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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A-0011C	1	94

REFERENCE: A-0011C

PROJECT: 32574

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

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LINE	STATION	PLAN	PROFILE
-L-	20+50.00 - 221+00.00	4-20	22-30
-Y1-	12+00.00 - 18+50.00	5	31
-Y2-	12+00.00 - 14+00.99	7	31
-Y3-	10+00.00 - 13+00.00	7	31
-Y4-	11+25.00 - 13+94.32	7	32
-Y5-	10+00.00 - 14+75.00	7	32
-Y6-	10+75.00 - 13+42.41	8	32
-Y7-	11+75.00 - 15+34.38	9	32
-Y8-	12+75.00 - 15+22.38	10	33
-Y9-	10+00.00 - 12+00.00	11	33
-Y10-	10+00.00 - 15+67.82	11	33
-Y11-	13+00.00 - 20+14.45	12,13	34
-Y12-	10+00.00 - 13+50.00	13	34
-Y13-	10+00.00 - 12+50.00	13	34
-Y14-	10+00.00 - 12+75.00	14	35
-Y15-	10+00.00 - 12+75.00	14	35
-Y16-	11+00.00 - 13+96.18	15	35
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-Y18-	10+00.00 - 13+50.00	18	36
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *CLAY*

PROJECT DESCRIPTION *NC 69 FROM GEORGIA STATE LINE TO US 64*

INVENTORY

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:
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.

PERSONNEL

TRIGON

GOODNIGHT, D. J.

WEIS, J.M.

INVESTIGATED BY *FALCON ENG.*

DRAWN BY *HILL, M. J.*

CHECKED BY *HUNSBERGER, W. S.*

SUBMITTED BY *FALCON ENG.*

DATE *AUGUST 2019*

NORTH CAROLINA PROFESSIONAL SEAL 39779 ENGINEER JEREMY R HAMM

Jeremy R Hamm 8/19/2019

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

COG PROJECT REFERENCE NO.	SHEET NO.
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	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	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (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

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PLASTIC RANGE (PI)		
PL — PLASTIC LIMIT		
	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
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.

GRADATION

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.

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
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT, DPT, DMT, VST, PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] MOBILE B-57 ATV
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [X] -N 0

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

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 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 YEILD 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 SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT 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 KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
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. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
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 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 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

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FOOT
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 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.

TERMS AND DEFINITIONS

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.

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 (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 (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.

BENCH MARK:
BORING ELEVATIONS TAKEN FROM a00lic_ls_tin.tin
DATED 09/06/17 ELEVATION: FEET

NOTES:
FIAD - FILLED IMMEDIATELY AFTER DRILLING

DATE: 1-XX-17

09/08/2019

TIP PROJECT: A-0011C

CONTRACT: 32574

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CLAY COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A-0011C	2A	94

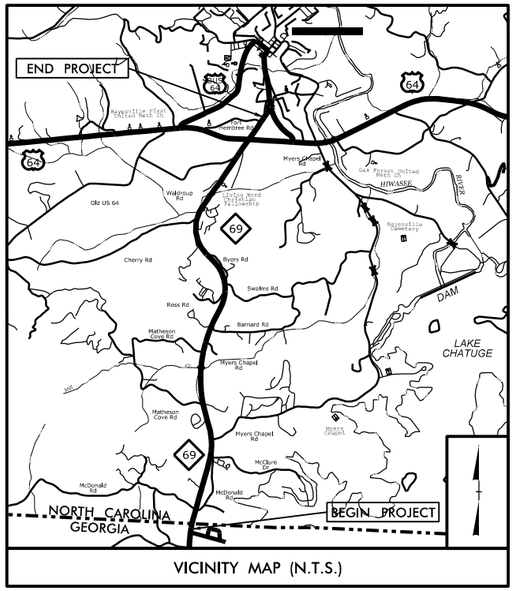
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
32574.1.FD7	APD-0069(007)	PE

LOCATION: *NC 69 FROM GEORGIA STATE LINE TO US 64*

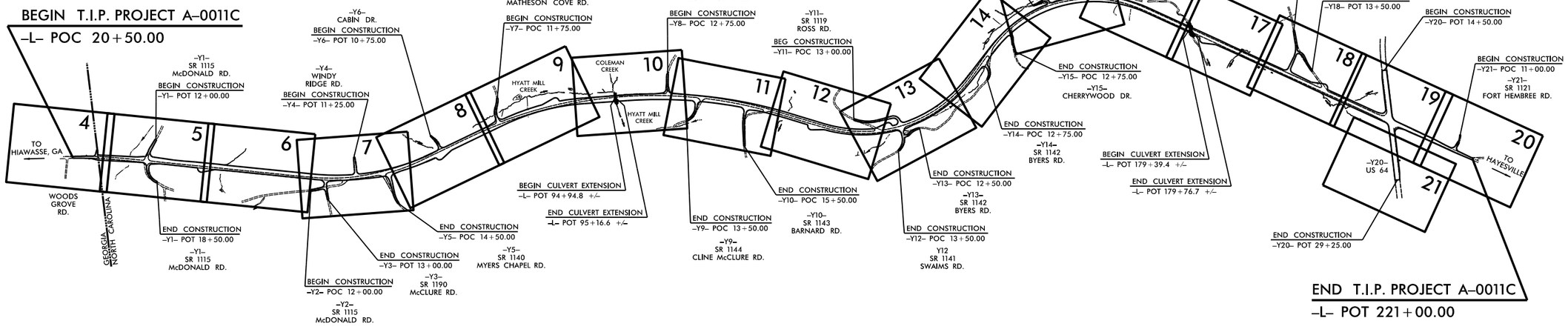
TYPE OF WORK: *GRADING, DRAINAGE, PAVING, SIGNALS, AND CULVERTS*

25% *REVISED PLAN SUBMITTAL*

NAD 83/2011



VICINITY MAP (N.T.S.)



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ___.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NCDOT CONTACT:
KENNETH McDOWELL
ASSISTANT DESIGN CONSTRUCTION ENGINEER, DIV. 14
(828) 631-1172

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2020 = 11,730
ADT 2040 = 17,390
K = 9 %
D = 55 %
T = 9 % *
V = 50 MPH
* TTST = 2% DUAL 7%
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT A-0011C	=	*3.786 mile*
LENGTH STRUCTURES PROJECT A-0011C	=	*0.011 mile*
TOTAL LENGTH PROJECT A-0011C	=	*3.797 mile*

Prepared For:
DIVISION OF HIGHWAYS
Division 14, 253 Webster Road, Sylva, NC 28779
By:

M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: F-0160

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2018

LETTING DATE: AUGUST 18, 2020

ROBERT W. PORTER, JR PE
PROJECT ENGINEER

KEVIN S. HUTCHENS PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

15-AUG-2019 15:57
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Roadway Subsurface Investigation Report - Inventory

NC 69 from Georgia State Line to US 64
Clay County, North Carolina
WBS: 32574.1.FD7 TIP: A-0011C
Falcon Project No.: G16005.00

Prepared for:
MA Engineering Consultants, Inc.
598 E. Chatham Street, Suite 137
Cary, NC 27511

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

August 19, 2019

WBS: 32574.1.FD7
TIP: A-0011C
COUNTY: Clay
DESCRIPTION: NC 69 from Georgia State Line to US 64
SUBJECT: Roadway Subsurface Investigation – Inventory

PROJECT DESCRIPTION

This project consists of widening existing NC 69 from the Georgia state line to US 64 in Hayesville, NC to the. The overall corridor is approximately 3.5 miles long and consists of a mix of two and three lane sections. The widened corridor will consist of a five lane highway with center turn lane, four lane median-divided sections and new U-turn bulbs. Numerous Y-lines will be significantly adjusted in order for the existing horizontal and/or vertical alignments to tie to the widened mainline. Some reconfiguration/improvement of intersections is also planned, including widening/turn lanes on US 64. In addition to the roadway realignment, multiple retaining walls will be constructed. Investigations for these structures will be provided under separate cover.

The investigation was conducted between April 30th and June 29th, 2018 in general accordance with our Scope and Fee Estimate for Geotechnical Investigation and Engineering Services, dated September 8th, 2015. 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 one hundred and thirty-nine (139) Standard Penetration Test (SPT) borings were performed for the proposed roadway alignments. All mechanical borings were drilled using a Mobil B-57 ATV mounted drill rig equipped with 2 ¼-inch inside diameter hollow-stem auger with an automatic hammer. Representative soil samples, collected with a split-barrel sampler, were selected for laboratory testing to verify visual field classifications. In addition, five (5) bulk samples were collected for standard Proctor compaction and California Bearing Ratio (CBR) testing. Forty-two (42) locations along the existing roadways were cored, measured and Dual Mass Dynamic Cone Penetrometer (DCP) testing completed to correlate in-situ CBR values for the existing subgrade to depths of up to three feet. 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 5.56 miles were investigated.

Alignment	Station (ft)
-L- (NC 69)	20+50 – 221+00
-Y1- (McDonald Road)	12+00 – 18+50
-Y2- (McDonald Road)	12+00 – 14+01
-Y3- (McClure Road)	10+00 – 13+00
-Y4- (Windy Ridge Road)	11+25 – 13+94
-Y5- (Myers Chapel Road)	10+00 – 14+75
-Y6- (Cabin Drive)	10+75 – 13+42
-Y7- (Matheson Cove Road)	11+75 – 15+34
-Y8- (Matheson Cove Road)	12+75 – 15+22
-Y9- (Cline McClure Road)	10+00 – 12+00
-Y10- (Barnard Road)	10+00 – 15+68
-Y11- (Ross Road)	13+00 – 20+14
-Y12- (Swaims Road)	10+00 – 13+50
-Y13- (Byers Road)	10+00 – 12+50
-Y14- (Byers Road)	10+00 – 12+75
-Y15- (Cherrywood Drive)	10+00 – 12+75
-Y16- (Cherry Mountain Lane)	11+00 – 13+96
-Y17- (Cherry Road)	11+00 – 16+24
-Y18- (Waldroup Road)	10+00 – 13+50
-Y19- (Waldroup Road)	13+25 – 19+39
-Y20- (US 64)	11+00 – 29+25
-DR116- (Clyde Curtis Drive)	10+40 – 14+26

PHYSIOGRAPHY AND GEOLOGY

The site is in the Blue Ridge Belt Physiographic Province of North Carolina. According to the ***Geologic Map of North Carolina*** (1985), the site is underlain by four major rock types in the Blue Ridge belt. The site transitions from south to north across Biotite Gneiss (**ZYbn**), Copperhill Formation (**Zch**), Wehutty Formation (**Zwe**) and Metasandstone, Metagraywacke, Meta Siltstone and Mica Schist (**Zhha**).

The Biotite Gneiss (**ZYbn**) is noted to consist of biotite gneiss - migmatitic; interlayered and gradational with biotite-garnet gneiss and amphibolite; locally abundant quartz and alumino-silicates. The Copperhill formation (**Zch**) is noted to consist of metagraywacke, massive, graded bedding common; includes dark-gray slate, mica schist and nodular calc-silicate rock. The Wehutty Formation (**Zwe**) is noted to consist of slate to schist, dark gray, graphitic and sulfidic; includes mica schist, metagraywacke, and metaconglomerate. The Metasandstone, Metagraywacke, Meta Siltstone and Mica Schist (**Zhha**) consists of metasandstone, metagraywacke, meta siltstone and mica schist – beds and lenses of calc-silicate rock locally abundant; garnet, staurolite, and cross-biotite porphyroblasts common in fine-grained layers.

Existing site topography is gently rolling, typical of a mountain valley, and generally grades downward from south to north. The site lies between the Georgia state line and Hayesville, NC along NC Highway 69. The roadway is currently a two lane undivided highway which becomes three lanes as it enters the business district. The existing corridor is populated with residential and agricultural properties to the south and commercial and municipal properties to the north. Steep roadway embankments and/or cut slopes occur adjacent to the roadway in several sections. The corridor crosses several streams along the alignment and in places streams run parallel to the mainline.

SOIL PROPERTIES

A variety of soils were encountered along the project, including existing roadway embankments, artificial fills associated with adjacent development, alluvial, colluvial, and residual soils, and weathered and crystalline rock.

Topsoil was encountered in grassy, brushy, and wooded areas ranging in thickness from 0.2 to 1.0 feet, typically on the order of 0.3 feet, and consisting predominantly of sandy clay.

Roadway Embankment soils were encountered at the ground surface beneath and adjacent to existing roadways. These soils consist of up to 27 feet of moist, very loose to dense, silty and clayey sand (A-2-4, A-2-6) and very soft to stiff, silty and sandy clay and clayey and sandy silt (A-4, A-5, A-6, A-7).

Artificial Fill soils were encountered at the ground surface beneath thin layers of topsoil on developed properties adjacent to the existing right-of-way. These soils consist of up to 8.0 feet of dry to wet, very loose to medium dense, silty and clayey sand (A-1-b, A-2-4, A-2-6) and soft to stiff, silty and sandy clay and clayey and sandy silt (A-4, A-5, A-6, A-7).

Alluvial soils were encountered at the ground surface or below artificial fill near historic flood plains of natural waterways. These soils consist of up to 19 feet of wet to saturated, very loose to medium dense, clean, clayey and silty sand (A-1-b, A-2-4, A-2-6) and very soft to stiff, silty and sandy clay and clayey and sandy silt (A-4, A-5, A-6, A-7).

Colluvial soils, soils transported by either rainwash or downslope creep were encountered in one location. These soils consist of up to 6.5 feet of moist, silty sand (A-2-4) with rock fragments.

Residual soils were encountered at the ground surface, or beneath roadway embankments, artificial fills, alluvial, or colluvial soils. These soils consist of dry to saturated, loose to very dense, clayey and silty sand (A-2-4, A-2-6) and soft to hard, sandy and clayey silt, and silty and sandy clays (A-4, A-5, A-6, A-7).

Weathered Rock (WR) is a very hard material with properties intermediate of soil and rock. WR is classified by having an N-value of 100 blows per foot or less. WR encountered generally consists of brown tan and white biotite gneiss and mica schist.

Crystalline Rock (CR), in the form of biotite gneiss and schist and mica schist, was encountered beneath weathered rock or residual soils 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 were backfilled immediately after completion due to safety considerations.

Detailed groundwater measurements are included in the attached subsurface profiles and cross sections.

Multiple streams run throughout the project corridor both perpendicular and parallel to the mainline. A spring is noted on the final survey within the proposed project corridor.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

I. The following locations contain very soft to soft/very loose soils with an N-value less than 4 near the ground surface:

Alignment	Station (ft)
-L-	30+00
-L-	40+00
-L-	59+00 – 63+00
-L-	82+00
-L-	85+94
-L-	100+00
-L-	132+16
-L-	138+07
-L-	200+03
-L-	204+00
-L-	212+00
-L-	218+00
-Y5-	13+99
-Y14-	12+15
-Y15-	12+00
-Y20-	16+00
-Y20-	20+02
-Y20-	29+00

II. Alluvial soils were encountered near the following locations. The potential for shallow groundwater and wet, soft or organic soils should be anticipated at these locations:

Alignment	Station (ft)
-L-	26+00
-L-	68+00
-L-	78+00 and 80+00
-L-	90+00 and 92+00
-L-	95+10 and 95+99
-L-	130+02
-L-	140+00 and 143+37
-L-	174+02
-L-	177+98 and 179+50
-L-	180+31, 182+01 and 184+01
-L-	186+29 and 188+00

-L-	190+00 and 191+98
-L-	197+91 and 200+03
-L-	204+00
-L-	208+00
-Y5-	13+99
-Y18-	14+00
-Y19-	12+00
-Y19-	18+00

III. Shallow rock within 6 feet of proposed subgrade was encountered at the following locations:

Alignment	Station (ft)
-L-	111+96
-L-	114+00
-L-	152+00
-L-	153+90
-L-	155+94
-L-	163+93
-L-	165+95
-L-	193+84
-L-	196+00
-L-	202+00
-Y15-	12+00

IV. Rock within the Zch and Zwe rock units may be acid producing. Based on geologic mapping, rock encountered in the following areas during our investigation has the potential to be acid producing:

Alignment	Station (ft)
-L-	111+96
-L-	114+00
-L-	152+00
-L-	153+90
-L-	155+94
-L-	158+00
-L-	159+97
-L-	163+93
-L-	165+95
-Y15-/-Y15DET-	12+00

ADDITIONAL LABORATORY TESTING

The following bulk samples were obtained for the additional laboratory tests noted:

Sample	Location	Location	Test
BS-1	44+00, 40’ LT, -L-	1.0 – 10.0	California Bearing Ratio, Standard Proctor
BS-2	54+02, 75’ LT, -L-	1.0 – 10.0	California Bearing Ratio, Standard Proctor
BS-3	111+96, 74’ LT, -L-	1.0 – 10.0	California Bearing Ratio, Standard Proctor
BS-4	202+01, 69’ LT, -L-	1.0 – 8.5	California Bearing Ratio, Standard Proctor
BS-5	206+00, 60’ LT, -L-	1.0 – 10.0	California Bearing Ratio, Standard Proctor

Classification test results for these samples are included in the subsurface profiles. Standard Proctor and California Bearing Ratio (CBR) data is attached in Appendix B.

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.

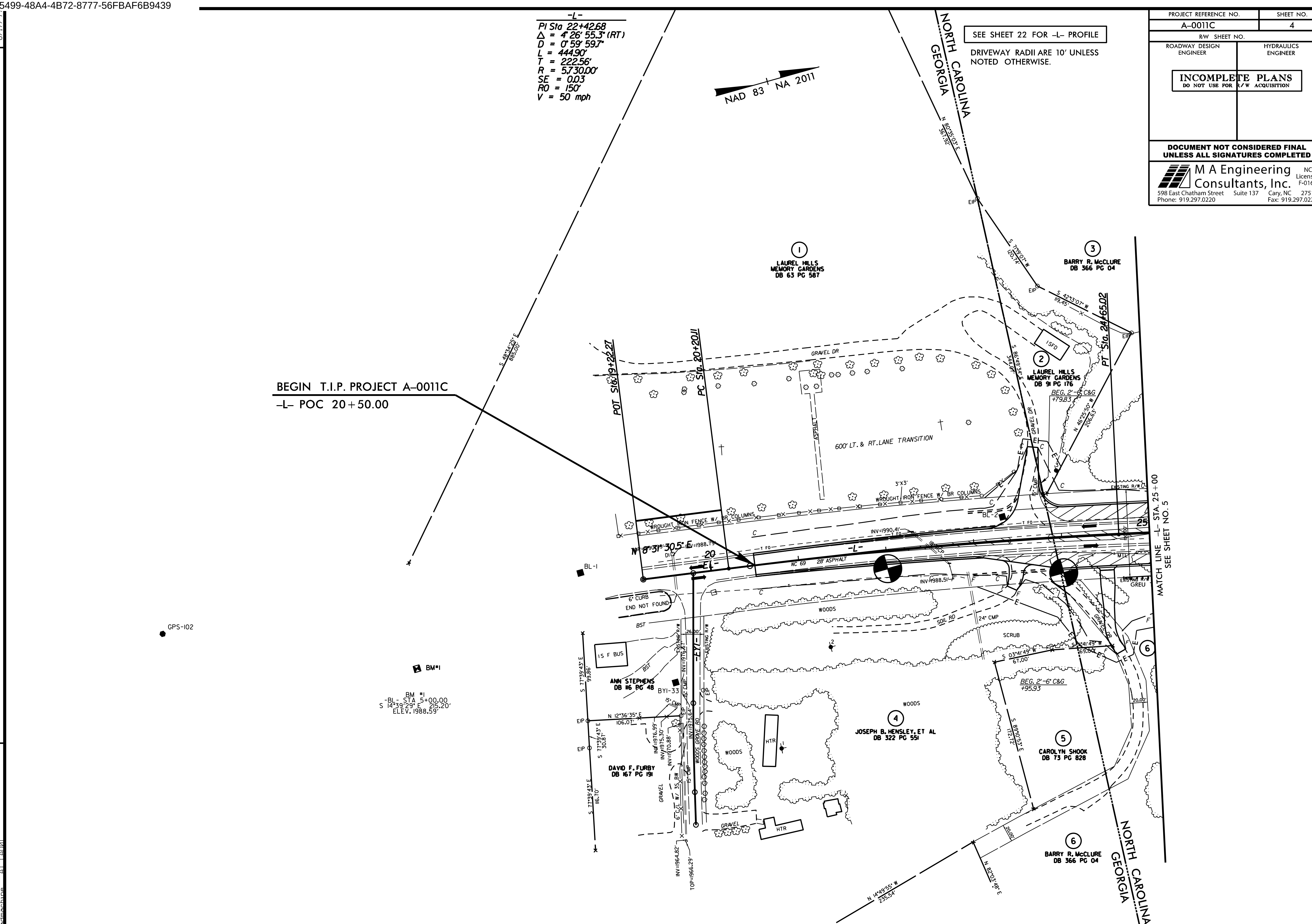
FALCON ENGINEERING, INC.

Report Prepared By:

W. Scott Hunsberger, PE
Geotechnical Engineer

Report Reviewed By:

Jeremy R. Hamm, PE
Geotechnical Engineering Manager


PROJECT REFERENCE NO.
A-0011C
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
SEE SHEET 22 FOR -L- PROFILE
DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.
-L-
PI Sta 22+42.68
Δ = 4° 26' 55.3" (RT)
D = 0° 59' 59.7"
L = 444.90'
T = 222.56'
R = 5,730.00'
SE = 0.03
RO = 150'
V = 50 mph
NAD 83 NA 2011
NORTH CAROLINA
GEORGIA
BEGIN T.I.P. PROJECT A-0011C
-L- POC 20+50.00
POT Sta. 19+22.27
PC Sta. 20+20.11
PT Sta. 24+65.02
MATCH LINE -L- STA. 25+00
SEE SHEET NO. 5
LAUREL HILLS MEMORY GARDENS DB 63 PG 587
LAUREL HILLS MEMORY GARDENS DB 91 PG 176
BARRY R. McCLURE DB 366 PG 04
JOSEPH B. HENSLEY, ET AL DB 322 PG 551
CAROLYN SHOOK DB 73 PG 828
ANN STEPHENS DB 116 PG 48
DAVID F. FURBY DB 167 PG 191
600' LT. & RT. LANE TRANSITION
GRAVEL DR
WROUGHT IRON FENCE W/ BR COLUMNS
NC 69 28' ASPHALT
6" CURB END NOT FOUND
WOODS
SCRUB
SOIL RD
24" CMP
BEG. 2'-6" C&G +79.83
BEG. 2'-6" C&G +95.93
GPS-102
BM#1
BM #1 -BL- STA 5+00.00 S 14°39'29" E 215.20' ELEV. 1988.59'
BL-1
BL-2
BYI-33
-EY1-
HTR
1 S F BUS
1 SFD
N 8°51'30.5" E
S 48°34'29" E 885.00'
N 80°35'03" E 367.92'
S 71°19'07" W 120.74'
S 42°13'07" W 119.45'
N 46°29'50" W 206.63'
S 03°41'49" W 67.00'
S 89°05'53" E 172.72'
N 14°49'55" W 235.54'
N 12°36'35" E 106.07'
S 77°39'43" E 99.86'
S 77°39'43" E 30.87'
S 77°39'43" E 116.70'
INV=1990.41'
INV=1988.79'
INV=1988.51'
INV=1964.82'
TOP=1966.29'
EIP

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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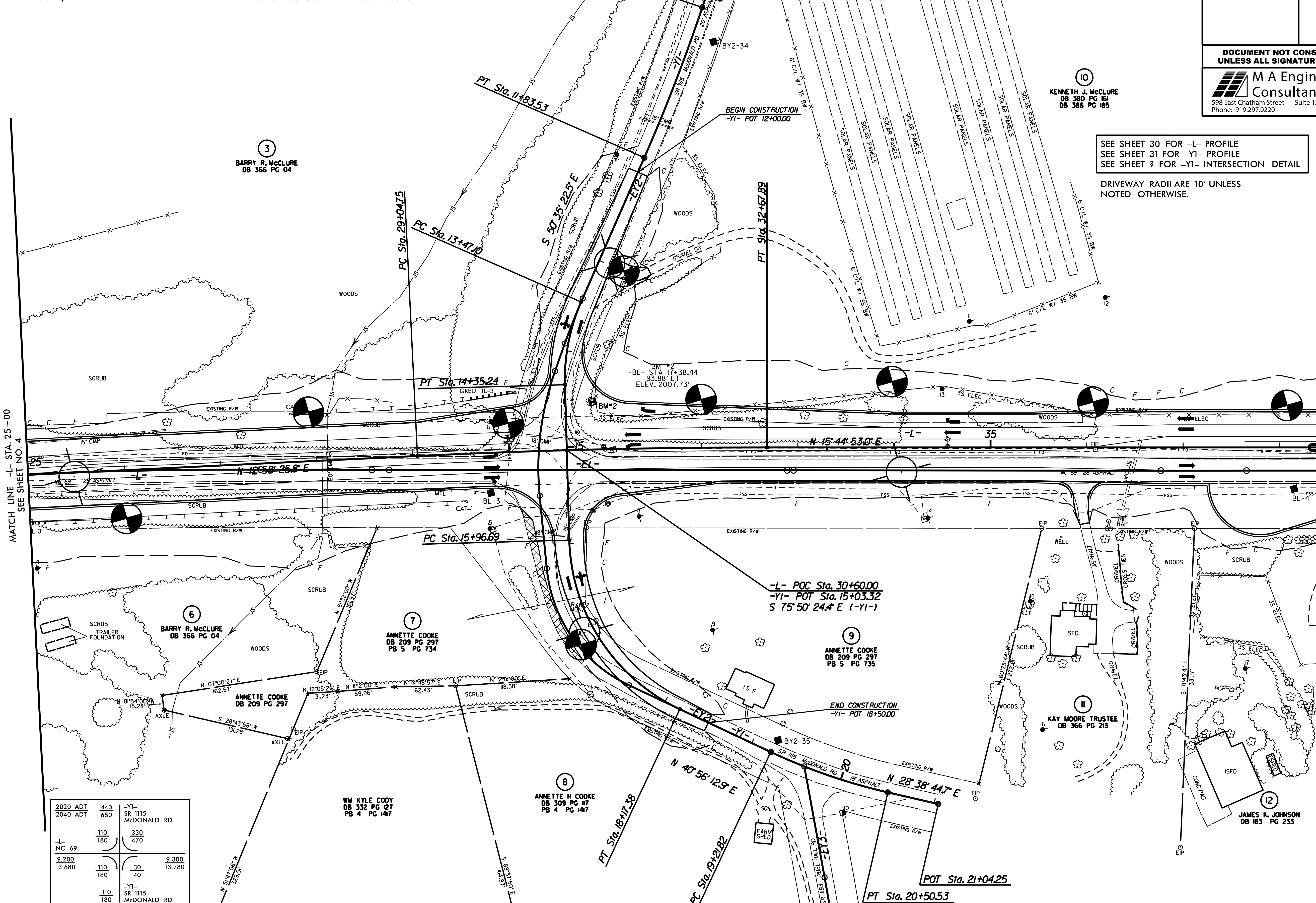
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

-L-	-Y1-	-Y1-	-Y1-	-Y1-
PI Sta 30+86.35	PI Sta 10+99.93	PI Sta 13+91.90	PI Sta 17+19.79	PI Sta 19+86.43
Δ = 2° 46' 27.2" (RT)	Δ = 5° 07' 34.5" (RT)	Δ = 25° 15' 01.9" (LT)	Δ = 63° 13' 22.7" (LT)	Δ = 12° 17' 28.2" (LT)
D = 0° 45' 50.2"	D = 3° 03' 50.2"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 9° 32' 57.5"
L = 363.14'	L = 167.31'	L = 88.14'	L = 220.69'	L = 128.71'
T = 181.61'	T = 83.71'	T = 44.80'	T = 123.10'	T = 64.60'
R = 7,500.00'	R = 1,870.00'	R = 200.00'	R = 200.00'	R = 600.00'
SE = 0.03		SE = 0.02	SE = 0.04	
RO = 150'		RO = 30'	RO = 60'	
V = 50 mph		V = STOP COND.	V = STOP COND.	

SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 31 FOR -Y1- PROFILE
SEE SHEET ? FOR -Y1- INTERSECTION DETAIL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.


NAD 83 NA 2011
POT Sta. 10+00.00
PC Sta. 10+16.22
PT Sta. 11+83.53
PC Sta. 13+47.10
PC Sta. 29+04.75
PT Sta. 32+67.89
PT Sta. 14+35.24
PC Sta. 15+96.69
BEGIN CONSTRUCTION -Y1- POT 12+00.00
END CONSTRUCTION -Y1- POT 18+50.00
-L- POC Sta. 30+60.00
-Y1- POT Sta. 15+03.32
S 75° 50' 24.4" E (-Y1-)
BM #2 -BL- STA 17+38.44 93.88' LT ELEV. 2007.73'
N 12°58' 25.8" E
N 15°44' 53.0" E
S 55° 42' 57.1" E
S 50° 35' 22.5" E
N 40° 56' 12.9" E
N 28° 38' 44.7" E
PT Sta. 18+17.38
PC Sta. 19+21.82
PT Sta. 20+50.53
POT Sta. 21+04.25
MATCH LINE -L- STA. 25+00 SEE SHEET NO. 4
MATCH LINE -L- STA. 38+50 SEE SHEET NO. 6
BARRY R. McCLURE DB 366 PG 04
KENNETH J. McCLURE DB 380 PG 161 DB 386 PG 185
ANNETTE COOKE DB 209 PG 297 PB 5 PG 734
ANNETTE COOKE DB 209 PG 297 PB 5 PG 735
ANNETTE COOKE DB 209 PG 297
ANNETTE H COOKE DB 309 PG 87 PB 4 PG 1417
WM KYLE CODY DB 332 PG 127 PB 4 PG 1417
KAY MOORE TRUSTEE DB 366 PG 213
JAMES K. JOHNSON DB 183 PG 233
SOLAR PANELS
WOODS
SCRUB
EXISTING R/W
NC 69 28' ASPHALT
SR 1115 McDONALD RD 18' ASPHALT
2020 ADT / 2040 ADT
-Y1- SR 1115 McDONALD RD
-L- NC 69
440 / 650
110 / 180
330 / 470
9,200 / 13,680
9,300 / 13,780
110 / 180
30 / 40
110 / 180

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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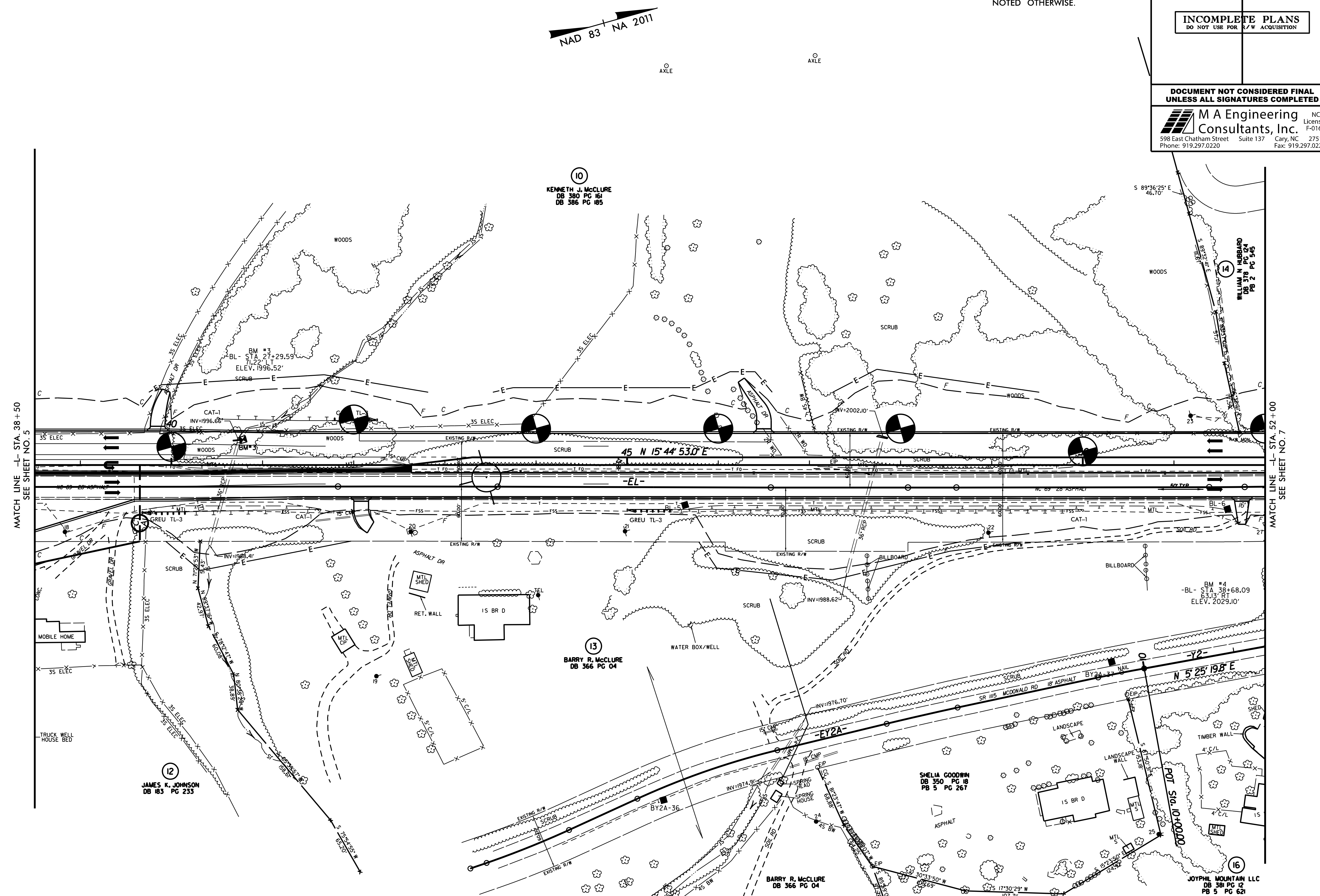
M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

SEE SHEET 23 FOR -L- PROFILE

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

8/17/99

REVISIONS


NAD 83 NA 2011
AXLE
10
KENNETH J. McCLURE
DB 380 PG 161
DB 386 PG 185
WOODS
SCRUB
BM #3
-BL- STA 27+29.59
71.22' LT
ELEV. 1996.52'
3S ELEC
CAT-1
INV=1996.66'
EXISTING R/W
45 N 15° 44' 53.0" E
-EL-
NC 69 28' ASPHALT
MATCH LINE -L- STA. 38+50
SEE SHEET NO. 5
MATCH LINE -L- STA. 52+00
SEE SHEET NO. 7
14
WILLIAM N. HUBBARD
DB 378 PG 124
PB 2 PG 545
S 89°36'25" E
46.70'
GREU TL-3
BL-5
BL-6
BILLBOARD
BM #4
-BL- STA 38+68.09
63.13' RT
ELEV. 2029.10'
MTL SHED
RET. WALL
1S BR D
13
BARRY R. McCLURE
DB 366 PG 04
WATER BOX/WELL
MOBILE HOME
TRUCK WELL HOUSE BED
12
JAMES K. JOHNSON
DB 183 PG 233
-Y2-
N 5° 25' 19.8" E
SR 1115 MCDONALD RD 18' ASPHALT
-EY2A-
BY2A-36
SPRING HOUSE
SHELIA GOODWIN
DB 350 PG 18
PB 5 PG 267
POT Sta. 10+00.00
16
JOYPHIL MOUNTAIN LLC
DB 381 PG 12
PB 5 PG 621
TIMBER WALL
LANDSCAPE WALL
ASPHALT

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

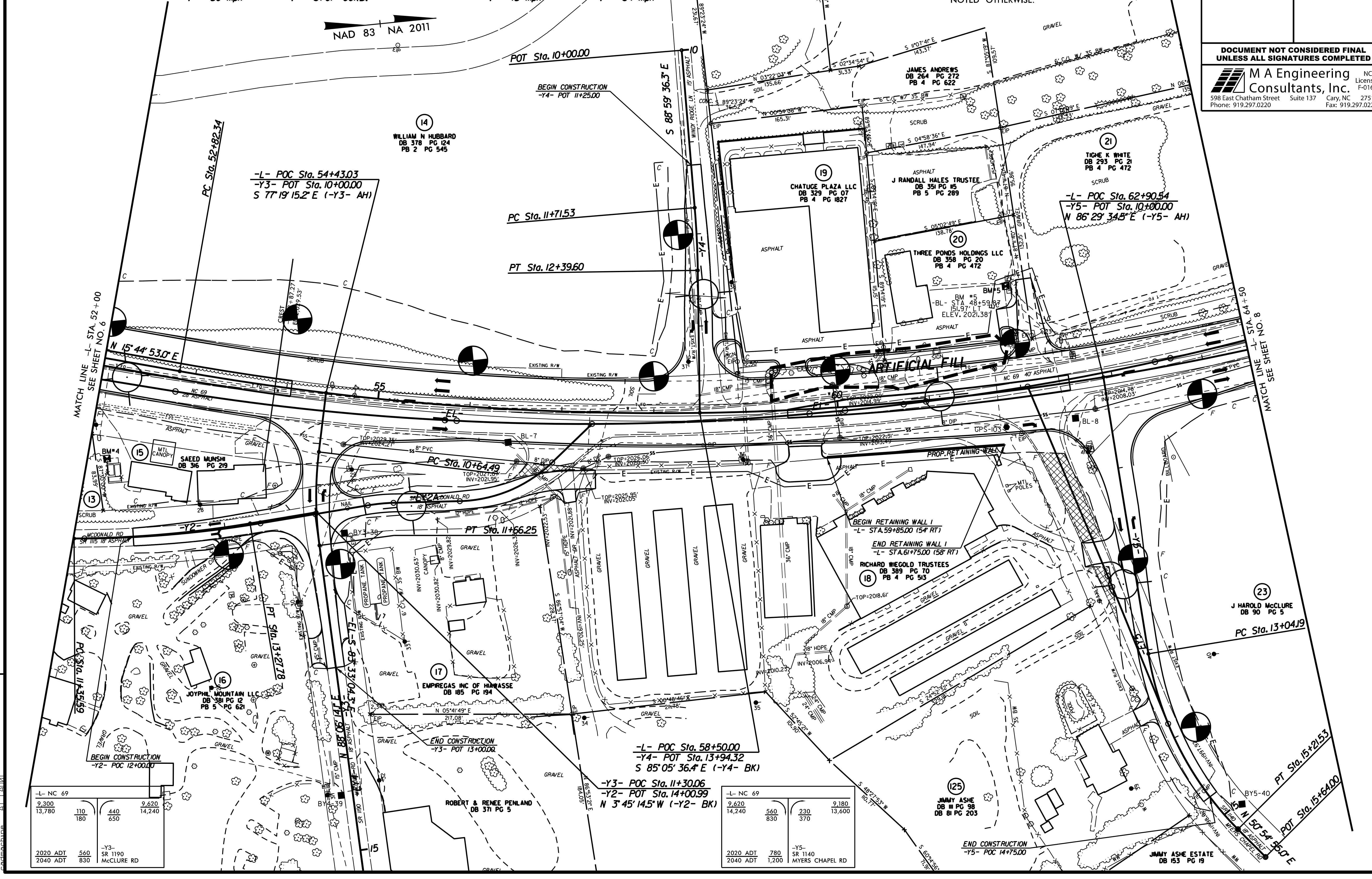
M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

REVISIONS

-L-	-Y2-	-Y3-	-Y4-	-Y5-
PI Sta 61+27.03	PI Sta 12+31.89	PI Sta 11+15.65	PI Sta 12+05.58	PI Sta 14+16.49
Δ = 31° 27' 02.4" (LT)	Δ = 9° 10' 34.3" (LT)	Δ = 14° 34' 30.8" (LT)	Δ = 3° 53' 59.9" (RT)	Δ = 35° 34' 39.4" (LT)
D = 1° 54' 35.5"	D = 4° 46' 28.7"	D = 14° 19' 26.2"	D = 5° 43' 46.5"	D = 16° 22' 12.8"
L = 1,646.75'	L = 192.19'	L = 101.75'	L = 68.07'	L = 217.33'
T = 844.69'	T = 96.30'	T = 51.15'	T = 34.05'	T = 112.30'
R = 3,000.00'	R = 1,200.00'	R = 400.00'	R = 1,000.00'	R = 350.00'
SE = 0.03	SE = 0.02	SE = N.C.	SE = 0.02	SE = 0.04
RO = 150'	RO = 30'	V = STOP COND.	RO = 30'	RO = 84'
V = 50 mph	V = STOP COND.		V = 15 mph	V = 34 mph

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 31 FOR -Y2- & -Y3- PROFILES
SEE SHEET 32 FOR -Y4- & -Y5- PROFILES
SEE SHEET ? FOR -Y2-, -Y3-, -Y4-, & -Y5- INTERSECTION DETAILS

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.


NAD 83 NA 2011
POT Sta. 10+00.00
BEGIN CONSTRUCTION -Y4- POT 11+25.00
S 88° 59' 36.3" E
JAMES ANDREWS DB 264 PG 272 PB 4 PG 622
RICHARD M WIEGOLD SR DB 389 PG 70 PB 4 PG 472
WILLIAM N HUBBARD DB 378 PG 124 PB 2 PG 545
PC Sta. 52+82.34
-L- POC Sta. 54+43.03
-Y3- POT Sta. 10+00.00
S 77° 19' 15.2" E (-Y3- AH)
PC Sta. 11+71.53
PT Sta. 12+39.60
CHATUGE PLAZA LLC DB 329 PG 07 PB 4 PG 1827
J RANDALL HALES TRUSTEE DB 351 PG 15 PB 5 PG 289
THREE PONDS HOLDINGS LLC DB 358 PG 20 PB 4 PG 472
TIGHE K WHITE DB 293 PG 21 PB 4 PG 472
-L- POC Sta. 62+90.54
-Y5- POT Sta. 10+00.00
N 86° 29' 34.5" E (-Y5- AH)
BM #5 -BL- STA 48+59.87 151.97' LT ELEV. 2021.38'
MATCH LINE -L- STA. 52+00 SEE SHEET NO. 6
MATCH LINE -L- STA. 64+50 SEE SHEET NO. 8
N 15° 44' 53.0" E
ARTIFICIAL FILL
NC 69
SAEED MUNSHI DB 316 PG 219
BM #4
PC Sta. 10+64.49
PROP. RETAINING WALL
BEGIN RETAINING WALL 1 -L- STA.59+85.00 (54' RT)
END RETAINING WALL 1 -L- STA.61+75.00 (58' RT)
RICHARD WIEGOLD TRUSTEES DB 389 PG 70 PB 4 PG 513
PT Sta. 11+66.25
J HAROLD McCLURE DB 90 PG 5
PC Sta. 13+04.19
JOYPHIL MOUNTAIN LLC DB 381 PG 12 PB 5 PG 621
EMPIREGAS INC OF HIAWASSEE DB 185 PG 194
PT Sta. 13+27.78
PC Sta. 11+35.59
N 88° 06' 14" E
END CONSTRUCTION -Y3- POT 13+00.00
BEGIN CONSTRUCTION -Y2- POC 12+00.00
-L- POC Sta. 58+50.00
-Y4- POT Sta. 13+94.32
S 85° 05' 36.4" E (-Y4- BK)
-Y3- POC Sta. 11+30.06
-Y2- POT Sta. 14+00.99
N 3° 45' 14.5" W (-Y2- BK)
ROBERT & RENEE PENLAND DB 371 PG 5
JIMMY ASHE DB 111 PG 98 DB 81 PG 203
END CONSTRUCTION -Y5- POC 14+75.00
JIMMY ASHE ESTATE DB 153 PG 19
PT Sta. 15+21.53
POT Sta. 15+64.00
N 50° 54' 55.0" E
-L- NC 69
9,300 13,780 | 110 180 | 440 650 | 9,620 14,240
2020 ADT 560 | 2040 ADT 830 | -Y3- SR 1190 McCLURE RD
-L- NC 69
9,620 14,240 | 560 830 | 230 370 | 9,180 13,600
2020 ADT 780 | 2040 ADT 1,200 | -Y5- SR 1140 MYERS CHAPEL RD

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	8

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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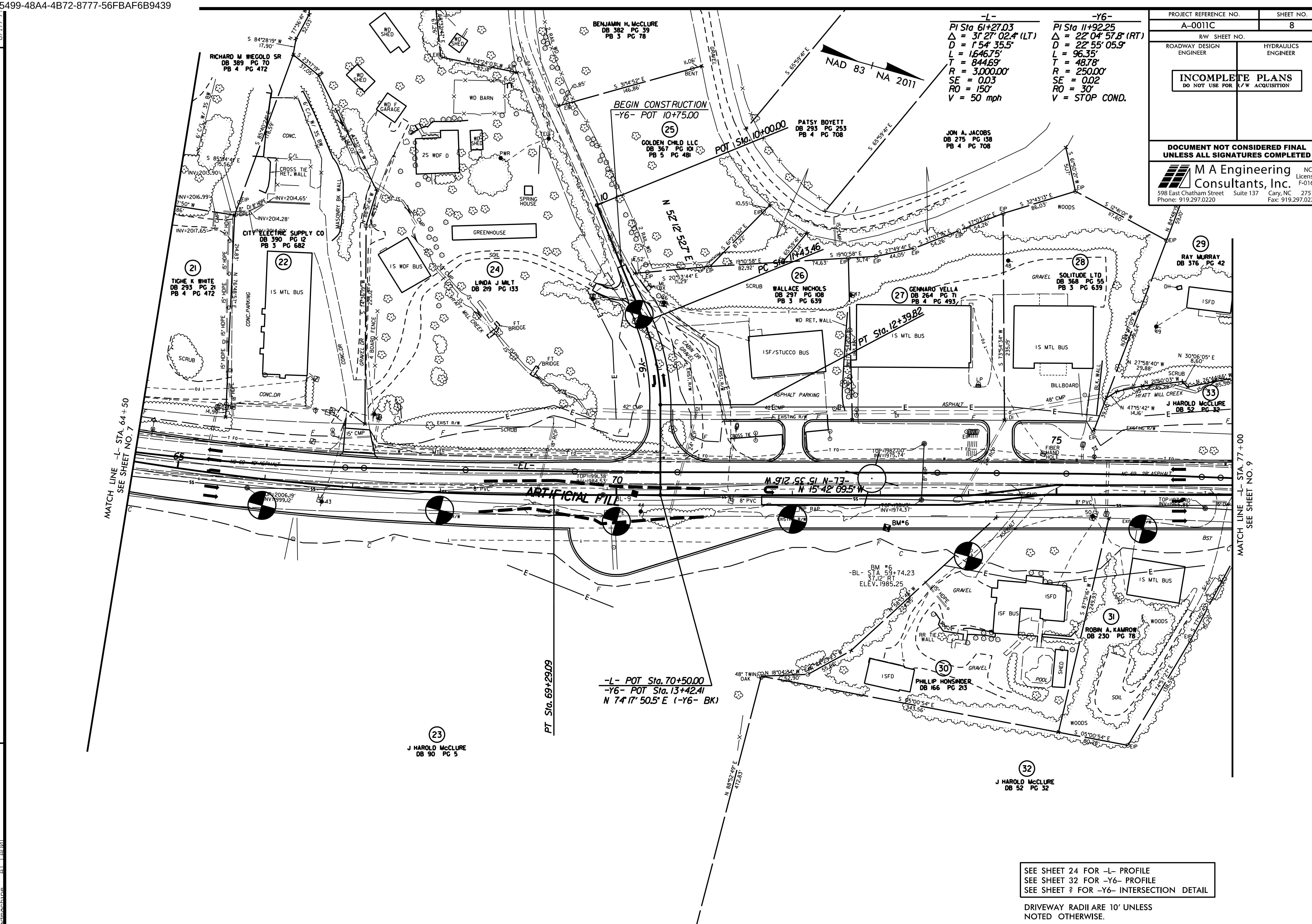
-L-	-Y6-
PI Sta 61+27.03	PI Sta 11+92.25
Δ = 31° 27' 02.4" (LT)	Δ = 22° 04' 57.8" (RT)
D = 1° 54' 35.5"	D = 22° 55' 05.9"
L = 1,646.75'	L = 96.35'
T = 844.69'	T = 48.78'
R = 3,000.00'	R = 250.00'
SE = 0.03	SE = 0.02
RO = 150'	RO = 30'
V = 50 mph	V = STOP COND.


NAD 83 NA 2011
BEGIN CONSTRUCTION -Y6- POT 10+75.00
POT Sta. 10+00.00
PC Sta. 11+43.46
PT Sta. 12+39.82
N 52° 12' 52.7" E
-L- POT Sta. 70+50.00
-Y6- POT Sta. 13+42.41
N 74° 17' 50.5" E (-Y6- BK)
PT Sta. 69+29.09
-EL- N 15° 42' 09.5" W
ARTIFICIAL FILL
MATCH LINE -L- STA. 64+50 SEE SHEET NO. 7
MATCH LINE -L- STA. 77+00 SEE SHEET NO. 9
BM #6 -BL- STA 59+74.23 37.12' RT ELEV. 1985.25
RICHARD M WIEGOLD SR DB 389 PG 70 PB 4 PG 472
BENJAMIN H. McCLURE DB 382 PG 39 PB 3 PG 78
GOLDEN CHILD LLC DB 367 PG 101 PB 5 PG 481
PATSY BOYETT DB 293 PG 253 PB 4 PG 708
JON A. JACOBS DB 275 PG 138 PB 4 PG 708
TIGHE K WHITE DB 293 PG 21 PB 4 PG 472
CITY ELECTRIC SUPPLY CO DB 390 PG 12 PB 3 PG 682
LINDA J MILT DB 219 PG 133
WALLACE NICHOLS DB 297 PG 108 PB 3 PG 639
GENNARO VELLA DB 264 PG 71 PB 4 PG 493
SOLITUDE LTD DB 368 PG 55 PB 3 PG 639
RAY MURRAY DB 376 PG 42
J HAROLD McCLURE DB 52 PG 32
J HAROLD McCLURE DB 90 PG 5
PHILLIP HONSINGER DB 166 PG 213
ROBIN A. KAMROW DB 230 PG 78
J HAROLD McCLURE DB 52 PG 32
HYATT MILL CREEK
GREENHOUSE
SPRING HOUSE
WD BARN
BILLBOARD
NC 69 28' ASPHALT

SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 32 FOR -Y6- PROFILE
SEE SHEET ? FOR -Y6- INTERSECTION DETAIL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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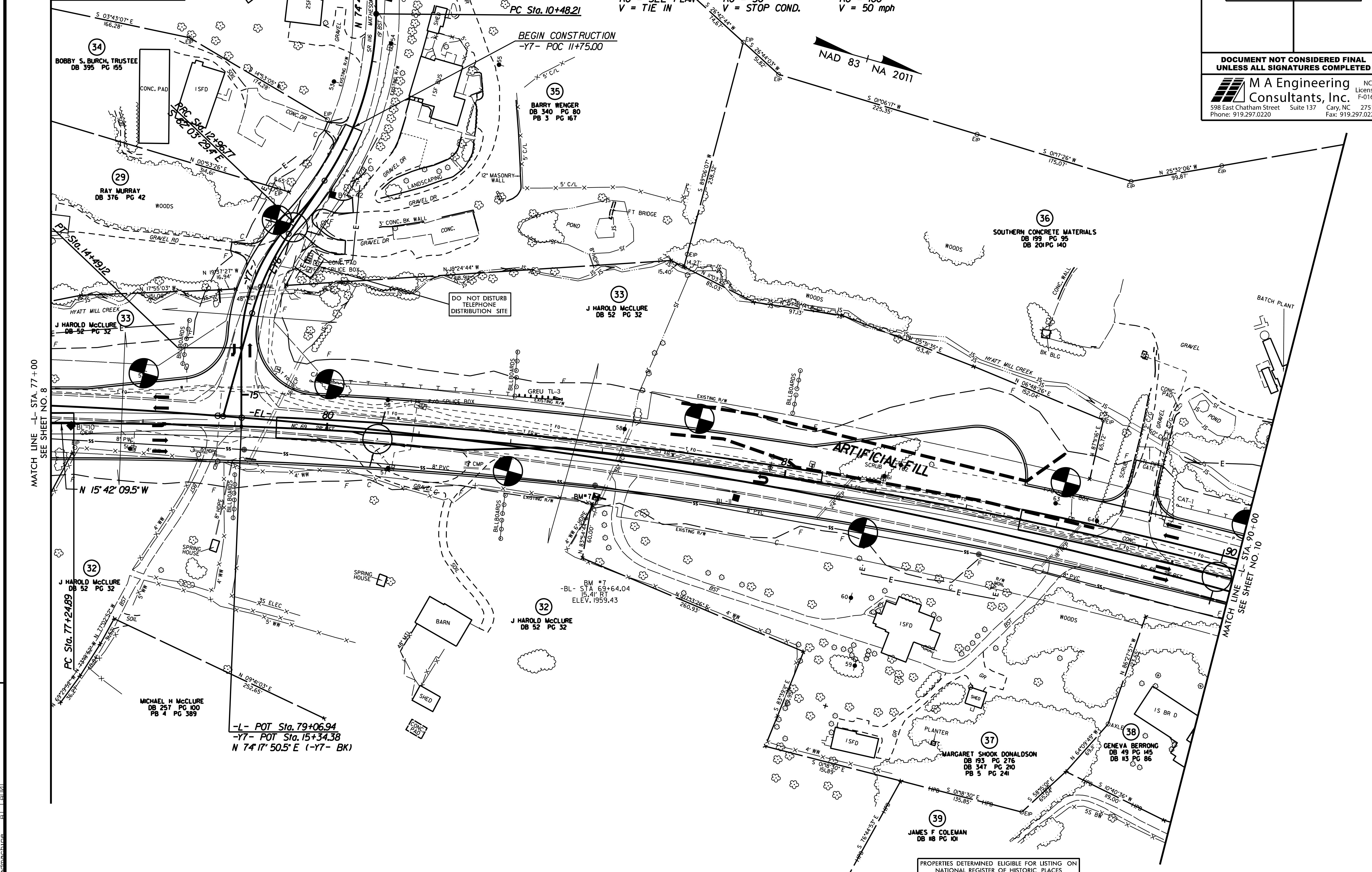
2020 ADT	340	-Y7- SR 1116 MATHESON COVE RD
2040 ADT	550	
9,180 / 13,600	230 / 370 — 110 / 180	9,070 / 13,410
-L- NC 69		

-Y7-	-Y7-	-L-
PI Sta 11+78.72	PI Sta 13+76.86	PI Sta 97+05.60
Δ = 43° 09' 23.7" (RT)	Δ = 43° 38' 40.0" (LT)	Δ = 42° 26' 59.4" (RT)
D = 17° 21' 44.5"	D = 28° 38' 52.4"	D = 1° 07' 24.4"
L = 248.56'	L = 152.35'	L = 3,778.54'
T = 130.51'	T = 80.08'	T = 1,980.71'
R = 330.00'	R = 200.00'	R = 5,100.00'
SE = EXIST.	SE = 0.02	SE = 0.02
RO = SEE PLAN	RO = 30'	RO = 100'
V = TIE IN	V = STOP COND.	V = 50 mph

SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 32 FOR -Y7- PROFILE
SEE SHEET ? FOR -Y7- INTERSECTION DETAIL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.



REVISIONS

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8/17/99

-L-
PI Sta 97+05.60
Δ = 42° 26' 59.4" (RT)
D = 1° 07' 24.4"
L = 3,778.54'
T = 1,980.71'
R = 5,100.00'
SE = E.X.
RO = 100'
V = 40 mph

-Y8-
PI Sta 11+09.42
Δ = 16° 40' 10.3" (LT)
D = 9° 05' 40.4"
L = 183.29'
T = 92.30'
R = 630.00'
SE = E.X.
RO = N/A
V = 40 mph

PI Sta 12+69.00
Δ = 17° 19' 53.8" (LT)
D = 12° 43' 56.6"
L = 136.12'
T = 68.58'
R = 450.00'
SE = 0.04
RO = 80'
V = 35 mph

2020 ADT 670 / 2040 ADT 1,010
-Y8-
SR 1116
MATHESON COVE RD
9,070 / 13,410
110 / 180
560 / 830
9,510 / 14,060
-L- NC 69

SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 33 FOR -Y8- PROFILE
SEE SHEET ? FOR -Y8- INTERSECTION DETAIL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

NAD 83 NA 2011

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS
8/17/99

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MATCH LINE -L- STA. 90+00
SEE SHEET NO. 9

MATCH LINE -L- STA. 103+50
SEE SHEET NO. 11

(36) SOUTHERN CONCRETE MATERIALS
DB 199 PG 95
DB 201PG 140

(40) B H & P GROUP LLC
DB 307 PG 144
PB 4 PG 1692

(41) SHERRY JESSUP
DB 254 PG 220
PB 4 PG 287

(42) RUFUS DONALDSON
DB 315 PG 18
PB 4 PG 1544

(43) JULIA W. WHEELER
DB 175 PG 111
DB 166 PG 150

(124) CLAY COUNTY, NC
DB 384 PG 180

(38) GENEVA BERRONG
DB 49 PG 145
DB 113 PG 86

(39) JAMES F COLEMAN
DB 251 PG 218
PB 4 PG 294

POT Sta. 10+00.00
PC Sta. 10+17.13
PCC Sta. 12+00.42
S 61° 33' 23.0" E
BEGIN CONSTRUCTION -Y8- POC 11+75.00
PT Sta. 13+36.54
-L- POC Sta. 102+03.94
-Y8- POT Sta. 15+22.38
S 78° 53' 16.8" E (-Y8- BK)

BM #8
-BL- STA 78+72.68
86.75' LT
ELEV. 1935.65

BM #9
-BL- STA 88+31.51
87.46' LT
ELEV. 1960.79

PROPERTIES DETERMINED ELIGIBLE FOR LISTING ON NATIONAL REGISTER OF HISTORIC PLACES

-L-
PI Sta 97+05.60
Δ = 42° 26' 59.4" (RT)
D = 1° 07' 24.4"
L = 3,778.54'
T = 1,980.71'
R = 5,100.00'
SE = 0.02
RO = 100'
V = 50 mph

-Y9-
PI Sta 10+96.01
Δ = 3° 23' 50.2" (RT)
D = 9° 32' 57.5"
L = 35.58'
T = 17.79'
R = 600.00'
SE = 0.02
RO = N/A
V = STOP COND.

