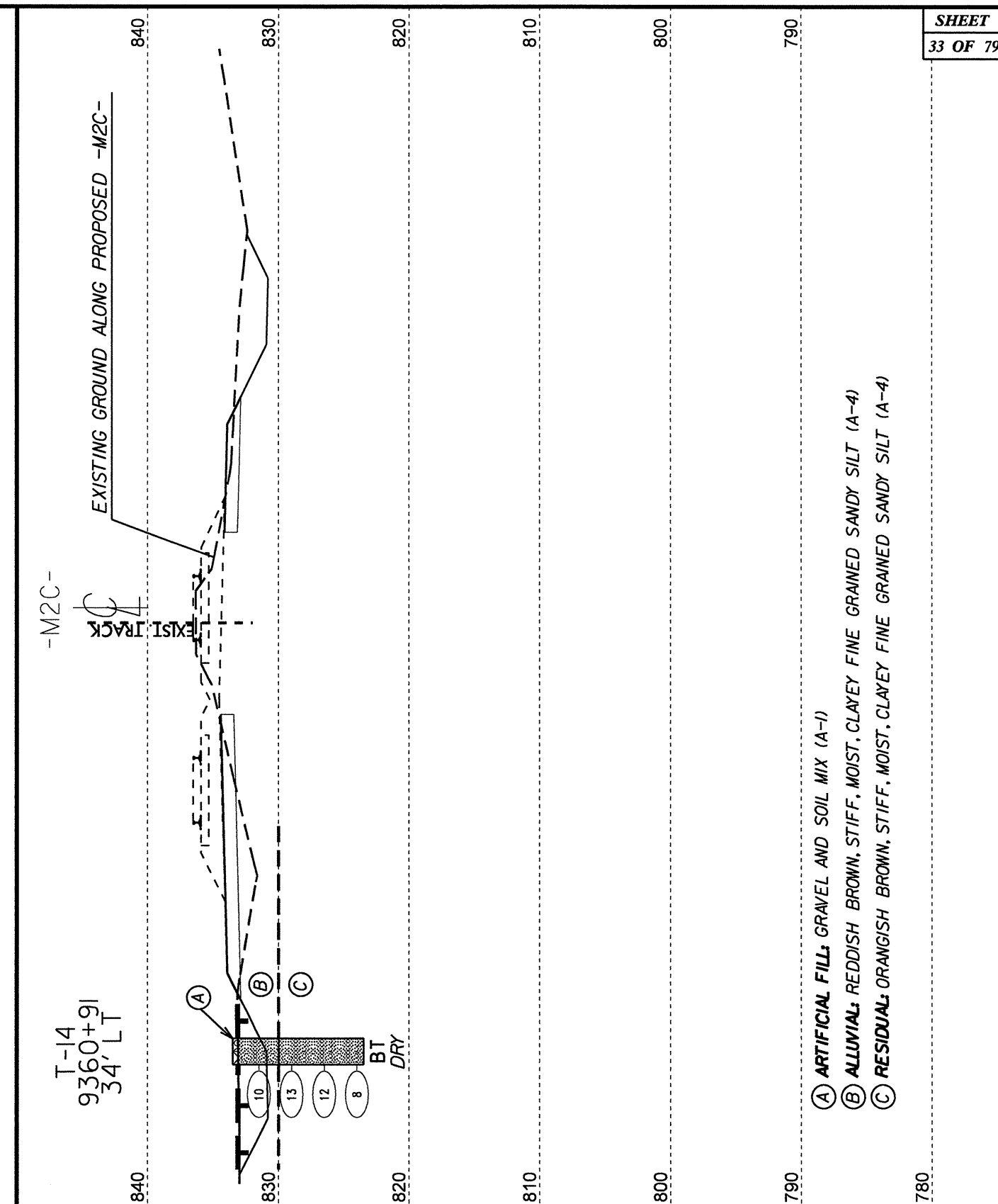
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NO.	BY	DATE	REVISION

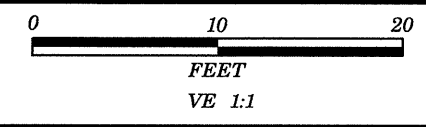
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 DO NOT USE FOR R/W ACQUISITION
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION



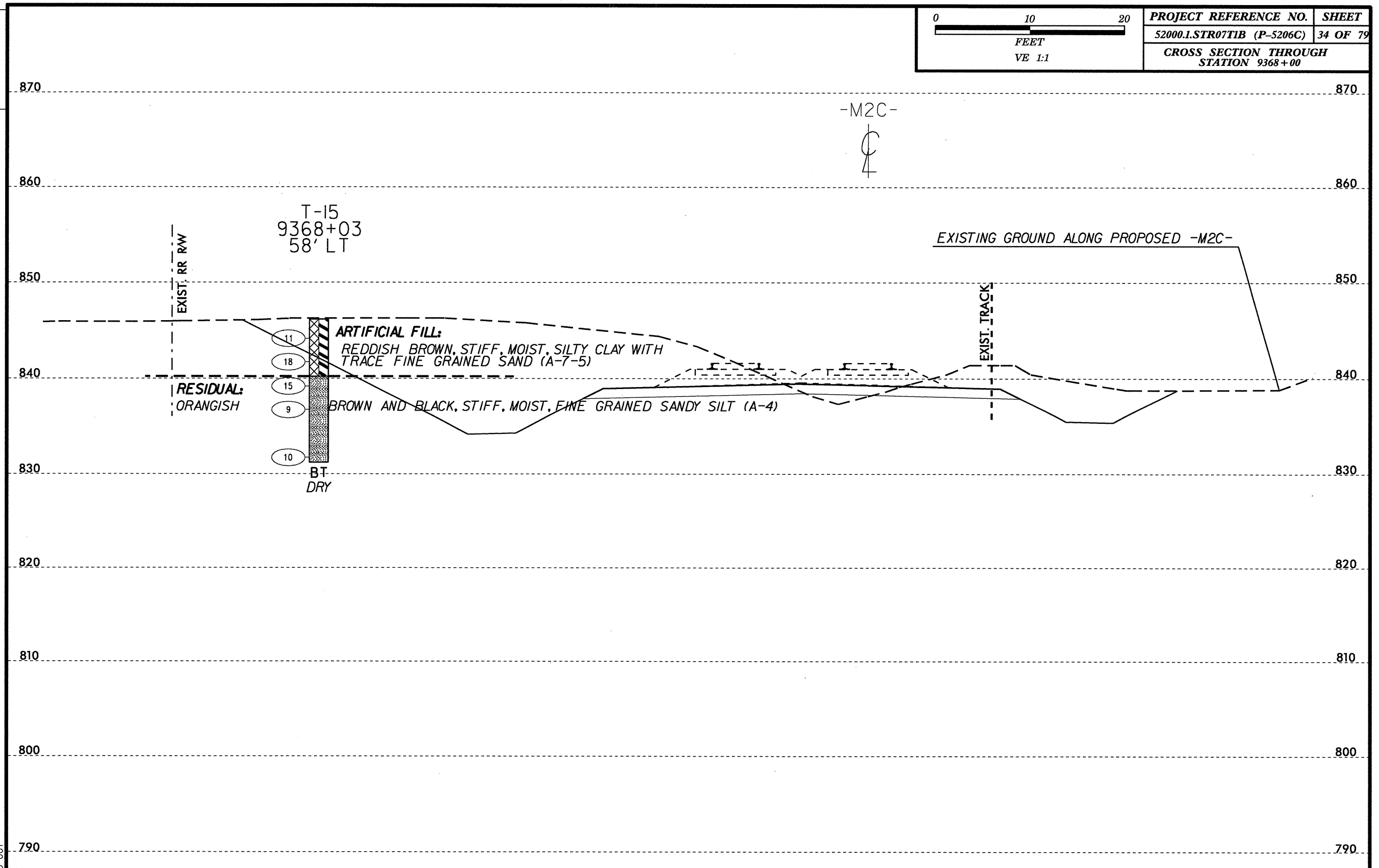
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PROJECT REID TO NORTH KANNAPOLIS		TITLE 52000.1.STR07T1B(P-5206C)		MILE POST
LOCATION	DGN BY MB	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR	VAL SEC V-8/2	DRAWING
DRN BY SLK	DATE MAY 2013	SCALE 1"=10' Horiz., 1"=10' Vert.	CROSS SECTION ALONG -M2C-	

0164DEL P1062



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	34 OF 79
CROSS SECTION THROUGH STATION 9368+00	



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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

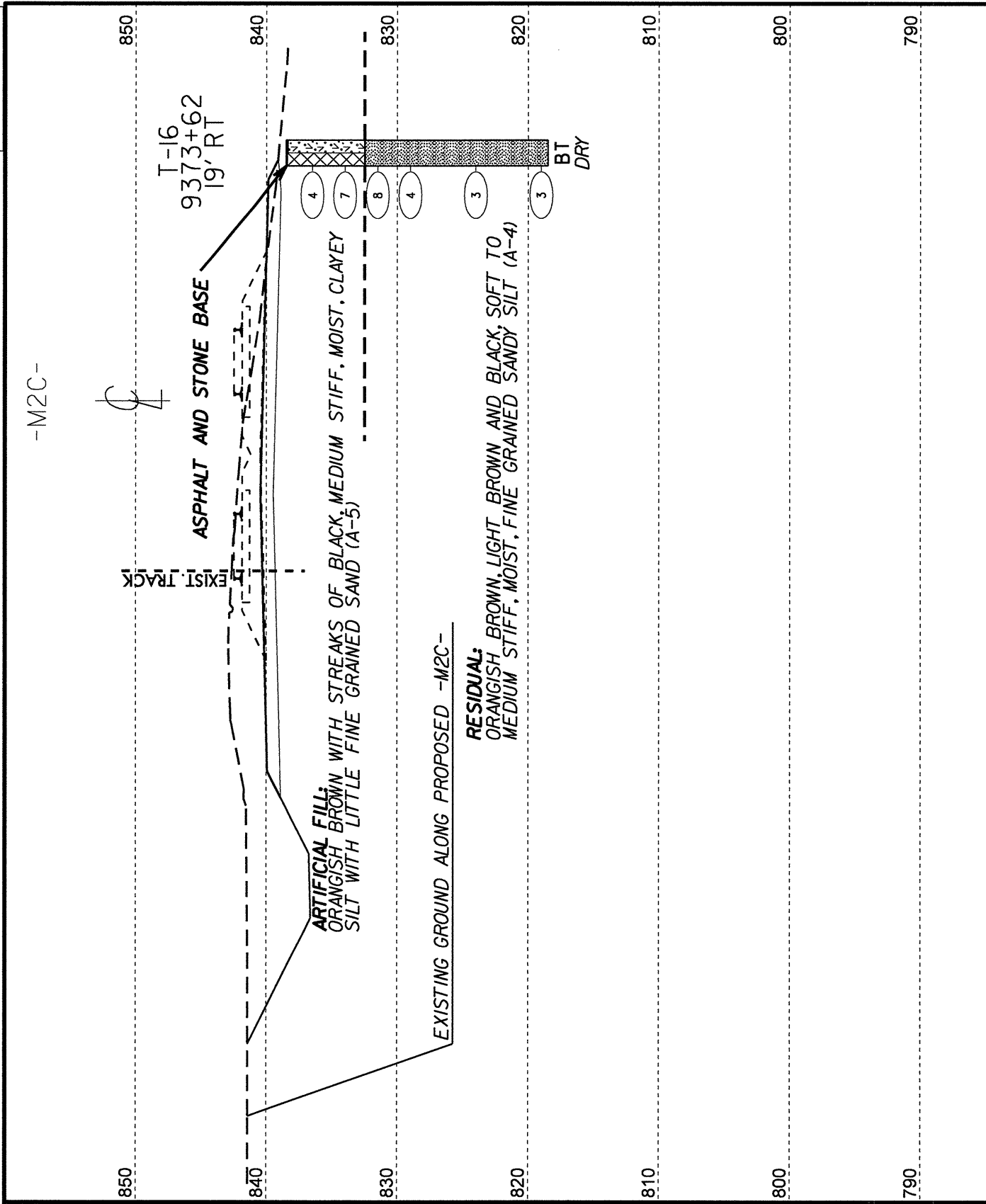
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319 8850
CORP. LICENSE NO. C-0275

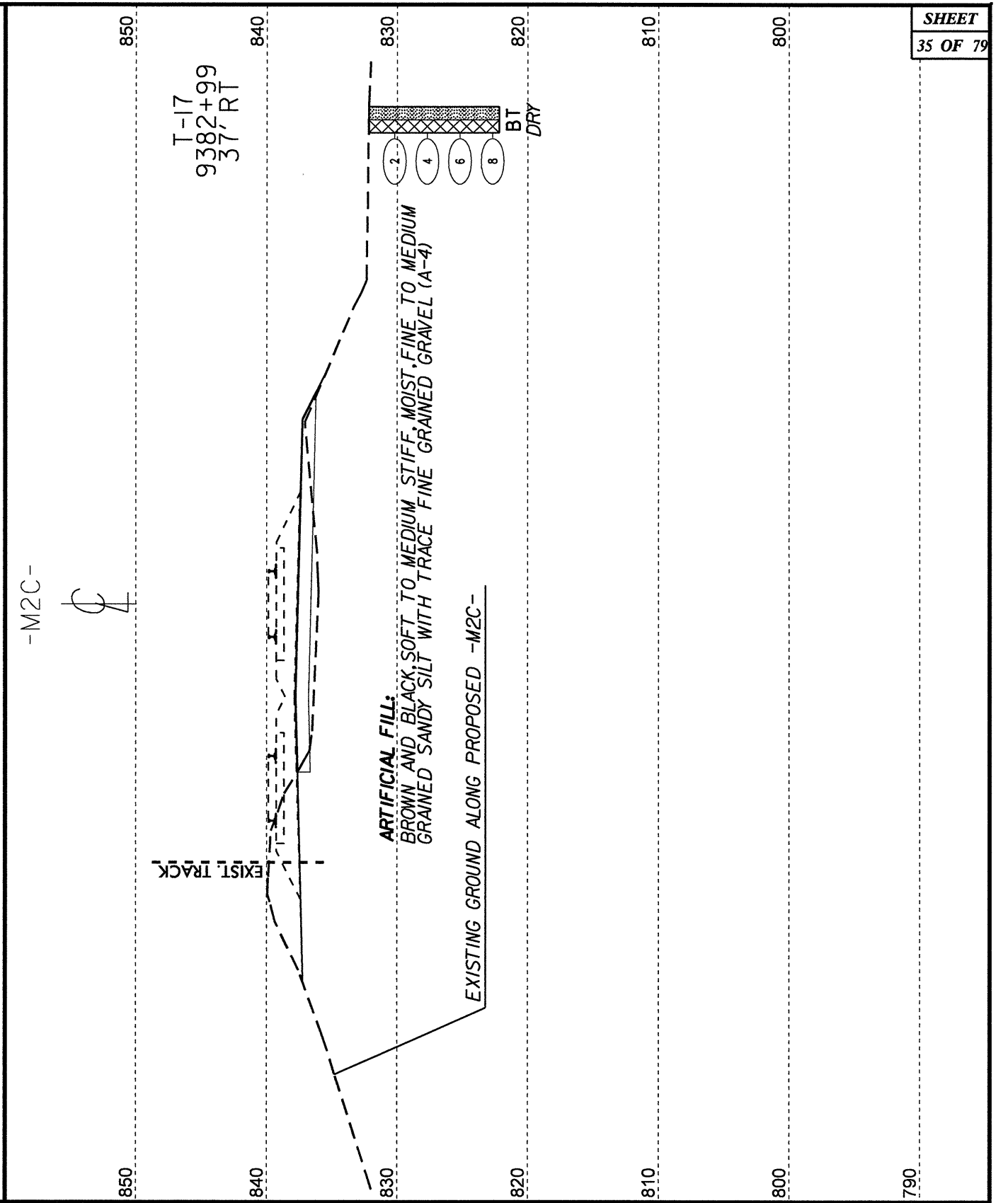
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TITLE 52000.1.STR07T1B (P-5206C)			
LOCATION		DRAWING	
DGN BY MB	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
DWN BY SLK	VAL SEC V-8/2		
CHK BY MB	DATE MAY 2013	SCALE 1"=10' Horiz., 1"=10' Vert.	
		CROSS SECTION ALONG -M2C-	

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P&R
 0164DEL P1062




HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 CROSS SECTION THROUGH STA 9374+00



HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 CROSS SECTION THROUGH STA 9384+00

NO.	BY	DATE	REVISION

INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

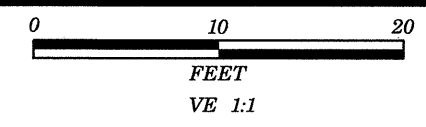
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

PREPARED BY:

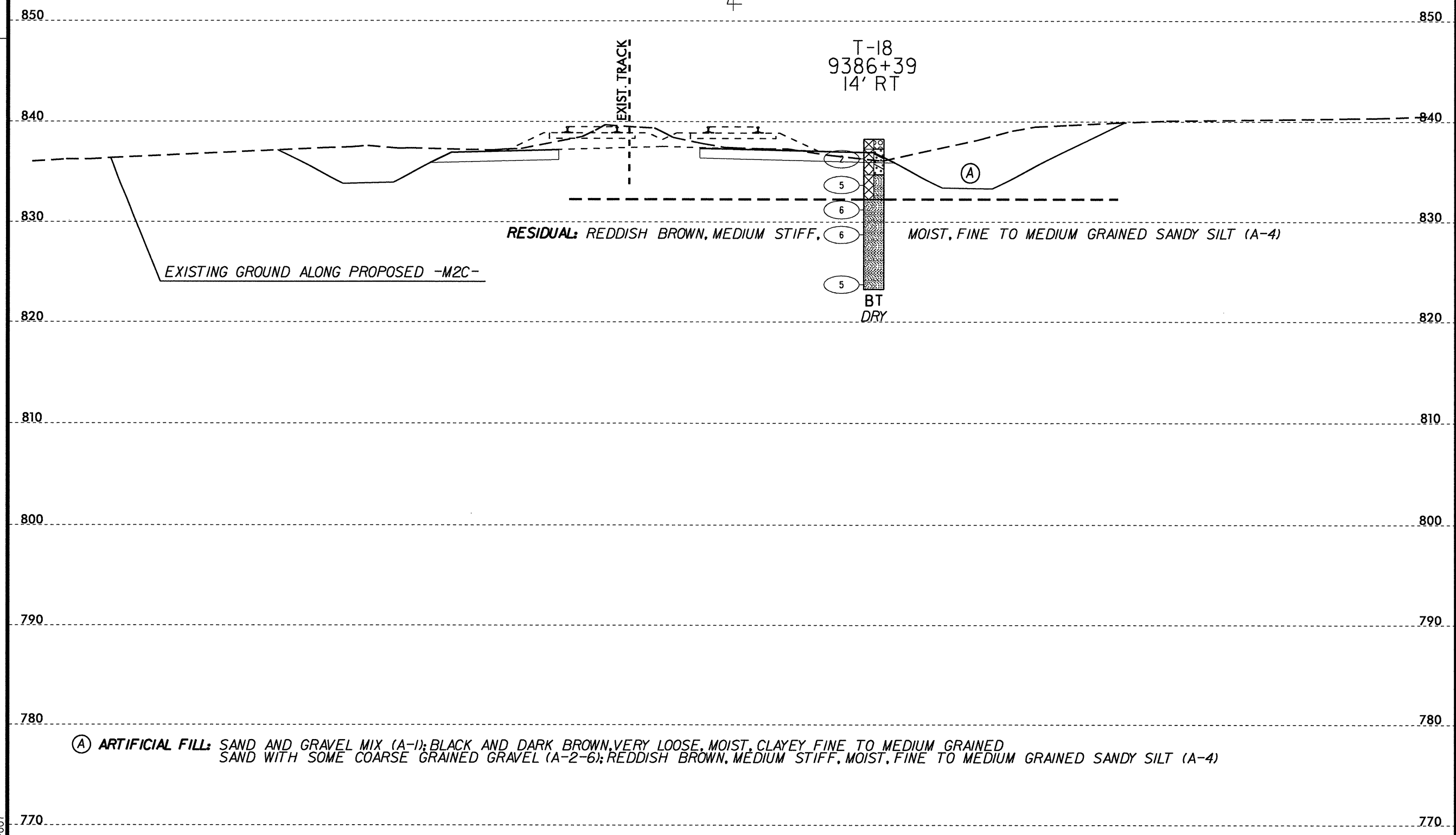
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TITLE 52000.1.STR07T1B(P-5206C)			
LOCATION			MILE POST
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE			1" = 10' Horiz., 1" = 10' Vert.
DRAWING			CROSS SECTION ALONG -M2C-

0164DEL P1062

-M2C-



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	36 OF 79
CROSS SECTION THROUGH STATION 9387+00	



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INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

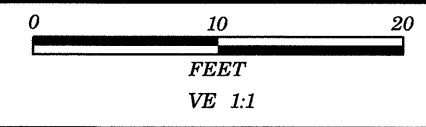
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
 975 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

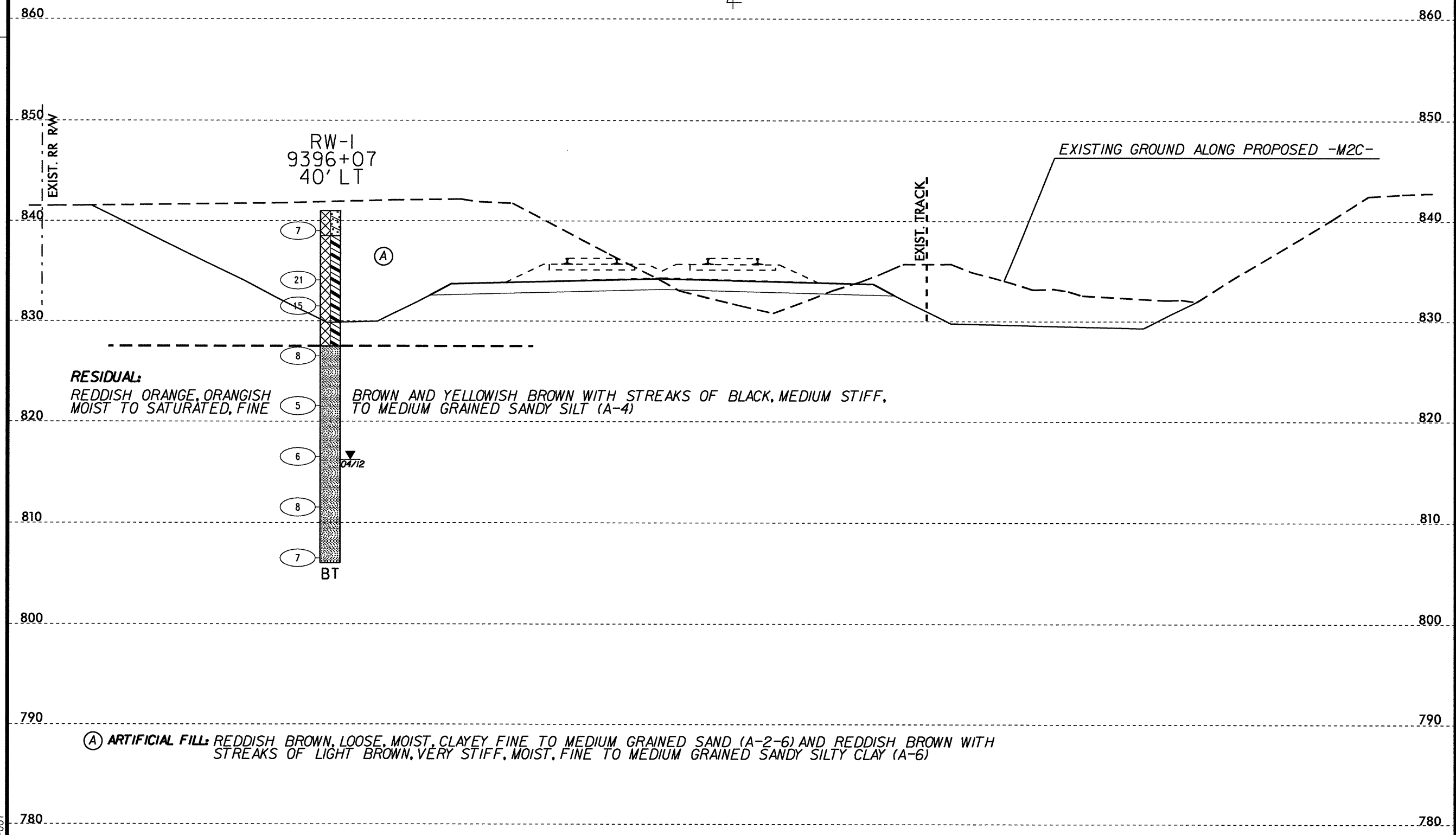
PROJECT REID TO NORTH KANNAPOLIS			
TITLE 52000.1.STR07T1B (P-5206C)			
LOCATION			MILE POST
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE 1" = 10' Horiz., 1" = 10' Vert.			CROSS SECTION ALONG -M2C-

0164DEL P1062

-M2C-




PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	37 OF 79
CROSS SECTION THROUGH STATION 9396+00	



RESIDUAL:
 REDDISH ORANGE, ORANGISH
 MOIST TO SATURATED, FINE

BROWN AND YELLOWISH BROWN WITH STREAKS OF BLACK, MEDIUM STIFF,
 TO MEDIUM GRAINED SANDY SILT (A-4)

(A) **ARTIFICIAL FILL:** REDDISH BROWN, LOOSE, MOIST, CLAYEY FINE TO MEDIUM GRAINED SAND (A-2-6) AND REDDISH BROWN WITH STREAKS OF LIGHT BROWN, VERY STIFF, MOIST, FINE TO MEDIUM GRAINED SANDY SILTY CLAY (A-6)

02-MAY-2013 13:50
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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

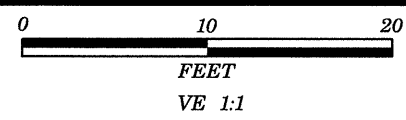
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
 975 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

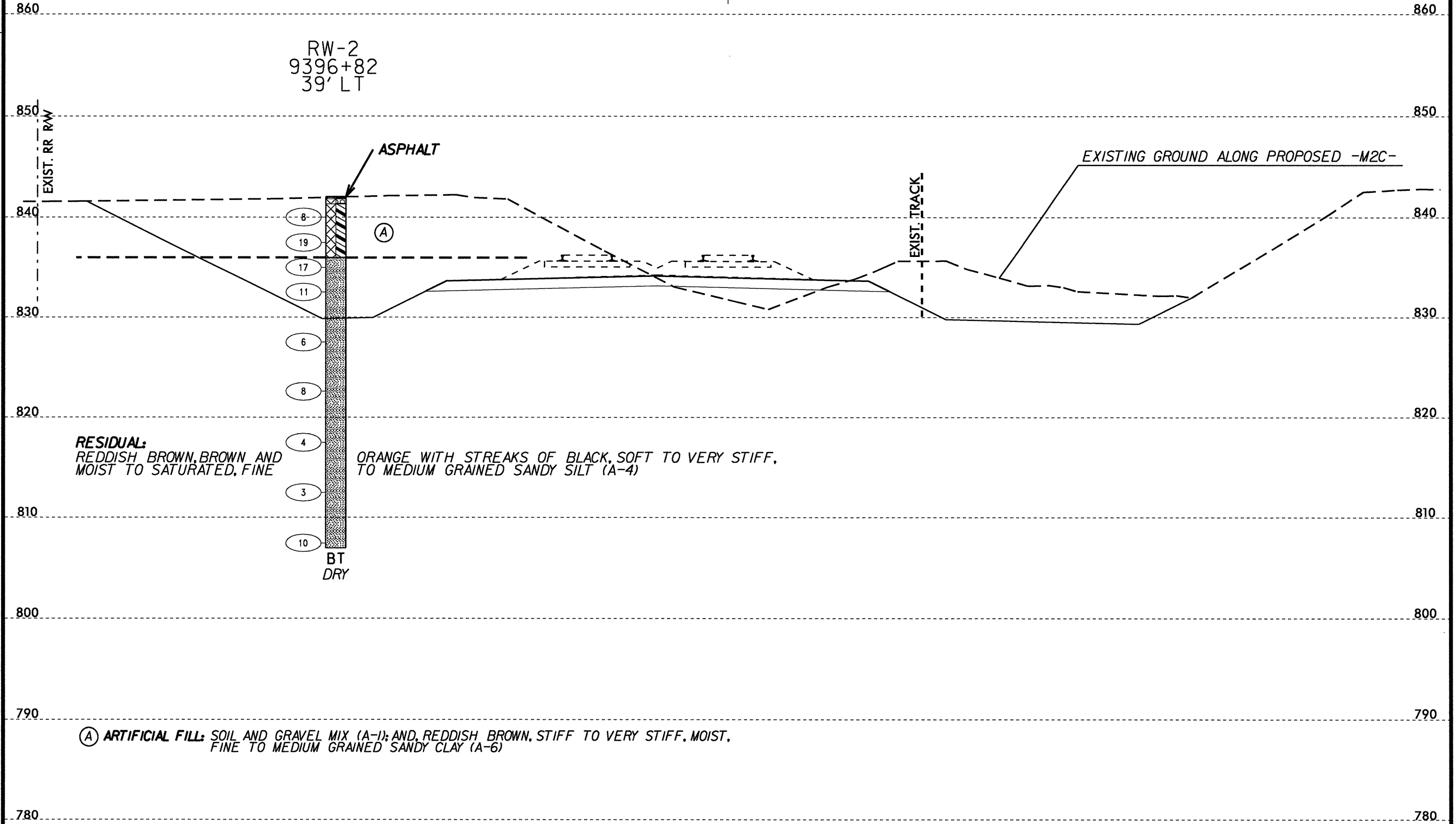
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TITLE 52000.1.STR07T1B (P-5206C)			
LOCATION	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR	DRAWING	
DGN BY MB	VAL SEC V-8/2	CROSS SECTION ALONG -M2C-	
DWN BY SLK	DATE MAY 2013		
CHK BY MB	SCALE 1"=10' Horiz., 1"=10' Vert.		

0164DEL P1062

-M2C-
C
4



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	38 OF 79
CROSS SECTION THROUGH STATION 9397+00	



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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

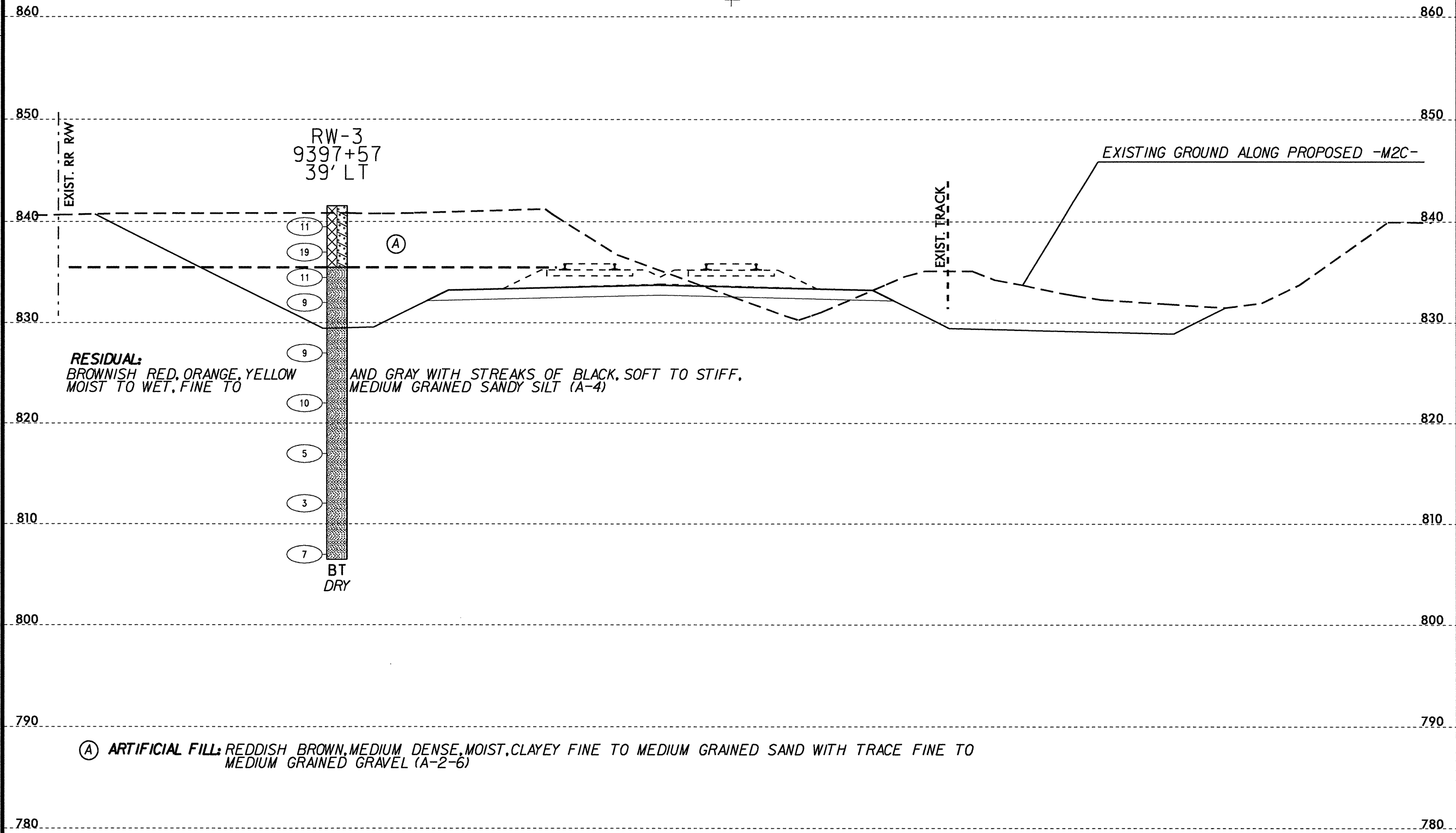
PREPARED BY: TGS
TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319 8850
CORP. LICENSE NO. 1C-0275

PROJECT REID TO NORTH KANNAPOLIS		MILE POST	
TITLE		52000.1.STR07T1B (P-5206C)	
LOCATION	RAILROAD	DRAWING	
DGN BY MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	CROSS SECTION ALONG -M2C-	
DWN BY SLK	VAL SEC V-8/2		
CHK BY MB	DATE MAY 2013		
SCALE 1" = 10' Horiz., 1" = 10' Vert.			

