

REFERENCE: Y-4807B

PROJECT: 40325

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

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

| | | | |
|-------|-----------------------------|-----------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | Y-4807B | 1 | 12 |

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 1919 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 (IN-PLACE) 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 THE 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 DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 2. 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.

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY GUILFORD
PROJECT DESCRIPTION MARKET STREET FROM PINE
STREET TO LOWDERMILK STREET

INVENTORY

CONTENTS

| LINE | STATION | PLAN | PROFILE |
|------|---------------------|------|---------|
| -L- | 16+66.17 - 21+56.06 | 4 | N/A |
| -YI- | 10+33.64 - 21+13.80 | 4 | N/A |

CROSS SECTIONS

| LINE | STATION | SHEETS |
|------|---------------------|--------|
| -L- | 20+50.00 | 5 |
| -YI- | 10+00.00 - 17+50.00 | 6-9 |

APPENDICES

| APPENDIX | TITLE | SHEETS |
|----------|--------------------|--------|
| A | LABORATORY RESULTS | 10-11 |

PERSONNEL

C. DRISCOLL

B. NELSON

INVESTIGATED BY C. DRISCOLL

DRAWN BY T. WELLS

CHECKED BY X. BARRETT

SUBMITTED BY KLEINFELDER, INC.

DATE JULY 2019

Prepared in the Office of:



DocuSigned by:
Thomas R. Wells 8/23/2019

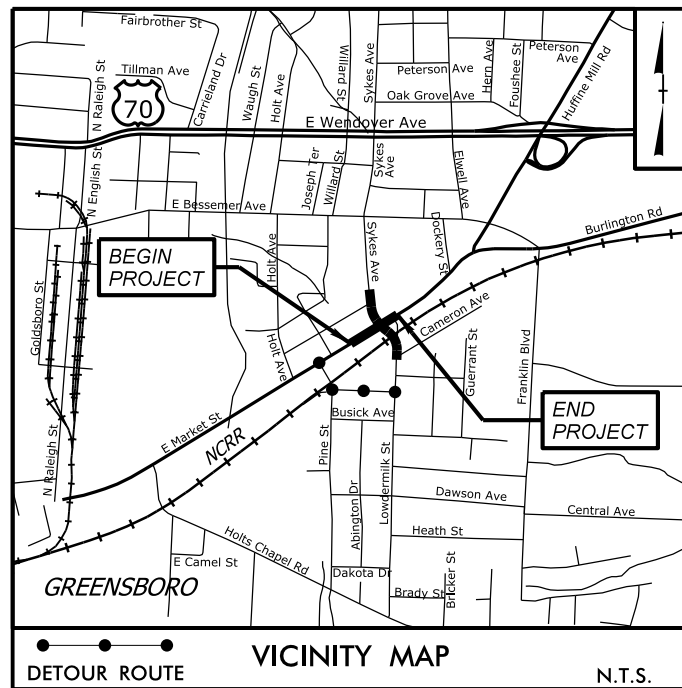
7DA5D2D0518E480 SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

| SOIL DESCRIPTION | | | | | | | | | | GRADATION | | | | | | | | | | ROCK DESCRIPTION | | | | | | | | | | TERMS AND DEFINITIONS | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| SOIL IS CONSIDERED 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 THE STANDARD PENETRATION TEST (ASTM T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i> | | | | | | | | | | WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. | | | | | | | | | | HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, 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 0.1 FOOT PER 60 BLOWS 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: | | | | | | | | | | 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, SUCH 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 DISLOGGED 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 (ROD) - 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 (N 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 (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - 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. | | | | | | | | | |
| SOIL LEGEND AND AASHTO CLASSIFICATION | | | | | | | | | | ANGULARITY OF GRAINS | | | | | | | | | | WEATHERED ROCK (WR) | | | | | | | | | | CRYSTALLINE ROCK (CR) | | | | | | | | | |
| GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS | | | | | | | | | | THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED. | | | | | | | | | | NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. | | | | | | | | | | FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. | | | | | | | | | |
| MINERALOGICAL COMPOSITION | | | | | | | | | | COMPRESSION | | | | | | | | | | NON-CRYSTALLINE ROCK (NCR) | | | | | | | | | | COASTAL PLAIN SEDIMENTARY ROCK (CP) | | | | | | | | | |
| MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE. | | | | | | | | | | SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50 | | | | | | | | | | 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. | | | | | | | | | | COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC. | | | | | | | | | |
| PERCENTAGE OF MATERIAL | | | | | | | | | | GROUND WATER | | | | | | | | | | WEATHERING | | | | | | | | | | | | | | | | | | | |
| ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL | | | | | | | | | | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING | | | | | | | | | | FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. | | | | | | | | | | | | | | | | | | | |
| TRACE OF ORGANIC MATTER 2 - 3% LITTLE ORGANIC MATTER 3 - 5% MODERATELY ORGANIC 5 - 10% HIGHLY ORGANIC > 10% | | | | | | | | | | STATIC WATER LEVEL AFTER 24 HOURS | | | | | | | | | | VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA | | | | | | | | | | SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | SPRING OR SEEP | | | | | | | | | | MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. | | | | | | | | | | | | | | | | | | | |
| MISCELLANEOUS SYMBOLS | | | | | | | | | | RECOMMENDATION SYMBOLS | | | | | | | | | | SEVERE (MOD. SEV.) | | | | | | | | | | SEVERE (SEV.) | | | | | | | | | |
| ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION | | | | | | | | | | UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE | | | | | | | | | | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL | | | | | | | | | | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF | | | | | | | | | |
| SOIL SYMBOL | | | | | | | | | | UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK | | | | | | | | | | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF | | | | | | | | | | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE. | | | | | | | | | |
| ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT | | | | | | | | | | AR - AUGER REFUSAL | | | | | | | | | | VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. | | | | | | | | | | HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. | | | | | | | | | |
| INFERRED SOIL BOUNDARY | | | | | | | | | | DMT - DILATOMETER TEST | | | | | | | | | | MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. | | | | | | | | | | MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. | | | | | | | | | |
| INFERRED ROCK LINE | | | | | | | | | | DPT - DYNAMIC PENETRATION TEST | | | | | | | | | | SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. | | | | | | | | | | VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL. | | | | | | | | | |
| ALLUVIAL SOIL BOUNDARY | | | | | | | | | | e - VOID RATIO | | | | | | | | | | FRACTURE SPACING | | | | | | | | | | BEDDING | | | | | | | | | |
| | | | | | | | | | | F - FINE | | | | | | | | | | TERM SPACING | | | | | | | | | | TERM THICKNESS | | | | | | | | | |
| | | | | | | | | | | FOSS. - FOSSILIFEROUS | | | | | | | | | | VERY WIDE MORE THAN 10 FEET | | | | | | | | | | VERY THICKLY BEDDED 4 FEET | | | | | | | | | |
| | | | | | | | | | | FRAC. - FRACTURED, FRACTURES | | | | | | | | | | WIDE 3 TO 10 FEET | | | | | | | | | | THICKLY BEDDED 1.5 - 4 FEET | | | | | | | | | |
| | | | | | | | | | | FRAGS. - FRAGMENTS | | | | | | | | | | MODERATELY CLOSE 1 TO 3 FEET | | | | | | | | | | THINLY BEDDED 0.16 - 1.5 FEET | | | | | | | | | |
| | | | | | | | | | | HI. - HIGHLY | | | | | | | | | | CLOSE 0.16 TO 1 FOOT | | | | | | | | | | VERY THINLY BEDDED 0.03 - 0.16 FEET | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | VERY CLOSE LESS THAN 0.16 FEET | | | | | | | | | | THICKLY LAMINATED 0.008 - 0.03 FEET | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | THINLY LAMINATED < 0.008 FEET | | | | | | | | | |
| SOIL MOISTURE - CORRELATION OF TERMS | | | | | | | | | | EQUIPMENT USED ON SUBJECT PROJECT | | | | | | | | | | INDURATION | | | | | | | | | | | | | | | | | | | |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION | | | | | | | | | | DRILL UNITS: CME-45C, CME-55, CME-550, VANE SHEAR TEST, PORTABLE HOIST | | | | | | | | | | FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. | | | | | | | | | | | | | | | | | | | |
| LL - LIQUID LIMIT | | | | | | | | | | ADVANCING TOOLS: CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG-CARBIDE INSERTS, CASING w/ ADVANCER, TRICONE * STEEL TEETH, TRICONE * TUNG-CARB., CORE BIT | | | | | | | | | | FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. | | | | | | | | | | | | | | | | | | | |
| PL - PLASTIC LIMIT | | | | | | | | | | HAMMER TYPE: AUTOMATIC, MANUAL | | | | | | | | | | MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. | | | | | | | | | | | | | | | | | | | |
| OM - OPTIMUM MOISTURE SHRINKAGE LIMIT | | | | | | | | | | CORE SIZE: -B, -H, -N | | | | | | | | | | INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST | | | | | | | | | | EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS. | | | | | | | | | | | | | | | | | | | |
| PLASTICITY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NON PLASTIC 0-5 VERY LOW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLIGHTLY PLASTIC 6-15 SLIGHT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MODERATELY PLASTIC 16-25 MEDIUM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HIGHLY PLASTIC 26 OR MORE HIGH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COLOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | BENCH MARK: N/A | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ELEVATION: N/A FEET | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | NOTES: BORING ELEVATIONS OBTAINED FROM PROJECT TIN FILE Y4807-LS_TIN_180627, RECEIVED ON NOVEMBER 14, 2018.. | | | | | | | | | |

