REFERENCE

4692

SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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#### **APPENDICES**

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### STATE OF NORTH CAROLINA

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

## **ROADWAY** SUBSURFACE INVESTIGATION

OUNTY_	WAKE				
ROJECT	DESCRIPT	ION NEW	W HOPE	<b>CHURCH</b>	ROAD
	E SEPAR				
		INVEN	ITORY	7	

STATE PROJECT REFERENCE NO. 24 P-5715

#### **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 (1991) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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- NOTES:

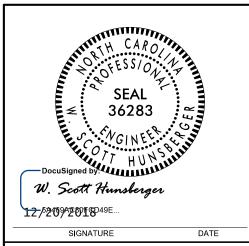
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WEIS, J.M. LANE, R.W. INVESTIGATED BY \_\_FALCON ENG. DRAWN BY \_\_HILL, M. J. CHECKED BY HUNSBERGER, W. S. SUBMITTED BY \_FALCON ENG.

DATE \_\_DECEMBER 2018

CAROLINA DRILLING



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

P-5715

2

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

# SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Company   Com				
April   Control   Contro	SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
## 14 - 15 MINUTE SET 12 - 31 H 1 - 15 MINUTE SET 12 - 31 H 1 - 15 MINUTE SET 13 MINUTE SET 14 MINUTE SET 15 MINU	SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FIGHT POWER AUGURA RAND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DISB6). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINITY FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYER, HIGHLY PLASTIC, A-7-6  SOIL LEGEND AND AASHTO CLASSIFICATION OF THE SAND LAYER, HIGHLY PLASTIC, A-7-6  CENERAL CLASS. CRANLAR MATERIALS (\$ 35% PASSING *200) SILT-CLAY MATERIALS (\$ 35% PASSING *200) CRANLAR MATERIALS (\$ 35% PASSING *200) SILT-CLAY MATER	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.  ANGULARITY OF GRAINS  THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.  MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.  COMPRESSIBLE  COMPRESSIBLE  LL < 31  MODERATELY COMPRESSIBLE  LL < 31  HIGHLY COMPRESSIBLE  LL > 50  PERCENTAGE OF MATERIAL  ORGANIC MATERIAL  ORGANIC MATERIAL  SOILS SOILS SOILS TRACE 1 - 107  LITTLE ORGANIC MATTER 2 - 37  MODERATELY ORGANIC S - 127  LITTLE ORGANIC MATTER 3 - 57  S - 127  LITTLE 10 - 207  MODERATELY ORGANIC S - 107  FORDUND WATER  WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING  STATIC WATER LEVEL AFTER 24 HOURS	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:  WEATHERED  OND-COASTAL PLAIN MATERIAL. THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.  CRYSTALLINE ROCK (CR)  OND-CRYSTALLINE ROCK (CR)  FINE TO COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.  NON-CRYSTALLINE ROCK (NCR)  FINE TO COASTAL PLAIN SEDIMENTS CREMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.  COASTAL PLAIN SEDIMENTS CREMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SPT REFUSAL, ROCK TYPE INCLUDES LIMESTONE, S	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 DISLODGED FROM PARENT MATERIAL.
NEXT   SET	PI OF A-7-5 SUBCROUP IS   LL - 30 ; PI OF A-7-6 SUBCROUP IS   LL - 30	MISCELLANEOUS SYMBOLS  ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION OF ROCK STRUCTURES OF ROCK STRUCTURES  SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT AUGER BORING OCONE PENETROMETER TEST  INFERRED SOIL BOUNDARY MM MONITORING WELL TEST BORING OCONE PENETROMETER TEST  TEST BORING WITH CORE  SPIN NAME OF THE STRUCTURES  AUGER BORING OCONE PENETROMETER  TEST BORING WITH CORE  SPIN NAME OF THE STRUCTURES  PIEZOMETER  SPIN NAME OF THE STRUCTURES  OCONE PENETROMETER  TEST BORING WITH CORE	WITH FRESH ROCK.  MODERATELY  ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL  AND DISCOLORED AND A MAJORITY SHOW KAQLINIZATION. 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 STY REFUSAL  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 KAQLINIZED  TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.  IF TESTED, WOULD YIELD SPYT IN YALLES > YAD BEF  VERY  ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE  SEVERE  BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY TRAGMENTS OF STRONG ROCK  (V SEV.)  (V SEV.)  REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR  VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPY N VALUES < 100 BPF  COMPLETE  ROCK REDUCED TO SOIL. ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPY N VALUES < 100 BPF  SCATTERED CONCENTRATIONS, QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS  ALSO AN EXAMPLE.	FORMATION (FM.) - A MAPPABLE CEOLOGIC 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.  MOTITLED (MOT) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTITLING 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
U.S. 1.5 SERVE SIZE	TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS		SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
PLASTICITY INDEX (P) DRY STRENGTH NON PLASTIC 9-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH  COLOR  DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).  DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).  MODERATELY INDURATED SEIGH ARE HIGHEN IN SET APPEARS IT APPEARS IN A RECEIPT ON SEDIMENTARY HOLES, INDURATED SET APPEARS IT APPEARS IN A RECEIPT ON SEDIMENTARY HOLES, INDURATED SET APPEARS IN A RECEIPT ON SEDIMENTARY HOLES, INDURATED SET APPEARS IN A RECEIPT ON SEDIMENTARY HOLES, INDURATED SET APPEARS IN A RECEIPT ON SEDIMENTARY HOLES, INDURATED SET APPEARS IN A RECEIPT ON SEDIMENTARY HOLES, INDURATED SET APPEARS IN A RECEIPT ON SEDIMENTARY HOLES, INDURATED SEDIMENTARY HOLES, INDURAT	U.S. STD. SIEVE SIZE  QPENING (MM)  4.76  2.00  0.42  0.25  0.075  0.053   BOULDER (BLDR.)  COBBLE (COB.)  GRAVEL (GR.)  COBSE SAND (CSE. SD.)  GRAVEL (GR.)  COARSE SAND (CSE. SD.)  GRAVEL (GR.)  COARSE SAND (GSE. SD.)  GRAVEL (GR.)  GRAVEL (GR.)  COARSE SAND (GSE. SD.)  GRAVEL (GR.)  GRAVEL (GR.)  COARSE SAND (GSE. SD.)  GRAVEL (GR.)  GRAVEL (GR.)  COARSE SAND (GSE. SD.)  GRAVEL SAND (GSE. SD.)  GRAVEL (GR.)  COARSE SAND (GSE. SD.)  GRAVEL (F SD.)  GRAVEL (F SD.)  COARSE SAND (GSE. SD.)  GRAVEL (F SD.)  GRAVEL (GR.)	UNDERCUT UNDERCUT UNDERCUT UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNDERCUT UNDERCUT UNDERCUT UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL  VST - VANE SHEAR TEST WEA WEATHERD 7'- UNIT WEIGHT NEATHERD 7'- UNIT WEIGHT SAMPLE ABBREVIATIONS S - SPLIT SPOON S - SPONLITIC S - BULK S - SPLIT SPOON S - SPONLITIC S - SHLBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO  EQUIPMENT USED ON SUBJECT  DRILL UNITS:  ADVANCING TOOLS:  WEA WEATHERD 7'- UNIT WEIGHT WEAL - WEAL - WEATHERD 7'- UNIT WEIGHT WEAL - WEAL - WEATHERD 7'- UNIT WEIGHT WEAL - WEAL - WEAL - WEAL - WEAL WEAL	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 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 CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.  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 CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERWAIL.  FRACTURE SPACING  TERM SPACING  VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET THICKLY BEDDED 1.5 - 4 FEET THICKLY LAMINATED 0.000 - 0.03 - 0.16 FEET THICKLY LAMINATED 0.000 - 0.00	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.  BENCH MARK:  BORING ELEVATIONS TAKEN FROM 15711_LS_tin_171025.tin  DATED 05/24/18  ELEVATION: FEET