0164DEL P1062

-M2C-
C
4

	PROJECT REFERENCE NO.	SHEET
	52000.1.STR07T1B (P-5206C)	39 OF 79
CROSS SECTION THROUGH STATION 9398+00		



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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
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PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

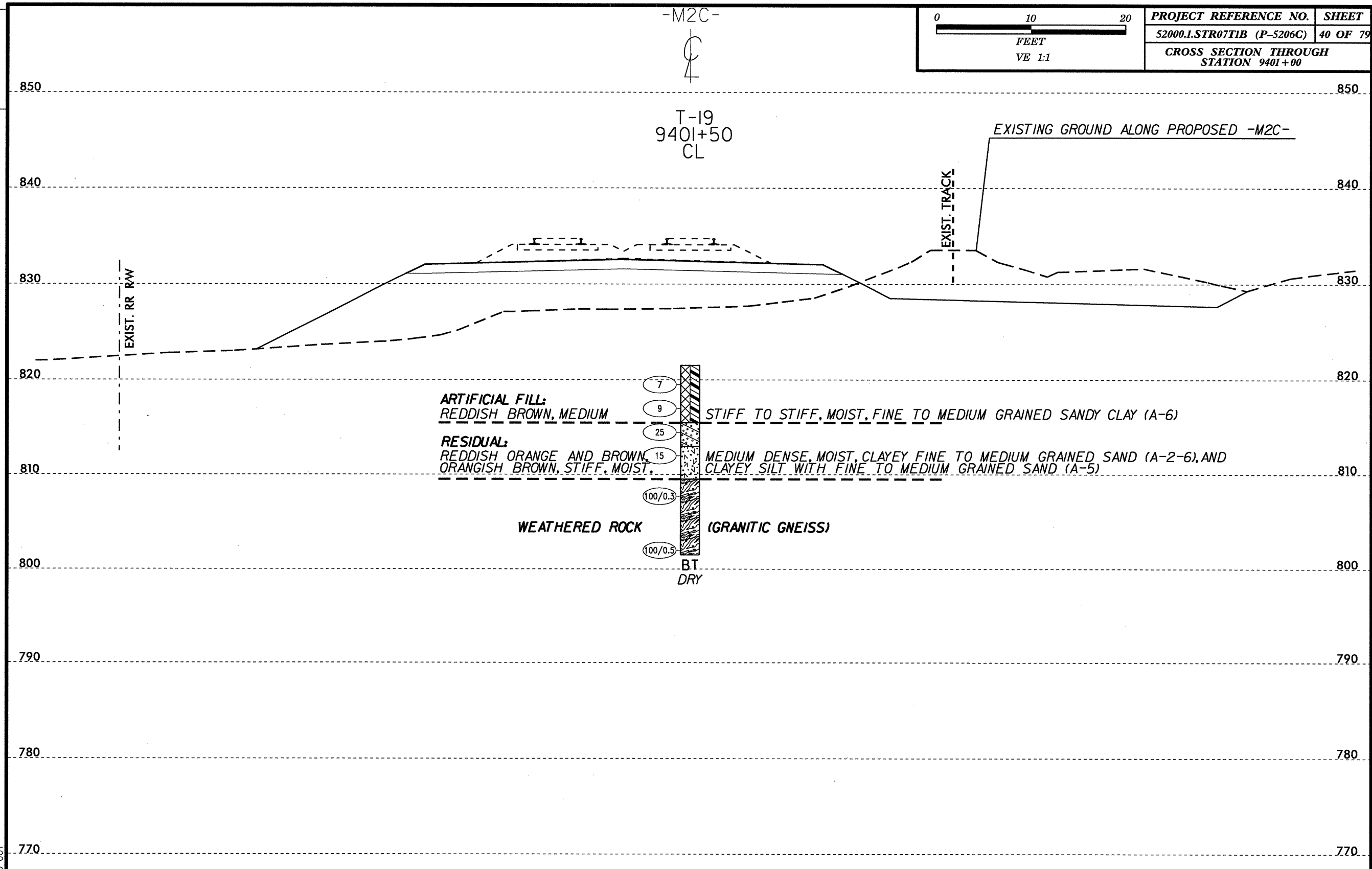
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
 375 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. 1C-0275

PROJECT		REID TO NORTH KANNAPOLIS	
TITLE		52000.1.STR07T1B (P-5206C)	
LOCATION		MILE POST	
DESIGNED BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DRAWN BY	SLK	VAL SEC	V-8/2
CHECKED BY	MB	DATE	MAY 2013
		SCALE	1" = 10' Horiz., 1" = 10' Vert.
CROSS SECTION ALONG -M2C-			

0164DEL P1062



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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

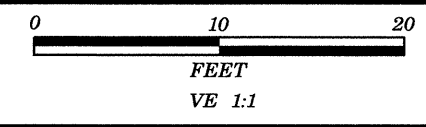
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
575 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

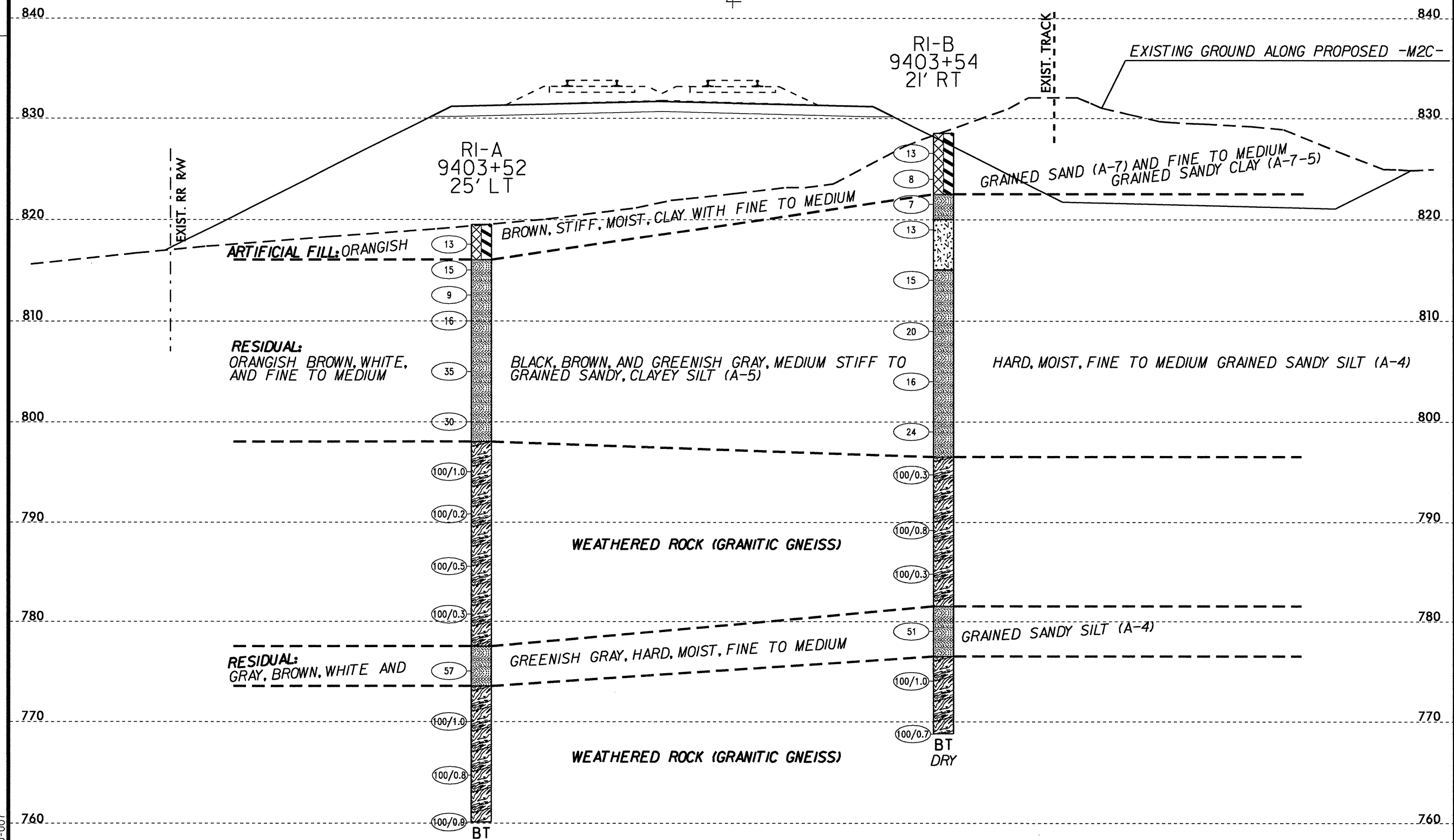
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TITLE		52000.1.STR07T1B (P-5206C)	
LOCATION	RAILROAD	MILE POST	
DGN BY: MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	DRAWING	
DWN BY: SLK	VAL SEC: V-8/2		
CHK BY: MB	DATE: MAY 2013	SCALE: 1" = 10' Horiz., 1" = 10' Vert.	
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0164DEL P1062

-M2C-



PROJECT REFERENCE NO.	SHEET
52000.1.STR07TIB (P-5206C)	41 OF 79
CROSS SECTION THROUGH STATION 9403+50	



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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
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PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

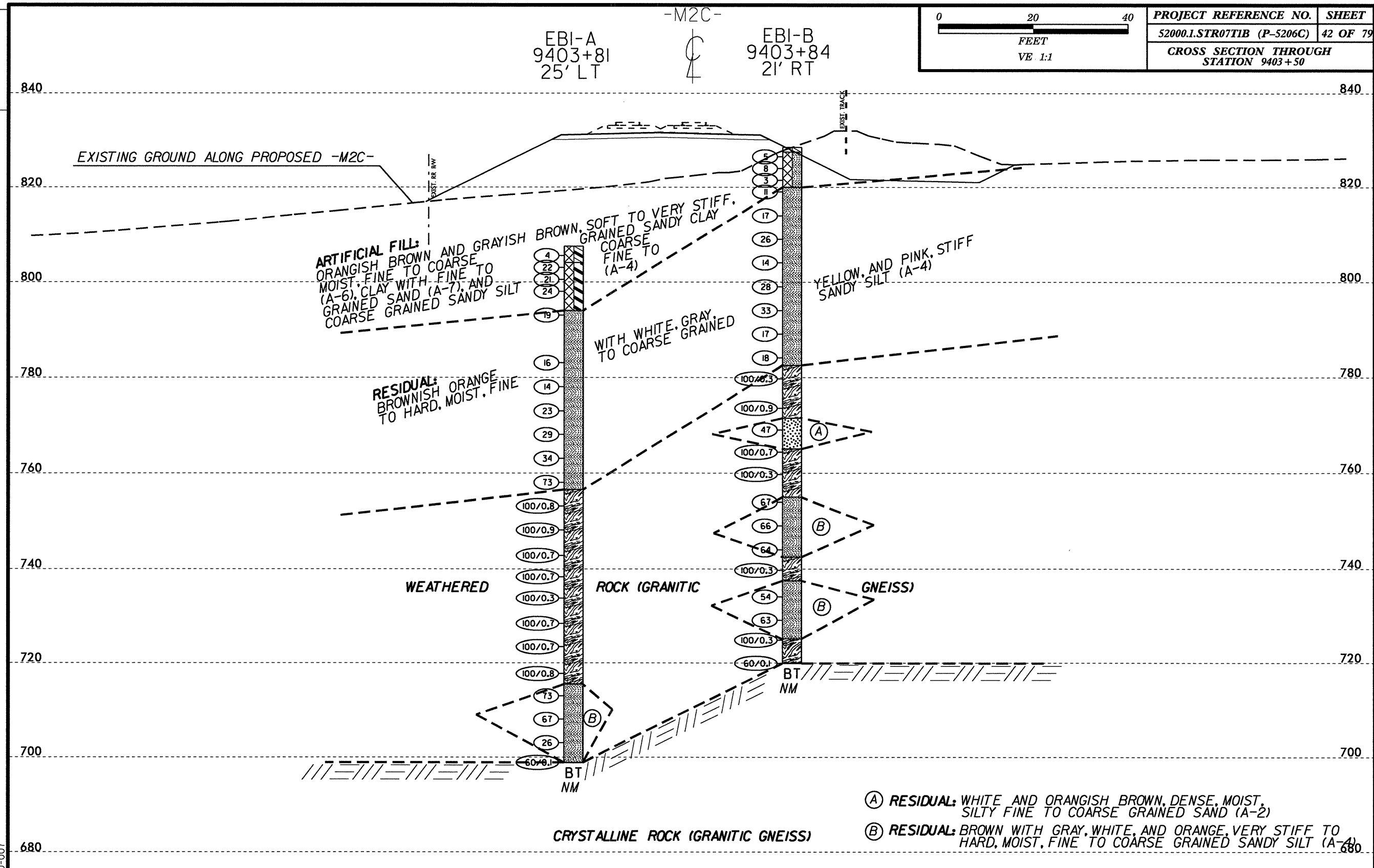
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
 375 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

PROJECT		REID TO NORTH KANNAPOLIS	
TITLE		52000.1.STR07TIB (P-5206C)	
LOCATION		MILE POST	
DNW BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
CHK BY	SLK	VAL SEC	V-8/2
DATE	MAY 2013	SCALE	1" = 10' Horiz., 1" = 10' Vert.
			CROSS SECTION ALONG -M2C-

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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

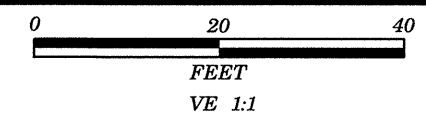
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: TGS ENGINEERS
375 WALNUT STREET, SUITE 141
CARY, NC 27513
PH (919) 319 8850
CORP. LICENSE NO. C-0275

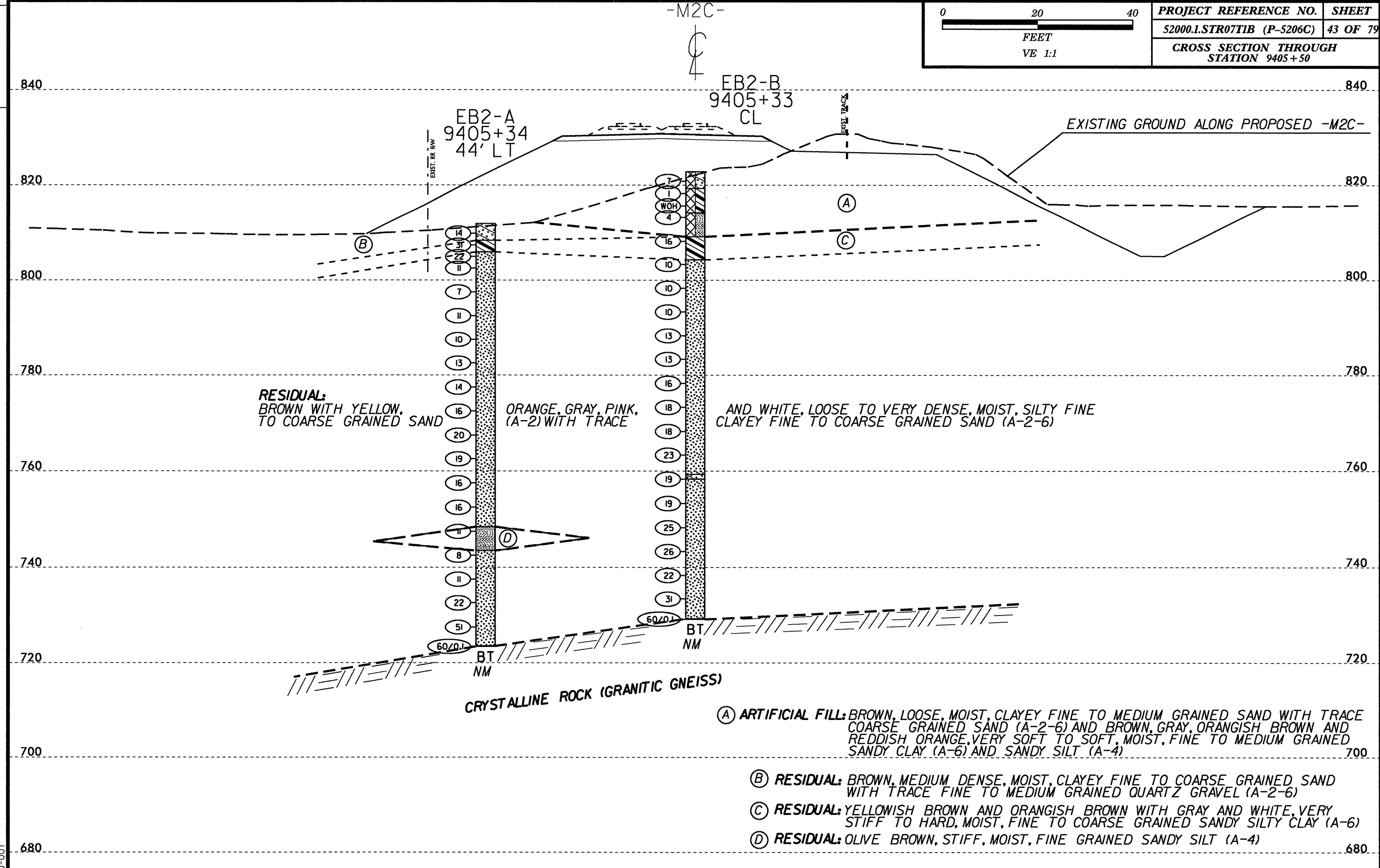
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LOCATION		52000.1.STR07TIB (P-5206C)	
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CHK BY	SLK	VAL SEC	V-B/2
DATE		MAY 2013	
SCALE		1" = 20' Horiz., 1" = 20' Vert.	
DRAWING		CROSS SECTION ALONG -M2C-	

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PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	43 OF 79
CROSS SECTION THROUGH STATION 9405+50	



NO.	BY	DATE	REVISION


INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
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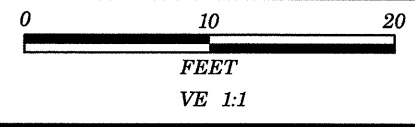
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
375 WALNUT STREET, SUITE 141
CARY, NC 27513
PH (919) 319 8850
CORP. LICENSE NO. 1C-0275

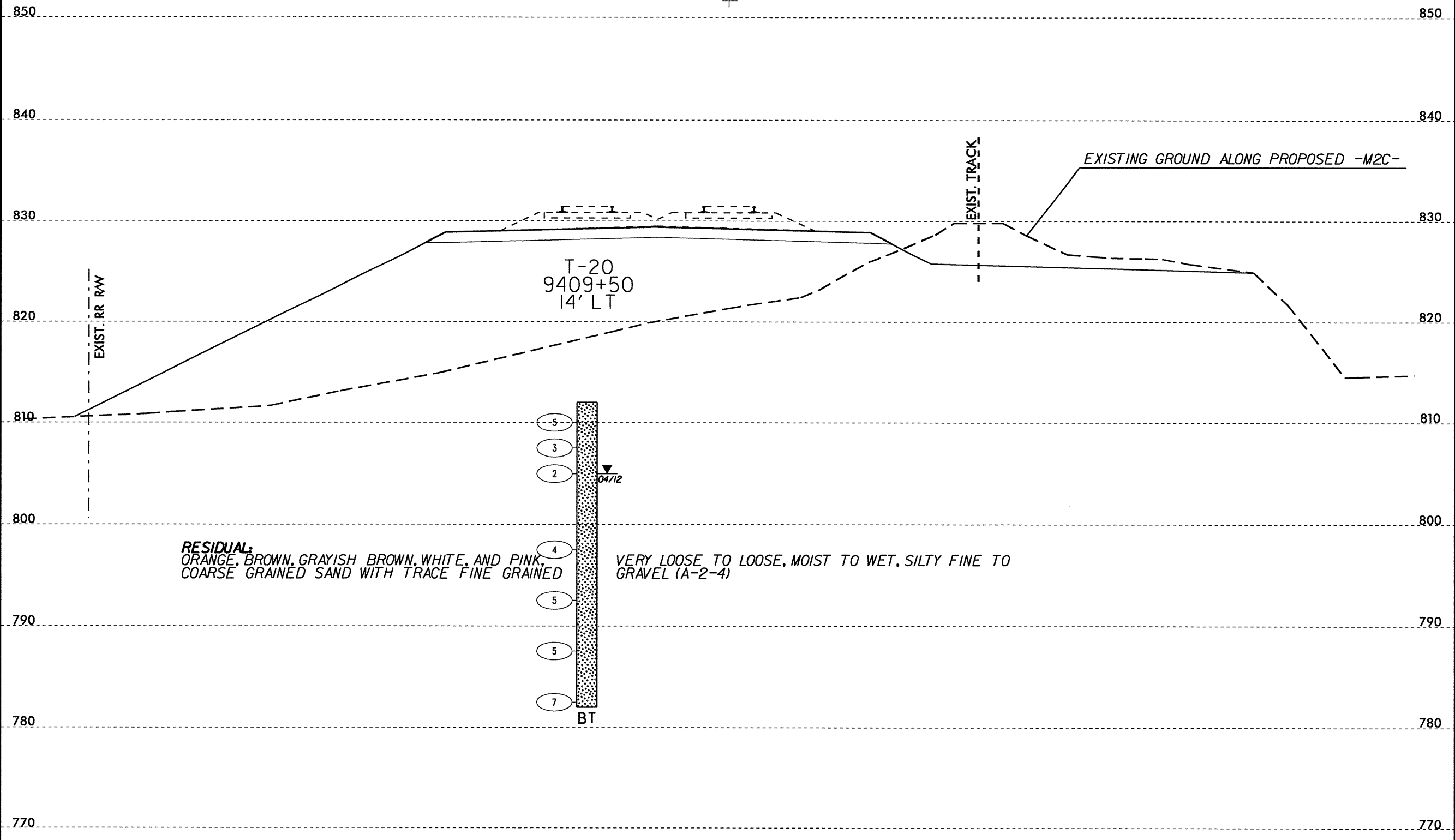
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TITLE		NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
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CHK BY MB	DATE MAY 2013	VAL SEC V-8/2	CROSS SECTION ALONG -M2C-	
DWN BY SLK	SCALE 1" = 20' Horiz., 1" = 20' Vert.			