TIP PROJECT: Y-4807B



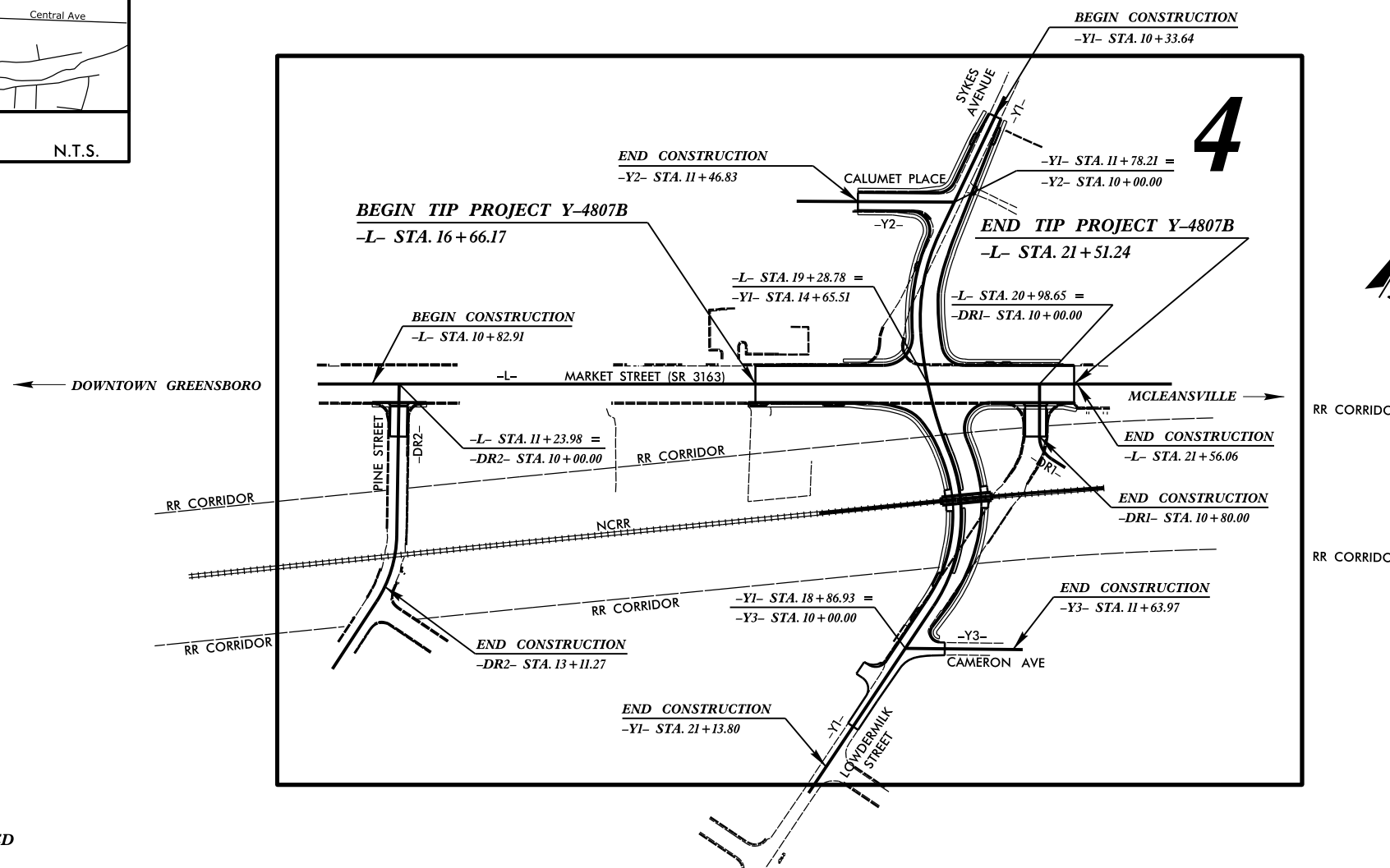
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

LOCATION: MARKET STREET (SR 3163) FROM PINE STREET TO LOWDERMILK STREET
TYPE OF WORK: GRADING, PAVING, DRAINAGE, RAIL CROSSING CLOSURE
ON PINE STREET (CROSSING NO. 722 957L, MILEPOST H 2.5) AND ON
LOWDERMILK STREET (CROSSING NO. 722 958T, MILEPOST H 2.7)

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | Y-4807B | 1 | 12 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 40325.1.59 | | P.E. | |
| 40325.2.59 | | RW & UTIL. | |
| | | | |
| | | | |
| | | | |
| | | | |

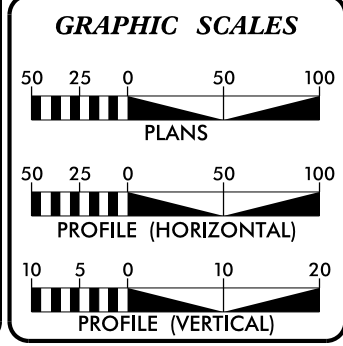
RIGHT-OF-WAY PLANS



NOTE: THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA
(LOWDERMILK ST.)

| | |
|------------------------------|--------|
| ADT 2012 = | 2,800 |
| ADT 2032 = | 3,500 |
| K = | 8% |
| D = | 50% |
| T = | 2% * |
| V = | 30 MPH |
| FUNC. CLASSIFICATION: | |
| URBAN LOCAL | |
| * (TTST 1% + DUAL 1%) | |

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT Y-4807B = 0.092 MILES

TOTAL LENGTH OF TIP PROJECT Y-4807B = 0.092 MILES

NCDOT CONTACT: NANCY HORNE, P.E.
Project Engineer - Engineering and Safety Branch

PLANS PREPARED FOR THE NCDOT BY:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

| | |
|---|--|
| 2018 STANDARD SPECIFICATIONS | |
| RIGHT OF WAY DATE: NOVEMBER 28, 2018 | NIKKI T. HONEYCUTT, P.E. PROJECT ENGINEER |
| LETTING DATE: JULY 22, 2019 | MAAMOON K. ABDELAZIZ PROJECT DESIGNER |

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



RIGHT-OF-WAY PLANS
SDATES



August 21, 2019

STATE PROJECT: 40325.1.59 (Y-4807B)
COUNTY: Guilford
DESCRIPTION: Market Street from Pine Street to Lowdermilk Street

SUBJECT: GEOTECHNICAL REPORT - INVENTORY

PROJECT DESCRIPTION

This project consists of a reconstruction of East Market Street (-L-) and the realignment of Lowdermilk Street and Sykes Avenue (-Y1-).