#### Roadway Subsurface Investigation Report - Inventory

New Hope Church Road Separation Wake County, North Carolina WBS: 46927.1.1 TIP: P-5715 Falcon Project No.: G17062.00

#### Prepared for:

STANTEC 801 Jones Franklin Road, Suite 300 Raleigh, NC 27606

Submitted by:
Falcon Engineering, Inc.
1210 Trinity Road, Suite 110
Cary, North Carolina 27513
(919) 871-0800
www.falconengineers.com

December 20, 2018

### PROJECT DESCRIPTION

WBS:

COUNTY:

SUBJECT:

**DESCRIPTION:** 

TIP:

This project is centered around constructing a new grade separation on New Hope Church Road over CSX Railroad in Wake County. The current at grade crossing will be replaced with a single span bridge at approximately the same location.

New Hope Church Road Grade Separation

Roadway Subsurface Investigation - Inventory

46927.1.1

P-5715

Wake

Included in this project are a single span bridge over the CSX Railroad with an MSE vertical abutment at End Bent One and sloped spill through abutment at End Bent Two. In addition, the abutment wall at End Bent One extends approximately XXX feet downstation left, and a separate retaining wall accommodates the right side of the End Bent One approach as well as turning down -Y2-. Temporary shoring will be constructed near the centerline of -L- and integrated into the abutment wall to accommodate the phasing of construction while maintaining traffic through the site. Borings for the bridge structure, temporary shoring and retaining walls are not included herein and will be submitted under separate cover.

The investigation was conducted between July 26th, and August 8th, 2018 in general accordance with the Scope of Services, dated September 4, 2017. The recommendations provided in this report are based solely on our site reconnaissance, soil test borings and laboratory test data, engineering evaluation of these data, and generally accepted soil and foundation engineering practices and principles.

A total of eleven (11) Standard Penetration Test (SPT) borings were performed for the proposed roadway alignments. All mechanical borings were drilled using either a CME-55 truck or CME 550 ATV mounted rig equipped with 2 ¼-inch inside diameter hollow-stem augers, and SPT testing was performed with an automatic hammer. Representative soil samples, collected with a split-barrel sampler or hand auger, were selected for laboratory testing to verify visual field classifications. In addition, bulk samples were collected for standard Proctor compaction and California Bearing Ratio (CBR) testing. At ten (10) locations along the existing roadway, existing pavements were cored, measured, and Dual Mass Dynamic Cone Penetrometer (DCP) testing completed on the subgrade to depths of up to three feet to correlate in-situ CBR values. The dual mass DCP used is manufactured by Kessler Soils Engineering Products, Inc. CBR values were estimated using software provided by the manufacturer which utilizes correlations established by the Army Corps of Engineers Waterways Experiment Station.





The following alignments, totaling approximately 0.52 miles were explicitly investigated. Other minor Y-lines and driveways are included on the project but improvements are not anticipated to be significant enough to warrant investigation.

<u>Alignment</u>	Station (ft)
-L- (New Hope Church Road)	11+10 - 32+40
-Y1- (Craftsman Drive)	10+00 - 13+50
-DRWY1-	10+33 - 13+24

#### PHYSIOGRAPHY AND GEOLOGY

According to the *Geologic Map of North Carolina* (1985), the site is in the Raleigh Belt Physiographic Province of North Carolina. Specifically, rocks at the site are noted as Injected Gneiss (**CZig**), consisting of biotite gneiss and schist intruded by numerous sills and dikes of granite, pegmatite, and aplite; minor hornblende gneiss.

Existing site topography is relatively flat, sloping gently from west to east. The site lies in northeast Raleigh and is currently an at-grade crossing for a CSX rail line. The existing corridor is populated by primarily commercial and industrial properties, with some residential properties to the southeast and southwest of the site.

#### **SOIL PROPERTIES**

A variety of soils were encountered along the project, including existing roadway embankments, artificial fill, residual soils, weathered rock and crystalline rock.

Artificial Fill soils were encountered at the ground surface beneath thin layers of topsoil associated with prior grading of private properties adjacent to the roadway. These soils consist of up to 12 feet of dry to moist, very loose to loose, clayey sand (A-2-6) and medium stiff to stiff, sandy clay (A-6).

Roadway Embankment soils were encountered at the ground surface adjacent to or beneath existing roadways. These soils consist of 3 to 6 feet of dry to moist, loose to medium dense, silty and clayey sands (A-2-4, A-2-5, A-2-6) and medium stiff to stiff, sandy silts and sandy and silty clays (A-4, A-6, A-7).

Residual soils were encountered at the ground surface, or beneath artificial fill or roadway embankments. These soils consist of dry to moist, loose to very dense, clayey and silty sands (A-2-4 and A-2-6) and soft to very stiff, sandy silt and sandy and silty clays (A-4, A-6, A-7).

Weathered Rock (WR) is a very hard material with properties intermediate of soil and rock. WR is classified as having an N-value of greater than 100 blows per one foot. WR encountered on the project generally consists of black and white gneiss.

Crystalline Rock, also consisting of gneiss, was encountered beneath weathered rock at various locations throughout the site. CR is classified as material that yields auger refusal or SPT refusal (blow count of 60/0.0 or 60/0.1 feet.)