PI Sta 13+18.55
Δ = 30° 33' 58.2" (RT)
D = 38° 11' 49.9"
L = 80.02'
T = 40.99'
R = 150.00'

PI Sta 14+11.44
Δ = 15° 20' 09.6" (RT)
D = 14° 19' 26.2"
L = 107.07'
T = 53.85'
R = 400.00'

PI Sta 15+87.95
Δ = 49° 49' 04.7" (LT)
D = 52° 05' 13.5"
L = 95.64'
T = 51.08'
R = 110.00'

-DR116-
PI Sta 10+72.79
Δ = 38° 47' 01.9" (LT)
D = 71° 37' 11.0"
L = 54.15'
T = 28.16'
R = 80.00'

PI Sta 12+51.76
Δ = 12° 27' 11.8" (LT)
D = 28° 38' 52.4"
L = 43.47'
T = 21.82'
R = 200.00'

PI Sta 13+53.00
Δ = 90° 00' 00.0" (RT)
D = 180° 59' 09.4"
L = 47.12'
T = 30.00'
R = 30.00'

SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 33 FOR -Y9- & -Y10- PROFILES
SEE SHEET 38 FOR -DR161- PROFILE
SEE SHEET ? FOR -Y9- & -Y10- INTERSECTION DETAILS

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS 8/17/99

MATCH LINE -L- STA. 103+50 SEE SHEET NO. 10

MATCH LINE -L- STA. 116+80 SEE SHEET NO. 12

NAD 83 NA 2011

-L- POC Sta. 106+93.17
-Y9- POT Sta. 10+00.00
S 56° 39' 08.9" E (-Y9- AH)

-L- POC Sta. 112+91.61
-Y10- POT Sta. 10+00.00
S 65° 37' 56.7" E (-Y10- AH)

BEGIN CONSTRUCTION
-DR116- POC 10+40.00

N 71° 59' 03.6" E

POT Sta. 10+00.00
PC Sta. 10+44.63
PT Sta. 10+98.78

PC Sta. 12+29.94
PT Sta. 12+73.41
PC Sta. 13+21.00
PT Sta. 13+70.12

N 39° 18' 08.8" E

N 26° 44' 49.9" E

END CONSTRUCTION
-DR116- POC 12+40.00

PC Sta. 10+78.22

PT Sta. 11+13.80

PC Sta. 11+50.39

PC Sta. 12+77.56

PT Sta. 12+98.15

PCC Sta. 13+57.58

PT Sta. 14+64.65

PC Sta. 15+36.87

S 21° 08.9" E

S 53° 15' 16.7" E

-Y10-
PI Sta 12+24.81
Δ = 16° 55' 54.6" (LT)
D = 11° 27' 33.0"
L = 147.76'
T = 74.42'
R = 500.00'
SE = 0.03
RO = 60'
V = 25 mph

PI Sta 16+17.26
Δ = 9° 25' 21.3" (LT)
D = 9° 32' 57.5"
L = 98.67'
T = 49.45'
R = 600.00'

PROPERTIES DETERMINED ELIGIBLE FOR LISTING ON NATIONAL REGISTER OF HISTORIC PLACES

-L- NC 69			
9,510 / 14,060	11 / 14	11 / 14	9,510 / 14,060
2020 ADT 22 / 2040 ADT 28		-Y9- SR 1144 CLINE McCLURE RD	

-L- NC 69			
9,510 / 14,060	110 / 180	230 / 370	9,620 / 14,240
2020 ADT 340 / 2040 ADT 550		-Y10- SR 1143 BARNARD RD	

(43) JULIA W. WHEELER DB 175 PG 111 DB 166 PG 150
(44) BETTY R. CROW, ET AL DB 302 PG 134
(45) LOUISE TUCKER DB 125 PG 178
(39) JAMES F COLEMAN DB 251 PG 218 PB 4 PG 294
(46) RICHARD E OSBORN DB 362 PG 205 DB 236 PG 128 PB 4 PG 1
(47) WILLIAM G MASON DB 152 PG 64 DB 335 PG 46 PB 2 PG 580 PB 5 PG 85
(48) CHAD & LEE ANN HODGES DB 407 PG 102 PB 5 PG 961
(49) EDGAR JONES DB 96 PG 99
(50) LAWRENCE BYERS DB 225 PG 35
(51) JAC LLC DB 252 PG 145 PB 4 PG 219
(52) BJEJ OF CLAY COUNTY LLC DB 326 PG 85 PB 4 PG 219
KERRY MORGAN DB 382 PG 14

WOODS, SCRUB, GRAVEL, EXISTING R/W, EXIST. R/W, ISFD, WD BARN, WD STABLE, WD SHED, POLE BARN, TRAILER, MTL GARAGE, MTL BUS, CONC., SHED, TV ANTENNA, TEL POLE, METER POLE, TRASH, NAIL, BM #10, GPS-105, SIGN, TRAVERSE LINE, 8" DIP, 8" PVC, HPB, SOIL, SS, FSS, F, E, C, GREU, MTL, BST, GR, HTR, ISFD

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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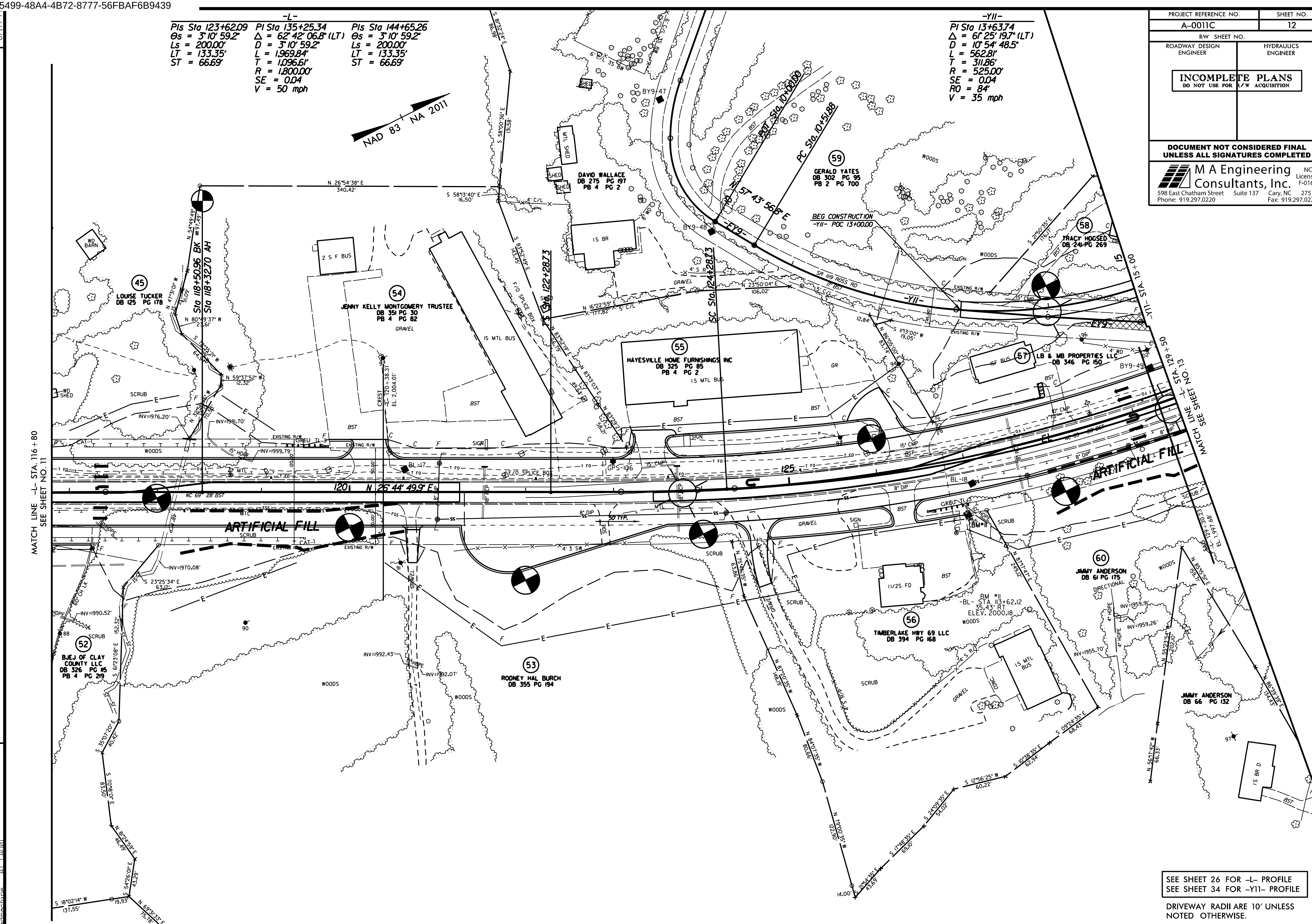
-L-
PIs Sta 123+62.09
Θs = 3°10' 59.2"
Ls = 200.00'
LT = 133.35'
ST = 66.69'
PI Sta 135+25.34
Δ = 62° 42' 06.8" (LT)
D = 3°10' 59.2"
L = 1,969.84'
T = 1,096.61'
R = 1,800.00'
SE = 0.04
V = 50 mph
PIs Sta 144+65.26
Θs = 3°10' 59.2"
Ls = 200.00'
LT = 133.35'
ST = 66.69'
-Y11-
PI Sta 13+63.74
Δ = 61° 25' 19.7" (LT)
D = 10° 54' 48.5"
L = 562.81'
T = 311.86'
R = 525.00'
SE = 0.04
RO = 84'
V = 35 mph
NAD 83 NA 2011
MATCH LINE -L- STA. 116+80 SEE SHEET NO. 11
MATCH LINE -L- STA. 129+50 SEE SHEET NO. 13
ARTIFICIAL FILL
45 LOUISE TUCKER DB 125 PG 178
52 BJEJ OF CLAY COUNTY LLC DB 326 PG 115 PB 4 PG 219
53 RODNEY HAL BURCH DB 355 PG 194
54 JENNY KELLY MONTGOMERY TRUSTEE DB 351 PG 30 PB 4 PG 82
55 HAYESVILLE HOME FURNISHINGS INC DB 325 PG 85 PB 4 PG 2
56 TIMBERLAKE HWY 69 LLC DB 394 PG 168
57 LB & MB PROPERTIES LLC DB 346 PG 150
58 TRACY HOGSED DB 24 PG 269
59 GERALD YATES DB 302 PG 95 PB 2 PG 700
60 JIMMY ANDERSON DB 61 PG 175
JIMMY ANDERSON DB 66 PG 132
DAVID WALLACE DB 275 PG 197 PB 4 PG 2
BEG CONSTRUCTION -Y11- POC 13+00.00
SR 1119 ROSS RD
BM #11 -BL- STA 113+62.12 35.43' RT ELEV. 2000.18
N 26° 44' 49.9" E
WOODS
SCRUB

SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 34 FOR -Y11- PROFILE

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

REVISIONS

8/17/99

08-NOV-2018 15:43
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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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2020 ADT	110	-Y11-	
2040 ADT	180	SR 1119	
		ROSS RD	
9,620 / 14,240	30 / 40	110 / 180	9,740 / 14,430
-L- NC 69			

-L- NC 69			
9,740 / 14,430	110 / 180	230 / 370	9,850 / 14,610
2020 ADT	340	-Y12-	
2040 ADT	550	SR 1141	
		SWAIMS RD	

SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 34 FOR -Y11-, -Y12-, & -Y13- PROFILES
SEE SHEET ? FOR -Y11-, -Y12- & -Y13- INTERSECTION DETAILS

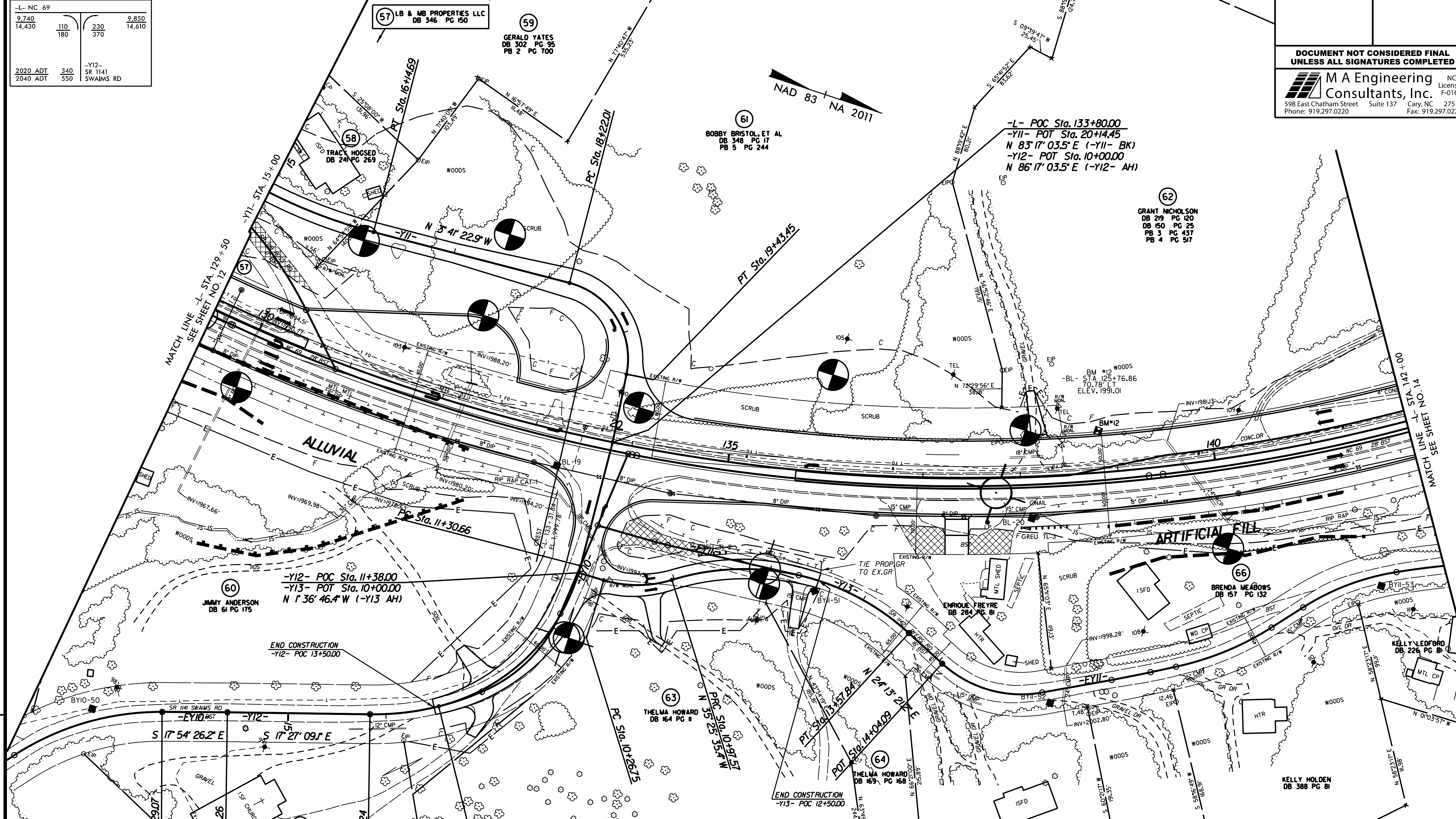
DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

-Y11-

PI Sta 13+63.74	PI Sta 18+97.89
Δ = 61° 25' 19.7" (LT)	Δ = 86° 58' 26.4" (RT)
D = 10° 54' 48.5"	D = 71° 37' 11.0"
L = 562.81'	L = 121.44'
T = 311.86'	T = 75.88'
R = 525.00'	R = 80.00'
SE = 0.04	SE = 0.04
RO = 84'	RO = 60'
V = 35 mph	V = STOP COND.

-L-

PIs Sta 123+62.09	PI Sta 135+25.34	PIs Sta 144+65.26
Θs = 3° 10' 59.2"	Δ = 62° 42' 06.8" (LT)	Θs = 3° 10' 59.2"
Ls = 200.00'	D = 3° 10' 59.2"	Ls = 200.00'
LT = 133.35'	L = 1,969.84'	LT = 133.35'
ST = 66.69'	T = 1,096.61'	ST = 66.69'
	R = 1,800.00'	
	SE = 0.04	
	V = 50 mph	



-Y12-

PI Sta 12+49.57	PI Sta 13+80.93
Δ = 61° 28' 03.5" (RT)	Δ = 14° 47' 43.9" (RT)
D = 28° 38' 52.4"	D = 20° 50' 05.4"
L = 214.56'	L = 71.01'
T = 118.91'	T = 35.71'
R = 200.00'	R = 275.00'
SE = EX.	SE = 0.04
	RO = 84'
	V = STOP COND.

-Y13-

PI Sta 10+63.23	PI Sta 12+40.89
Δ = 33° 48' 48.9" (LT)	Δ = 59° 38' 56.6" (RT)
D = 47° 44' 47.3"	D = 22° 55' 05.9"
L = 70.82'	L = 260.27'
T = 36.47'	T = 143.32'
R = 120.00'	R = 250.00'
SE = 0.02	SE = 0.03
RO = 30'	RO = 45'
V = STOP COND.	V = 20 mph

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 35 FOR -Y14- & -Y15- PROFILES
SEE SHEET ? FOR -Y14- & -Y15- INTERSECTION DETAILS

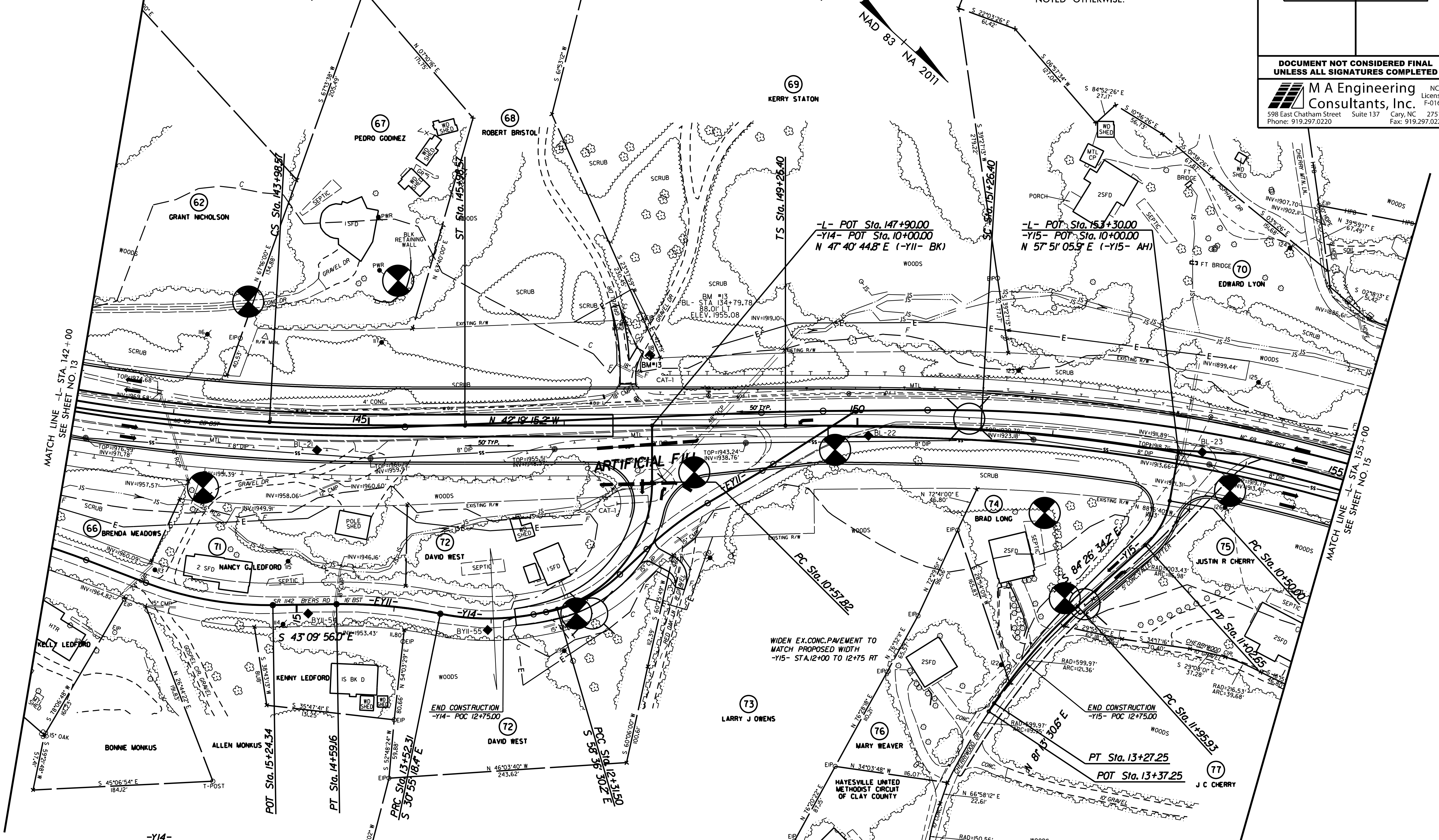
DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

-L-

PIs Sta 123+62.09	PI Sta 135+25.34	PIs Sta 144+65.26
Θs = 3° 10' 59.2"	Δ = 62° 42' 06.8" (LT)	Θs = 3° 10' 59.2"
Ls = 200.00'	D = 3° 10' 59.2"	Ls = 200.00'
LT = 133.35'	L = 1,969.84'	LT = 133.35'
ST = 66.69'	T = 1,096.61'	ST = 66.69'
	R = 1,800.00'	
	SE = 0.04	
	V = 50 mph	

-L-

PIs Sta 150+59.76	PI Sta 163+28.63	PIs Sta 172+88.78
Θs = 3° 21' 02.3"	Δ = 70° 13' 07.7" (RT)	Θs = 3° 21' 02.3"
Ls = 200.00'	D = 3° 21' 02.3"	Ls = 200.00'
LT = 133.36'	L = 2,095.69'	LT = 133.36'
ST = 66.69'	T = 1,202.23'	ST = 66.69'
	R = 1,710.00'	
	SE = 0.04	
	V = 50 mph	



-Y14-

PI Sta 11+59.02	PI Sta 12+93.11	PI Sta 14+05.94
Δ = 73° 42' 45.0" (RT)	Δ = 27° 41' 11.8" (RT)	Δ = 12° 14' 37.6" (LT)
D = 42° 26' 28.7"	D = 22° 55' 05.9"	D = 11° 27' 33.0"
L = 173.68'	L = 120.81'	L = 106.85'
T = 101.20'	T = 61.61'	T = 53.63'
R = 135.00'	R = 250.00'	R = 500.00'
SE = 0.02	SE = EX.	
RO = 30'		
V = STOP COND.		

-L- NC 69			
9,850 / 14,610	10 / 20	100 / 160	9,970 / 14,790
2020 ADT / 2040 ADT	110 / 180	-Y14- SR 1142 BYERS RD	

-Y15-

PI Sta 10+77.32	PI Sta 12+61.94
Δ = 37° 42' 19.9" (RT)	Δ = 14° 19' 55.2" (LT)
D = 71° 37' 11.0"	D = 10° 54' 48.5"
L = 52.65'	L = 131.32'
T = 27.32'	T = 66.01'
R = 80.00'	R = 525.00'
SE = N/A	

REVISIONS

8/17/99

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T:_Projects\2016\G16005.00 A-0011C NC 69 Widening Clay County\A0011C_GEO_RDWY\CADD_GEOTECH\PlanProf\A0011C_GEO_psh14.dgn
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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	15

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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-Y16-

PI Sta 10+56.66
Δ = 8° 49' 08.7" (LT)
D = 9° 14' 28.5"
L = 95.43'
T = 47.81'
R = 620.00'
SE = EX.

PI Sta 11+43.01
Δ = 14° 42' 42.4" (LT)
D = 19° 05' 54.9"
L = 77.03'
T = 38.73'
R = 300.00'
SE = 0.02
RO = 30'

PI Sta 13+15.51
Δ = 98° 49' 22.1" (RT)
D = 104° 10' 26.9"
L = 94.86'
T = 64.20'
R = 55.00'
SE = 0.02 (ADV)
RO = 30'

-L-

PIs Sta 160+59.76
θs = 3° 21' 02.3"
Ls = 200.00'
LT = 133.36'
ST = 66.69'

PI Sta 163+28.63
Δ = 70° 13' 07.7" (RT)
D = 3° 21' 02.3"
L = 2,095.69'
T = 1,202.23'
R = 1,710.00'
SE = 0.04
V = 50 mph

PIs Sta 172+88.78
θs = 3° 21' 02.3"
Ls = 200.00'
LT = 133.36'
ST = 66.69'

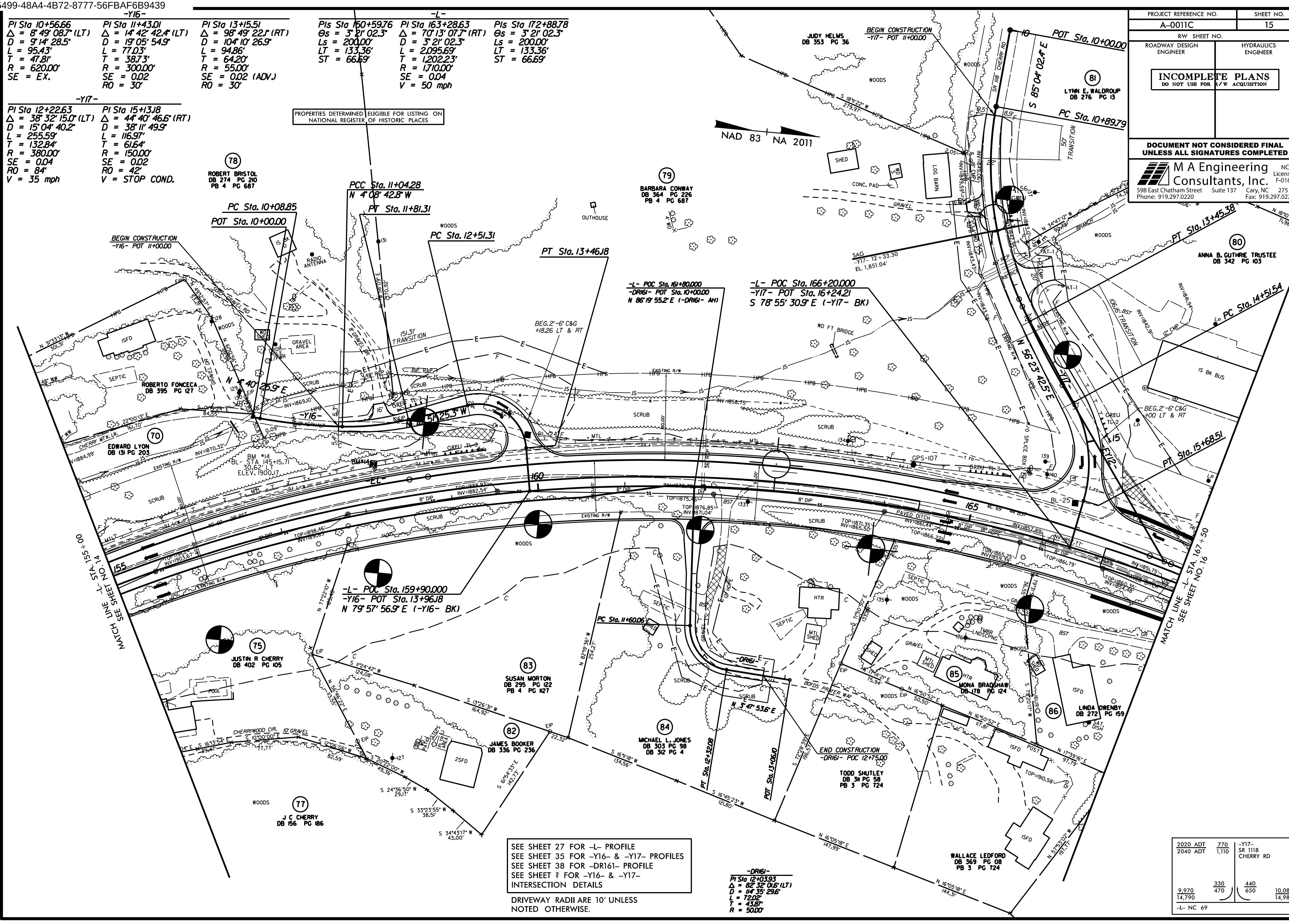
-Y17-

PI Sta 12+22.63
Δ = 38° 32' 15.0" (LT)
D = 15° 04' 40.2"
L = 255.59'
T = 132.84'
R = 380.00'
SE = 0.04
RO = 84'
V = 35 mph

PI Sta 15+13.18
Δ = 44° 40' 46.6" (RT)
D = 38° 11' 49.9"
L = 116.97'
T = 61.64'
R = 150.00'
SE = 0.02
RO = 42'
V = STOP COND.

PROPERTIES DETERMINED ELIGIBLE FOR LISTING ON NATIONAL REGISTER OF HISTORIC PLACES

NAD 83 NA 2011



SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 35 FOR -Y16- & -Y17- PROFILES
SEE SHEET 38 FOR -DR161- PROFILE
SEE SHEET ? FOR -Y16- & -Y17- INTERSECTION DETAILS

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

-DR161-

PI Sta 12+03.93
Δ = 82° 32' 06.6" (LT)
D = 114° 35' 29.6"
L = 72.02'
T = 43.87'
R = 50.00'

2020 ADT 770 / 1,110 (-Y17- SR 1118 CHERRY RD)
2040 ADT
9,970 / 14,790 — 330 / 470 — 440 / 650 — 10,080 / 14,980
-L- NC 69

REVISIONS

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-L-

PIs Sta 150+59.76	PI Sta 163+28.63	PIs Sta 172+88.78
Θs = 3° 21' 02.3"	Δ = 70° 13' 07.7" (RT)	Θs = 3° 21' 02.3"
Ls = 200.00'	D = 3° 21' 02.3"	Ls = 200.00'
LT = 133.36'	L = 2,095.69'	LT = 133.36'
ST = 66.69'	T = 1,202.23'	ST = 66.69'
	R = 1,710.00'	
	SE = 0.04	
	V = 50 mph	

SEE SHEET 28 FOR -L- PROFILE

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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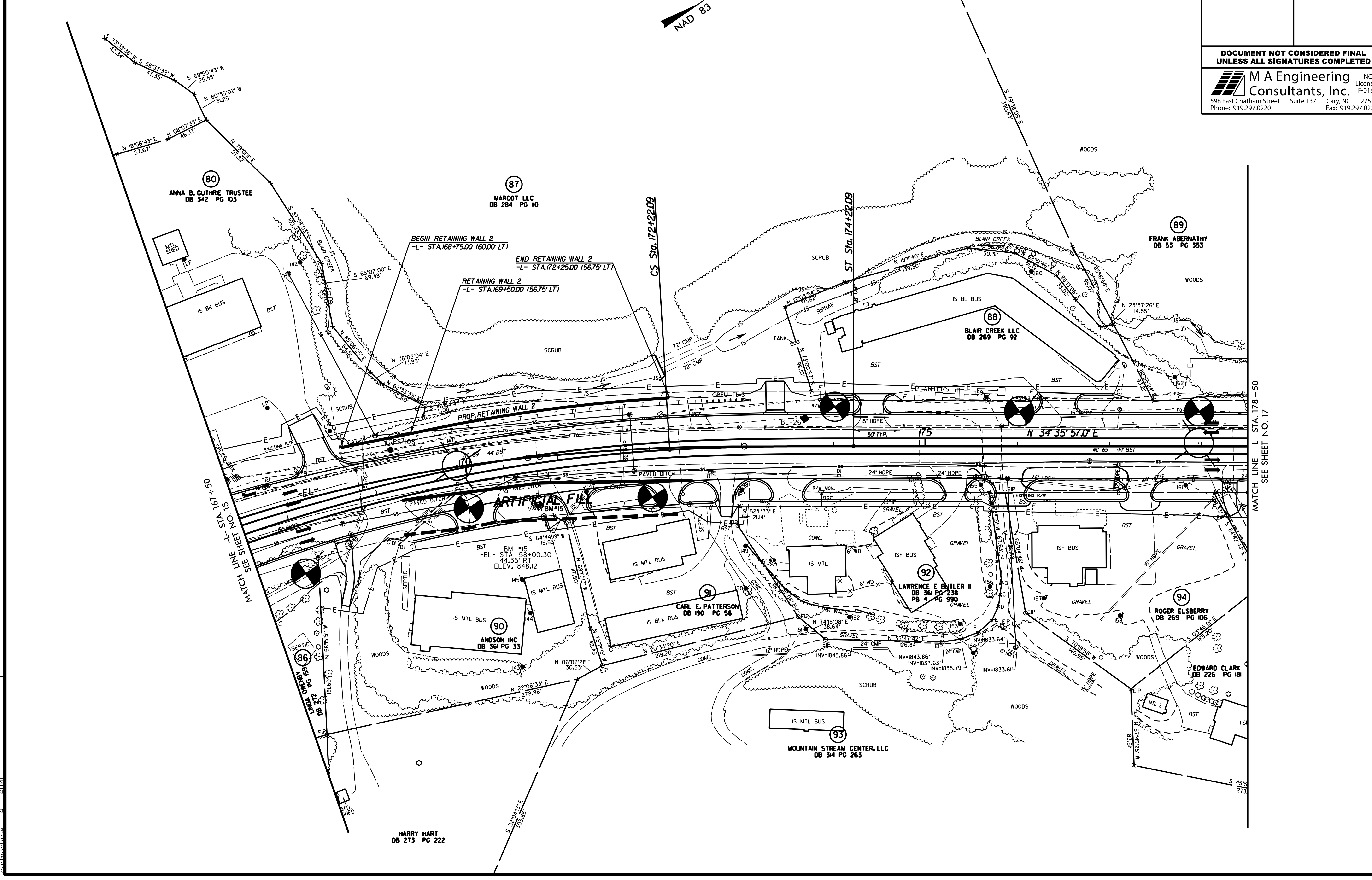

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	17

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
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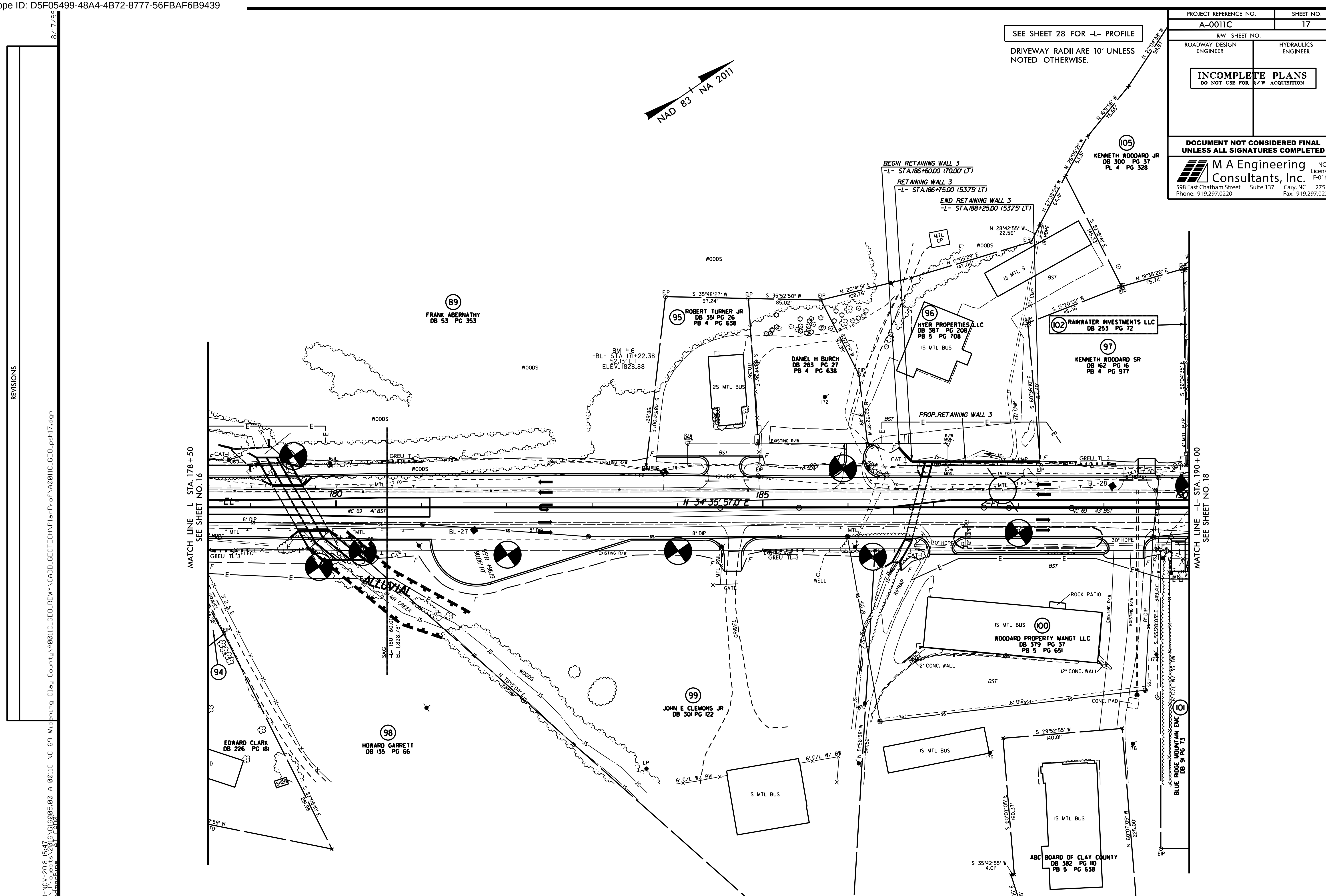
SEE SHEET 28 FOR -L- PROFILE

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.


NAD 83 NA 2011
REVISIONS
8/17/99
MATCH LINE -L- STA. 178+50 SEE SHEET NO. 16
MATCH LINE -L- STA. 190+00 SEE SHEET NO. 18
89 FRANK ABERNATHY DB 53 PG 353
95 ROBERT TURNER JR DB 351 PG 26 PB 4 PG 638
DANIEL H BURCH DB 283 PG 27 PB 4 PG 638
96 HYER PROPERTIES LLC DB 387 PG 208 PB 5 PG 708
105 KENNETH WOODARD JR DB 300 PG 37 PL 4 PG 328
102 RAINWATER INVESTMENTS LLC DB 253 PG 72
97 KENNETH WOODARD SR DB 162 PG 16 PB 4 PG 977
100 WOODARD PROPERTY MANGT LLC DB 379 PG 37 PB 5 PG 651
99 JOHN E CLEMONS JR DB 301 PG 122
98 HOWARD GARRETT DB 135 PG 66
94
EDWARD CLARK DB 226 PG 181
101 BLUE RIDGE MOUNTAIN EMC DB 91 PG 73
ABC BOARD OF CLAY COUNTY DB 382 PG 110 PB 5 PG 638
BM #16 -BL- STA 171+22.38 52.13' LT ELEV. 1828.88
BEGIN RETAINING WALL 3 -L- STA.186+60.00 (70.00' LT)
RETAINING WALL 3 -L- STA.186+75.00 (53.75' LT)
END RETAINING WALL 3 -L- STA.188+25.00 (53.75' LT)
PROP. RETAINING WALL 3
N 34°35'57.0" E
NC 69
ALLUVIAL
AIR CREEK
SAG -L- 180+60.00 EL 1,828.78
BL-27
BL-28
WOODS
IS MTL BUS
2S MTL BUS
ROCK PATIO
12" CONC. WALL
CONC. PAD
WELL
GATE
GRAVEL
RIPRAP
08-NOV-2018 15:47
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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	18

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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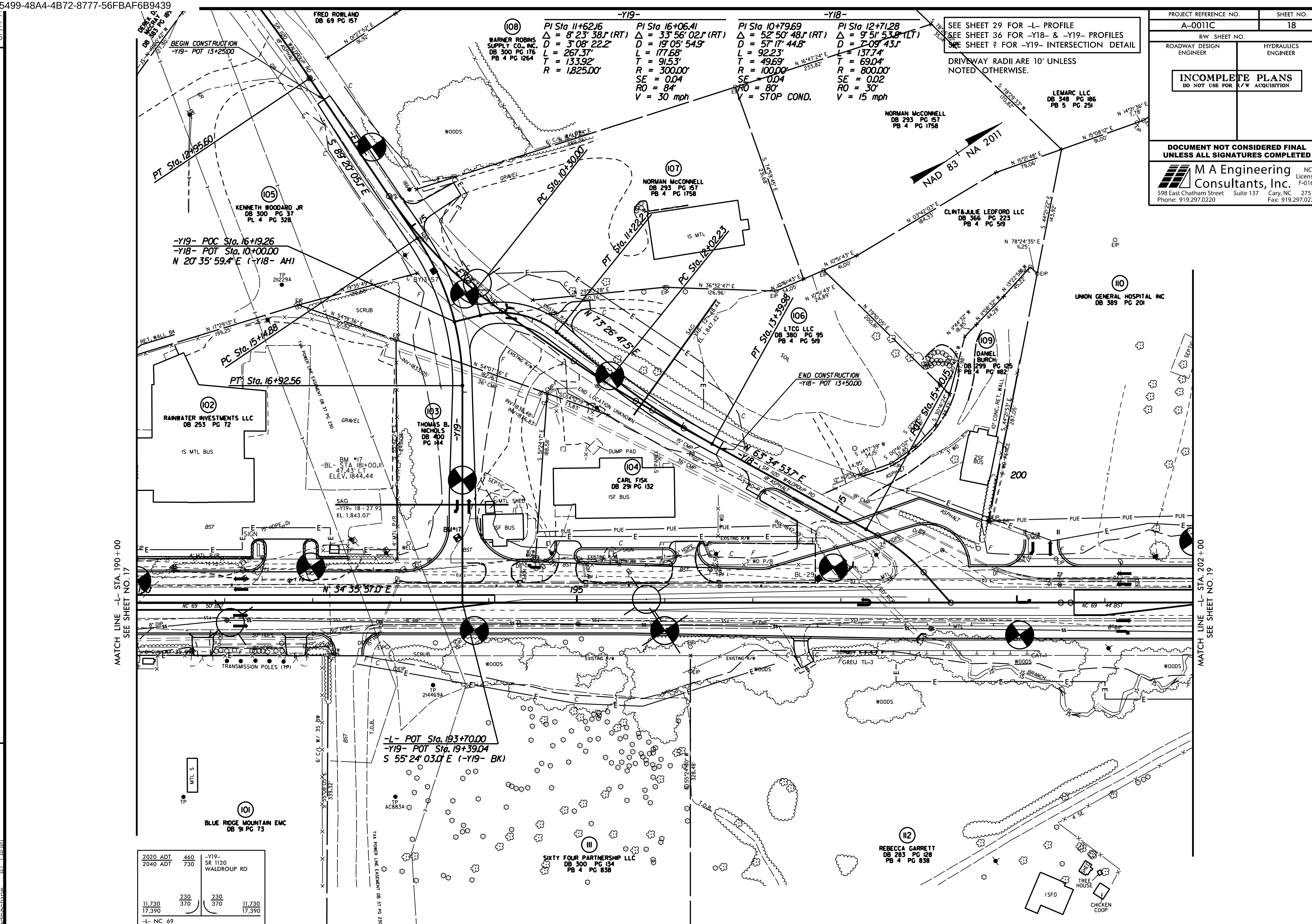
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 36 FOR -Y18- & -Y19- PROFILES
SEE SHEET ? FOR -Y19- INTERSECTION DETAIL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.


-Y19-
PI Sta 11+62.16
Δ = 8° 23' 38.1" (RT)
D = 3° 08' 22.2"
L = 267.37'
T = 133.92'
R = 1,825.00'
PI Sta 16+06.41
Δ = 33° 56' 02.1" (RT)
D = 19° 05' 54.9"
L = 177.68'
T = 91.53'
R = 300.00'
SE = 0.04
RO = 84'
V = 30 mph
-Y18-
PI Sta 10+79.69
Δ = 52° 50' 48.1" (RT)
D = 57° 17' 44.8"
L = 92.23'
T = 49.69'
R = 100.00'
SE = 0.04
RO = 80'
V = STOP COND.
PI Sta 12+71.28
Δ = 9° 51' 53.8" (LT)
D = 7° 09' 43.1"
L = 137.74'
T = 69.04'
R = 800.00'
SE = 0.02
RO = 30'
V = 15 mph
BEGIN CONSTRUCTION -Y19- POT 13+25.00
PT Sta. 12+95.60
PC Sta. 10+30.00
PT Sta. 11+22.22
PC Sta. 12+02.23
PT Sta. 13+39.98
PC Sta. 15+14.88
PT Sta. 16+92.56
PT Sta. 15+40.15
-Y19- POC Sta. 16+19.26
-Y18- POT Sta. 10+00.00
N 20° 35' 59.4" E (-Y18- AH)
END CONSTRUCTION -Y18- POT 13+50.00
-L- POT Sta. 193+70.00
-Y19- POT Sta. 19+39.04
S 55° 24' 03.0" E (-Y19- BK)
N 34° 35' 57.0" E
N 73° 26' 47.5" E
N 63° 34' 53.7" E
S 89° 20' 05.1" E
NAD 83 NA 2011
BM #17 -BL- STA 181+00.11 47.43' LT ELEV. 1844.44
SAG -Y19- 18+27.92 EL. 1,843.07'
SAG -Y18- 12+48.42 EL. 1,847.42'
FRED ROWLAND DB 69 PG 157
108 WARNER ROBINS SUPPLY CO., INC. DB 300 PG 176 PB 4 PG 1264
107 NORMAN McCONNELL DB 293 PG 157 PB 4 PG 1758
NORMAN McCONNELL DB 293 PG 157 PB 4 PG 1758
LEMARC LLC DB 348 PG 186 PB 5 PG 251
CLINT&JULIE LEDFORD LLC DB 366 PG 223 PB 4 PG 519
105 KENNETH WOODARD JR DB 300 PG 37 PL 4 PG 328
106 LTCG LLC DB 380 PG 95 PB 4 PG 519
109 DANIEL BURCH DB 299 PG 125 PB 4 PG 1182
110 UNION GENERAL HOSPITAL INC DB 389 PG 201
102 RAINWATER INVESTMENTS LLC DB 253 PG 72
103 THOMAS B. NICHOLS DB 400 PG 144
104 CARL FISK DB 291 PG 132
101 BLUE RIDGE MOUNTAIN EMC DB 91 PG 73
111 SIXTY FOUR PARTNERSHIP LLC DB 300 PG 134 PB 4 PG 838
112 REBECCA GARRETT DB 283 PG 128 PB 4 PG 838
WOODS
SCRUB
GRAVEL
SOIL
IS MTL
IS MTL BUS
ISF BUS
2SF BUS
1SFD
TREE HOUSE
CHICKEN COOP
DUMP PAD
TRANSMISSION POLES (TP)
TVA POWER LINE EASEMENT DB 37 PG 230
END LOCATION UNKNOWN
-Y19- SR 1120 WALDROUP RD
-Y18- SR 1120 WALDROUP RD
NC 69 50' BST
NC 69 44' BST
MATCH LINE -L- STA. 190+00 SEE SHEET NO. 17
MATCH LINE -L- STA. 202+00 SEE SHEET NO. 19
REVISIONS
08-NOV-2018 15:48
T:_Projects\2016\G16005.00 A-0011C NC 69 Widening Clay County\A0011C_GEO_RDWY\CADD_GEOTECH\PlanProf\A0011C_GEO_psh18.dgn

2020 ADT	460	-Y19-
2040 ADT	730	SR 1120 WALDROUP RD
11,730 / 17,390	230 / 370	230 / 370	11,730 / 17,390
-L- NC 69		

-Y20-
PI Sta 11+92.93
Δ = 10° 01' 24.3" (LT)
D = 2° 36' 15.7"
L = 384.87'
T = 192.93'
R = 2,200.00'
SE = EX.
RO = EX

SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 37 FOR -Y20- PROFILE
SEE SHEET ? FOR -Y20- INTERSECTION DETAIL

DRIVEWARD RADII ARE 10' UNLESS NOTED OTHERWISE.

☆ UPGRADE EXISTING SIGNAL

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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8/17/99

BEGIN CONSTRUCTION -Y20- POT 14+50.00

-L- Sta. 13+84.87

TMM PROPERTIES LLC DB 286 PG 230

(110) UNION GENERAL HOSPITAL INC DB 389 PG 201

(113) UCB NORTH CAROLINA PROPERTIES DB 324 PG 151

(114) DAVIS MAYME ESTATE DB 246 PG 25

(112) REBECCA GARRETT DB 283 PG 128 PB 4 PG 838

(115) EDWIN REAMS DB 316 PG 45 PB 4 PG 594

(116) CSF PROPERTIES DB 365 PG 154 PB 4 PG 18

JAMES VANDERWOUDE DB 283 PG 95 PB 5 PG 593

MICHAEL GRIBBLE DB 184 PG 144

DIRON PROPERTIES LLC DB 380 PG 177

(117) JAMES LEDFORD V ETALS DB 149 PG 145

(118) JWJ OF CLAY COUNTY LLC DB 337 PG 42

(119) JAMES D HALLORAN DB 276 PG 201 PB 4 PG 1486

(120) JAMES V LEDFORD ETALS DB 199 PG 42

NAD 83 NA 2011

-L- POT Sta. 208+93.33
-Y20- POT Sta. 21+39.75

-L- Sta. 19+99.20
87.34' RT
ELEV. 1891.52

BL- STA 194+70.84
22.81' RT
ELEV. 1880.26

BM #18
ELEV. 1870.76'

BM #19
ELEV. 1891.52

END NOT FOUND

-Y20- EL STA 47+20.3 E

-L- EL STA 202+00

MATCH LINE -L- STA. 202+00
SEE SHEET NO. 18

MATCH LINE -L- STA. 214+50
SEE SHEET NO. 20

MATCH LINE -Y20- STA. 24+50
SEE SHEET NO. 21

11,860 / 17,650	-Y20- US 64	2020 ADT 2040 ADT
4,100 / 6,100	1,670 / 2,490	-L- NC 69
11,730 / 17,390	4,430 / 6,570	1,440 / 2,130	6,310 / 9,340
	11,960 / 17,750	

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J:\Projects\2016\16005.00 A-0011C NC 69 Widening Clay County\A0011C_GEO_RDWY\CADD_GEOTECH\PlanProf\A0011C_GEO_psh19.dgn
coding.dgn A1 FADOT

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	20

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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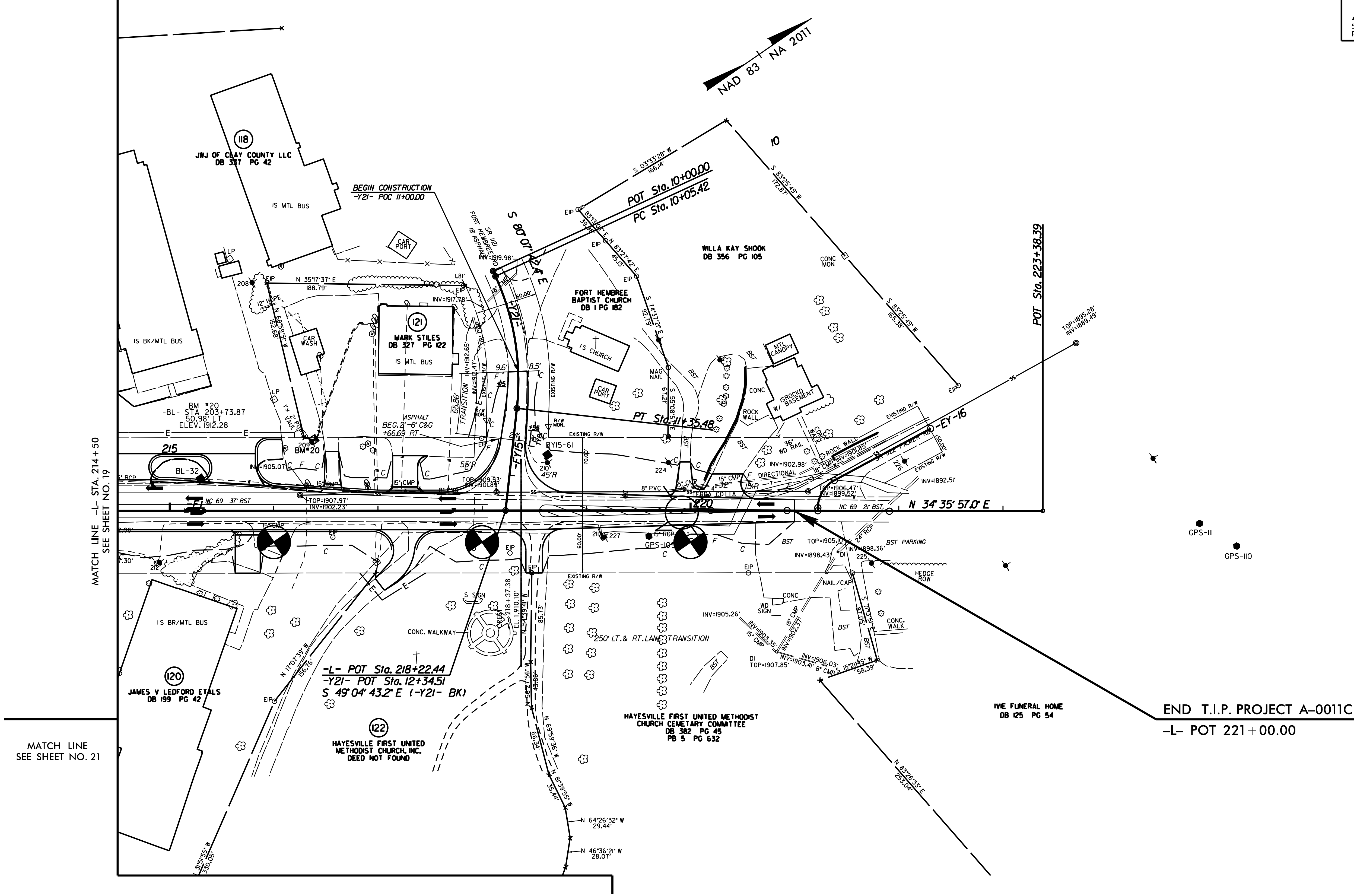
SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 38 FOR -Y21- PROFILE
SEE SHEET ? FOR -Y21- INTERSECTION DETAIL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

-Y21-
PI Sta 10+72.09
Δ = 31° 02' 59.2" (RT)
D = 23° 52' 23.7"
L = 130.06'
T = 66.67'
R = 240.00'
SE = ?
RO = ?
V = ? mph



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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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Phone: 919.297.0220 Fax: 919.297.0221

REVISIONS 8/17/99

MATCH LINE -Y20- STA. 24+50
SEE SHEET NO. 19

MATCH LINE
SEE SHEET NO. 20

-Y20-

-L-

-Y30-

REBECCA GARRETT
DB 283 PG 128
PB 4 PG 838

JAMES VANDERWOUDE
DB 283 PG 95
PB 5 PG 593

RAYMOND COTTON
DB 379 PG 244
PB 5 PG 593

BKBN LLC
DB 364 PG 268
PB 4 PG 1486

(120) JAMES V LEDFORD ETALS
DB 199 PG 42

(122) HAYESVILLE FIRST UNITED METHODIST CHURCH, INC.
DEED NOT FOUND

HAYESVILLE FIRST UNITED METHODIST CHURCH CEMETARY COMMITTEE
DB 382 PG 45
PB 5 PG 632

HARDSTONE HAYESVILLE LLC
DB 382 PG 57
PB 5 PG 635

HOSPITALITY FOOD SERVICE LLC
DB 385 PG 174
PB 5 PG 666

STATE EMPLOYEES CREDIT UNION
DB 368 PG 22
PB 3 PG 539

NAD 83 NA 2011

END CONSTRUCTION
-Y20- POT 29+25.00

POT Sta. 31+72.80

SEE SHEET 37 FOR -Y20- PROFILE

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE.