The geotechnical investigation was conducted in July 2019. Hand Augers were performed to obtain representative soil samples for visual classification in the field. Selected samples were submitted for laboratory analysis by Geotechnics, Inc.

The following alignments, totaling 0.30 miles, were investigated. Plan sheets and cross sections of these alignments are included in this report.

| <u>LINE</u> | <u>STATIONS</u> |
|-------------|-----------------|
| -L- | 16+66 to 21+51 |
| -Y1- | 10+34 to 21+14 |

PHYSIOGRAPHY AND GEOLOGY

The project is located in the Piedmont Physiographic Province. The project corridor is comprised primarily of residential and commercial properties. The general topography along the project is generally flat to gently sloping.

Geologically, the project is located within the Carolina Slate Belt. Soils are derived from the underlying metamorphic bedrock primarily consisting of metamorphic granitic rock.

Surface water is drained from the corridor by curb and gutter.

SOIL PROPERTIES

Soils encountered during this investigation are separated into two categories based on origin. They consist of artificial fill and residual soils.

Artificial fill soils are present adjacent to the existing roadways on the project. The artificial fill encountered generally consist of moist, medium dense, silty coarse to fine sands (A-2-4). The artificial fill encountered extended to a maximum depth of 3 feet.

Residual soils are derived from the weathering of underlying granitic rock. The residual soils encountered consist of moist, stiff, sandy clays (A-6) and moist, stiff, highly plastic, sandy, silty clays (A-7). The plasticity index of the residual clays tested ranged from 13 to 33.

GROUNDWATER

Groundwater was not encountered to the depths investigated for this project.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

1) Artificial Fill: Artificial fill is present within the commercial properties along the existing roadways at the following locations:

| <u>LINE</u> | <u>STATIONS</u> | <u>OFFSETS</u> |
|-------------|-----------------|----------------|
| -L- | 16+66 to 21+51 | LT, RT |
| -Y1- | 10+34 to 21+14 | LT, Rt |

2) Highly Plastic Clays: Highly plastic clays (PI > 25) were encountered on the project at the following locations:

| <u>LINE</u> | <u>STATIONS</u> | <u>OFFSETS</u> |
|-------------|-----------------|----------------|
| -Y1- | 23+75 to 25+75 | LT, RT |

A discussion of these highly plastic clay soils is located in the section titled "Soil Properties."

Prepared by,
KLEINFELDER, INC.
NC License No. F-1312

Xavier C. Barrett, PE
Principal Professional

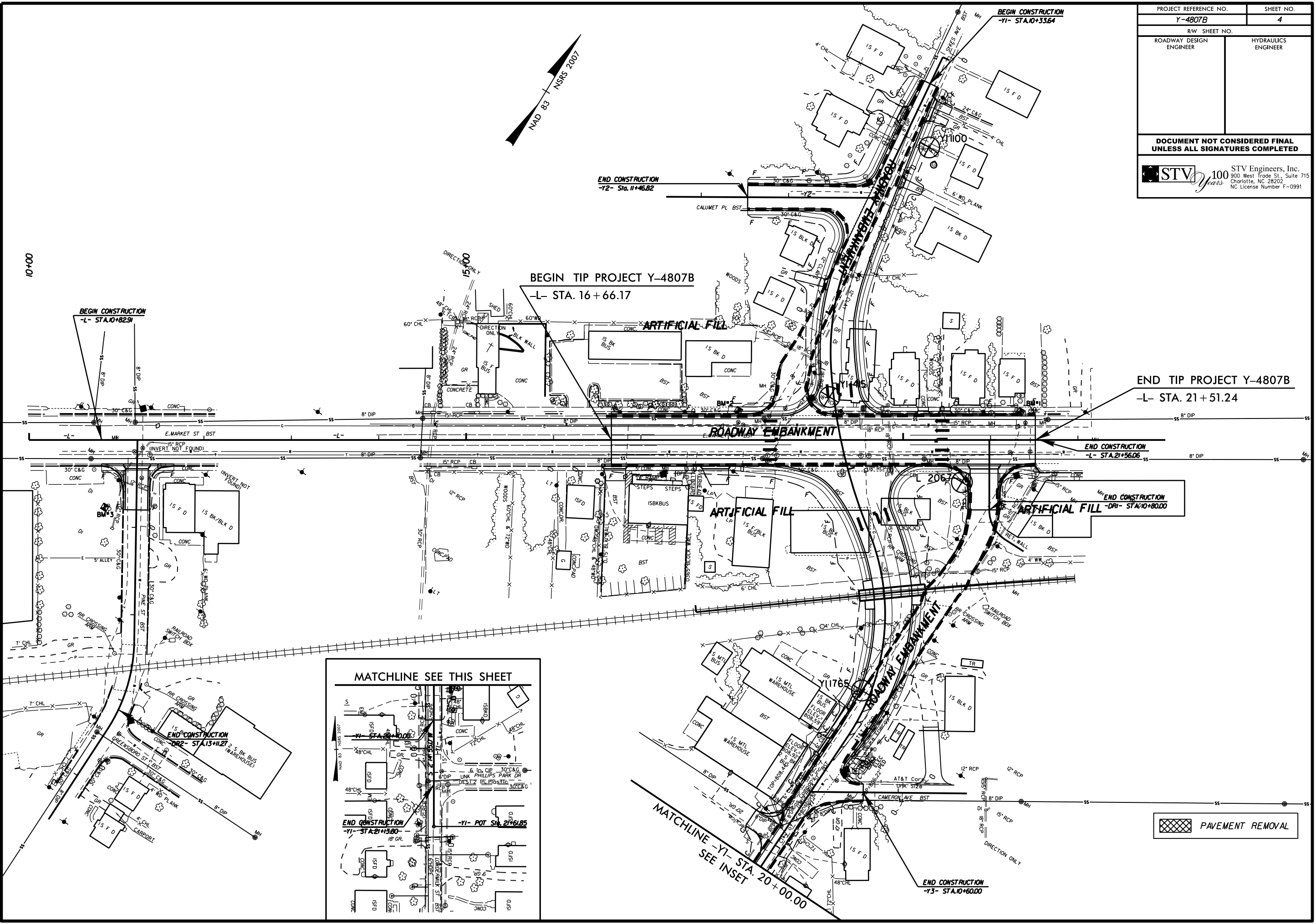
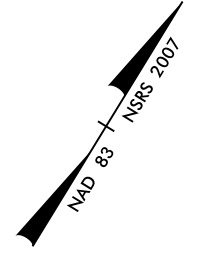
Thomas R. Wells, PE
Senior Professional