#### **GROUNDWATER PROPERTIES**

Groundwater levels were measured at the time of boring completion, and in many cases after a waiting period of at least 24 hours. Borings drilled within and in close proximity to existing roadways, and within residential were backfilled immediately after completion due to safety considerations.

Groundwater was only encountered in a boring in low lying area well below proposed grades.





#### AREAS OF SPECIAL GEOTECHNICAL INTEREST

I. Roadway Embankment associated with the existing roadway was encountered at the following locations:

<u>Alignment</u>	Station (ft)
-L-	11+97
-L-	13+01
-L-	13+98
-L-	23+57
-L-	29+55
-L-	31+14
-Y11-	12+44

II. Artificial fill was encountered at the following locations:

<u>Alignment</u>	Station (ft)
-DRWY1-	13+03

#### ADDITIONAL LABORATORY TESTING

The following bulk sample was obtained:

<u>Sample</u>	<u>Location</u>	Depth (ft)	<u>lest</u>
BS-2	27+52, 37' RT, -L-	3.5-13.5	California Bearing Ratio, Standard Proctor

Classification test results for the bulk sample are included in the subsurface profiles and cross sections and Standard Proctor and California Bearing Ratio (CBR) data is attached in the Appendix.

SHEET 3B 46927.1.1 (P-5715)

#### **CLOSING**

Falcon appreciates the opportunity to have provided our geotechnical engineering services for the above referenced project. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

#### FALCON ENGINEERING, INC.

Report Prepared By:

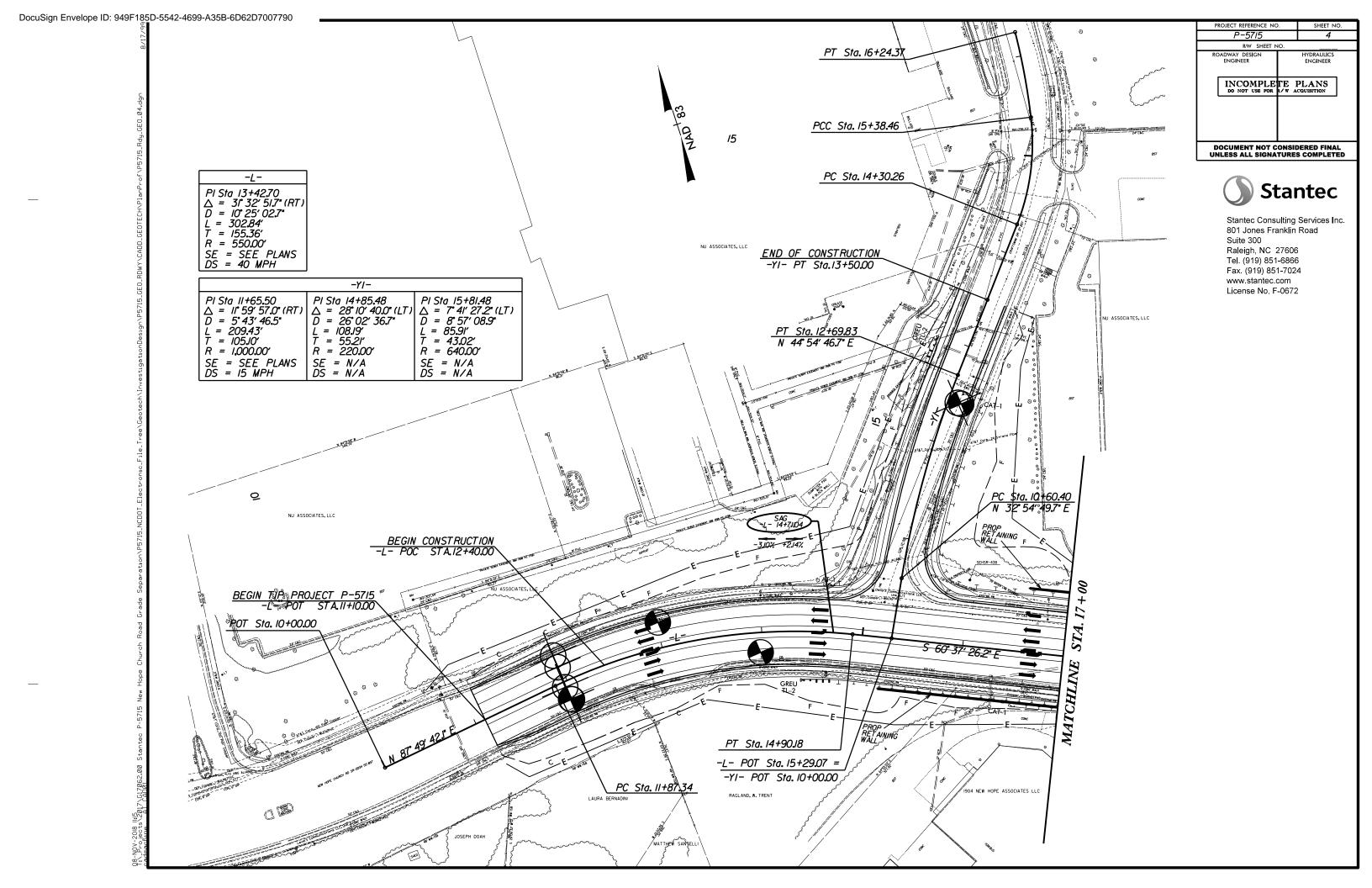
Report Reviewed By:

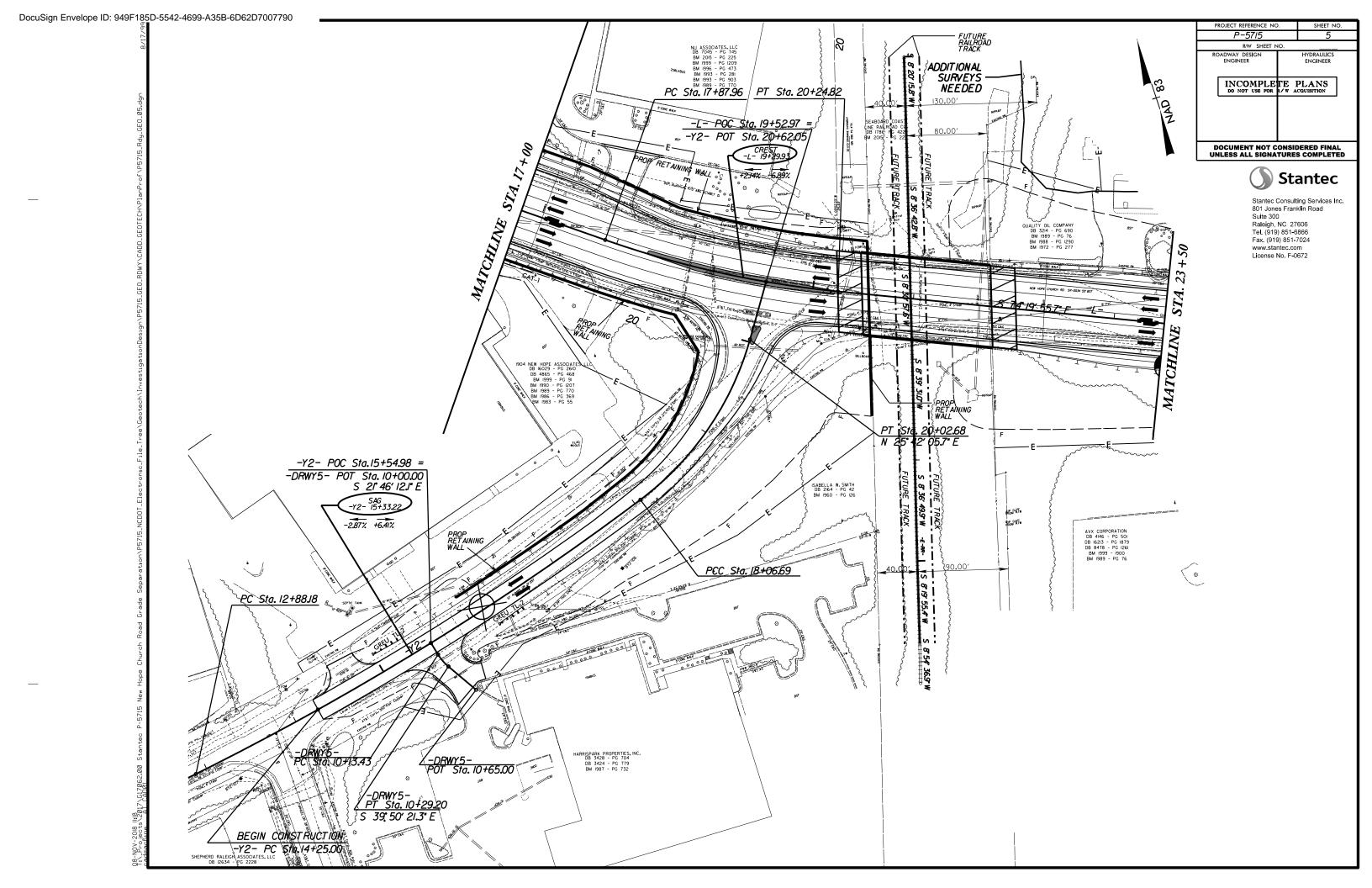
W. Scott Hunsberger, PE

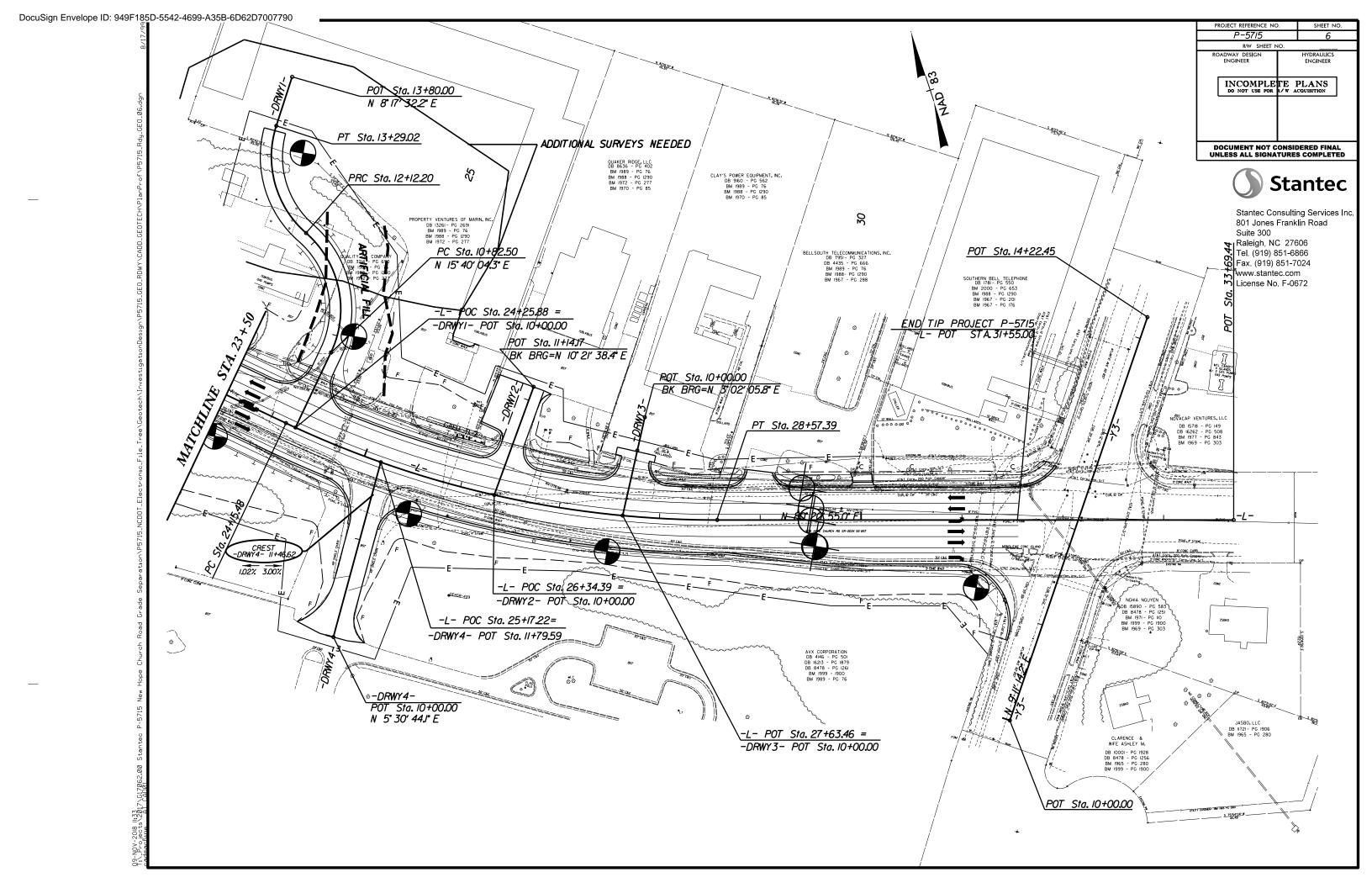
Geotechnical Engineer

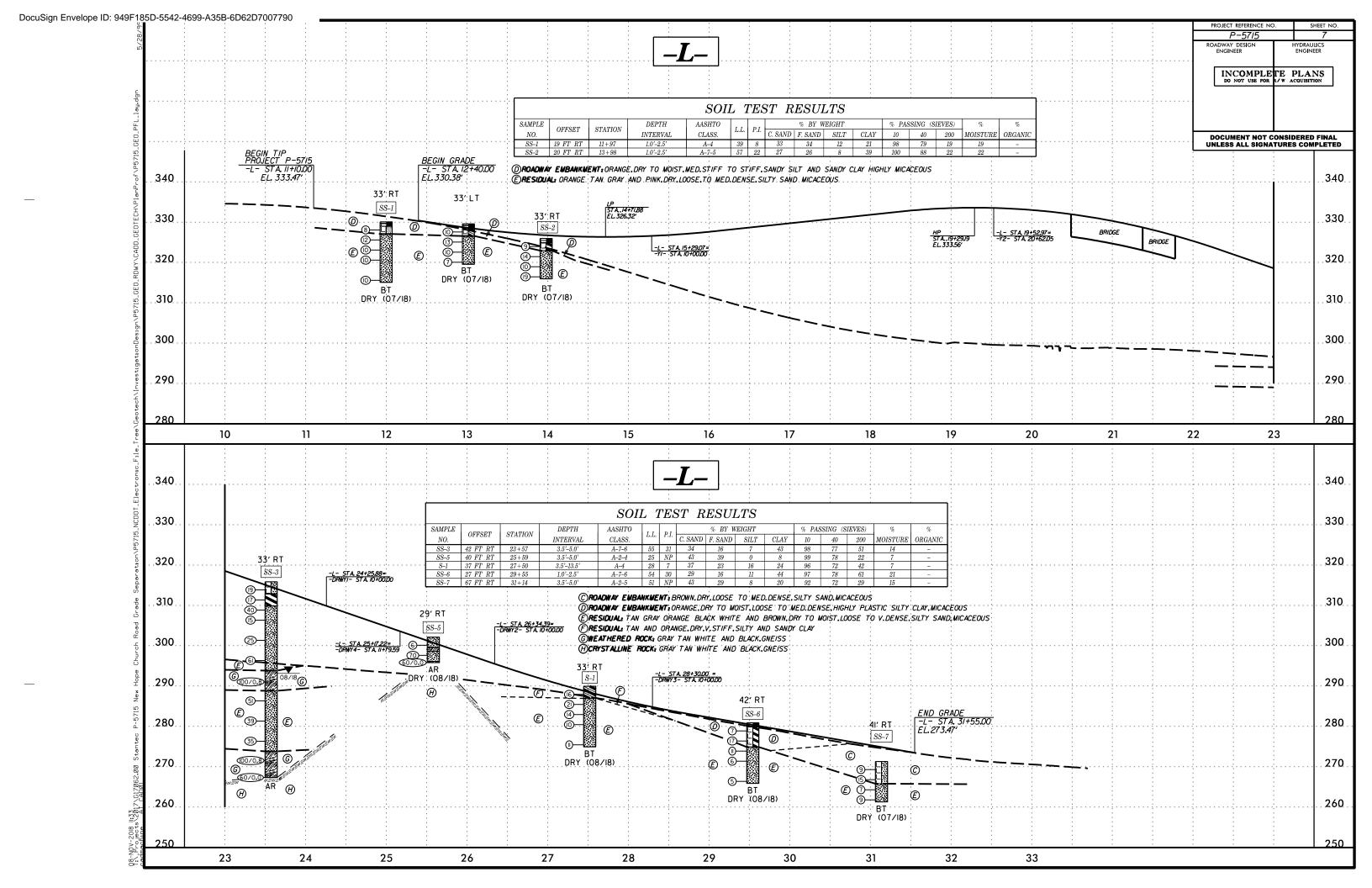
Geotechnical Engineer

Jeremy R. Hamm, PE Geotechnical Engineering Manager









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#### Falcon Engineering, Inc.

1210 Trinity Road, Suite 110 Cary, NC 27513

#### PAVEMENT SECTION AND SUBGRADE CONDITION SUMMARY

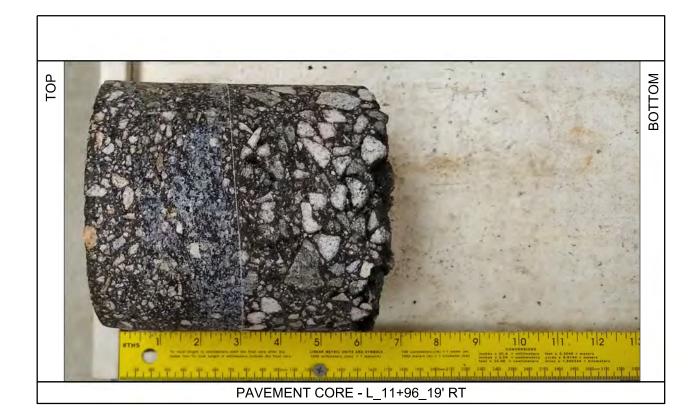
#### NEW HOPE CHURCH ROAD GRADE SEPARATION

#### WAKE COUNTY, NORTH CAROLINA

<u>TIP No.: P-5715 WBS No.46927.1.FS1 Falcon Project No.: G17062.00</u>

	TEST LO	CATION		PAVEMENT S	SECTION THICKN	IESS (INCHES)	SUBGRADE	
ALIGNMENT	LANE	STATION	OFFSET	НМА	AGGREGATE BASE	TOTAL	IN-SITU CBR	NOTES
-L-	EB, OTL	11+96	19' RT	6.00	7.00	13.00	>20	Multiple Layers