08-NOV-2018 15:50
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GEOPAKUSER - 61 (DOT)

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	22

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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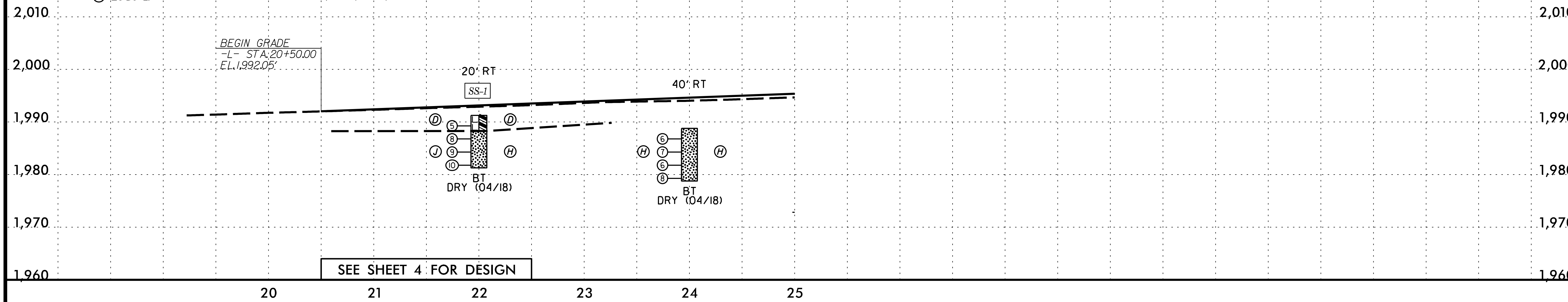
Phone: 919.297.0220 Fax: 919.297.0221

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-1	20 FT RT	22+00	1.0'-2.5'	A-6	35	15	17	23	11	49	97	87	60	18.9	-

(D) **ROADWAY EMBANKMENT:** BROWN, MOIST, MED. STIFF, SANDY CLAY
(H) **RESIDUAL:** TAN-BROWN RED-BROWN AND BROWN, MOIST, STIFF, SILTY SAND WITH TRACE MICA



SEE SHEET 4 FOR DESIGN

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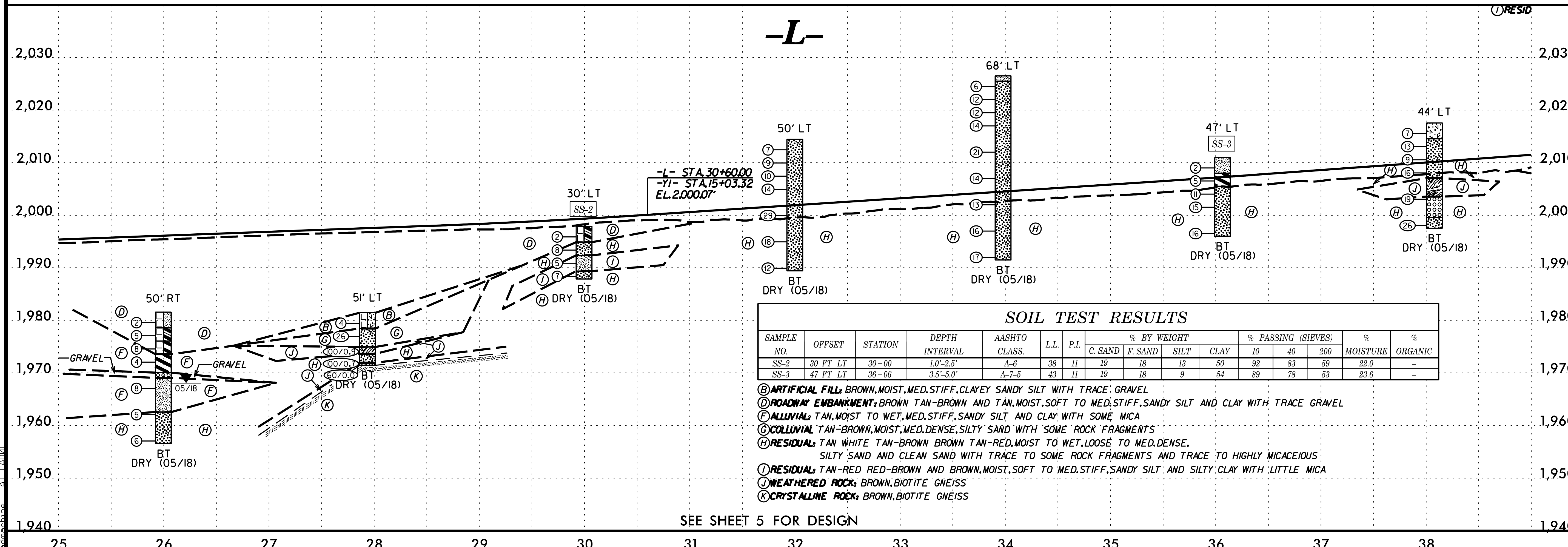

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-2	30 FT LT	30+00	1.0'-2.5'	A-6	38	11	19	18	13	50	92	83	59	22.0	-
SS-3	47 FT LT	36+06	3.5'-5.0'	A-7-5	43	11	19	18	9	54	89	78	53	23.6	-

(B) **ARTIFICIAL FILL:** BROWN, MOIST, MED. STIFF, CLAYEY SANDY SILT WITH TRACE GRAVEL
(D) **ROADWAY EMBANKMENT:** BROWN TAN-BROWN AND TAN, MOIST, SOFT TO MED. STIFF, SANDY SILT AND CLAY WITH TRACE GRAVEL
(F) **ALLUVIAL:** TAN, MOIST TO WET, MED. STIFF, SANDY SILT AND CLAY WITH SOME MICA
(G) **COLLUVIAL** TAN-BROWN, MOIST, MED. DENSE, SILTY SAND WITH SOME ROCK FRAGMENTS
(H) **RESIDUAL:** TAN WHITE TAN-BROWN BROWN TAN-RED, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND AND CLEAN SAND WITH TRACE TO SOME ROCK FRAGMENTS AND TRACE TO HIGHLY MICACEIOUS
(I) **RESIDUAL:** TAN-RED RED-BROWN AND BROWN, MOIST, SOFT TO MED. STIFF, SANDY SILT AND SILTY CLAY WITH LITTLE MICA
(J) **WEATHERED ROCK:** BROWN, BIOTITE GNEISS
(K) **CRYSTALLINE ROCK:** BROWN, BIOTITE GNEISS

SEE SHEET 5 FOR DESIGN

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	23

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

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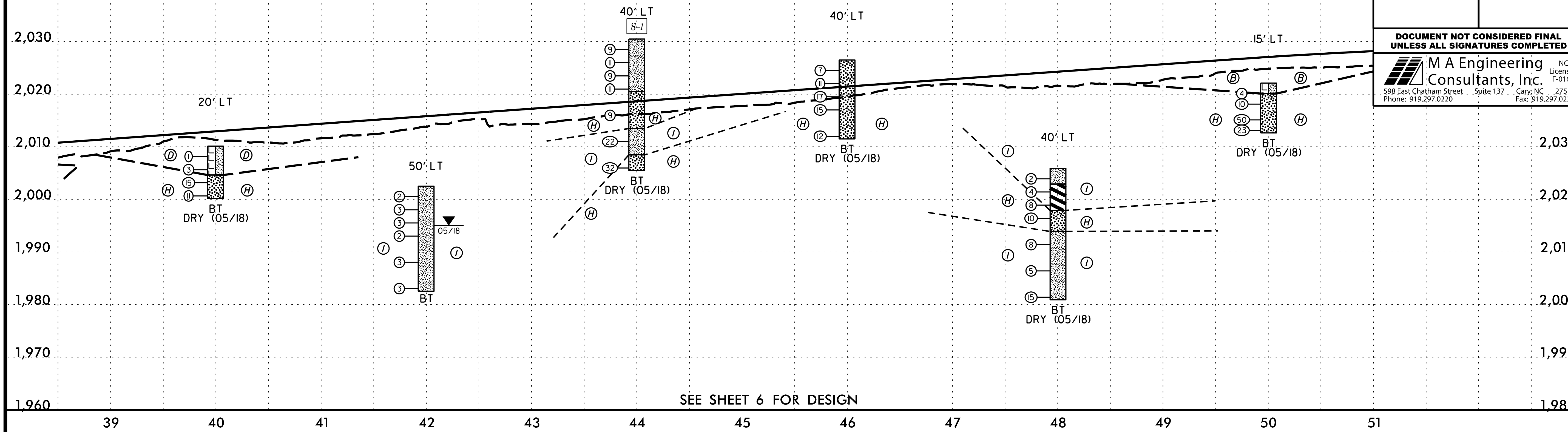
-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-1	40 FT LT	44+00	1.0'-2.5'	A-4	37	6	28	51	13	8	88	79	50	25.0	-

Ⓓ**ROADWAY EMBANKMENT:** RED-BROWN AND BROWN, MOIST, V.SOFT TO MED.STIFF, SANDY SILT WITH TRACE TO LITTLE GRAVEL
Ⓗ**RESIDUAL:** TAN TAN-BROWN AND RED-TAN, MOIST, LOOSE TO DENSE, SILTY SAND WITH LITTLE TO HIGHLY MICACEOUS
Ⓘ**RESIDUAL:** BROWN TAN RED-BROWN AND TAN-RED, MOIST TO SAT., SOFT TO V.STIFF, SANDY SILT AND SILTY CLAY WITH TRACE ROOTS AND LITTLE MICA



SEE SHEET 6 FOR DESIGN

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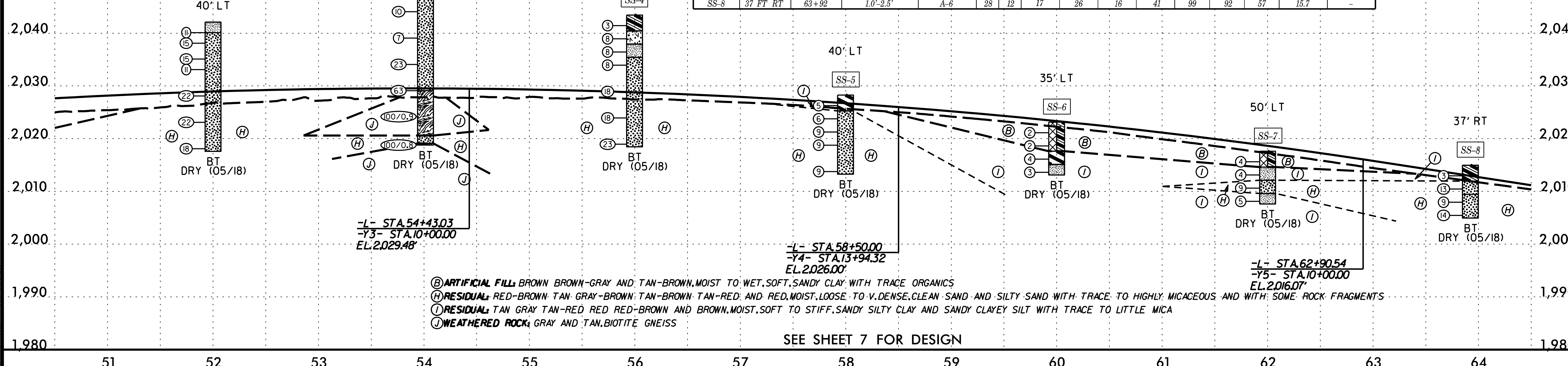
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-2	75 FT LT	54+01	1.0'-10.0'	A-5	43	9	13	32	29	26	98	91	69	26.2	-
SS-4	50 FT LT	56+00	1.0'-2.5'	A-6	30	11	20	21	17	42	88	81	53	17.1	-
SS-5	40 FT LT	58+00	1.0'-2.5'	A-7-5	48	14	11	19	13	57	98	95	70	31.0	-
SS-6	35 FT LT	60+00	1.0'-2.5'	A-6	39	13	15	22	12	51	95	88	63	29.1	-
SS-7	50 FT LT	62+00	1.0'-2.5'	A-6	38	13	14	20	15	51	98	92	66	25.8	-
SS-8	37 FT RT	63+92	1.0'-2.5'	A-6	28	12	17	26	16	41	99	92	57	15.7	-



Ⓑ**ARTIFICIAL FILL:** BROWN BROWN-GRAY AND TAN-BROWN, MOIST TO WET, SOFT, SANDY CLAY WITH TRACE ORGANICS
Ⓗ**RESIDUAL:** RED-BROWN TAN GRAY-BROWN TAN-BROWN TAN-RED AND RED, MOIST, LOOSE TO V.DENSE, CLEAN SAND AND SILTY SAND WITH TRACE TO HIGHLY MICACEOUS AND WITH SOME ROCK FRAGMENTS
Ⓘ**RESIDUAL:** TAN GRAY TAN-RED RED RED-BROWN AND BROWN, MOIST, SOFT TO STIFF, SANDY SILTY CLAY AND SANDY CLAYEY SILT WITH TRACE TO LITTLE MICA
Ⓙ**WEATHERED ROCK:** GRAY AND TAN, BIOTITE GNEISS

SEE SHEET 7 FOR DESIGN

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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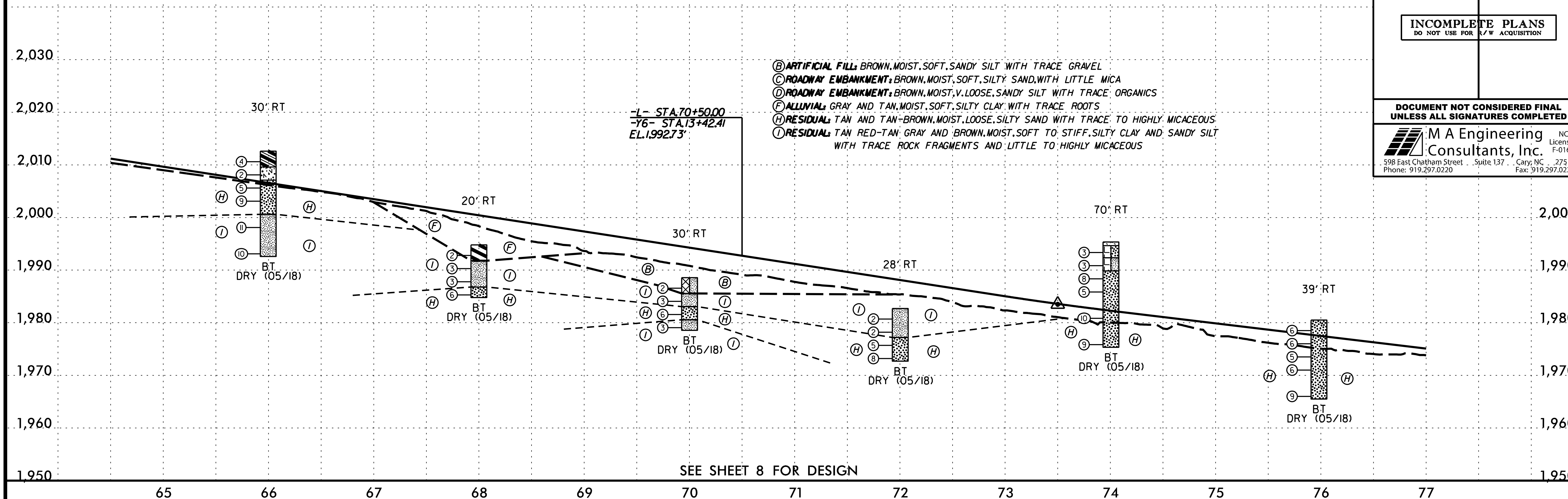
Ⓑ **ARTIFICIAL FILL:** BROWN, MOIST, SOFT, SANDY SILT WITH TRACE GRAVEL
Ⓒ **ROADWAY EMBANKMENT:** BROWN, MOIST, SOFT, SILTY SAND, WITH LITTLE MICA
Ⓓ **ROADWAY EMBANKMENT:** BROWN, MOIST, V. LOOSE, SANDY SILT WITH TRACE ORGANICS
Ⓕ **ALLUVIAL:** GRAY AND TAN, MOIST, SOFT, SILTY CLAY WITH TRACE ROOTS
Ⓗ **RESIDUAL:** TAN AND TAN-BROWN, MOIST, LOOSE, SILTY SAND WITH TRACE TO HIGHLY MICACEOUS
Ⓘ **RESIDUAL:** TAN RED-TAN GRAY AND BROWN, MOIST, SOFT TO STIFF, SILTY CLAY AND SANDY SILT WITH TRACE ROCK FRAGMENTS AND LITTLE TO HIGHLY MICACEOUS



SEE SHEET 8 FOR DESIGN

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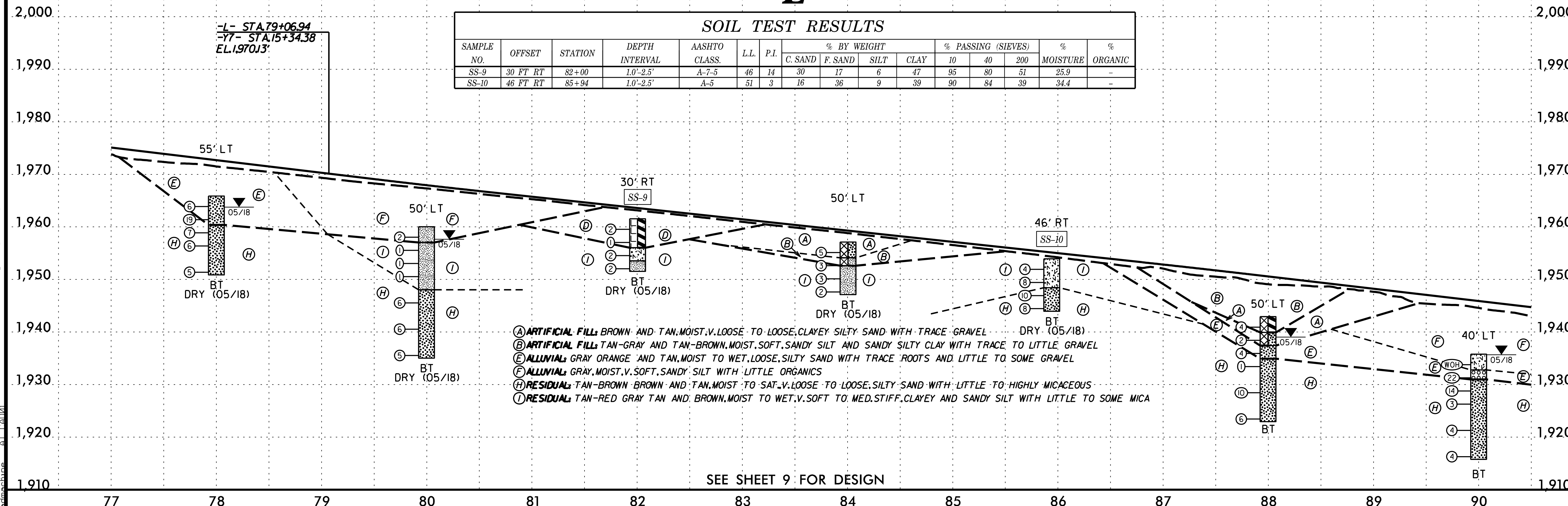
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-9	30 FT RT	82+00	1.0'-2.5'	A-7-5	46	14	30	17	6	47	95	80	51	25.9	-
SS-10	46 FT RT	85+94	1.0'-2.5'	A-5	51	3	16	36	9	39	90	84	39	34.4	-



Ⓐ **ARTIFICIAL FILL:** BROWN AND TAN, MOIST, V. LOOSE TO LOOSE, CLAYEY SILTY SAND WITH TRACE GRAVEL
Ⓑ **ARTIFICIAL FILL:** TAN-GRAY AND TAN-BROWN, MOIST, SOFT, SANDY SILT AND SANDY SILTY CLAY WITH TRACE TO LITTLE GRAVEL
Ⓔ **ALLUVIAL:** GRAY ORANGE AND TAN, MOIST TO WET, LOOSE, SILTY SAND WITH TRACE ROOTS AND LITTLE TO SOME GRAVEL
Ⓕ **ALLUVIAL:** GRAY, MOIST, V. SOFT, SANDY SILT WITH LITTLE ORGANICS
Ⓗ **RESIDUAL:** TAN-BROWN BROWN AND TAN, MOIST TO SAT., V. LOOSE TO LOOSE, SILTY SAND WITH LITTLE TO HIGHLY MICACEOUS
Ⓘ **RESIDUAL:** TAN-RED GRAY TAN AND BROWN, MOIST TO WET, V. SOFT TO MED. STIFF, CLAYEY AND SANDY SILT WITH LITTLE TO SOME MICA

SEE SHEET 9 FOR DESIGN

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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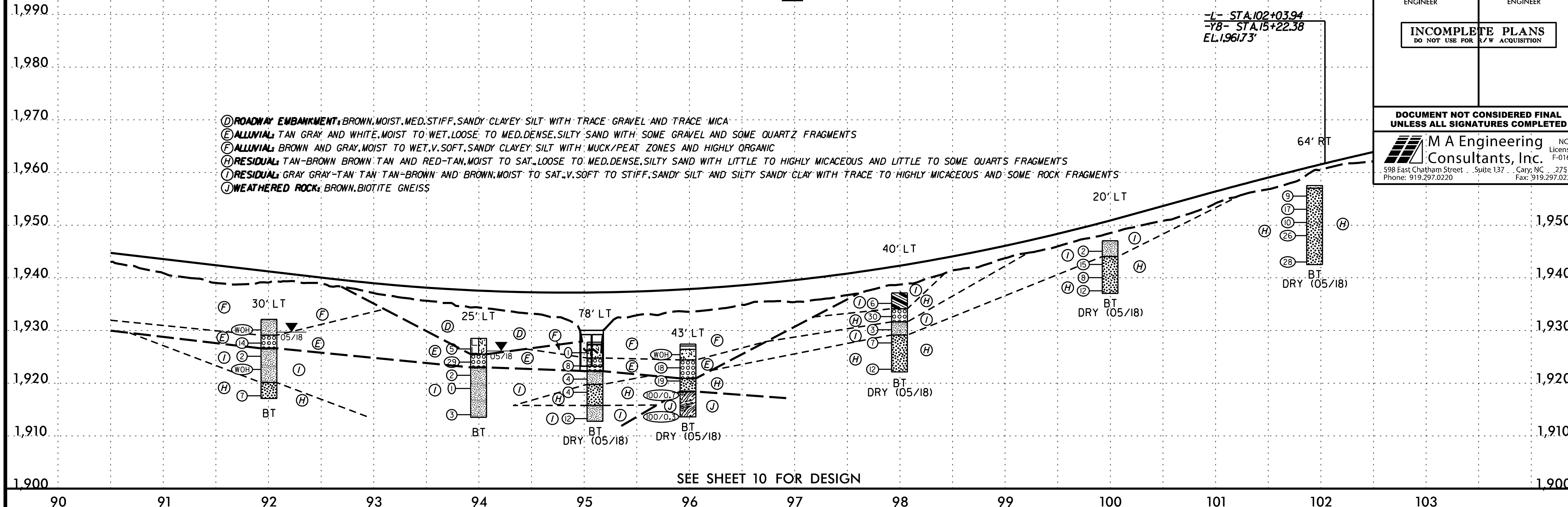
Ⓓ **ROADWAY EMBANKMENT:** BROWN, MOIST, MED. STIFF, SANDY CLAYEY SILT WITH TRACE GRAVEL AND TRACE MICA
Ⓔ **ALLUVIAL:** TAN GRAY AND WHITE, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND WITH SOME GRAVEL AND SOME QUARTZ FRAGMENTS
Ⓕ **ALLUVIAL:** BROWN AND GRAY, MOIST TO WET, V. SOFT, SANDY CLAYEY SILT WITH MUCK/PEAT ZONES AND HIGHLY ORGANIC
Ⓗ **RESIDUAL:** TAN-BROWN BROWN TAN AND RED-TAN, MOIST TO SAT., LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE TO HIGHLY MICACEOUS AND LITTLE TO SOME QUARTS FRAGMENTS
Ⓘ **RESIDUAL:** GRAY GRAY-TAN TAN TAN-BROWN AND BROWN, MOIST TO SAT., V. SOFT TO STIFF, SANDY SILT AND SILTY SANDY CLAY WITH TRACE TO HIGHLY MICACEOUS AND SOME ROCK FRAGMENTS
Ⓙ **WEATHERED ROCK:** BROWN, BIOTITE GNEISS



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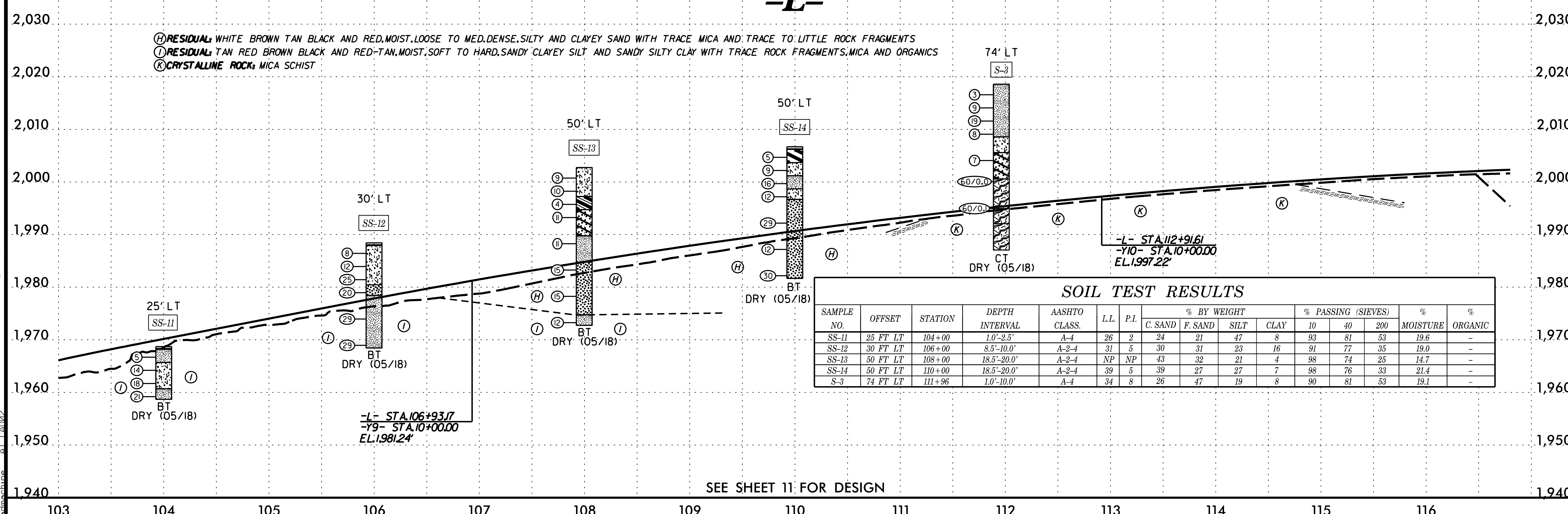
Ⓗ **RESIDUAL:** WHITE BROWN TAN BLACK AND RED, MOIST, LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND WITH TRACE MICA AND TRACE TO LITTLE ROCK FRAGMENTS
Ⓘ **RESIDUAL:** TAN RED BROWN BLACK AND RED-TAN, MOIST, SOFT TO HARD, SANDY CLAYEY SILT AND SANDY SILTY CLAY WITH TRACE ROCK FRAGMENTS, MICA AND ORGANICS
Ⓚ **CRYSTALLINE ROCK:** MICA SCHIST



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-11	25 FT LT	104+00	1.0'-2.5'	A-4	26	2	24	21	47	8	93	81	53	19.6	–
SS-12	30 FT LT	106+00	8.5'-10.0'	A-2-4	31	5	30	31	23	16	91	77	35	19.0	–
SS-13	50 FT LT	108+00	18.5'-20.0'	A-2-4	NP	NP	43	32	21	4	98	74	25	14.7	–
SS-14	50 FT LT	110+00	18.5'-20.0'	A-2-4	39	5	39	27	27	7	98	76	33	21.4	–
S-3	74 FT LT	111+96	1.0'-10.0'	A-4	34	8	26	47	19	8	90	81	53	19.1	–

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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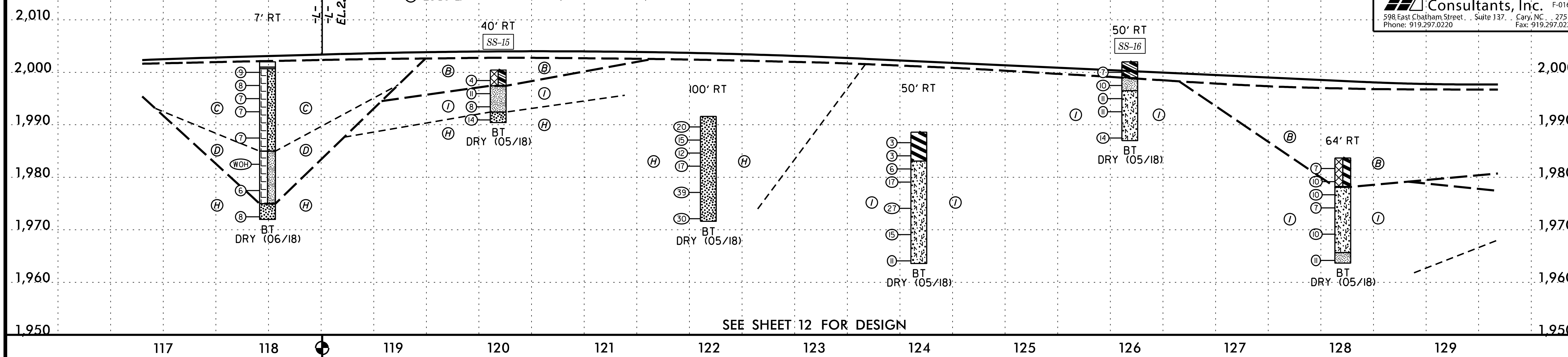
-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-15	40 FT RT	120+00	1.0'-2.5'	A-6	39	11	19	33	12	36	98	90	48	1.7	-
SS-16	40 FT LT	126+00	1.0'-2.5'	A-6	40	11	21	22	51	6	99	86	57	47.4	-

(B) **ARTIFICIAL FILL:** TAN AND RED, MOIST, SOFT TO STIFF, SANDY AND SILTY CLAY WITH TRACE ORGANICS AND GRAVEL
(C) **ROADWAY EMBANKMENT:** BROWN AND RED-TAN, MOIST, LOOSE, SILTY SAND WITH LITTLE MICA AND TRACE GRAVEL
(D) **ROADWAY EMBANKMENT:** RED-BROWN, MOIST, V.SOFT TO MED.STIFF, SANDY SILT WITH LITTLE GRAVEL AND TRACE MICA AND ORGANICS
(H) **RESIDUAL:** TAN-GRAY TAN RED AND TAN-RED, MOIST, LOOSE TO DENSE, SILTY SAND, WITH TRACE ROCK FRAGMENTS AND TRACE MICA
(I) **RESIDUAL:** RED AND TAN, MOIST, SOFT TO V.STIFF, SANDY CLAYEY SILT AND SANDY CLAY WITH TRACE TO SOME MICA AND TRACE ORGANICS AND ROCK FRAGMENTS



SEE SHEET 12 FOR DESIGN

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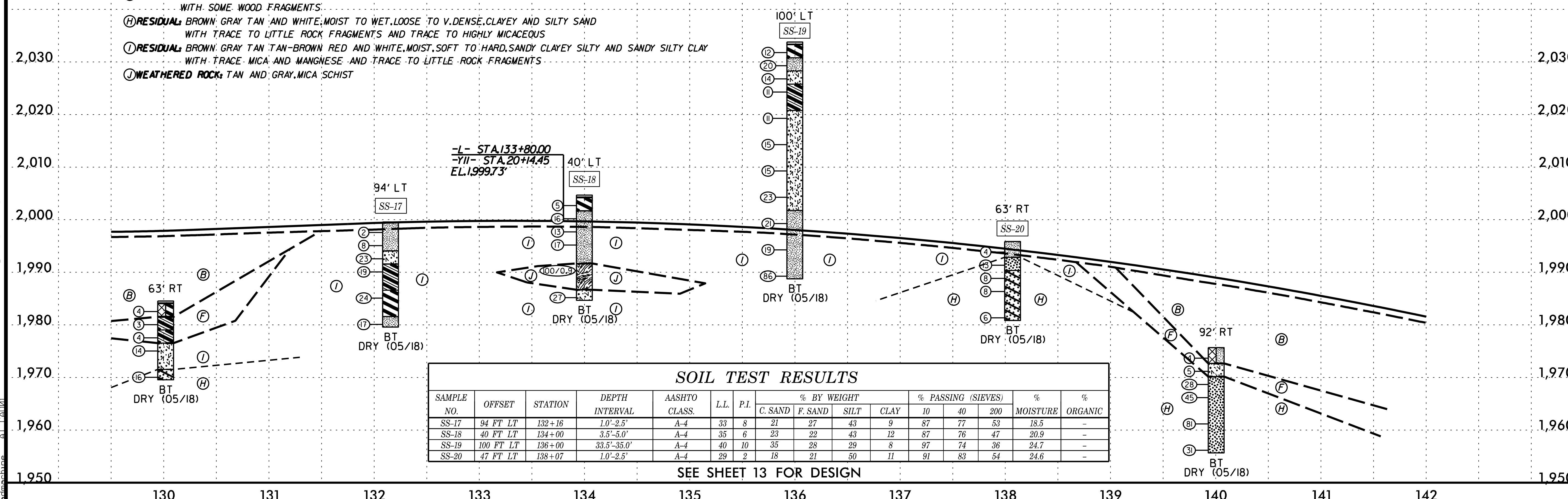
(B) **ARTIFICIAL FILL:** RED TAN AND BROWN, MOIST, SOFT TO MED.STIFF, SILTY CLAY AND SANDY SILT WITH LITTLE GRAVEL
(F) **ALLUVIAL:** BROWN TAN AND GRAY, MOIST TO WET, SOFT TO MED.STIFF, SANDY SILTY CLAY AND SANDY CLAYEY SILT WITH SOME WOOD FRAGMENTS
(H) **RESIDUAL:** BROWN GRAY TAN AND WHITE, MOIST TO WET, LOOSE TO V.DENSE, CLAYEY AND SILTY SAND WITH TRACE TO LITTLE ROCK FRAGMENTS AND TRACE TO HIGHLY MICACEOUS
(I) **RESIDUAL:** BROWN GRAY TAN TAN-BROWN RED AND WHITE, MOIST, SOFT TO HARD, SANDY CLAYEY SILTY AND SANDY SILTY CLAY WITH TRACE MICA AND MANGNESE AND TRACE TO LITTLE ROCK FRAGMENTS
(J) **WEATHERED ROCK:** TAN AND GRAY, MICA SCHIST



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-17	94 FT LT	132+16	1.0'-2.5'	A-4	33	8	21	27	43	9	87	77	53	18.5	-
SS-18	40 FT LT	134+00	3.5'-5.0'	A-4	35	6	23	22	43	12	87	76	47	20.9	-
SS-19	100 FT LT	136+00	33.5'-35.0'	A-4	40	10	35	28	29	8	97	74	36	24.7	-
SS-20	47 FT LT	138+07	1.0'-2.5'	A-4	29	2	18	21	50	11	91	83	54	24.6	-

SEE SHEET 13 FOR DESIGN

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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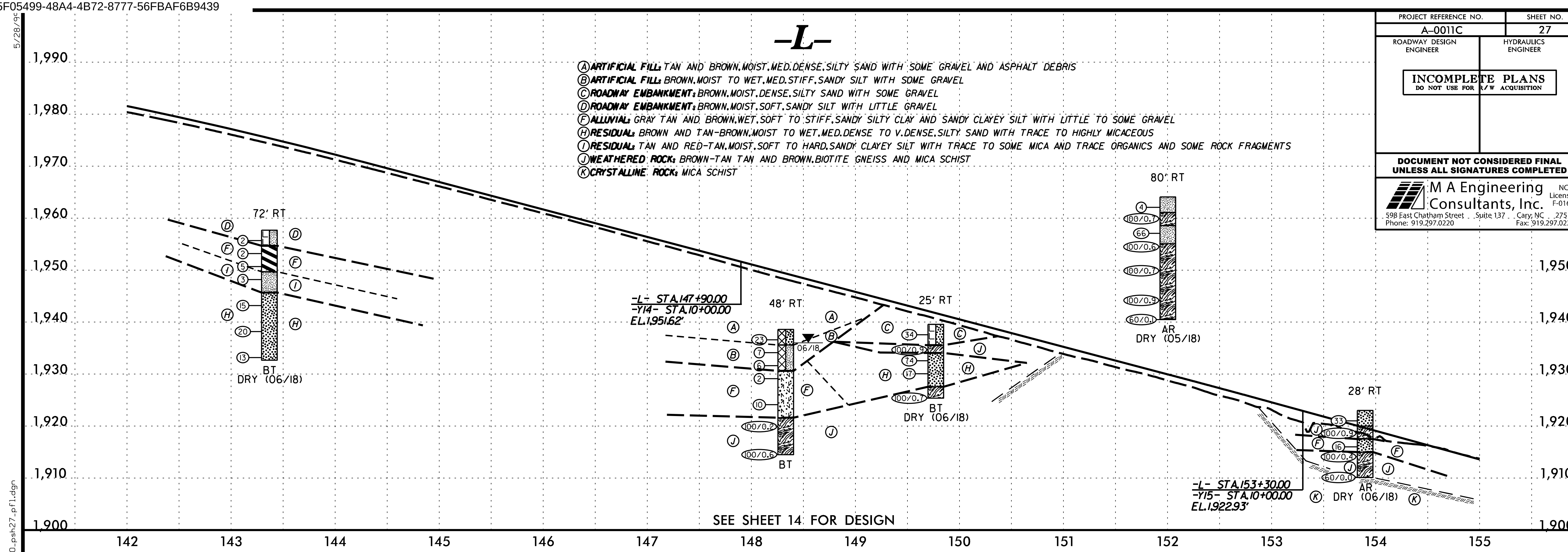
Ⓐ **ARTIFICIAL FILL:** TAN AND BROWN, MOIST, MED. DENSE, SILTY SAND WITH SOME GRAVEL AND ASPHALT DEBRIS
Ⓑ **ARTIFICIAL FILL:** BROWN, MOIST TO WET, MED. STIFF, SANDY SILT WITH SOME GRAVEL
Ⓒ **ROADWAY EMBANKMENT:** BROWN, MOIST, DENSE, SILTY SAND WITH SOME GRAVEL
Ⓓ **ROADWAY EMBANKMENT:** BROWN, MOIST, SOFT, SANDY SILT WITH LITTLE GRAVEL
Ⓕ **ALLUVIAL:** GRAY TAN AND BROWN, WET, SOFT TO STIFF, SANDY SILTY CLAY AND SANDY CLAYEY SILT WITH LITTLE TO SOME GRAVEL
Ⓗ **RESIDUAL:** BROWN AND TAN-BROWN, MOIST TO WET, MED. DENSE TO V. DENSE, SILTY SAND WITH TRACE TO HIGHLY MICACEOUS
Ⓘ **RESIDUAL:** TAN AND RED-TAN, MOIST, SOFT TO HARD, SANDY CLAYEY SILT WITH TRACE TO SOME MICA AND TRACE ORGANICS AND SOME ROCK FRAGMENTS
Ⓙ **WEATHERED ROCK:** BROWN-TAN TAN AND BROWN, BIOTITE GNEISS AND MICA SCHIST
Ⓚ **CRYSTALLINE ROCK:** MICA SCHIST



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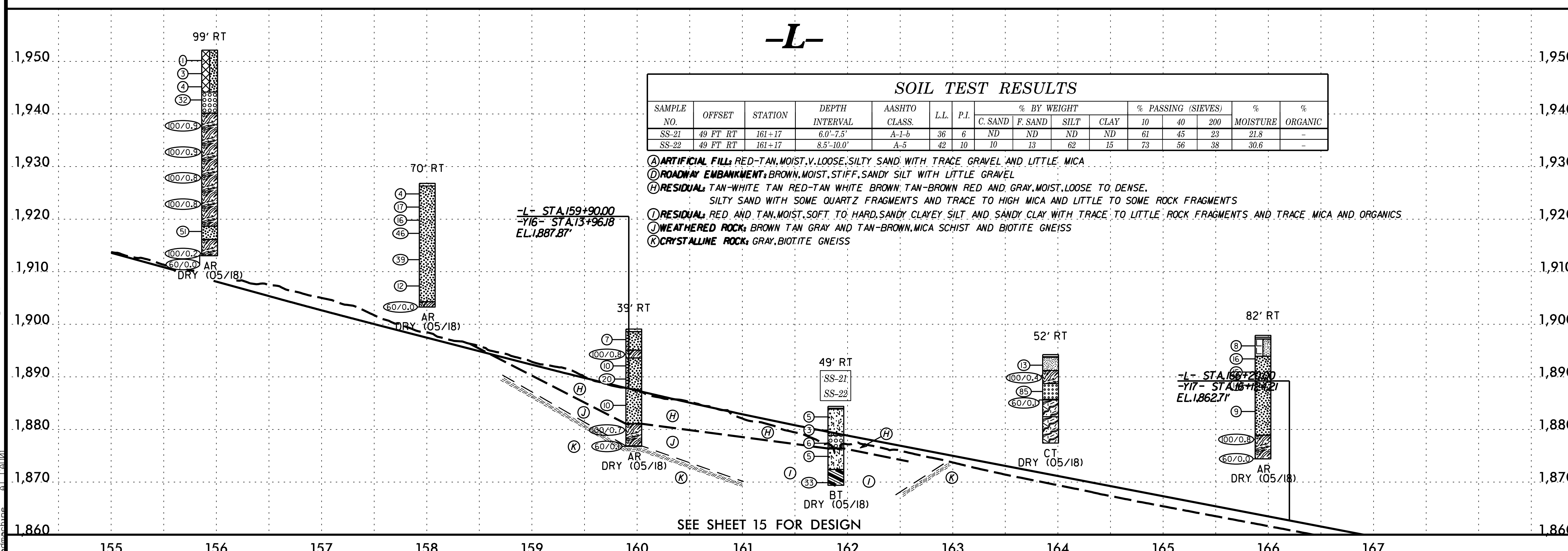
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-21	49 FT RT	161+17	6.0'-7.5'	A-1-b	36	6	ND	ND	ND	ND	61	45	23	21.8	-
SS-22	49 FT RT	161+17	8.5'-10.0'	A-5	42	10	10	13	62	15	73	56	38	30.6	-

Table: SOIL TEST RESULTS

Ⓐ **ARTIFICIAL FILL:** RED-TAN, MOIST, V. LOOSE, SILTY SAND WITH TRACE GRAVEL AND LITTLE MICA
Ⓓ **ROADWAY EMBANKMENT:** BROWN, MOIST, STIFF, SANDY SILT WITH LITTLE GRAVEL
Ⓗ **RESIDUAL:** TAN-WHITE TAN RED-TAN WHITE BROWN TAN-BROWN RED AND GRAY, MOIST, LOOSE TO DENSE, SILTY SAND WITH SOME QUARTZ FRAGMENTS AND TRACE TO HIGH MICA AND LITTLE TO SOME ROCK FRAGMENTS
Ⓘ **RESIDUAL:** RED AND TAN, MOIST, SOFT TO HARD, SANDY CLAYEY SILT AND SANDY CLAY WITH TRACE TO LITTLE ROCK FRAGMENTS AND TRACE MICA AND ORGANICS
Ⓙ **WEATHERED ROCK:** BROWN TAN GRAY AND TAN-BROWN, MICA SCHIST AND BIOTITE GNEISS
Ⓚ **CRYSTALLINE ROCK:** GRAY, BIOTITE GNEISS



PROJECT REFERENCE NO.	SHEET NO.
A-0011C	28

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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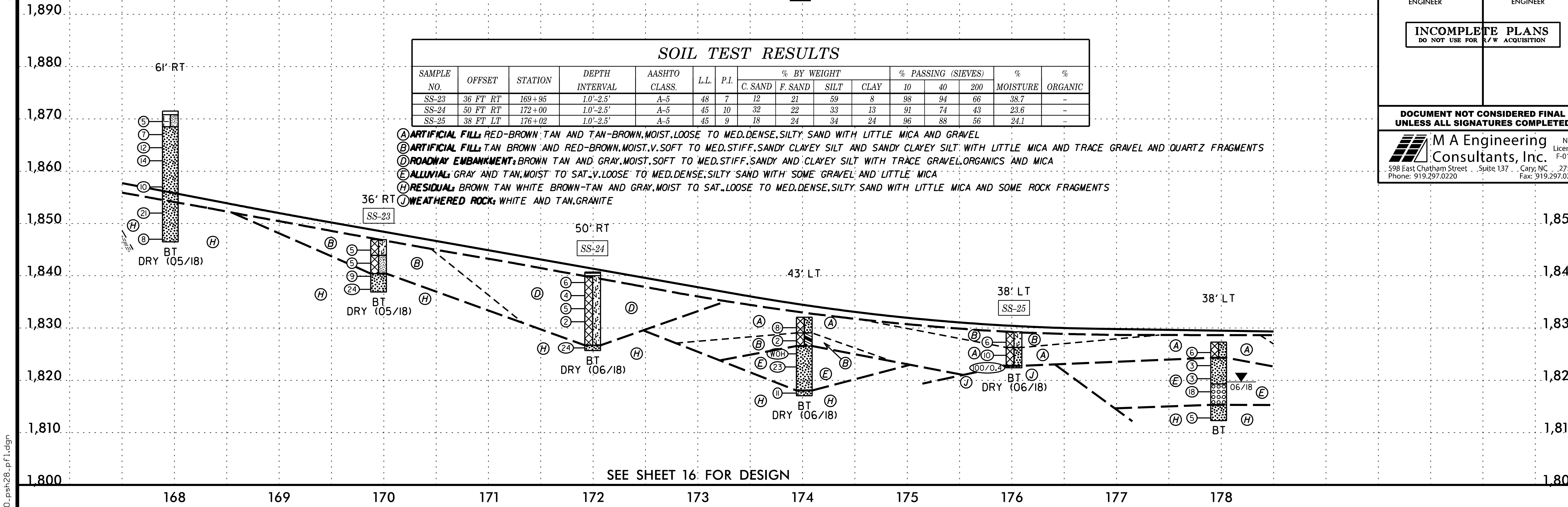

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-23	36 FT RT	169+95	1.0'-2.5'	A-5	48	7	12	21	59	8	98	94	66	38.7	-
SS-24	50 FT RT	172+00	1.0'-2.5'	A-5	45	10	32	22	33	13	91	74	43	23.6	-
SS-25	38 FT LT	176+02	1.0'-2.5'	A-5	45	9	18	24	34	24	96	88	56	24.1	-

(A) **ARTIFICIAL FILL:** RED-BROWN TAN AND TAN-BROWN, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE MICA AND GRAVEL
(B) **ARTIFICIAL FILL:** TAN BROWN AND RED-BROWN, MOIST, V. SOFT TO MED. STIFF, SANDY CLAYEY SILT AND SANDY CLAYEY SILT WITH LITTLE MICA AND TRACE GRAVEL AND QUARTZ FRAGMENTS
(D) **ROADWAY EMBANKMENT:** BROWN TAN AND GRAY, MOIST, SOFT TO MED. STIFF, SANDY AND CLAYEY SILT WITH TRACE GRAVEL, ORGANICS AND MICA
(E) **ALLUVIAL:** GRAY AND TAN, MOIST TO SAT., V. LOOSE TO MED. DENSE, SILTY SAND WITH SOME GRAVEL AND LITTLE MICA
(H) **RESIDUAL:** BROWN TAN WHITE BROWN-TAN AND GRAY, MOIST TO SAT., LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE MICA AND SOME ROCK FRAGMENTS
(J) **WEATHERED ROCK:** WHITE AND TAN, GRANITE

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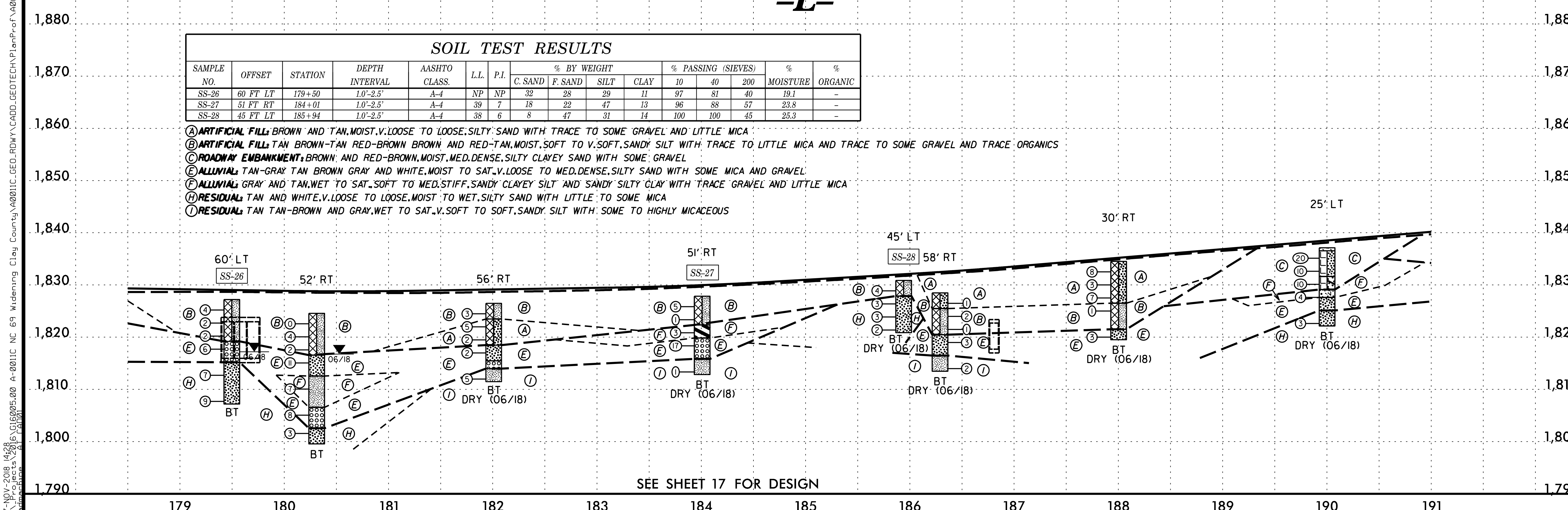

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-26	60 FT LT	179+50	1.0'-2.5'	A-4	NP	NP	32	28	29	11	97	81	40	19.1	-
SS-27	51 FT RT	184+01	1.0'-2.5'	A-4	39	7	18	22	47	13	96	88	57	23.8	-
SS-28	45 FT LT	185+94	1.0'-2.5'	A-4	38	6	8	47	31	14	100	100	45	25.3	-

(A) **ARTIFICIAL FILL:** BROWN AND TAN, MOIST, V. LOOSE TO LOOSE, SILTY SAND WITH TRACE TO SOME GRAVEL AND LITTLE MICA
(B) **ARTIFICIAL FILL:** TAN BROWN-TAN RED-BROWN BROWN AND RED-TAN, MOIST, SOFT TO V. SOFT, SANDY SILT WITH TRACE TO LITTLE MICA AND TRACE TO SOME GRAVEL AND TRACE ORGANICS
(C) **ROADWAY EMBANKMENT:** BROWN AND RED-BROWN, MOIST, MED. DENSE, SILTY CLAYEY SAND WITH SOME GRAVEL
(E) **ALLUVIAL:** TAN-GRAY TAN BROWN GRAY AND WHITE, MOIST TO SAT., V. LOOSE TO MED. DENSE, SILTY SAND WITH SOME MICA AND GRAVEL
(F) **ALLUVIAL:** GRAY AND TAN, WET TO SAT., SOFT TO MED. STIFF, SANDY CLAYEY SILT AND SANDY SILTY CLAY WITH TRACE GRAVEL AND LITTLE MICA
(H) **RESIDUAL:** TAN AND WHITE, V. LOOSE TO LOOSE, MOIST TO WET, SILTY SAND WITH LITTLE TO SOME MICA
(I) **RESIDUAL:** TAN TAN-BROWN AND GRAY, WET TO SAT., V. SOFT TO SOFT, SANDY SILT WITH SOME TO HIGHLY MICACEOUS

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	29

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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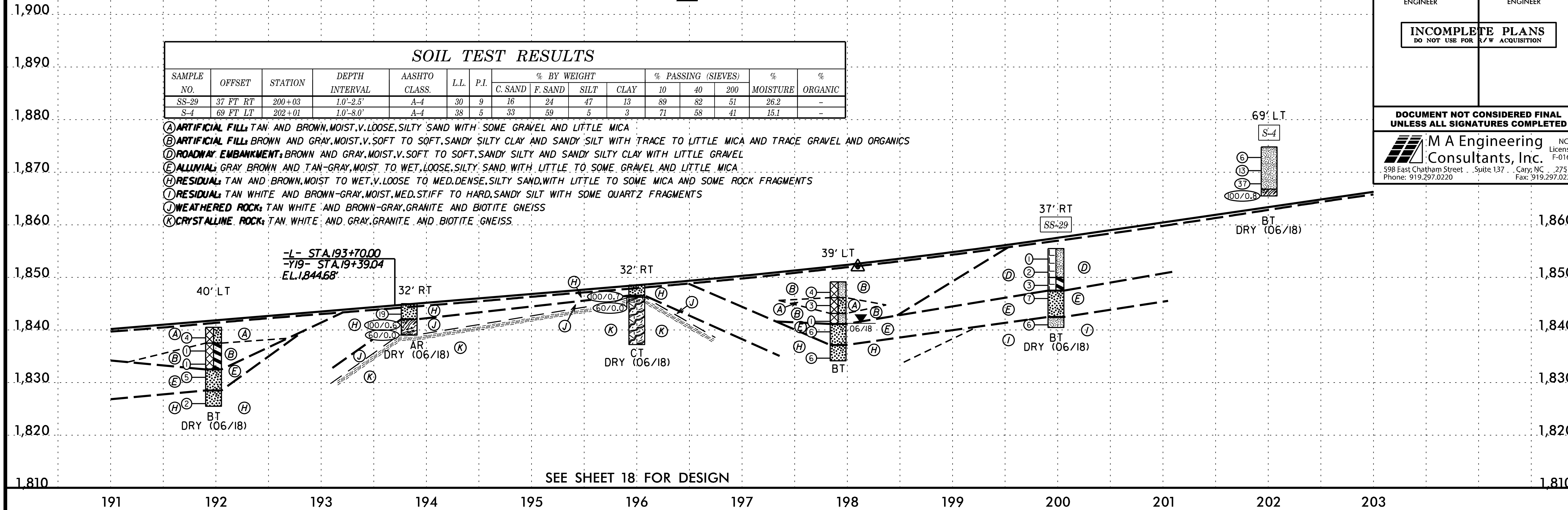
-L-



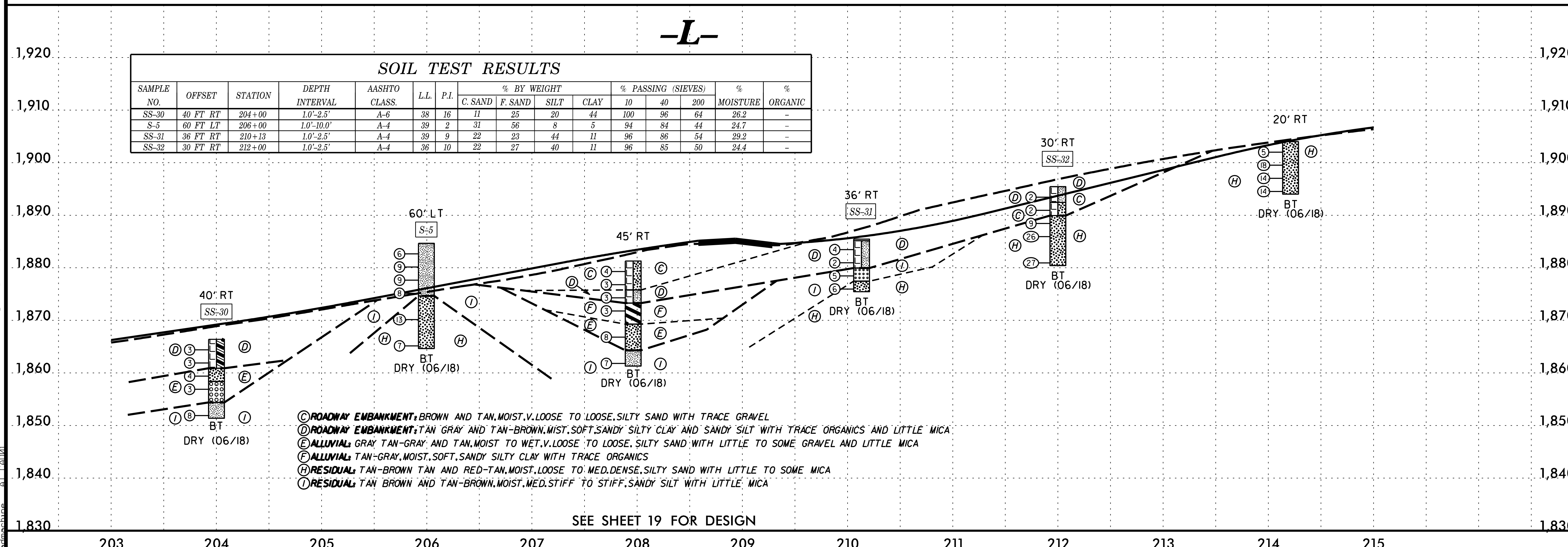
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-29	37 FT RT	200+03	1.0'-2.5'	A-4	30	9	16	24	47	13	89	82	51	26.2	-
S-4	69 FT LT	202+01	1.0'-8.0'	A-4	38	5	33	59	5	3	71	58	41	15.1	-

(A) **ARTIFICIAL FILL:** TAN AND BROWN,MOIST,V.LOOSE,SILTY SAND WITH SOME GRAVEL AND LITTLE MICA
(B) **ARTIFICIAL FILL:** BROWN AND GRAY,MOIST,V.SOFT TO SOFT,SANDY SILTY CLAY AND SANDY SILT WITH TRACE TO LITTLE MICA AND TRACE GRAVEL AND ORGANICS
(D) **ROADWAY EMBANKMENT:** BROWN AND GRAY,MOIST,V.SOFT TO SOFT,SANDY SILTY AND SANDY SILTY CLAY WITH LITTLE GRAVEL
(E) **ALLUVIAL:** GRAY BROWN AND TAN-GRAY,MOIST TO WET,LOOSE,SILTY SAND WITH LITTLE TO SOME GRAVEL AND LITTLE MICA
(H) **RESIDUAL:** TAN AND BROWN,MOIST TO WET,V.LOOSE TO MED.DENSE,SILTY SAND,WITH LITTLE TO SOME MICA AND SOME ROCK FRAGMENTS
(I) **RESIDUAL:** TAN WHITE AND BROWN-GRAY,MOIST,MED.STIFF TO HARD,SANDY SILT WITH SOME QUARTZ FRAGMENTS
(J) **WEATHERED ROCK:** TAN WHITE AND BROWN-GRAY,GRANITE AND BIOTITE GNEISS
(K) **CRYSTALLINE ROCK:** TAN WHITE AND GRAY,GRANITE AND BIOTITE GNEISS

SEE SHEET 18 FOR DESIGN

-L-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-30	40 FT RT	204+00	1.0'-2.5'	A-6	38	16	11	25	20	44	100	96	64	26.2	-
S-5	60 FT LT	206+00	1.0'-10.0'	A-4	39	2	31	56	8	5	94	84	44	24.7	-
SS-31	36 FT RT	210+13	1.0'-2.5'	A-4	39	9	22	23	44	11	96	86	54	29.2	-
SS-32	30 FT RT	212+00	1.0'-2.5'	A-4	36	10	22	27	40	11	96	85	50	24.4	-

(C) **ROADWAY EMBANKMENT:** BROWN AND TAN,MOIST,V.LOOSE TO LOOSE,SILTY SAND WITH TRACE GRAVEL
(D) **ROADWAY EMBANKMENT:** TAN GRAY AND TAN-BROWN,MIST,SOFT,SANDY SILTY CLAY AND SANDY SILT WITH TRACE ORGANICS AND LITTLE MICA
(E) **ALLUVIAL:** GRAY TAN-GRAY AND TAN,MOIST TO WET,V.LOOSE TO LOOSE, SILTY SAND WITH LITTLE TO SOME GRAVEL AND LITTLE MICA
(F) **ALLUVIAL:** TAN-GRAY,MOIST,SOFT,SANDY SILTY CLAY WITH TRACE ORGANICS
(H) **RESIDUAL:** TAN-BROWN TAN AND RED-TAN,MOIST,LOOSE TO MED.DENSE,SILTY SAND WITH LITTLE TO SOME MICA
(I) **RESIDUAL:** TAN BROWN AND TAN-BROWN,MOIST,MED.STIFF TO STIFF,SANDY SILT WITH LITTLE MICA

SEE SHEET 19 FOR DESIGN

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	30

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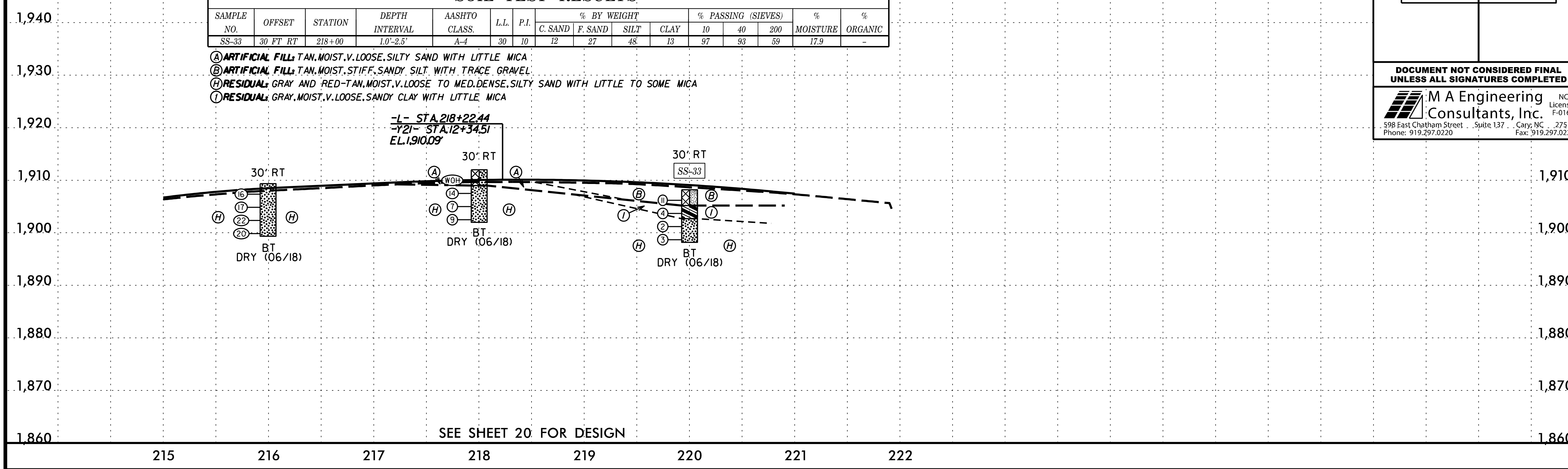
-L-