TRW/XCB

| | |
|---|-----------------------|
| PROJECT REFERENCE NO. Y-4807B | SHEET NO. 4 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

STV 100 Years
 STV Engineers, Inc.
 900 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991



10+00

BEGIN CONSTRUCTION
-L- STA. 10+82.91

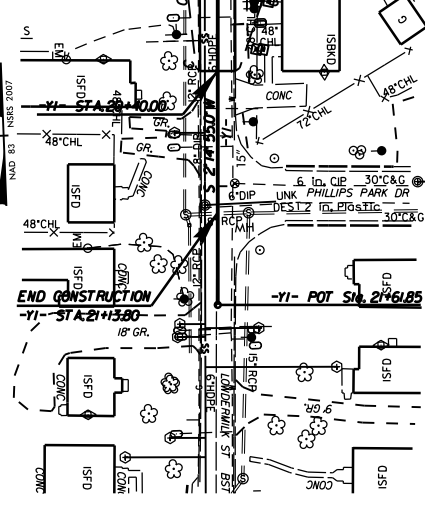
BEGIN TIP PROJECT Y-4807B
-L- STA. 16+66.17

END TIP PROJECT Y-4807B
-L- STA. 21+51.24

END CONSTRUCTION
-L- STA. 21+56.06

END CONSTRUCTION
-DRI- STA. 10+80.00

MATCHLINE SEE THIS SHEET



MATCHLINE -Y1- STA. 20+00.00
SEE INSET

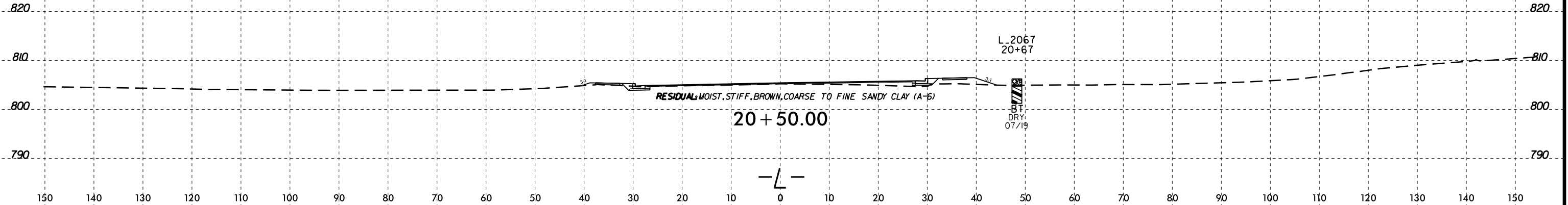
PAVEMENT REMOVAL

\$FILES\$
\$DATE\$

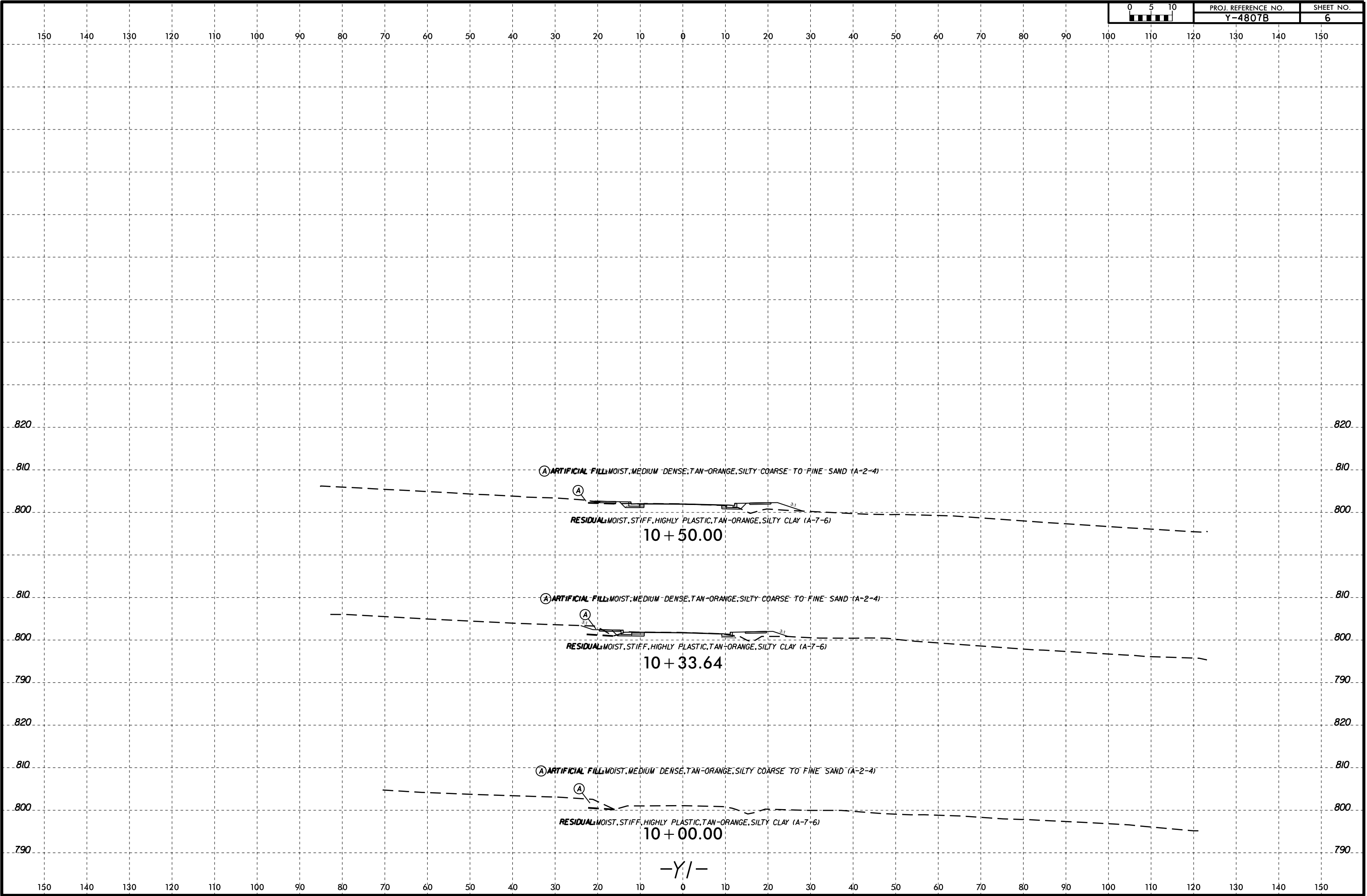


150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2:\AUG-2016\452
 C:\Users\krellis\OneDrive - KleinFeider\Desktop\Y4807B_GEO_RAILROAD\CADD_GEOTECH\XSC\Y4807B_GEO.XSL.dgn
 T:\wells At KA211387