0164DEL P1062

-M2C-







PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	44 OF 79
CROSS SECTION THROUGH STATION 9410+00	



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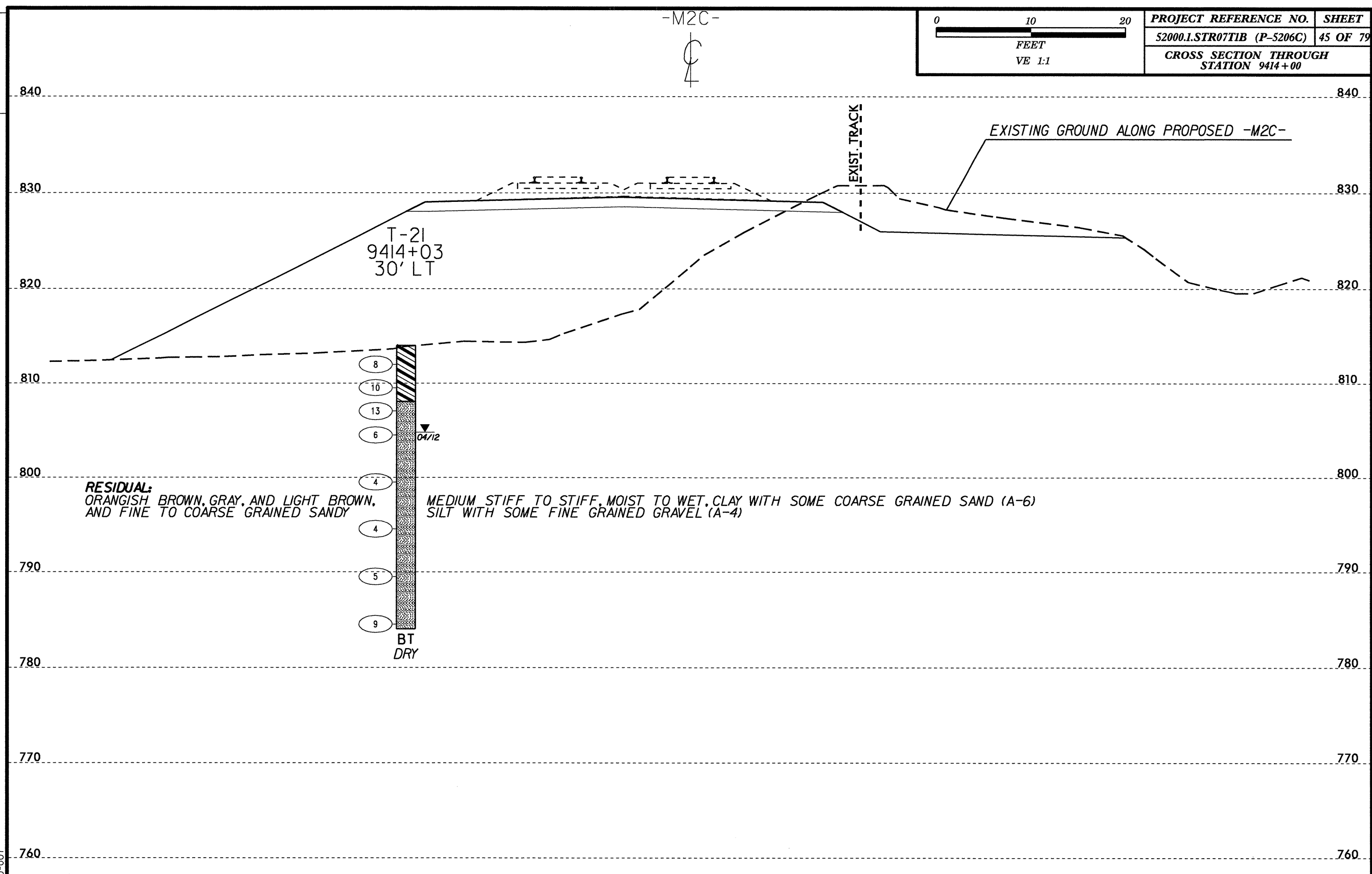
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 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY:  TGS ENGINEERS
 975 WALNUT STREET, SUITE 141
 CARY, NC 27511
 PH (919) 319 8850
 CORP. LICENSE NO. 1C-0275

PROJECT REID TO NORTH KANNAPOLIS		WILE POST	
TITLE 52000.1.STR07T1B (P-5206C)			
LOCATION	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
DGN BY MB	VAL SEC V-8/2		
CHK BY MB	DATE MAY 2013	SCALE 1" = 10' Horiz., 1" = 10' Vert.	
CROSS SECTION ALONG -M2C-			

DWN 0164DEL P1062



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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

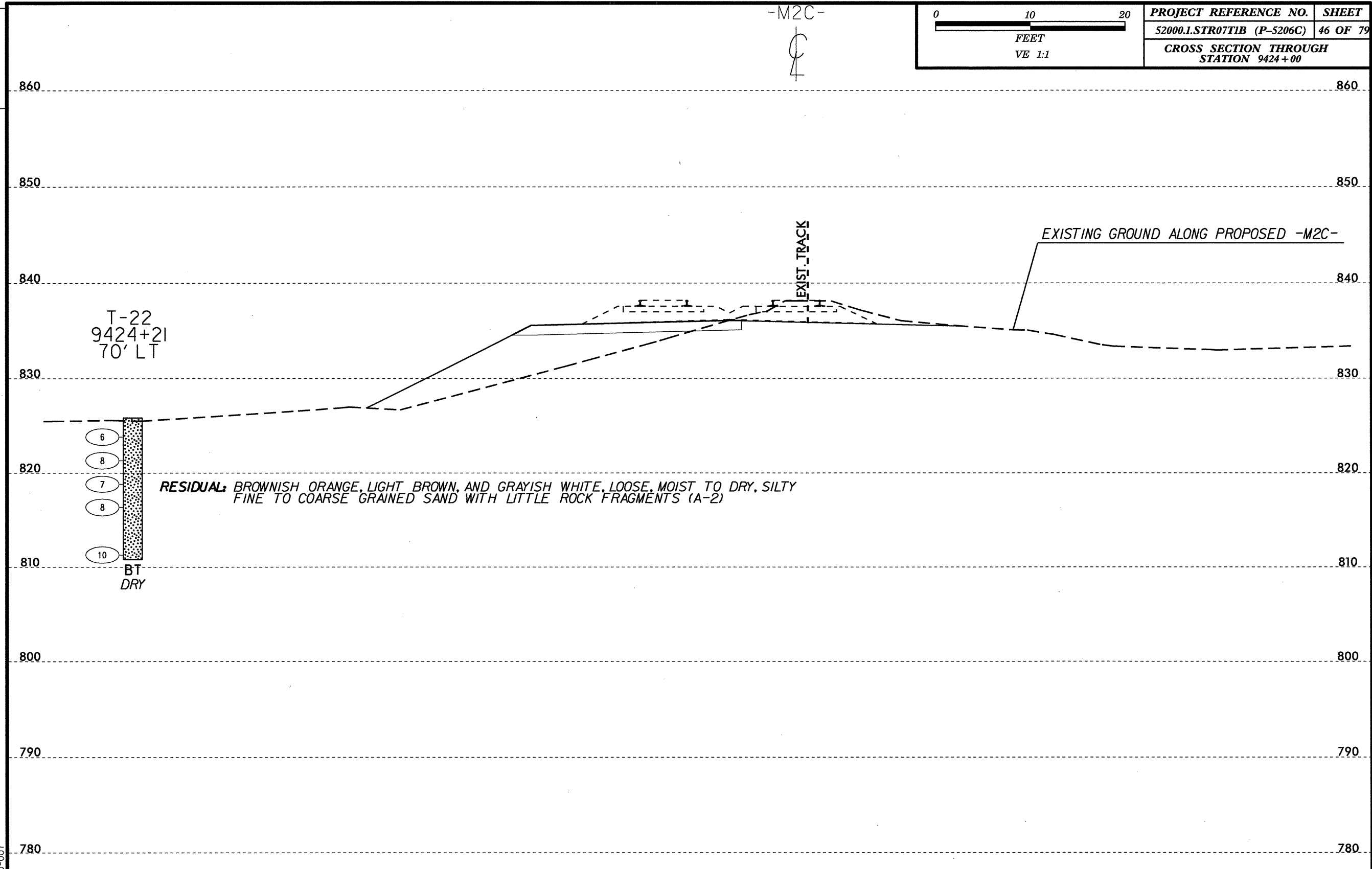
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
975 WALNUT STREET, SUITE 141
 CARY, NC 27511
 PH (919) 319 8850
 CORP. LICENSE NO. 1C-0275

PROJECT		REID TO NORTH KANNAPOLIS	
TITLE		52000.1.STR07T1B (P-5206C)	
LOCATION	RAILROAD		MILE POST
DGN BY	MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
		SCALE	1" = 10' Horiz., 1" = 10' Vert.
CROSS SECTION ALONG -M2C-			

PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	45 OF 79
CROSS SECTION THROUGH STATION 9414+00	

DCR 0164DEL P1062



02-MAY-2013 13:52 G:\2012-SDE-Jobs\282003-TGS Engineers NCDOT RailProject\CADD\PS206.GEO_TRACK_XSECTION.dgn SKITTS AT 08-2110-007

NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

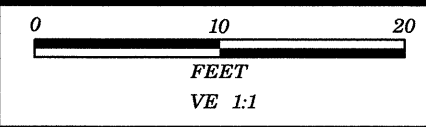
PREPARED BY: **TGS ENGINEERS**
 975 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. IC-0275

PROJECT TITLE		REID TO NORTH KANNAPOLIS	
LOCATION		52000.1.STR07T1B (P-5206C)	
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
DWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE		1" = 10' Horiz., 1" = 10' Vert.	
DRAWING		CROSS SECTION ALONG -M2C-	

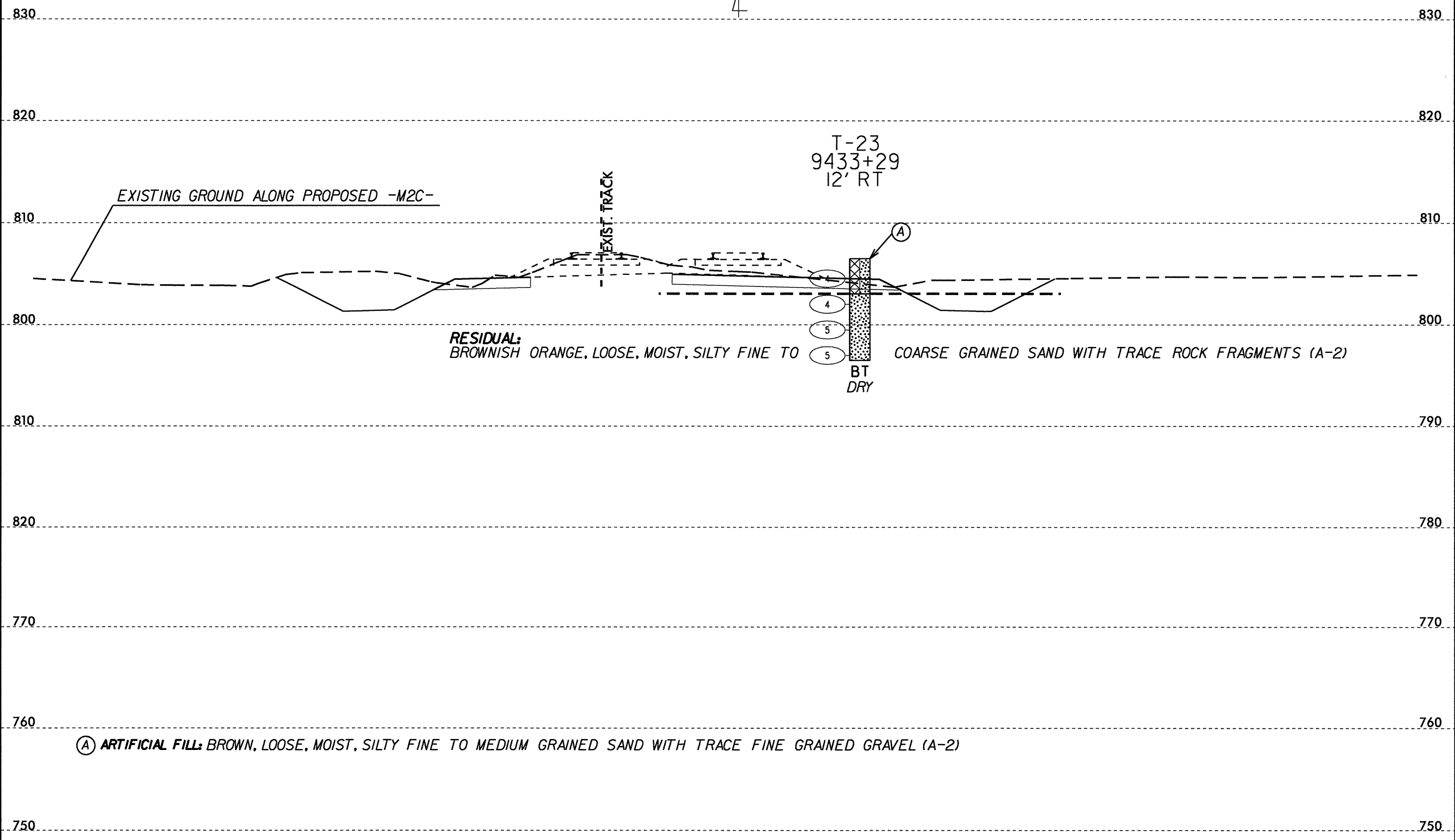
PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	46 OF 79
CROSS SECTION THROUGH STATION 9424+00	

0164DEL P1062

-M2C-




PROJECT REFERENCE NO.	SHEET
52000.1.STR0711B (P-5206C)	47 OF 79
CROSS SECTION THROUGH STATION 9433+00	



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NO.	BY	DATE	REVISION

INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

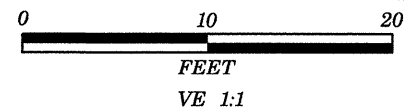
RAIL DIVISION

PREPARED BY: **TGS ENGINEERS**
 975 WALNUT STREET, SUITE 141
 CARY, NC 27513
 PH (919) 319 8850
 CORP. LICENSE NO. C-0275

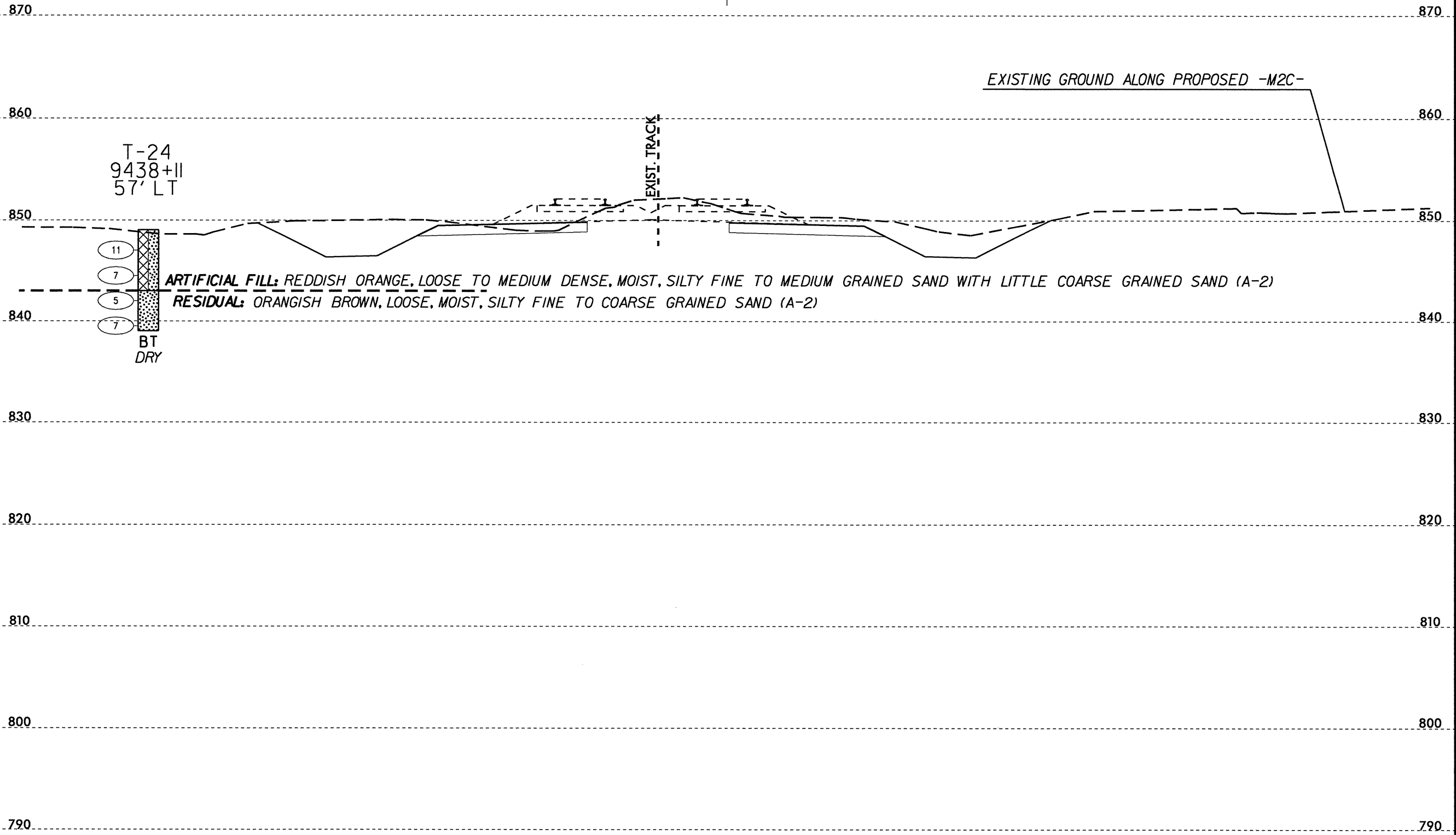
PROJECT REID TO NORTH KANNAPOLIS			
TITLE 52000.1.STR0711B (P-5206C)			
LOCATION		MILE POST	
DGN BY	MB	RAILROAD	NORTH CAROLINA RR & NORFOLK SOUTHERN RR
OWN BY	SLK	VAL SEC	V-8/2
CHK BY	MB	DATE	MAY 2013
SCALE		1" = 10' Horiz., 1" = 10' Vert.	
CROSS SECTION ALONG -M2C-			