BM #20
SPIKE IN BASE OF POWER POLE
-L- STA. 216+38.48 (68.32' LT)
EL. 1,912.28'

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-33	30 FT RT	218+00	1.0'-2.5'	A-4	30	10	12	27	48	13	97	93	59	17.9	-

(A) **ARTIFICIAL FILL:** TAN, MOIST, V. LOOSE, SILTY SAND WITH LITTLE MICA
(B) **ARTIFICIAL FILL:** TAN, MOIST, STIFF, SANDY SILT WITH TRACE GRAVEL
(H) **RESIDUAL:** GRAY AND RED-TAN, MOIST, V. LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE TO SOME MICA
(I) **RESIDUAL:** GRAY, MOIST, V. LOOSE, SANDY CLAY WITH LITTLE MICA



SEE SHEET 20 FOR DESIGN

PROJECT REFERENCE NO.	SHEET NO.
A-0011C	31

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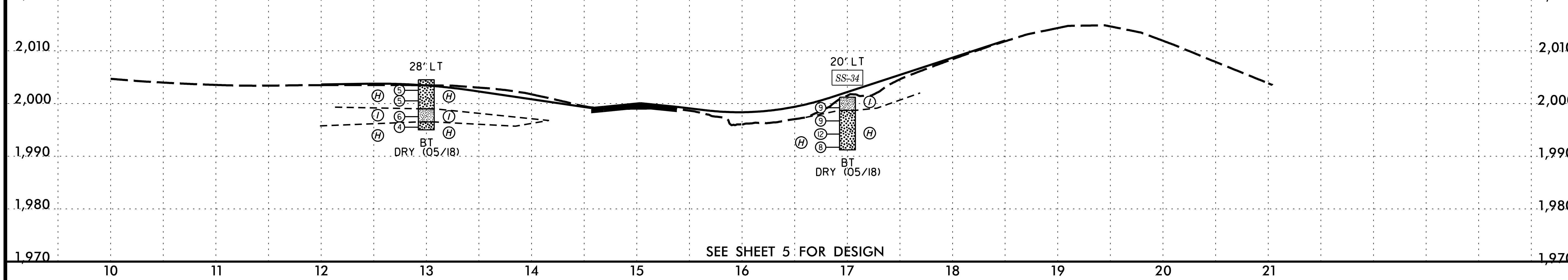
-Y1-

SOIL TEST RESULTS

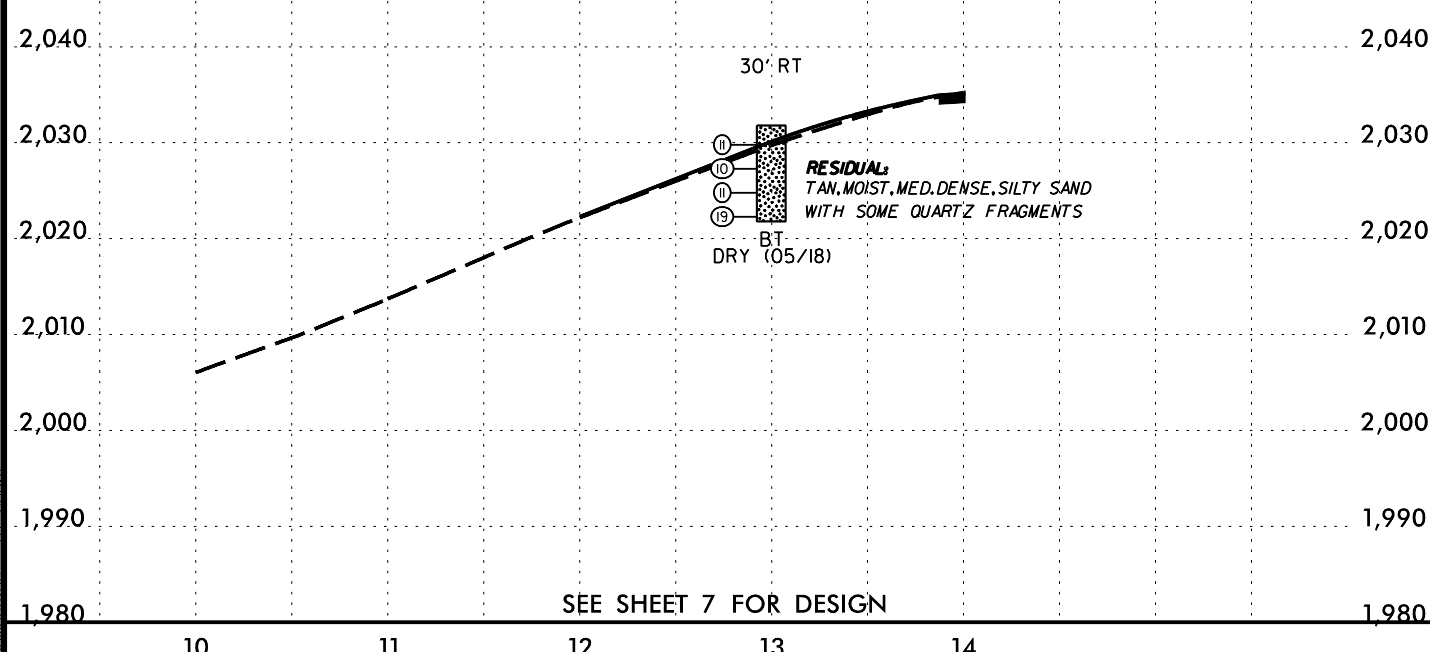
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-34	20 FT LT	17+00	1.0'-2.5'	A-7-5	54	13	11	16	7	66	99	93	73	27.0	-

(H) **RESIDUAL:** TAN-BROWN AND TAN-RED,MOIST,LOOSE TO MED.DENSE,SILTY SAND WITH TRACE TO LITTLE MICA

(I) **RESIDUAL:** RED-BROWN AND BROWN,MOIST,MED.STIFF TO STIFF,SANDY SILT AND SILTY CLAY WITH TRACE MICA



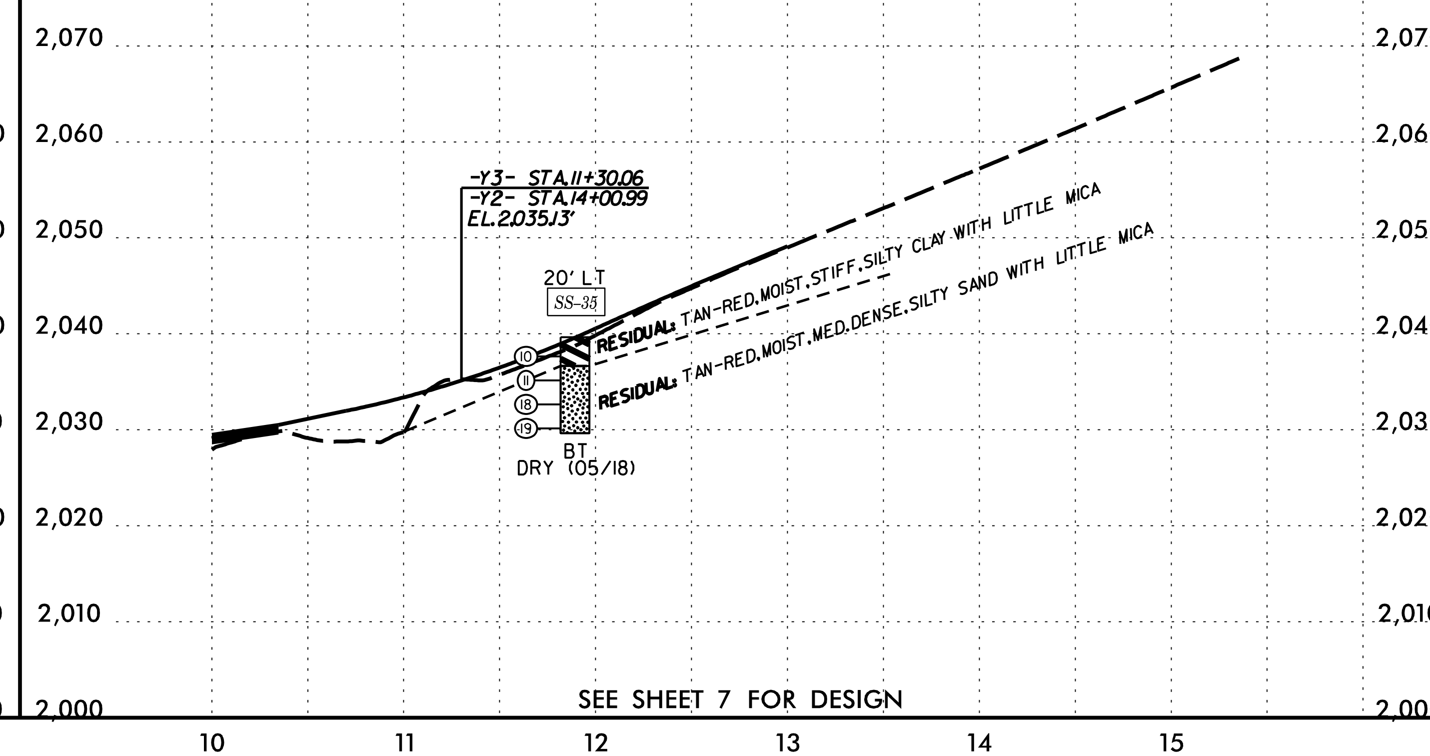
-Y2-



-Y3-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-35	20 FT LT	11+89	1.0'-2.5'	A-7-5	57	18	14	41	16	29	100	95	45	21.5	-



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PROJECT REFERENCE NO. A-0011C | SHEET NO. 32
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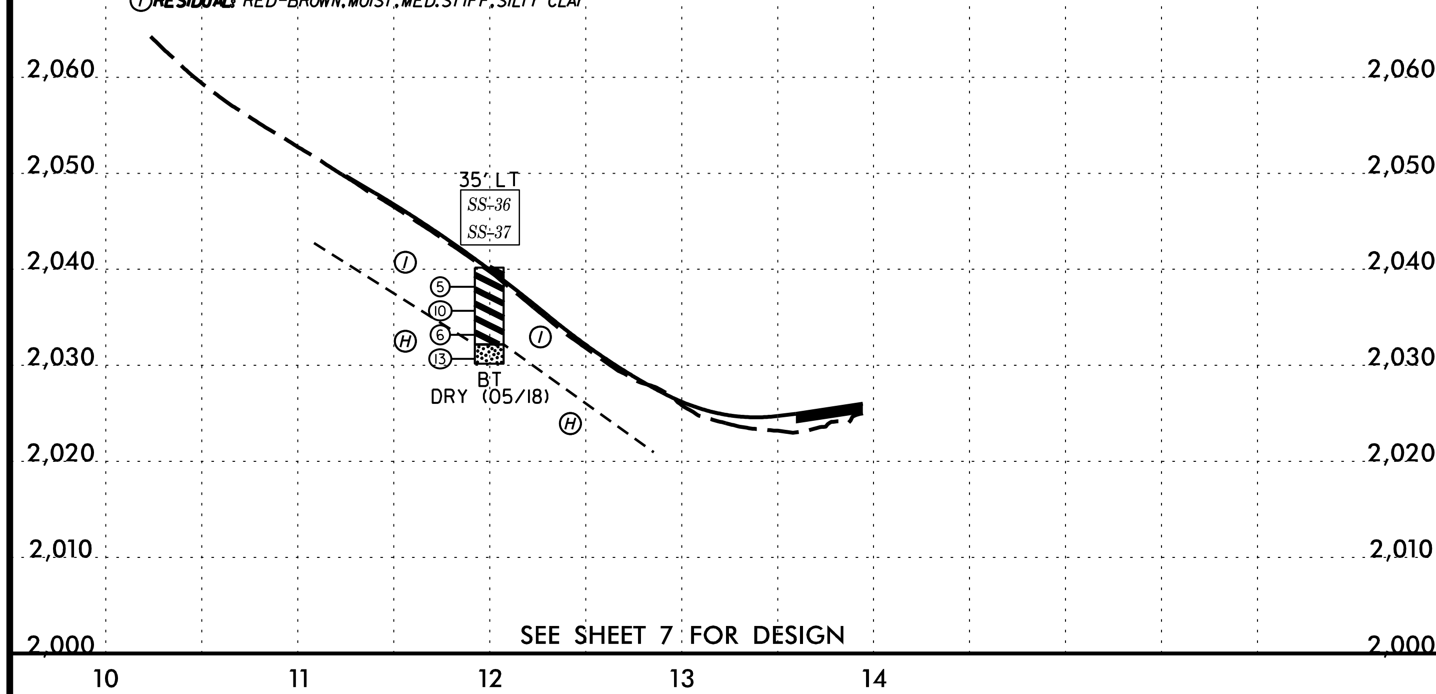
-Y4-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-36	20 FT RT	12+00	1.0'-2.5'	A-7-6	42	18	11	22	9	58	98	94	67	22.3	-
SS-37	20 FT RT	12+00	3.5'-5.0'	A-7-5	48	11	14	24	9	53	96	91	61	27.6	-

(H) **RESIDUAL:** TAN-RED, MOIST, MED. DENSE, SILTY SAND WITH TRACE MICA
(I) **RESIDUAL:** RED-BROWN, MOIST, MED. STIFF, SILTY CLAY



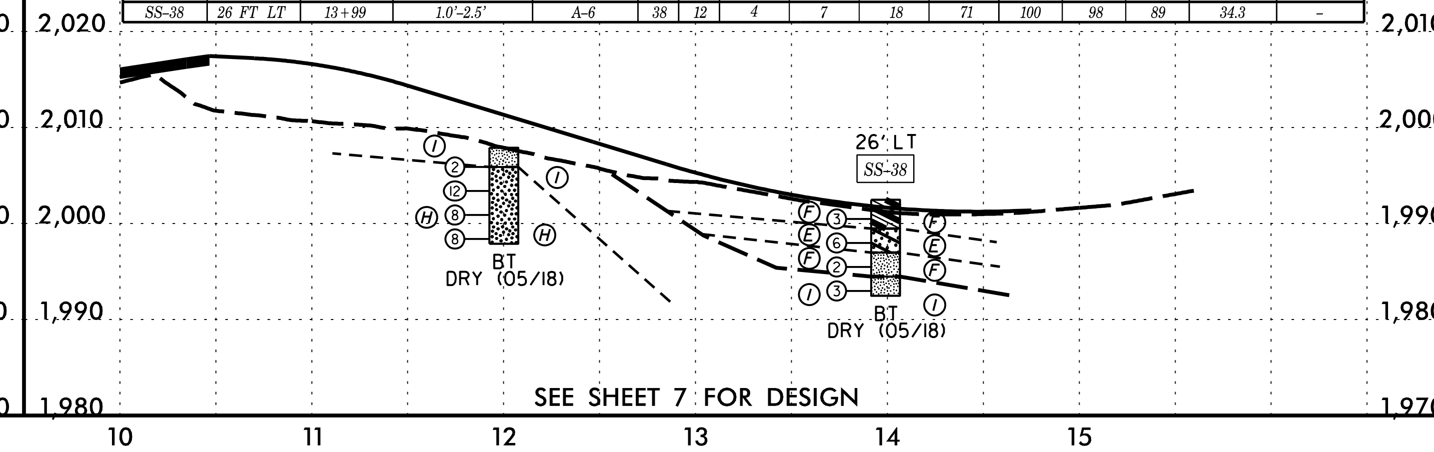
SEE SHEET 7 FOR DESIGN

-Y5-

(E) **ALLUVIAL:** TAN AND GRAY, WET, LOOSE, CLAYEY SAND WITH LITTLE GRAVEL
(F) **ALLUVIAL:** TAN-GRAY AND GRAY, MOIST TO WET, SOFT, SANDY CLAY AND SILT WITH LITTLE ROOTLETS AND GRAVEL
(H) **RESIDUAL:** RED-TAN, MOIST, LOOSE TO MED. DENSE, SITLY SAND WITH SOME MICA
(I) **RESIDUAL:** GRAY-TAN, MOIST, SOFT, SANDY SILT CULTIVATED SOIL WITH ROOTLETS

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-38	26 FT LT	13+99	1.0'-2.5'	A-6	38	12	4	7	18	71	100	98	89	34.3	-



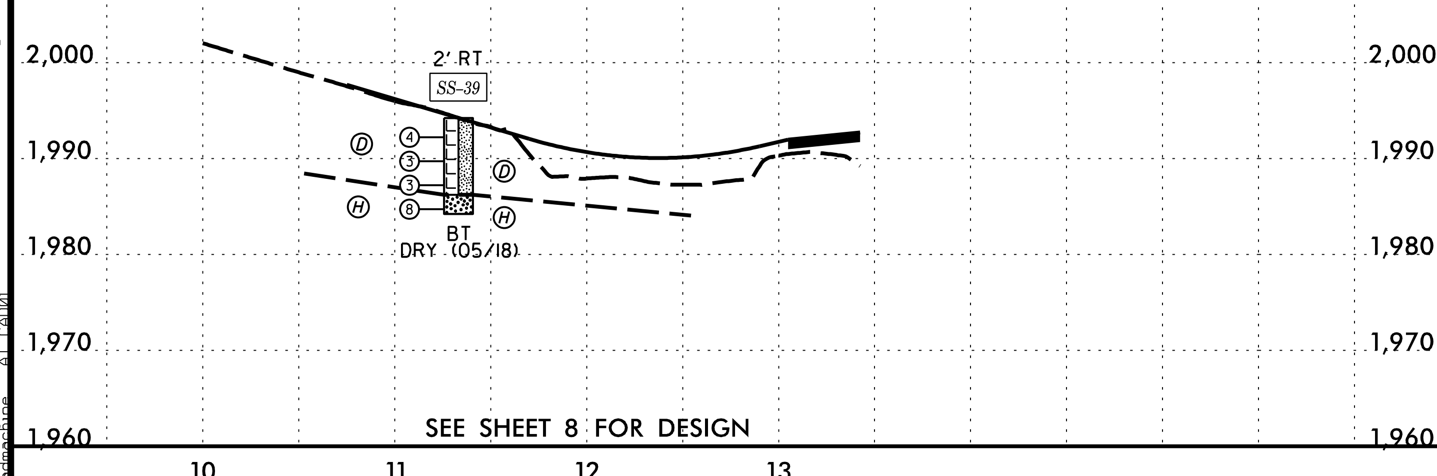
SEE SHEET 7 FOR DESIGN

-Y6-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-39	2 FT RT	11+33	1.0'-2.5'	A-4	31	5	26	24	41	9	95	82	47	22.1	-

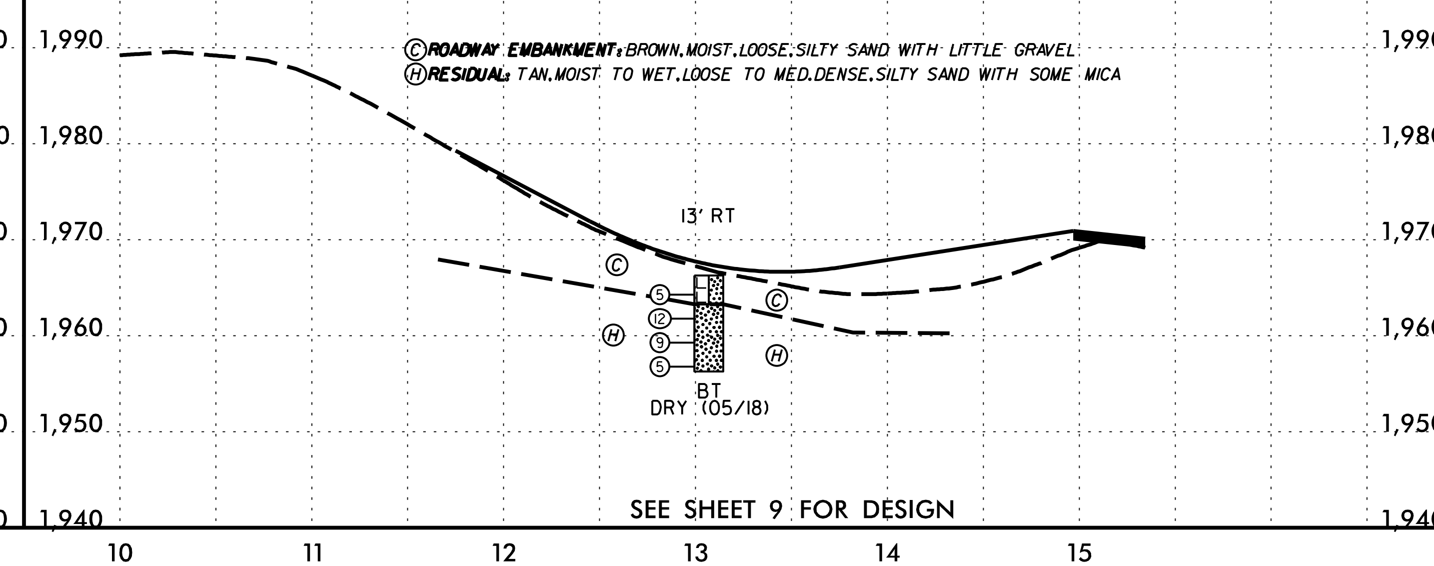
(D) **ROADWAY EMBANKMENT:** TAN-RED RED-BROWN RED AND TAN, MOIST, SOFT, SANDY SILT WITH LITTLE GRAVEL AND HIGHLY MICACEOUS
(H) **RESIDUAL:** RED-TAN, MOIST, LOOSE, SILTY SAND WITH TRACE MICA



SEE SHEET 8 FOR DESIGN

-Y7-

(C) **ROADWAY EMBANKMENT:** BROWN, MOIST, LOOSE, SILTY SAND WITH LITTLE GRAVEL
(H) **RESIDUAL:** TAN, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND WITH SOME MICA



SEE SHEET 9 FOR DESIGN

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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	33

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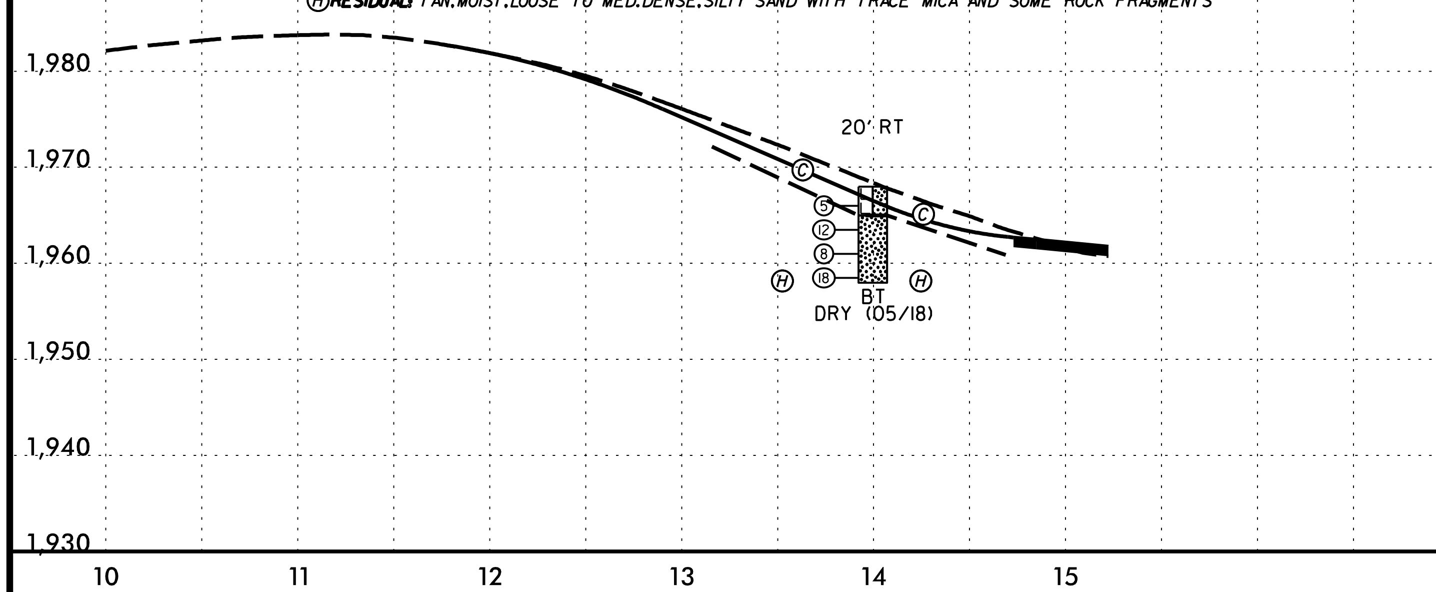
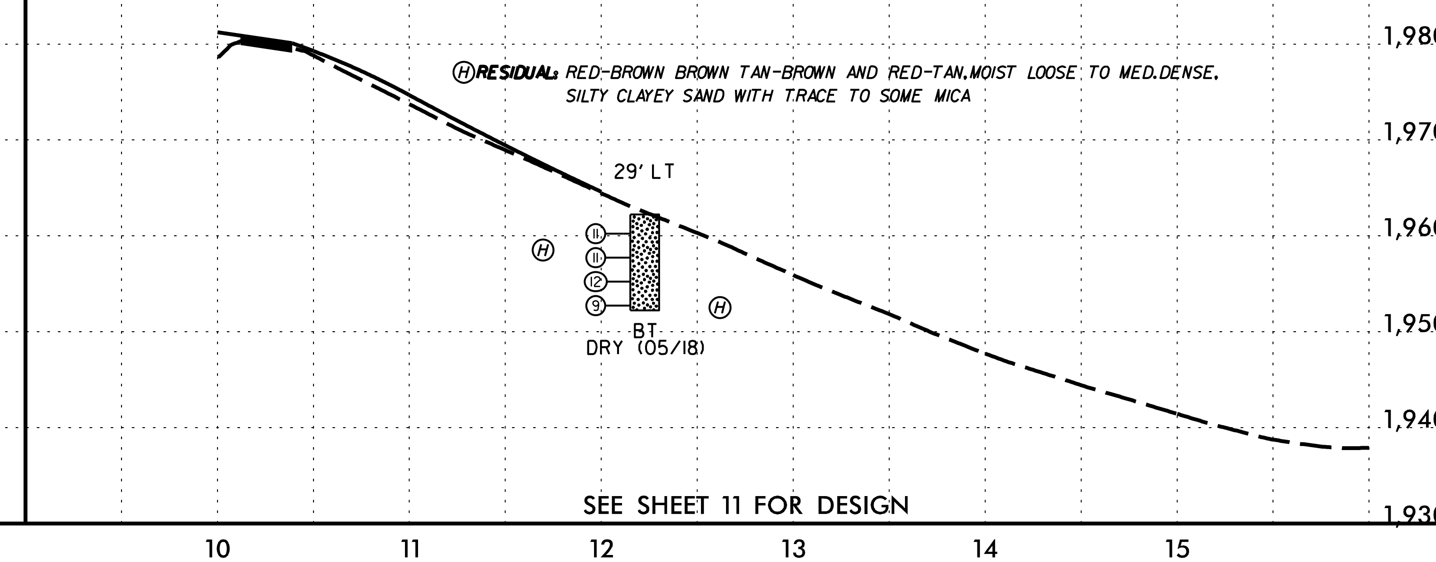
-Y8-

Ⓒ **ROADWAY EMBANKMENT:** BROWN,MOIST,LOOSE,SILTY SAND WITH TRACE GRAVEL
Ⓗ **RESIDUAL:** TAN,MOIST,LOOSE TO MED.DENSE,SILTY SAND WITH TRACE MICA AND SOME ROCK FRAGMENTS



-Y9-

Ⓗ **RESIDUAL:** RED-BROWN BROWN TAN-BROWN AND RED-TAN,MOIST LOOSE TO MED.DENSE, SILTY CLAYEY SAND WITH TRACE TO SOME MICA



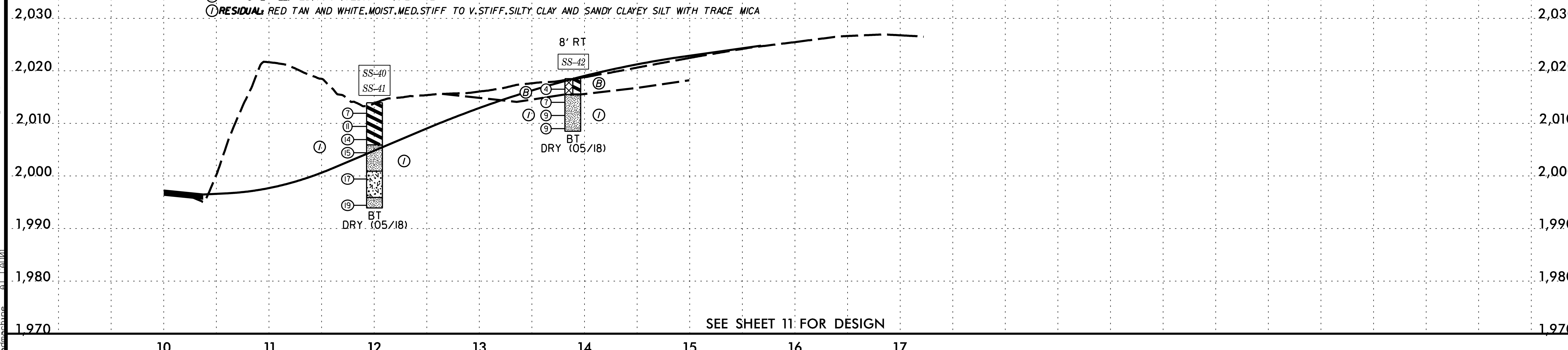
SEE SHEET 11 FOR DESIGN

-Y10-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-40	CL	12+00	1.0'-2.5'	A-7-6	51	23	10	24	6	60	99	95	66	21.9	-
SS-41	CL	12+00	8.5'-10.0'	A-4	32	6	3	30	40	7	100	96	57	17.5	-
SS-42	8 FT RT	13+89	1.0'-2.5'	A-7-6	56	20	16	15	10	59	97	89	68	30.7	-

Ⓑ **ARTIFICIAL FILL:** RED,MOIST,MED.STIFF,SILTY CLAY
Ⓘ **RESIDUAL:** RED TAN AND WHITE,MOIST,MED.STIFF TO V.STIFF,SILTY CLAY AND SANDY CLAYEY SILT WITH TRACE MICA



SEE SHEET 11 FOR DESIGN

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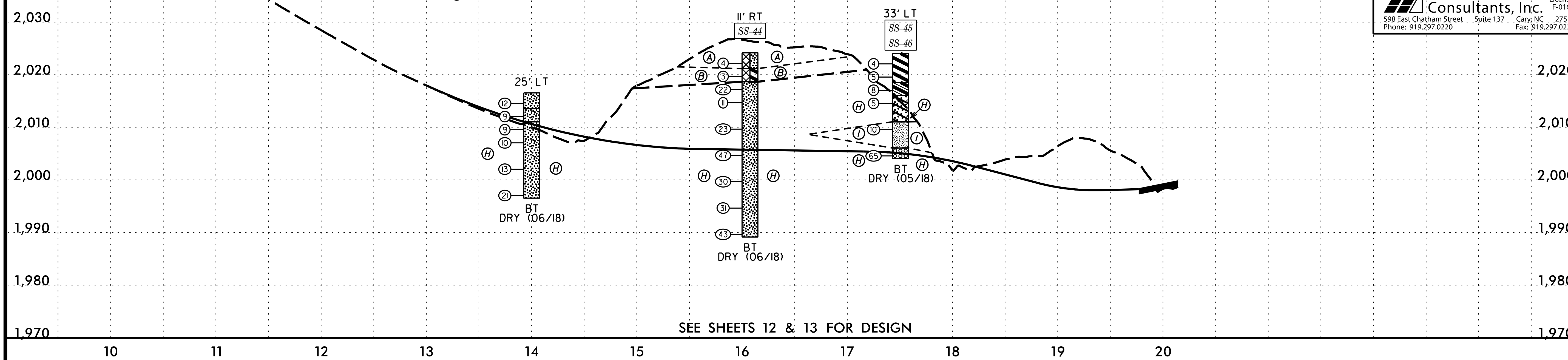
-Y11-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-44	11 FT RT	16+08	3.5'-5.0'	A-7-5	42	11	14	19	13	54	89	83	60	26.4	-
SS-45	33 FT LT	17+51	3.5'-5.0'	A-4	37	5	21	29	30	20	89	80	42	15.3	-
SS-46	33 FT LT	17+51	13.5'-15.0'	A-1-b	NP	NP	ND	ND	ND	ND	72	44	9	10.0	-

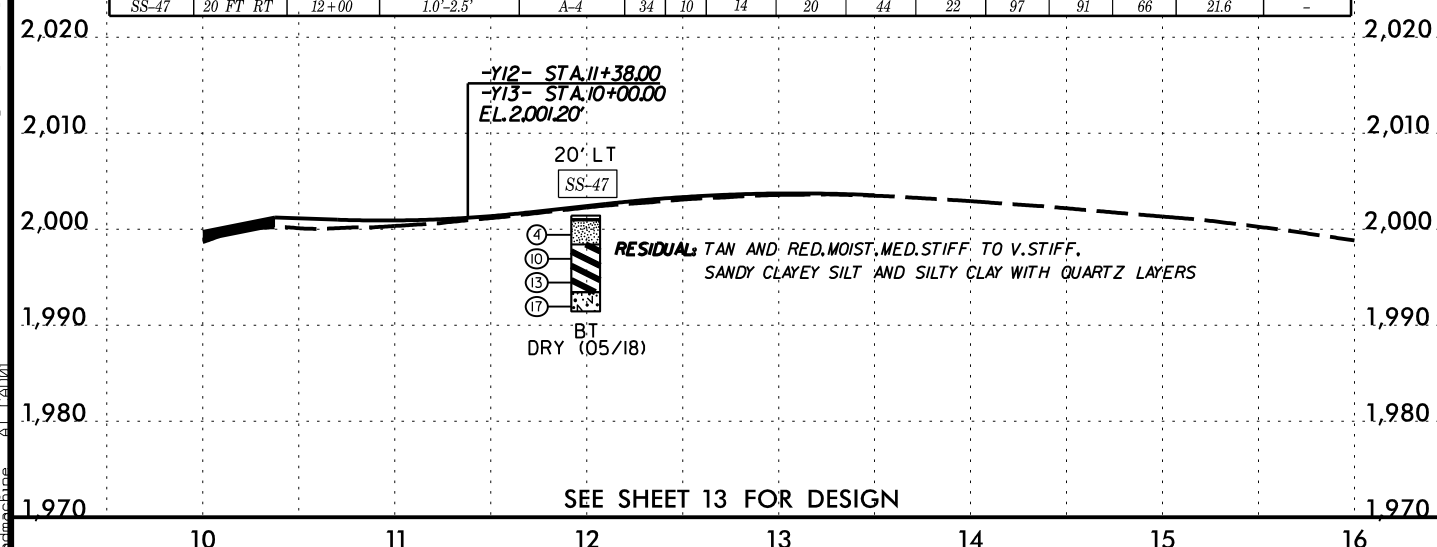
(A) **ARTIFICIAL FILL:** BROWN, MOIST, LOOSE, SILTY SAND WITH TRACE MICA
(B) **ARTIFICIAL FILL:** BROWN, MOIST, SOFT, SANDY SILTY CLAY
(H) **RESIDUAL:** RED-TAN RED- BROWN AND TAN, DRY TO MOIST, LOOSE TO HARD, SILTY CLAYEY SAND WITH TRACE ROCK FRAGMENTS AND SOME MICA
(I) **RESIDUAL:** BROWN AND TAN, MOIST, MED. STIFF TO STIFF, SILTY CLAY AND SANDY SILT WITH TRACE ROCK FRAGMENTS



-Y12-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-47	20 FT RT	12+00	1.0'-2.5'	A-4	34	10	14	20	44	22	97	91	66	21.6	-

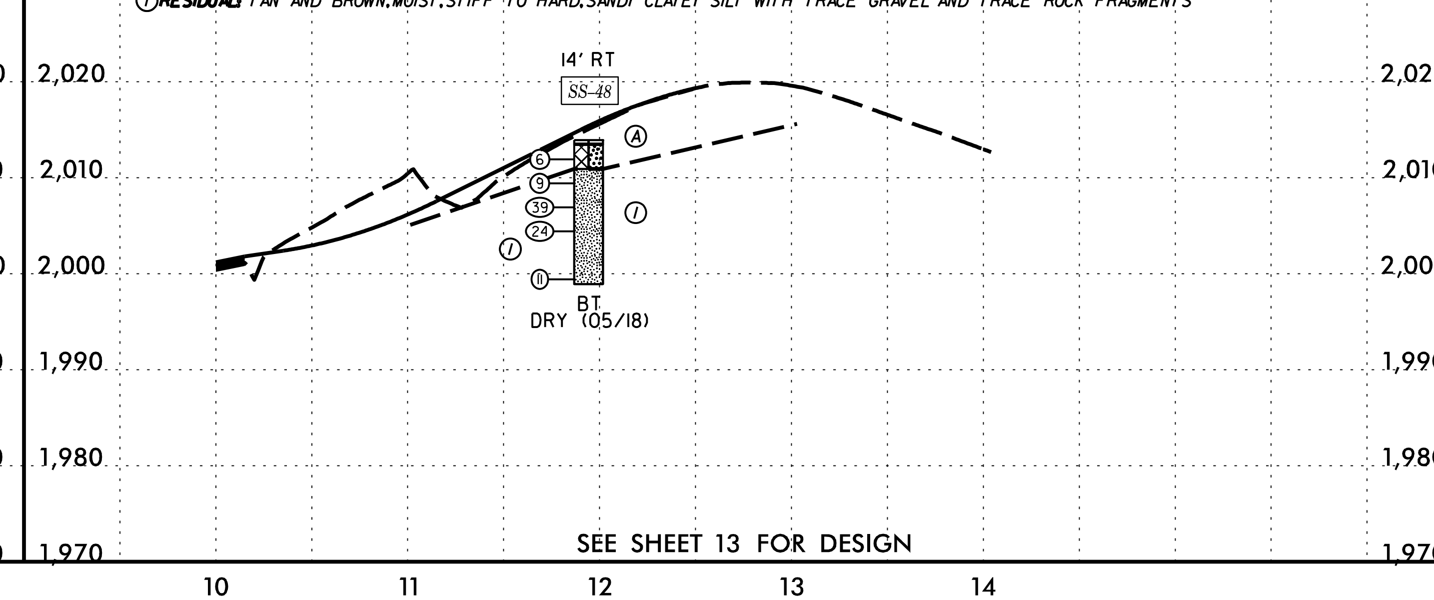


-Y13-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-48	14 FT RT	11+94	1.0'-2.5'	A-2-4	34	6	34	21	24	21	77	60	31	14.4	-

(A) **ARTIFICIAL FILL:** TAN AND RED, MOIST, LOOSE, SILTY SAND WITH TRACE GRAVEL
(I) **RESIDUAL:** TAN AND BROWN, MOIST, STIFF TO HARD, SANDY CLAYEY SILT WITH TRACE GRAVEL AND TRACE ROCK FRAGMENTS



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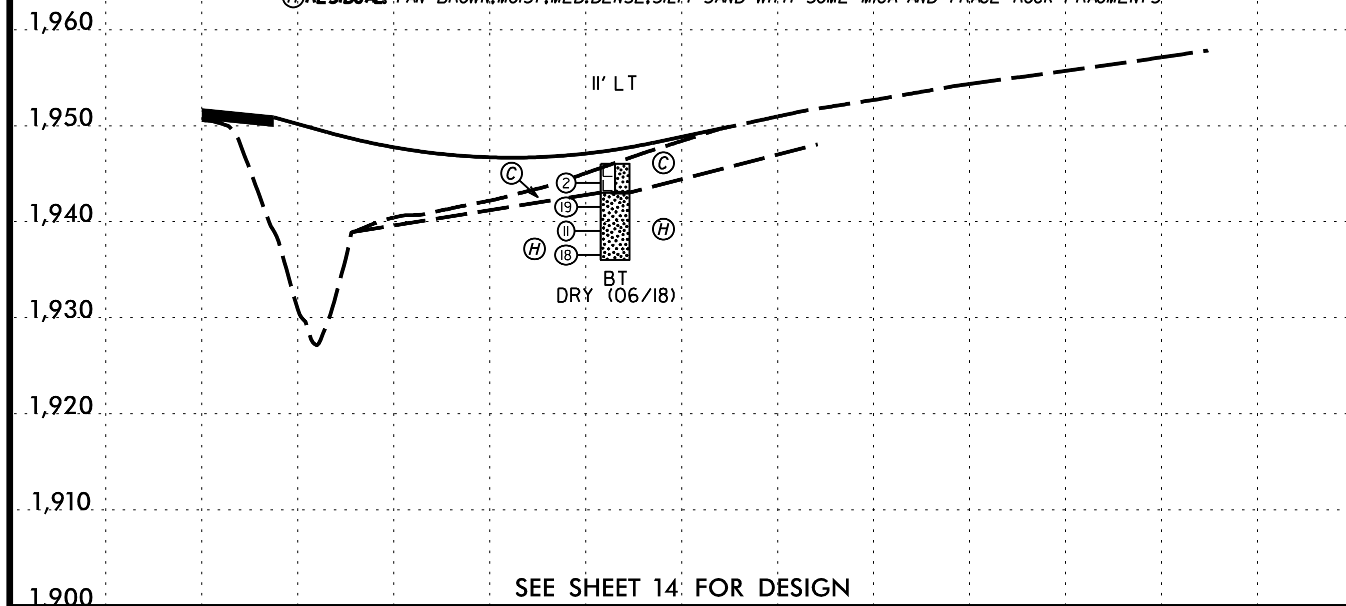
-Y14-

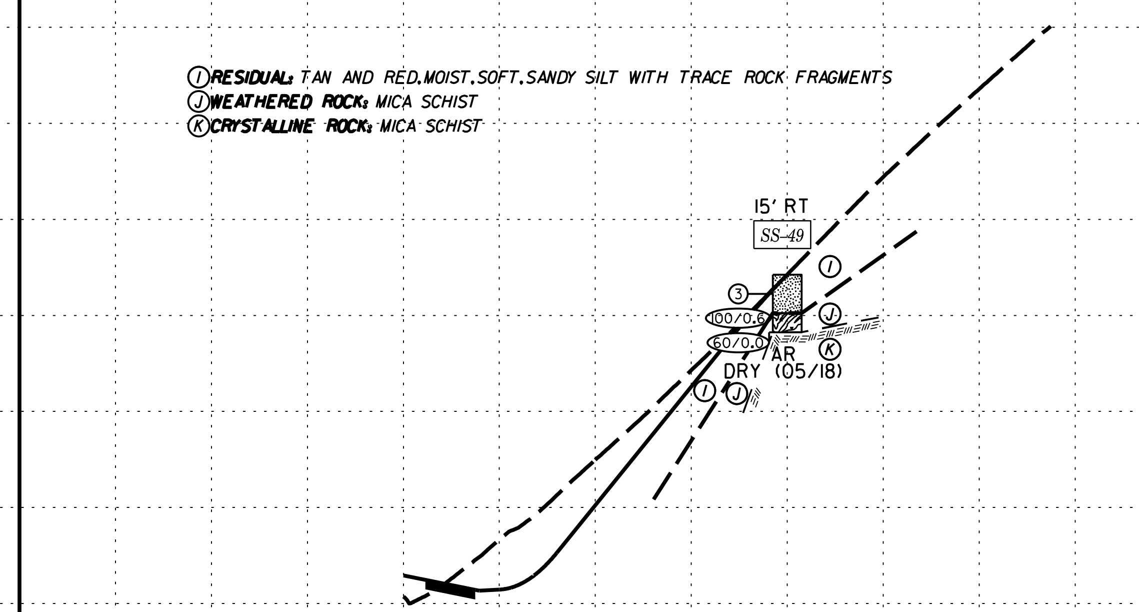
Ⓒ **ROADWAY EMBANKMENT:** BROWN, MOIST, V. LOOSE, SILTY SAND WITH LITTLE GRAVEL
Ⓗ **RESIDUAL:** TAN-BROWN, MOIST, MED. DENSE, SILTY SAND WITH SOME MICA AND TRACE ROCK FRAGMENTS



SEE SHEET 14 FOR DESIGN

-Y15-

Ⓘ **RESIDUAL:** TAN AND RED, MOIST, SOFT, SANDY SILT WITH TRACE ROCK FRAGMENTS
Ⓙ **WEATHERED ROCK:** MICA SCHIST
Ⓚ **CRYSTALLINE ROCK:** MICA SCHIST

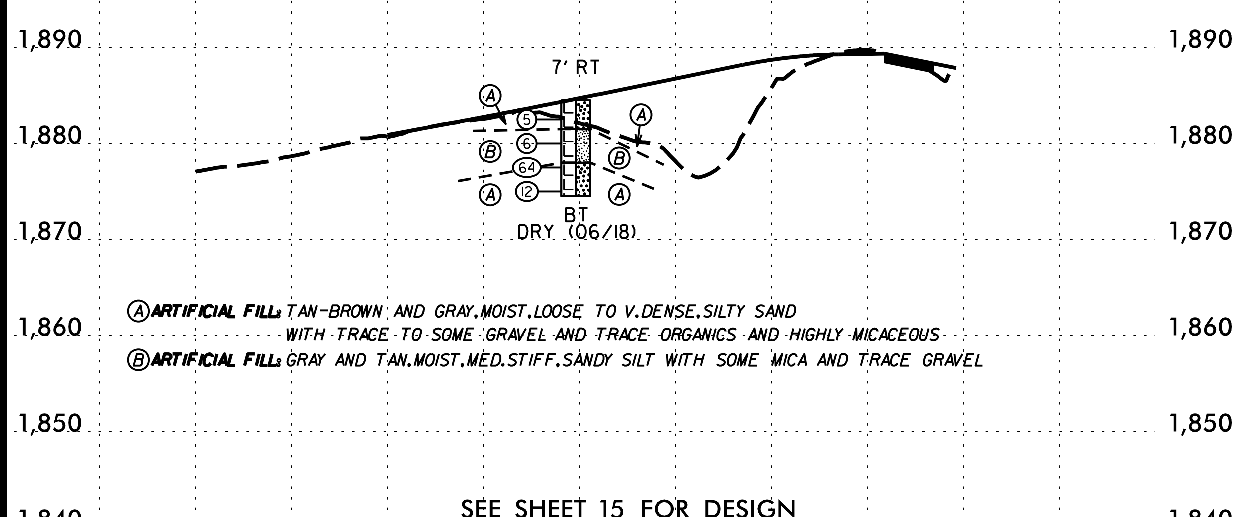


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT: C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES): 10	40	200	% MOISTURE	% ORGANIC
SS-49	15 FT RT	12+00	1.0'-2.5'	A-4	38	7	26	22	37	15	82	71	43	21.1	-

SEE SHEET 14 FOR DESIGN

-Y16-

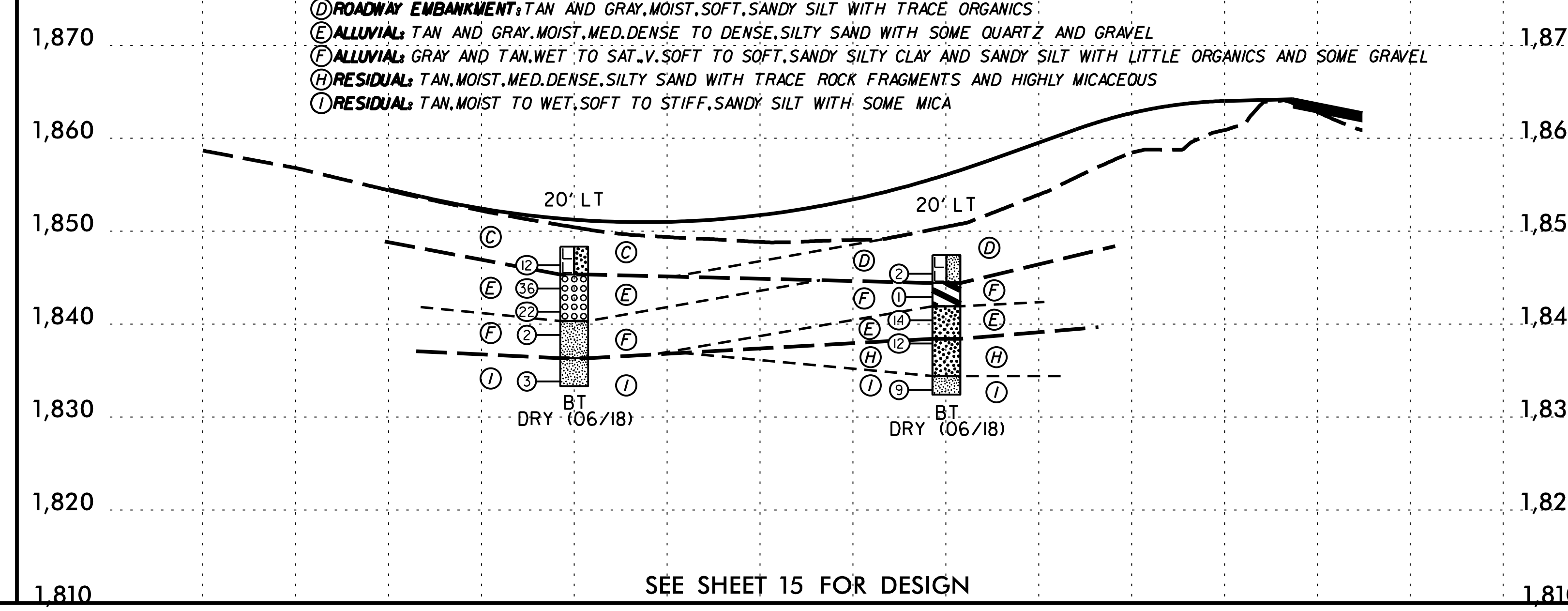


Ⓐ **ARTIFICIAL FILL:** TAN-BROWN AND GRAY, MOIST, LOOSE TO V. DENSE, SILTY SAND WITH TRACE TO SOME GRAVEL AND TRACE ORGANICS AND HIGHLY MICACEOUS
Ⓑ **ARTIFICIAL FILL:** GRAY AND TAN, MOIST, MED. STIFF, SANDY SILT WITH SOME MICA AND TRACE GRAVEL

SEE SHEET 15 FOR DESIGN

-Y17-

Ⓒ **ROADWAY EMBANKMENT:** TAN, MOIST, MED. DENSE, SILTY SAND WITH LITTLE GRAVEL
Ⓓ **ROADWAY EMBANKMENT:** TAN AND GRAY, MOIST, SOFT, SANDY SILT WITH TRACE ORGANICS
Ⓔ **ALLUVIAL:** TAN AND GRAY, MOIST, MED. DENSE TO DENSE, SILTY SAND WITH SOME QUARTZ AND GRAVEL
Ⓕ **ALLUVIAL:** GRAY AND TAN, WET TO SAT., V. SOFT TO SOFT, SANDY SILTY CLAY AND SANDY SILT WITH LITTLE ORGANICS AND SOME GRAVEL
Ⓗ **RESIDUAL:** TAN, MOIST, MED. DENSE, SILTY SAND WITH TRACE ROCK FRAGMENTS AND HIGHLY MICACEOUS
Ⓘ **RESIDUAL:** TAN, MOIST TO WET, SOFT TO STIFF, SANDY SILT WITH SOME MICA



SEE SHEET 15 FOR DESIGN

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

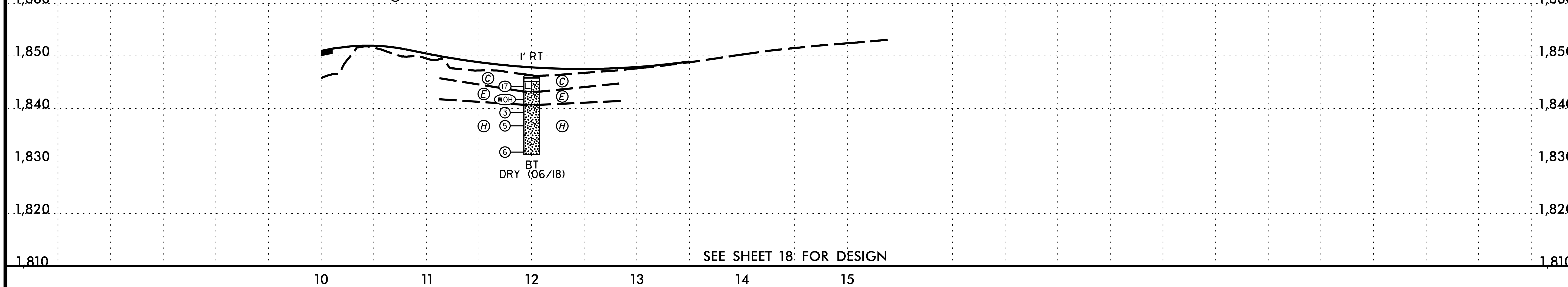
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

-Y18-

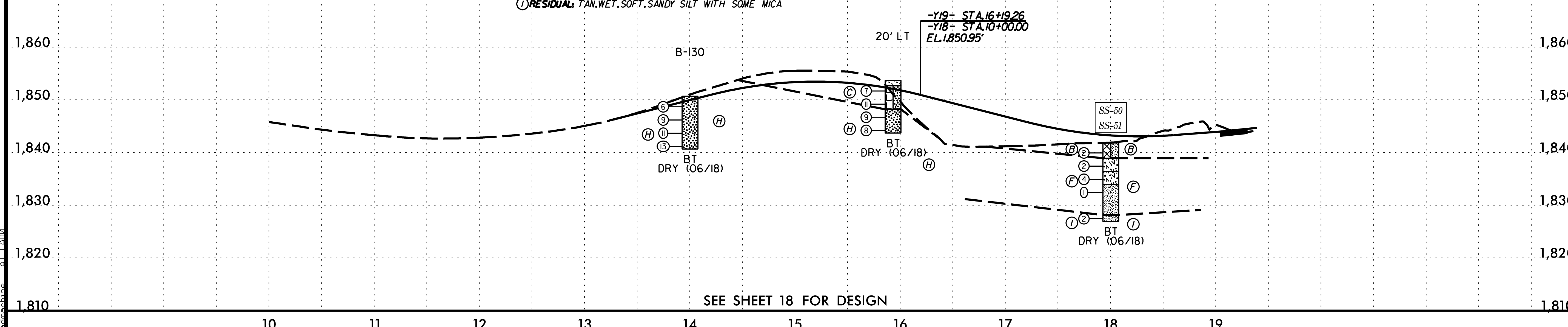
Ⓒ **ROADWAY EMBANKMENT:** BROWN, MOIST, MED. DENSE, SILTY SAND WITH SOME GRAVEL
Ⓔ **ALLUVIAL:** RED-TAN, MOIST, V. LOOSE, SILTY SAND WITH TRACE MICA
Ⓗ **RESIDUAL:** TAN-GRAY, MOIST, V. LOOSE TO LOOSE, SILTY SAND WITH LITTLE MICA



-Y19-

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-50	CL	18+00	1.0'-2.5'	A-4	37	7	8	31	33	8	99	86	41	31.9	-
SS-51	CL	18+00	3.5'-5.0'	A-5	42	8	9	229	49	13	00	96	66	25.1	-

Ⓑ **ARTIFICIAL FILL:** TAN, MOIST, SOFT, SANDY SILT WITH TRACE MICA
Ⓒ **ROADWAY EMBANKMENT:** TA, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH TRACE GRAVEL
Ⓕ **ALLUVIAL:** GRAY AND TAN, MOIST TO WET, V. SOFT TO SOFT, SANDY SILT WITH TRACE ORGANICS AND LITTLE MICA
Ⓗ **RESIDUAL:** TAN AND BROWN, MOIST, LOOSE TO MED. DENSE, SILTY SAND
Ⓘ **RESIDUAL:** TAN, WET, SOFT, SANDY SILT WITH SOME MICA



ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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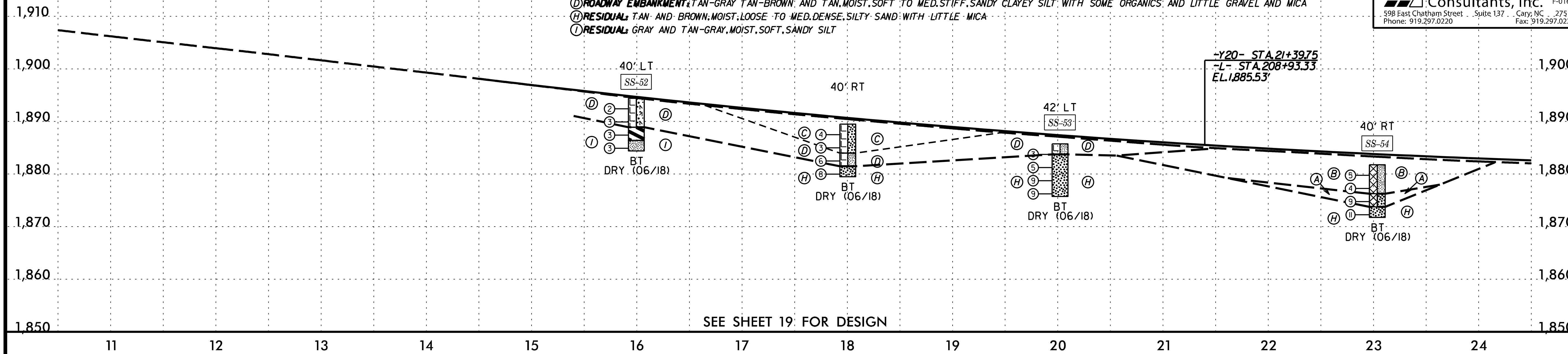
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

-Y20-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-52	40 FT LT	16+00	1.0'-2.5'	A-5	42	3	19	26	49	6	97	88	55	15.3	-
SS-53	42 FT LT	20+02	1.0'-2.5'	A-4	40	9	34	29	24	13	98	79	37	22.2	-
SS-54	40 FT RT	23+00	1.0'-2.5'	A-6	40	11	24	21	19	36	94	80	53	22.4	-

(A) **ARTIFICIAL FILL:** RED-TAN, MOIST, LOOSE, SILTY SAND WITH SOME GRAVEL
(B) **ARTIFICIAL FILL:** TAN, MOIST, MED. STIFF, SANDY SILT WITH TRACE ORGANICS AND LITTLE MICA
(C) **ROADWAY EMBANKMENT:** BROWN, MOIST, V. LOOSE TO LOOSE, SILTY SAND WITH SOME GRAVEL AND TRACE MICA
(D) **ROADWAY EMBANKMENT:** TAN-GRAY TAN-BROWN AND TAN, MOIST, SOFT TO MED. STIFF, SANDY CLAYEY SILT WITH SOME ORGANICS AND LITTLE GRAVEL AND MICA
(H) **RESIDUAL:** TAN AND BROWN, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE MICA
(I) **RESIDUAL:** GRAY AND TAN-GRAY, MOIST, SOFT, SANDY SILT