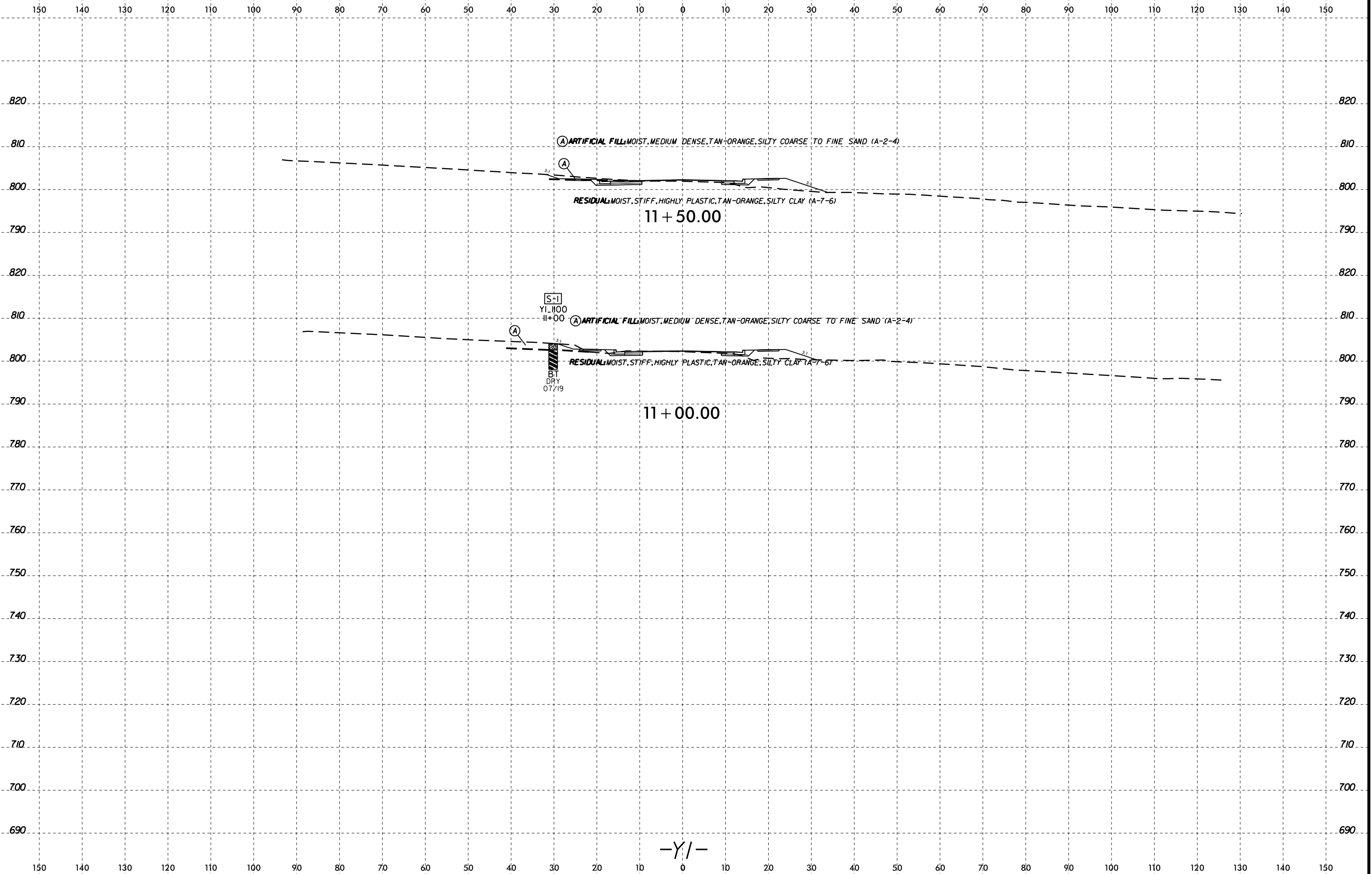
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



6/23/16



| | |
|---------------------|-----------|
| PROJ. REFERENCE NO. | SHEET NO. |
| Y-4807B | 7 |



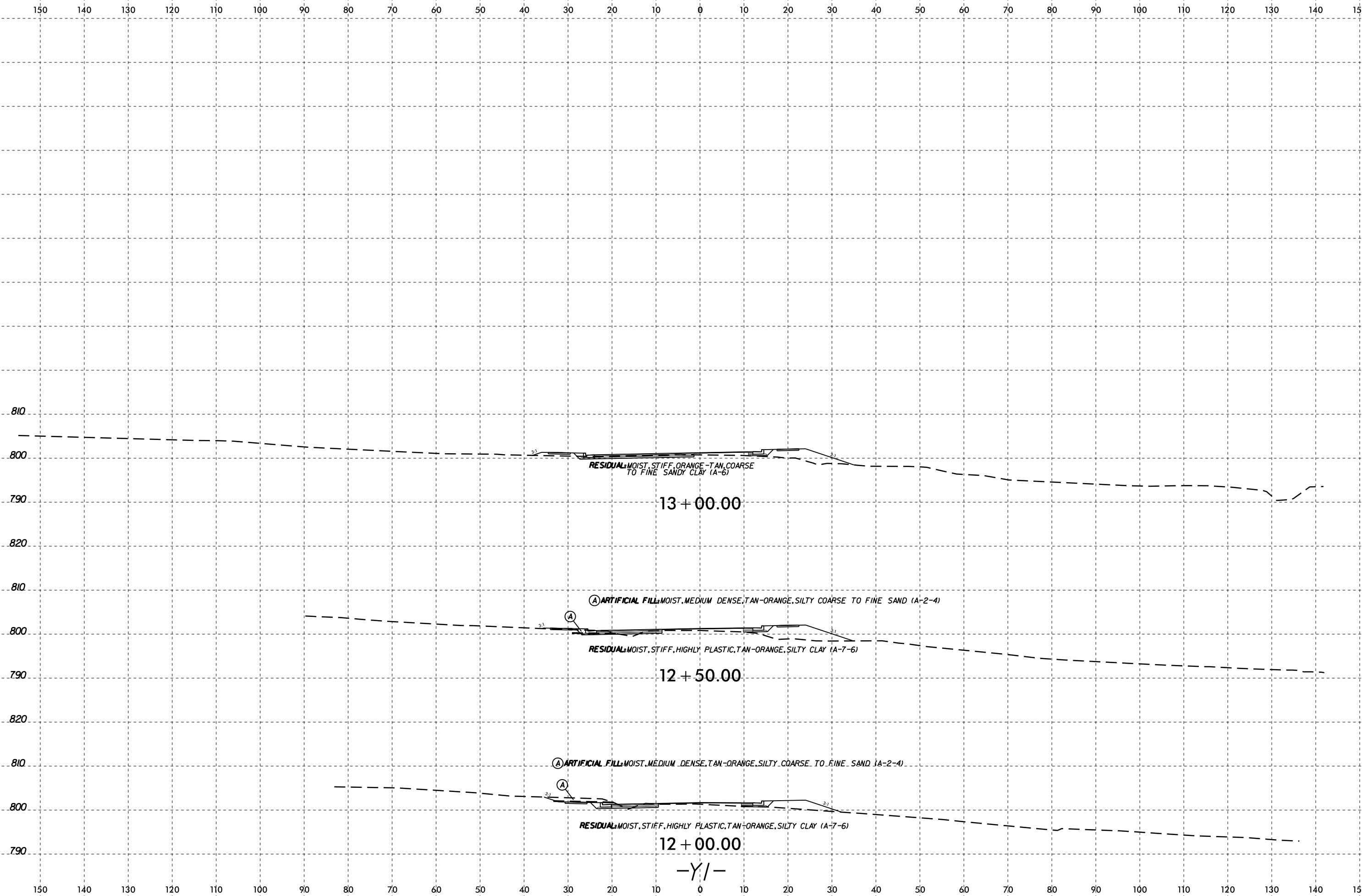
11 + 50.00

11 + 00.00

-Y/-

21-AUG-2016 15:07
 C:\Users\jreli\OneDrive - KleinFeider\Desktop\Y4807B_GEO_RAILROAD\CADD_GEO\TECH\XSC\Y4807B_GEO_XS1_Y1.dgn
 T:\wells\AT\KA211387