0164DEL P1062

-M2C-



PROJECT REFERENCE NO.	SHEET
52000.1.STR07T1B (P-5206C)	48 OF 79
CROSS SECTION THROUGH STATION 9438+00	



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NO.	BY	DATE	REVISION

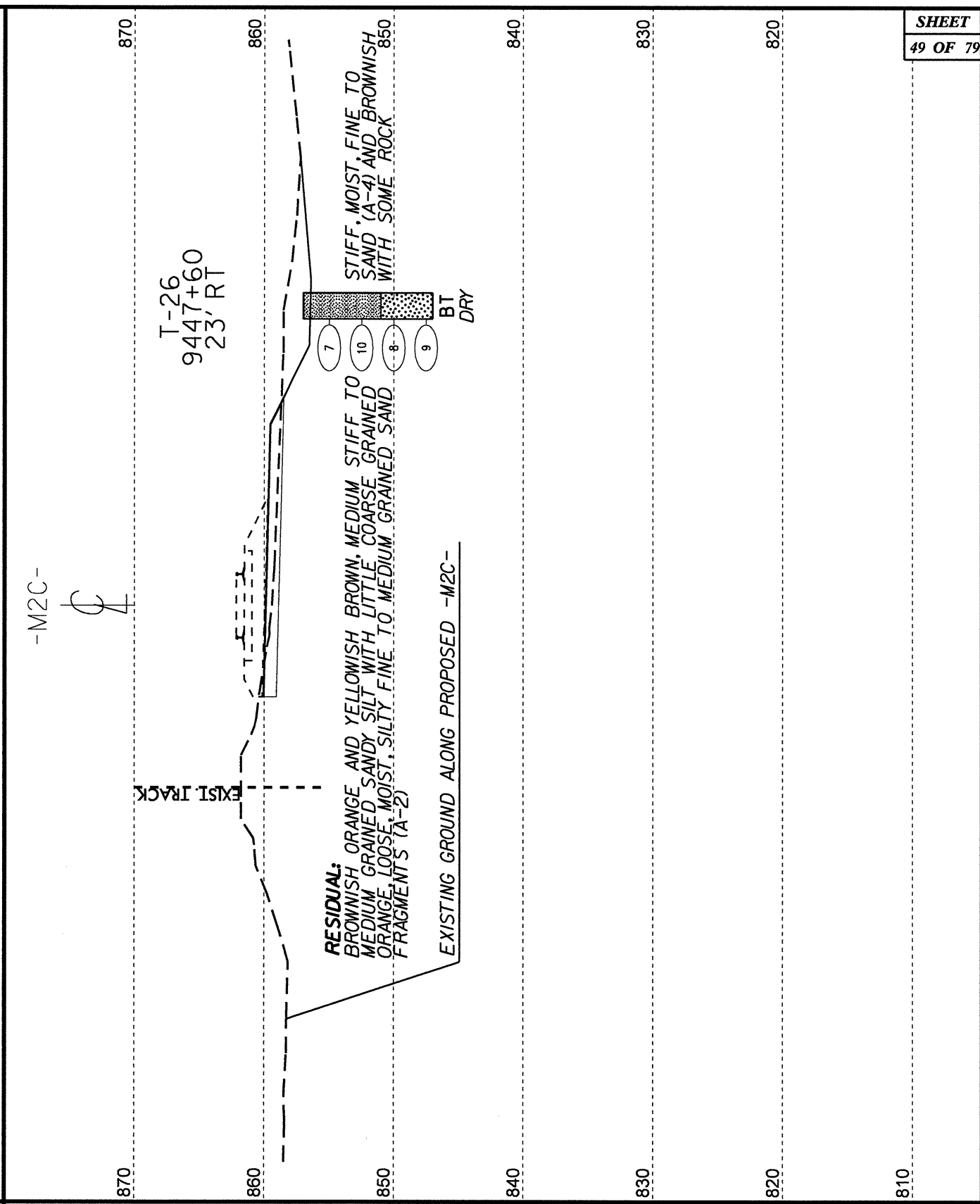
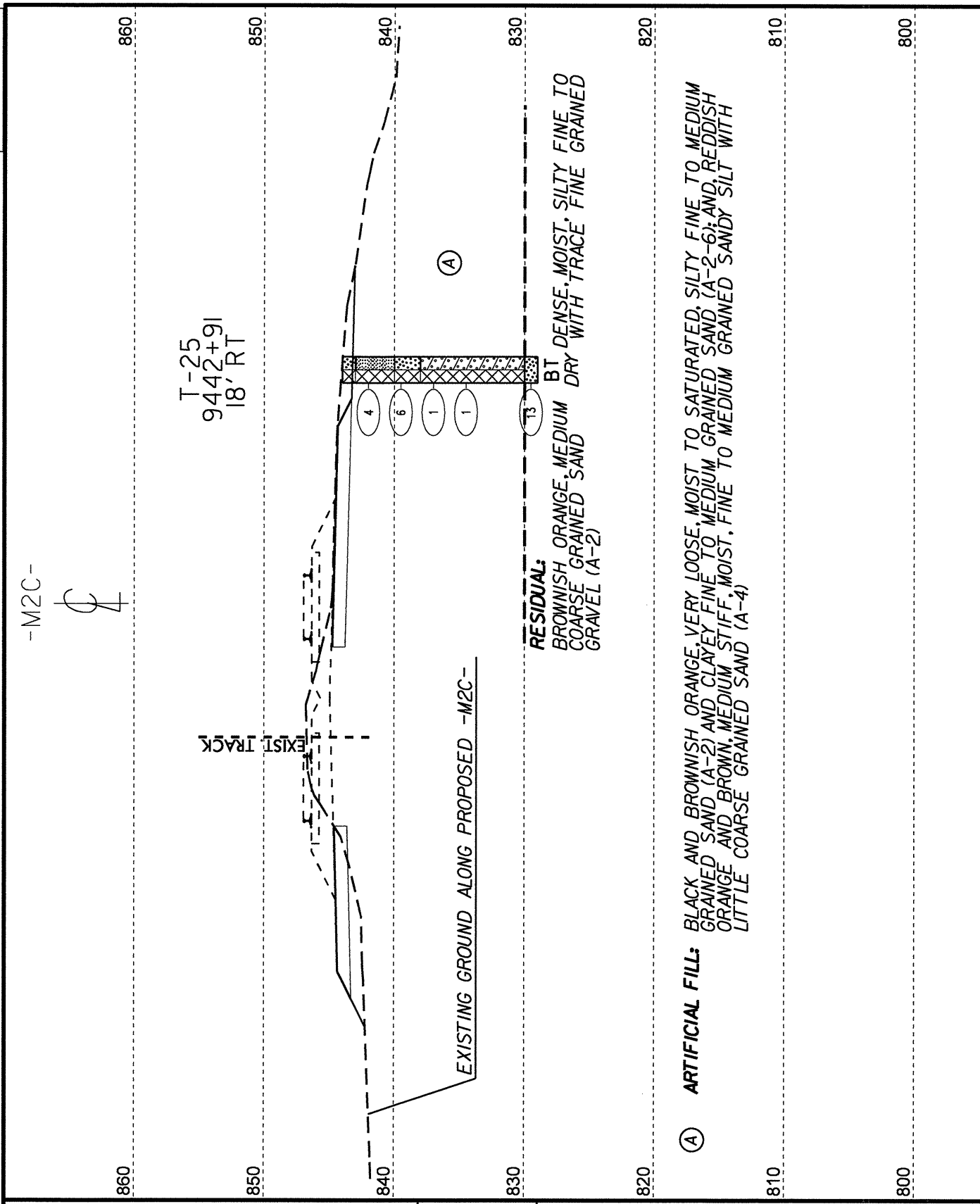
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
PREPARED BY: TGS ENGINEERS
 375 WALNUT STREET, SUITE 141
 CARY, NC 27511
 PH (919) 319 8850
 CORP. LICENSE NO. 1C-0275

PROJECT REID TO NORTH KANNAPOLIS		TITLE 52000.1.STR07T1B (P-5206C)	
LOCATION		MILE POST	
DGN BY MB	RAILROAD NORTH CAROLINA RR & NORFOLK SOUTHERN RR		
DWN BY SLK	VAL SEC V-8/2		
CHK BY MB	DATE MAY 2013	SCALE 1" = 10' Horiz., 1" = 10' Vert.	CROSS SECTION ALONG -M2C-

02-MAY-2013 13:53
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 SKITTS

0164DEL P1062



HORIZ. SCALE 0 10 20 (FEET) VE = 1:1

CROSS SECTION THROUGH STA 9443+00

HORIZ. SCALE 0 10 20 (FEET) VE = 1:1

CROSS SECTION THROUGH STA 9448+00

NO.	BY	DATE	REVISION

INCOMPLETE PLANS
DO NOT USE FOR A/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY:

PROJECT REID TO NORTH KANNAPOLIS			
TITLE 52000.1.STR07TIB(P-5206C)			
LOCATION			
DGN BY	RAILROAD	MILE POST	
MB	NORTH CAROLINA RR & NORFOLK SOUTHERN RR	DRAWING	
DWN BY	VAL SEC	SCALE 1"=10' Horiz., 1"=10' Vert.	
SLK	V-8/2	CROSS SECTION ALONG -M2C-	
CHK BY	DATE	MAY 2013	
MB			



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)										
BORING NO. T-01		STATION 9230+13		OFFSET 70 ft LT		ALIGNMENT -M2C-										
COLLAR ELEV. 814.0 ft		TOTAL DEPTH 15.0 ft		NORTHING 672,419		EASTING 1,538,330										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER J. Turnage		START DATE 06/06/12		COMP. DATE 06/06/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					ELEV. (ft)	DEPTH (ft)
815																
	813.0	1.0		2	2	4										
810	810.5	3.5		3	4	5										
	808.0	6.0		1	2	3										
805	805.5	8.5		1	1	2										
	800.5	13.5		1	3	3										
800																
<p>GROUND SURFACE 814.0</p> <p>ARTIFICIAL FILL GRAVEL 813.4</p> <p>RESIDUAL YELLOWISH BROWN AND REDDISH ORANGE, SILTY CLAY, WITH LITTLE FINE GRAINED SAND</p> <p>AT 6.0FT: TRACE FINE GRAINED SAND</p> <p>AT 8.5FT: REDDISH BROWN AND YELLOWISH BROWN</p> <p>Boring Terminated at Elevation 799.0 ft In Silty Clay</p>																

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)										
BORING NO. T-02		STATION 9240+82		OFFSET 26 ft LT		ALIGNMENT -M2C-										
COLLAR ELEV. 820.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 671,584		EASTING 1,537,661										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER J. Turnage		START DATE 06/06/12		COMP. DATE 06/06/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					ELEV. (ft)	DEPTH (ft)
820																
	819.0	1.0		1	2	3										
815	816.5	3.5		1	3	5										
	814.0	6.0		2	2	4										
810	811.5	8.5		1	2	3										
<p>GROUND SURFACE 820.0</p> <p>ARTIFICIAL FILL GRAVEL 819.4</p> <p>RESIDUAL YELLOWISH BROWN AND REDDISH ORANGE, CLAYEY SILT, WITH TRACE FINE GRAINED GRAVEL</p> <p>ORANGISH BROWN AND TAN, SILT, WITH LITTLE FINE GRAINED SAND</p> <p>AT 8.5FT: BLACK, TAN, AND BROWN</p> <p>Boring Terminated at Elevation 810.0 ft In Silt</p>																



DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree							
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)							
BORING NO. T-03		STATION 9250+28		OFFSET 71 ft LT		ALIGNMENT -M2C-							
COLLAR ELEV. 830.2 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,796		EASTING 1,537,136							
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER J. Turnage		START DATE 06/06/12		COMP. DATE 06/06/12		SURFACE WATER DEPTH N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75				
835													
830	829.2	1.0	2	3	5						M	830.2 GROUND SURFACE	0.0
	826.7	3.5	4	7	10						M	RESIDUAL ORANGISH BROWN WITH SOME BLACK, CLAYEY SILT, WITH TRACE FINE GRAINED SAND AND ROOTS, SLIGHTLY MICACEOUS	
825	824.2	6.0	2	3	5						M	824.2 REDDISH BROWN AND ORANGISH BROWN, FINE GRAINED SANDY SILT, MODERATELY MICACEOUS	6.0
	821.7	8.5	1	2	4						M	820.2 Boring Terminated at Elevation 820.2 ft In Sandy Silt	10.0

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree							
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)							
BORING NO. T-04		STATION 9280+60		OFFSET 57 ft LT		ALIGNMENT -M2C-							
COLLAR ELEV. 825.5 ft		TOTAL DEPTH 10.0 ft		NORTHING 668,540		EASTING 1,535,106							
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER J. Turnage		START DATE 06/06/12		COMP. DATE 06/06/12		SURFACE WATER DEPTH N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75				
830													
825	824.5	1.0	1	2	4						M	825.5 GROUND SURFACE	0.0
	822.0	3.5	3	5	8						M	ARTIFICIAL FILL GRAVEL	3.5
820	819.5	6.0	4	5	6						M	RESIDUAL ORANGISH BROWN, CLAYEY SILT, WITH TRACE FINE GRAINED SAND, SLIGHTLY MICACEOUS	
	817.0	8.5	2	5	5						M	REDDISH ORANGE AND BROWN, FINE GRAINED SANDY SILT, WITH TRACE FINE TO COARSE GRAINED GRAVEL	10.0
											M	AT 8.5FT: TAN AND ORANGISH BROWN Boring Terminated at Elevation 815.5 ft In Sandy Silt	

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK GPJ NC_DOT.GDT 3/4/13

 **NCDOT GEOTECHNICAL ENGINEERING UNIT**
BORELOG REPORT

DCN
0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree									
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)								
BORING NO. T-05	STATION 9289+27	OFFSET 66 ft RT	ALIGNMENT -M2C-	0 HR. Dry											
COLLAR ELEV. 832.3 ft	TOTAL DEPTH 10.0 ft	NORTHING 668,056	EASTING 1,534,376	24 HR. FIAD											
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012			DRILL METHOD H.S. Augers	HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/06/12	COMP. DATE 06/06/12	SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
835															
	831.3	1.0											832.3	0.0	GROUND SURFACE
830	828.8	3.5	2	2	4						SS-1	M	828.8	3.5	ARTIFICIAL FILL GRAVEL RESIDUAL
	826.3	6.0	4	6	8							M	828.8	3.5	ORANGISH BROWN, CLAYEY SILT, WITH TRACE FINE SAND
825	823.8	8.5	2	4	5							M			ORANGISH BROWN AND TAN, FINE GRAINED SANDY SILT, WITH TRACE ROCK FRAGMENTS
			1	3	4							M	822.3	10.0	AT 6 FT: REDDISH BROWN, HIGHLY MICACEOUS Boring Terminated at Elevation 822.3 ft In Sandy Silt

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree												
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)											
BORING NO. T-06	STATION 9293+83	OFFSET 34 ft RT	ALIGNMENT -M2C-	0 HR. Dry														
COLLAR ELEV. 825.0 ft	TOTAL DEPTH 10.0 ft	NORTHING 667,736	EASTING 1,534,052	24 HR. FIAD														
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012			DRILL METHOD H.S. Augers	HAMMER TYPE Automatic														
DRILLER J. Turnage		START DATE 06/06/12	COMP. DATE 06/06/12	SURFACE WATER DEPTH N/A														
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION							
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)			
825															825.0	0.0	GROUND SURFACE	
	824.0	1.0				2	3	3					821.5	3.5	821.5	3.5	ARTIFICIAL FILL BROWN WITH BLACK, FINE TO MEDIUM GRAINED SANDY SILT, WITH TRACE FINE GRAINED GRAVEL	
820	821.5	3.5	2	4	4							M					RESIDUAL	
	819.0	6.0	4	7	9							M					ORANGISH BROWN, CLAYEY SILT, WITH TRACE FINE GRAINED SAND	
815	816.5	8.5	5	7	10							M						
																		Boring Terminated at Elevation 815.0 ft In Clayey Silt

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

DCN 0164DEL P10b2	WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree							
	SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)						
	BORING NO. T-07		STATION 9307+10		OFFSET 33 ft RT		ALIGNMENT -M2C-		0 HR. Dry					
	COLLAR ELEV. 822.8 ft		TOTAL DEPTH 10.0 ft		NORTHING 667,101		EASTING 1,532,906		24 HR. FIAD					
	DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic							
	DRILLER J. Turnage		START DATE 06/06/12		COMP. DATE 06/06/12		SURFACE WATER DEPTH N/A							
	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
				0.5ft	0.5ft	0.5ft	0	25	50	75	100			
	825													
		821.8	1.0	1	2	2							D	822.8 GROUND SURFACE 0.0
820	819.3	3.5										D	819.3 ARTIFICIAL FILL 3.5	
	816.8	6.0										D	816.8 BLACK TO BROWN, CLAYEY FINE TO MEDIUM GRAINED SAND, WITH TRACE FINE GRAINED GRAVEL 6.0	
815	814.3	8.5										D	814.3 ALLUVIAL 8.5	
												D	812.8 REDDISH ORANGE, CLAYEY SILT, WITH TRACE ROOTS AND LITTLE FINE GRAINED SAND 8.5	
												D	812.8 RESIDUAL 10.0	
													ORANGISH BROWN, SILT, WITH LITTLE FINE GRAINED SAND, MODERATELY MICACEOUS	
													Boring Terminated at Elevation 812.8 ft In Silt	