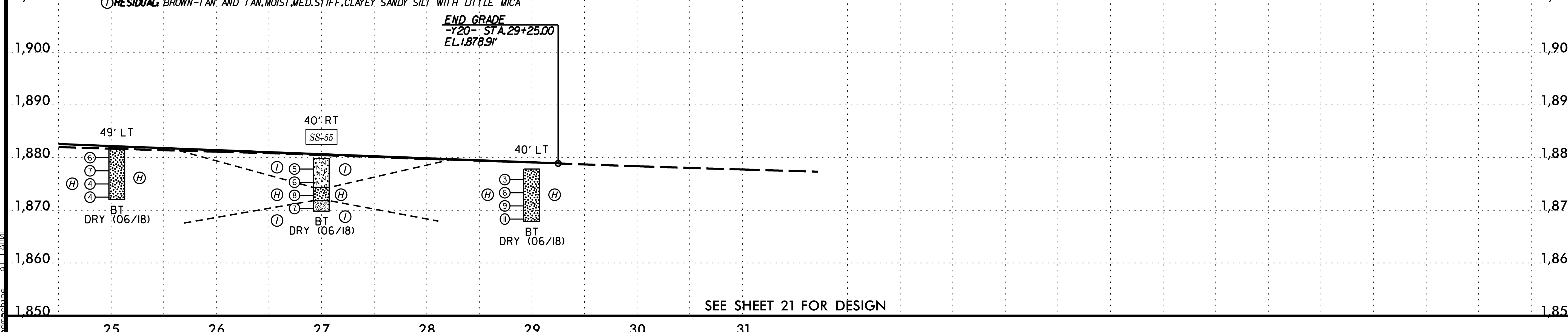


-Y20-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-55	40 FT RT	27+00	1.0'-2.5'	A-5	50	9	23	24	41	12	100	89	53	30.9	-

(H) **RESIDUAL:** TAN WHITE AND TAN-BROWN, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE TO SOME MICA
(I) **RESIDUAL:** BROWN-TAN AND TAN, MOIST, MED. STIFF, CLAYEY SANDY SILT WITH LITTLE MICA



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PROJECT REFERENCE NO.	SHEET NO.
A-0011C	38

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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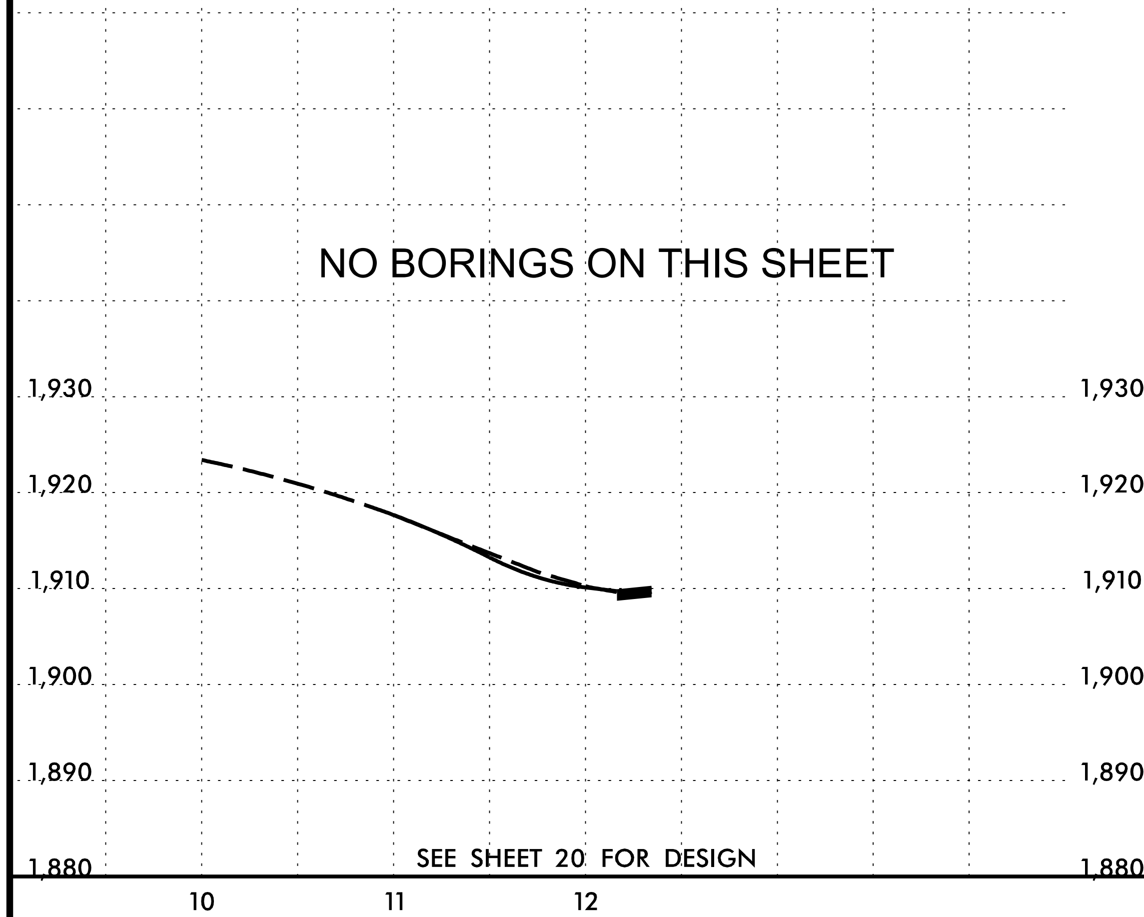
-Y21-

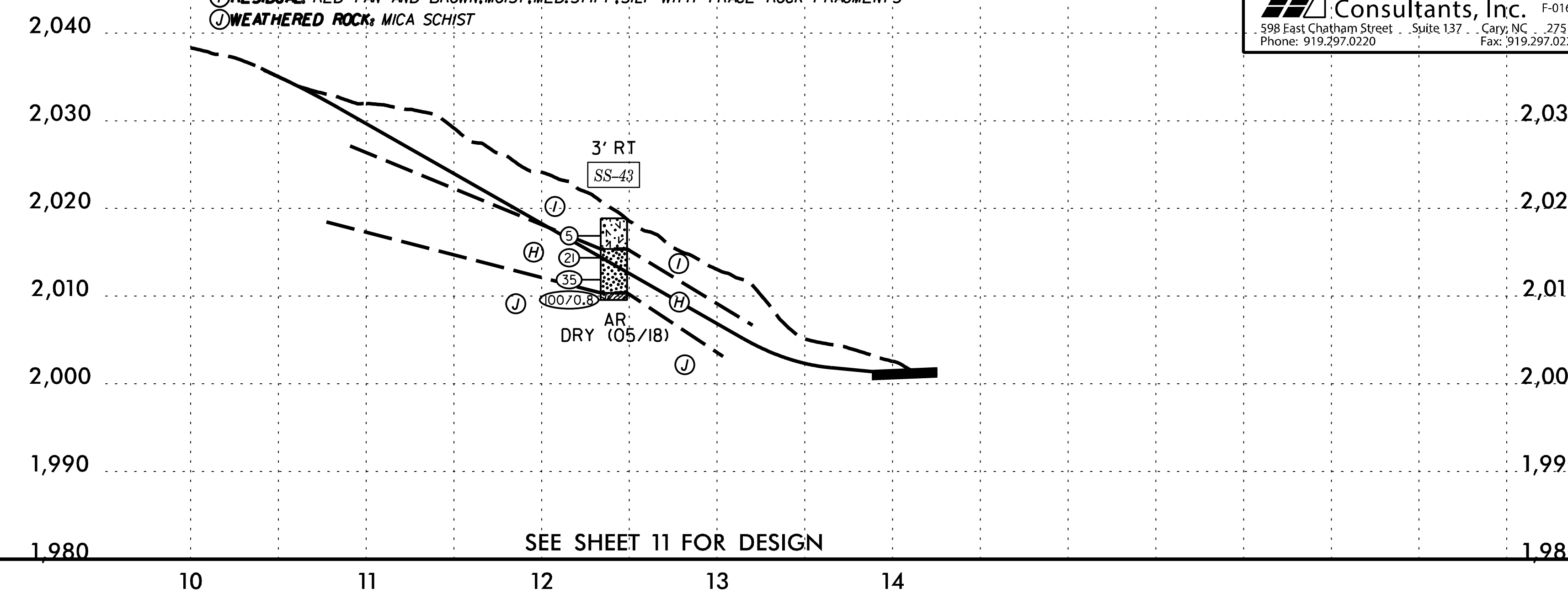


-DR116-

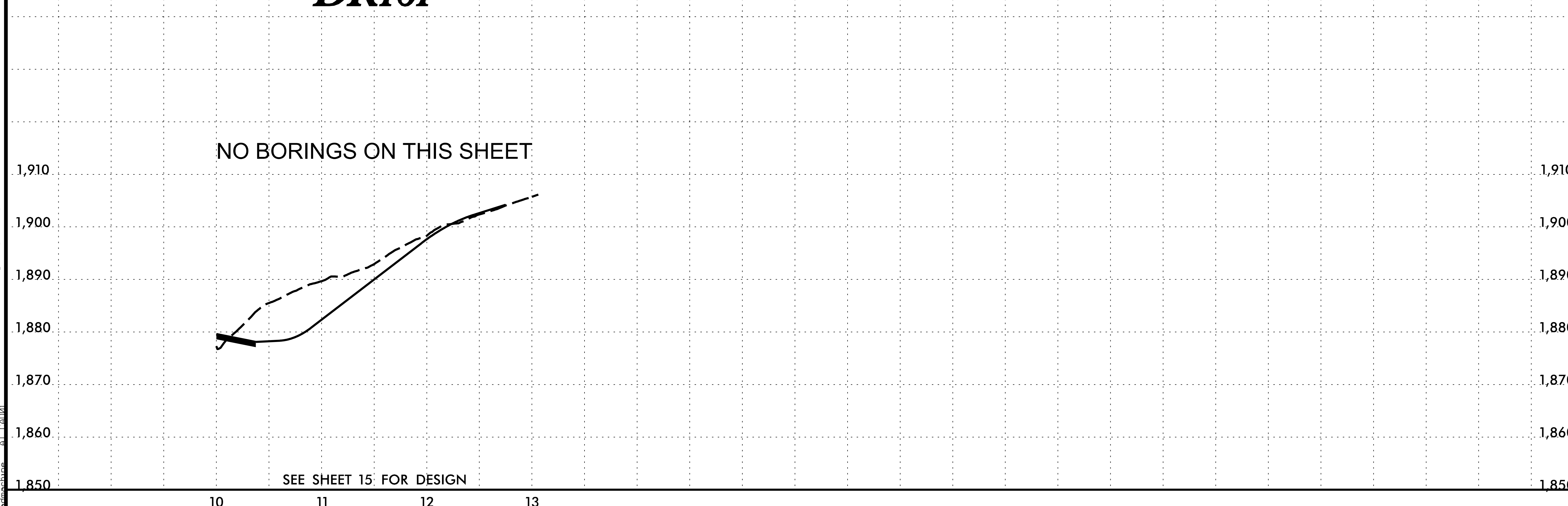
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-43	3 FT RT	12+41	3.5'-5.0'	A-2-4	34	NP	26	43	16	15	73	53	32	14.1	-

(H) **RESIDUAL:** RED TAN AND BROWN, DRY TO MOIST, MED. DENSE TO DENSE, SILTY SAND WITH TRACE ROCK FRAGMENTS
(I) **RESIDUAL:** RED TAN AND BROWN, MOIST, MED. STIFF, SILT WITH TRACE ROCK FRAGMENTS
(J) **WEATHERED ROCK:** MICA SCHIST



-DR161-



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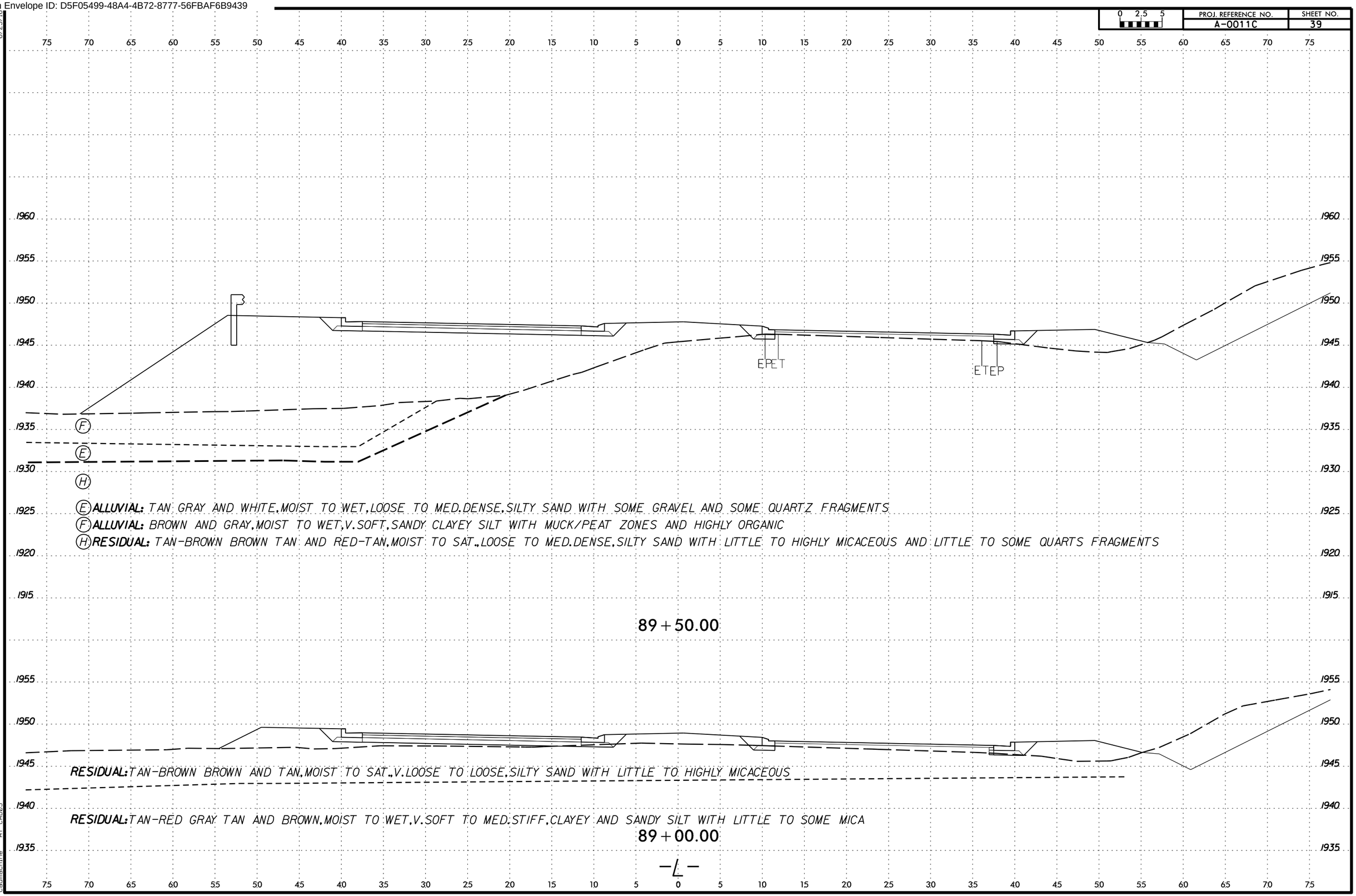

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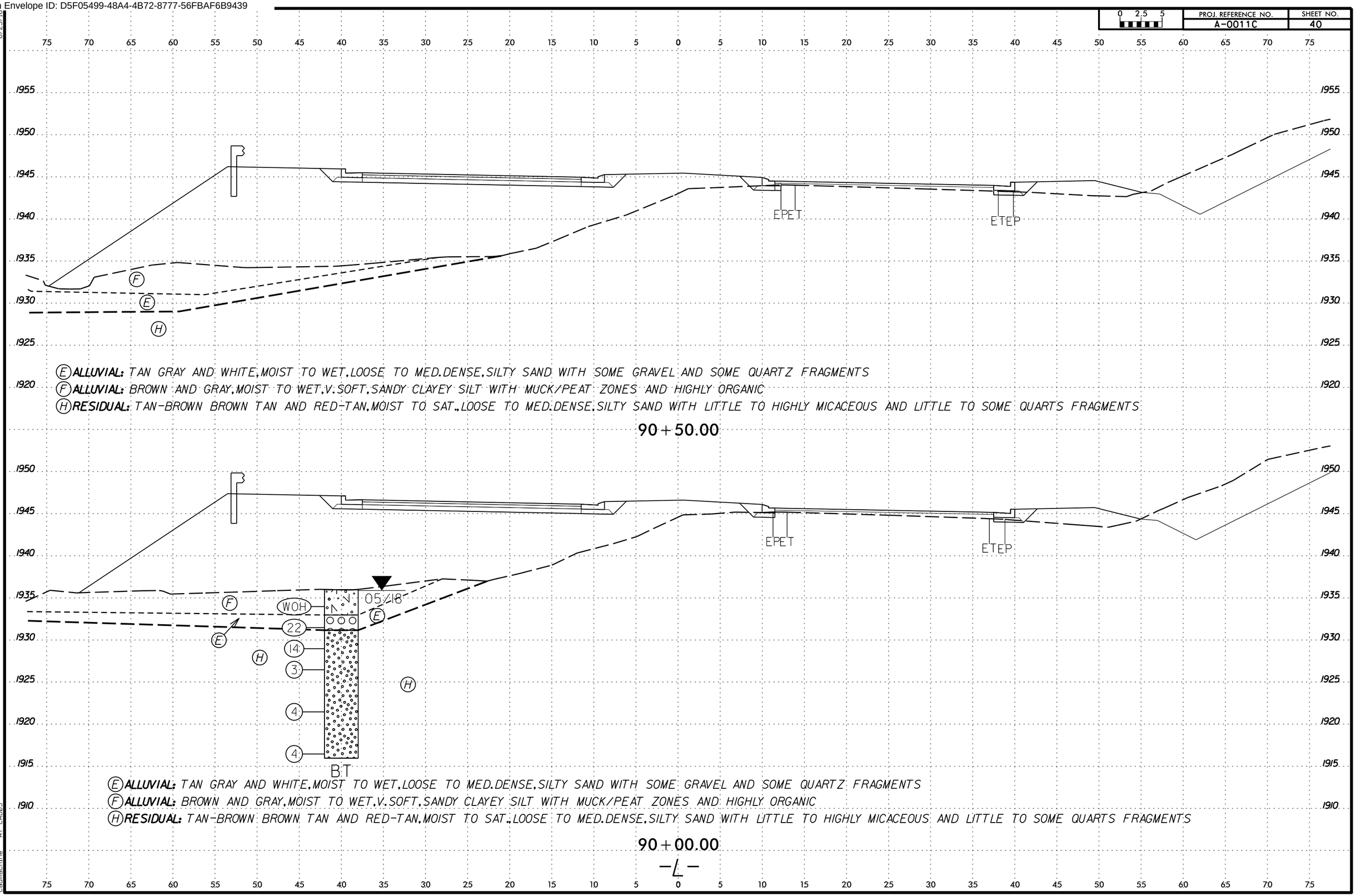


(E) **ALLUVIAL:** TAN GRAY AND WHITE, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND WITH SOME GRAVEL AND SOME QUARTZ FRAGMENTS
(F) **ALLUVIAL:** BROWN AND GRAY, MOIST TO WET, V. SOFT, SANDY CLAYEY SILT WITH MUCK/PEAT ZONES AND HIGHLY ORGANIC
(H) **RESIDUAL:** TAN-BROWN BROWN TAN AND RED-TAN, MOIST TO SAT., LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE TO HIGHLY MICACEOUS AND LITTLE TO SOME QUARTS FRAGMENTS

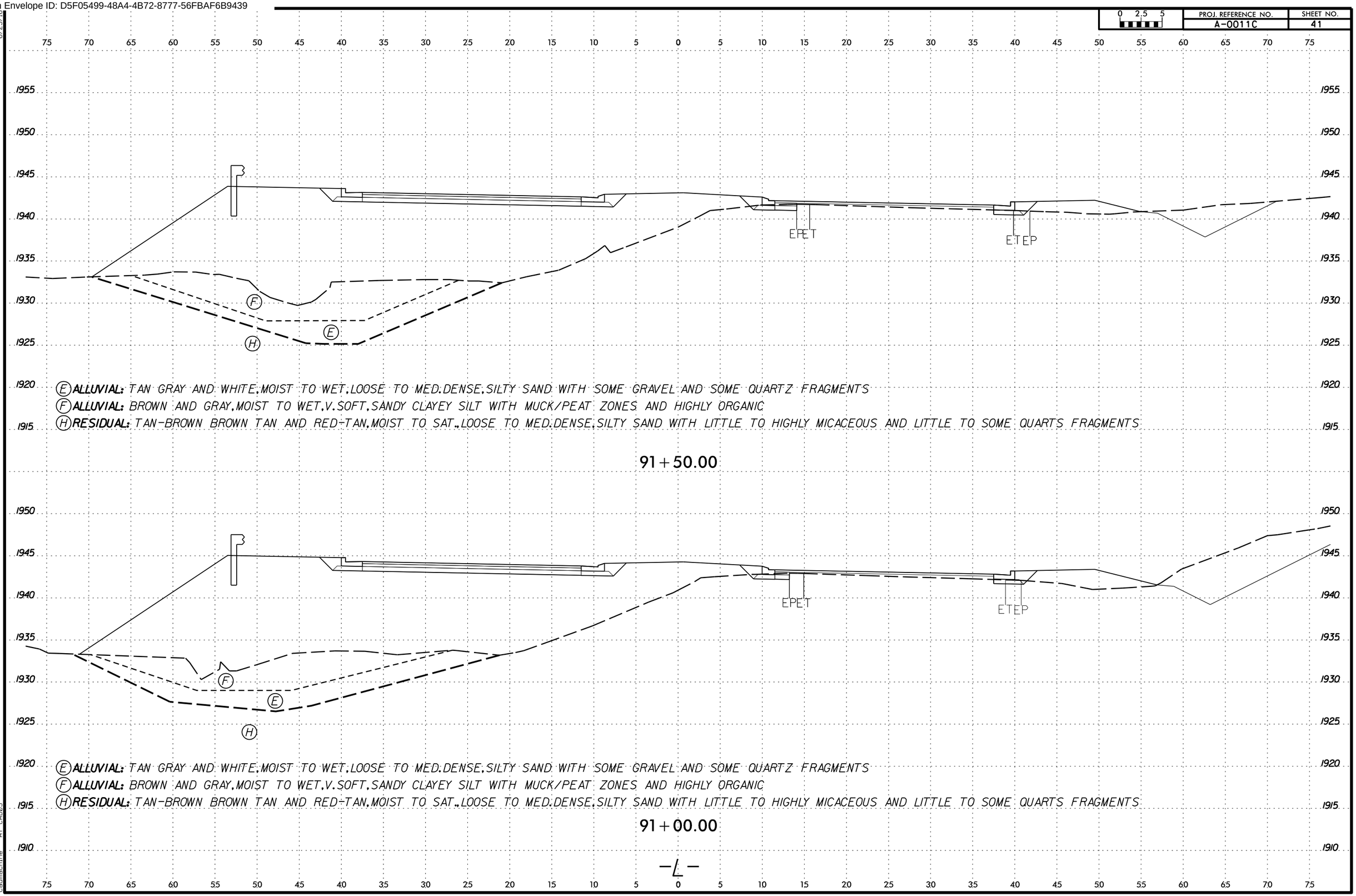
90+50.00

90+00.00

—L—

(E) **ALLUVIAL:** TAN GRAY AND WHITE, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND WITH SOME GRAVEL AND SOME QUARTZ FRAGMENTS
(F) **ALLUVIAL:** BROWN AND GRAY, MOIST TO WET, V. SOFT, SANDY CLAYEY SILT WITH MUCK/PEAT ZONES AND HIGHLY ORGANIC
(H) **RESIDUAL:** TAN-BROWN BROWN TAN AND RED-TAN, MOIST TO SAT., LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE TO HIGHLY MICACEOUS AND LITTLE TO SOME QUARTS FRAGMENTS

PROJ. REFERENCE NO.	SHEET NO.
A-0011C	41



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A-0011C	42

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1950 1945 1940 1935 1930 1925 1920 1915

DRIVEWAY
91+80

7%

EPET

ETEP

WOH
14
2
WOH
7
05/18
BT

(E) **ALLUVIAL:** TAN GRAY AND WHITE, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND WITH SOME GRAVEL AND SOME QUARTZ FRAGMENTS

(F) **ALLUVIAL:** BROWN AND GRAY, MOIST TO WET, V. SOFT, SANDY CLAYEY SILT WITH MUCK/PEAT ZONES AND HIGHLY ORGANIC

(H) **RESIDUAL:** TAN-BROWN BROWN TAN AND RED-TAN, MOIST TO SAT., LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE TO HIGHLY MICACEOUS AND LITTLE TO SOME QUARTS FRAGMENTS

(I) **RESIDUAL:** GRAY GRAY-TAN TAN TAN-BROWN AND BROWN, MOIST TO SAT., V. SOFT TO STIFF, SANDY SILT AND SILTY SANDY CLAY WITH TRACE TO HIGHLY MICACEOUS AND SOME ROCK FRAGMENTS

92+00.00

$-\underline{L}-$

6/23/16

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	A-0011C	43

6/23/16

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

2080
2070
2060
2050
2040
2030
2020
2010
2000
1990
1980
1970
1960

290 280 270 260 250 240 230 220 210 200 190 180 170 160

MATCH LINE

MATCH LINE

Ⓒ **ROADWAY EMBANKMENT:** TAN-BROWN.MOIST.LOOSE. SILTY SAND WITH SOME GRAVEL

Ⓒ

143+68

9
11
6
6
42
46
16
13
21

BT
DRY (06/18)

RESIDUAL: BROWN AND TAN-BROWN.MOIST.LOOSE TO DENSE. SILTY SAND WITH LITTLE MICA AND SOME ROCK FRAGMENTS

143+50.00

–L–

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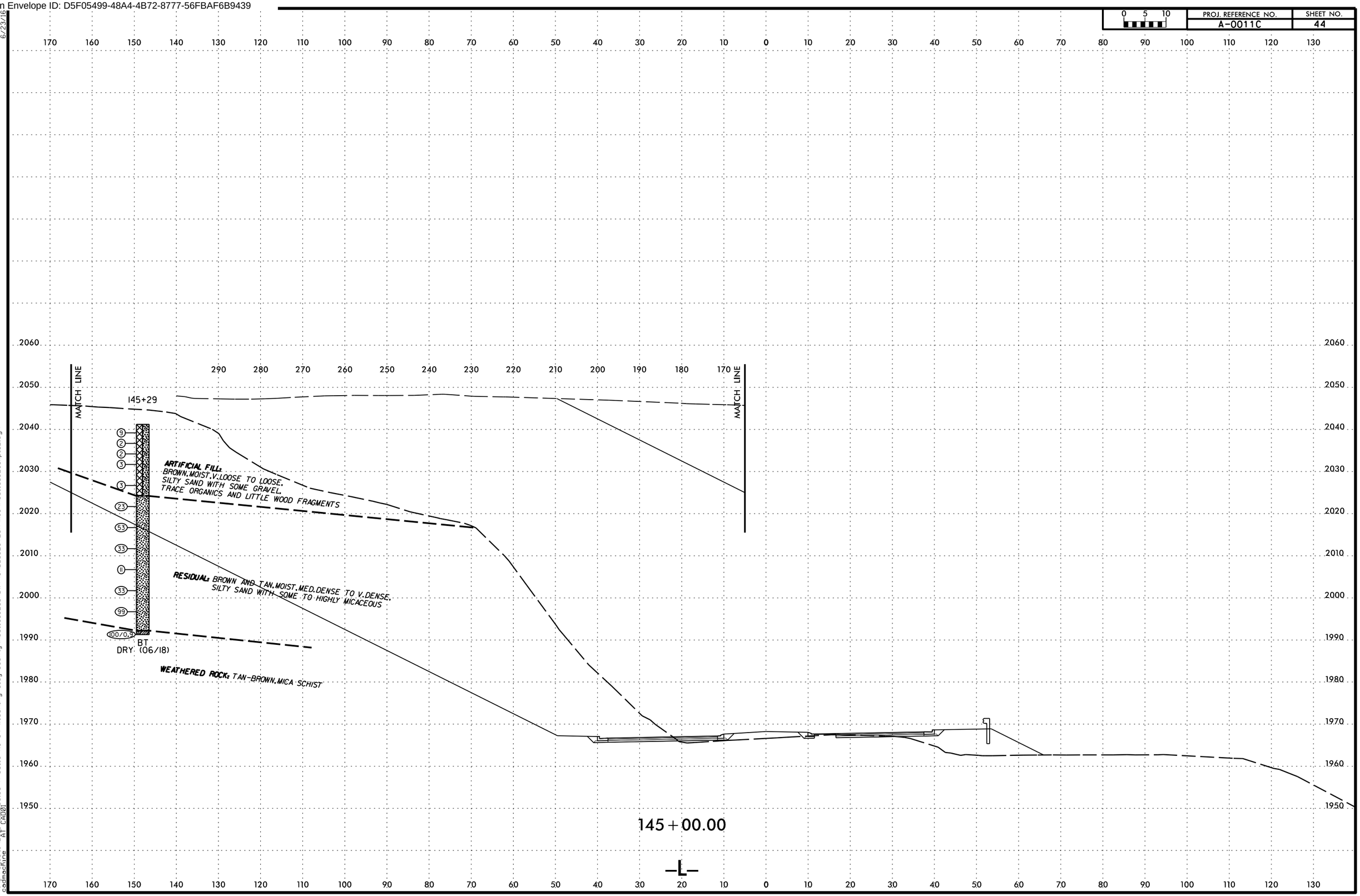
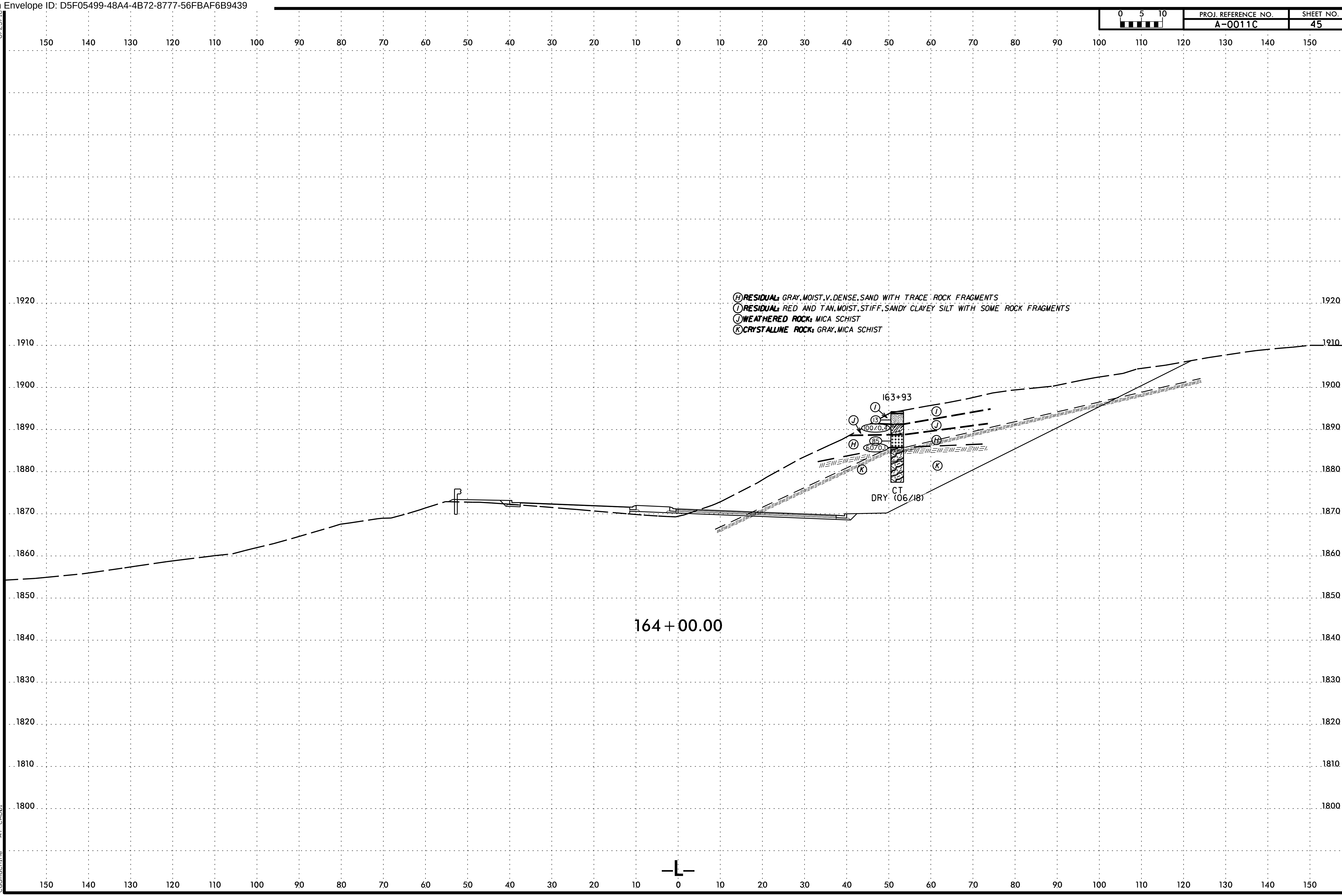


6/23/16



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PROJECT REFERENCE NO.	SHEET NO.
A–0011C	46

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
PAVEMENT INVESTIGATION

REFERENCE: A–0011C

PROJECT: 32574

Falcon Engineering, Inc. 1210 Trinity Road, Suite 110 Cary, NC 27513

PAVEMENT SECTION AND SUBGRADE CONDITION SUMMARY

NC 69 FROM GEORGIA STATE LINE TO US 64

CLAY COUNTY, NORTH CAROLINA
WBS: 32574.1.FD7 ; TIP: A-0011C
Falcon Project No.: G16005.00

TEST LOCATION				PAVEMENT SECTION THICKNESS (INCHES)			SUBGRADE	
ALIGNMENT	STATION	OFFSET	LANE	HMA	AGGREGATE BASE	TOTAL	IN-SITU CBR	NOTES
-L-	25+48	4' RT	NORTHBOUND, TL	10.00	10.00	20.00	4	Multiple Layers
-L-	34+08	26' RT	NORTHBOUND, TL	10.00	5.00	15.00	13	Multiple Layers
-L-	43+46	14' RT	SOUTHBOUND, TL	9.00	6.00	15.00	6	Multiple Layers
-L-	52+27	16' RT	SOUTHBOUND, TL	11.00	10.00	21.00	>20	Multiple Layers
-L-	61+11	3' LT	SOUTHBOUND, TL	12.00	10.00	22.00	>20	Multiple Layers, delaminated at 6 inches
-L-	72+90	19' RT	NORTHBOUND, TL	9.00	8.00	17.00	>20	Multiple Layers, delaminated at 6 inches, base course crumbling
-L-	80+55	6' RT	NORTHBOUND, TL	13.00	5.00	18.00	5	Multiple Layers, delaminated at 8 inches, base course crumbling
-L-	89+82	13' RT	SOUTHBOUND, TL	15.00	3.00	18.00	10	Multiple Layers, delaminated at 7 and 14 inches
-L-	97+13	23' RT	SOUTHBOUND, TL	10.00	14.00	24.00	8	Multiple Layers
-L-	108+33	6' RT	SOUTHBOUND, TL	11.00	8.00	19.00	15	Multiple Layers
-L-	123+78	3' RT	NORTHBOUND, TL	11.00	9.00	20.00	20	Multiple Layers, delaminated at 9 inches
-L-	129+40	10' RT	NORTHBOUND, TL	15.00	9.00	24.00	10	Multiple Layers
-L-	137+75	16' RT	NORTHBOUND, TL	14.00	10.00	24.00	>20	Multiple Layers, delaminated at 8 inches
-L-	151+14	10' LT	NORTHBOUND, TL	12.00	7.00	19.00	>20	Multiple Layers, delaminated at 5 inches
-L-	162+72	32' LT	CENTRAL TURN LANE	20.00	4.00	24.00	>20	Multiple Layers, delaminated at 3 and 10 inches
-L-	169+91	12' LT	CENTRAL TURN LANE	17.00	5.00	22.00	20	Multiple Layers
-L-	177+97	3' RT	CENTRAL TURN LANE	15.00	7.00	22.00	10	Multiple Layers, delaminated at 9 inches
-L-	187+81	20' LT	SOUTHBOUND, TL	10.00	6.00	16.00	6	Multiple Layers, delaminated at 7 inches, base course crumbling
-L-	191+06	23' RT	NORTHBOUND, TL	10.00	14.00	24.00	15	Multiple Layers
-L-	195+79	3' LT	CENTRAL TURN LANE	13.00	10.00	23.00	>20	Multiple Layers, delaminated at 7 inches
-L-	205+92	CL	NORTHBOUND, INSIDE TURN LANE	15.00	6.00	21.00	4	Multiple Layers, delaminated at 11 inches, base course crumbling
-L-	212+45	7' LT	CENTRAL TURN LANE	8.00	10.00	18.00	10	Multiple Layers
-L-	219+92	2' RT	NORTHBOUND, TL	8.00	10.00	18.00	10	Multiple Layers, aggregate base bonded to base course
-Y1-	12+98	11' LT	WESTBOUND, TL	11.00	7.00	18.00	12	Multiple Layers
-Y1-	16+92	10' RT	WESTBOUND, TL	2.00	12.00	14.00	10	Single Apshalt Lift
-Y3-	11+27	103' LT	EASTBOUND, TL	2.00	12.00	14.00	>20	Single Apshalt Lift
-Y4-	12+65	6' LT	WESTBOUND, TL	2.00	5.00	7.00	8	Single Apshalt Lift
-Y5-	12+25	15' RT	WESTBOUND, TL	6.00	6.00	12.00	12	Multiple Layers
-Y7-	13+01	5' LT	EASTBOUND, TL	4.00	8.00	12.00	15	Multiple Layers
-Y8-	14+01	CL	EASTBOUND, TL	3.00	9.00	12.00	>20	Single Apshalt Lift
-Y9-	12+06	3' LT	WESTBOUND, TL	5.00	7.00	12.00	>20	Multiple Layers
-Y10-	11+65	34' LT	WESTBOUND, TL	7.00	5.00	12.00	15	Multiple Layers
-Y11-	13+98	4' RT	SOUTHBOUND, TL	1.00	13.00	14.00	10	Single Apshalt Lift
-Y12-	12+02	16' LT	WESTBOUND, TL	3.00	17.00	20.00	15	Single Apshalt Lift
-Y13-	11+94	1' LT	NORTHBOUND, TL	9.00	2.00	11.00	20	Multiple Layers
-Y14-	12+02	18' LT	WESTBOUND, TL	1.00	9.00	10.00	10	Single Apshalt Lift
-Y15-	11+89	3' LT	EASTBOUND, TL	5.00*	7.00	12.00	>20	*Concrete Pavement
-Y16-	11+98	7' RT	SOUTHBOUND, TL	8.00	11.00	19.00	>20	Multiple Layers
-Y17-	12+19	1' RT	EASTBOUND, TL	3.00	16.00	19.00	20	Single Apshalt Lift
-Y19-	15+87	7' RT	WESTBOUND, TL	6.00	8.00	14.00	15	Multiple Layers, delaminated at 2 and 4 inches
-Y20-	17+03	1' LT	CENTRAL TURN LANE	12.00	6.00	18.00	15	Multiple Layers, delaminated at 7 inches
-Y20-	28+21	3' LT	CENTRAL TURN LANE	9.00	10.00	19.00	15	Multiple Layers, delaminated at 6 inches
REPRESENTATIVE AVERAGE				8.86	8.48	17.45	N/A	-

Legend: TL - Travel Lane

TOP

BOTTOM

PAVEMENT CORE - L_25+48_04' RT

TOP

BOTTOM

PAVEMENT CORE - L_34+08_26' RT

TOP

BOTTOM

PAVEMENT CORE - L_43+46_14' RT

TOP

BOTTOM

PAVEMENT CORE - L_52+27_16' RT

FALCON ENGINEERING

FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
CARY, NC 27513

PHONE: 919.871.0800
FAX: 919.871.0803

PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - L_61+11_03' LT

TOP

BOTTOM

PAVEMENT CORE - L_72+90_19' LT

TOP

BOTTOM

PAVEMENT CORE - L_80+55_06' RT

TOP

BOTTOM

PAVEMENT CORE - L_89+82_13' RT

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1210 TRINITY ROAD, SUITE 110
CARY, NC 27513

PHONE: 919.871.0800
FAX: 919.871.0803

PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - L_97+13_23' RT

TOP

BOTTOM

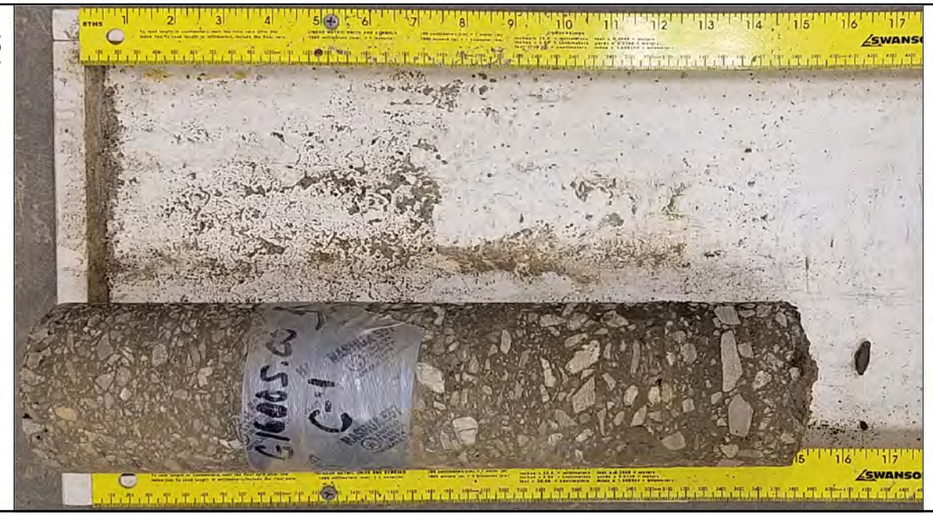
PAVEMENT CORE - L_108+33_06' RT

TOP

BOTTOM

PAVEMENT CORE - L_123+78_03' RT

TOP



BOTTOM

PAVEMENT CORE - L_129+40_10' RT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - L_137+75_16' RT

TOP

BOTTOM

PAVEMENT CORE - L_151+14_10' LT

TOP

BOTTOM

PAVEMENT CORE - L_162+72_32' LT

TOP

BOTTOM

PAVEMENT CORE - L_169+91_12' LT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - L_177+97_03' RT

TOP

BOTTOM

PAVEMENT CORE - L_187+81_20' LT

TOP

BOTTOM

PAVEMENT CORE - L_191+06_23' RT

TOP

BOTTOM

PAVEMENT CORE - L_195+79_03' LT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - L_205+92

TOP

BOTTOM

PAVEMENT CORE - L_212+45_07' LT

TOP

BOTTOM

PAVEMENT CORE - L_219+92_02' RT

TOP

BOTTOM

PAVEMENT CORE - Y1_12+98_11' LT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - Y1_16+92_10' RT

TOP

BOTTOM

PAVEMENT CORE - Y3_11+27_103' LT

TOP

BOTTOM

PAVEMENT CORE - Y4_12+65_06' LT

TOP

BOTTOM

PAVEMENT CORE - Y5_12+25_15' RT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

PAVEMENT CORE - Y7_13+01_05' LT

PAVEMENT CORE - Y8_14+01

PAVEMENT CORE - Y9_12+06_03' LT

PAVEMENT CORE - Y10_11+65_34' LT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

PAVEMENT CORE - Y11_13+98_04' RT

PAVEMENT CORE - Y12_12+02_16' LT

PAVEMENT CORE - Y13_11+94_01' LT

PAVEMENT CORE - Y14_12+02_18' LT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - Y15_11+89_03' LT

TOP

BOTTOM

PAVEMENT CORE - Y16_11+98_07' RT

TOP

BOTTOM

PAVEMENT CORE - Y17_12+19_01' RT

TOP

BOTTOM

PAVEMENT CORE - Y19_15+87_38' LT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

TOP

BOTTOM

PAVEMENT CORE - Y20_17+03_01' LT

TOP

BOTTOM

PAVEMENT CORE - Y20_28+21_03' LT

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PAVEMENT CORE PHOTOGRAPHS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

DCP TEST DATA

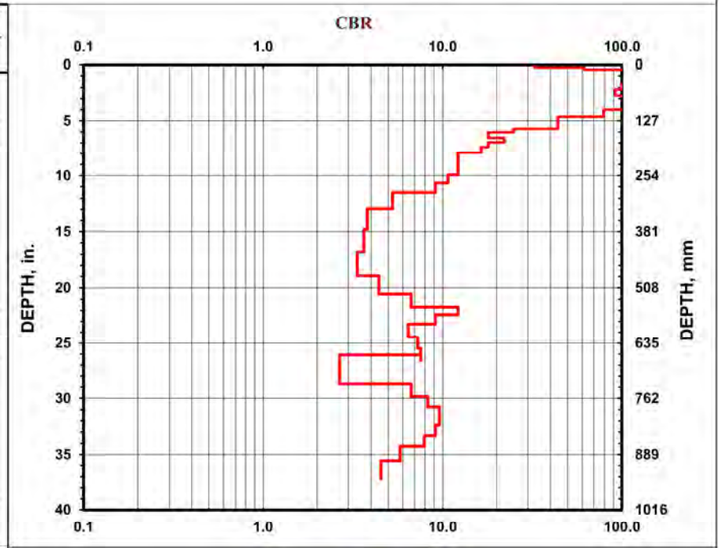
File Name: L_25+48_4' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	7	1
1	11	1
5	22	1
5	31	1
5	43	1
5	56	1
5	70	1
5	78	1
5	90	1
5	102	1
5	118	1
5	145	1
1	154	1
1	166	1
1	176	1
1	188	1
1	201	1
2	235	1
1	252	1
1	271	1
1	293	1
1	329	1
1	377	1
1	427	1
1	481	1
1	523	1
1	552	1
1	569	1
1	591	1
1	621	1
1	648	1
1	674	1
1	663	1
1	729	1
1	758	1
1	782	1
2	824	1
1	846	1
1	871	1
1	904	1
1	945	1



DCP TEST DATA

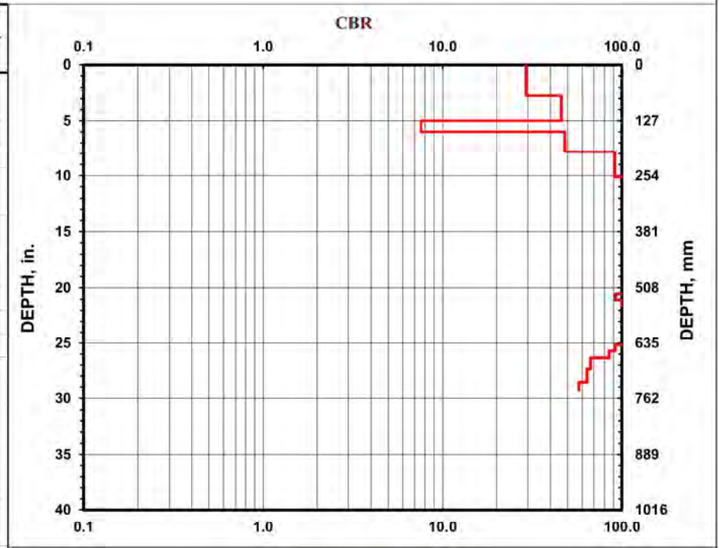
File Name: L_34+08_26' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
9	70	1
11	127	1
1	153	1
9	198	1
21	257	1
21	305	1
70	390	1
55	442	1
30	479	1
5	489	1
5	499	1
5	510	
5	522	1
5	536	1
5	549	1
14	579	1
5	585	1
5	589	1
5	594	1
5	598	1
5	603	1
5	608	1
5	614	1
5	620	1
5	629	1
5	640	1
5	654	1
5	669	1
7	695	1
8	726	1
4	743	1



DCP TEST DATA

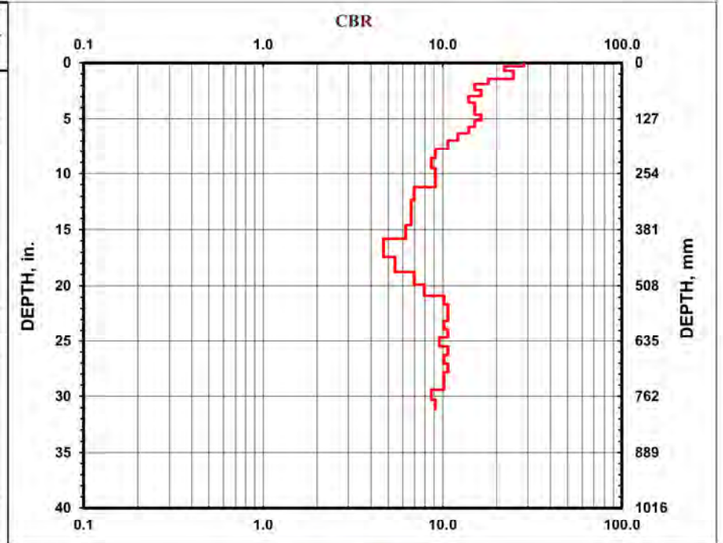
File Name: L_43+46_14' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	8	1
1	18	1
1	27	1
1	36	1
1	48	1
1	62	1
1	75	1
1	90	1
1	104	1
1	118	1
1	131	1
1	145	1
1	160	1
1	177	1
1	196	1
1	218	1
1	241	1
1	263	1
1	285	1
1	313	1
1	342	1
1	371	1
1	402	1
1	442	1
1	477	1
1	505	1
1	530	1
1	550	1
1	569	1
1	588	1
1	608	1
1	627	1
1	648	1
1	667	1
1	687	1
1	706	1
1	726	1
1	746	1
1	769	1
1	791	1



DCP TEST DATA

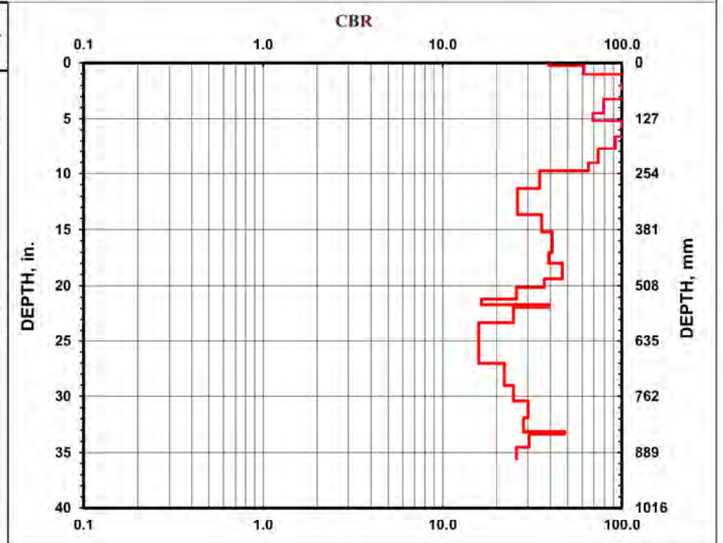
File Name: L_52+27_16' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	6	1
5	26	1
5	38	1
5	48	1
5	61	1
5	72	1
5	82	1
5	98	1
5	114	1
5	132	1
5	145	1
5	156	1
5	167	1
5	181	1
5	195	1
5	212	1
5	229	1
5	248	1
6	288	1
7	348	1
6	387	1
8	433	1
4	457	1
7	493	1
3	512	1
3	538	1
1	551	1
1	557	1
4	593	1
7	687	1
5	737	1
4	773	1
5	811	1
4	843	1
1	848	1
4	878	1
3	904	1



DCP TEST DATA

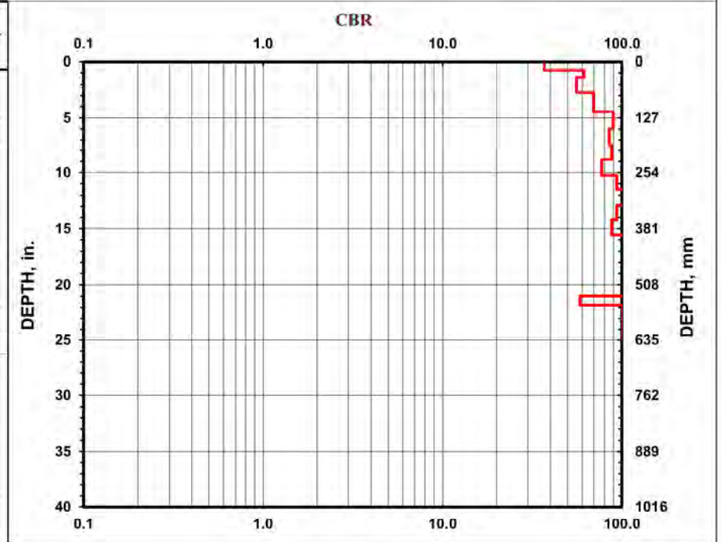
File Name: L_61+11_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
3	19	1
4	35	1
8	70	1
12	113	1
14	153	1
12	189	1
12	224	1
11	260	1
12	293	1
14	328	1
12	361	1
12	396	1
13	429	1
14	458	1
25	503	1
15	534	1
5	555	1
30	632	1



DCP TEST DATA

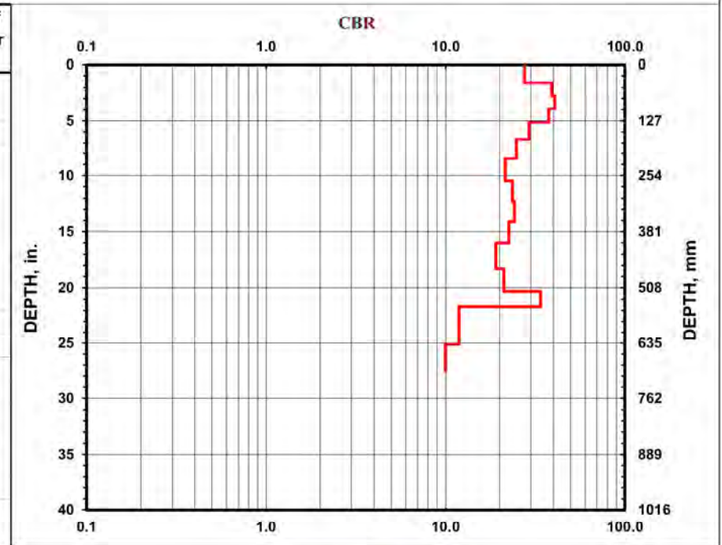
File Name: L_72+90_19' LT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	41	1
5	71	1
5	100	1
5	131	1
5	170	1
5	215	1
5	266	1
5	313	1
5	359	1
5	408	1
5	465	1
5	517	1
5	551	1
5	638	1
3	699	1



DCP TEST DATA

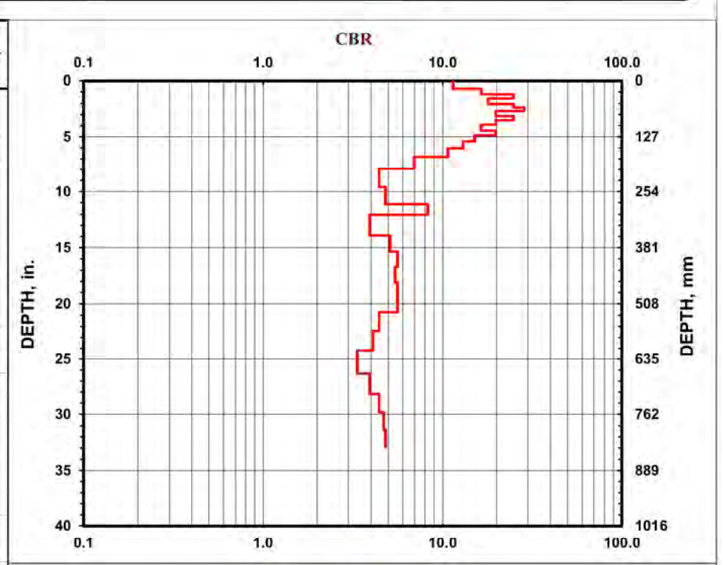
File Name: L_80+55_6' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	18	1
1	31	1
1	40	1
1	52	1
1	61	1
1	69	1
1	80	1
1	89	1
1	100	1
1	113	1
1	124	1
1	138	1
1	154	1
1	173	1
1	201	1
1	243	1
1	282	1
1	306	1
1	353	1
1	390	1
1	424	1
1	459	1
1	493	1
1	527	1
1	569	1
1	614	1
1	668	1
1	715	1
1	757	1
1	797	1
1	836	1



DCP TEST DATA

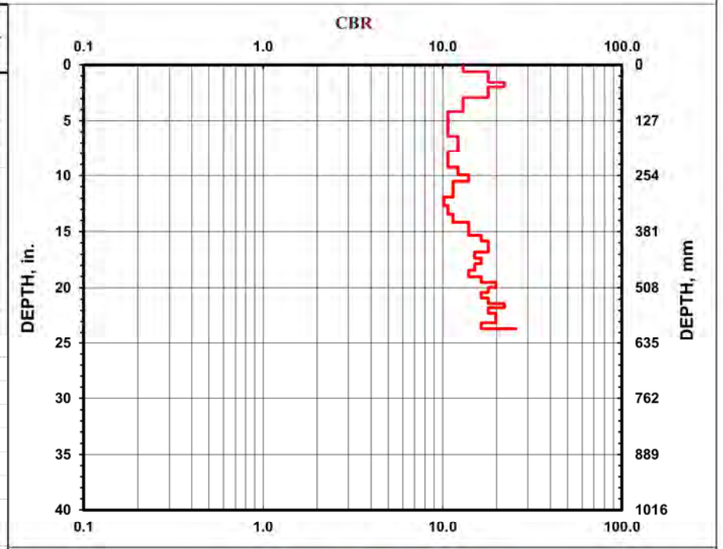
File Name: L_89+82_13' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	16	1
1	28	1
1	40	1
1	50	1
1	62	1
1	74	1
1	90	1
1	106	1
1	125	1
1	144	1
1	163	1
1	180	1
1	197	1
1	216	1
1	235	1
1	252	1
1	267	1
1	285	1
1	303	1
1	323	1
1	342	1
1	360	1
1	375	1
1	390	1
1	403	1
1	415	1
1	427	1
1	441	1
1	454	1
1	468	1
1	483	1
1	496	1
1	507	1
1	519	1
1	532	1
1	544	1
1	554	1
1	566	1
1	577	1
1	588	1
1	601	1
11	697	1