6/23/16
2:\AUG-2018 15:07
C:\Users\jreilly\OneDrive - KleinFeider\Desktop\Y4807B_GEO_RAILROAD\CADD_GEO\GEO\GEO\Y4807B_GEO_xst_1.dgn
T:\wells\AT\KA211387



RESIDUAL MOIST, STIFF, ORANGE-TAN, COARSE TO FINE SANDY CLAY (A-6)

13 + 00.00

(A) ARTIFICIAL FILL, MOIST, MEDIUM DENSE, TAN-ORANGE, SILTY COARSE TO FINE SAND (A-2-4)

RESIDUAL MOIST, STIFF, HIGHLY PLASTIC, TAN-ORANGE, SILTY CLAY (A-7-6)

12 + 50.00

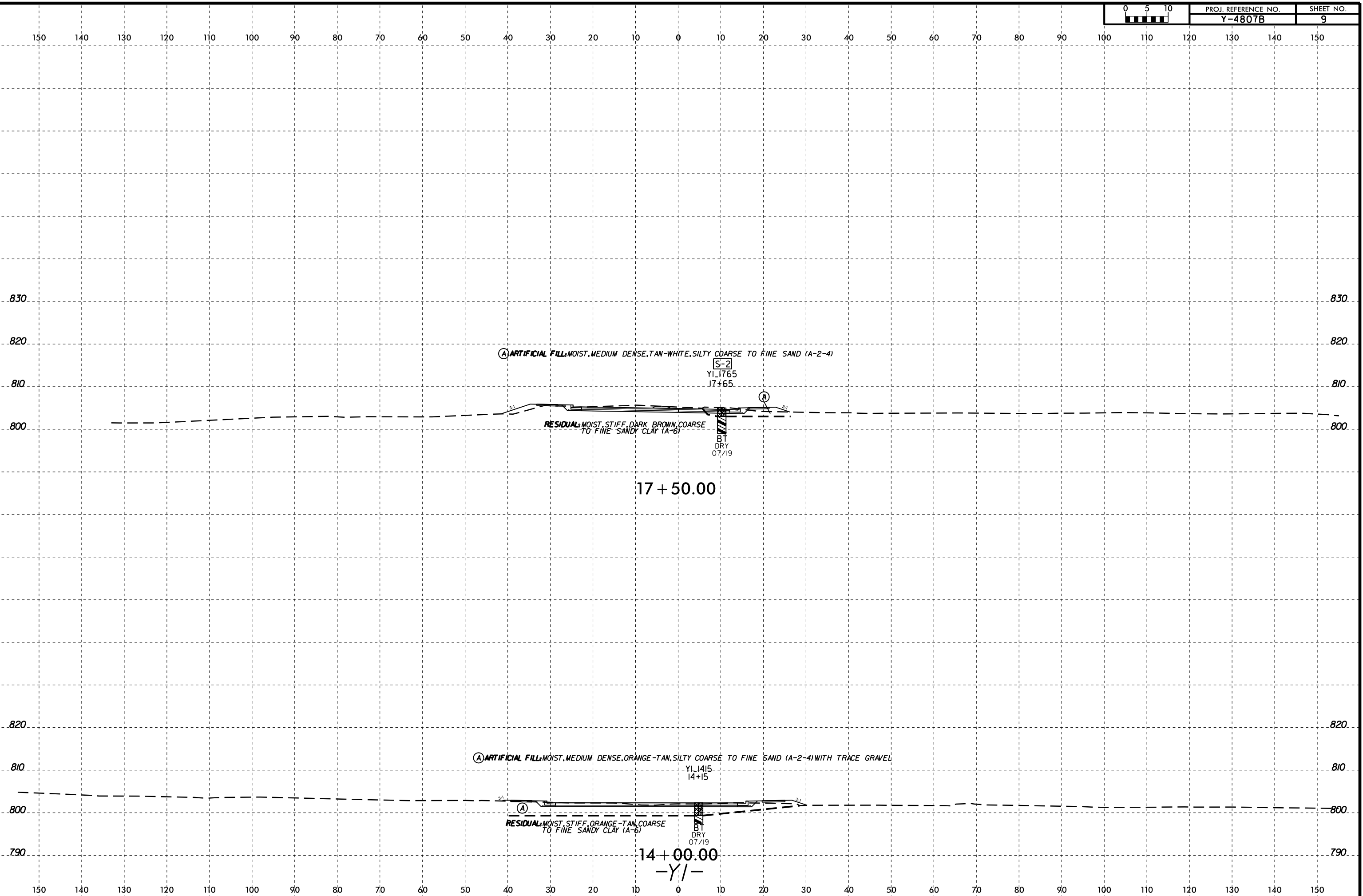
(A) ARTIFICIAL FILL, MOIST, MEDIUM DENSE, TAN-ORANGE, SILTY COARSE TO FINE SAND (A-2-4)

RESIDUAL MOIST, STIFF, HIGHLY PLASTIC, TAN-ORANGE, SILTY CLAY (A-7-6)

12 + 00.00

-Y/-

6/23/16
2:\AUG-2018 15:07
C:\Users\jreli\OneDrive - KleinFeider\Desktop\Y4807B_GEO_RAILROAD\CADD_GEO\GEO\Y4807B_GEO_xst_yl.dgn
T:\wells\At-KA211387



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
 APPENDIX A
 LABORATORY RESULTS

REFERENCE: Y-4807B

PROJECT: 40325

DS


Prepared in the Office of:



REFERENCE: Y-4807B

PROJECT: 40325

| | | | |
|-------|-----------------------------|-----------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | Y-4807B | 1 | 6 |

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

STRUCTURE

SUBSURFACE INVESTIGATION

COUNTY GUILFORD

PROJECT DESCRIPTION MARKET STREET FROM PINE STREET TO LOWDERMILK STREET

SITE DESCRIPTION UTILITY NCRR ROW PIPELINE CROSSING

CONTENTS

| <u>SHEET NO.</u> | <u>DESCRIPTION</u> |
|------------------|----------------------|
| 1 | TITLE SHEET |
| 2, 2A | LEGEND (SOIL & ROCK) |
| 3 | SITE PLAN |
| 4-5 | BORE LOGS |

PERSONNEL
TRIGON EXPLORATION

INVESTIGATED BY X. BARRETT

DRAWN BY T. WELLS

CHECKED BY T. WELLS

SUBMITTED BY KLEINFELDER, INC.

DATE JANUARY 2022

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. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 (IN-PLACE) 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 THE 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 DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

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

Prepared in the Office of:



DocuSigned by:
Thomas R. Wells 01/18/2022

7DA5D2D8638449E _____ DATE

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION





SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS
(PAGE 1 OF 2)