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree							
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)						
BORING NO. T-08		STATION 9325+32		OFFSET 20 ft RT		ALIGNMENT -M2C-		0 HR. Dry					
COLLAR ELEV. 821.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 666,488		EASTING 1,531,192		24 HR. FIAD					
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic							
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			
825													
	821.0												821.0 GROUND SURFACE 0.0
820	820.0	1.0	5	3	2							M	819.5 ARTIFICIAL FILL 1.5
	817.5	3.5										M	817.5 BLACK, CLAYEY FINE TO COARSE GRAINED SAND, WITH TRACE MEDIUM GRAVEL 3.5
815	815.0	6.0	1	0	1							Sat.	815.0 ORANGISH BROWN, FINE TO MEDIUM GRAINED SANDY CLAY 6.0
	812.5	8.5	2	3	5							M	811.0 REDDISH ORANGE AND BROWN, SILT, WITH LITTLE FINE GRAINED SAND 10.0
													Boring Terminated at Elevation 811.0 ft In Silt



DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree									
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)								
BORING NO. T-09		STATION 9329+03		OFFSET 69 ft LT		ALIGNMENT -M2C-									
COLLAR ELEV. 808.2 ft		TOTAL DEPTH 15.0 ft		NORTHING 666,277		EASTING 1,530,876									
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
810														808.2 GROUND SURFACE 0.0	
	807.2	1.0	1	2	4								M	806.8 ARTIFICIAL FILL ASPHALT AND STONE BASE 1.4	
805	804.7	3.5	2	4	4								M	RESIDUAL ORANGISH BROWN, FINE GRAINED SANDY SILT, HIGHLY MICACEOUS	
	802.2	6.0	1	3	3								M	AT 8.5FT: TRACE BLACK STREAKS AT 14FT: GREENISH GRAY AND BROWN	
800	799.7	8.5	1	1	2								M		
795	794.7	13.5	2	3	6								M		
														793.2 Boring Terminated at Elevation 793.2 ft In Sandy Silt 15.0	

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree									
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)								
BORING NO. T-10		STATION 9333+80		OFFSET 15 ft LT		ALIGNMENT -M2C-									
COLLAR ELEV. 820.5 ft		TOTAL DEPTH 10.0 ft		NORTHING 666,116		EASTING 1,530,430									
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
825														820.5 GROUND SURFACE 0.0	
													M	820.5 ARTIFICIAL FILL ASPHALT AND STONE BASE 0.0	
820	819.5	1.0	2	2	3								M	REDDISH BROWN AND BROWN, FINE TO MEDIUM GRAINED SANDY SILT, SLIGHTLY MICACEOUS	
	817.0	3.5	2	2	4								M		
	814.5	6.0	2	5	7								M	RESIDUAL ORANGISH BROWN, FINE GRAINED SANDY SILT, MODERATELY MICACEOUS	
815	812.0	8.5	3	4	6								M		
														810.5 Boring Terminated at Elevation 810.5 ft In Sandy Silt 10.0	



DCN
0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree											
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)										
BORING NO. T-11		STATION 9339+17		OFFSET 23 ft LT		ALIGNMENT -M2C-		0 HR. Dry									
COLLAR ELEV. 818.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 665,801		EASTING 1,530,000		24 HR. FIAD									
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
820															818.0	0.0	GROUND SURFACE
815	817.0	1.0	2	3	4	7							SS-1	M	814.5	3.5	ALLUVIAL REDDISH BROWN, SILT, WITH LITTLE FINE GRAINED SAND AND TRACE ROOTS
	814.5	3.5	3	6	9	15							M				RESIDUAL REDDISH BROWN, FINE GRAINED SANDY SILT, MODERATELY MICACEOUS
	812.0	6.0	4	5	7	12							SS-3	M			RESIDUAL AT 8.5FT: REDDISH BROWN AND ORANGISH BROWN, HIGHLY MICACEOUS
810	809.5	8.5	1	2	4	6							M		808.0	10.0	Boring Terminated at Elevation 808.0 ft In Sandy Silt

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree											
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)										
BORING NO. T-12		STATION 9348+78		OFFSET 55 ft LT		ALIGNMENT -M2C-		0 HR. 13.5									
COLLAR ELEV. 802.8 ft		TOTAL DEPTH 35.0 ft		NORTHING 665,078		EASTING 1,529,387		24 HR. FIAD									
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
805															802.8	0.0	GROUND SURFACE
800	801.8	1.0	2	3	6	9							M		799.3	3.5	ARTIFICIAL FILL REDDISH ORANGE AND BROWN, CLAYEY FINE GRAINED SAND, WITH TRACE ROOTS
	799.3	3.5	2	4	5	9							M				RESIDUAL LIGHT GRAY AND ORANGISH BROWN, SANDY CLAY
	795	8.5	2	3	5	8							M				
	790	13.5	1	1	3	4							M		789.3	13.5	GREENISH GRAY AND BROWN, SILTY FINE TO MEDIUM GRAINED SAND, HIGHLY MICACEOUS
	785	18.5	3	4	6	10							M				
	780	23.5	3	5	8	13							M				
	775	28.5	6	12	18	30							M				
	770	33.5	16	22	31	53							M				
													Sat.		767.8	35.0	Boring Terminated at Elevation 767.8 ft In Silty Sand
Shelby Tube sample from 6ft to 8ft.																	
Other Samples: ST-1 (6.0 - 8.0)																	

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK GPJ NC_DOT.GDT 3/4/13

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)									
BORING NO. T-13		STATION 9354+01		OFFSET 32 ft RT		ALIGNMENT -M2C-										
COLLAR ELEV. 829.0 ft		TOTAL DEPTH 15.0 ft		NORTHING 664,670		EASTING 1,529,054										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
830														829.0	0.0	GROUND SURFACE
	828.0	1.0	3	2	3								M	825.5	3.5	ARTIFICIAL FILL REDDISH ORANGE, SILTY FINE GRAINED SAND
825	825.5	3.5	1	2	3								M			RESIDUAL ORANGISH BROWN, FINE GRAINED SANDY SILT, SLIGHTLY TO MODERATELY MICACEOUS
	823.0	6.0	1	2	3								M			
820	820.5	8.5	1	1	2								M			
	815.5	13.5	1	2	3								M			
815													M	814.0	15.0	Boring Terminated at Elevation 814.0 ft In Sandy Silt

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)									
BORING NO. T-14		STATION 9360+91		OFFSET 34 ft LT		ALIGNMENT -M2C-										
COLLAR ELEV. 833.5 ft		TOTAL DEPTH 10.0 ft		NORTHING 664,003		EASTING 1,528,857										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
835														833.5	0.0	GROUND SURFACE
	832.5	1.0	3	4	6								SS-1	830.0	3.5	ARTIFICIAL FILL GRAVEL AND SOIL MIX
830	830.0	3.5	4	5	8								M			ALLUVIAL REDDISH BROWN, CLAYEY FINE GRAINED SANDY SILT, WITH TRACE ROOTS
	827.5	6.0	4	5	7								M			
825	825.0	8.5	1	3	5								M	823.5	10.0	RESIDUAL ORANGISH BROWN, CLAYEY FINE GRAINED SANDY SILT, MODERATELY TO HIGHLY MICACEOUS
																Boring Terminated at Elevation 823.5 ft In Clayey Sandy Silt

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree											
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)										
BORING NO. T-15		STATION 9368+03		OFFSET 58 ft LT		ALIGNMENT -M2C-											
COLLAR ELEV. 846.2 ft		TOTAL DEPTH 15.0 ft		NORTHING 663,331		EASTING 1,528,616											
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/04/12		COMP. DATE 06/04/12		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
850																	
845	845.2	1.0	4	4	7										846.2	0.0	GROUND SURFACE
	842.7	3.5	4	8	10												ARTIFICIAL FILL REDDISH BROWN, SILTY CLAY, WITH TRACE FINE GRAINED SAND AND ROOTS
	840.2	6.0	5	8	7												RESIDUAL ORANGISH BROWN, FINE GRAINED SANDY SILT
	837.7	8.5	3	4	5												AT 13.5FT: TRACE BLACK STREAKS
	832.7	13.5	3	4	6												Boring Terminated at Elevation 831.2 ft In Sandy Silt
																	Bulk Sample from 0ft to 7ft.

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree											
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)										
BORING NO. T-16		STATION 9373+62		OFFSET 19 ft RT		ALIGNMENT -M2C-											
COLLAR ELEV. 838.5 ft		TOTAL DEPTH 20.0 ft		NORTHING 662,872		EASTING 1,528,283											
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
840																	
	837.5	1.0	2	2	2												GROUND SURFACE
	835.0	3.5	2	3	4												ARTIFICIAL FILL ASPHALT AND STONE BASE ORANGISH BROWN WITH BLACK STREAKS, CLAYEY SILT, WITH LITTLE FINE GRAINED SAND
	832.5	6.0	2	3	5												RESIDUAL ORANGISH BROWN, FINE GRAINED SANDY SILT, MODERATELY TO HIGHLY MICACEOUS
	830.0	8.5	1	2	2												AT 8.5FT: LIGHT BROWN, ORANGISH BROWN, AND TRACE BLACK
	825.0	13.5	1	1	2												Boring Terminated at Elevation 818.5 ft In Sandy Silt
	820.0	18.5	1	1	2												Boring Terminated at Elevation 818.5 ft In Sandy Silt

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK GPJ NC_DOT_GDT_3/4/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree									
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)								
BORING NO. T-17		STATION 9382+99		OFFSET 37 ft RT		ALIGNMENT -M2C-									
COLLAR ELEV. 832.2 ft		TOTAL DEPTH 10.0 ft		NORTHING 662,114		EASTING 1,527,592									
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/04/12		COMP. DATE 06/04/12		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
835															
	831.2	1.0													
830	828.7	3.5	1	1	1										
	826.2	6.0	2	2	2										
825	823.7	8.5	9	1	5										
			5	2	6										

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree									
SITE DESCRIPTION NCRR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)								
BORING NO. T-18		STATION 9386+38		OFFSET 14 ft RT		ALIGNMENT -M2C-									
COLLAR ELEV. 838.2 ft		TOTAL DEPTH 15.0 ft		NORTHING 661,951		EASTING 1,527,420									
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 06/04/12		COMP. DATE 06/04/12		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
840															
	837.2	1.0	3	1	1										
835	834.7	3.5	1	0	5										
	832.2	6.0	2	2	4										
830	829.7	8.5	2	3	3										
825	824.7	13.5	1	2	3										

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK.GPJ NC_DOT.GDT 3/4/13



DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree									
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)								
BORING NO. RW-3		STATION 9397+57		OFFSET 39 ft LT		ALIGNMENT -M2C-									
COLLAR ELEV. 841.5 ft		TOTAL DEPTH 35.0 ft		NORTHING 661,325		EASTING 1,526,492									
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Turnage		START DATE 04/23/12		COMP. DATE 04/23/12		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
845															
840	840.5	1.0	4	5	6										841.5 GROUND SURFACE 0.0
	838.0	3.5	5	8	11										ARTIFICIAL FILL REDDISH BROWN, CLAYEY FINE TO MEDIUM GRAINED SAND, WITH TRACE FINE TO MEDIUM GRAINED GRAVEL AND ROOTS
835	835.5	6.0	2	5	6										835.5
	833.0	8.5	3	4	5										RESIDUAL BROWNISH RED, FINE TO MEDIUM GRAINED SANDY SILT
830	828.0	13.5	3	4	5										AT 13.5FT: HIGHLY MICACEOUS AT 18.5FT: ORANGISH BROWN WITH STREAKS OF BLACK, SLIGHTLY MICACEOUS AT 23.5FT: YELLOWISH BROWN TO ORANGISH BROWN, SLIGHTLY TO MODERATELY MICACEOUS AT 28.5FT: GRAYISH BROWN
825	823.0	18.5	2	4	6										
820	818.0	23.5	2	2	3										
815	813.0	28.5	1	1	2										
810	808.0	33.5	2	3	4										
															806.5 Boring Terminated at Elevation 806.5 ft In Sandy Silt 35.0

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree									
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)								
BORING NO. T-19		STATION 9401+50		OFFSET CL		ALIGNMENT -M2C-									
COLLAR ELEV. 821.5 ft		TOTAL DEPTH 20.0 ft		NORTHING 661,148		EASTING 1,526,140									
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER W. Duggins		START DATE 04/24/12		COMP. DATE 04/24/12		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
825															
820	820.5	1.0	2	3	4										821.5 GROUND SURFACE 0.0
	818.0	3.5	3	4	5										ARTIFICIAL FILL REDDISH BROWN, FINE TO MEDIUM GRAINED SANDY CLAY
815	815.5	6.0	6	9	16										815.5
	813.0	8.5	3	6	9										RESIDUAL REDDISH ORANGE AND BROWN, CLAYEY FINE TO MEDIUM GRAINED SAND ORANGISH BROWN, CLAYEY SILT WITH FINE TO MEDIUM GRAINED SAND
810	808.0	13.5	100/0.3												809.5
805	803.0	18.5	100/0.5												801.5
															Boring Terminated at Elevation 801.5 ft In Weathered Rock (Granitic Gneiss) 20.0

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK.GPJ NC_DOT.GDT 3/4/13

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)										
BORING NO. EB1-A		STATION 9403+81		OFFSET 25 ft LT		ALIGNMENT -M2C-										
COLLAR ELEV. 817.5 ft		TOTAL DEPTH 108.6 ft		NORTHING 661,023		EASTING 1,525,945										
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 91% 09/14/2012				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER W. Duggins		START DATE 04/26/12		COMP. DATE 04/27/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
820																
	816.5	1.0														
815	814.0	3.5	1	1	3											
	811.5	6.0	6	10	12											
810	809.0	8.5	5	10	11											
	804.0	13.5	7	9	15											
805	804.0	13.5	6	8	11											
800																
795	794.0	23.5	4	6	10											
790	789.0	28.5	4	6	8											
785	784.0	33.5	4	6	8											
780	779.0	38.5	7	11	12											
775	774.0	43.5	9	14	15											
770	769.0	48.5	6	12	22											
765	764.0	53.5	41	38	35											
760	759.0	58.5	61	39/0.3												
755	754.0	63.5	47	53/0.4												
750	749.0	68.5	24	54	46/0.2											
745	744.0	73.5	67	33/0.2												
740																

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)										
BORING NO. EB1-A		STATION 9403+81		OFFSET 25 ft LT		ALIGNMENT -M2C-										
COLLAR ELEV. 817.5 ft		TOTAL DEPTH 108.6 ft		NORTHING 661,023		EASTING 1,525,945										
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 91% 09/14/2012				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER W. Duggins		START DATE 04/26/12		COMP. DATE 04/27/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
740																
	739.0	78.5	54	46/0.2												
735	734.0	83.5	44	56/0.2												
	729.0	88.5	46	47	53/0.3											
725	724.0	93.5	33	39	34											
720	719.0	98.5	16	21	46											
715	714.0	103.5	15	11	15											
710	709.0	108.5	60/0.1													

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK GPJ NC_DOT.GDT 3/4/13

Match Line

WEATHERED ROCK (GRANITIC GNEISS) (continued)

RESIDUAL
 BROWN, GRAY AND WHITE, FINE TO MEDIUM GRAINED SANDY SILT, HIGHLY MICACEOUS
 AT 103.5FT: ORANGISH BROWN AND GRAY

CRYSTALLINE ROCK (GRANITIC GNEISS)

Boring Terminated at Elevation 708.9 ft In Crystalline Rock (Granitic Gneiss)

Shelby Tube sample from 18ft to 20ft. No SPT sample taken at 18.5ft due to collection of undisturbed sample.

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree								
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)								
BORING NO. EB1-B		STATION 9403+84		OFFSET 21 ft RT		ALIGNMENT -M2C-								
COLLAR ELEV. 828.5 ft		TOTAL DEPTH 108.6 ft		NORTHING 661,062		EASTING 1,525,919								
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 91% 09/14/2012				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic								
DRILLER W. Duggins		START DATE 05/02/12		COMP. DATE 05/02/12		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
830														GROUND SURFACE 0.0
	827.5	1.0	2	2	3									ARTIFICIAL FILL 1.0
825	825.0	3.5	2	4	4									ORANGISH BROWN, FINE TO MEDIUM GRAINED SANDY CLAY
	822.5	6.0	2	1	2									GRAYISH BROWN, FINE TO COARSE GRAINED SANDY SILT, WITH LITTLE ORGANICS, STRONG ORGANIC ODOR
820	820.0	8.5	4	5	6									RESIDUAL 8.5
														BROWNISH ORANGE, FINE TO COARSE GRAINED SANDY SILT, WITH TRACE FINE GRAINED GRAVEL
815	815.0	13.5	9	9	8									AT 13.5FT: FINE TO MEDIUM GRAINED SAND
														AT 33.5FT: WHITE TO BROWNISH ORANGE, WITH SOME FINE TO COARSE GRAINED SAND
810	810.0	18.5	9	12	14									AT 38.5FT: GRAY AND YELLOWISH WHITE
805	805.0	23.5	5	7	7									
800	800.0	28.5	6	13	15									
795	795.0	33.5	16	16	17									
790	790.0	38.5	5	7	10									
785	785.0	43.5	6	7	11									
780	780.0	48.5	100/0.3											WEATHERED ROCK (GRANITIC GNEISS) 46.0
775	775.0	53.5	82	55	45/0.4									
770	770.0	58.5	15	12	35									RESIDUAL 57.0
														WHITE AND ORANGISH BROWN, SILTY FINE TO COARSE GRAINED SAND
765	765.0	63.5	36	64/0.2										WEATHERED ROCK (GRANITIC GNEISS) 63.5
760	760.0	68.5	100/0.3											
755	755.0	73.5	12	20	47									RESIDUAL 73.5
														GRAY, WHITE, AND ORANGISH BROWN, FINE TO MEDIUM GRAINED SANDY SILT, HIGHLY MICACEOUS
750	750.0	78.5												

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK.GPJ NC_DOT.GDT 3/4/13

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree								
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)								
BORING NO. EB1-B		STATION 9403+84		OFFSET 21 ft RT		ALIGNMENT -M2C-								
COLLAR ELEV. 828.5 ft		TOTAL DEPTH 108.6 ft		NORTHING 661,062		EASTING 1,525,919								
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 91% 09/14/2012				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic								
DRILLER W. Duggins		START DATE 05/02/12		COMP. DATE 05/02/12		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
750														Match Line
745	745.0	83.5	20	28	36									RESIDUAL 86.0
														GRAY, WHITE, AND ORANGISH BROWN, FINE TO MEDIUM GRAINED SANDY SILT, HIGHLY MICACEOUS (continued)
740	740.0	88.5	100/0.3											WEATHERED ROCK (GRANITIC GNEISS) 86.0
735	735.0	93.5	39	31	23									RESIDUAL 91.0
														GRAY, WHITE, AND ORANGISH BROWN, FINE TO COARSE GRAINED SANDY SILT, HIGHLY MICACEOUS
730	730.0	98.5	15	25	38									
725	725.0	103.5	100/0.3											WEATHERED ROCK (GRANITIC GNEISS) 103.5
720	720.0	108.5	60/0.1											CRYSTALLINE ROCK (GRANITIC GNEISS) 108.5
														Boring Terminated at Elevation 719.9 ft In Crystalline Rock (Granitic Gneiss)