DCP TEST DATA

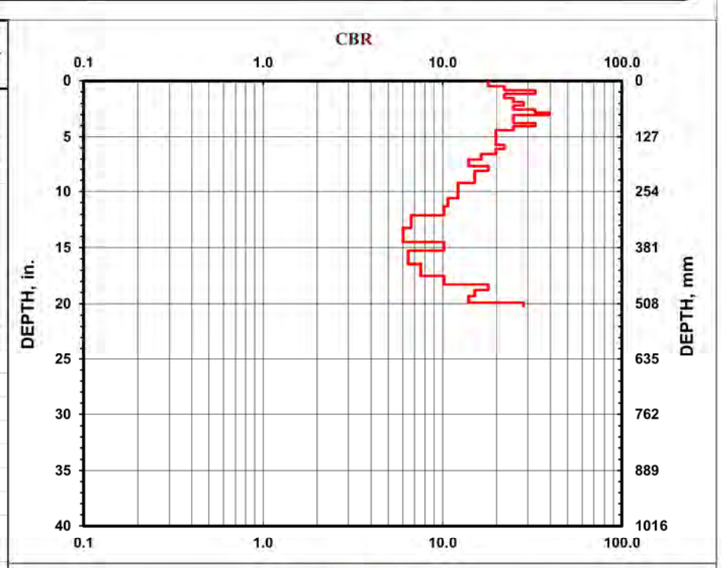
File Name: L_97+13_23' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	12	1
1	22	1
1	29	1
1	39	1
1	48	1
1	56	1
1	65	1
1	72	1
1	78	1
1	87	1
1	96	1
1	103	1
1	112	1
1	123	1
1	134	1
1	145	1
1	155	1
1	166	1
1	179	1
1	194	1
1	206	1
1	220	1
1	234	1
1	251	1
1	268	1
1	287	1
1	307	1
1	336	1
1	368	1
1	388	1
1	418	1
1	444	1
1	464	1
1	476	1
1	490	1
1	505	1
1	513	1



DCP TEST DATA

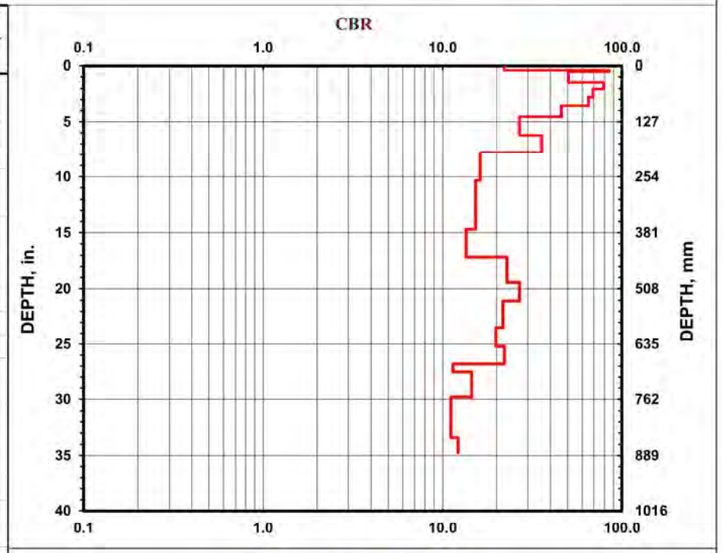
File Name: L_108+33_6' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	10	1
1	13	1
5	37	1
5	53	1
5	71	1
5	90	1
5	116	1
5	158	1
6	197	1
5	263	1
8	374	1
4	436	1
6	494	1
5	536	1
6	597	1
4	641	1
4	681	1
1	699	1
4	757	1
5	849	1
2	883	1



DCP TEST DATA

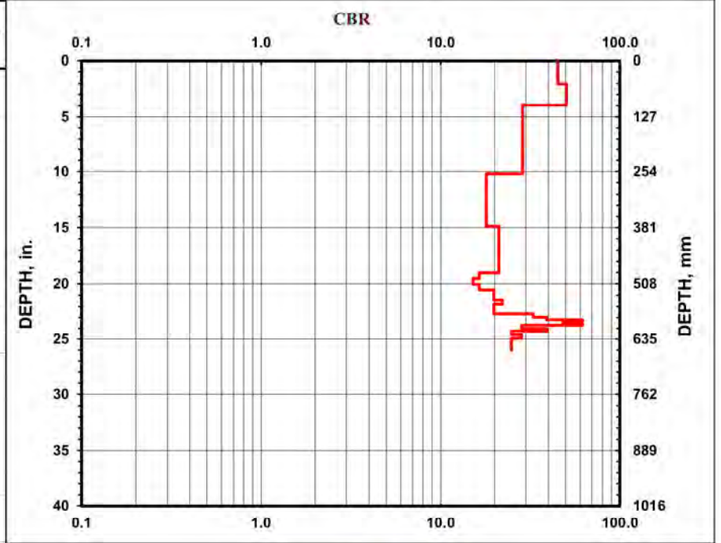
File Name: L_123+78_3' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
10	53	1
10	101	1
20	259	1
10	379	1
10	483	1
1	496	1
1	510	1
1	523	1
1	534	1
1	545	1
1	555	1
1	566	1
1	577	1
1	584	1
1	590	1
1	594	1
1	599	1
1	603	1
1	611	1
1	617	1
1	626	1
1	634	1
1	643	1
1	652	1
1	661	1



DCP TEST DATA

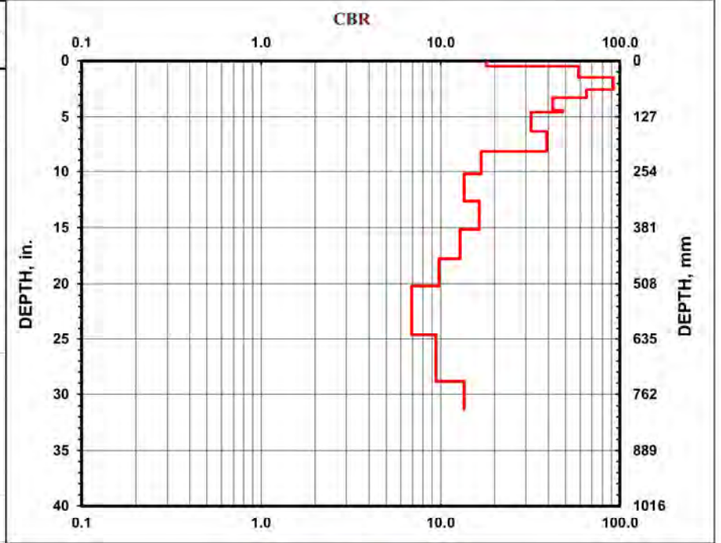
File Name: L_129+40_10' RT

Project: *G16005*
Location: Clay County, NC
Date: 13-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	12	1
6	37	1
5	51	1
5	65	1
5	84	1
5	112	1
1	117	1
6	160	1
8	208	1
4	259	1
4	321	1
5	386	1
4	451	1
3	513	1
4	626	1
5	733	1
4	795	1



DCP TEST DATA

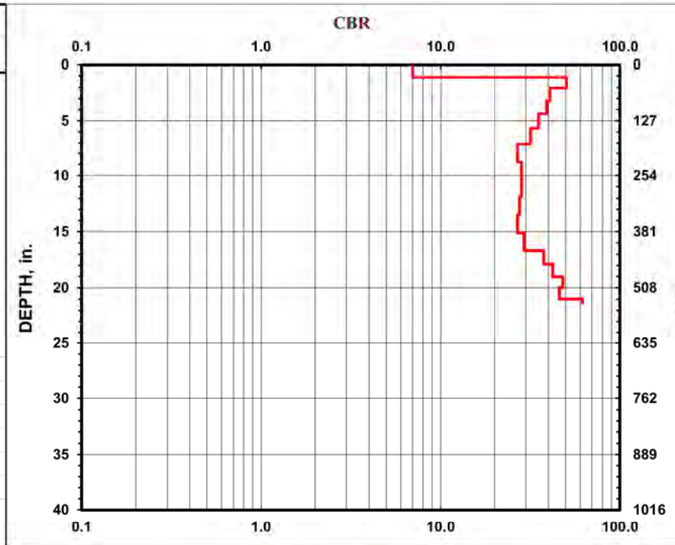
File Name: L_137+75_16' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	28	1
5	52	1
5	81	1
5	111	1
5	144	1
5	180	1
5	222	1
5	262	1
5	302	1
5	343	1
5	385	1
5	424	1
5	455	1
5	483	1
5	508	1
5	534	1
2	542	1



DCP TEST DATA

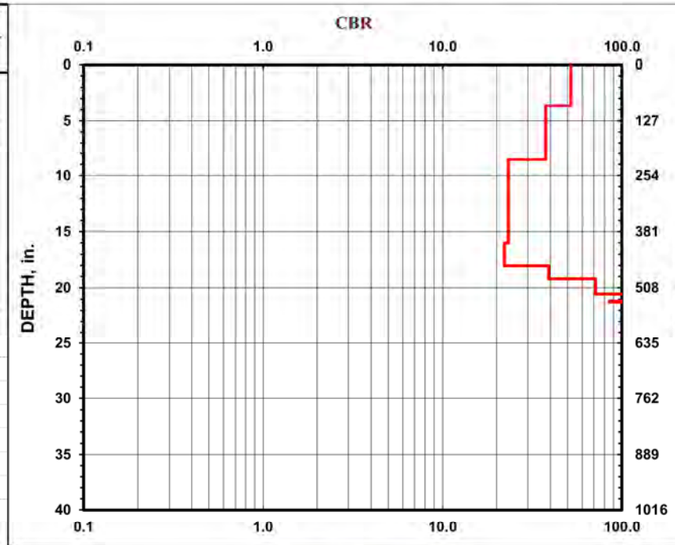
File Name: L_151+14_10' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
20	93	1
20	217	1
20	408	1
5	458	1
5	488	1
10	523	1
6	538	1
1	541	1
5	553	1
5	560	1
5	563	1
5	565	1
5	568	1



DCP TEST DATA

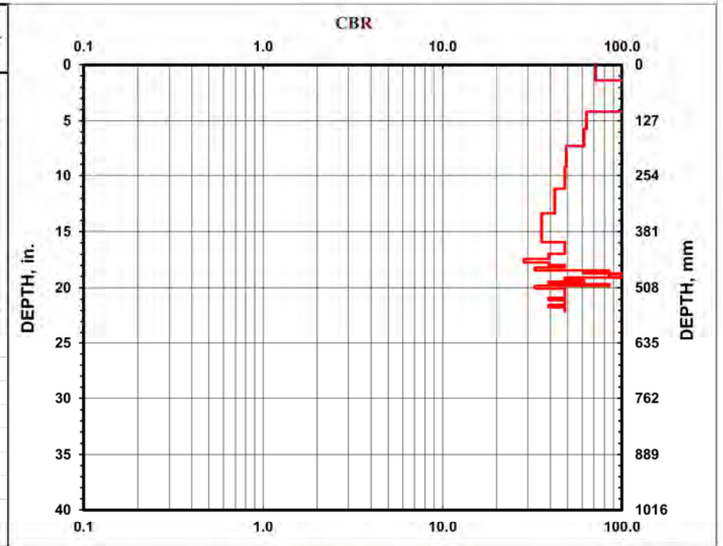
File Name: L_162+72_32' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
10	35	1
11	57	1
20	106	1
10	145	1
10	185	1
10	234	1
10	284	1
10	340	1
10	405	1
5	430	1
1	436	1
1	442	1
1	450	1
1	456	1
1	461	1
1	468	1
1	471	1
1	475	1
1	477	1
1	480	1
1	483	1
1	485	1
1	490	1
1	494	1
1	500	1
1	503	1
1	510	1
1	515	1
1	520	1
1	525	1
1	530	1
1	536	1
1	541	1
1	546	1
1	552	1
1	557	1
1	562	1



DCP TEST DATA

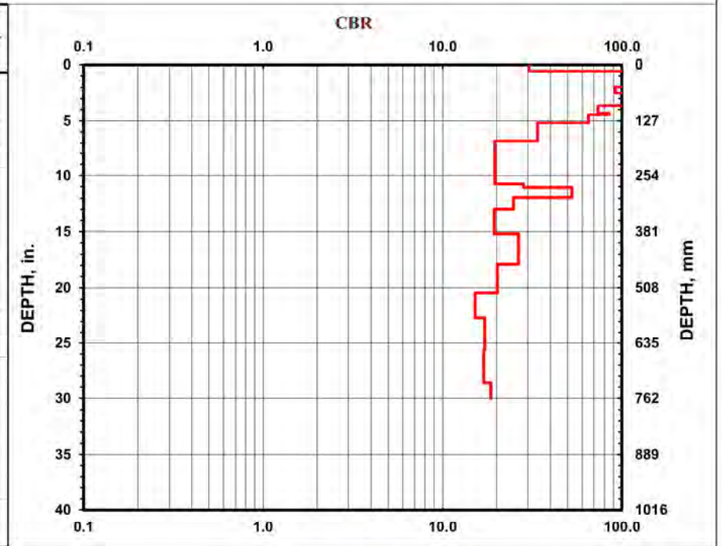
File Name: L_169+91_12' LT

Project: *G16005*
Location: Clay County, NC
Date: 13-Jul-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	15	1
5	25	1
5	34	1
5	42	1
5	50	1
5	64	1
5	74	1
5	83	1
5	93	1
5	110	1
1	113	1
5	132	1
6	173	1
9	273	1
1	281	1
5	304	1
3	331	1
5	387	1
8	455	1
6	520	1
4	576	1
6	651	1
6	727	1
3	762	1



DCP TEST DATA

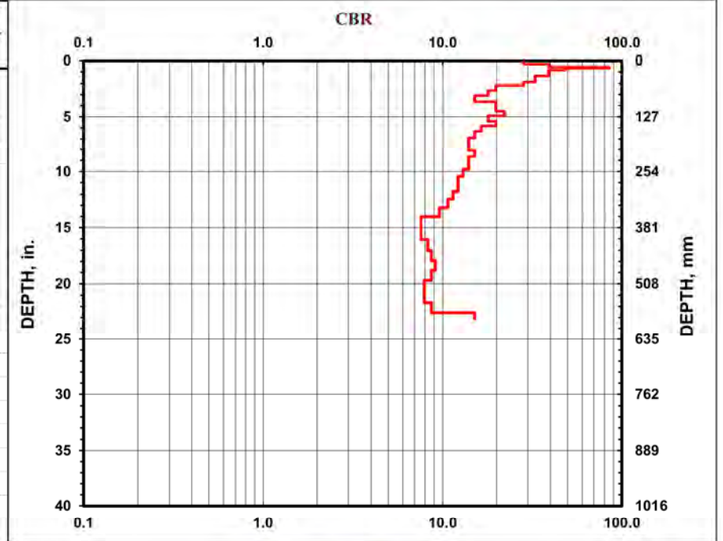
File Name: L_177+97_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	8	1
1	14	1
1	17	1
1	22	1
1	28	1
1	34	1
1	41	1
1	48	1
1	56	1
1	67	1
1	79	1
1	93	1
1	104	1
1	115	1
1	125	1
1	137	1
1	148	1
1	161	1
1	175	1
1	190	1
1	205	1
1	219	1
1	234	1
1	249	1
1	265	1
1	282	1
1	299	1
1	317	1
1	336	1
1	357	1
1	383	1
1	409	1
1	433	1
1	456	1
1	478	1
1	501	1
1	526	1
1	551	1
1	574	1
1	588	1



DCP TEST DATA

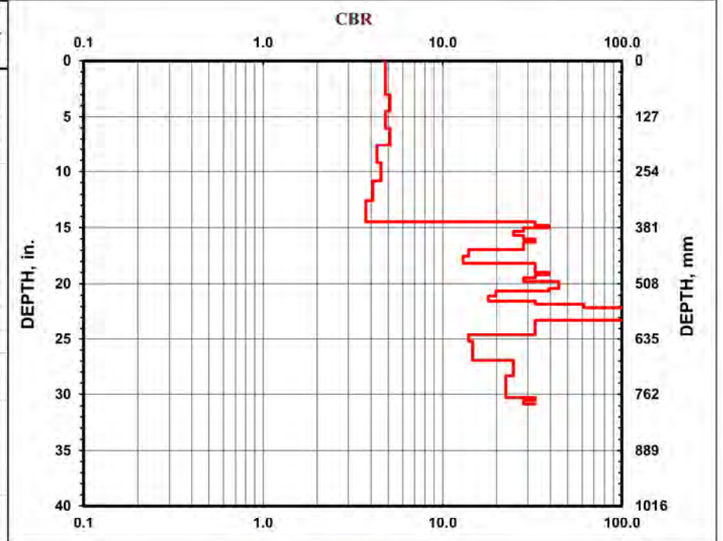
File Name: L_187+81_20' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	39	1
1	78	1
1	115	1
1	154	1
1	191	1
1	234	1
1	275	1
1	320	1
1	369	1
1	376	1
1	382	1
1	390	1
1	399	1
1	407	1
1	414	1
1	422	1
1	430	1
1	445	1
1	461	1
1	468	1
1	475	1
1	482	1
1	488	1
1	495	1
1	503	1
3	519	1
1	525	1
1	536	1
1	548	1
1	555	1
1	559	1
1	563	1
5	575	1
10	591	1
5	626	1
1	641	1
3	684	1
4	720	1
5	769	1
1	776	1
1	784	1
1	791	1



DCP TEST DATA

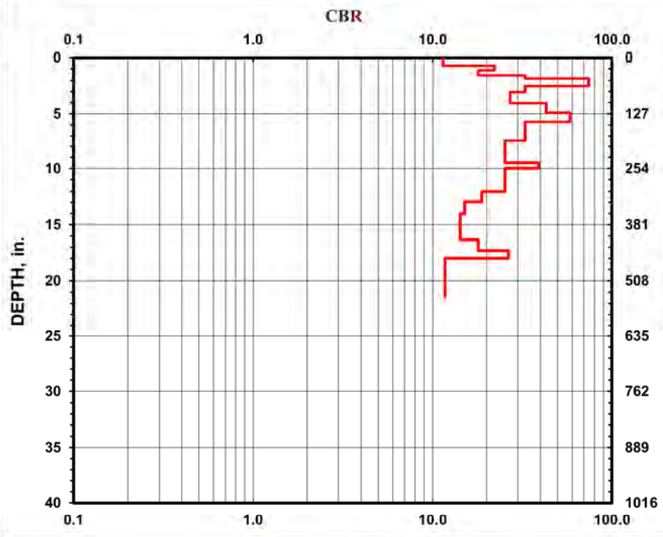
File Name: L_191+06_23' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	18	1
1	28	1
1	40	1
1	47	1
5	64	1
2	78	1
3	103	1
4	125	1
5	146	1
6	188	1
6	241	1
2	253	1
6	306	1
2	329	1
2	357	1
4	416	1
2	440	1
2	457	1
5	545	1



DCP TEST DATA

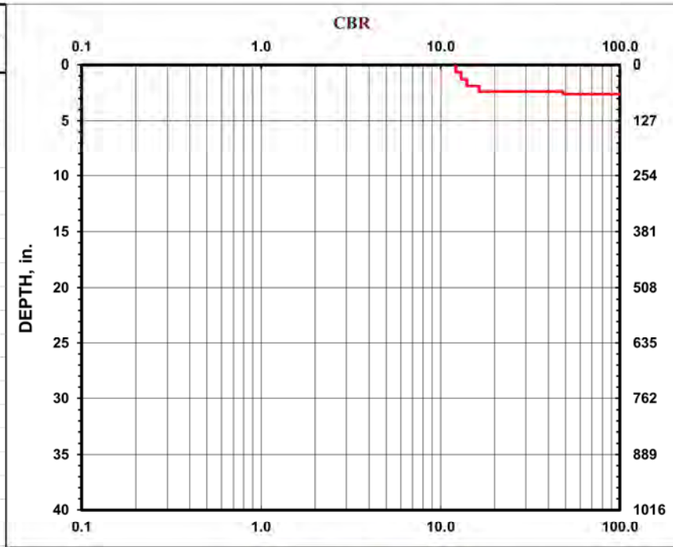
File Name: L_195+79_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	17	1
1	33	1
1	48	1
1	61	1
1	66	1
1	67	1
15	78	1
15	89	1
15	104	1
15	116	1
15	126	1
15	136	1
15	148	1
15	156	1
15	159	1
15	167	1
15	172	1
15	176	1
15	181	1
15	185	1
20	189	1
15	193	1
25	198	1
30	203	1
30	207	1
30	212	1
30	218	1
40	224	1
30	228	1
10	229	1
	Refusal	



DCP TEST DATA

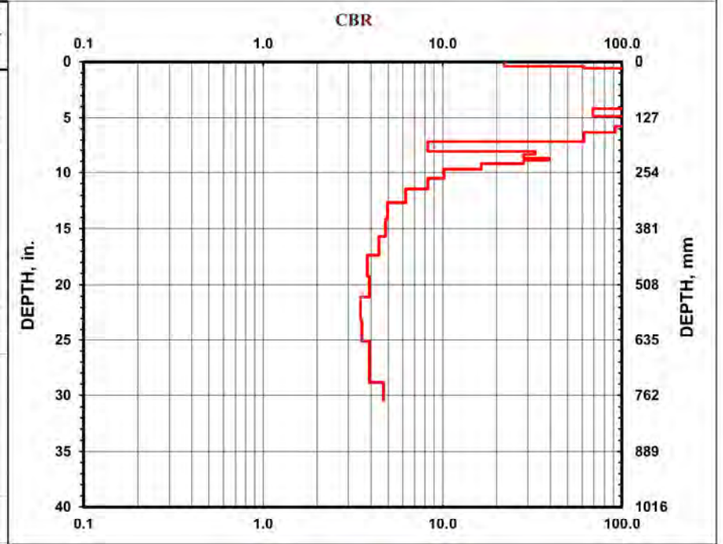
File Name: L_205+92

Project: *G16005*
Location: Clay County, NC
Date: 14-Sep-17
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	10	1
1	14	1
10	16	1
10	25	1
10	36	1
10	44	1
10	50	1
10	60	1
10	69	1
10	80	1
10	94	1
10	106	1
5	124	1
5	136	1
5	147	1
5	161	1
5	181	1
1	205	1
1	212	1
1	220	1
1	226	1
1	234	1
1	247	1
1	267	1
1	291	1
1	322	1
1	360	1
1	399	1
1	441	1
1	489	1
1	536	1
1	588	1
1	639	1
1	686	1
1	733	1
1	773	1



DCP TEST DATA

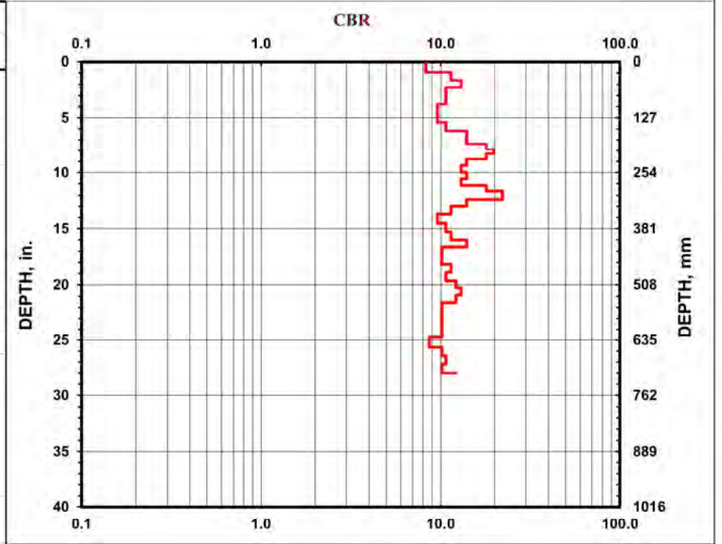
File Name: L_212+45_7' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	24	1
1	42	1
1	58	1
1	77	1
1	96	1
1	117	1
1	138	1
1	157	1
1	172	1
1	187	1
1	199	1
1	210	1
1	222	1
1	237	1
1	253	1
1	268	1
1	284	1
1	296	1
1	306	1
1	316	1
1	331	1
1	349	1
1	370	1
1	389	1
1	407	1
1	422	1
1	442	1
1	462	1
1	480	1
1	499	1
1	516	1
1	532	1
1	549	1
1	569	1
1	589	1
1	609	1
1	629	1
1	652	1
1	672	1
1	691	1
1	711	1
1	728	1



DCP TEST DATA

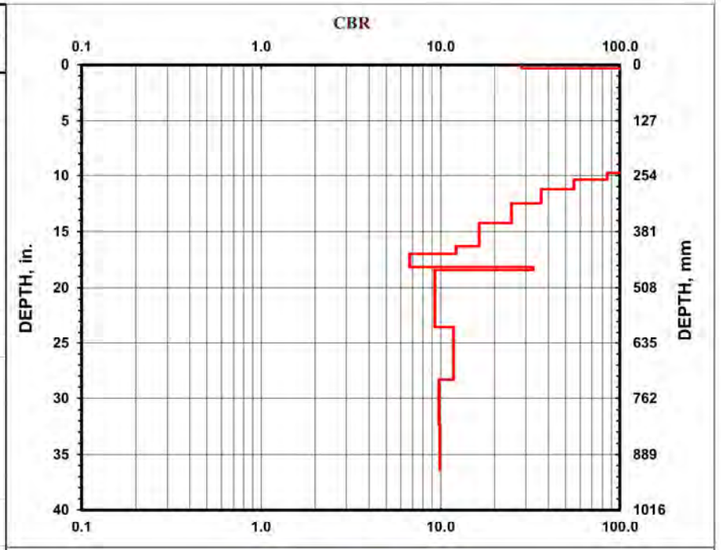
File Name: L_219+92_2' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	8	1
7	23	1
10	35	1
10	44	1
10	52	1
10	61	1
10	68	1
10	77	1
10	86	1
10	91	1
10	97	1
10	103	1
10	110	1
10	116	1
10	123	1
10	132	1
10	143	1
10	153	1
10	168	1
10	187	1
10	203	1
10	217	1
10	231	1
10	248	1
5	263	1
5	285	1
5	317	1
5	362	1
4	414	1
1	431	1
1	460	1
1	467	1
6	597	1
7	719	1
5	822	1
5	924	1



DCP TEST DATA

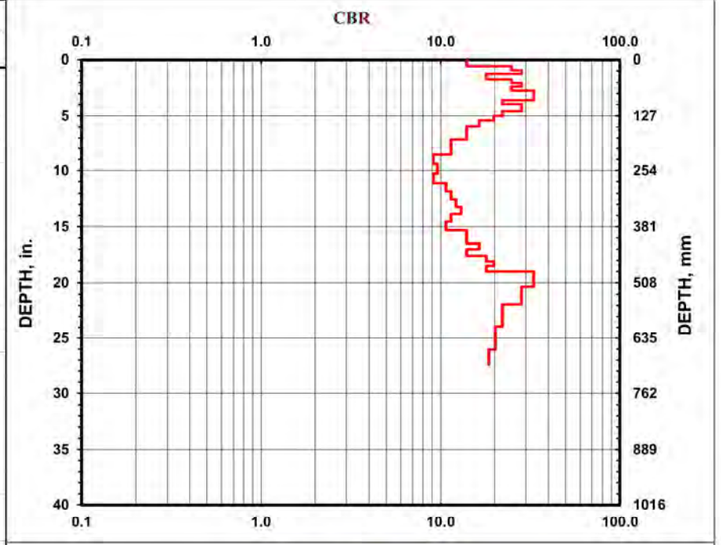
File Name: Y1_12+98_11' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	15	1
1	24	1
1	32	1
1	44	1
1	53	1
1	61	1
1	70	1
1	77	1
1	84	1
1	91	1
1	101	1
1	109	1
1	117	1
1	127	1
1	138	1
1	151	1
1	166	1
1	181	1
1	199	1
1	217	1
1	239	1
1	260	1
1	282	1
1	301	1
1	319	1
1	336	1
1	352	1
1	370	1
1	389	1
1	404	1
1	419	1
1	432	1
1	447	1
1	459	1
1	470	1
1	482	1
5	517	1
5	557	1
5	607	1
5	661	1
3	696	1



DCP TEST DATA

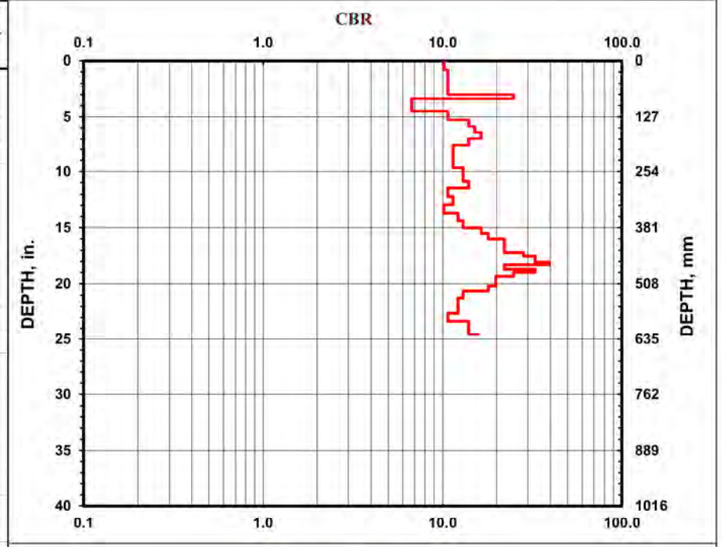
File Name: Y1_16+92_10' RT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	20	1
1	39	1
1	58	1
1	77	1
1	86	1
1	115	1
1	134	1
1	149	1
1	163	1
1	176	1
1	191	1
1	209	1
1	227	1
1	245	1
1	261	1
1	277	1
1	292	1
1	311	1
1	329	1
1	349	1
1	366	1
1	382	1
1	395	1
1	407	1
3	437	1
1	445	1
1	452	1
1	459	1
1	465	1
1	475	1
1	482	1
1	491	1
1	502	1
1	513	1
1	525	1
1	541	1
1	558	1
1	575	1
1	594	1
1	609	1
1	624	1
9	745	1



DCP TEST DATA

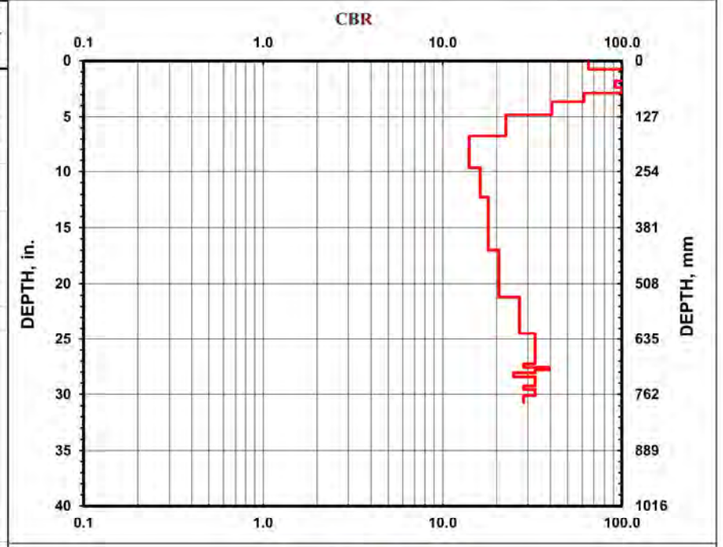
File Name: Y2_28+21_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
5	19	1
5	31	1
4	35	1
5	46	1
5	60	1
5	73	1
5	93	1
5	122	1
5	171	1
5	246	1
5	312	1
10	432	1
10	538	1
10	622	1
10	692	1
1	700	1
1	706	1
1	713	1
1	722	1
1	729	1
1	736	1
1	743	1
1	751	1
1	758	1
1	765	1
1	773	1
1	781	1



DCP TEST DATA

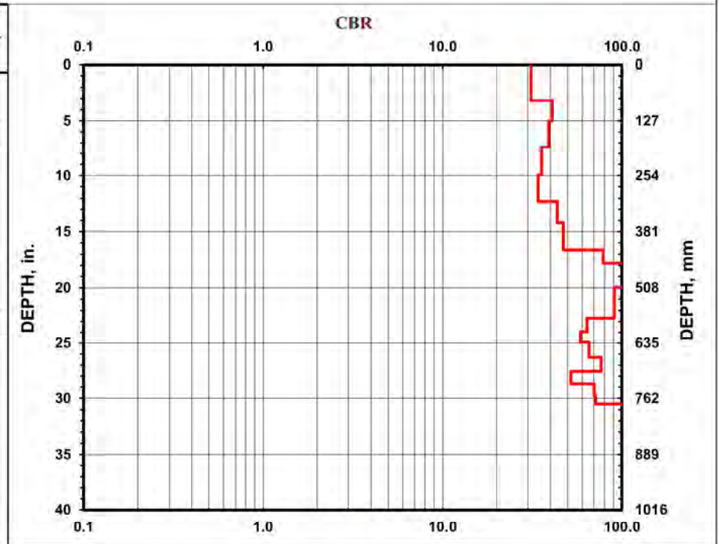
File Name: Y3_11+27_103' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
11	81	1
8	127	1
10	187	1
10	252	1
9	313	1
9	362	1
12	423	1
9	452	1
10	472	1
15	507	1
25	578	1
8	609	1
6	634	1
9	668	1
10	701	1
6	729	1
7	754	1
6	775	1
11	803	1



DCP TEST DATA

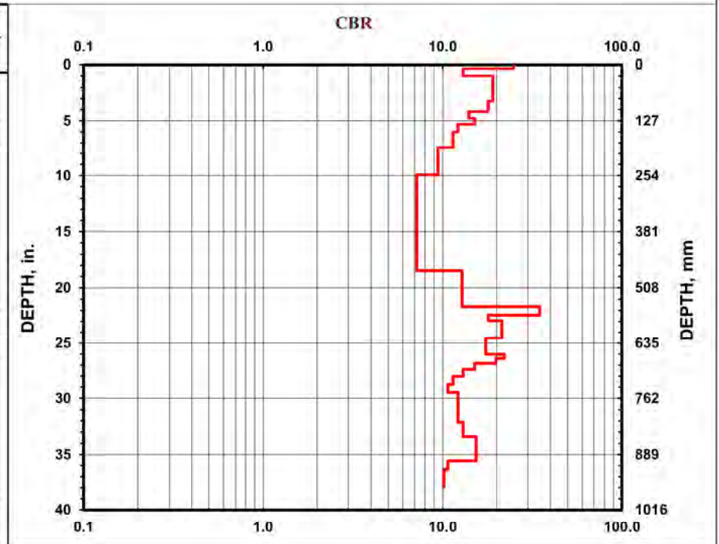
File Name: Y4_12+65 6' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	9	1
1	25	1
5	82	1
1	94	1
1	106	1
1	121	1
1	135	1
1	152	1
1	170	1
1	188	1
3	252	1
8	470	1
5	551	1
3	571	1
1	583	1
4	624	1
3	661	1
1	671	1
1	682	1
1	696	1
1	712	1
1	730	1
1	749	1
4	817	1
1	833	1
1	849	1
4	904	1
1	923	1
1	943	1
1	963	1



DCP TEST DATA

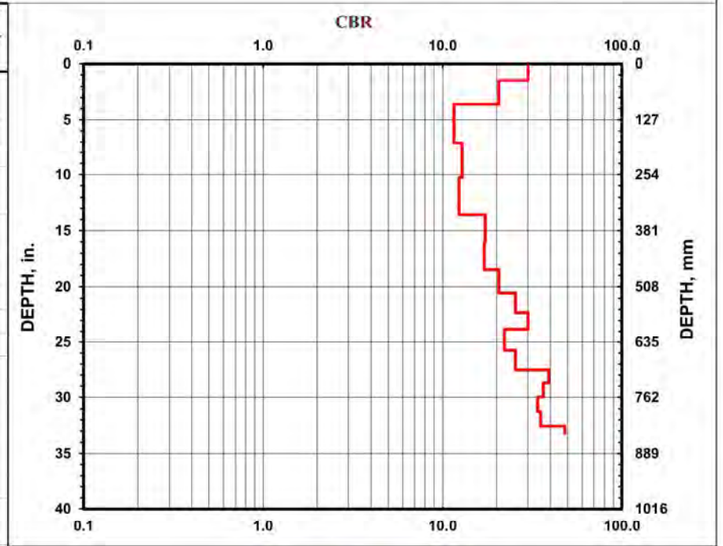
File Name: Y5_12+25_15' RT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	38	1
5	91	1
5	180	1
5	261	1
5	345	1
5	407	1
5	470	1
5	523	1
5	567	1
5	605	1
5	655	1
5	699	1
5	729	1
5	761	1
5	795	1
5	828	1
3	843	1



DCP TEST DATA

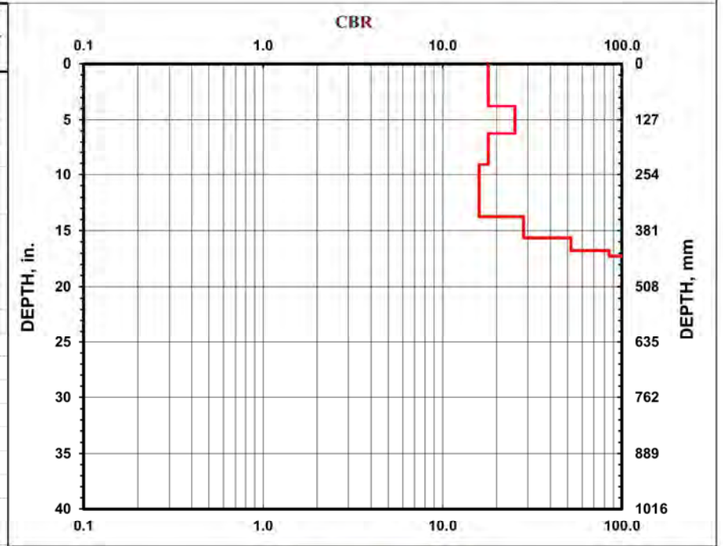
File Name: Y7_13+01_5' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
8	96	1
7	158	1
6	230	1
9	350	1
6	398	1
6	426	1
4	438	1
25	469	1
35	496	1
35	521	1
25	541	1
25	562	1
40	599	1
35	630	1
30	660	1
35	692	1
40	736	1
30	769	1
30	809	1
35	859	1



DCP TEST DATA

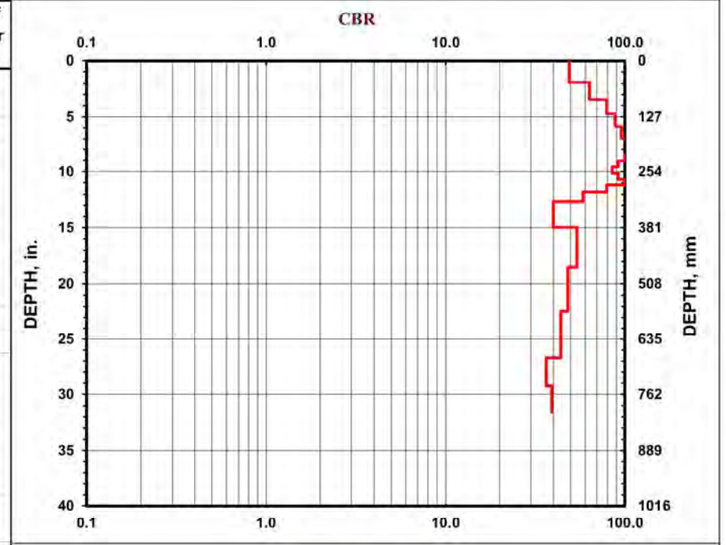
File Name: Y8_14+01

Project: *G16005*
Location: Clay County, NC
Date: 20-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	49	1
10	88	1
10	120	1
10	149	1
10	176	1
8	195	1
5	205	1
5	216	1
5	229	1
5	243	1
5	258	1
5	272	1
5	285	1
5	301	1
5	322	1
10	381	1
20	471	1
20	571	1
20	679	1
10	743	1
10	803	1



DCP TEST DATA

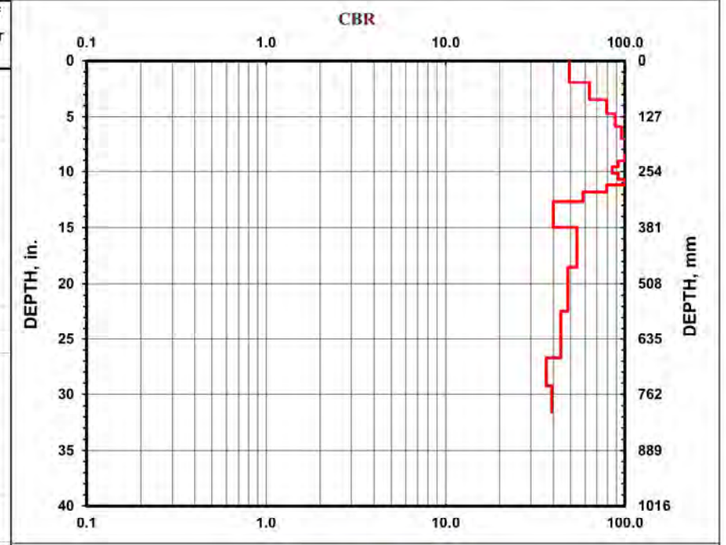
File Name: Y9_12+06_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 20-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	49	1
10	88	1
10	120	1
10	149	1
10	176	1
8	195	1
5	205	1
5	216	1
5	229	1
5	243	1
5	258	1
5	272	1
5	285	1
5	301	1
5	322	1
10	381	1
20	471	1
20	571	1
20	679	1
10	743	1
10	803	1



DCP TEST DATA

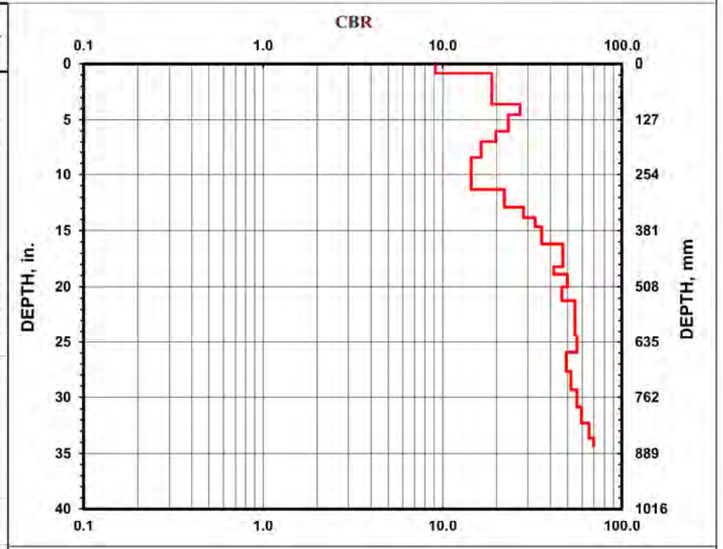
File Name: Y10_11+65_34' LT

Project: *G16005*
Location: Clay County, NC
Date: 20-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	22	1
6	91	1
3	116	1
4	154	1
2	176	1
3	215	1
5	288	1
4	328	1
3	352	1
3	373	1
6	412	1
10	463	1
3	480	1
6	509	1
6	540	1
9	580	1
9	620	1
9	659	1
9	703	1
9	745	1
9	784	1
9	821	1
9	855	1
5	873	1



DCP TEST DATA

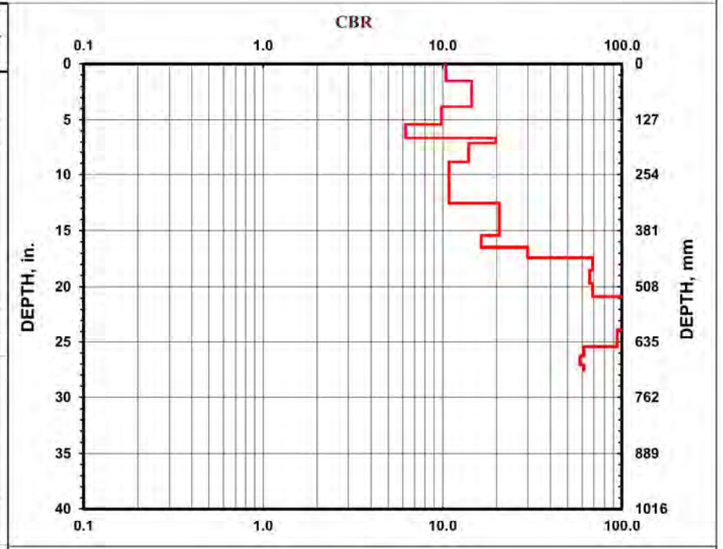
File Name: Y11_13+98_04' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
2	39	1
4	97	1
2	138	1
1	169	1
1	180	1
3	225	1
5	319	1
7	393	1
2	419	1
3	442	1
8	471	1
8	501	1
8	530	1
5	541	1
25	550	1
25	558	1
25	571	1
25	606	1
15	647	1
5	667	1
5	688	1
3	700	1



DCP TEST DATA

File Name: Y12_12+02_16' LT

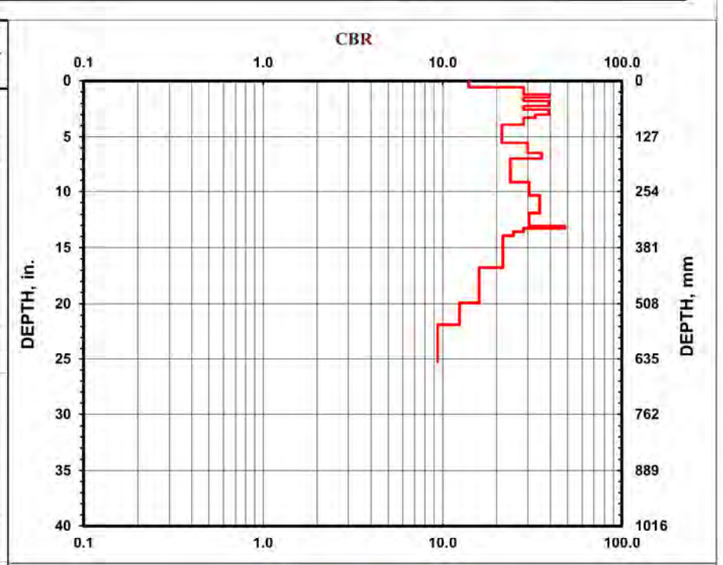
Project: *G16005* **Date:** 8-Jun-18

Location: Clay County, NC **Soil Type(s):** Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	15	1
2	31	1
1	37	1
1	45	1
2	57	1
1	65	1
2	77	1
1	84	1
2	100	1
4	141	1
3	164	1
2	177	1
6	233	1
4	263	1
6	303	1
4	333	1
1	338	1
1	346	1
1	355	1
7	426	1
6	506	1
3	556	1
4	642	1



DCP TEST DATA

File Name: Y13_11+94_1' LT

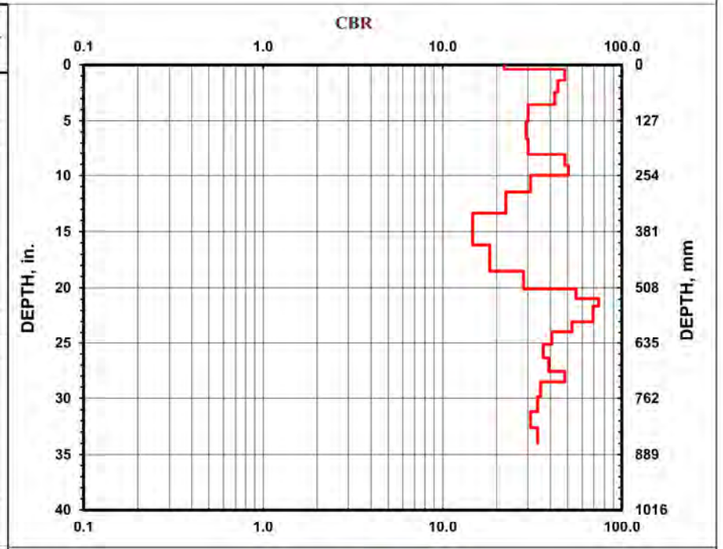
Project: *G16005* **Date:** 8-Jun-18

Location: Clay County, NC **Soil Type(s):** A

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	10	1
5	35	1
5	62	1
5	90	1
5	128	1
5	167	1
5	205	1
5	230	1
5	254	1
5	291	1
5	340	1
5	412	1
5	471	1
5	511	1
5	533	1
5	550	1
5	568	1
5	586	1
5	609	1
5	638	1
5	670	1
5	700	1
5	725	1
5	758	1
5	792	1
5	829	1
5	863	1



DCP TEST DATA

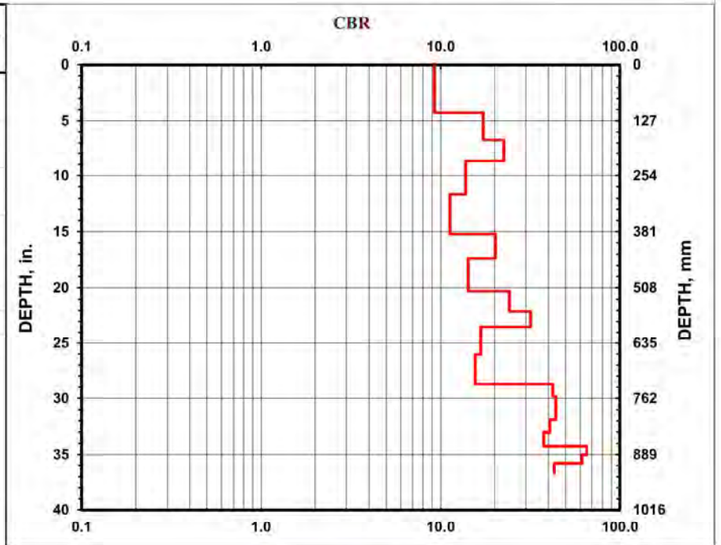
File Name: Y14_12+02_18' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
5	109	1
5	171	1
5	220	1
5	296	1
5	387	1
5	441	1
5	515	1
5	561	1
5	597	1
5	661	1
5	729	1
5	757	1
5	784	1
5	811	1
5	840	1
5	871	1
5	890	1
5	910	1
4	932	1



DCP TEST DATA

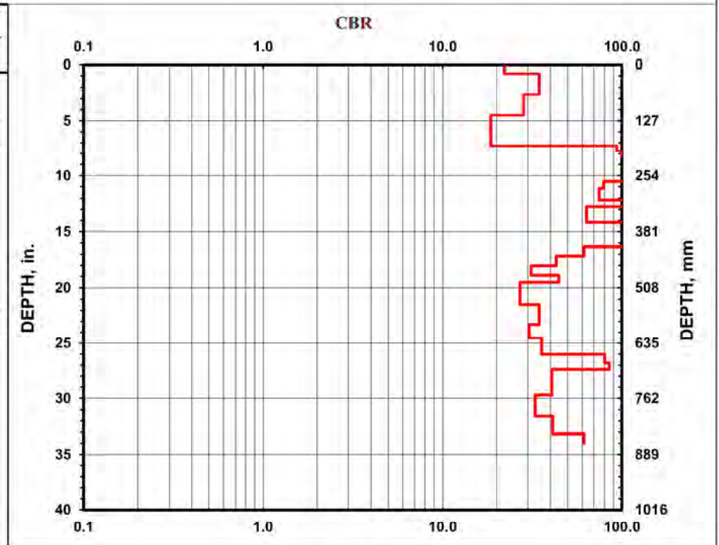
File Name: Y15_11+89_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
2	20	1
7	67	1
6	115	1
6	185	1
4	196	1
5	209	1
5	220	1
5	226	1
5	235	1
5	243	1
5	251	1
5	259	1
5	267	1
5	283	1
8	310	1
6	325	1
9	360	1
8	377	1
5	382	1
5	387	1
5	393	1
5	398	1
5	403	1
5	409	1
5	416	1
5	436	1
4	458	1
3	480	1
3	496	1
6	546	1
7	593	1
4	623	1
6	662	1
6	681	1
5	696	1
10	754	1
7	803	1
7	843	1
5	863	1



DCP TEST DATA

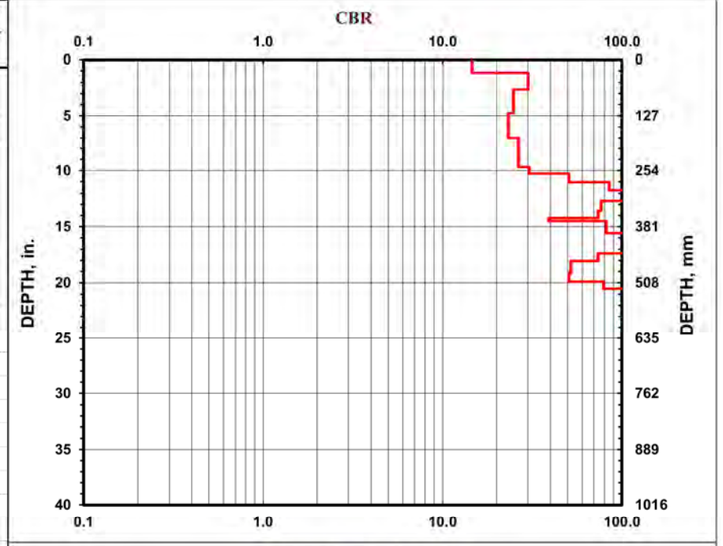
File Name: Y16_11+98_7' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
2	29	1
5	67	1
6	121	1
6	178	1
8	246	1
2	261	1
4	280	1
6	298	1
4	308	1
6	322	1
7	345	1
5	362	1
1	368	1
9	396	1
7	408	1
5	413	1
5	420	1
5	429	1
5	441	1
5	458	1
6	486	1
4	505	1
5	521	1
5	526	1
5	529	1
5	530	1
5	532	1
15	534	1



DCP TEST DATA

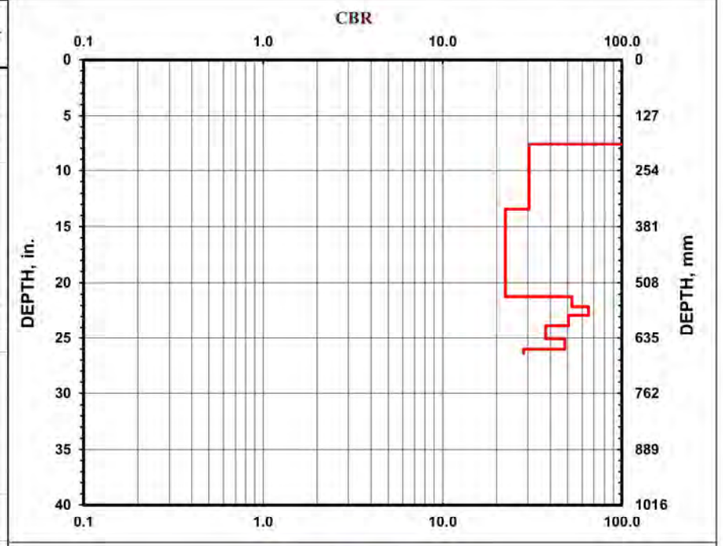
File Name: Y17_12+19_1' RT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
4	6	1
5	13	1
5	20	1
5	26	1
5	32	1
5	34	1
5	40	1
5	44	1
5	47	1
5	51	1
5	56	1
5	60	1
5	62	1
5	65	1
5	70	1
5	73	1
5	76	1
5	79	1
5	85	1
5	88	1
5	92	1
5	96	1
50	131	1
25	142	1
25	155	1
20	192	1
20	342	1
20	540	1
5	563	1
5	582	1
5	606	1
5	637	1
5	662	1
1	670	1



DCP TEST DATA

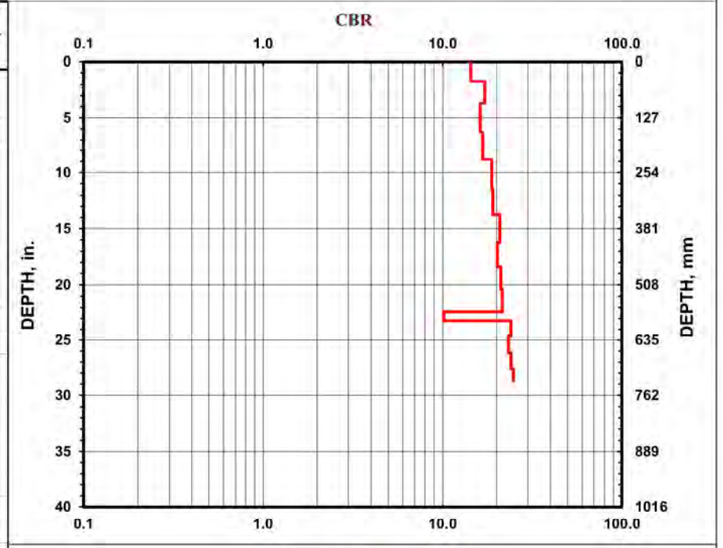
File Name: Y19_15+87_38' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
3	44	1
4	94	1
5	160	1
5	224	1
6	293	1
5	350	1
6	413	1
5	467	1
5	519	1
5	570	1
1	590	1
4	627	1
4	665	1
4	702	1
3	729	1



DCP TEST DATA

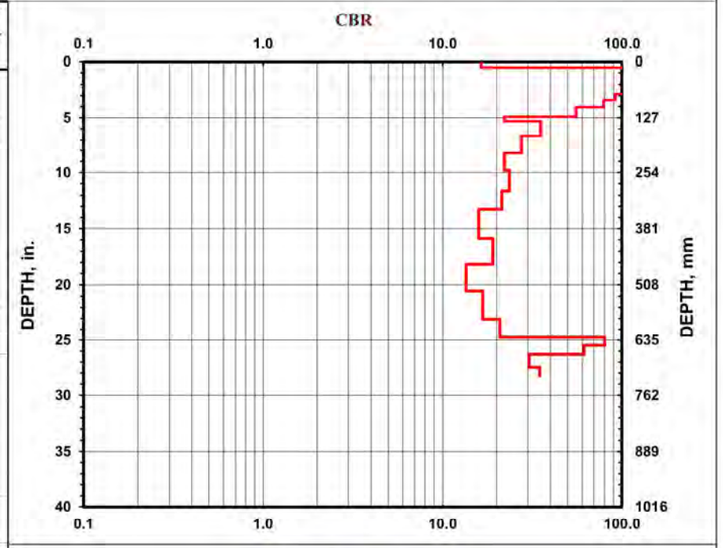
File Name: Y20_1703_1' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	13	1
1	15	1
1	17	1
5	27	1
5	37	1
5	45	1
5	54	1
5	63	1
5	73	1
5	87	1
5	103	1
5	125	1
1	135	1
5	168	1
5	209	1
4	249	1
5	296	1
4	337	1
5	404	1
5	461	1
4	523	1
5	587	1
4	629	1
6	648	1
5	668	1
4	698	1
3	718	1



DCP TEST DATA

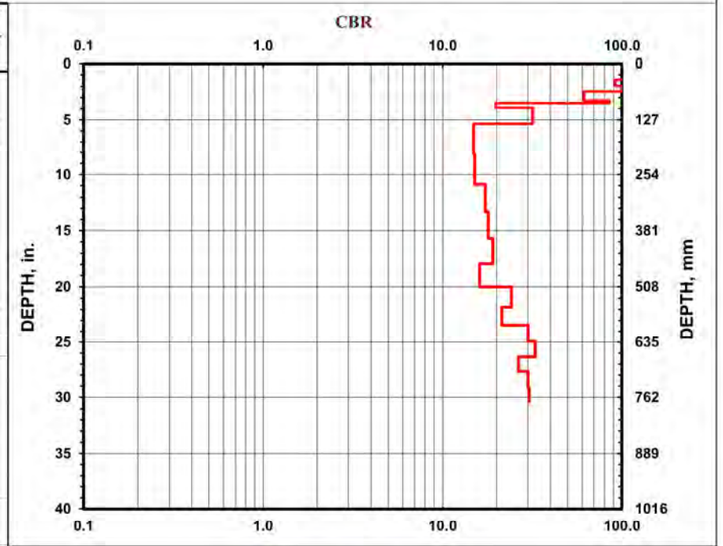
File Name: Y20_28+21_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
5	11	1
5	22	1
2	25	1
5	36	1
5	50	1
5	63	1
5	83	1
2	89	1
1	100	1
5	136	1
5	207	1
5	277	1
5	339	1
5	399	1
5	456	1
4	509	1
5	555	1
4	596	1
5	634	1
5	669	1
4	703	1
5	741	1
4	771	1