| SOIL DESCRIPTION | | | | | | | | | | GRADATION | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|
| SOIL IS CONSIDERED 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 THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6 | | | | | | | | | | WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. | | | | | | | | | |
| SOIL LEGEND AND AASHTO CLASSIFICATION | | | | | | | | | | ANGULARITY OF GRAINS | | | | | | | | | |
| THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED. | | | | | | | | | | MINERALOGICAL COMPOSITION | | | | | | | | | |
| MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE. | | | | | | | | | | COMPRESSIBILITY | | | | | | | | | |
| SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50 | | | | | | | | | | PERCENTAGE OF MATERIAL | | | | | | | | | |
| ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE | | | | | | | | | | GROUND WATER | | | | | | | | | |
| WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP | | | | | | | | | | MISCELLANEOUS SYMBOLS | | | | | | | | | |
| ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY | | | | | | | | | | DIP & DIP DIRECTION OF ROCK STRUCTURES TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE | | | | | | | | | |
| CONSISTENCY OR DENSENESS | | | | | | | | | | RECOMMENDATION SYMBOLS | | | | | | | | | |
| PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) GENERALLY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE < 4 4 TO 10 10 TO 30 30 TO 50 > 50 N/A GENERALLY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD < 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30 < 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4 | | | | | | | | | | UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK | | | | | | | | | |
| TEXTURE OR GRAIN SIZE | | | | | | | | | | ABBREVIATIONS | | | | | | | | | |
| U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053 | | | | | | | | | | AR - AUGER REFUSAL MED. - MEDIUM BT - BORING TERMINATED MICA - MICACEOUS CL - CLAY MOD. - MODERATELY CPT - CONE PENETRATION TEST NP - NON PLASTIC CSE. - COARSE ORG. - ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST DPT - DYNAMIC PENETRATION TEST SAP. - SAPROLITIC e - VOID RATIO SD. - SAND, SANDY F - FINE SL. - SILT, SILTY FOSS. - FOSSILIFEROUS SLLI. - SLIGHTLY FRAC. - FRACTURED, FRACTURES TCR - TRICONE REFUSAL FRAGS. - FRAGMENTS w - MOISTURE CONTENT HI. - HIGHLY V - VERY | | | | | | | | | |
| GRAIN SIZE | | | | | | | | | | SOIL MOISTURE - CORRELATION OF TERMS | | | | | | | | | |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION | | | | | | | | | | SAMPLE ABBREVIATIONS | | | | | | | | | |
| LL - LIQUID LIMIT - SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PL - PLASTIC LIMIT - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE OM - OPTIMUM MOISTURE SHRINKAGE LIMIT - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL - SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | | | | | | | | | | S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO | | | | | | | | | |
| PLASTICITY | | | | | | | | | | EQUIPMENT USED ON SUBJECT PROJECT | | | | | | | | | |
| PLASTICITY INDEX (PI) DRY STRENGTH | | | | | | | | | | DRILL UNITS: CME-45C CME-55 CME-550 VANE SHEAR TEST PORTABLE HOIST ADVANCING TOOLS: CLAY BITS 6' CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING W/ ADVANCER TRICONE STEEL TEETH TRICONE TUNG-CARB. CORE BIT HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B H N HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST | | | | | | | | | |
| NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC 0-5 6-15 16-25 26 OR MORE VERY LOW SLIGHT MEDIUM HIGH | | | | | | | | | | DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE. | | | | | | | | | |

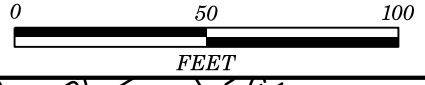
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT**

SUBSURFACE INVESTIGATION

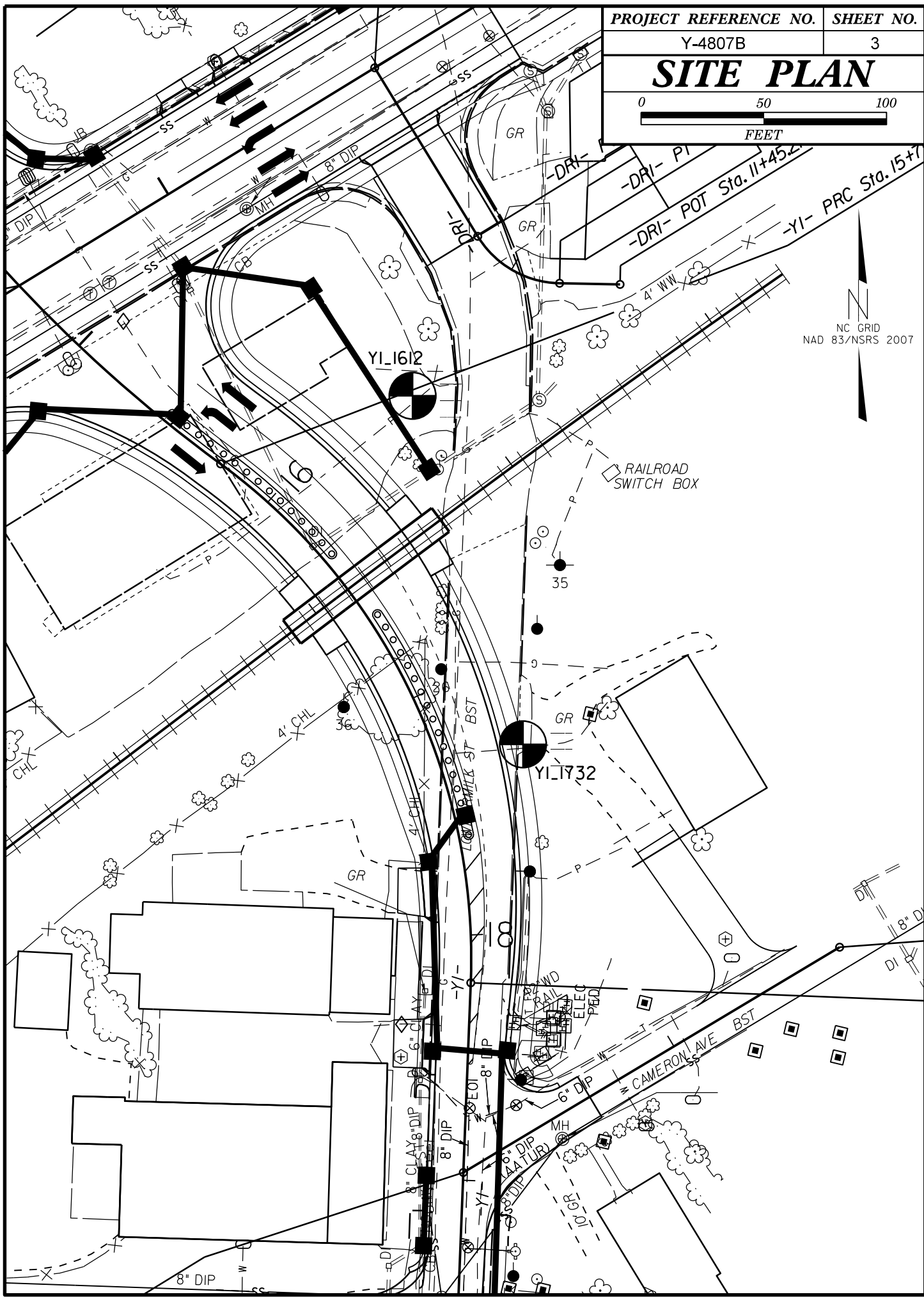
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS (PAGE 2 OF 2)