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

DCN 0164DEL P10b2	WBS 52000.1.STR07T1B TIP P-5206C COUNTY ROWAN GEOLOGIST P. Oree												WBS 52000.1.STR07T1B TIP P-5206C COUNTY ROWAN GEOLOGIST P. Oree															
	SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report												SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report															
	BORING NO. EB2-B			STATION 9405+33			OFFSET CL			ALIGNMENT -M2C-			GROUND WTR (ft)		BORING NO. EB2-B			STATION 9405+33			OFFSET CL			ALIGNMENT -M2C-			GROUND WTR (ft)	
	COLLAR ELEV. 822.8 ft			TOTAL DEPTH 93.6 ft			NORTHING 660,972			EASTING 1,525,799			0 HR. NM		COLLAR ELEV. 822.8 ft			TOTAL DEPTH 93.6 ft			NORTHING 660,972			EASTING 1,525,799			24 HR. FIAD	
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 91% 09/14/2012												DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 91% 09/14/2012																
DRILLER W. Duggins												DRILLER W. Duggins																
START DATE 09/12/12												START DATE 09/12/12																
COMP. DATE 09/12/12												COMP. DATE 09/12/12																
SURFACE WATER DEPTH N/A												SURFACE WATER DEPTH N/A																
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)								
			0.5ft	0.5ft	0.5ft	0	25	50	75	100																		
825													822.8	0.0														
820	821.8	1.0	4	4	3								819.3	3.5														
	819.3	3.5	WOH	0	1																							
	816.8	6.0	WOH	0	0																							
815	814.3	8.5	WOH	2	2								814.3	8.5														
810	809.3	13.5		4	7	9							809.3	13.5														
805	804.3	18.5	3	4	6								804.3	18.5														
800	799.3	23.5	4	5	5																							
795	794.3	28.5	4	4	6																							
790	789.3	33.5	3	5	8																							
785	784.3	38.5	4	6	7																							
780	779.3	43.5	5	7	9																							
775	774.3	48.5	5	8	10																							
770	769.3	53.5	5	8	10																							
765	764.3	58.5	7	10	13																							
760	759.3	63.5	6	7	12																							
755	754.3	68.5	6	7	12																							
750	749.3	73.5	8	11	14																							
745																												

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK.GPJ NC_DOT.GDT 3/4/13

Match Line

ORANGISH BROWN AND PINK, SILTY FINE TO COARSE GRAINED SAND (continued)

CRYSTALLINE ROCK (GRANITIC GNEISS)
 Boring Terminated at Elevation 729.2 ft In Crystalline Rock (Granitic Gneiss)

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B					TIP P-5206C					COUNTY ROWAN					GEOLOGIST P. Oree					
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report										GROUND WTR (ft)										
BORING NO. T-20					STATION 9409+50					OFFSET 14 ft LT					ALIGNMENT -M2C-					0 HR. 9.8
COLLAR ELEV. 812.0 ft					TOTAL DEPTH 30.0 ft					NORTHING 660,763					EASTING 1,525,438					24 HR. 7.0
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011										DRILL METHOD H.S. Augers					HAMMER TYPE Automatic					
DRILLER W. Duggins					START DATE 04/24/12					COMP. DATE 04/24/12					SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)							
			0.5ft	0.5ft	0.5ft	0	25	50	75	100										
815														812.0 GROUND SURFACE 0.0						
810	811.0	1.0	2	2	3							M	RESIDUAL ORANGE TO BROWN, SILTY FINE TO COARSE GRAINED SAND, WITH TRACE FINE GRAINED GRAVEL, MODERATELY MICACEOUS							
	808.5	3.5	1	1	2							M								
805	806.0	6.0	1	1	1							W	AT 6.0 FT: GRAYISH BROWN TO WHITE, HIGHLY MICACEOUS							
													AT 13.5FT: PINKISH GRAY BROWN							
800	798.5	13.5	2	1	3							W								
795	793.5	18.5	2	2	3							W								
790	788.5	23.5	2	2	3							W								
785	783.5	28.5	2	3	4							W								
													782.0 Boring Terminated at Elevation 782.0 ft In Silty Sand Shelby Tube sample from 8ft to 10ft. Other Samples: ST-2 (8.0 - 10.0)							

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK.GPJ NC_DOT.GDT 3/4/13

WBS 52000.1.STR07T1B					TIP P-5206C					COUNTY ROWAN					GEOLOGIST P. Oree					
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report										GROUND WTR (ft)										
BORING NO. T-21					STATION 9414+03					OFFSET 30 ft LT					ALIGNMENT -M2C-					0 HR. 13.9
COLLAR ELEV. 814.0 ft					TOTAL DEPTH 30.0 ft					NORTHING 660,536					EASTING 1,525,046					24 HR. 9.2
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011										DRILL METHOD H.S. Augers					HAMMER TYPE Automatic					
DRILLER W. Duggins					START DATE 04/24/12					COMP. DATE 04/24/12					SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)							
			0.5ft	0.5ft	0.5ft	0	25	50	75	100										
815														814.0 GROUND SURFACE 0.0						
810	813.0	1.0	2	3	5							M	RESIDUAL ORANGISH BROWN, CLAY WITH SAND							
	810.5	3.5	2	3	7							M								
805	808.0	6.0	3	6	7							M	AT 6.0FT: ORANGISH BROWN AND GRAY, WITH TRACE ROOTS, AND WITH SOME COARSE GRAINED SAND							
	805.5	8.5	3	3	3							M	GRAY TO LIGHT BROWN, FINE TO COARSE GRAINED SANDY SILT, WITH SOME FINE GRAINED GRAVEL, SLIGHTLY MICACEOUS							
800	800.5	13.5	2	2	2							M	AT 23.5FT: ORANGEISH BROWN, HGHLY MICACEOUS							
795	795.5	18.5	1	2	2							Sat.								
790	790.5	23.5	1	2	3							Sat.								
785	785.5	28.5	2	4	5							W								
													784.0 Boring Terminated at Elevation 784.0 ft In Sandy Silt							



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B	TIP P-5206C	COUNTY ROWAN	GEOLOGIST P. Oree
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report			GROUND WTR (ft)
BORING NO. T-22	STATION 9424+21	OFFSET 70 ft LT	ALIGNMENT -M2C-
COLLAR ELEV. 825.8 ft	TOTAL DEPTH 15.0 ft	NORTHING 660,021	EASTING 1,524,167
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER J. Turnage	START DATE 06/04/12	COMP. DATE 06/04/12	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
830															
825	824.8	1.0		2	2	4							M	825.8 GROUND SURFACE 0.0	
	822.3	3.5		3	4	4							D	RESIDUAL BROWNISH ORANGE, SILTY FINE TO MEDIUM GRAINED SAND, WITH LITTLE ROCK FRAGMENTS, HIGHLY MICACEOUS	
820	819.8	6.0		2	3	4							D	AT 3.5FT: LIGHT BROWN AND GRAYISH WHITE, WITH FINE TO COARSE GRAINED SAND	
	817.3	8.5		2	3	5							D		
815															
	812.3	13.5		3	5	5							D		

Boring Terminated at Elevation 810.8 ft In Silty Sand

WBS 52000.1.STR07T1B	TIP P-5206C	COUNTY ROWAN	GEOLOGIST P. Oree
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report			GROUND WTR (ft)
BORING NO. T-23	STATION 9433+29	OFFSET 12 ft RT	ALIGNMENT -M2C-
COLLAR ELEV. 846.5 ft	TOTAL DEPTH 10.0 ft	NORTHING 659,666	EASTING 1,523,326
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER J. Turnage	START DATE 06/04/12	COMP. DATE 06/04/12	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
850															
845	845.5	1.0		1	2	2							M	846.5 GROUND SURFACE 0.0	
	843.0	3.5		1	2	2							M	ARTIFICIAL FILL BROWN, SILTY FINE TO MEDIUM GRAINED SAND, WITH TRACE FINE GRAINED GRAVEL AND ROOTS, HIGHLY MICACEOUS	3.5
840	840.5	6.0		1	2	3							M	RESIDUAL BROWNISH ORANGE, SILTY FINE TO COARSE GRAINED SAND, WITH TRACE ROCK FRAGMENTS, HIGHLY MICACEOUS	
	838.0	8.5		1	2	3							M		

Boring Terminated at Elevation 836.5 ft In Silty Sand

DCN 0164DEL P10b2

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)										
BORING NO. T-24		STATION 9438+11		OFFSET 57 ft LT		ALIGNMENT -M2C-										
COLLAR ELEV. 849.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 659,361		EASTING 1,522,951										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER J. Turnage		START DATE 06/05/12		COMP. DATE 06/05/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
850														849.0	GROUND SURFACE	0.0
	848.0	1.0														
845	845.5	3.5	3	4	7								M			
	843.0	6.0	3	3	4								M	ARTIFICIAL FILL REDDISH ORANGE, SILTY FINE TO MEDIUM GRAINED SAND, WITH LITTLE COARSE GRAINED SAND, MODERATELY TO HIGHLY MICACEOUS	6.0	
840	840.5	8.5	2	2	3								M	RESIDUAL ORANGISH BROWN, SILTY FINE TO COARSE GRAINED SAND, HIGHLY MICACEOUS	10.0	
			2	3	4								M	Boring Terminated at Elevation 839.0 ft In Silty Sand		

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report						GROUND WTR (ft)										
BORING NO. T-25		STATION 9442+91		OFFSET 18 ft RT		ALIGNMENT -M2C-										
COLLAR ELEV. 854.0 ft		TOTAL DEPTH 15.0 ft		NORTHING 659,128		EASTING 1,522,527										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER J. Turnage		START DATE 06/04/12		COMP. DATE 06/04/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
855														854.0	GROUND SURFACE	0.0
	853.0	1.0														
850	850.5	3.5	1	1	3								M	ARTIFICIAL FILL BLACK, SILTY FINE TO MEDIUM GRAINED SAND	1.0	
	848.0	6.0	1	3	3								M	REDDISH ORANGE AND BROWN, FINE TO MEDIUM GRAINED SANDY SILT, WITH LITTLE COARSE GRAINED SAND, HIGHLY MICACEOUS	4.0	
845	845.5	8.5	WOH	0	1								Sat.	BLACK, SILTY FINE TO MEDIUM GRAINED SAND, MODERATELY MICACEOUS	6.0	
			WOH	0	1								M	BROWN, CLAYEY FINE TO MEDIUM GRAINED SAND, SLIGHTLY MICACEOUS		
840	840.5	13.5	5	5	8								M	RESIDUAL BROWNISH ORANGE, SILTY FINE TO COARSE GRAINED SAND, WITH TRACE FINE GRAINED GRAVEL, MODERATELY MICACEOUS	14.0	
															Boring Terminated at Elevation 839.0 ft In Silty Sand	15.0

NCDOT BORE DOUBLE KANNAPOLIS RAIL - TRACK.GPJ NC_DOT.GDT 3/4/13

TEST SUMMARY
NCRR/NS MAINLINE REID TO NORTH KANNAPOLIS RAILROAD ROADBED (MP 337.0 TO MP 348.3)

SOIL TEST RESULTS														
BORING NO.	SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL (ft)	AASHTO CLASS.	% PASSING (SIEVES)			LIQUID LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	ORGANIC CONTENT (%)	STANDARD PROCTOR (pcf)	OPTIMUM MOISTURE CONTENT (%)
						10	40	200						
EB1-B	SS-2	9403+84	21ft RT	3.5-5.0	--	--	--	--	--	--	22.6	3.62		
EB1-B	SS-5	9403+84	21ft RT	13.5-15.0	--	--	--	--	--	--	26.2	NT		
R1-B	SS-2	9403+54	35ft LT	3.5-5.0	A-7-5	100	98	76	68	27	41.6	--	--	--
R1-B	SS-4	9403+54	35ft LT	8.5-10.0	A-5	100	98	45	41	7	28.8	--	--	--
T-01	SS-4	9230+13	70ft LT	8.5-10.0	A-7-5	100	99	86	75	30	58.0	--	--	--
T-05	SS-1	9289+27	66ft RT	1.0-2.5	--	--	--	--	--	--	31.9	--	--	--
T-07	SS-3	9307+10	33ft RT	6.0-7.5	--	--	--	--	--	--	31.4	--	--	--
T-11	SS-1	9339+17	23ft LT	1.0-2.5	--	--	--	--	--	--	32.4	--	--	--
T-11	SS-3	9339+17	23ft LT	6.0-7.5	--	--	--	--	--	--	28.3	--	--	--
T-12	UNDISTURBED SAMPLE	9348+78	55ft LT	6.0-8.0	A-7-6	--	--	66	48	25	22.2	--	--	--
T-14	SS-1	9360+91	34ft LT	1.0-2.5	--	--	--	--	--	--	28.3	--	--	--
T-15	BULK	9368+03	58ft LT	0.0-7.0	A-7-5	99	96	82	80	41	--	--	92.0	27.7
T-15	SS-1	9368+03	58ft LT	1.0-2.5	--	--	--	--	--	--	28.2	--	--	--
T-15	SS-2	9368+03	58ft LT	3.5-5.0	--	--	--	--	--	--	27.7	--	--	--
T-18	SS-4	9386+38	14ft RT	8.5-10.0	--	--	--	--	--	--	32.8	--	--	--
T-20	UNDISTURBED SAMPLE	9409+50	14ft LT	8.0-10.0	A-2-4	--	--	23	NP	NP	28.5	--	--	--
T-26	SS-2	9447+60	23ft RT	3.5-5.0	--	--	--	--	--	--	23.0	--	--	--

NOTE: NP = NON-PLASTIC; NT = NOT TESTED

DCN
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NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 52000.1.STR07T1B		TIP P-5206C		COUNTY ROWAN		GEOLOGIST P. Oree										
SITE DESCRIPTION NCR/NS Mainline Reid to North Kannapolis Railroad Roadbed (MP 337.0 to MP 348.3), Inventory Report							GROUND WTR (ft)									
BORING NO. T-26		STATION 9447+60		OFFSET 23 ft RT		ALIGNMENT -M2C-										
COLLAR ELEV. 857.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 658,813		EASTING 1,522,179										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic		0 HR. Dry										
DRILLER J. Turnage		START DATE 06/04/12		COMP. DATE 06/04/12		24 HR. FIAD										
DRILLER J. Turnage		START DATE 06/04/12		COMP. DATE 06/04/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
860														857.0	0.0	GROUND SURFACE
855	856.0	1.0	2	3	4	7						M				RESIDUAL
	853.5	3.5	2	4	6	10						SS-2				BROWNISH ORANGE AND YELLOWISH BROWN, FINE TO MEDIUM GRAINED SANDY SILT, WITH LITTLE COARSE GRAINED SAND
850	851.0	6.0	3	3	5	8						M		851.0	6.0	BROWNISH ORANGE, SILTY FINE TO MEDIUM GRAINED SAND, WITH SOME ROCK FRAGMENTS
	848.5	8.5	2	4	5	9						M		847.0	10.0	Boring Terminated at Elevation 847.0 ft In Silty Sand

NCDOT BORE SINGLE KANNAPOLIS RAIL - TRACK GPJ NC_DOT.GDT 3/4/13

DCN
0164DEL P10b2

PROJECT NUMBER: 70125038

PROJECT NAME: P-5206C Reid to North Kannapolis

DATE RECEIVED: May 31, 2012

MOISTURE CONTENT AND ORGANIC CONTENT

BORING NUMBER	EB1-B	EB1-B			
SAMPLE NUMBER	SS-2	SS-5			
DEPTH	3.5'-5.0'	13.5'-15.0'			
MOISTURE CONTENT (%)	22.6	26.2			
ORGANIC CONTENT (%)	3.62	NT			

ADDITIONAL COMMENTS: NT = Not Tested

Stephanie E. Hardison
Certification No. 114-01-1203

REPORT ON SOIL TEST RESULTS

DCN
0164DEL P10b2

PROJECT:	P-5206C Reid to North Kannapolis			COUNTY:	Rowan
DATE SAMPLED:	April 2012	DATE RECEIVED:	May 31, 2012	DATE REPORTED:	June 18, 2012
SAMPLED FROM:	N/A	SAMPLED BY:	N/A		
SUBMITTED BY:	Schnabel Engineering			STANDARD SPECIFICATION	
LABORATORY:	Terracon Consultants, Inc. - Raleigh				

TEST RESULTS

Boring No.	R1-B	R1-B					
Sample No.	SS-2	SS-4					
Retained #4 Sieve %	0	0					
Passing #10 Sieve %	100	100					
Passing #40 Sieve %	98	98					
Passing #200 Sieve %	76	45					

MINUS #10 FRACTION

Soil Mortar - 100%	-	-					
Coarse Sand - Ret. #60	4.1	8.4					
Fine Sand - Ret. #270	25.5	54.9					
Silt 0.05-0.005 mm %	27.5	18.5					
Clay < 0.005 mm %	42.9	18.2					
Passing # 40 Sieve %	-	-					
Passing # 200 Sieve %	-	-					

Liquid Limit	68	41					
Plastic Index	27	7					
AASHTO Classification	A-7-5 (24)	A-5 (1)					
Select Granular Class							
Type							
Natural Moisture %	41.6	28.8					
Depth (ft) From:	3.5	8.5					
To:	5	10					

Remarks:

Stephanie E. Hardison
Certification No. 114-01-1203

DCN
0164DEL P10b2

REPORT ON SOIL TEST RESULTS

PROJECT:	P-5206C Reid to North Kannapolis			COUNTY:	Rowan
DATE SAMPLED:	N/A	DATE RECEIVED:	N/A	DATE REPORTED:	July 16, 2012
SAMPLED FROM:	N/A	SAMPLED BY:	N/A		
SUBMITTED BY:	Schnabel Engineering			STANDARD SPECIFICATION	
LABORATORY:	Terracon Consultants, Inc. - Raleigh				

TEST RESULTS

Boring No.	T-01	T-15						
Sample No.	SS-4	Bulk						
Retained #4 Sieve %	0	0						
Passing #10 Sieve %	100	99						
Passing #40 Sieve %	99	96						
Passing #200 Sieve %	86	82						

MINUS #10 FRACTION

Soil Mortar - 100%	-	-						
Coarse Sand - Ret. #60	2.5	6.1						
Fine Sand - Ret. #270	18.1	14.0						
Silt 0.05-0.005 mm %	33.9	16.2						
Clay < 0.005 mm %	45.5	63.7						
Passing # 40 Sieve %	-	-						
Passing # 200 Sieve %	-	-						