DCP TEST DATA

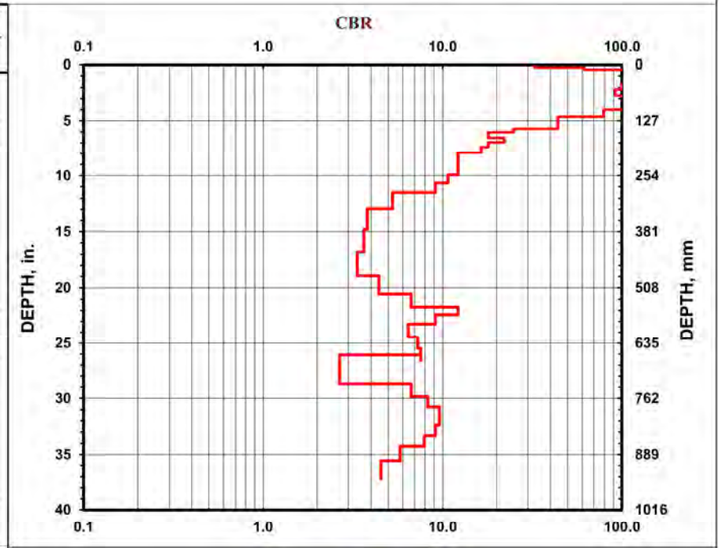
File Name: L_25+48_4' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	7	1
1	11	1
5	22	1
5	31	1
5	43	1
5	56	1
5	70	1
5	78	1
5	90	1
5	102	1
5	118	1
5	145	1
1	154	1
1	166	1
1	176	1
1	188	1
1	201	1
2	235	1
1	252	1
1	271	1
1	293	1
1	329	1
1	377	1
1	427	1
1	481	1
1	523	1
1	552	1
1	569	1
1	591	1
1	621	1
1	648	1
1	674	1
1	663	1
1	729	1
1	758	1
1	782	1
2	824	1
1	846	1
1	871	1
1	904	1
1	945	1



DCP TEST DATA

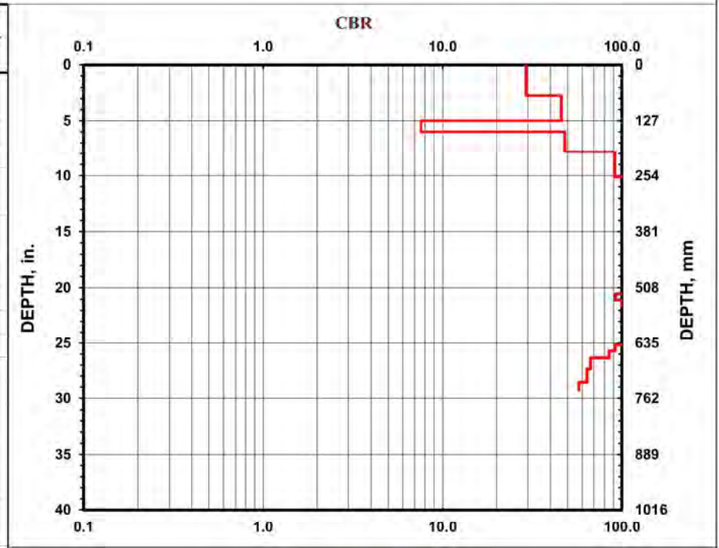
File Name: L_34+08_26' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
9	70	1
11	127	1
1	153	1
9	198	1
21	257	1
21	305	1
70	390	1
55	442	1
30	479	1
5	489	1
5	499	1
5	510	
5	522	1
5	536	1
5	549	1
14	579	1
5	585	1
5	589	1
5	594	1
5	598	1
5	603	1
5	608	1
5	614	1
5	620	1
5	629	1
5	640	1
5	654	1
5	669	1
7	695	1
8	726	1
4	743	1



DCP TEST DATA

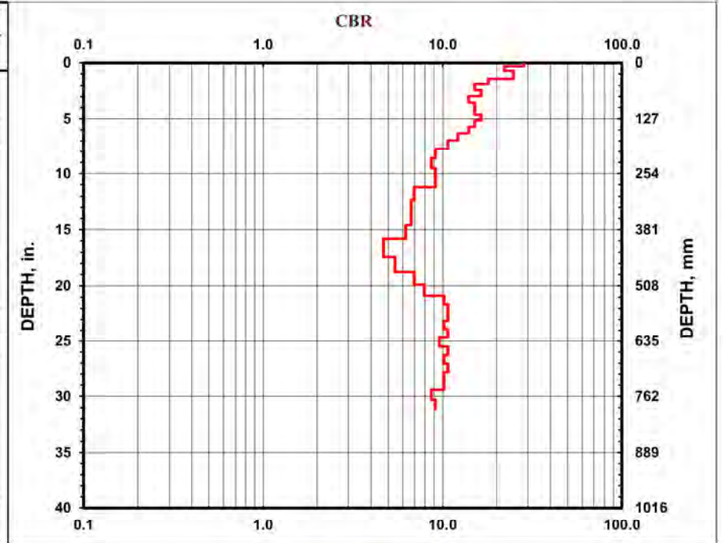
File Name: L_43+46_14' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	8	1
1	18	1
1	27	1
1	36	1
1	48	1
1	62	1
1	75	1
1	90	1
1	104	1
1	118	1
1	131	1
1	145	1
1	160	1
1	177	1
1	196	1
1	218	1
1	241	1
1	263	1
1	285	1
1	313	1
1	342	1
1	371	1
1	402	1
1	442	1
1	477	1
1	505	1
1	530	1
1	550	1
1	569	1
1	588	1
1	608	1
1	627	1
1	648	1
1	667	1
1	687	1
1	706	1
1	726	1
1	746	1
1	769	1
1	791	1



DCP TEST DATA

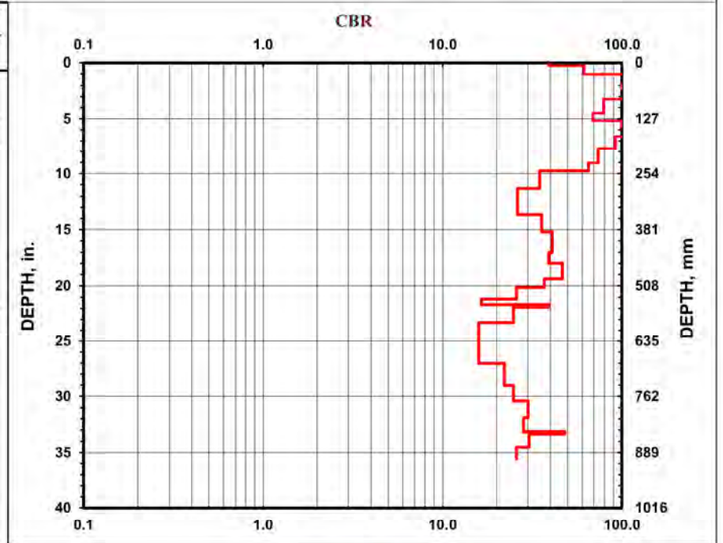
File Name: L_52+27_16' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	6	1
5	26	1
5	38	1
5	48	1
5	61	1
5	72	1
5	82	1
5	98	1
5	114	1
5	132	1
5	145	1
5	156	1
5	167	1
5	181	1
5	195	1
5	212	1
5	229	1
5	248	1
6	288	1
7	348	1
6	387	1
8	433	1
4	457	1
7	493	1
3	512	1
3	538	1
1	551	1
1	557	1
4	593	1
7	687	1
5	737	1
4	773	1
5	811	1
4	843	1
1	848	1
4	878	1
3	904	1



DCP TEST DATA

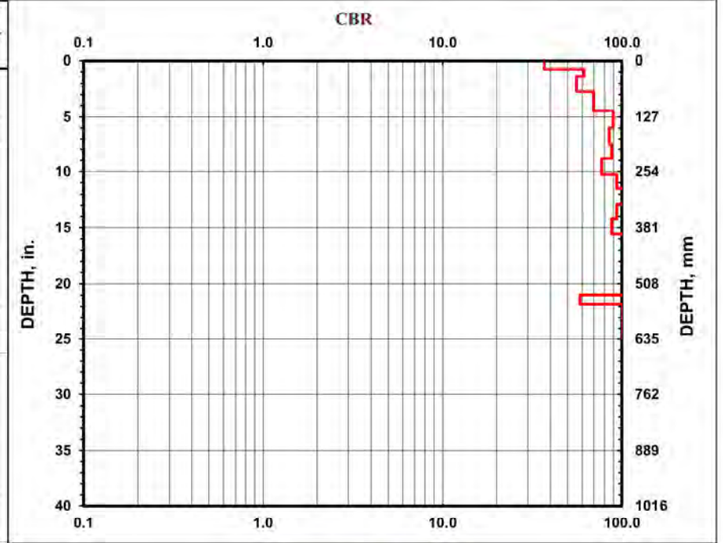
File Name: L_61+11_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
3	19	1
4	35	1
8	70	1
12	113	1
14	153	1
12	189	1
12	224	1
11	260	1
12	293	1
14	328	1
12	361	1
12	396	1
13	429	1
14	458	1
25	503	1
15	534	1
5	555	1
30	632	1



DCP TEST DATA

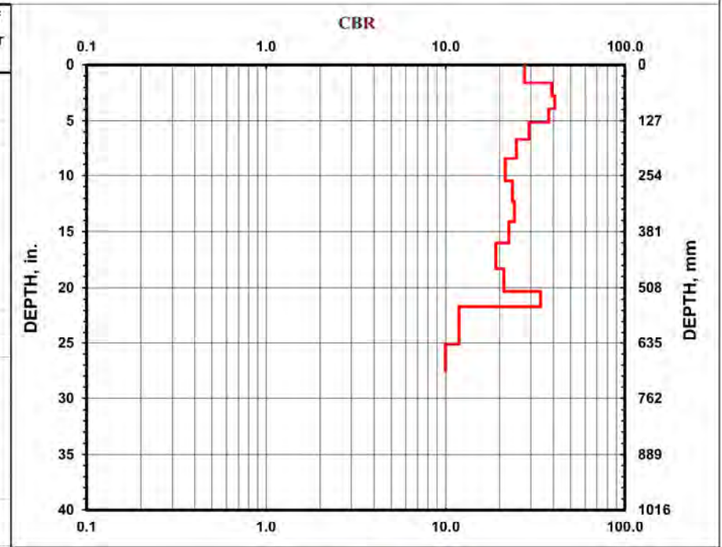
File Name: L_72+90_19' LT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	41	1
5	71	1
5	100	1
5	131	1
5	170	1
5	215	1
5	266	1
5	313	1
5	359	1
5	408	1
5	465	1
5	517	1
5	551	1
5	638	1
3	699	1



DCP TEST DATA

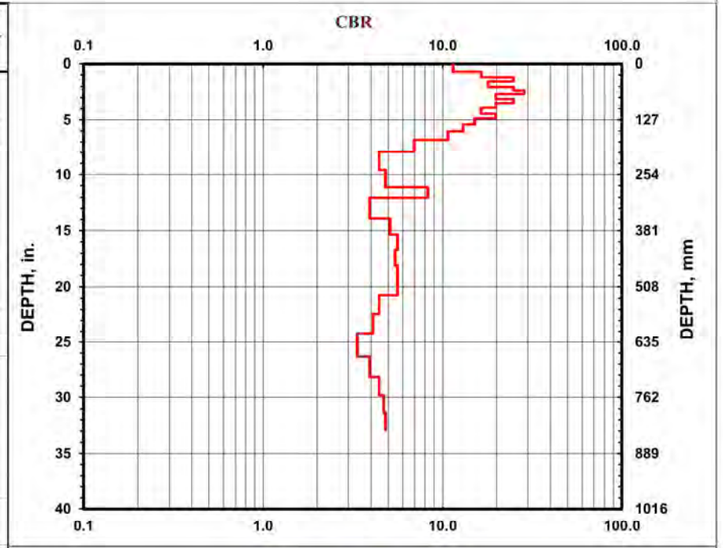
File Name: L_80+55_6' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer: (O) 10.1 lbs. (●) 17.6 lbs. ( ) Both hammers used

Soil Type: ( ) CH ( ) CL (●) All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	18	1
1	31	1
1	40	1
1	52	1
1	61	1
1	69	1
1	80	1
1	89	1
1	100	1
1	113	1
1	124	1
1	138	1
1	154	1
1	173	1
1	201	1
1	243	1
1	282	1
1	306	1
1	353	1
1	390	1
1	424	1
1	459	1
1	493	1
1	527	1
1	569	1
1	614	1
1	668	1
1	715	1
1	757	1
1	797	1
1	836	1



DCP TEST DATA

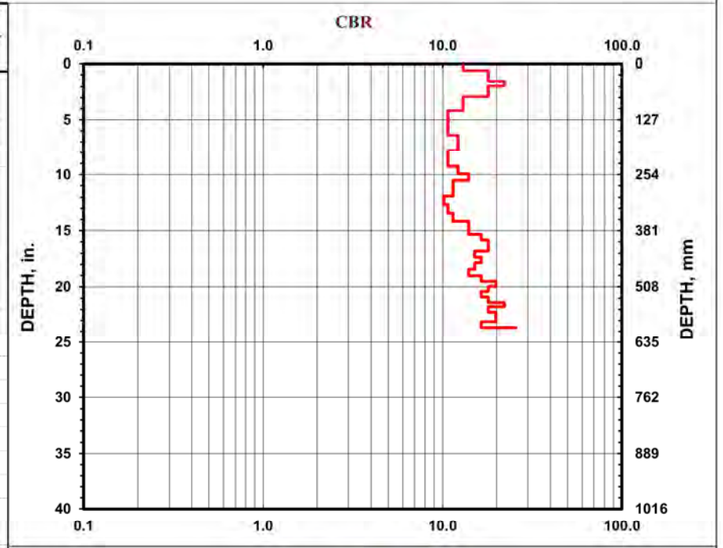
File Name: L_89+82_13' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer: (O) 10.1 lbs. (●) 17.6 lbs. ( ) Both hammers used

Soil Type: ( ) CH ( ) CL (●) All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	16	1
1	28	1
1	40	1
1	50	1
1	62	1
1	74	1
1	90	1
1	106	1
1	125	1
1	144	1
1	163	1
1	180	1
1	197	1
1	216	1
1	235	1
1	252	1
1	267	1
1	285	1
1	303	1
1	323	1
1	342	1
1	360	1
1	375	1
1	390	1
1	403	1
1	415	1
1	427	1
1	441	1
1	454	1
1	468	1
1	483	1
1	496	1
1	507	1
1	519	1
1	532	1
1	544	1
1	554	1
1	566	1
1	577	1
1	588	1
1	601	1
11	697	1



DCP TEST DATA

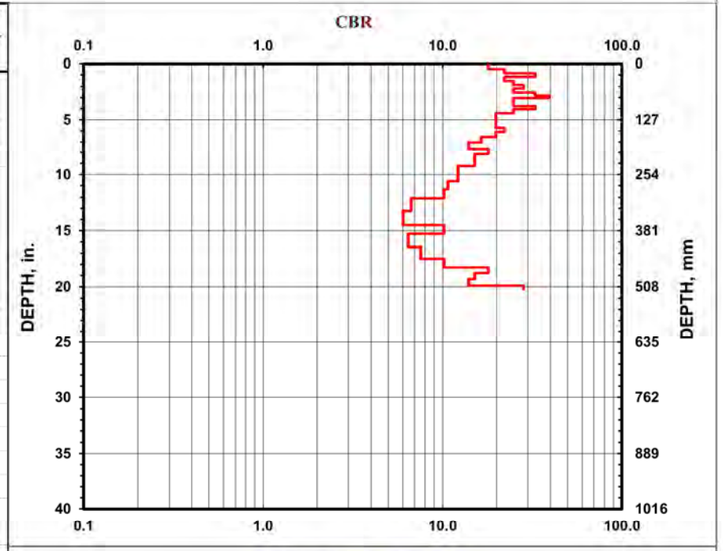
File Name: L_97+13_23' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	12	1
1	22	1
1	29	1
1	39	1
1	48	1
1	56	1
1	65	1
1	72	1
1	78	1
1	87	1
1	96	1
1	103	1
1	112	1
1	123	1
1	134	1
1	145	1
1	155	1
1	166	1
1	179	1
1	194	1
1	206	1
1	220	1
1	234	1
1	251	1
1	268	1
1	287	1
1	307	1
1	336	1
1	368	1
1	388	1
1	418	1
1	444	1
1	464	1
1	476	1
1	490	1
1	505	1
1	513	1



DCP TEST DATA

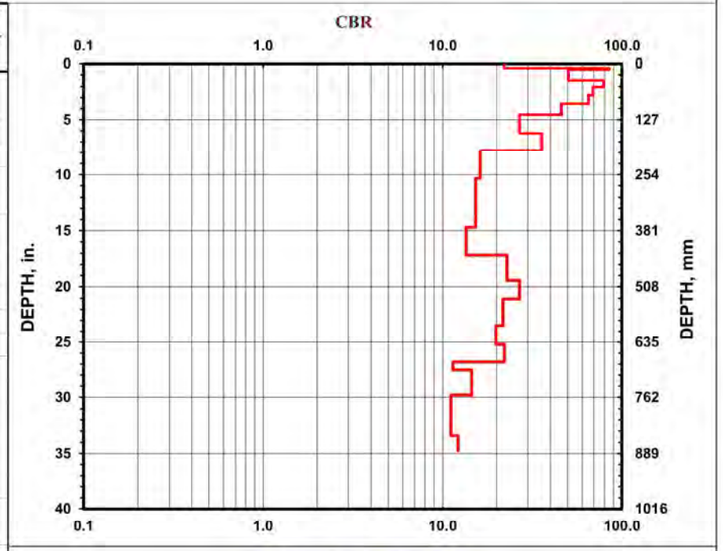
File Name: L_108+33_6' RT

Project: *G16005*
Location: Clay County, NC
Date: 7-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	10	1
1	13	1
5	37	1
5	53	1
5	71	1
5	90	1
5	116	1
5	158	1
6	197	1
5	263	1
8	374	1
4	436	1
6	494	1
5	536	1
6	597	1
4	641	1
4	681	1
1	699	1
4	757	1
5	849	1
2	883	1



DCP TEST DATA

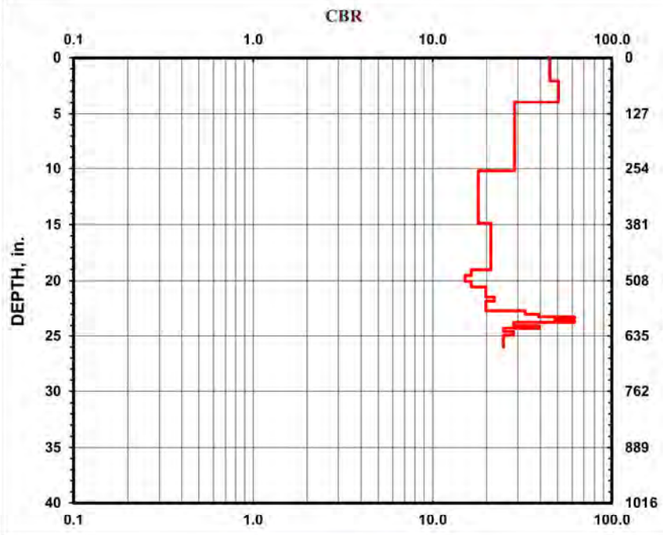
File Name: L_123+78_3' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
10	53	1
10	101	1
20	259	1
10	379	1
10	483	1
1	496	1
1	510	1
1	523	1
1	534	1
1	545	1
1	555	1
1	566	1
1	577	1
1	584	1
1	590	1
1	594	1
1	599	1
1	603	1
1	611	1
1	617	1
1	626	1
1	634	1
1	643	1
1	652	1
1	661	1



DCP TEST DATA

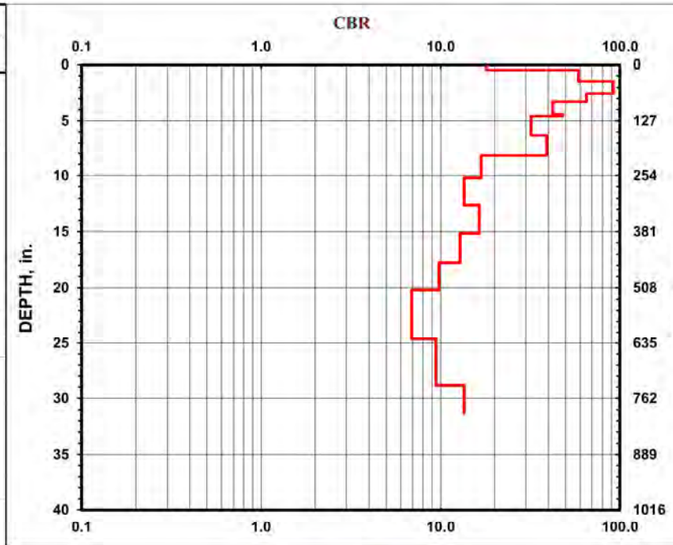
File Name: L_129+40_10' RT

Project: *G16005*
Location: Clay County, NC
Date: 13-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	12	1
6	37	1
5	51	1
5	65	1
5	84	1
5	112	1
1	117	1
6	160	1
8	208	1
4	259	1
4	321	1
5	386	1
4	451	1
3	513	1
4	626	1
5	733	1
4	795	1



DCP TEST DATA

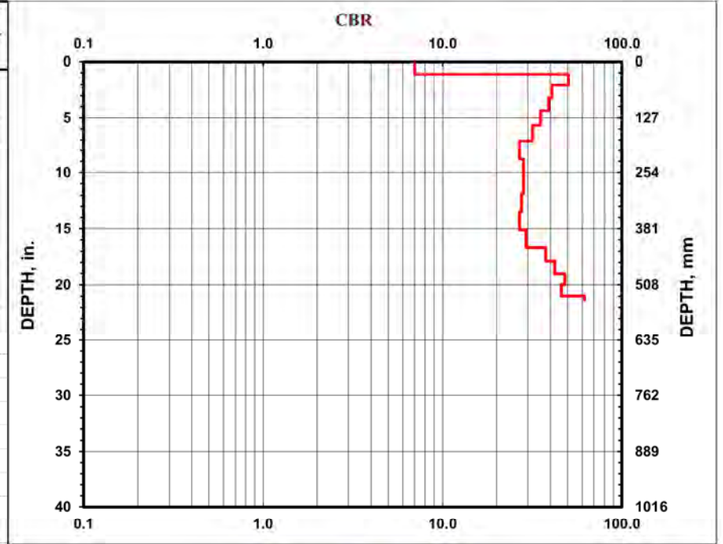
File Name: L_137+75_16' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	28	1
5	52	1
5	81	1
5	111	1
5	144	1
5	180	1
5	222	1
5	262	1
5	302	1
5	343	1
5	385	1
5	424	1
5	455	1
5	483	1
5	508	1
5	534	1
2	542	1



DCP TEST DATA

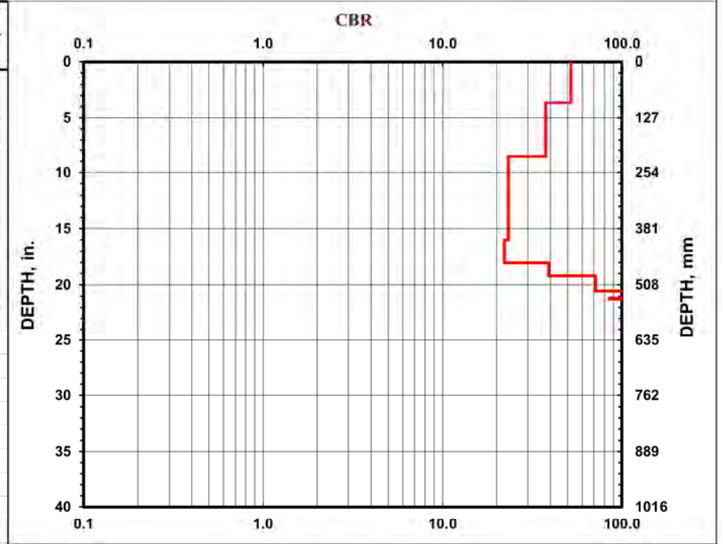
File Name: L_151+14_10' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
20	93	1
20	217	1
20	408	1
5	458	1
5	488	1
10	523	1
6	538	1
1	541	1
5	553	1
5	560	1
5	563	1
5	565	1
5	568	1



DCP TEST DATA

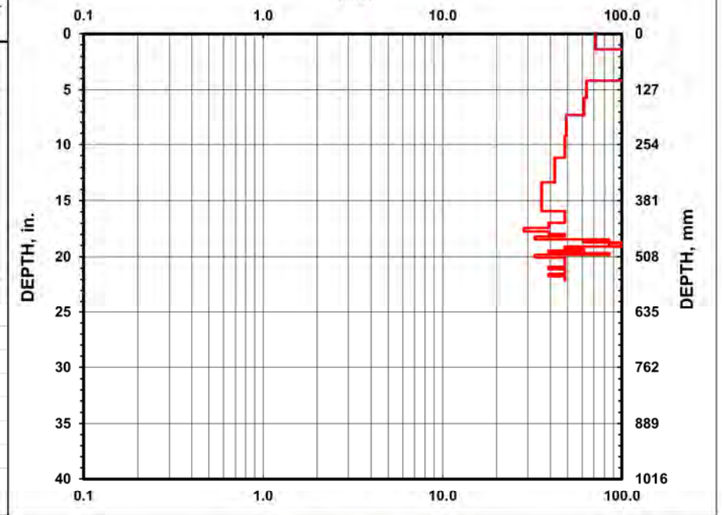
File Name: L_162+72_32' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
10	35	1
11	57	1
20	106	1
10	145	1
10	185	1
10	234	1
10	284	1
10	340	1
10	405	1
5	430	1
1	436	1
1	442	1
1	450	1
1	456	1
1	461	1
1	468	1
1	471	1
1	475	1
1	477	1
1	480	1
1	483	1
1	485	1
1	490	1
1	494	1
1	500	1
1	503	1
1	510	1
1	515	1
1	520	1
1	525	1
1	530	1
1	536	1
1	541	1
1	546	1
1	552	1
1	557	1
1	562	1



DCP TEST DATA

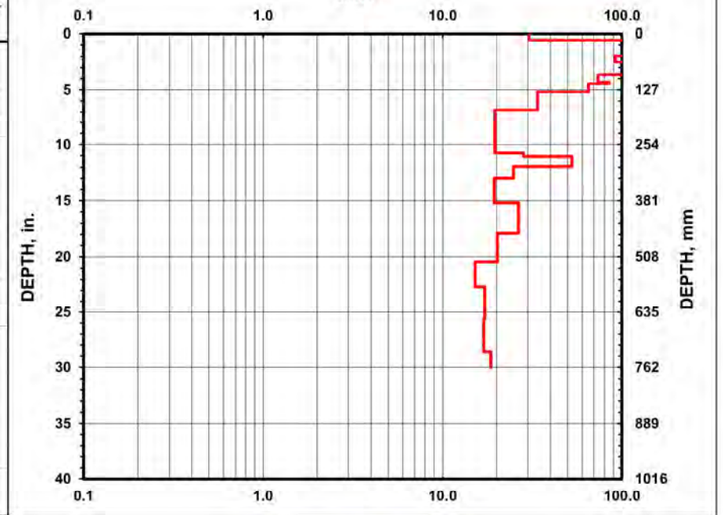
File Name: L_169+91_12' LT

Project: *G16005*
Location: Clay County, NC
Date: 13-Jul-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
2	15	1
5	25	1
5	34	1
5	42	1
5	50	1
5	64	1
5	74	1
5	83	1
5	93	1
5	110	1
1	113	1
5	132	1
6	173	1
9	273	1
1	281	1
5	304	1
3	331	1
5	387	1
8	455	1
6	520	1
4	576	1
6	651	1
6	727	1
3	762	1



DCP TEST DATA

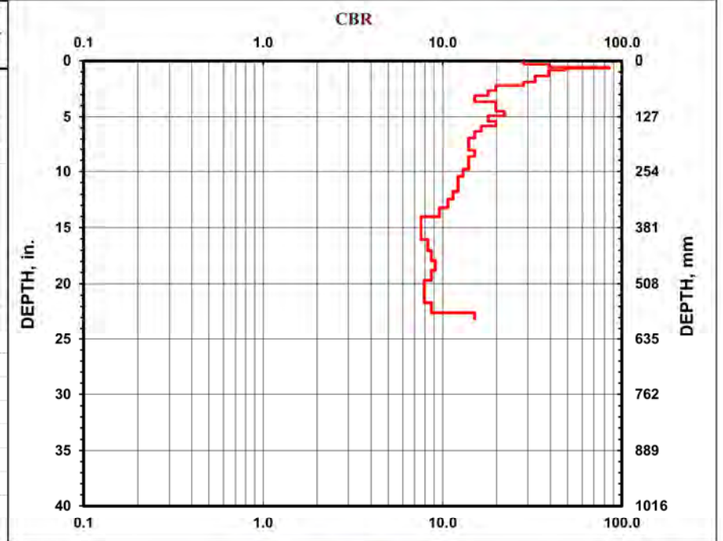
File Name: L_177+97_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	8	1
1	14	1
1	17	1
1	22	1
1	28	1
1	34	1
1	41	1
1	48	1
1	56	1
1	67	1
1	79	1
1	93	1
1	104	1
1	115	1
1	125	1
1	137	1
1	148	1
1	161	1
1	175	1
1	190	1
1	205	1
1	219	1
1	234	1
1	249	1
1	265	1
1	282	1
1	299	1
1	317	1
1	336	1
1	357	1
1	383	1
1	409	1
1	433	1
1	456	1
1	478	1
1	501	1
1	526	1
1	551	1
1	574	1
1	588	1



DCP TEST DATA

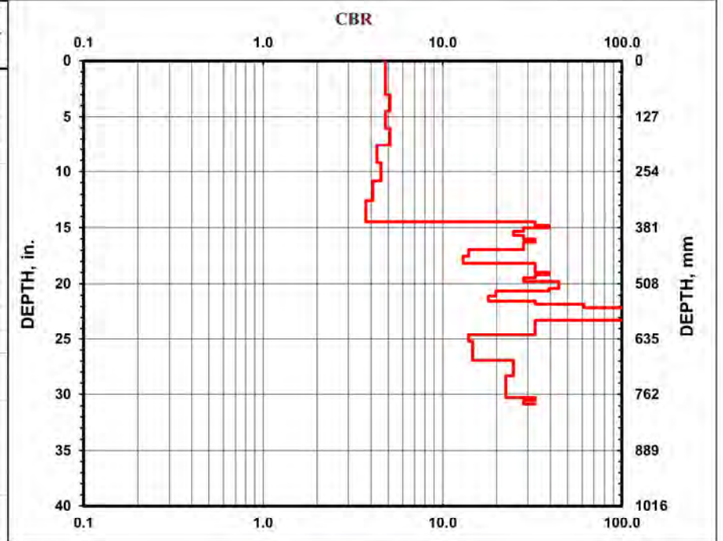
File Name: L_187+81_20' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	39	1
1	78	1
1	115	1
1	154	1
1	191	1
1	234	1
1	275	1
1	320	1
1	369	1
1	376	1
1	382	1
1	390	1
1	399	1
1	407	1
1	414	1
1	422	1
1	430	1
1	445	1
1	461	1
1	468	1
1	475	1
1	482	1
1	488	1
1	495	1
1	503	1
3	519	1
1	525	1
1	536	1
1	548	1
1	555	1
1	559	1
1	563	1
5	575	1
10	591	1
5	626	1
1	641	1
3	684	1
4	720	1
5	769	1
1	776	1
1	784	1
1	791	1



DCP TEST DATA

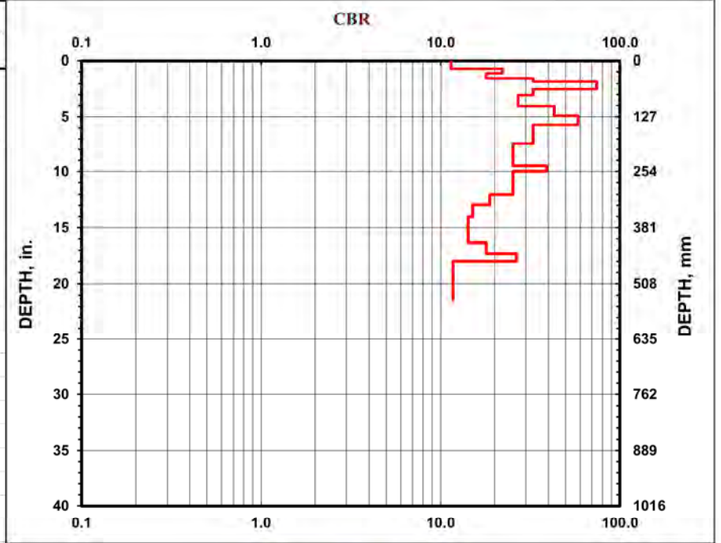
File Name: L_191+06_23' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	18	1
1	28	1
1	40	1
1	47	1
5	64	1
2	78	1
3	103	1
4	125	1
5	146	1
6	188	1
6	241	1
2	253	1
6	306	1
2	329	1
2	357	1
4	416	1
2	440	1
2	457	1
5	545	1



DCP TEST DATA

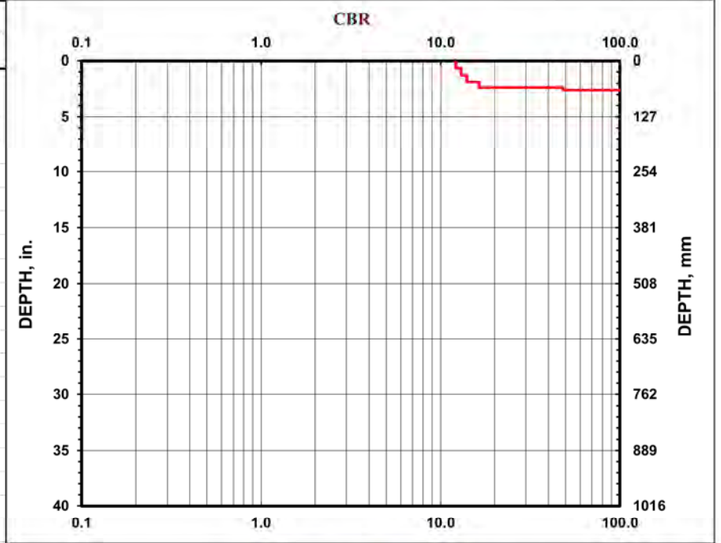
File Name: L_195+79_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	17	1
1	33	1
1	48	1
1	61	1
1	66	1
1	67	1
15	78	1
15	89	1
15	104	1
15	116	1
15	126	1
15	136	1
15	148	1
15	156	1
15	159	1
15	167	1
15	172	1
15	176	1
15	181	1
15	185	1
20	189	1
15	193	1
25	198	1
30	203	1
30	207	1
30	212	1
30	218	1
40	224	1
30	228	1
10	229	1
	Refusal	



DCP TEST DATA

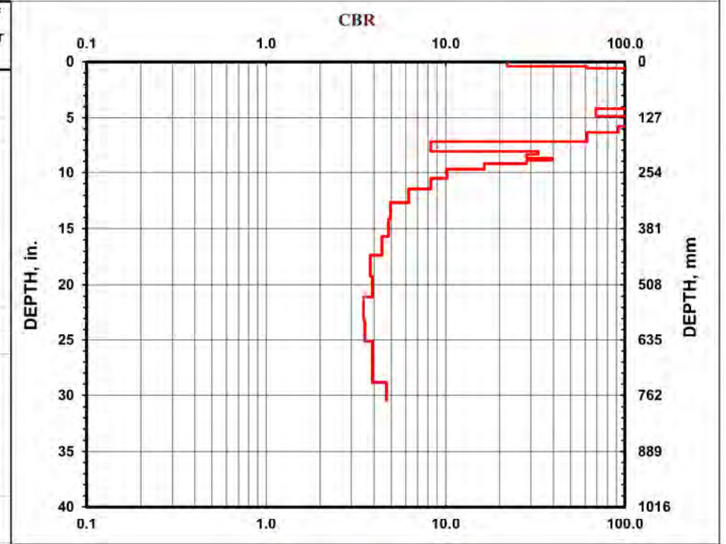
File Name: L_205+92

Project: *G16005*
Location: Clay County, NC
Date: 14-Sep-17
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	10	1
1	14	1
10	16	1
10	25	1
10	36	1
10	44	1
10	50	1
10	60	1
10	69	1
10	80	1
10	94	1
10	106	1
5	124	1
5	136	1
5	147	1
5	161	1
5	181	1
1	205	1
1	212	1
1	220	1
1	226	1
1	234	1
1	247	1
1	267	1
1	291	1
1	322	1
1	360	1
1	399	1
1	441	1
1	489	1
1	536	1
1	588	1
1	639	1
1	686	1
1	733	1
1	773	1



DCP TEST DATA

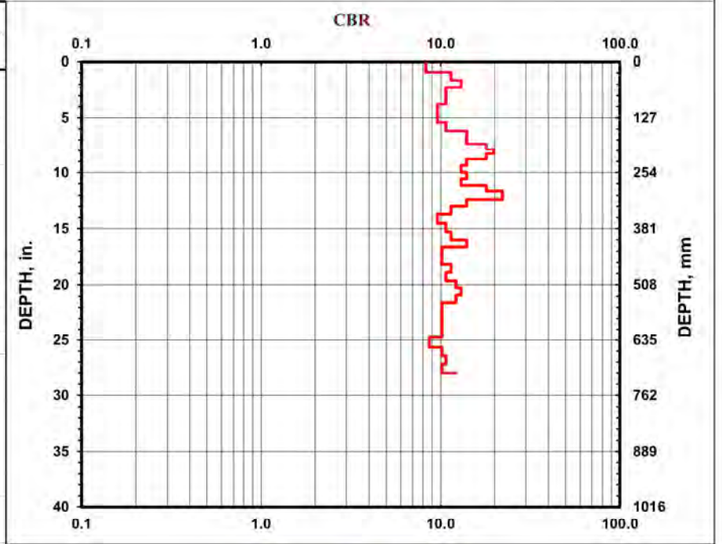
File Name: L_212+45_7' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	24	1
1	42	1
1	58	1
1	77	1
1	96	1
1	117	1
1	138	1
1	157	1
1	172	1
1	187	1
1	199	1
1	210	1
1	222	1
1	237	1
1	253	1
1	268	1
1	284	1
1	296	1
1	306	1
1	316	1
1	331	1
1	349	1
1	370	1
1	389	1
1	407	1
1	422	1
1	442	1
1	462	1
1	480	1
1	499	1
1	516	1
1	532	1
1	549	1
1	569	1
1	589	1
1	609	1
1	629	1
1	652	1
1	672	1
1	691	1
1	711	1
1	728	1



DCP TEST DATA

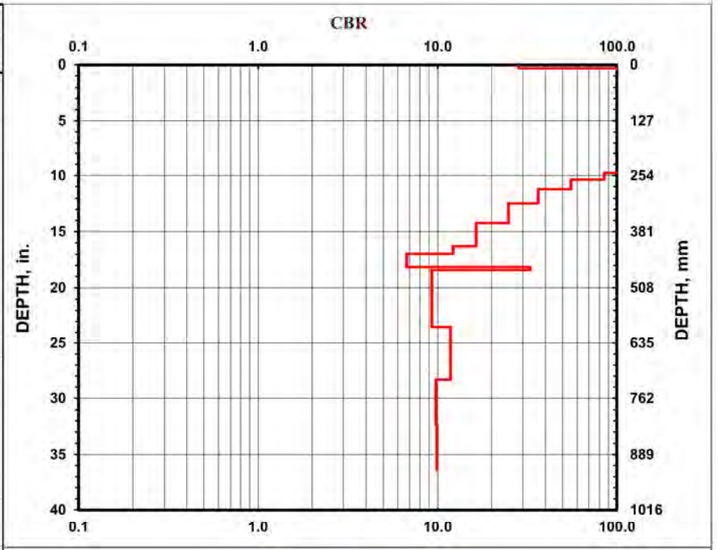
File Name: L_219+92_2' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	8	1
7	23	1
10	35	1
10	44	1
10	52	1
10	61	1
10	68	1
10	77	1
10	86	1
10	91	1
10	97	1
10	103	1
10	110	1
10	116	1
10	123	1
10	132	1
10	143	1
10	153	1
10	168	1
10	187	1
10	203	1
10	217	1
10	231	1
10	248	1
5	263	1
5	285	1
5	317	1
5	362	1
4	414	1
1	431	1
1	460	1
1	467	1
6	597	1
7	719	1
5	822	1
5	924	1



DCP TEST DATA

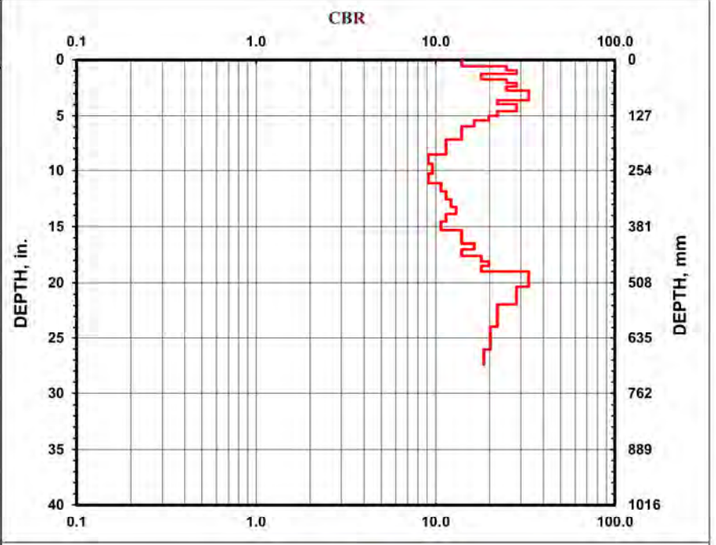
File Name: Y1_12+98_11' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	15	1
1	24	1
1	32	1
1	44	1
1	53	1
1	61	1
1	70	1
1	77	1
1	84	1
1	91	1
1	101	1
1	109	1
1	117	1
1	127	1
1	138	1
1	151	1
1	166	1
1	181	1
1	199	1
1	217	1
1	239	1
1	260	1
1	282	1
1	301	1
1	319	1
1	336	1
1	352	1
1	370	1
1	389	1
1	404	1
1	419	1
1	432	1
1	447	1
1	459	1
1	470	1
1	482	1
5	517	1
5	557	1
5	607	1
5	661	1
3	696	1



DCP TEST DATA

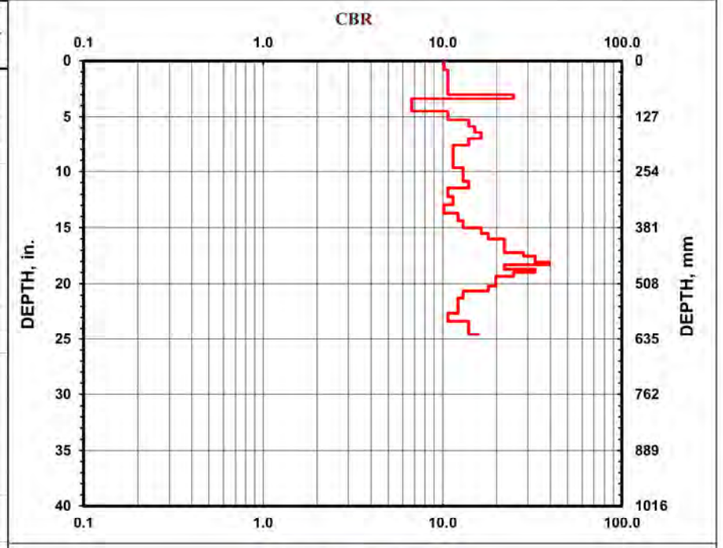
File Name: Y1_16+92_10' RT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	20	1
1	39	1
1	58	1
1	77	1
1	86	1
1	115	1
1	134	1
1	149	1
1	163	1
1	176	1
1	191	1
1	209	1
1	227	1
1	245	1
1	261	1
1	277	1
1	292	1
1	311	1
1	329	1
1	349	1
1	366	1
1	382	1
1	395	1
1	407	1
3	437	1
1	445	1
1	452	1
1	459	1
1	465	1
1	475	1
1	482	1
1	491	1
1	502	1
1	513	1
1	525	1
1	541	1
1	558	1
1	575	1
1	594	1
1	609	1
1	624	1
9	745	1



DCP TEST DATA

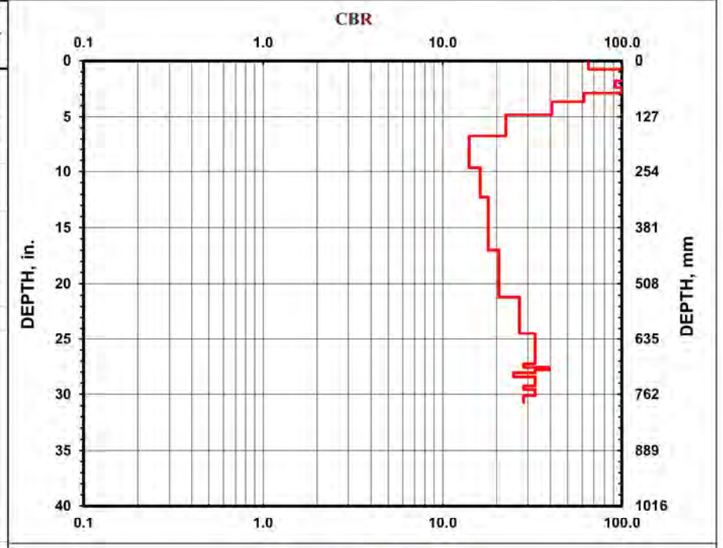
File Name: Y2_28+21_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
5	19	1
5	31	1
4	35	1
5	46	1
5	60	1
5	73	1
5	93	1
5	122	1
5	171	1
5	246	1
5	312	1
10	432	1
10	538	1
10	622	1
10	692	1
1	700	1
1	706	1
1	713	1
1	722	1
1	729	1
1	736	1
1	743	1
1	751	1
1	758	1
1	765	1
1	773	1
1	781	1



DCP TEST DATA

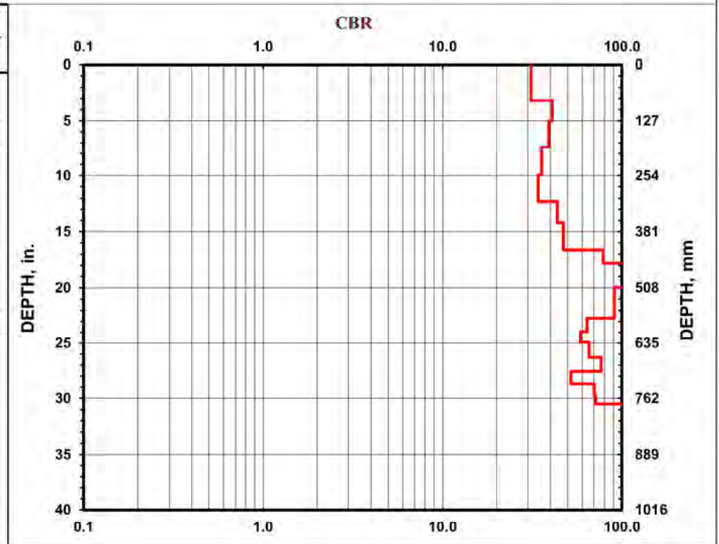
File Name: Y3_11+27_103' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
11	81	1
8	127	1
10	187	1
10	252	1
9	313	1
9	362	1
12	423	1
9	452	1
10	472	1
15	507	1
25	578	1
8	609	1
6	634	1
9	668	1
10	701	1
6	729	1
7	754	1
6	775	1
11	803	1



DCP TEST DATA

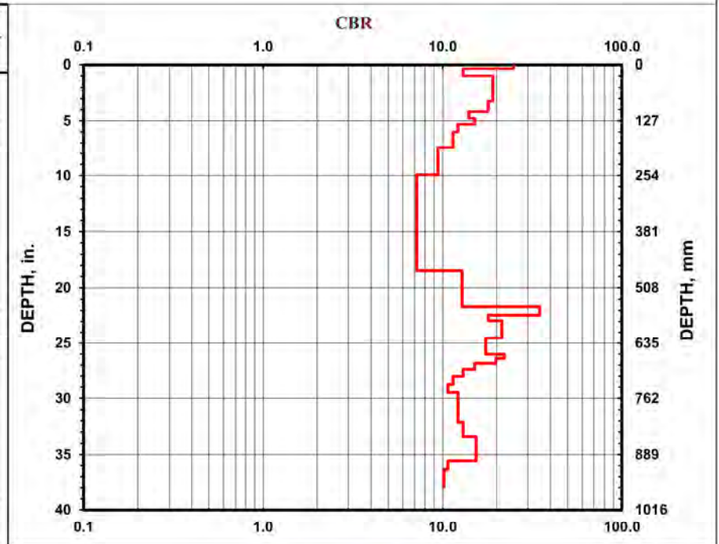
File Name: Y4_12+65 6' LT

Project: *G16005*
Location: Clay County, NC
Date: 14-Jul-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	9	1
1	25	1
5	82	1
1	94	1
1	106	1
1	121	1
1	135	1
1	152	1
1	170	1
1	188	1
3	252	1
8	470	1
5	551	1
3	571	1
1	583	1
4	624	1
3	661	1
1	671	1
1	682	1
1	696	1
1	712	1
1	730	1
1	749	1
4	817	1
1	833	1
1	849	1
4	904	1
1	923	1
1	943	1
1	963	1



DCP TEST DATA

File Name: Y5_12+25_15' RT

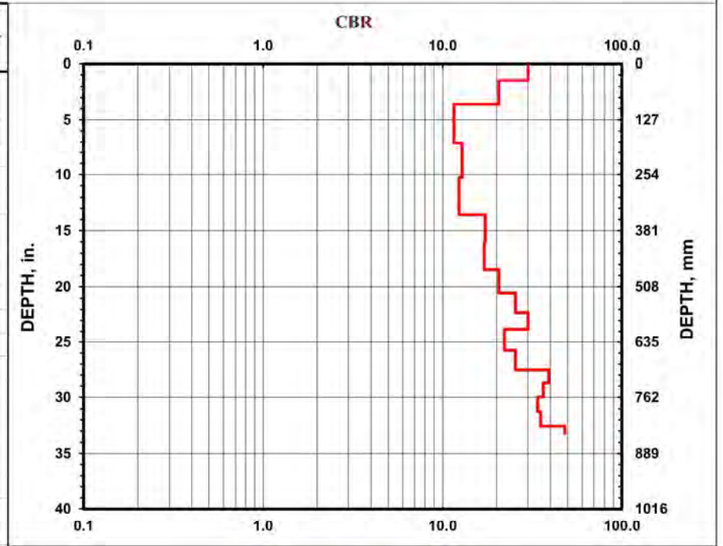
Project: *G16005* **Date:** 14-Jul-18

Location: Clay County, NC **Soil Type(s):** Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	38	1
5	91	1
5	180	1
5	261	1
5	345	1
5	407	1
5	470	1
5	523	1
5	567	1
5	605	1
5	655	1
5	699	1
5	729	1
5	761	1
5	795	1
5	828	1
3	843	1



DCP TEST DATA

File Name: Y7_13+01_5' LT

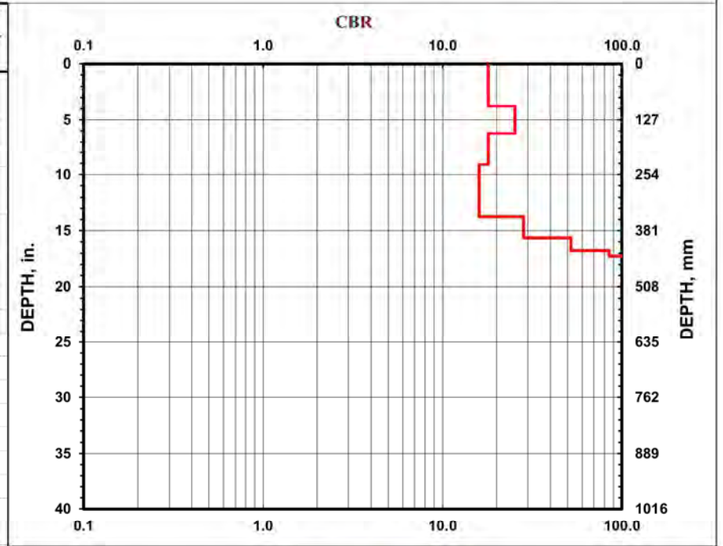
Project: *G16005* **Date:** 14-Jul-18

Location: Clay County, NC **Soil Type(s):** Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
8	96	1
7	158	1
6	230	1
9	350	1
6	398	1
6	426	1
4	438	1
25	469	1
35	496	1
35	521	1
25	541	1
25	562	1
40	599	1
35	630	1
30	660	1
35	692	1
40	736	1
30	769	1
30	809	1
35	859	1



DCP TEST DATA

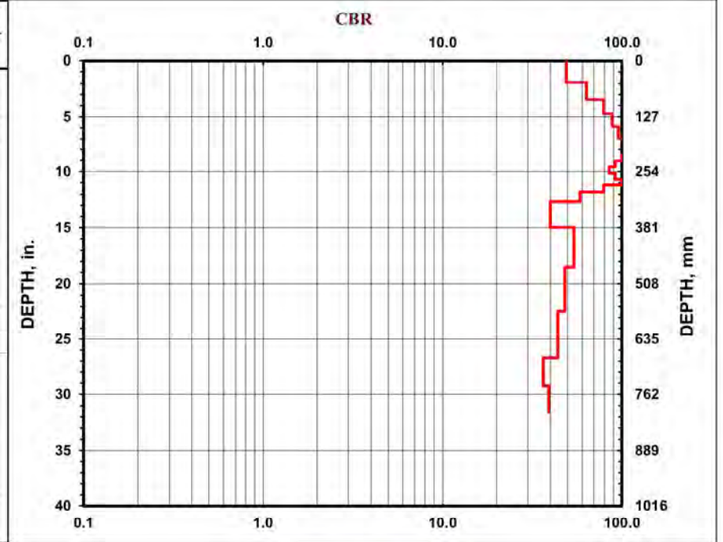
File Name: Y8_14+01

Project: *G16005*
Location: Clay County, NC
Date: 20-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	49	1
10	88	1
10	120	1
10	149	1
10	176	1
8	195	1
5	205	1
5	216	1
5	229	1
5	243	1
5	258	1
5	272	1
5	285	1
5	301	1
5	322	1
10	381	1
20	471	1
20	571	1
20	679	1
10	743	1
10	803	1



DCP TEST DATA

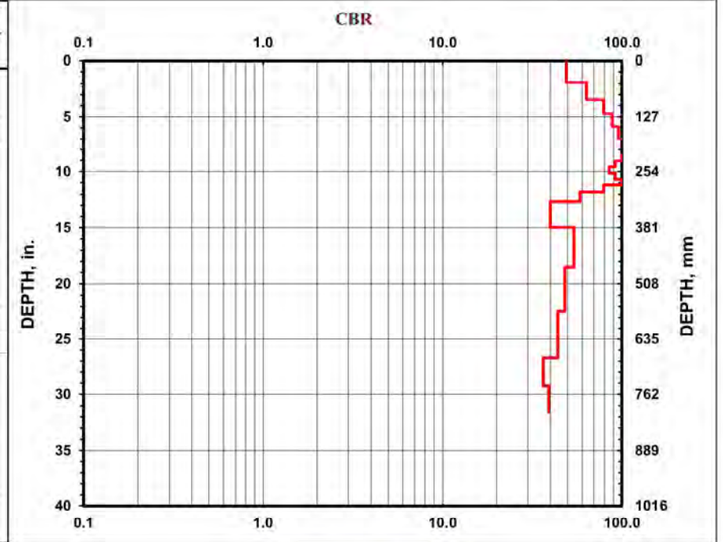
File Name: Y9_12+06_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 20-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	49	1
10	88	1
10	120	1
10	149	1
10	176	1
8	195	1
5	205	1
5	216	1
5	229	1
5	243	1
5	258	1
5	272	1
5	285	1
5	301	1
5	322	1
10	381	1
20	471	1
20	571	1
20	679	1
10	743	1
10	803	1



DCP TEST DATA

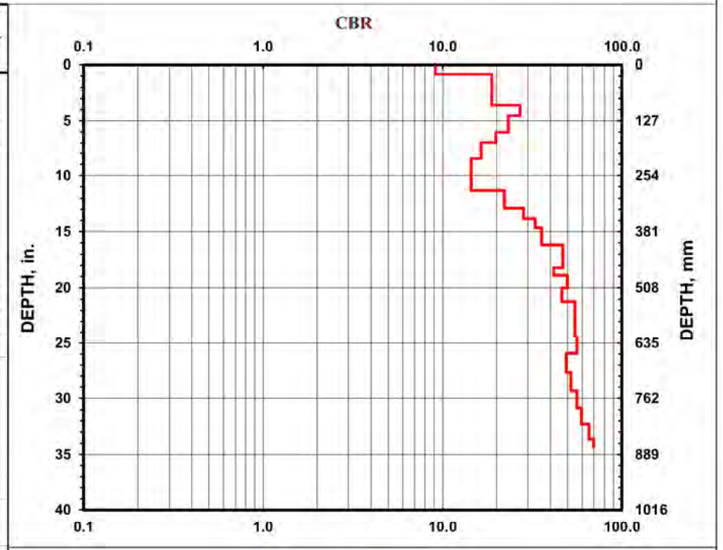
File Name: Y10_11+65_34' LT

Project: *G16005*
Location: Clay County, NC
Date: 20-Jun-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	22	1
6	91	1
3	116	1
4	154	1
2	176	1
3	215	1
5	288	1
4	328	1
3	352	1
3	373	1
6	412	1
10	463	1
3	480	1
6	509	1
6	540	1
9	580	1
9	620	1
9	659	1
9	703	1
9	745	1
9	784	1
9	821	1
9	855	1
5	873	1



DCP TEST DATA

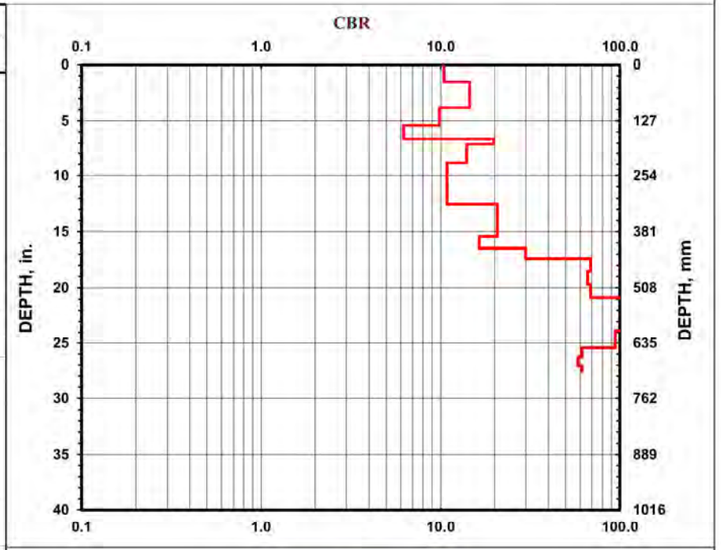
File Name: Y11_13+98_04' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
2	39	1
4	97	1
2	138	1
1	169	1
1	180	1
3	225	1
5	319	1
7	393	1
2	419	1
3	442	1
8	471	1
8	501	1
8	530	1
5	541	1
25	550	1
25	558	1
25	571	1
25	606	1
15	647	1
5	667	1
5	688	1
3	700	1