| ROCK DESCRIPTION | | TERMS AND DEFINITIONS |
|--|---|---|
| <p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. 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 0.1 FOOT PER 60 BLOWS 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.</p> <p>AQUIFER - A WATER BEARING FORMATION OR STRATA.</p> <p>ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.</p> <p>ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.</p> <p>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.</p> <p>CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.</p> <p>COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.</p> <p>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.</p> <p>DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.</p> <p>DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.</p> <p>DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.</p> <p>FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.</p> <p>FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.</p> <p>FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.</p> <p>FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.</p> <p>FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.</p> <p>JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.</p> <p>LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.</p> <p>LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.</p> <p>MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.</p> <p>PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.</p> <p>RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.</p> <p>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.</p> <p>SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.</p> <p>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 INTRODUCED ROCKS.</p> <p>SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.</p> <p>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.</p> <p>STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.</p> <p>STRATA ROCK QUALITY DESIGNATION (SROD) - 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.</p> <p>TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p> |
| WEATHERED ROCK (WR) |  | NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. |
| CRYSTALLINE ROCK (CR) |  | FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. |
| NON-CRYSTALLINE ROCK (NCR) |  | 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. |
| COASTAL PLAIN SEDIMENTARY ROCK (CP) |  | COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC. |
| WEATHERING | | |
| FRESH | | ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. |
| VERY SLIGHT (V SL.) | | ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. |
| SLIGHT (SL.) | | ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. |
| MODERATE (MOD.) | | SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. |
| MODERATELY SEVERE (MOD. SEV.) | | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <u>IF TESTED, WOULD YIELD SPT REFUSAL</u> |
| SEVERE (SEV.) | | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</u> |
| VERY SEVERE (V SEV.) | | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u> |
| COMPLETE | | ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE. |
| ROCK HARDNESS | | |
| VERY HARD | | CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. |
| HARD | | CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. |
| MODERATELY HARD | | CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. |
| MEDIUM HARD | | CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. |
| SOFT | | CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. |
| VERY SOFT | | CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL. |
| FRACTURE SPACING | | BEDDING |
| TERM | SPACING | TERM THICKNESS |
| VERY WIDE | MORE THAN 10 FEET | VERY THICKLY BEDDED 4 FEET |
| WIDE | 3 TO 10 FEET | THICKLY BEDDED 1.5 - 4 FEET |
| MODERATELY CLOSE | 1 TO 3 FEET | THINLY BEDDED 0.16 - 1.5 FEET |
| CLOSE | 0.16 TO 1 FOOT | VERY THINLY BEDDED 0.03 - 0.16 FEET |
| VERY CLOSE | LESS THAN 0.16 FEET | THICKLY LAMINATED 0.008 - 0.03 FEET |
| | | THINLY LAMINATED < 0.008 FEET |
| INDURATION | | |
| FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. | | |
| FRIABLE | | RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. |
| MODERATELY INDURATED | | GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. |
| INDURATED | | GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. |
| EXTREMELY INDURATED | | SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS. |
| | | BENCH MARK: N/A |
| | | ELEVATION: N/A FEET |
| NOTES: | | |
| BORING ELEVATIONS OBTAINED FROM PROJECT TIN FILE Y4807B_LS.TIN RECEIVED ON SEPTEMBER 10, 2021. | | |
| FIAD - FILLED IMMEDIATELY AFTER DRILLING | | |

SITE PLAN



NC GRID
NAD 83/NSRS 2007



GEOTECHNICAL BORING REPORT BORE LOG

| WBS 40325.1.59 | | TIP Y-4807B | | COUNTY GUILFORD | | GEOLOGIST X. Barrett | | | | | | | | | | | |
|---|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|-----|---------------------------|------------|-----------------------|---|
| SITE DESCRIPTION Utility NCRR ROW Pipeline Crossing (Market St. from Pine St. to Lowermilk St.) | | | | | | | GROUND WTR (ft) | | | | | | | | | | |
| BORING NO. Y1_1612 | | STATION 16+12 | | OFFSET 72 ft LT | | ALIGNMENT -Y1- | 0 HR. Dry | | | | | | | | | | |
| COLLAR ELEV. 807.6 ft | | TOTAL DEPTH 12.0 ft | | NORTHING 849,410 | | EASTING 1,779,611 | 24 HR. FIAD | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 82% 04/23/2021 | | | | DRILL METHOD H.S. Augers | | HAMMER TYPE Automatic | | | | | | | | | | | |
| DRILLER R. Toothman | | START DATE 12/20/21 | | COMP. DATE 12/20/21 | | 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) | | |
| 810 | | | | | | | | | | | | | | | | | |
| | 806.6 | 1.0 | 9 | 9 | 7 | | | | | | | | | | | GROUND SURFACE 807.6 | |
| 805 | 804.1 | 3.5 | 16 | 18 | 9 | | | | | | | | | | | ARTIFICIAL FILL 806.7 | |
| | 801.6 | 6.0 | 2 | 1 | 2 | | | | | | | | | | | Asphalt | |
| 800 | 799.1 | 8.5 | 4 | 6 | 4 | | | | | | | | | | | ABC Stone | |
| | 795.6 | 12.0 | 60/0.0 | | | 60/0.0 | | | | | | | | | | | Tan, Brown, and White, Silty Coarse to Fine SAND (A-3) 803.6 |
| | | | | | | | | | | | | | | | | | Gray, Silty Coarse to Fine SAND (A-2-4) with Trace Gravel 801.1 |
| | | | | | | | | | | | | | | | | | ALLUVIAL |
| | | | | | | | | | | | | | | | | | Olive Gray Clayey SILT (A-5) 798.6 |
| | | | | | | | | | | | | | | | | | RESIDUAL |
| | | | | | | | | | | | | | | | | | Light Gray-White Silty Coarse to Fine SAND (A-2-4) 795.6 |
| | | | | | | | | | | | | | | | | | Boring Terminated with Standard Penetration Test Refusal at Elevation 795.6 ft on Crystalline Rock: Metamorphosed Granitic Rock |

NCDOT BORE SINGLE Y-4807B_GEO_UTIL.GPJ NC_DOT.GDT 12/20/21

GEOTECHNICAL BORING REPORT

BORE LOG

| WBS 40325.1.59 | | TIP Y-4807B | | COUNTY GUILFORD | | GEOLOGIST X. Barrett | | | | | | | | | | | |
|---|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|---------|-------|---------------------------|------------|------|--|
| SITE DESCRIPTION Utility NCRR ROW Pipeline Crossing (Market St. from Pine St. to Lowermilk St.) | | | | | | | GROUND WTR (ft) | | | | | | | | | | |
| BORING NO. Y1_1732 | | STATION 17+32 | | OFFSET 35 ft LT | | ALIGNMENT -Y1- | | | | | | | | | | | |
| COLLAR ELEV. 809.7 ft | | TOTAL DEPTH 13.7 ft | | NORTHING 849,268 | | EASTING 1,779,656 | | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 82% 04/23/2021 | | | | DRILL METHOD H.S. Augers | | HAMMER TYPE Automatic | | | | | | | | | | | |
| DRILLER R. Toothman | | START DATE 12/20/21 | | COMP. DATE 12/20/21 | | SURFACE WATER DEPTH N/A | | | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | L O G | SOIL AND ROCK DESCRIPTION | | | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | ELEV. (ft) | DEPTH (ft) | | |
| 810 | | | | | | | | | | | | | | | 809.7 | 0.0 | GROUND SURFACE |
| | 808.7 | 1.0 | 4 | 5 | 5 | | | | | | | | | | 809.5 | 0.2 | ROADWAY EMBANKMENT Gravel |
| 805 | 806.2 | 3.5 | 3 | 5 | 6 | | | | | | | | | | 806.7 | 3.0 | Gray, Silty Coarse to Fine SAND (A-3) |
| | 803.7 | 6.0 | 4 | 6 | 7 | | | | | | | | | | | | RESIDUAL Orange and Tan, Clayey SILT (A-5) |
| 800 | 801.2 | 8.5 | 8 | 18 | 60 | | | | | | | | | | 801.7 | 8.0 | Tan Brown, Silty Coarse to Fine SAND (A-2-4) |
| | 796.7 | 13.0 | 50 | 50/0.2 | | | | | | | | | | | 799.2 | 10.5 | WEATHERED ROCK Tan Brown Metamorphic Granitic Rock |
| | | | | | | | | | | | | | | | 796.0 | 13.7 | Boring Terminated at Elevation 796.0 ft in Weathered Rock: Metamorphosed Granitic Rock |

NCDOT BORE SINGLE Y-4807B GEO_UTIL.GPJ NC_DOT.GDT 12/20/21