Liquid Limit	75	80						
Plastic Index	30	41						
AASHTO Classification	A-7-5 (33)	A-7-5 (40)						
Select Granular Class								
Type								
Natural Moisture %	58.0	-						
Organic Content %	-	-						
Depth (ft) From:	8.5	0						
To:	10.0	7.0						

Remarks:

Stephanie E. Hardison

Certification No. 114-01-1203

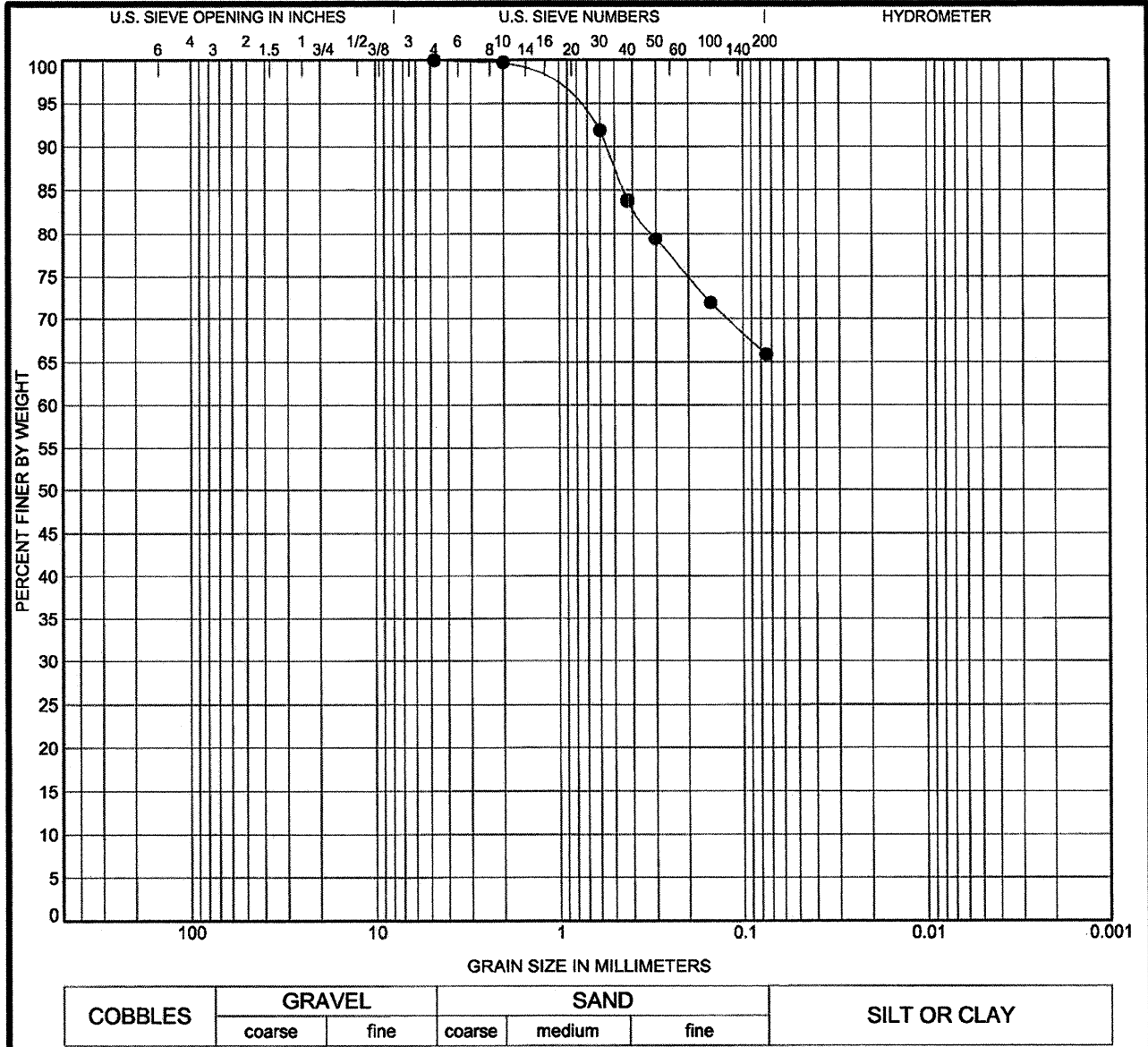
STANDARD TEST METHOD FOR MOISTURE CONTENT IN SOILS

Project Number: 70125038 Project Name: P-5206C (Reid to N. Kannapolis)
 Date Sampled: N/A Sampled By: N/A
 Date Tested: 7/9/2012 Tested By: Terracon - Raleigh, NC

Boring Number	Sample Number	Depth	Can ID	Tare Wt.	Wet Wt. of Soil + Tare	Dry Weight of Soil + Tare	Dry Weight of Soil	Wt. of Water	% Moisture
T-01	SS-4	8.5-10.0'	37	189.0	237.5	219.7	30.7	17.8	58.0%
T-05	SS-1	1.0-2.5'	44	254.6	449.6	402.4	147.8	47.2	31.9%
T-07	SS-3	6.0-7.5'	67	191.9	466.6	401.0	209.1	65.6	31.4%
T-11	SS-1	1.0-2.5'	59	233.1	454.4	400.2	167.1	54.2	32.4%
T-11	SS-3	6.0-7.5'	62	228.3	490.9	432.9	204.6	58	28.3%
T-14	SS-1	1.0-2.5'	60	232.6	467.6	415.8	183.2	51.8	28.3%
T-15	SS-1	1.0-2.5'	43	254.4	430.0	391.4	137	38.6	28.2%
T-15	SS-2	3.5-5.0'	45	256.1	486.5	436.5	180.4	50	27.7%
T-18	SS-4	8.5-10.0'	93	194.7	455.8	391.3	196.6	64.5	32.8%
T-26	SS-2	3.5-5.0'	28	187.8	394.8	356.1	168.3	38.7	23.0%

Stephanie E. Hardison
 Certification No. 114-01-1203

DCN
0164DEL P10b2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● T-12 6.0ft	A-7-6 (15)	48	23	25		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● T-12 6.0ft	4.75				-	-		66

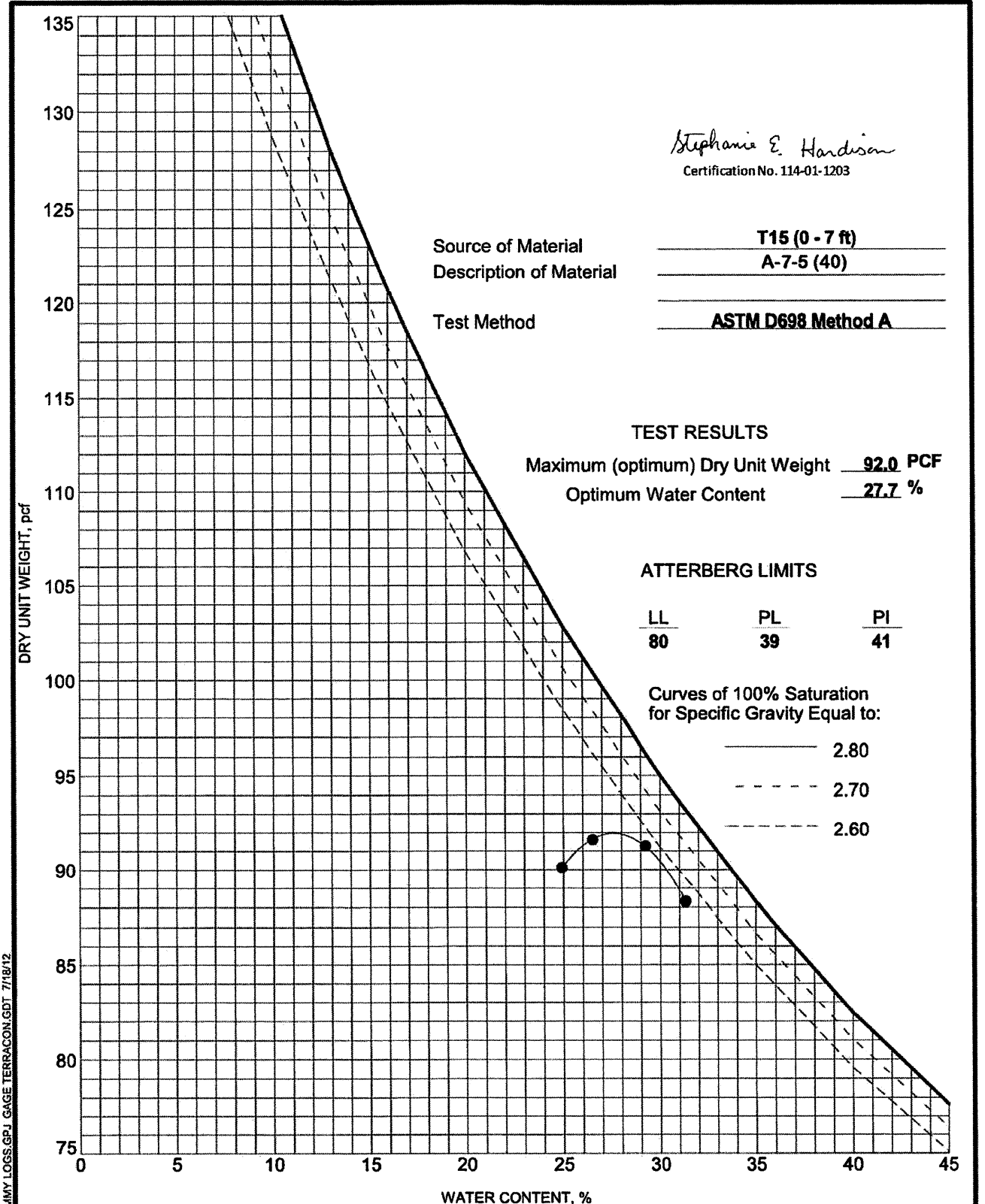
GRAIN SIZE DISTRIBUTION

Terracon Project: P-5206C (Reid to Kannapolis)
 Site: Kannapolis, North Carolina
 Job #: 70125038 Date: 10-4-12

Stephanie E. Hardison
 Certification No. 114-01-1203

TC GRAIN SIZE 70125038.GPJ GAGE TERRACON.GDT 10/4/12

DCN
0164DEL P10b2



Stephanie E. Handison
Certification No. 114-01-1203

Source of Material T15 (0 - 7 ft)
Description of Material A-7-5 (40)
Test Method ASTM D698 Method A

TEST RESULTS
Maximum (optimum) Dry Unit Weight 92.0 PCF
Optimum Water Content 27.7 %

ATTERBERG LIMITS

LL	PL	PI
80	39	41

Curves of 100% Saturation
for Specific Gravity Equal to:

- 2.80
- - - - - 2.70
- - - - - 2.60

COMPACTION - EDIT - DUMMY LOGS.GPJ GAGE TERRACON.GDT 7/18/12

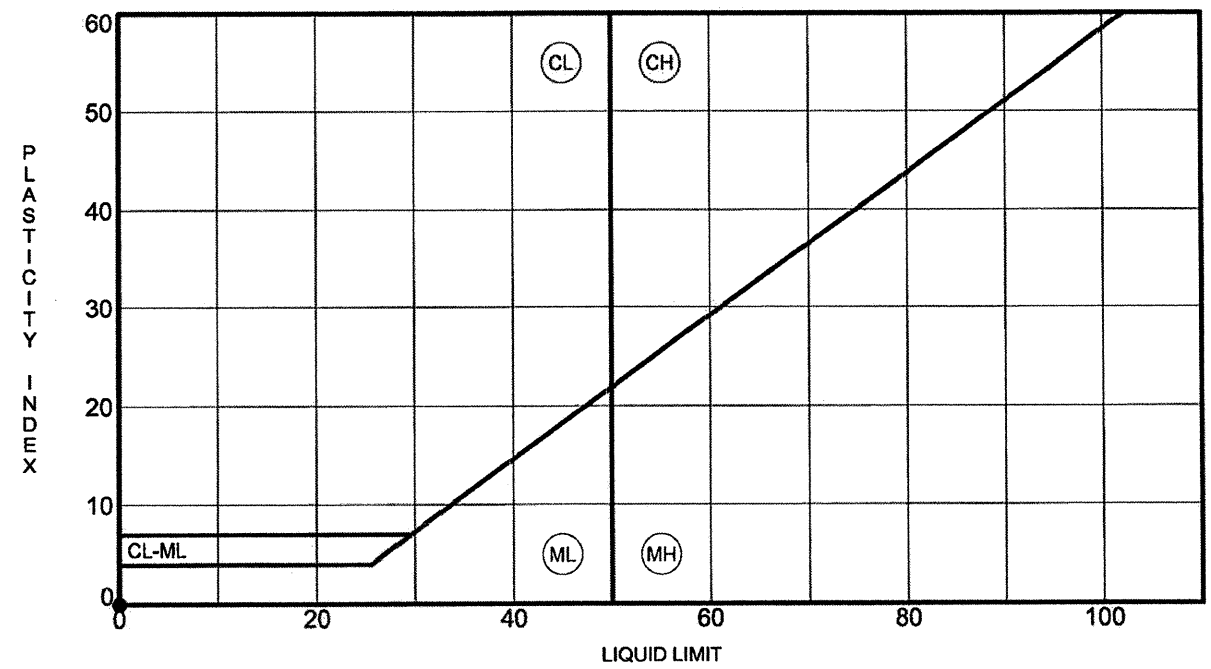
Terracon

MOISTURE-DENSITY RELATIONSHIP

Project: P-5206C (Reid to North Kannapolis)
Site: Kannapolis, North Carolina
Job #: 70125038
Date: 7-18-12


Exhibit B-3

DCN
0164DEL P10b2



Specimen Identification	LL	PL	PI	%Fines	Classification	
● T-20	10.0ft	NP	NP	NP	23	A-2-4 (0)

TC ATTERBERG LIMITS 70125038.GPJ GAGE TERRACON.GDT 10/4/12

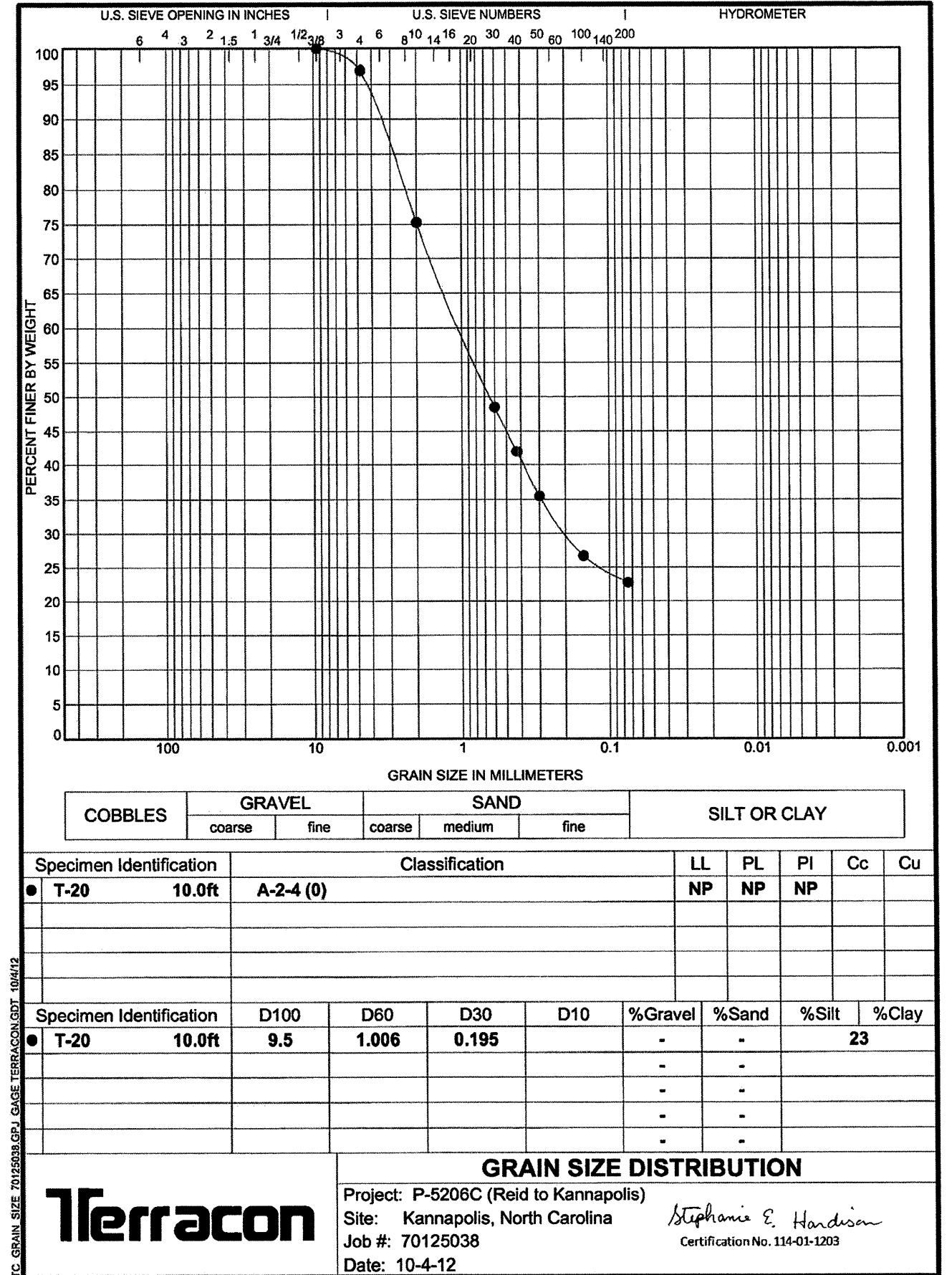


ATTERBERG LIMITS RESULTS

Project: P-5206C (Reid to Kannapolis)
 Site: Kannapolis, North Carolina
 Job #: 70125038
 Date: 10-4-12

Stephanie E. Hardison
 Certification No. 114-01-1203

DCN
0164DEL P10b2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification				LL	PL	PI	Cc	Cu
●	T-20 10.0ft	A-2-4 (0)				NP	NP	NP		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	T-20 10.0ft	9.5	1.006	0.195		-	-	23	

GRAIN SIZE DISTRIBUTION

Terracon Project: P-5206C (Reid to Kannapolis)
 Site: Kannapolis, North Carolina
 Job #: 70125038 Date: 10-4-12
 Signature: *Stephanie E. Hardison*
 Certification No. 114-01-1203

TC GRAIN SIZE 70125038.GPJ GAGE TERRACON.GDT 10/4/12