DCP TEST DATA

File Name: Y12_12+02_16' LT

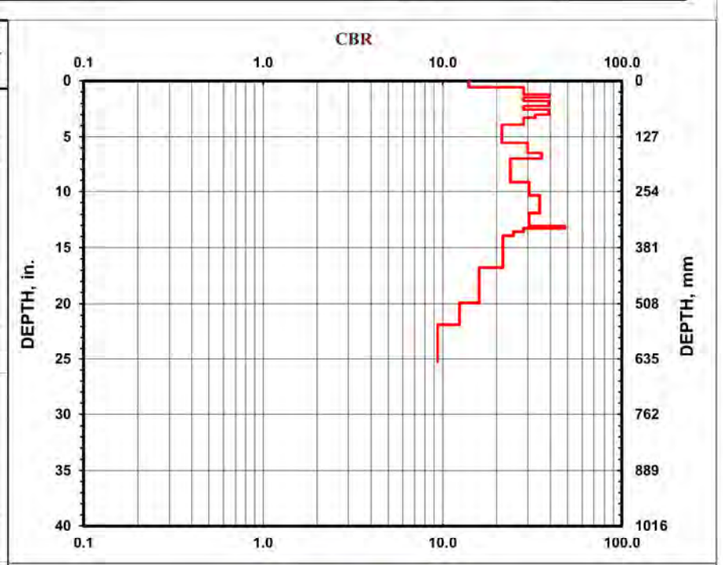
Project: *G16005* **Date:** 8-Jun-18

Location: Clay County, NC **Soil Type(s):** Type in the soil type

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	15	1
2	31	1
1	37	1
1	45	1
2	57	1
1	65	1
2	77	1
1	84	1
2	100	1
4	141	1
3	164	1
2	177	1
6	233	1
4	263	1
6	303	1
4	333	1
1	338	1
1	346	1
1	355	1
7	426	1
6	506	1
3	556	1
4	642	1



DCP TEST DATA

File Name: Y13_11+94_1' LT

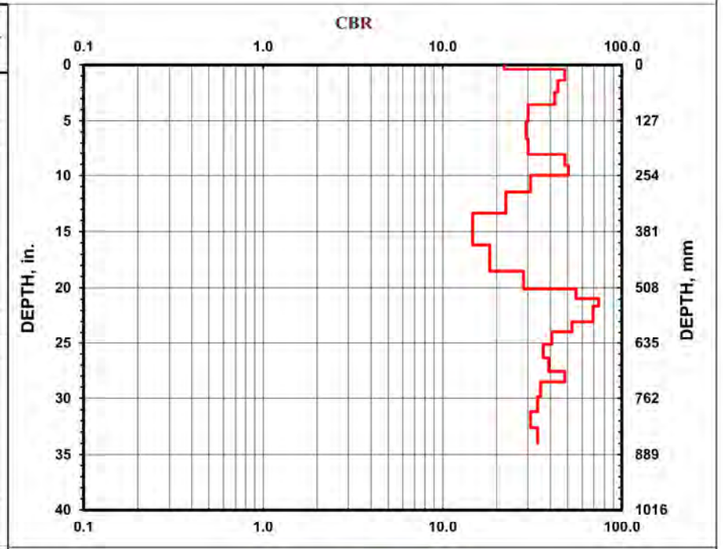
Project: *G16005* **Date:** 8-Jun-18

Location: Clay County, NC **Soil Type(s):** A

Hammer: ○ 10.1 lbs. ● 17.6 lbs. ○ Both hammers used

Soil Type: ○ CH ○ CL ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	10	1
5	35	1
5	62	1
5	90	1
5	128	1
5	167	1
5	205	1
5	230	1
5	254	1
5	291	1
5	340	1
5	412	1
5	471	1
5	511	1
5	533	1
5	550	1
5	568	1
5	586	1
5	609	1
5	638	1
5	670	1
5	700	1
5	725	1
5	758	1
5	792	1
5	829	1
5	863	1



DCP TEST DATA

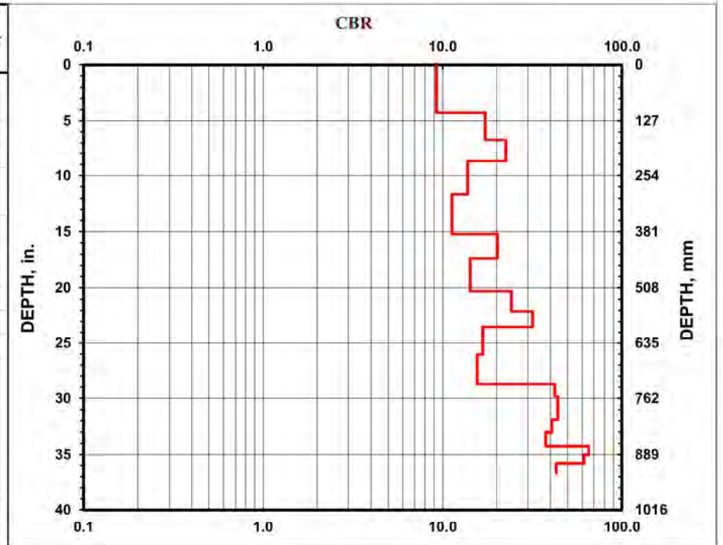
File Name: Y14_12+02_18' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
5	109	1
5	171	1
5	220	1
5	296	1
5	387	1
5	441	1
5	515	1
5	561	1
5	597	1
5	661	1
5	729	1
5	757	1
5	784	1
5	811	1
5	840	1
5	871	1
5	890	1
5	910	1
4	932	1



DCP TEST DATA

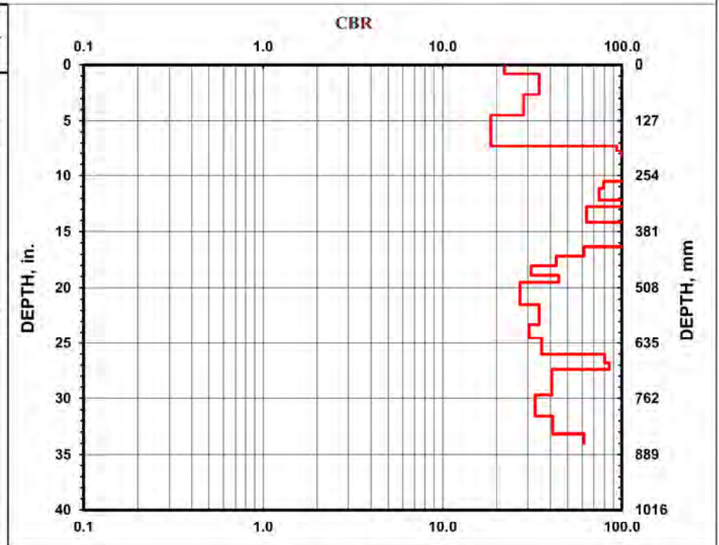
File Name: Y15_11+89_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
2	20	1
7	67	1
6	115	1
6	185	1
4	196	1
5	209	1
5	220	1
5	226	1
5	235	1
5	243	1
5	251	1
5	259	1
5	267	1
5	283	1
8	310	1
6	325	1
9	360	1
8	377	1
5	382	1
5	387	1
5	393	1
5	398	1
5	403	1
5	409	1
5	416	1
5	436	1
4	458	1
3	480	1
3	496	1
6	546	1
7	593	1
4	623	1
6	662	1
6	681	1
5	696	1
10	754	1
7	803	1
7	843	1
5	863	1



DCP TEST DATA

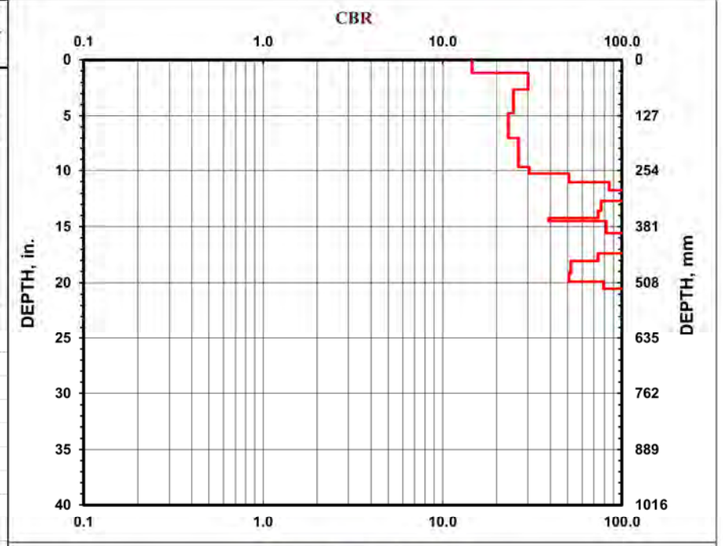
File Name: Y16_11+98_7' RT

Project: *G16005*
Location: Clay County, NC
Date: 8-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
2	29	1
5	67	1
6	121	1
6	178	1
8	246	1
2	261	1
4	280	1
6	298	1
4	308	1
6	322	1
7	345	1
5	362	1
1	368	1
9	396	1
7	408	1
5	413	1
5	420	1
5	429	1
5	441	1
5	458	1
6	486	1
4	505	1
5	521	1
5	526	1
5	529	1
5	530	1
5	532	1
15	534	1



DCP TEST DATA

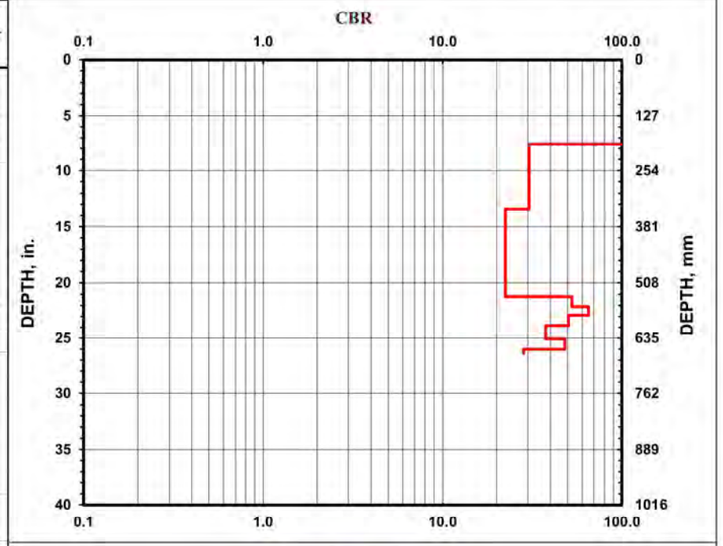
File Name: Y17_12+19_1' RT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
4	6	1
5	13	1
5	20	1
5	26	1
5	32	1
5	34	1
5	40	1
5	44	1
5	47	1
5	51	1
5	56	1
5	60	1
5	62	1
5	65	1
5	70	1
5	73	1
5	76	1
5	79	1
5	85	1
5	88	1
5	92	1
5	96	1
50	131	1
25	142	1
25	155	1
20	192	1
20	342	1
20	540	1
5	563	1
5	582	1
5	606	1
5	637	1
5	662	1
1	670	1



DCP TEST DATA

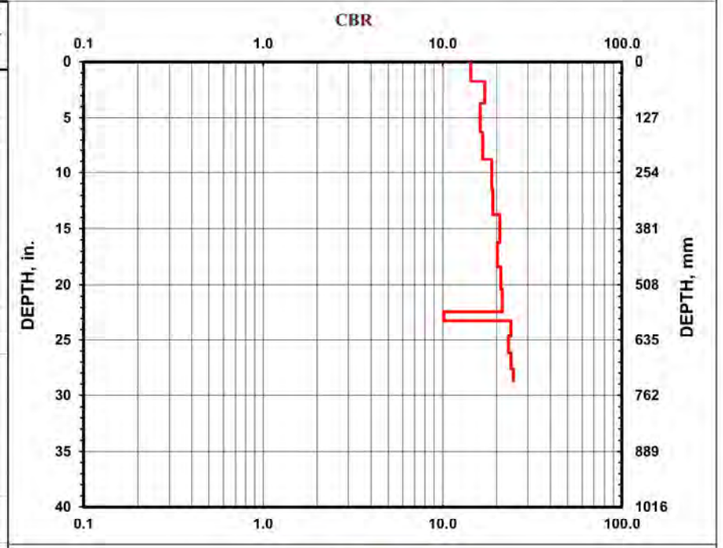
File Name: Y19_15+87_38' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
3	44	1
4	94	1
5	160	1
5	224	1
6	293	1
5	350	1
6	413	1
5	467	1
5	519	1
5	570	1
1	590	1
4	627	1
4	665	1
4	702	1
3	729	1



DCP TEST DATA

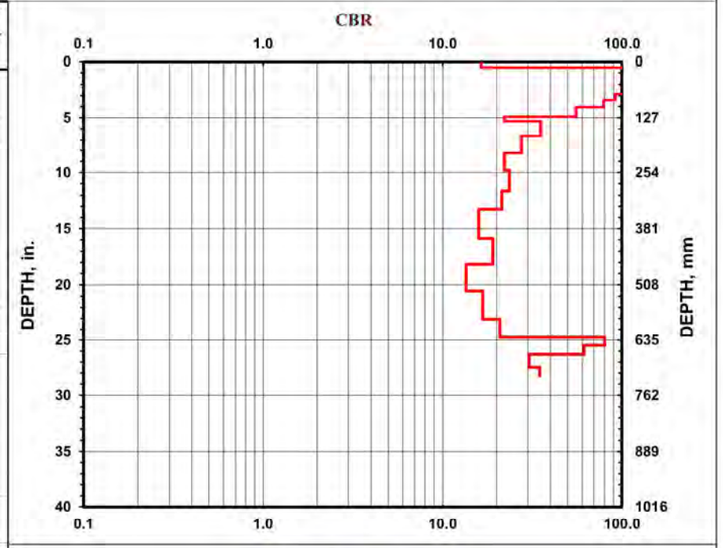
File Name: Y20_1703_1' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
1	13	1
1	15	1
1	17	1
5	27	1
5	37	1
5	45	1
5	54	1
5	63	1
5	73	1
5	87	1
5	103	1
5	125	1
1	135	1
5	168	1
5	209	1
4	249	1
5	296	1
4	337	1
5	404	1
5	461	1
4	523	1
5	587	1
4	629	1
6	648	1
5	668	1
4	698	1
3	718	1



DCP TEST DATA

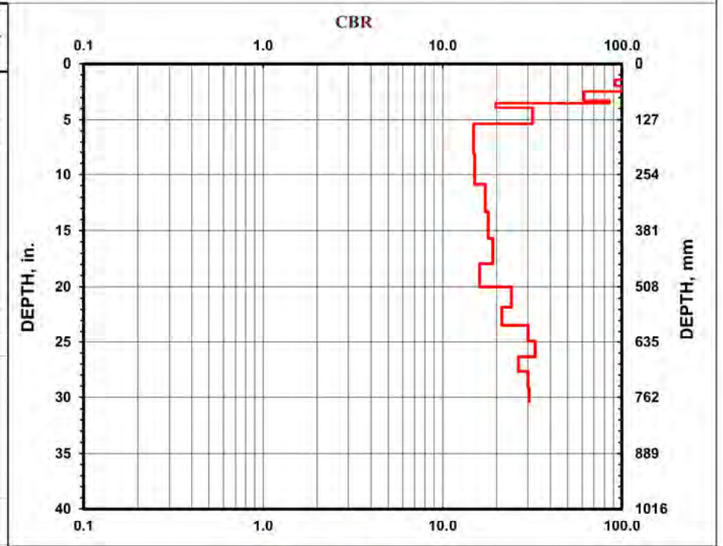
File Name: Y20_28+21_3' LT

Project: *G16005*
Location: Clay County, NC
Date: 19-Jun-18
Soil Type(s): Type in the soil type

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
Start	0	1
5	11	1
5	22	1
2	25	1
5	36	1
5	50	1
5	63	1
5	83	1
2	89	1
1	100	1
5	136	1
5	207	1
5	277	1
5	339	1
5	399	1
5	456	1
4	509	1
5	555	1
4	596	1
5	634	1
5	669	1
4	703	1
5	741	1
4	771	1



PROJECT REFERENCE NO.	SHEET NO.
A–0011C	81

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX B
LABORATORY RESULTS

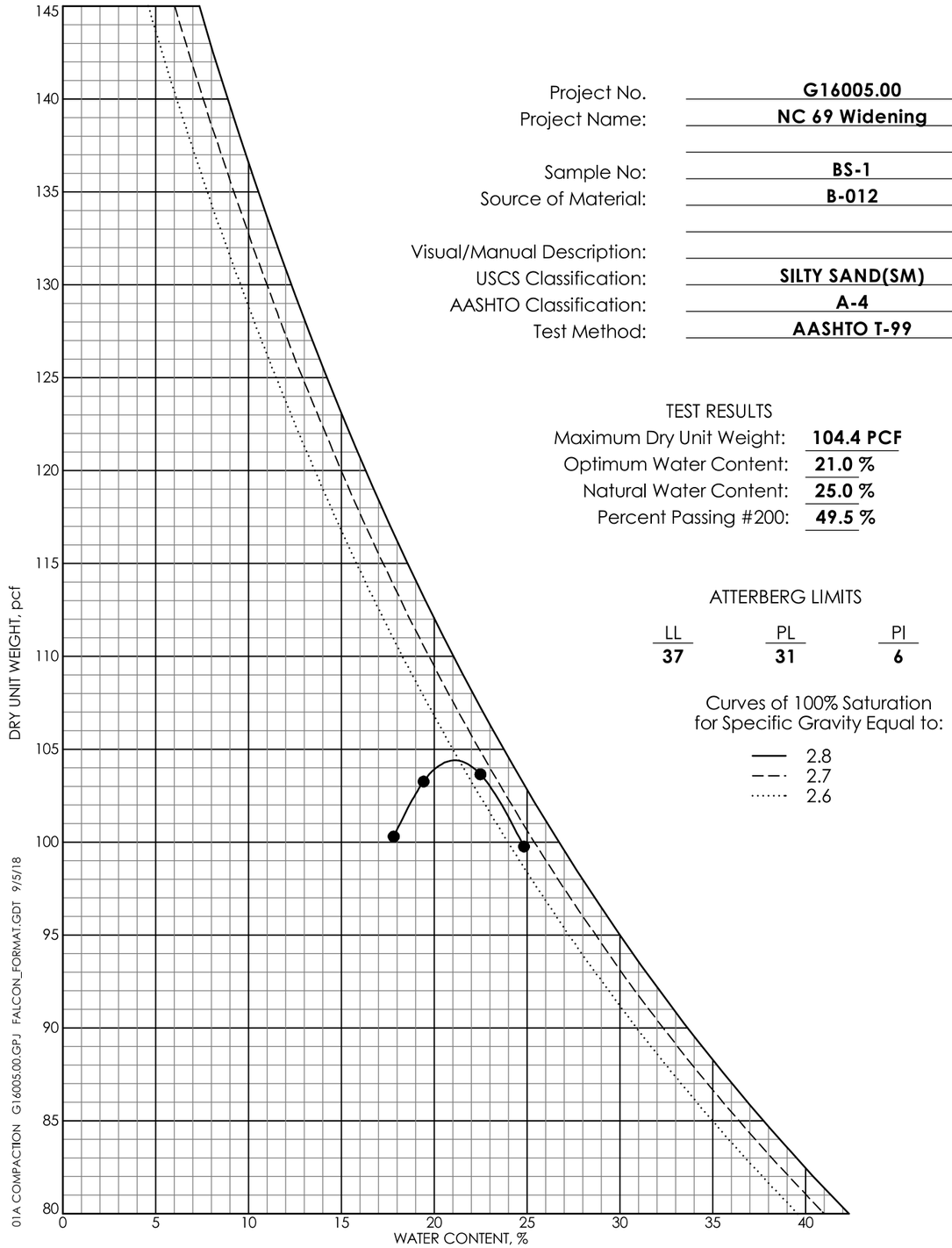
REFERENCE: A–0011C

PROJECT: 32574

FALCON ENGINEERING
1210 TRINITY ROAD, SUITE 110
CARY, NC 27513
PHONE: 919.871.0800
www.falconengineers.com

LABORATORY COMPACTION TEST RESULTS

9/5/2018



Project No.	G16005.00
Project Name:	NC 69 Widening
Sample No:	BS-1
Source of Material:	B-012
Visual/Manual Description:	
USCS Classification:	SILTY SAND(SM)
AASHTO Classification:	A-4
Test Method:	AASHTO T-99

TEST RESULTS

Maximum Dry Unit Weight:	104.4 PCF
Optimum Water Content:	21.0 %
Natural Water Content:	25.0 %
Percent Passing #200:	49.5 %

ATTERBERG LIMITS

LL	PL	PI
37	31	6

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.8
- 2.7
- 2.6

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

CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

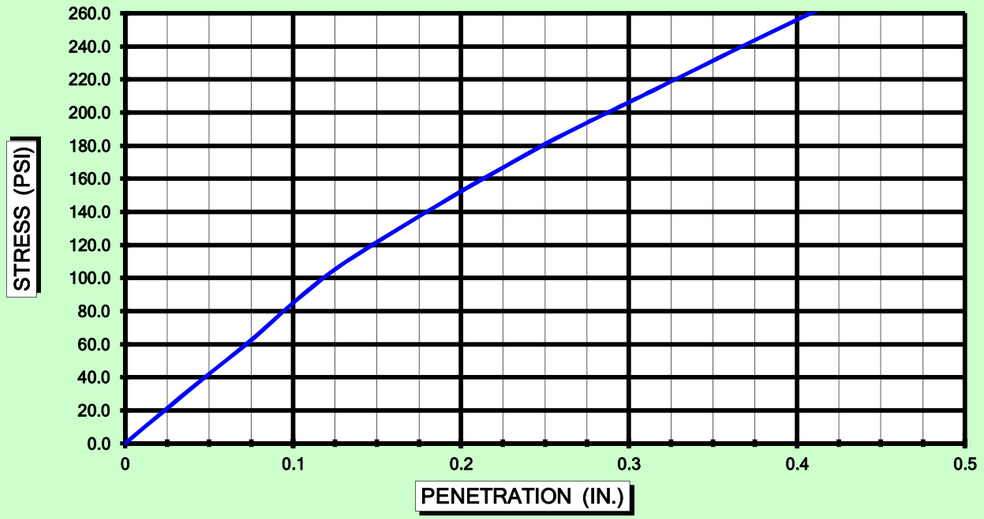
AASHTO T-193 \ ASTM D-1883

PROJECT #:	G16005.00			DATE:	8/17/2018
PROJECT NAME:		NC 69 Widening			
BORING:	B-12	SAMPLE:	BS-1	DEPTH:	1.0-10.0
SOIL DESCRIPTION:					

COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	103.6 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	21.9%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	10 lb.
DRY DENSITY	101.5 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	22.0%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.0%	SWELL	0.26%

	ACTUAL	CORRECTED
CBR VALUE AT .1"	8.5	
CBR VALUE AT .2"	10.2	

STRESS-PENETRATION CURVE



LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX

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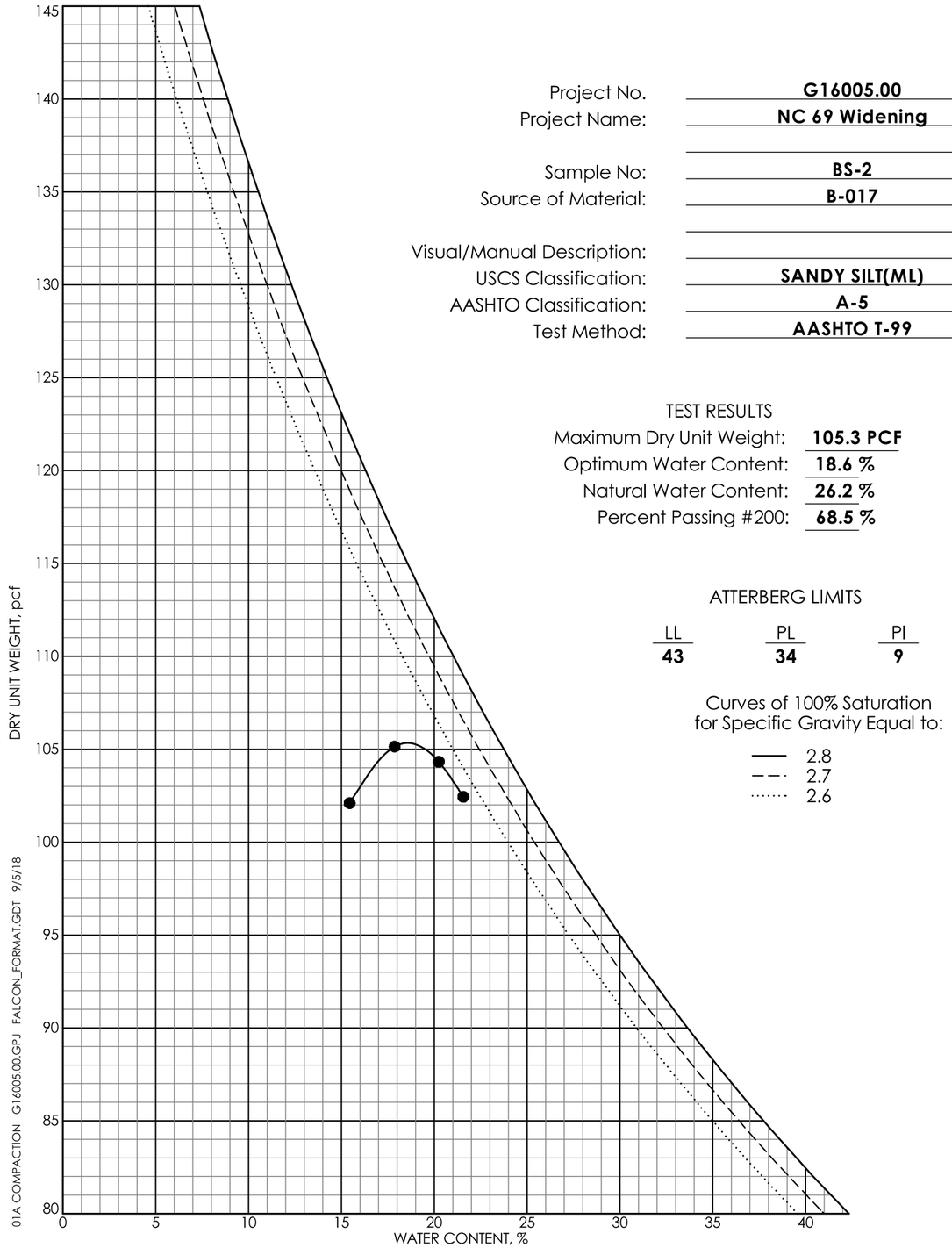
LABORATORY COMPACTION TEST RESULTS

9/5/2018



Project No.	G16005.00
Project Name:	NC 69 Widening
Sample No:	BS-2
Source of Material:	B-017
Visual/Manual Description:	
USCS Classification:	SANDY SILT(ML)
AASHTO Classification:	A-5
Test Method:	AASHTO T-99

TEST RESULTS

Maximum Dry Unit Weight:	105.3 PCF
Optimum Water Content:	18.6 %
Natural Water Content:	26.2 %
Percent Passing #200:	68.5 %

ATTERBERG LIMITS

LL	PL	PI
43	34	9

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.8
- 2.7
- 2.6

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CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

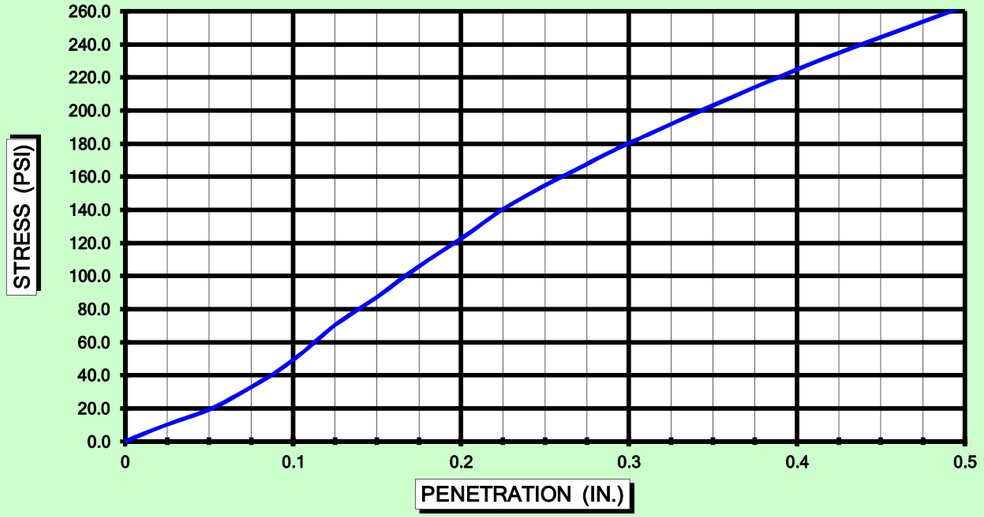
AASHTO T-193 \ ASTM D-1883

PROJECT #:	G16005.00			DATE:	8/17/2018
PROJECT NAME:		NC 69 Widening			
BORING:	B-17	SAMPLE:	BS-2	DEPTH:	1.0'-10.0'
SOIL DESCRIPTION:					

COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	104.9 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	19.2%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	10 lb.
DRY DENSITY	102.8 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	19.0%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.0%	SWELL	0.55%

	ACTUAL	CORRECTED
CBR VALUE AT .1"	4.9	
CBR VALUE AT .2"	8.2	

STRESS-PENETRATION CURVE



LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX

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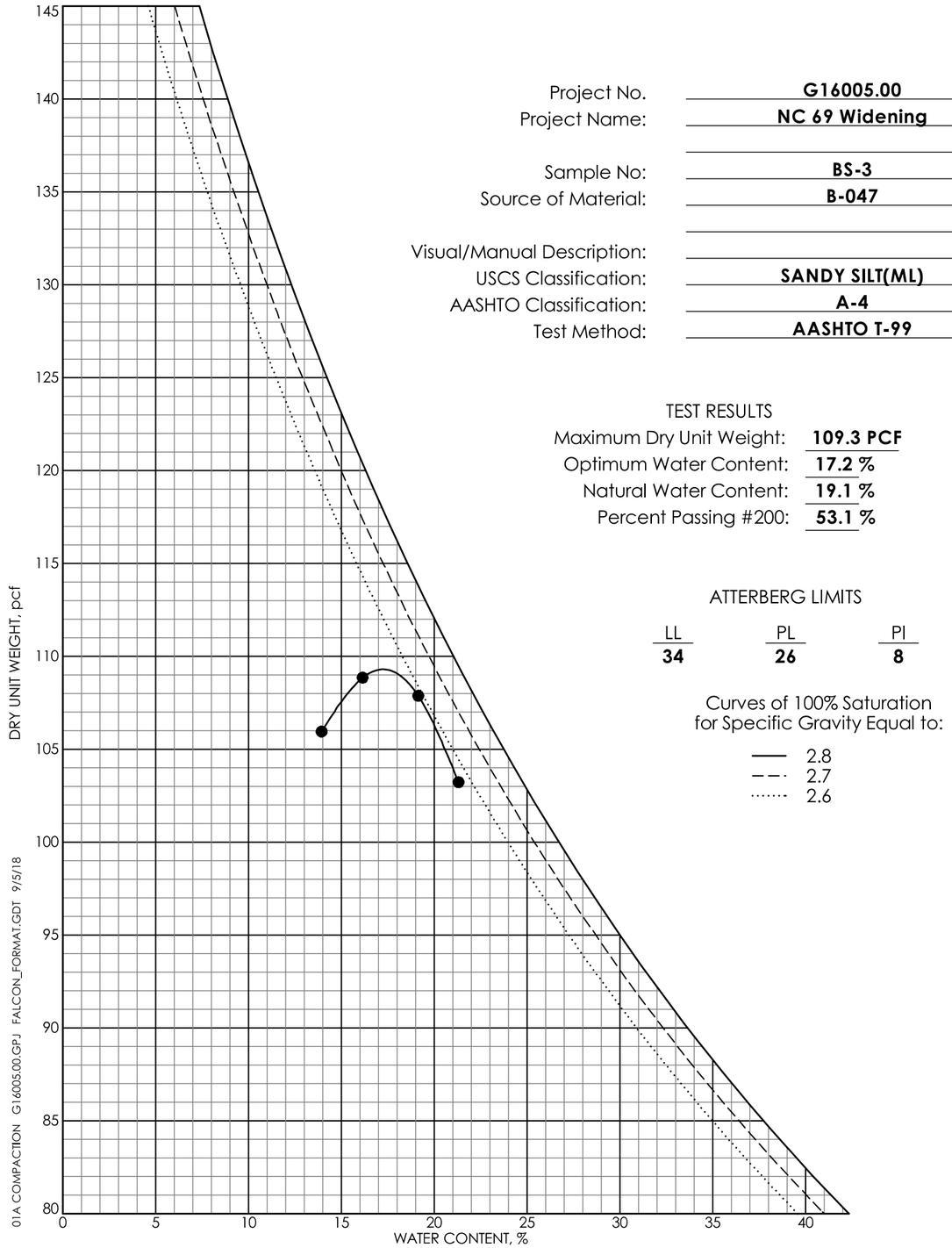
LABORATORY COMPACTION TEST RESULTS

9/5/2018



Project No.	G16005.00
Project Name:	NC 69 Widening
Sample No:	BS-3
Source of Material:	B-047
Visual/Manual Description:	
USCS Classification:	SANDY SILT(ML)
AASHTO Classification:	A-4
Test Method:	AASHTO T-99

TEST RESULTS

Maximum Dry Unit Weight:	109.3 PCF
Optimum Water Content:	17.2 %
Natural Water Content:	19.1 %
Percent Passing #200:	53.1 %

ATTERBERG LIMITS

LL	PL	PI
34	26	8

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.8
- 2.7
- 2.6

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CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

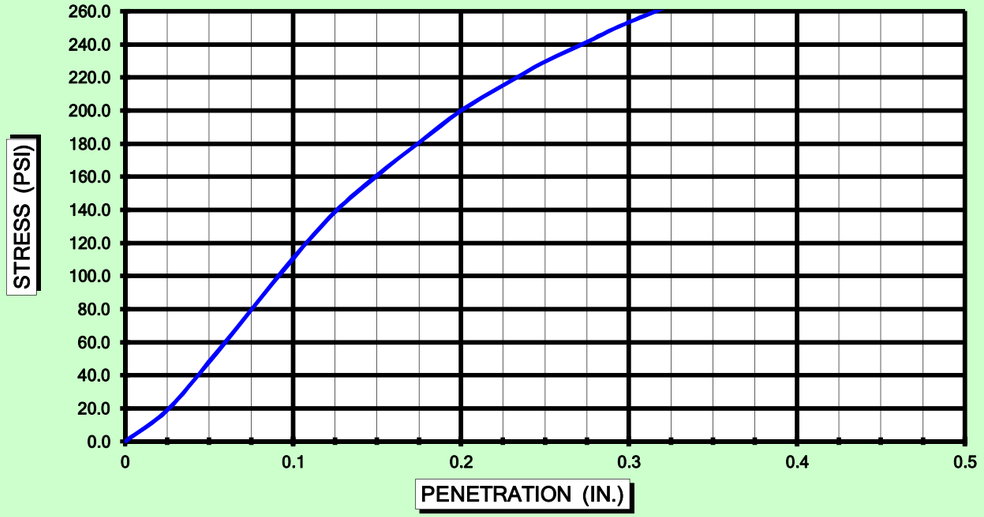
AASHTO T-193 \ ASTM D-1883

PROJECT #:	G16005.00			DATE:	8/17/2018
PROJECT NAME:		NC 69 Widening			
BORING:	B-47	SAMPLE:	BS-3	DEPTH:	1.0'-10.0'
SOIL DESCRIPTION:					

COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	107.1 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	18.2%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	10 lb.
DRY DENSITY	105.0 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	18.4%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.0%	SWELL	0.50%

	ACTUAL	CORRECTED
CBR VALUE AT .1"	11.1	
CBR VALUE AT .2"	13.3	

STRESS-PENETRATION CURVE



LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX

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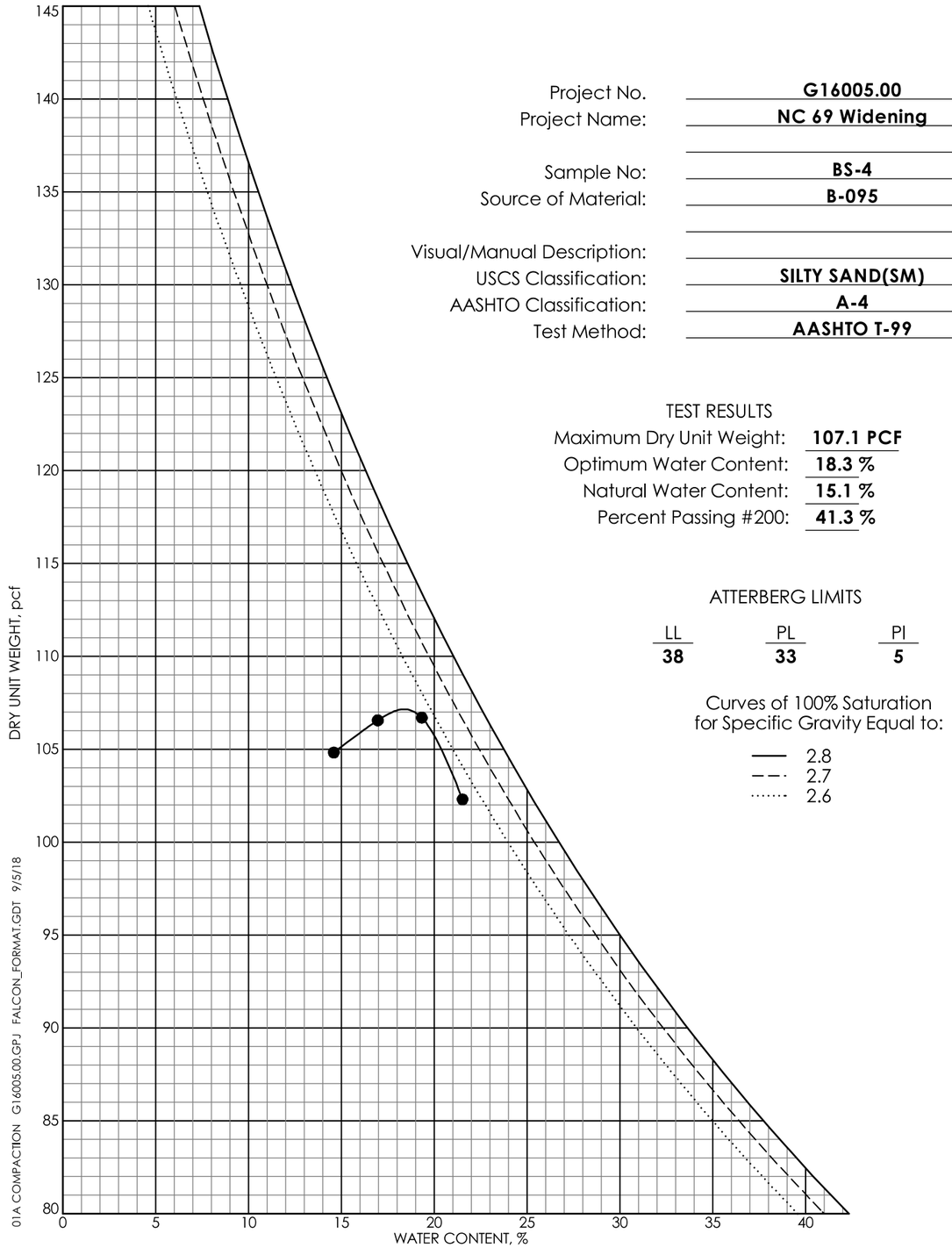
LABORATORY COMPACTION TEST RESULTS

9/5/2018



Project No.	G16005.00
Project Name:	NC 69 Widening
Sample No:	BS-4
Source of Material:	B-095
Visual/Manual Description:	
USCS Classification:	SILTY SAND(SM)
AASHTO Classification:	A-4
Test Method:	AASHTO T-99

TEST RESULTS

Maximum Dry Unit Weight:	107.1 PCF
Optimum Water Content:	18.3 %
Natural Water Content:	15.1 %
Percent Passing #200:	41.3 %

ATTERBERG LIMITS

LL	PL	PI
38	33	5

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.8
- 2.7
- 2.6

FALCON ENGINEERING

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CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

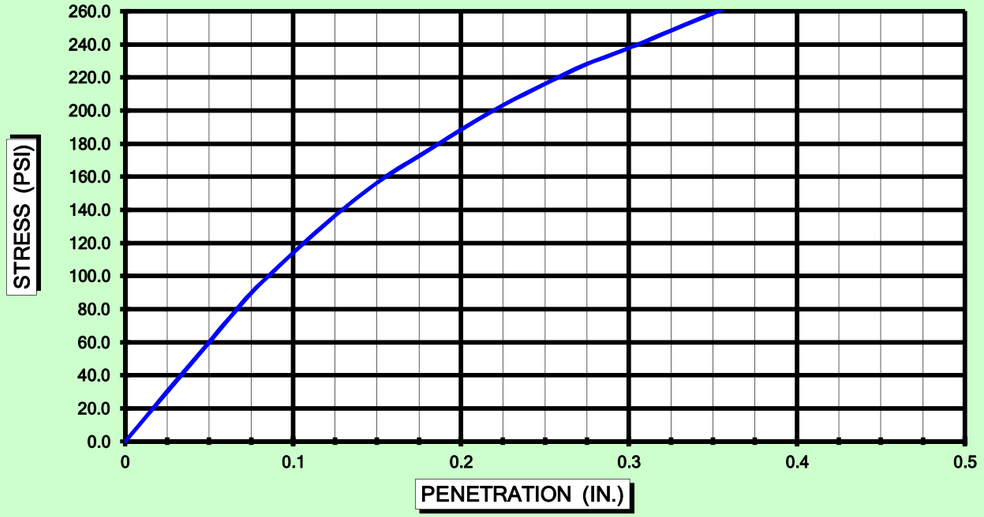
AASHTO T-193 \ ASTM D-1883

PROJECT #:	G16005.00			DATE:	8/17/2018
PROJECT NAME:		NC 69 Widening			
BORING:	B-95	SAMPLE:	BS-4	DEPTH:	1.0'-10.0'
SOIL DESCRIPTION:					

COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	107.3 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	18.5%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	10 lb.
DRY DENSITY	105.2 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	18.2%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.0%	SWELL	0.68%

	ACTUAL	CORRECTED
CBR VALUE AT .1"	11.4	
CBR VALUE AT .2"	12.6	

STRESS-PENETRATION CURVE



LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX

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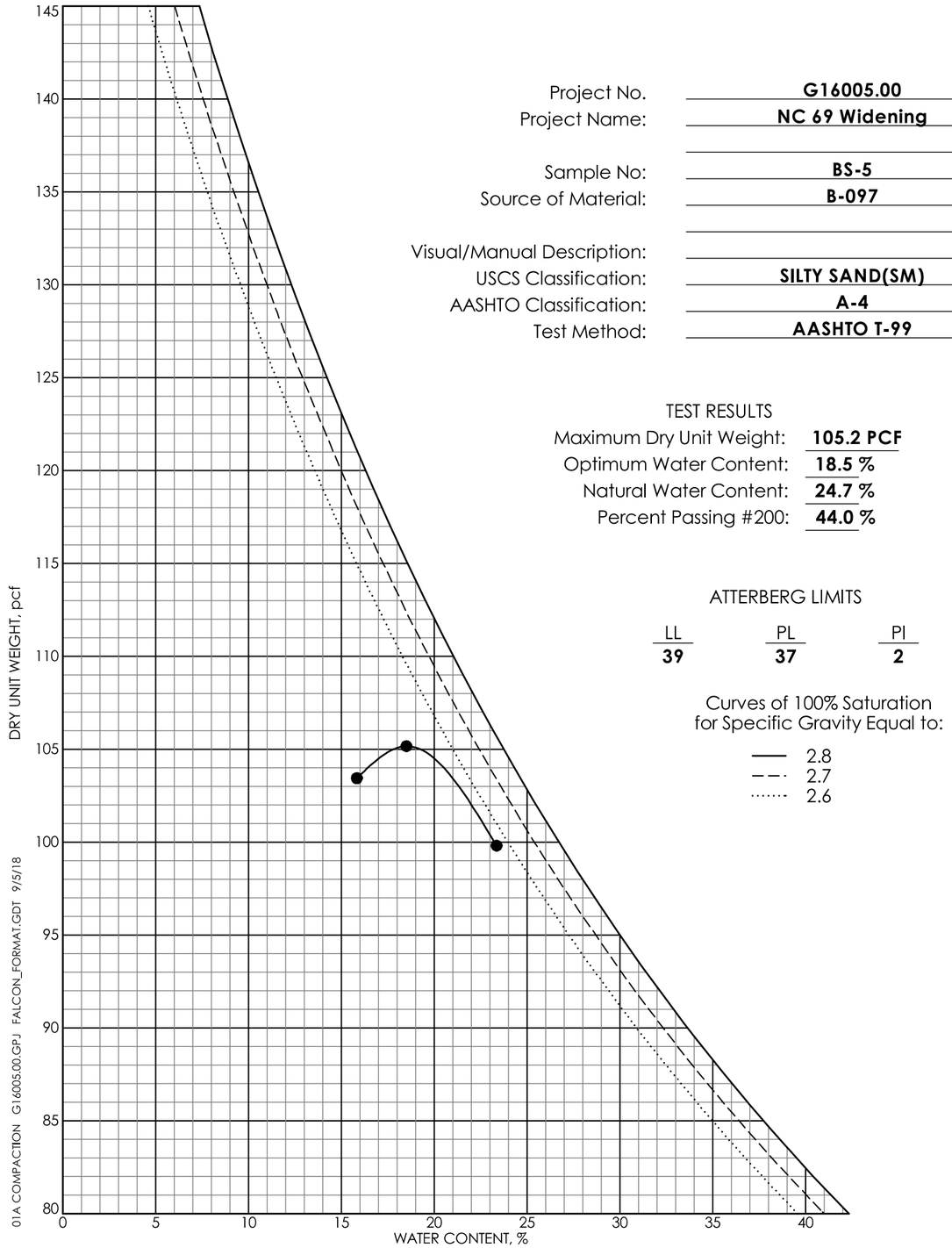
LABORATORY COMPACTION TEST RESULTS

9/5/2018



Project No.	G16005.00
Project Name:	NC 69 Widening
Sample No:	BS-5
Source of Material:	B-097
Visual/Manual Description:	
USCS Classification:	SILTY SAND(SM)
AASHTO Classification:	A-4
Test Method:	AASHTO T-99

TEST RESULTS

Maximum Dry Unit Weight:	105.2 PCF
Optimum Water Content:	18.5 %
Natural Water Content:	24.7 %
Percent Passing #200:	44.0 %

ATTERBERG LIMITS

LL	PL	PI
39	37	2

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.8
- 2.7
- 2.6

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

CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

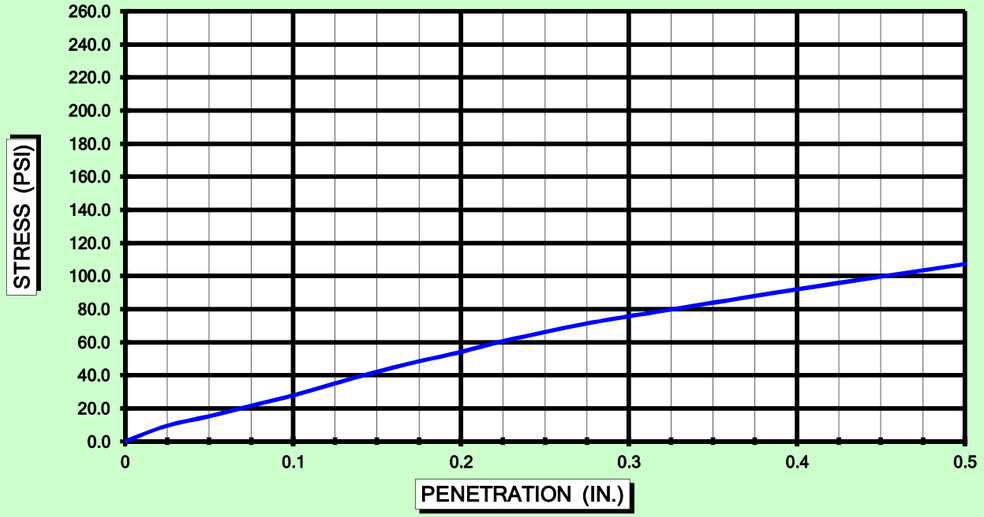
AASHTO T-193 \ ASTM D-1883

PROJECT #:	G16005.00			DATE:	8/17/2018
PROJECT NAME:		NC 69 Widneing			
BORING:	B-97	SAMPLE:	BS-5	DEPTH:	1.0'-10.0'
SOIL DESCRIPTION:					

COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	105.3 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	18.1%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	10 lb.
DRY DENSITY	103.2 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	17.9%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.0%	SWELL	0.70%

	ACTUAL	CORRECTED
CBR VALUE AT .1"	2.8	
CBR VALUE AT .2"	3.6	

STRESS-PENETRATION CURVE



LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX

PROJECT REFERENCE NO.	SHEET NO.
A–0011C	87

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX C
CORE LOGS AND PHOTOGRAPHS

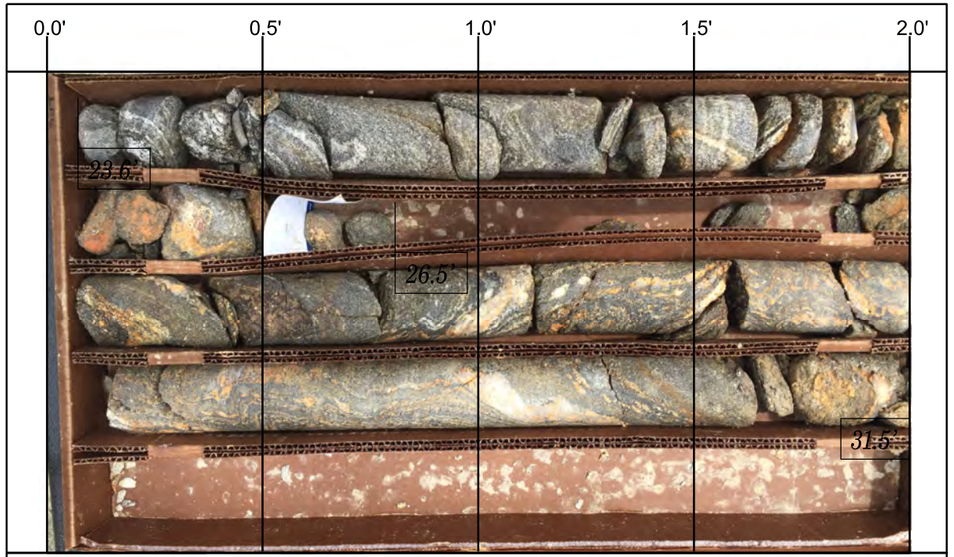
REFERENCE: A–0011C

PROJECT: 32574

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 32574.1.FD7	**TIP** A-0011C	**COUNTY** CLAY	**GEOLOGIST** Weis, J.
SITE DESCRIPTION NC 69 ROAD WIDENING FROM GA STATE LINE TO US 64 (HAYESVILLE BYPASS)			**GROUND WTR (ft)**
BORING NO. L_11196_74LT	**STATION** 111+96	**OFFSET** 74 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 31.5 ft	**NORTHING** 494,077	**EASTING** 555,716	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER Estep, J. E.	**START DATE** 05/17/18	**COMP. DATE** 05/17/18	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ2	**TOTAL RUN** 7.9 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS	ELEV. (ft) / DEPTH (ft)
											Begin Coring @ 23.6 ft	
		23.6	2.9	3:08/0.9 2:08/1.0 1:31/1.0	(2.0) 69%	(0.0) 0%		(2.0) 69%	(0.0) 0%		BLACK AND WHITE, MOD. TO FRESH WEATHERING, VERY CLOSE TO CLOSELY FRACTURED, MED. HARD TO HARD MICA SCHIST	23.6
		26.5										26.5
			5.0	1:42/1.0 1:41/1.0 1:37/1.0 1:52/1.0 0:57/1.0	(4.0) 80%	(2.0) 40%		(4.0) 80%	(2.0) 40%		BLACK AND WHITE, MOD. TO FRESH WEATHERING, VERY CLOSE TO CLOSELY FRACTURED, MED. HARD TO HARD BIOTITE SCHIST	
		31.5										31.5
											Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Depth 31.5 ft IN CRYSTALLINE ROCK: MICA SCHIST	



BORING 16393_52RT, BOX 1 OF 1, 23.6 FEET TO 31.5 FEET.

0 4" 8"
INCHES

FALCON ENGINEERING
FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
RALEIGH, NC 27607
PHONE: 919.871.0800

ROCK CORE PHOTOS

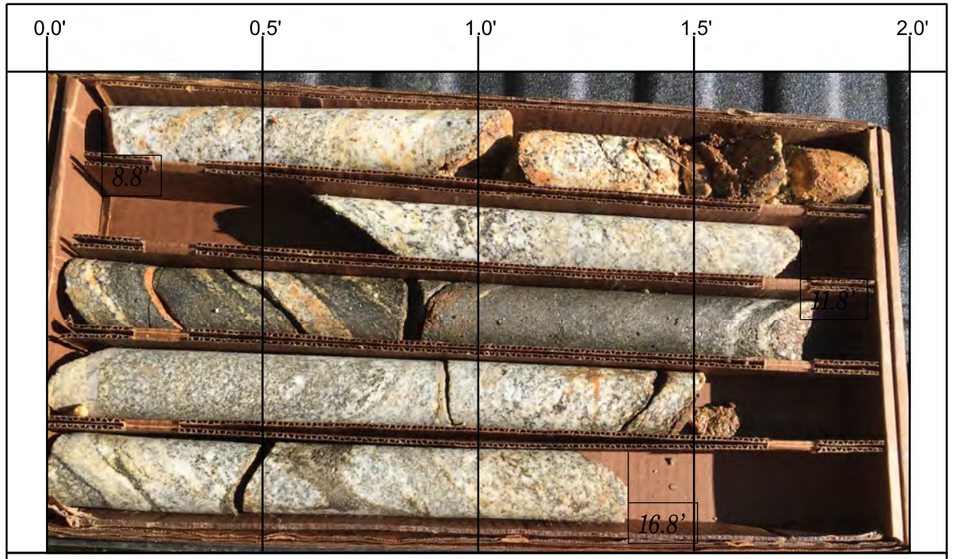
NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

NCDOT CORE SINGLE A011C_GEO_RDWY_GINT.GPJ NC_DOT.GDT 9/28/18

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 32574.1.FD7	**TIP** A-0011C	**COUNTY** CLAY	**GEOLOGIST** Weis, J.
SITE DESCRIPTION NC 69 ROAD WIDENING FROM GA STATE LINE TO US 64 (HAYESVILLE BYPASS)			**GROUND WTR (ft)**
BORING NO. L_16393_52RT	**STATION** 163+93	**OFFSET** 52 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 16.8 ft	**NORTHING** 498,745	**EASTING** 555,272	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Estep, J. E.	**START DATE** 05/24/18	**COMP. DATE** 05/24/18	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ2	**TOTAL RUN** 8.0 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS	ELEV. (ft) / DEPTH (ft)
											Begin Coring @ 8.8 ft	
		8.8	3.0	1:38/1.0 1:42/1.0 1:35/1.0	(2.8) 93%	(2.2) 73%		(2.8) 93%	(2.2) 73%		BLACK AND WHITE, MODERATE TO FRESH WEATHERING, VERY CLOSE TO MODERATLY CLOSE FRACTURING, MEDIUM HARD TO HARD, MICA SCHIST	8.8 11.8
		11.8	5.0	2:12/1.0 2:14/1.0 1:55/1.0 1:58/1.0 2:05/1.0	(5.0) 100%	(3.8) 76%		(5.0) 100%	(3.8) 76%		BLACK TO BLACK AND WHITE, MODERATE TO FRESH WEATHERING, VERY CLOSE TO MODERATLY CLOSE FRACTURING, MEDIUM HARD TO HARD, BIOTITE GNEISS TO MICA SCHIST	16.8
		16.8									Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Depth 16.8 ft IN CRYSTALLINE ROCK: MICA SCHIST	



BORING L_16393_52RT, BOX 1 OF 1, 8.8 FEET TO 16.8 FEET.

0 4" 8"

INCHES

FALCON ENGINEERING

FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
RALEIGH, NC 27607
PHONE: 919.871.0800

ROCK CORE PHOTOS

NC 69 FROM GEORGIA STATE LINE TO US 64
CLAY COUNTY, NORTH CAROLINA
WBS NO.: 32574.1.FD7 | TIP NO.: A0011C
FALCON PROJECT NO.: G16005.00

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 32574.1.FD7	**TIP** A-0011C	**COUNTY** CLAY	**GEOLOGIST** Goodnight, D.
SITE DESCRIPTION NC 69 ROAD WIDENING FROM GA STATE LINE TO US 64 (HAYESVILLE BYPASS)			**GROUND WTR (ft)**
BORING NO. L_19600_32RT	**STATION** 196+00	**OFFSET** 32 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 11.3 ft	**NORTHING** 501,473	**EASTING** 556,838	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER Estep, J. E.	**START DATE** 06/18/18	**COMP. DATE** 06/18/18	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ2	**TOTAL RUN** 9.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft) / DEPTH (ft)
											Begin Coring @ 2.3 ft
		2.3	4.0	2:40/1.0 2:11/1.0 1:49/1.0 3:30/1.0	(3.9) 98%	(2.8) 70%		(8.8) 98%	(7.1) 79%		**CRYSTALLINE ROCK** 2.3 GRAY, V. SLIGHT TO FRESH WEATHERING, MODERATELY HARD TO HARD, CLOSELY TO MEDIUM CLOSELY FRACTURED, BIOTITE GNEISS
		6.3	5.0	2:53/1.0 2:40/1.0 2:18/1.0 2:32/1.0 2:34/1.0	(4.9) 98%	(4.3) 86%					11.3
		11.3									Boring Terminated at Depth 11.3 ft IN CRYSTALLINE ROCK: BIOTITE GNEISS

BORING L_19600_32RT, BOX 1 OF 1, 2.3 FEET TO 11.3 FEET.

0 4" 8"
INCHES

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