-L-	EB, ISL	11+96	5' RT	6.00	6.00	12.00	>20	Multiple Layers, delamination at 1 inch
-L-	WB, ISL	11+97	16' LT	6.00	8.00	14.00	>20	Multiple Layers
-L-	WB, OSL	11+98	28' LT	6.00	6.00	12.00	19	Multiple Layers, base course crumbling
-L-	WB, OSL	29+41	32' LT	8.00	7.00	15.00	7	Multiple Layers
-L-	WB, ISL	29+50	12' LT	14.00	10.00	24.00	>20	Multiple Layers, delamination at 14 inches
-L-	EB, ISL	29+50	1' RT	18.00	5.00	23.00	15	Multiple Layers, delamination at 15 inches
-L-	EB, OTL	29+53	26' RT	6.00	6.00	12.00	8	Multiple Layers
-Y1-	SB	12+44	10' RT	3.00	4.00	7.00	5	-
-Y2-	NB	16+17	3' LT	8.00	7.00	15.00	8	-
	REPRESENTAT	IVE AVERAGE		8.3	6.9	15	10	-
GEND: NB - NO	RTHBOUND, SB -	SOUTHBOUND, EI	B - EASTBOUND, \	WB - WESTBO	UND, OSL - OU	TSIDE LANE, ISL	INSIDE LANE,	CTL - CENTRAL TURN LANE

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SHEET 12









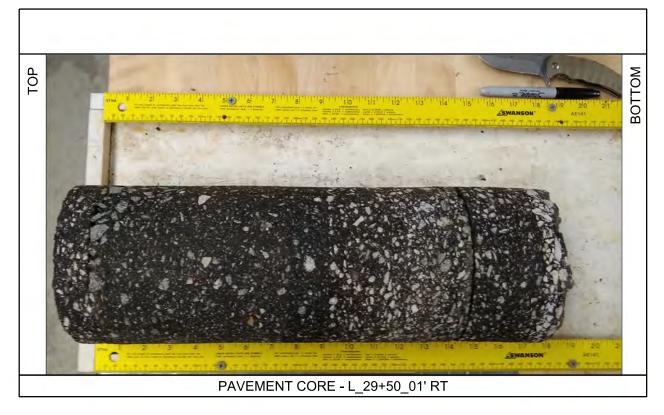


#### PAVEMENT CORE PHOTOGRAPHS

NEW HOPE CHURCH ROAD GRADE SEPARATION WAKE COUNTY, NORTH CAROLINA WBS NO.:46927.1.1 | TIP NO.:P-5715 FALCON PROJECT NO.: G17062.00 DocuSign Envelope ID: 949F185D-5542-4699-A35B-6D62D7007790
SHEET 13











#### PAVEMENT CORE PHOTOGRAPHS

NEW HOPE CHURCH ROAD GRADE SEPARATION WAKE COUNTY, NORTH CAROLINA WBS NO.:46927.1.1 | TIP NO.:P-5715 FALCON PROJECT NO.: G17062.00 DocuSign Envelope ID: 949F185D-5542-4699-A35B-6D62D7007790
SHEET 14







NEW HOPE CHURCH ROAD GRADE SEPARATION WAKE COUNTY, NORTH CAROLINA WBS NO.:46927.1.1 | TIP NO.:P-5715 FALCON PROJECT NO.: G17062.00 Project:

Location:

#### **DCP TEST DATA** File Name: L\_11+96\_19'RT New Hope Church G17062 Date: 26-Jul-18 Soil Type(s): Clay (A-6) L\_11+96\_19'RT Hammer 10.1 lbs. 17.6 lbs. Both hammers used Soil Type O CH CL All other soils

No. of Blows	Accumulative Penetration	Type of Hammer	2.3		CBR	72-2	01447
	(mm)		0.1 0 T	1.0		10.0	100.0
Start	0	1	4				1
3	8	- 1	5				127
10	24	1	"				H
10	32	1					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
10	39	1	10				254
10	47	1	1				-
10	55	1	15				381
10	61	1	Ë				J
10	67	1	DEPTH, in.				508
10	72	4	L 20				300
10	78	1					
10	85	1 -	25				635
10	91	1	1				7
20	96	1	30				762
20	107	1	1				1
20	118	1					1 1
20	127	1	35				889
20	160	1	1				
15	209	1	40 L				1016
10	268	1	0.1	1.0		10.0	100.0
10	330	1				THE STATE OF	
5	365	1					
5	403	1					
5	444	1					
5	488	1					
5	531	1					
5	575	1					
5	617						
5	659	1					
5	697	1					
5	739	1					
5	767	- 1					
5	800	1					
5	831	1					
5	863	1					
5	897	1					
5	932	1					

SHEET 15

#### **DCP TEST DATA**

File Name: L\_11+96\_05'RT

Project: New Hope Church G17062 L\_11+96\_05'RT Location:

Date: 26-Jul-18 Soil Type(s): Sandy Clay (A-6)

Hammer 10.1 lbs.

Soil Type O

No. of Blows	Accumulative Penetration (mm)	Type of Hammer		0.1	1.0	CBR 10.0	100.0
Start	0	1	1	4			5
5	34	1	1				
5	62	4		5			127
5	95	1		1			
5	137	1		10			254
5	178	1					
5	205	1		15			381
5	225	1	ċ				1
5	245	1	Ŧ				
5	265	1	E	20			508
5	286	1	DEPTH, in.				508
5	311	1	_	25		<del></del>	635
5	338	4		- 1			
5	364	1	i	30			762
5	389	1	İ	30 ]			7 1 702
5	414	- 1					<u> </u>
5	440	- 1	İ	35			889
5	467	1	İ	1			
5	493	4		40			1016
5.	519	1		0.1	1.0	10.0	100.0
5	545	1				San Warra	
5	571	1					
5	602	1	1				
5	627	1	İ				
5	550		1				
5	550 673	1					
5	673	1					
5 5	673 696	1 1 1					
5 5 5	673 696 721	1 1 1					
5 5 5	673 696 721 744	1 1 1 1					
5 5 5 5	673 696 721 744 769	1 1 1 1					
5 5 5 5 5 5	673 696 721 744 769 795	1 1 1 1 1 1					
5 5 5 5 5 5	673 696 721 744 769 795 824	1 1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5	673 696 721 744 769 795 824 854	1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882	1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882 914	1 1 1 1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882	1 1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882 914	1 1 1 1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882 914	1 1 1 1 1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882 914	1 1 1 1 1 1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882 914	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
5 5 5 5 5 5 5 5 5 5	673 696 721 744 769 795 824 854 882 914	1 1 1 1 1 1 1 1 1 1 1 1 1 1					

Project:

Location:

#### 

No. of Blows	Accumulative Penetration (mm)	Type of Hammer		0.1	1.0	CBR	10.0	100.0
Start	0	1	1					
3	19	1		.1				450
3	25	9		5				127
20	41	1		1				
20	54	1		10				254
20	62	11						
20	68	1		15				381
20	71	1	Ë					F
20	79	1	Ŧ	20				508
20	83	1	DEPTH, in.	20				1 1 508
20	87	1	8					4
20	94	1		25			-	635
20	95	141		1				4 1
20	99	1		30				762
20	101	1	1	1				
40	101	- 4		35				889
55	115	- 1 -		75				009
20	145	1		3				
10	190	1		0.1	1.0		10.0	1016 100.0
10	235	1		0.1	1.0		10.0	100.0
10	286	1						
10	337	1						
10	368	- 1						
10	400	1						
10	436	1						
10	472	1						
10	514	-1-						
10	554							
10	593	1	-					
10	631	400	1					
10	670	1						
-11	713	1						
10	754	1						
10	796	1						
10	840	1	1					
	885	1	1					
10								
10 10	931	1						
	931	1						
	931	1						
	931	1						
	931	1						

SHEET 16

#### DCP TEST DATA

File Name: L\_11+98\_28'LT

Project: <u>New Hope Church G17062</u>

Location: L\_11+98\_28'LT

Date: 25-Jul-18
Soil Type(s): Clay (A-6)

Hammer

10.1 lbs.

17.6 lbs.

Both hammers used

Soil Type
CH
CL
All other soils

								<b>O</b> 7 M ON 10 M	
No. of Blows	Accumulative Penetration (mm)	Type of Hammer		0.1		1.0	CBR	10.0	100.0
Start	0	1		1					
3	16	1		_ [					127
5	31	1	İ	5					127
5	42	1		1					
20	65	1		10					254
20	74	1		- 1					
20	84	1		15 }					381
20	86	1	DEPTH, in						508 H 
20	89	1	Ε̈́	20					508 🛨
20	97	1	ᇤ	- 1					
20	103	1	□	ا م				1_	
20	112	1		25					635
20	127	1		]					
10	163	1		30				<del></del>	762
3	196	1		- 1					
3	228	1		35				<b></b>	889
3	260 294	1		}					<sup>1</sup>           <del>]</del>
3	327	1		40 上					1016
3	369	1		0.1		1.0		10.0	100.0
3	406	1							
3	445	1							
3	480	1							
3	511	1	İ						
3	547	1							
3	583	1	İ						
3	615	1							
3	642	1							
3	668	1							
3	692	1							
3	717	1							
3	744	1							
3	772	1							
3	802	1							
3	831	1							
3	858	1							
3	887	1							
3	912	1							
3	929	1							
			<u> </u>						

Project:

Location:

#### **DCP TEST DATA** File Name: L\_29+41\_32'LT New Hope Church G17062 Date: 6-Aug-18 Soil Type(s): Clay (A-6) L\_29+41\_32'LT Hammer 10.1 lbs. 17.6 lbs. Both hammers used Soil Type CH All other soils

No. of	Accumulative					CBR	
Blows	Penetration (mm)	Hammer		0.1	1.0	10.0	100.0
start	0	1		1			
3	17	1		5			127
5	34	1		1			12/
10	58	1					
10	77	1		10			254
10	101	1		1			
10	122	1	1.5	15		<del></del>	381
10	147	1	DEPTH, in.	1		<u>                                  </u>	508 H
10	170	1	E	20			508 ±
10	199	1	B	1			1 4
10	228	1	٥	25			635 H
10	274	1		23			3 635
5	305	1				3	
5	394	1		30			762
1	425						
1	457 485	1		35 }			889
1	513	1		1			
1	538	1		40			1016
1	563	1	in.	0.1	1.0	10.0	100.0
1	589	1					
1	615	1					
1	639	1	1				
1	662	1					
1	684	1	1				
1	707	1					
1	729	1					
1	752	- 1					
1	774	1					
1	796	707					
		1					
1	818	4					
	840	1					
1	840 862	1					
1 1 1 1	840 862 884	1 1 1					
1 1 1 1 1	840 862 884 906	1 1 1					
1 1 1 1	840 862 884	1 1 1					
1 1 1 1 1	840 862 884 906	1 1 1					
1 1 1 1 1	840 862 884 906	1 1 1					
1 1 1 1 1	840 862 884 906	1 1 1					
1 1 1 1	840 862 884 906	1 1 1					
1 1 1 1	840 862 884 906	1 1 1					

SHEET 17

#### **DCP TEST DATA**

File Name: L\_29+50\_12'LT

Project: New Hope Church G17062 Location:

L\_29+50\_12'LT

6-Aug-18 Date: Soil Type(s): Clayey Sand (A-2-4)

Hammer

10.1 lbs.
17.6 lbs.
Both hamr

Soil Type
O CH
O CL
O All other soils

		O Both har	mmers	used		L	All other soils	
No. of Blows	Accumulative Penetration (mm)	Type of Hammer		0.1	1.0	CBR	10.0	100.0
start	0	-1-		4				
3	15	1						1000
3	27	1		5				127
5	39	1		1				4
10	60	- 1		10				254
10	76	11		1				
10	91	1	W	15				381
10	101	1	ċ					7
20	123	1	Ŧ,					508
20	139	1	PT	20				508
20	150	1	DEPTH, in.	1				1 5
30	159	1		25				635
30	169	(A)		1				1
30	172	1		30				762
30	180	1						1,92
30	196	1		20				
20	211	- 1		35			5	889
20	235	1		1				1
16	278	1		40				1016
10	323	1	-	0.1	1.0		10.0	100.0
10	374	1						
5	397	1						
5	417	1						
5	439	1						
5	463	1						
5	491	1						
5	516	1						
5	542	-1						
5	572	1						
5	617	4						
5	684	1						
3	734	- 1						
2	769	1						
2	804	1						
2	844	1						
2	882	1						
1	905	1						
1	926	1						
	020	,						

#### **DCP TEST DATA**

File Name: L\_29+50\_01'RT

Project: New Hope Church G17062 L\_29+50\_01'RT Location:

Date: 25-Jul-18 Soil Type(s): Silty Sand (A-2-4)

Hammer O 10.1 lbs.

Soil Type O

No. of Blows	Accumulative Penetration (mm)	Type of Hammer		0.1	1.0	CBR	10.0	100.0
start	0	1						
1	27	1		. 1				
3	50	1		5				127
3	64	1		1				
5	94	1		10				254
5	108	1		1				
50	120	1		15				381
50	128	1	ć					1 1
50	133	1	Ŧ					1 1
50	143	1	E	20			4	508
40	150	1	DEPTH, in.					508
50	162	1		25				635
10	167	1		1				111111111111111111111111111111111111111
20	170	1		30			1	762
50	167	1		30				1,02
60	177	- 1						
50	188	1	1	35				889
30	203	1						1
20	232	4		40 1				1016
20	243	1	-	0.1	1.0		10.0	100.0
20	247	1						
40	290	1						
20	337	1	1					
5	350	1						
5	381	1	1					
5	427	1						
5	492	1						
5	532	- 1						
5	567	1						
5	604	9						
5	670	1						
3	733	- 1						
3	792	1						
3	838	1						
3	883	1						
3	901	1						
3	941	1						

SHEET 18

#### **DCP TEST DATA**

File Name: L\_29+53\_26'RT

Project: New Hope Church G17062 L\_29+53\_26'RT Location:

Date: 7-Aug-18 Soil Type(s): Sandy Clay (A-6)

Hammer

10.1 lbs.
17.6 lbs.
Both hamr

Soil Type
O CH
O CL
O All other soils

lo. of	Accumulative					CBR		
Blows	Penetration (mm)	Hammer		0.1	 1.0		10.0	100.0
Start	0	1		4				
3	17	1		. 1				407
5	30	1		5				127
5	37	1		1				1 1
5	45	1		10				254
5	56	1		1				1
10	63	1	M.	15				381
10	72	1	Ë					
10	82	1	Ŧ	20				508
10	94	1	DEPTH, in.	20			74	300
10	104	1	B				2	508
10	111	1 -		25				635
50	115	i t		1				
5	127	1		30				762
10	130	1		1				
5	143	1		35			+	889
3	224	1		33			7	1 000
3	260	1		- 1				
3	334	1		0.1	1.0		10.0	1016
3	380	1	y.	0.1	1.0		10.0	100.0
-1	411	1						
1	450	1						
1	492	1						
1	523	1						
1	550	1						
1	573	1						
1	594	1						
2	640	-1						
2	690	1						
3	721	1						
2	748	1						
2	780	1						
2	810	1						
2	859	1						
2	874	1						
2	905	1						
1	922	1						
1	940	1						
			1					

#### DCP TEST DATA

File Name: Y1\_12+44\_10'RT

Project: New Hope Church G17062 Y1\_12+44\_10'RT Location:

Date: 9-Aug-18 Soil Type(s): Clay (A-6)

Soil Type —

No. of Blows	Accumulative Penetration	Type of Hammer		0.1	1.0	CBR 10.0	100.0
	(mm)	-		0.1	1.0		100.0
Start	0	1		1			
1	22	1		5			127
2	52	1					
2	106	1				<u> </u>	320
1	154	- 1		10			254
1	211	1		£ - 1			1
1	253	1	М,	15			381
1	301	1	Ë	1		3	
1	350	1	E	20			508
1	389	1	DEPTH, in.				
1	416	1	ō			1	1 3.5
-1	449	1		25			635
1	479	1		1			
1	515	1		30			762
1	550	1					
1	582	1		35			889
1	613	- 1					
1	646	1		2.4			
1	682	1		0.1	1.0	10.0	1016 100.0
1	708	1		<b></b>			
1	733	1					
1	755	1					
1	772	1					
1	790	1					
1	808	1					
1	828	1					
1	849	1					
1	870	1					
1	892	1					
1	913	1					
1	933	1					

SHEET 19

#### DCP TEST DATA

File Name: Y2\_16+17\_03'LT

Project: New Hope Church G17062 Y2\_16+17\_03'LT Location:

Date: 7-Aug-18 Soil Type(s): Clay (A-6)

Hammer

10.1 lbs.

17.6 lbs.

Both hammers used

Soil Type TO CH All other soils

		O Both ha	mmers	used				All other soils		
No. of Blows	Accumulative Penetration (mm)	Type of Hammer		0.1		1.0	CBR	10.0	10	0.0
Start	0	1	1					4		
2	25	1								
2	47	1		5				<b></b>		127
2	67	1		1				4		
3	100	1		10	+			411		254
2	136	11		1				<u></u>		
1	163	- 1	1	15						381
1	192	1	Ė	10						E
1	223	1	DEPTH, in.							S 80 DEPTH, mm
1	255	1	E	20	++++					508 ±
1	281	1	Ä				7			EP
1	302	1	-	25						635
1	326	141	1	- 1				<u>144</u>	1	
1	357	1		20 1					1	700
1	396	1	1	30						762
1	435	1	1							1.00
1	468	1		35	+					889
1	503	1	l	1				1117		
1	541	1	1	40						1016
1	583	1	1	0.1		1.0		10.0	10	0.0
1	629	1	╁							
1	672	1	1							
1	703	1	1							
1	703	1	1							
1	744	1	1							
1	765	1	ł							
1	792	1								
1	853	1	1							
1	856	1	1							
1	885	1	1							
1	904	1	1							
			ł							
1	922	1	-							
			-							
			1							
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571.	$\overline{\overline{APPENDIX}}$		
	LABORATORY RESULTS		
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FALCON CARY, NC 27513

PHONE: 919.871.0800

www.falconengineers.com

#### LABORATORY COMPACTION TEST RESULTS

PAGE 1 OF 1

P-5715 Project No. **Project Name:** New Hope Church Road Grade <u>Separation</u> BS-2 Sample No: B-09 Source of Material: Tan Color: Visual/Manual Description: **USCS Classification: AASHTO Classification:** AASHTO T-99 Method A Test Method: **TEST RESULTS** Maximum Dry Unit Weight: 117.9 PCF **Optimum Water Content:** 12.3 % Natural Water Content: 6.8 % UNIT WEIGHT, pcf ATTERBERG LIMITS 28 Curves of 100% Saturation for Specific Gravity Equal to: -- 2.6 -- 2.5 -- 2.4 20 25 WATER CONTENT, %

SHEET 21

#### **FALCON ENGINEERING**

1210 TRINITY RD., SUITE 110, Cary, NC 27513

# CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL AASHTO T-193

 PROJECT #:
 G17062.00
 DATE:
 9/16/2018

 PROJECT NAME:
 New Hope Church Road

 BORING:
 B-09
 SAMPLE:
 BS-2
 DEPTH:
 3.5-13.5

 SOIL DESCRIPTION:
 Tan Silt (A-4)

	ran Ont (71 1)		
COMPACTION METHOD	AASHTO T-99A	SOAK	96 HRS.
MAXIMUM DRY DENSITY	117.9 PCF	STRAIN RATE	.05 IN/MIN.
OPTIMUM MOISTURE CONTENT	12.3%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	10 lb.
DRY DENSITY	114.6 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	14.0%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	97.2%	SWELL	0.79%

